

Fuest, Clemens; Hugger, Felix; Sultan, Samina; Xing, Jing

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What drives Chinese overseas M&A investment? Evidence from micro data

Clemens Fuest^{1,2} | Felix Hugger²  | Samina Sultan² | Jing Xing³

¹ifo Institute, Munich, Germany

²Ludwig-Maximilians-Universität, Munich, Germany

³Antai College of Economics and Management, Shanghai Jiao Tong University, Shanghai, China

Correspondence

Felix Hugger, Ludwig-Maximilians-Universität, Schackstraße 4, 80539 Munich, Germany.

Email: felix.hugger@econ.lmu.de

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Abstract

In recent years Chinese foreign acquisitions have increased significantly. In Europe and the United States, these investments are often criticized. Critics argue that Chinese investors outbid competitors with help from their government, that the acquisitions lead to undesirable technology transfer, or that they may have negative consequences for the employees of the target firm. We use a large deal-level dataset on cross-border acquisitions to investigate whether Chinese foreign acquisitions differ from cross-border investment coming from other countries. We find that relative to non-Chinese investors, Chinese acquirers indeed appear to be different in some dimensions. They focus on targets with higher debt levels and lower profitability. At the same time, they do not seem to pay more for targets with given characteristics, questioning the view that they are subsidized to outbid other investors. Policy initiatives like the Belt and Road Initiative and Made in China 2025 influence state-owned but not private Chinese investors, suggesting that geopolitical or technology interests play a role. In the years after the takeover, target companies acquired by Chinese investors exhibit lower growth in capital productivity but a higher growth of employee compensation.

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KEY WORDS

acquisitions, foreign direct investment, government policy and regulation

JEL CLASSIFICATION

F21; F23; G34; G38

1 | INTRODUCTION

In recent years, Chinese investors have significantly increased their foreign investment activities especially in the form of cross-border mergers and acquisitions (M&As). In many European countries and the United States, Chinese M&As arouse suspicion.¹ Critics claim that Chinese acquisitions lead to undesirable technology transfers, that Chinese acquirers enjoy unfair advantages because of government subsidies, or that their acquisitions are motivated strategically with the objective to gain market dominance or to increase China's political influence in the target countries.² There are also concerns that Chinese takeovers may have adverse consequences for the employees of the target firms. According to a recent survey by the ifo Institute, for example, economists from 74% of the countries surveyed are more critical of foreign investment from China than of that from other countries (ifo Institute, 2019). At the same time, there are legitimate reasons for the surge in Chinese investment abroad. China has invested the revenue from its trade surplus primarily in US government bonds for a long time. Thus, diversifying its foreign investment through cross-border M&As seems perfectly rational. For many Chinese firms, foreign acquisitions are also a way to ensure access to customers or key suppliers, in particular of raw materials. The debate on Chinese foreign M&A activities, however, is mostly based on speculations and anecdotes. Despite a growing number of studies on Chinese overseas investment, there is surprisingly little systematic evidence on whether Chinese cross-border M&As differ from investment coming from other countries. As Buckley et al. (2018) conclude, “[...] the degree to which China is truly different from the advanced economies, or from other emerging economies, is worthy of debate” (Buckley et al., 2018, p. 18).

The objective of this paper is to fill this gap by examining whether Chinese cross-border acquisitions differ from foreign acquisitions of investors from other countries. Specifically, we address three questions: First, how do Chinese acquirers select their targets? Second, do Chinese acquirers pay more in a takeover? Third, what are the effects of a Chinese acquisition on the target firm?

Unlike previous quantitative studies that mostly use aggregate data, we use an extensive deal-level dataset. This allows us to analyze not only the effect of country-level factors on foreign M&As, but also how target-level characteristics impact such cross-border transactions. Instead of focusing solely on Chinese cross-border M&As, we use a logit model to directly compare the drivers of Chinese foreign acquisitions with those of non-Chinese investments. Such an approach has not been carried out before on a comparable scale.

On the question of target selection, we find that Chinese overseas M&As are distinct from non-Chinese cross-border investments in several dimensions. For example, Chinese acquirers seem less concerned about market size and conduct more deals in investment hubs. Chinese companies also tend to acquire targets with lower profitability, more assets, higher levels of debt, and more patents. In contrast, we do not find that target countries' institutional qualities, such as political stability and the rule of law, play a different role in determining Chinese cross-border acquisitions than they do for non-Chinese investors.

At the same time, we uncover rich differences between private and state-owned Chinese acquirers (SOEs), which appear to be attracted to distinctive sets of target-level and target country-level characteristics. For example, Chinese SOEs and private investors are differently affected by recent Chinese government policies like the Belt and Road Initiative (BRI) or Made in China 2025. While we find these government initiatives to have a significant impact on the location and industry choices of Chinese SOEs' overseas acquisitions, they do not appear to influence those of Chinese private investors.

Whether the prevailing critical attitude toward Chinese cross-border M&As is justifiable also requires a comparison between Chinese SOEs and state-owned investors from elsewhere, which has not been conducted before. Based on a sample of government-led acquisitions, we find no significant difference between Chinese and non-Chinese SOEs in seeking natural resources or industry diversification. Chinese SOEs, however, do tend to purchase larger targets with poorer financial performance.

Another critique of Chinese acquirers is that they systematically outbid other investors, benefitting from government support. This in turn may distort the global M&A market, with potentially negative economic consequences for the target countries. To shed light on this debate we use our detailed deal-level dataset and examine whether Chinese investors pay higher acquisition prices. Contrasting the view that Chinese companies pay premiums to win bids, we do not find that Chinese investors pay more for similar target firms compared to non-Chinese acquirers.

Finally, a key question is whether Chinese acquisitions have a different impact on the development of target firms or their employees. We find that post-merger performance differs in two dimensions. First, growth in measures of capital productivity, defined as the ratio of turnover and value-added to total assets, is lower in the short run, mostly because Chinese acquirers seem to invest more after the takeover. Second, the growth of employee compensation is higher. Since most Chinese foreign acquisitions happened relatively recently, the number of cases where we can observe post-merger performance is limited, though.

The rest of the paper is structured as follows. In the next section, we provide a brief review of the related literature. Section 3 describes our data and sample construction. We provide descriptive statistics in the Section 4 and present our empirical analysis in Sections 5–7. Section 8 concludes.

2 | RELATED LITERATURE

This paper is related to several strands of literature. Our first research question focuses on the determinants of Chinese acquisitions. Determinants for foreign investment have been the topic of extensive academic research, resulting in a long list of factors suggested to influence cross-border M&As. This list includes access to resources and technology, entry to foreign markets, diversification, geographic proximity, bilateral trade, and relative valuations in currencies and stock markets (Erel et al., 2012); domestic financial market development (Di Giovanni, 2005); accounting disclosure and accounting standards (Erel et al., 2012; Rossi & Volpin, 2004); shareholder protection and corporate governance (Kim & Lu, 2013); cultural differences (Ahern et al., 2015); and social attitudes (Dinc & Erel, 2013); target and home countries' institutional qualities such as political stability and the rule of law (Brockman et al., 2013; Erel et al., 2012; Jandik & Kali, 2009); regulatory arbitrage (Alimov, 2015; Karolyi & Taboada, 2015); and taxes (Huizinga & Voget, 2009). Some argue that no new theoretical framework is needed to explain Chinese foreign investment as the same list of economic and institutional factors should similarly affect both Chinese and non-Chinese cross-border M&As (Alon et al., 2009; Rugman, 2010). Others believe that Chinese multinational companies are distinctive (Boisot & Meyer, 2008; Buckley et al., 2009; Child & Rodrigues, 2005). Despite these

contrasting views, there is a lack of systematic quantitative analysis that compares the patterns of Chinese cross-border M&As with those of other investors.

Following the seminal work of Buckley et al. (2009), there has been an increasing number of studies on the determinants of Chinese outward greenfield investment (e.g. Kolstad & Wiig, 2012; Lu et al., 2011). However, there are much fewer quantitative studies on Chinese cross-border M&A activities, even though they have become the main form of outward foreign direct investment by Chinese firms and may be influenced by a different set of factors (Buckley et al., 2016). Using aggregate-level data for the years 1985–2011, Buckley et al. (2016) examine country-level factors that affect the location and scale of Chinese overseas M&As. According to Buckley et al. (2016), institutional rather than economic factors make cross-border acquisitions by companies from emerging markets distinct. Consistent with this view, they find that Chinese acquirers are attracted to countries with higher risks, proxied by a poorer record of law and order. Nonetheless, Buckley et al. (2016) do not compare Chinese acquirers with investors from other countries. Therefore, their study does not answer the question whether economic and institutional features affect Chinese investors differently.

One distinct feature of Chinese investors is that many of them have close government ties. Studies on Chinese foreign greenfield investment have compared SOEs with private firms and uncovered significant differences (Amighini et al., 2013; Duanmu, 2012; Luo et al., 2017; Ramasamy et al., 2012). For example, SOEs are less concerned about political risk in the target country, less market-oriented, and more resource-seeking in their investment decisions. Nevertheless, the contrast between state-owned and private acquirers may not be China-specific. Comparing cross-border M&As by both private and government-led acquirers around the globe, Karolyi and Liao (2017) find that pursuing targets in countries with rich natural resources and a high potential to diversify industrial structures are common features of government-backed acquirers in general. Therefore, to answer the question of whether Chinese cross-border M&As are different, it is important to compare Chinese state-owned acquirers with other government-led acquirers. To the best of our knowledge, we are the first to conduct such a comparison on a larger scale.

Furthermore, this paper is related to the literature on determinants of the takeover premium, and the post-takeover performance of target firms. In particular, our study is closely related to studies on the impact of acquisitions on targets' productivity (e.g. Arnold & Javorcik, 2009; Bertrand & Ziouna, 2008; Fons-Rosen et al., 2013; Schiffbauer et al., 2017). There also exists a small number of studies that examine the effects of foreign acquisitions in China on target firms' productivity (Wang & Wang, 2015; Zhang et al., 2019). Nevertheless, to the best of our knowledge, we are the first to investigate the impact of recent Chinese foreign takeovers on the performance of the target firms.

3 | DATA AND SAMPLE CONSTRUCTION

We combine data from a number of sources to construct our samples. To obtain deal-level information, we use Bureau van Dijk's Zephyr database, which contains information on worldwide M&A transactions. We only consider cross-border deals and exclude deals with multiple acquirers.³ If a firm acquires several targets in one deal, we treat each acquirer–target pair as a single transaction. Our full sample contains 157,985 completed cross-border M&A deals of which 3,283 are conducted by Chinese investors. The sample period covers the years from 2002 to 2017 and, therefore, only includes years after China's accession to the World Trade Organization. We differentiate between three types of acquirers: Chinese private acquirers, Chinese state-owned acquirers, and non-Chinese acquirers. A Chinese acquirer is regarded as an SOE if its global ultimate owner is state-owned or state-controlled. Following this definition, 1,279 deals of our full sample are conducted by Chinese SOEs.

As financial information about the targets and acquirers is limited in Zephyr, we use Bureau van Dijk's Orbis database to obtain financial and ownership information on both targets and acquirers. Each target or acquirer is assigned a unique identifier by Bureau van Dijk, which allows us to link Zephyr with Orbis. Table A1 in the Appendix provides the definitions of target-level variables in our analysis.

For analyses and estimations, we further restrict the sample. First, we focus on deals where at least 50% of the target's shares are purchased and exclude deals where the target country is unknown. We also drop deals where the target reports non-positive total assets, turnover, or employees, and where the target's intangible fixed assets are greater than its total assets. To ensure comparability, we only keep targets acquired once during our sample period. This leaves us with a total of 72,056 deals, of which 1,168 are conducted by Chinese private investors and 732 by Chinese SOEs (see Table 1).

We augment the deal-level data with target country-level variables from various sources. General macroeconomic variables like GDP, exchange rate, population, and the share of resource rents in GDP are obtained from the World Bank's World Development Indicators (WDI). We use CEPII data for a population-weighted distance measure from the target country to China. The UN Comtrade database provides us with the trade volume between the target country and China. To identify investment hubs, we rely on an OECD definition.⁴ To measure institutional quality, we use the World Bank's World Governance Indicators (WGI) on the rule of law, control of corruption, political stability, and regulatory strength. Table A3 in the Appendix provides more details on the definitions of these country-level variables.

4 | DESCRIPTIVE STATISTICS

This section first provides some general descriptive statistics on Chinese and non-Chinese cross-border acquisitions. We then describe target country-level characteristics in more detail before looking at target firm-level characteristics.

Figure 1 shows the number and value of cross-border acquisitions by type of acquirer for 2002–2017.⁵ For non-Chinese acquisitions (Panel A), we observe a peak in both the number of deals and in transaction volume around 2006/2007 and a significant drop during the 2008/2009 financial crisis. Since around 2012, there is a gradual recovery of global cross-border M&As. These patterns are consistent with observations made elsewhere (European Commission, 2018). Panel B shows that the evolution of Chinese cross-border acquisitions is rather different from the global trend. In particular, there was a spike in the number of Chinese cross-border transactions in 2008, in contrast to the dip in global M&A activities. Over the full sample period, both the number and the volume of Chinese overseas acquisitions increase substantially.

TABLE 1 Summary statistics by acquirer type based on the estimation sample

Acquirer type	Number of deals		Mean deal value (in million EUR)	Median deal value (in million EUR)
	All	With deal value		
CN private	1,168	577	159.0	20.0
CN SOE	732	391	394.3	54.6
Non-CN	70,156	21,038	263.8	23.1
Total	72,056	22,006	263.4	23.0

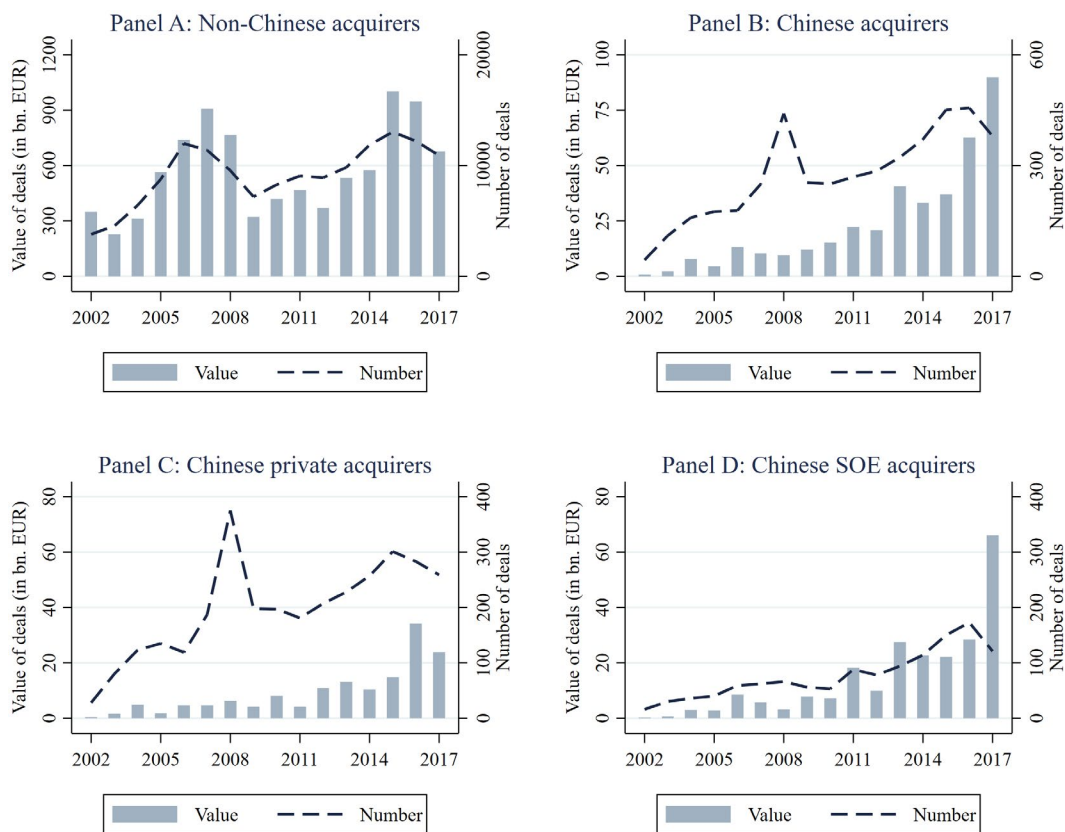


FIGURE 1 Number and value of deals by acquirer type. This figure shows the development of the number and value of deals over the sample period 2002–2017. We differentiate between different deal categories depending on the nature of the acquirer: Non-Chinese acquirers (Panel A) and Chinese acquirers (Panel B). We furthermore decompose Chinese acquirers into private firms (Panel C) and SOEs (Panel D). The number of deals is reported in the right-hand scale and the value of deals is reported in the left-hand scale (in constant billion Euros with base year 2015) [Colour figure can be viewed at wileyonlinelibrary.com]

In Panels C and D, we distinguish between Chinese private and state-owned acquirers. This reveals that while there are fewer acquisitions by Chinese state-owned acquirers, these companies tend to conduct larger deals. For both private and state-owned acquirers, the total value of acquisitions rises sharply over time. Since 2011, however, the rise is more prominent for acquisitions by SOEs. The spike in the number of deals in 2008 shown in Panel B is largely driven by the activities of Chinese private acquirers. Table 1 summarizes the number of deals, as well as the mean and median deal values by acquirer types. Deal value data are available for about half of the Chinese transactions and for about one third of non-Chinese acquisitions. Table 1 confirms that Chinese SOEs are involved in larger deals than other acquirers, which is reflected by substantially higher mean and median deal values. In contrast, Chinese private acquirers tend to conduct deals of similar sizes to non-Chinese acquirers.

There are also notable differences across the three types of investors in terms of the target share they acquire. Figure 2 shows that Chinese SOEs predominantly engage in full or majority acquisitions. In contrast, a larger percentage of acquisitions by Chinese private or non-Chinese investors takes the form of gradual increases in stakes. This could reflect that Chinese SOEs follow a less cautious investment strategy or are less financially constrained than other investors.

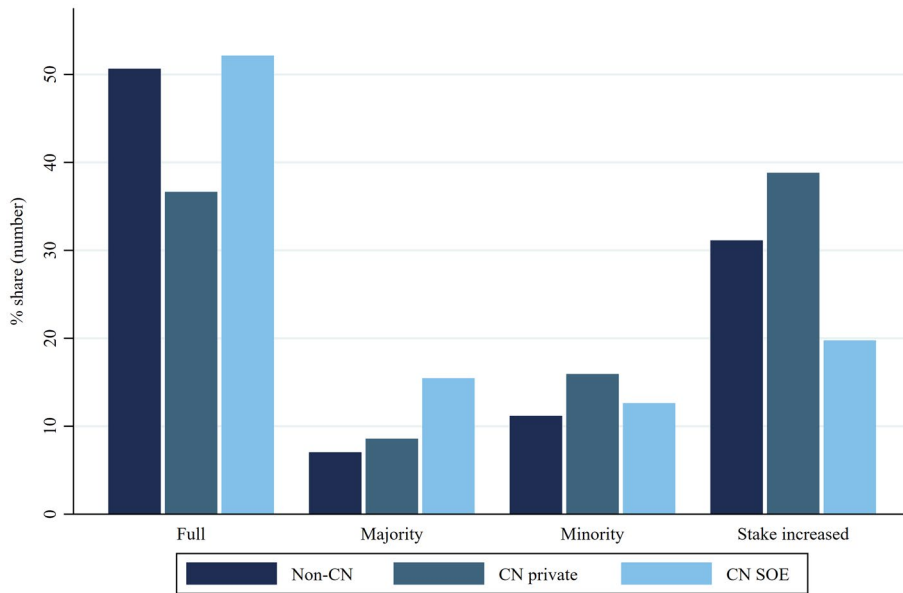


FIGURE 2 Types of deals by share acquired. This figure shows the share of different types of deals for the three types of acquirers. *Full* means that 100% of the target firm were acquired. *Majority* means that at least 50% but less than 100% were acquired. *Minority* means that less than 50% were acquired. *Stake increased* means that the acquirer already owned a share of the target firm and increased this share [Colour figure can be viewed at wileyonlinelibrary.com]

Next, we look at the geographical distribution of M&A deals by acquirer group. Figure 3 shows that a major share of global cross-border M&As takes place in Europe, which amounts to 66.6% of transactions by non-Chinese acquirers, 47.5% by Chinese SOEs, and 38.2% by Chinese private acquirers. Around 15%–20% of global cross-border acquisition targets are located in North America. Significant differences between Chinese and non-Chinese acquirers emerge in other regions. There are more transactions by Chinese acquirers in the East Asia and Pacific region, as well as in Latin America and the Caribbean.

Table 2 offers a more detailed look at the distribution of deals by target country and acquirer type. Target countries are ranked based on the number of Chinese private acquisitions. For each target country, we provide the number of deals, the total deal value, and the corresponding sample percentages. A large share of Chinese private acquisitions occurs in investment hubs. In terms of the number of deals, the British Virgin Islands lead the list for Chinese private acquirers. Chinese SOEs also have substantial M&A activities in the British Virgin Islands, Cayman Islands, and Bermuda. In contrast, investment hubs are less popular with non-Chinese acquirers. In addition, Table 2 again shows the geographic preference of Chinese acquirers for Asia and Pacific countries. Based on the total value of deals, a much higher share of Chinese acquisitions happens in Australia, Japan, Malaysia, and Singapore, relative to non-Chinese acquisitions. There is no indication that Chinese acquirers invest more in BRIC countries (excluding China), as their investment pattern in Brazil, Russia, and India is not widely different from that of non-Chinese acquirers.

Last, we consider target-level determinants of M&A activities. Table 3 compares the acquirer types regarding the means of assets, leverage, return on assets (ROA), share of intangibles, assets growth, and patents of targets. We also conduct a *t*-test to formally examine whether the sample means of these target-level factors are different between the acquirer types. The descriptive statistics reveal

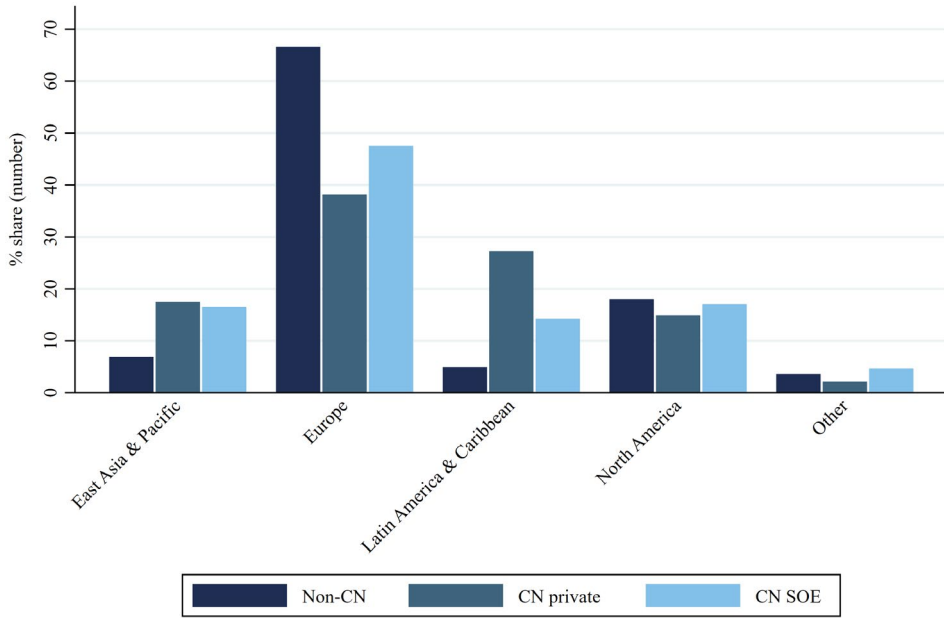


FIGURE 3 Distribution of cross-border M&As by target region. This figure shows the distribution of cross-border M&As in different regions. The category *Other* includes countries in Central Asia, Sub-Saharan Africa, Middle East and North Africa, and South Asia [Colour figure can be viewed at wileyonlinelibrary.com]

some interesting heterogeneities. Relative to non-Chinese investors, Chinese acquirers purchase larger targets in terms of total assets. Moreover, Chinese private firms tend to purchase targets with significantly lower ROA but with more patents than non-Chinese investors.⁶

5 | HOW DO CHINESE ACQUIRERS SELECT THEIR TARGETS?

The first question we address in this study is whether Chinese overseas acquisitions have different rationales and patterns than non-Chinese investments. To shed light on this issue, we employ the deal-level data and estimate the following logit regression model:

$$Pr(CN_{i,j,t} = 1) = F(\beta_0 + \mu X_{i,t}^{TF} + \gamma Z_{j,t}^{TC} + Deal\ Year\ FE + \varepsilon_{i,j,t}), \tag{1}$$

where the dependent variable is a dummy indicating whether target *i* in country *j* in year *t* is purchased by a Chinese acquirer. In some estimations, we also differentiate between private Chinese firms and SOEs.⁷ $X_{i,t}^{TF}$ is a set of target firm-level characteristics and $Z_{j,t}^{TC}$ is a set of target country-level characteristics. The coefficients of interest are μ and γ , which indicate how various target firm-level and target country-level characteristics influence the probability of a target being acquired by a Chinese firm. If a coefficient is not statistically significant, the corresponding characteristic is either not important for all investors or equally important for Chinese and non-Chinese investors. We include deal year fixed effects in all specifications to control for general time trends. In some specifications, we also control for industry and target country fixed effects. Standard errors are robust and clustered at the target firm level.

TABLE 2 Number of deals and deal value by target countries and acquirer type

Target country	Number of deals						Total deal value (in million EUR)					
	Non-Chinese		CN private		CN SOE		Non-Chinese		CN private		CN SOE	
	Count	%	Count	%	Count	%	Value	%	Value	%	Value	%
Virgin Isl.	553	0.79	223	19.09	54	7.38	22,340	0.38	12,898	13.76	8,474	5.41
United States	9,885	14.09	138	11.82	90	12.30	2,061,414	34.89	25,790	27.50	4,938	3.15
Gr. Britain	10,105	14.40	104	8.90	61	8.33	967,109	16.37	4,758	5.07	18,992	12.13
Germany	4,897	6.98	84	7.19	87	11.89	212,247	3.59	1,519	1.62	2,923	1.87
Cayman Isl.	271	0.39	76	6.51	24	3.28	47,186	0.8	4,535	4.84	9,968	6.36
Singapore	682	0.97	47	4.02	24	3.28	36,608	0.62	4,023	4.29	6,441	4.11
Australia	2,118	3.02	46	3.94	46	6.28	163,839	2.77	4,909	5.24	15,561	9.94
France	3,032	4.32	34	2.91	19	2.60	185,400	3.14	118	0.13	2,314	1.48
Italy	1,720	2.45	23	1.97	22	3.01	83,315	1.41	2,229	2.38	359	0.23
Japan	280	0.40	23	1.97	8	1.09	26,175	0.44	1,865	1.99	565	0.36
Netherlands	3,234	4.61	23	1.97	27	3.69	315,270	5.34	3,185	3.40	1,675	1.07
Spain	3,144	4.48	22	1.88	41	5.60	111,175	1.88	2,937	3.13	2,175	1.39
Malaysia	475	0.68	21	1.80	19	2.60	7,483	0.13	2,533	2.70	489	0.31
Bermuda	142	0.20	20	1.71	12	1.64	57,152	0.97	8,156	8.7%	3,721	2.38
Canada	2,602	3.71	16	1.37	23	3.14	256,285	4.34	361	0.38	17,999	11.49
Belgium	1,482	2.11	14	1.20	5	0.68	78,600	1.33	229	0.24	1,890	1.21
India	239	0.34	13	1.11	6	0.82	35,634	0.60	39	0.04	48	0.03
Switzerland	1,296	1.85	12	1.03	8	1.09	113,653	1.92	4,355	4.64	37,432	23.90
Russia	1,727	2.46	11	0.94	4	0.55	106,778	1.81	78	0.08	3,155	2.01
Brazil	1,005	1.43	8	0.68	15	2.05	63,985	1.08	914	0.98	2,033	1.30
RoW	21,267	30.32	210	17.99	137	18.7	955,940	16.19	8,336	8.90	15,474	9.87
World	70,156	100	1,168	100	732	100	5,907,588	100	93,767	100	156,626	100

Notes: This table shows the number of deals and total deal value by target country and acquirer type. Total deal value is reported in constant million EUR with base year 2015. Target countries are ranked based on the number of Chinese private acquisitions.

TABLE 3 Target-level characteristics by acquirer type

Variable	Non-CN	All CN	<i>t</i> -test of equal means (<i>p</i> -value)	CN SOE	<i>t</i> -test of equal means (<i>p</i> -value)	CN private	<i>t</i> -test of equal means (<i>p</i> -value)
Total assets	101,189	702,026	0.0000	858,103	0.000	581,966	0.000
Leverage	0.191	0.256	0.7779	0.252	0.862	0.260	0.824
ROA	0.003	-0.045	0.0317	0.002	0.982	-0.080	0.005
Intangibles %	0.050	0.056	0.3705	0.055	0.570	0.056	0.483
Asset growth	14.258	4.942	0.8462	1.003	0.853	8.142	0.925
Patents	4.927	22.357	0.0003	8.927	0.568	30.819	0.000

Notes: This table reports the sample means of target size, leverage, return on assets (ROA), the share of intangibles in total assets, asset growth, and number of patents. Sample means are reported for each variable for targets acquired by non-Chinese, all Chinese, Chinese state-owned, and Chinese private investors, separately. The *t*-tests test the null hypothesis of equal sample means between targets acquired by non-Chinese and Chinese investors, between targets acquired by non-Chinese and Chinese state-owned investors, and between targets acquired by non-Chinese and Chinese private investors. *p*-values from the associated *t*-tests are reported. For definitions of target-level variables listed here, see Table A1 in the Appendix.

5.1 | Effects of target country characteristics

We first examine how target country characteristics affect the probability of a target being acquired by a Chinese company as opposed to a non-Chinese investor. We consider a set of country-level economic indicators frequently employed in the literature. We use three variables to proxy for market size: $\ln(GDPPC)$ is the log of real gross domestic product (GDP) per capita in the target country, *GDP growth* is the target country's annual real GDP growth rate, and $\ln(Population)$ is the log of a target country's population. Cross-border M&As may also be influenced by geographic proximity and trade volume. *Distance* is the population-weighted distance between China and the target country and $\ln(Trade)$ measures the log of the bilateral trade volume between China and the target country. We construct a dummy variable *TaxHaven* that equals 1 if a target country is regarded as an investment hub. To investigate whether Chinese cross-border M&As are more attracted to countries abundant in natural resources, we use the variable *Resourcerents* measuring total resource rents relative to the target country's GDP. We further consider two variables associated with economic risk in the target country: *Inflation* is the annual inflation rate in the target country; $\Delta Exchange\ rate$ is the rate of appreciation of the target country's currency against the Chinese Renminbi (RMB), where a negative value stands for a depreciation of the RMB. Institutional qualities in target countries are often considered to influence cross-border M&As. Using the World Bank's World Governance Indicators, we control for four institutional quality indicators: *Political stability*, *Regulatory quality*, *Rule of law*, and *Control of corruption*. A larger value in these variables indicates better institutional qualities in the target country.

Table 4 reports the estimated marginal effects based on the logit model, focusing on target country characteristics. Column (1) of Table 4 shows that relative to non-Chinese acquirers, Chinese acquirers tend to conduct acquisitions in countries with lower GDP per capita, lower GDP growth, and a smaller population. This suggests that Chinese cross-border M&As are less motivated by market size. As expected, being geographically closer to China and having a larger trade volume with China both increase the probability of Chinese cross-border acquisitions. Chinese investors also show a strong preference for targets in investment hubs, consistent with the previous descriptive analysis. A potential explanation for this result is the existence of capital controls in China. Successfully bidding for firms requires the ability to make large international payments at short notice. This may require Chinese companies to set up holding companies abroad. Investment hubs may offer the easiest way to do so. We do not find that the estimated marginal effect on *Resourcerents* is statistically significant. Relative to other investors, Chinese acquirers tend to avoid inflation risks, as the estimated marginal effect on inflation is negative and significant. However, they do not seem to be particularly concerned about currency risks. We control for *Political stability* in Column (2), *Regulatory quality* in Column (3), *Rule of law* in Column (4), and *Control of corruption* in Column (5) of Table 4. However, we find no evidence that these institutional qualities of target countries affect decisions on Chinese overseas acquisitions differently, as the estimated marginal effects on all four indicators are insignificant.

In Columns (6) and (7), we differentiate between Chinese private and state-owned acquirers. The investment strategy of the two types of Chinese acquirers appears similar in many dimensions. However, some target country characteristics have different effects on the two. First, the strong preference for investment hubs is unique to Chinese private acquirers, while the difference between Chinese SOEs and non-Chinese acquirers is not significant in this dimension. Second, while Chinese private acquirers are less likely to purchase targets in resource-rich countries, the opposite is true for Chinese SOEs. Thus, seeking natural resources is a motivation for Chinese state-owned acquirers only. Third, Chinese private investors tend to invest in countries where the currency depreciates against the RMB, but the reverse holds for Chinese SOEs. This suggests that Chinese SOEs may be less concerned

TABLE 4 Target country characteristics and probability of Chinese acquisitions

Probability of being acquired by	All CN		(3)	(4)	(5)	CN	
	(1)	(2)				private	CN SOE
Ln(GDP/PC)	-0.009*** (0.001)	-0.008*** (0.001)	-0.007*** (0.002)	-0.008*** (0.002)	-0.009*** (0.002)	-0.005*** (0.001)	-0.004*** (0.001)
GDP growth	-0.001* (0.000)	-0.001* (0.000)	-0.000 (0.000)	-0.001* (0.000)	-0.001* (0.000)	-0.000 (0.000)	-0.001*** (0.000)
Ln(Population)	-0.009*** (0.001)	-0.009*** (0.001)	-0.009*** (0.001)	-0.009*** (0.001)	-0.009*** (0.001)	-0.005*** (0.001)	-0.004*** (0.001)
Distance	-0.002*** (0.000)	-0.002*** (0.000)	-0.002*** (0.000)	-0.002*** (0.000)	-0.002*** (0.000)	-0.001*** (0.000)	-0.000* (0.000)
Ln(Trade)	0.013*** (0.001)	0.014*** (0.001)	0.013*** (0.001)	0.013*** (0.001)	0.013*** (0.001)	0.008*** (0.001)	0.005*** (0.001)
Investment hub	0.016*** (0.005)	0.015*** (0.005)	0.014*** (0.005)	0.015*** (0.005)	0.016*** (0.005)	0.014*** (0.003)	0.000 (0.005)
Resource rents	-0.010 (0.018)	-0.014 (0.019)	-0.020 (0.020)	-0.018 (0.020)	-0.010 (0.019)	-0.039*** (0.015)	0.021** (0.010)
Inflation	-0.001** (0.000)	-0.001** (0.000)	-0.001** (0.000)	-0.001** (0.000)	-0.001** (0.000)	-0.000* (0.000)	-0.000 (0.000)
ΔExchange rate	-0.003 (0.009)	-0.004 (0.009)	-0.002 (0.009)	-0.003 (0.009)	-0.003 (0.009)	0.012** (0.006)	-0.014*** (0.004)
Political stability		-0.002 (0.002)					
Regulatory quality			-0.003 (0.002)				

(Continues)

TABLE 4 (Continued)

Probability of being acquired by	All CN		CN private		CN SOE		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Rule of law				-0.002 (0.002)			
Control of corruption					-0.000 (0.001)		
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
No. of observations	63,085	63,085	63,085	63,085	63,085	62,536	62,373

Notes: This table considers how target country-level economic and institutional characteristics affect the likelihood of a Chinese cross-border acquisition. Marginal effects from logit estimations based on Equation (1) are reported. Standard errors are robust and clustered at the target firm level.

* $p < .10$; ** $p < .05$; *** $p < .01$.

about costs due to exchange rate risks. In unreported exercises, we include the four indicators for institutional qualities and compare the two types of Chinese acquirers with international acquirers. We continue to find that institutional qualities of target countries do not affect Chinese acquirers in a distinct way, regardless of their ownership type.

5.2 | Effects of target industry

Using deal-level information, we are able to investigate whether Chinese acquirers are drawn to specific industries. In addition to a basic set of macroeconomic control variables, the estimations shown in Table 5 include a set of target industry dummies based on the NACE industry classification.⁸ Column 1 in Table 5 reveals that Chinese acquisitions are more likely to occur in certain industries. For example, Chinese investors are keen on targets in certain manufacturing industries, such as manufacturing of electronics, machinery, and vehicles. Consistent with resource-seeking motives, Chinese acquirers are also more likely to conduct deals in the mining sector. In contrast, firms in the information and communication industry are less likely to be targeted by Chinese acquirers.

Columns (2) and (3) of Table 5 differentiate between private and state-owned Chinese companies. Chinese SOEs are more likely to acquire agricultural firms, but the opposite is true for Chinese private firms. A similar pattern holds for targets in the utility, construction, and the mining sector. These results are consistent with the previous finding that Chinese SOEs are particularly attracted to natural resources abroad. Additionally, a comparison between Columns (2) and (3) reveals that even within the manufacturing sector, the two types of Chinese acquirers display different preferences for specific industries.

Generally speaking, we find that there are some notable differences between Chinese and non-Chinese investors in terms of their industry preferences. However, the distinction is even greater between Chinese SOEs and non-Chinese investors.

5.3 | Effects of target firm characteristics

Next, we consider target firm-level characteristics that may affect the probability of Chinese cross-border acquisitions. These include: *Industry diversity* (a dummy that equals 1 if target and acquirer are active in different industries), the log of total assets of the target firm, as well as return on assets (*ROA*), *Leverage*, *Asset growth*, *Share of intangibles*, and *Patents*. All variables except *Patents* are measured 1 year before the acquisition and are winsorized at the 1% level.

We formally analyze whether Chinese acquisitions are different from other investments by including these target-level characteristics in the logit model specified by Equation (1). Table 6 reports the corresponding results. Columns (1)–(3) suggest that Chinese acquirers prefer targets in industries different from their own, with more assets, lower profitability, higher levels of debt, and more patents. Based on our preferred specification in Column (3) where we control for both target country and target industry fixed effects, the probability of a target being acquired by a Chinese investor increases by 0.7 percentage points if the target is from a different industry than the acquirer. A 10 percentage point reduction in ROA would increase the probability of a Chinese acquisition by around 0.2 percentage points. A 10 percentage point increase in target leverage leads to a 0.13 percentage point increase in the probability of a Chinese acquisition. Consistent with the view that Chinese cross-border M&As are particularly motivated by transfers in technology and know-how, we find a marginally positive effect associated with the number of patents the target holds. If the number of patents held by the target

TABLE 5 Target industries and probability of Chinese acquisitions

Probability of being acquired by	(1)	(2)	(3)
	All CN	CN private	CN SOE
Agriculture	0.010 (0.009)	-0.009* (0.005)	0.019** (0.008)
Construction	0.001 (0.004)	-0.003 (0.003)	0.005* (0.003)
Energy, water, and gas	0.004 (0.005)	-0.003 (0.004)	0.006** (0.003)
Finance and insurance	0.004 (0.003)	-0.001 (0.002)	0.005*** (0.002)
Information and communication	-0.008*** (0.002)	-0.007*** (0.002)	-0.001 (0.001)
Manufacturing of chemicals/oil, pharma	-0.002 (0.003)	-0.007** (0.003)	0.005** (0.002)
Manufacturing of electricity and machinery	0.023*** (0.004)	0.007** (0.003)	0.017*** (0.003)
Manufacturing of metal products	0.011** (0.005)	-0.006* (0.003)	0.017*** (0.004)
Manufacturing of vehicles	0.048*** (0.010)	0.017** (0.008)	0.033*** (0.008)
Mining	0.016*** (0.006)	-0.007** (0.003)	0.025*** (0.005)
Professional/scientific/techno-logical activities	-0.004 (0.003)	-0.008*** (0.002)	0.003** (0.001)
Macro controls	Yes	Yes	Yes
Year FE	Yes	Yes	Yes
No. of observations	62,353	61,723	61,373

Notes: This table considers how target industries affect the likelihood of a Chinese cross-border acquisition. Classification of industries is based on NACE industry classification. NACE industries from 77 to 99 are used as the reference group. Marginal effects from logit estimations based on Equation (1) are reported. Standard errors are robust and clustered at the target firm level.

* $p < .10$; ** $p < .05$; *** $p < .01$.

firm increases by one standard deviation, this increases the probability of acquisition by Chinese investors by around 0.2 percentage points.⁹ Considering that only 2.6% of cross-border acquisitions are made by Chinese investors in our sample, the estimated marginal effects from ROA, leverage, and patents are rather large. There is also a positive and significant marginal effect of target size measured by total assets, but the magnitude of the effect is smaller. Based on the estimation result in Column (3), a 100 log-points increase in Size raises the probability of a Chinese acquisition by 0.6 percentage points. Neither *Asset Growth* nor the share of intangibles matter differently for Chinese acquirers relative to non-Chinese acquirers.¹⁰

TABLE 6 Target-level characteristics and probability of Chinese acquisitions

Probability of being acquired by	All CN			CN private			CN SOE		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Industry diversity	0.008 ^{**} (0.003)	0.006 (0.004)	0.007 [*] (0.004)	0.002 (0.002)	0.001 (0.003)	0.001 (0.003)	0.006 ^{**} (0.003)	0.006 [*] (0.003)	0.006 [*] (0.003)
Ln(Total assets)	0.007 ^{***} (0.001)	0.006 ^{***} (0.001)	0.006 ^{***} (0.001)	0.002 ^{***} (0.001)	0.001 [*] (0.001)	0.001 (0.001)	0.006 ^{***} (0.001)	0.005 ^{***} (0.001)	0.005 ^{***} (0.001)
ROA	-0.018 ^{***} (0.004)	-0.020 ^{***} (0.005)	-0.020 ^{***} (0.005)	-0.006 [*] (0.004)	-0.008 [*] (0.004)	-0.009 [*] (0.005)	-0.013 ^{***} (0.003)	-0.014 ^{***} (0.004)	-0.013 ^{***} (0.004)
Leverage	0.007 (0.005)	0.014 ^{**} (0.006)	0.013 ^{**} (0.006)	0.006 (0.004)	0.009 ^{**} (0.005)	0.007 (0.005)	0.001 (0.004)	0.006 (0.005)	0.008 (0.005)
Asset growth	-0.004 (0.003)	-0.004 (0.004)	-0.004 (0.004)	-0.002 (0.003)	-0.002 (0.003)	-0.001 (0.003)	-0.003 (0.002)	-0.002 (0.003)	-0.002 (0.003)
Intangibles %	-0.005 (0.013)	-0.001 (0.015)	0.001 (0.015)	-0.003 (0.009)	0.001 (0.011)	0.005 (0.011)	-0.002 (0.010)	-0.003 (0.013)	-0.003 (0.014)
Patents	0.001 ^{**} (0.000)	0.001 ^{***} (0.000)	0.001 ^{***} (0.000)	0.000 ^{***} (0.000)	0.001 ^{***} (0.000)	0.001 ^{***} (0.000)	0.000 (0.001)	-0.000 (0.001)	-0.000 (0.001)
Macro controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Target country FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Target industry FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
No. of observations	8,786	7,509	7,509	8,459	6,918	6,787	8,410	6,947	6,849

Notes: This table considers how targets' financial characteristics affect the likelihood of Chinese cross-border acquisition. We report the marginal effects from logit estimations based on Equation (1). Standard errors are robust and clustered at the target firm level.

* $p < .10$; ** $p < .05$; *** $p < .01$.

We focus on Chinese private acquirers in Columns (4)–(6) and Chinese state-owned acquirers in Columns (7)–(9) of Table 6 and uncover several differences. The preference for industry diversification is mainly driven by Chinese SOEs. This corroborates the results from Columns (1) to (3). Chinese SOEs favor larger targets. While the estimated marginal effect on $\ln(\text{Total assets})$ is also positive for Chinese private acquirers (Column (4)), the effect becomes insignificant when we control for target industry fixed effects. These results could imply that Chinese SOEs have financial support from the state-owned banking system which allows them to engage in large-scale transactions. The tendency to buy highly leveraged targets and those which hold patents is mainly driven by Chinese private acquirers. These results indicate that Chinese private acquirers are more likely to purchase targets in financial distress, and that access to technology and knowledge may be a particularly important consideration for them. Relative to non-Chinese investors, both Chinese private and state-owned acquirers tend to purchase targets with lower ROA. Chinese acquirers may be less motivated by short-run profits, less cautious of investing in poorly performing targets, or more optimistic about improving the performance of such targets after the acquisition.

5.4 | Effects of recent Chinese policy initiatives

The Chinese government announced the Belt and Road Initiative in 2013 and Made in China 2025 in 2015, which both reinforce the Go Out policy from 2000. Do these policy initiatives have a material impact on Chinese overseas acquisitions?

The initial aim of the Belt and Road Initiative is to improve trade, infrastructure, and investment links between China and 65 countries in Central, South, and South East Asia, Europe, the Middle East, and North Africa.¹¹ We use a difference-in-differences (DiD) approach to test whether the Belt and Road Initiative has changed the regional focus of Chinese overseas acquisitions. To do so, we construct a dummy *PostBRI*, which equals 1 if a cross-border deal happened in or after 2013. We also construct a dummy *BRI*, which equals 1 if the target is located in one of the 65 BRI countries narrowly defining the outreach of the BRI initiative according to the China International Trade Institute. The interaction term between *BRI* and *PostBRI* measures the effect of the Belt and Road Initiative on the location decisions of Chinese acquirers.

Column (1) of Table 7 shows that before 2013, Chinese acquirers were less likely to pursue targets in BRI countries, as the estimated coefficient on *BRI* is negative and statistically significant. For Chinese private acquirers, the Belt and Road Initiative fails to encourage acquisitions in BRI countries, as the estimated coefficient on *BRI* \times *PostBRI* is insignificant in Column (2). In contrast, the estimated coefficient on *BRI* \times *PostBRI* is positive and statistically significant for Chinese state-owned acquirers in Column (3). These results suggest that the BRI only influences the location choice of cross-border M&As by Chinese SOEs.

Made in China 2025, announced in 2015, defines 10 industries in which the Chinese government wants Chinese companies to become globally competitive.¹² One way to reach that goal is through takeovers of foreign firms in these industries. To investigate whether the policy influences the industry focus of Chinese overseas acquisitions, we again use a DiD estimator. We construct a dummy variable *CN2025* that equals 1 for targets active in industries that are related to the Made in China 2025 strategy. A second dummy, *PostCN2025*, equals 1 for acquisitions since 2015. We then interact *CN2025* with *PostCN2025* for the DiD estimations.

Table 8 reports the corresponding estimation results. There is no evidence that Chinese acquisitions occurred more frequently in industries targeted by Made in China 2025 before 2015, relative to non-Chinese acquisitions. However, targets in these industries become significantly more likely to be purchased by Chinese SOEs after the policy was introduced. Again, the policy does not change the investment pattern of Chinese private acquirers.

TABLE 7 The belt and road initiative and probability of Chinese acquisitions

	(1)	(2)	(3)
Probability of being acquired by	All CN	CN private	CN SOE
Post-BRI	-0.115 (0.254)	-0.182 (0.327)	0.103 (0.392)
BRI	-0.223* (0.132)	-0.0118 (0.163)	-0.539** (0.220)
BRI × Post-BRI	0.0320 (0.142)	-0.181 (0.182)	0.386* (0.230)
Macro controls	Yes	Yes	Yes
Year FEs	Yes	Yes	Yes
No. of observations	69,269	68,574	68,186

Notes: This table analyzes the impact of the Belt and Road Initiative on Chinese cross-border acquisitions. We report the point estimates from logit estimations. *PostBRI* is a dummy equal to 1 if the deal took place in or after 2013. *BRI* is a dummy variable equal to 1 if the target country is one of the 65 BRI countries (Table A6). Standard errors are robust and clustered at the target firm level.

* $p < .10$; ** $p < .05$; *** $p < .01$.

TABLE 8 Made in China 2025 and probability of Chinese acquisitions

	(1)	(2)	(3)
Probability of being acquired by	All CN	CN private	CN SOE
PostCN2025	0.0116 (0.299)	-0.100 (0.374)	0.343 (0.484)
CN2025	-0.0166 (0.0868)	0.0960 (0.107)	-0.185 (0.148)
CN2025 × PostCN2025	0.0815 (0.143)	-0.218 (0.198)	0.402* (0.214)
Macro controls	Yes	Yes	Yes
Year FEs	Yes	Yes	Yes
No. of observations	62,353	61,723	61,373

Notes: This table analyzes the impact of the Made in China 2025 policy on Chinese cross-border acquisitions. We report the point estimates from logit estimations. *PostCN2025* is a dummy that equals to 1 if the deal took place in or after 2015. *CN2025* is a dummy variable equal to 1 if the target belongs to the industries defined by Made in China 2025. Standard errors are robust and clustered at the target firm level.

* $p < .10$; ** $p < .05$; *** $p < .01$.

5.5 | Comparison between Chinese and non-Chinese state-owned acquirers

An open question is whether Chinese SOEs are different from state-owned acquirers in other countries. We identify 619 non-Chinese state-owned acquirers in our sample. However, only for 522 of them basic country-level characteristics are available. We then run a logit estimation where the dependent variable equals 1 if a target is acquired by a Chinese SOE, and 0 if it is purchased by a non-Chinese

TABLE 9 Comparison between Chinese and non-Chinese state-owned acquirers

Probability of being acquired by CN SOEs	(1)	(2)	(3)	(4)
Ln(GDPPC)	-0.050 (0.033)	1.724** (0.714)	-0.063 (0.053)	1.365 (1.300)
GDP growth	-0.010 (0.008)	-0.030** (0.013)	-0.008 (0.017)	-0.021 (0.026)
Distance	-0.008 (0.007)	-2.592 (2.043)	-0.017 (0.015)	0.902 (4.129)
Ln(Population)	-0.052* (0.027)	-0.023 (1.940)	-0.040 (0.053)	-1.346 (4.638)
Ln(Trade)	0.107*** (0.027)	-0.050 (0.218)	0.068 (0.051)	0.017 (0.501)
Resource rents	0.027 (0.480)	0.941 (2.669)	-1.303 (1.027)	-11.382 (12.552)
ΔExchange rate	-0.554** (0.261)	-0.670** (0.294)	-0.412 (0.460)	-0.382 (0.564)
Industry diversity			0.116** (0.055)	0.054 (0.060)
Ln(Total assets)			0.063*** (0.013)	0.064*** (0.015)
ROA			-0.264** (0.106)	-0.301*** (0.112)
Year FE	Yes	Yes	Yes	Yes
Target country FE		Yes		Yes
No. of observations	928	828	271	233

Notes: This table compares Chinese and non-Chinese state-owned acquirers. The dependent variable is a dummy that equals 1 if a target is purchased by a Chinese SOE and 0 if it is purchased by an SOE from other countries. We report the marginal effects from logit estimations. Standard errors are robust and clustered at the target firm level.

* $p < .10$; ** $p < .05$; *** $p < .01$.

SOE. We report the marginal effects based on this estimation in Table 9. We use alternative specifications to control for year and target country fixed effects in the different columns.

Columns (1) and (2) consider target country characteristics that were previously found to matter for Chinese state-owned acquirers (Section 5.1). In Columns (3) and (4), we add three target firm characteristics: the indicator Industry diversity, the log of targets' pre-acquisition total assets, and ROA. These are the target firm-level characteristics we found to matter most for Chinese SOEs compared to non-Chinese investors (Section 5.3). This reduces the sample size since we do not observe target-level characteristics for many acquisitions by state-owned investors.

While the estimated marginal effects on some factors vary across the different columns due to changes in specifications and sample sizes, two robust results emerge: Chinese SOEs are more likely to acquire larger targets and those with lower pre-deal profitability. These patterns are consistent with previous findings when we use a broader set of non-Chinese acquirers as the control group. The

estimated marginal effects are generally larger in Table 9, relative to those in previous tables, since the sample sizes become much smaller and the share of Chinese acquisitions increases. Relative to non-Chinese SOEs, Chinese state-owned acquirers no longer appear to be particularly focused on seeking natural resources, and there is only weak evidence in Column (3) that they are especially keen on industry diversification. Our findings thus echo Karolyi and Liao (2017) that state-owned acquirers in general are more oriented toward targets in resource-rich countries and aim to diversify their industry portfolio. In these dimensions, Chinese SOEs are no different from other SOE acquirers.

6 | DO CHINESE ACQUIRERS PAY MORE?

In this section, we investigate whether Chinese acquirers pay different prices compared to non-Chinese investors for targets with similar observable characteristics. The motivation for this analysis is the anecdotal evidence that Chinese acquirers, backed by cheap financing from domestic banks or direct government subsidies, overpay relative to other investors to win bids. As around 95% of target firms in our sample are unlisted, we do not observe the share prices of target firms, which is the most common variable used in the literature for pricing analyses. Instead, we calculate the variable $Price_{i,j,t}$ which is the amount an acquirer pays for 1% of the equity of target firm i in country j in year t .¹³ We then estimate Equation (2) as follows:

$$\ln Price_{i,j,t} = \beta_0 + \beta_1 CN_{i,j,t} + \beta_2 \ln Equity_{i,t} + \beta_3 ROA_{i,t} + \beta_4 Leverage_{i,t} + \beta_5 Full AC_{i,t} + \beta_6 Any Patent_{i,t} + \gamma Z_{j,t}^{TC} + Deal Year FE + Industry FE + Target country FE + \varepsilon_{i,j,t} \quad (2)$$

In Equation (2), $CN_{i,j,t}$ is a dummy that equals 1 if the acquirer of target firm i in country j in year t is a Chinese firm. To differentiate between Chinese private and state-owned acquirers, we include a dummy $CN_{priv,i,j,t}$ in some specifications that equals 1 if the acquirer is a Chinese private firm, and a second dummy $CNSOE_{i,j,t}$ that equals 1 if the acquirer is a Chinese SOE. We include several target firm-level characteristics: ROA and $\ln(Equity)$ are the average value of return on assets and the average book value of equity over the 3 years prior to the deal¹⁴; $Leverage$ is the sum of long-term debt and short-term loans as a ratio to total assets also averaged over the 3 years prior to the deal; $Full AC$ is a dummy variable indicating whether 100% of the target's equity is acquired; $Any patent$ is a dummy indicating whether the target firm holds any patents. $Z_{j,t}^{TC}$ is a set of target country-level controls. Furthermore, we control for industry and target country fixed effects and allow for different time fixed effects across specifications.

Table 10 shows the estimation results based on Equation (2). Larger $\ln(Equity)$ or ROA increases the payment for the target among all types of acquirers. Similarly, investors pay more to purchase targets with patents. Surprisingly, all types of acquirers tend to pay more for highly leveraged firms. This may reflect potential tax advantages associated with debt or unobserved factors improving both borrowing capacity and value. These results are robust throughout the different specifications shown in Table 10. Whether the deal is a full acquisition has no significant impact on the prices paid for 1% of a target's equity.

Controlling for these observable characteristics, we do not find any tendency of overpayment by Chinese acquirers relative to non-Chinese investors as the estimated coefficient on CN is not statistically significant across specifications. When we distinguish between Chinese SOEs and private investors, neither appear to pay more for similar targets as compared to non-Chinese investors (Columns (2), (4), (6), and (8) of Table 10). These results question the view that Chinese investors systematically outbid others in the global M&A market. One should also note that we do not find any systematic difference between Chinese SOEs and non-Chinese acquirers, even though in particular the former might receive government subsidies and support in other forms. As a robustness test, we estimate

TABLE 10 Prices paid for targets by Chinese acquirers

$\ln(\text{Price}_{i,t})$	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
CN	0.127 (0.095)		0.065 (0.098)		0.001 (0.110)		0.053 (0.165)	
CNpriv		0.084 (0.137)		0.002 (0.142)		-0.067 (0.157)		0.025 (0.243)
CNSOE		0.164 (0.117)		0.119 (0.125)		0.060 (0.139)		0.077 (0.213)
$\ln(\text{Equity})$		0.742 ^{***} (0.014)		0.745 ^{***} (0.013)		0.735 ^{***} (0.014)		0.758 ^{***} (0.019)
ROA		0.289 ^{***} (0.102)		0.252 ^{**} (0.101)		0.331 ^{***} (0.105)		0.346 ^{***} (0.133)
Leverage		1.182 ^{***} (0.097)		1.190 ^{***} (0.095)		1.125 ^{***} (0.099)		1.212 ^{***} (0.135)
Full AC		0.016 (0.055)		0.022 (0.054)		-0.059 (0.058)		-0.131 (0.088)
Any patent		0.340 ^{***} (0.048)		0.368 ^{***} (0.050)		0.258 ^{***} (0.047)		0.422 ^{***} (0.070)
Macro controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Target country FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry year FE			Yes	Yes	Yes	Yes	Yes	Yes
Target country year FE				Yes	Yes	Yes	Yes	Yes
Target country industry year FE					Yes	Yes	Yes	Yes
No. of observations	5,166	5,166	5,159	5,159	5,131	5,131	3,350	3,350

Notes: This table analyzes whether the prices paid by Chinese acquirers are different to those paid by non-Chinese investors. The dependent variable is the log of the price paid for a 1% share of the target firm (in thousand EUR). *CN* is a dummy that equals 1 if the acquirer is a Chinese firm. *CNpriv* is a dummy that equals 1 if the acquirer is a Chinese private firm, and *CNSOE* is a dummy that equals 1 if the acquirer is a Chinese state-owned or state-controlled firm. *ROA*, *Ln(Equity)*, and *Leverage* are the average value of return on assets, the log of the book value of equity, and total debt in total assets over the 3 years prior to the deal. *Full AC* is a dummy variable indicating whether 100% of the target were acquired. *Any Patent* is a dummy indicating whether the target firm holds any patent. Standard errors are robust and clustered at the target firm level.

* $p < .10$; ** $p < .05$; *** $p < .01$.

Equation (2) using acquisition prices instead of logarithms of prices as dependent variable. In these estimates, we even find slightly lower prices paid by Chinese investors, confirming the result that they do not overpay.¹⁵

7 | WHAT ARE THE EFFECTS OF CHINESE ACQUISITIONS ON TARGET FIRMS?

As last step of the analysis, this section investigates how a takeover by a Chinese company affects the target firm and its employees. Again, the focus is on the question of whether these effects differ from the changes triggered by a non-Chinese acquisition.

7.1 | Empirical approach

When estimating the effects of a Chinese acquisition, a simple OLS estimation is likely to yield biased results as the selection of targets by Chinese investors is endogenous. For instance, the selection of targets is likely to depend on their pre-acquisition financial performance. To address this issue, we use a DiD approach. The treatment group consists of targets acquired by a Chinese company; the control group comprises targets acquired by non-Chinese investors. Following the approach of Wang and Wang (2015), the dependent variable in all regressions is the accumulated change in the target firm's financial variables since the takeover. Accordingly, only targets for which financial information from pre- and post-deal periods is available can be used for this analysis. This leaves us with 14,243 targets that were acquired by non-Chinese companies and 351 targets with Chinese acquirers. Most targets in this sample are from Europe. This is not surprising, as a large share of acquisitions in the sample took place in Europe (see Section 4).

We focus on the effects of Chinese acquisitions on target firms' labor and capital productivity. To proxy labor productivity, we use turnover and value-added per employee (Labor productivity 1 and 2). Capital productivity is proxied by the ratios of turnover and value-added to total assets (Capital productivity 1 and 2). We also investigate changes in targets' leverage, ROA, average compensation of employees, and the share of intangible assets in total assets. Summary statistics of these variables are provided in Table A6 in the Appendix.

The results presented in Section 5 suggest that targets of Chinese acquirers are different in a number of dimensions as compared to other acquisition targets. Targets of Chinese acquirers tend to be larger in terms of total assets, have lower profitability, and have higher leverage before the acquisition. Part A of Table A7 shows the distribution of these and other key variables that affect the probability of a target being acquired by a Chinese firm as opposed to a non-Chinese investor across the treatment and control group. The two groups differ substantially along some dimensions, as indicated by a series of *t*-tests. Since the DiD estimator crucially relies on the suitability of the control group, we use entropy balancing as suggested by Hainmueller (2012) to re-weight the control group in order to make it more comparable with the treatment groups.¹⁶ Entropy balancing re-weights observations in the control group such that the distribution of a set of pre-specified covariates matches that of the treatment group. The weights are chosen in a way that the balancing constraints are met, but remain as close as possible to uniform weights. The weights are calibrated based on the target country-level and target firm-level variables shown in Table A7 plus industry and deal year dummies. We balance on the first and second moments. As Part B of Table A7 shows, the re-weighted control group closely resembles the treatment group in all variables used for the entropy balancing.¹⁷

To estimate the effects of an acquisition by a Chinese company compared to the effects of a non-Chinese acquisition, we use the following empirical model:

$$\Delta\text{Dep. Variable}_{i,j,s} = \beta_0 + \beta_1 CN_{i,j} + \varepsilon_{i,j,s}, \quad (3)$$

where $\Delta\text{Dep. Variable}_{i,j,s}$ measures the accumulated changes in each performance indicator of target firm i in country j s years since acquisition, where $s \in (0, 1, 2)$. We run separate regressions for the acquisition year and each of the two subsequent years.¹⁸ $CN_{i,j}$ is a dummy that takes the value of 1 if firm i in country j is acquired by a Chinese firm.

To test the robustness of our results, we also run all regressions on the unweighted samples, while controlling for target firm and target country characteristics, as well as the deal year and target industry. In addition, we also construct a control group using propensity score matching as a second re-weighting strategy (see Abadie & Imbens, 2016 on this approach). The propensity score reflects the conditional probability of assignment into the treatment group. Here, the propensity score is calculated using a logit regression based on the same independent variables as described above. In a second step, all observations in the treatment group are matched with three observations from the control group based on their propensity score.¹⁹ As Part C of Table A7 shows, this re-weighting technique substantially improves the comparability between treatment and control group, but is not able to reproduce the fit achieved with entropy balancing. This is one reason why entropy balancing is our preferred approach. This is in line with Egger et al. (2020), who provide a more detailed discussion on the advantages of entropy balancing as compared to propensity score matching.

7.2 | Results on acquisition effects

Table 11 summarizes the estimation results on the effects of a Chinese acquisition as compared to an acquisition by an investor from another country. The control group is re-weighted based on entropy balancing. Each cell of Table 11 reports the treatment effect for an individual estimation. Columns (1)–(3) present the cumulated effects of a Chinese acquisition compared to non-Chinese acquisitions for the acquisition year and the two subsequent years. According to these estimations, the effects of an acquisition by a Chinese company are similar to those of a non-Chinese acquisition in terms of labor productivity (for both turnover and value-added per employee), leverage, ROA, and the share of intangible assets. In contrast, the ratio of turnover and value-added to total assets measuring capital productivity are negatively affected by a Chinese acquisition in the acquisition year. This effect fades over the subsequent years. The negative effect on capital productivity seems to be due to an increase in assets shortly after the acquisition. While turnover also increases after the acquisition, this sets in a little later (see Table A8 in the Appendix). The treatment effect for the average compensation of employees shows the opposite pattern. While there is no significant effect in the treatment year and the first year after the acquisition, the respective coefficient is positive and significant in the second year. On average, the annual compensation per employee in firms bought by Chinese investors grows by roughly EUR 7,000 over 3 years after the acquisition compared to firms acquired by other investors.

Table A9 in the Appendix reports the estimation results using the unweighted control group in Columns (1)–(3) and with a control group constructed by propensity score matching (Columns (4)–(6)). The results from the corresponding estimations confirm the findings reported above. The slightly lower levels of statistical significance in the estimations based on propensity score matching are mainly due to a smaller sample size. To check whether an acquisition by Chinese private firms and SOEs have different effects on the targets, all estimations are also conducted including two different

TABLE 11 Estimation results on acquisition effects

	(1)	(2)	(3)
	Acquisition year	1 year after	2 years after
Labor productivity 1	−25.37 (27.82)	−24.81 (32.08)	44.54 (64.68)
Labor productivity 2	−8.902 (10.40)	−6.799 (11.98)	14.93 (17.74)
Capital productivity 1	−0.177*** (0.061)	−0.012 (0.080)	−0.077 (0.097)
Capital productivity 2	−0.064*** (0.025)	−0.046* (0.028)	−0.060 (0.039)
Leverage	−0.003 (0.027)	0.021 (0.038)	0.000 (0.040)
Return on assets	−0.039 (0.039)	−0.021 (0.035)	−0.015 (0.037)
Average compensation of employees	−0.599 (2.033)	2.181 (2.548)	7.513** (3.766)
Intangibles %	0.002 (0.005)	0.001 (0.007)	0.001 (0.008)

Notes: This table summarizes the effects of Chinese cross-border acquisitions on target firms. Labor Productivity 1 and 2 measure the turnover and value-added per employee; Capital Productivity 1 and 2 measure the ratios of turnover and value-added to total assets (see Table A6). We report the marginal effects of DiD estimations using a sample re-weighted using entropy balancing on the first and second moments. Dependent variables are cumulated the differences in the respective variable between the pre-acquisition year and the year noted. Standard errors are robust.

* $p < .10$; ** $p < .05$; *** $p < .01$.

dummy variables for Chinese private companies and SOEs, similar to the approach used in Section 6. About half of the treatment group was acquired by an SOE. Table A10 in the Appendix shows the results of the corresponding estimations.²⁰ The negative short-run effect on capital productivity is similar between Chinese private acquirers and SOEs. In contrast, the increase in average compensation of employees is mainly driven by Chinese SOEs. Lastly, the effect on the share of intangible assets is positive for Chinese private acquirers and statistically significant in the acquisition year and 2 years after the acquisition, while it is negative and insignificant for Chinese SOEs.

In addition, Table A10 shows the acquisition effects on European versus non-European target firms and on targets active in the manufacturing sector versus non-manufacturing firms. These results indicate that Chinese acquisitions lead to an increase in leverage and a reduction in profitability of non-European targets, while the leverage of European targets remains largely unchanged. The increase in the average compensation of employees is only visible in European target firms. Moreover, it is also only observable for non-manufacturing targets. At the same time, the negative impact of a Chinese acquisition on capital productivity seems to have a longer lasting effect on manufacturing firms than on non-manufacturing targets.

How can these findings be explained? There is anecdotal evidence that Chinese investors prioritize the “footprint” of their investment and focus less on short-run profitability. This would be compatible with the observation that Chinese investors inject more assets into target firms, even at the cost of

declining capital productivity immediately after the acquisition. The fact that employee compensation grows relative to targets firms bought by non-Chinese investors may have various explanations. More investment in the target may raise the bargaining power of employees. It is also possible that employees are more hostile toward takeovers by Chinese investors, especially Chinese SOEs, than toward other investors. Under this consideration, Chinese investors may decide to offer higher salaries to convince employees to cooperate or prevent them from leaving.

8 | CONCLUSIONS

The growing importance of Chinese cross-border mergers and acquisitions in recent years has given rise to a debate about the motivations and the likely impact of these investments. In this debate, the idea is widespread that Chinese investors differ from other international investors. This idea is related to the far reaching influence of the Chinese government on economic activities of Chinese companies both domestically and abroad. A direct indicator for this influence is the large number of SOEs, which also play an important role as acquirers of foreign companies.

The aim of this paper is to investigate determinants, pricing, and effects of Chinese cross-border acquisitions. First, regarding the question of target selection, our analysis suggests that Chinese investment does indeed differ from investment coming from other countries in several aspects. Our findings support the view that Chinese acquirers tend to be less concerned about market size and economic risks of target countries. Instead, they are more interested in factors like natural resources. Acquisitions by Chinese SOEs are also significantly influenced by government policies like the Belt and Road Initiative and Made in China 2025. With respect to target firm-level characteristics, we find that Chinese companies acquire less profitable and more indebted targets. This suggests that Chinese acquirers might have easier access to finance than other investors, which allows them to pursue less cautious investment strategies. Alternatively, it may be the case that Chinese acquirers are more optimistic about the improving targets' post-acquisition performance, have a longer time horizon, or pursue objectives other than profitability, such as a large "footprint" of investment. The latter seems plausible in particular for Chinese SOEs, where the managers are often politicians who intend to pursue a career in politics.

Second, on the question of acquisition prices, we do not find that Chinese acquirers pay higher prices than other investors for targets with comparable characteristics. This contradicts the view that government support enables Chinese companies to outbid other investors in the global M&A market.

Third, we have also analyzed the impact of a Chinese acquisition on the target firms. In many dimensions, the effects of a Chinese acquisition are similar to those of non-Chinese takeovers. However, we do find that the capital productivity of Chinese acquisition targets declines in the short run, while average employee compensation gradually rises compared to other targets. Thus, our results do not support the concern that a Chinese takeover leads to lower wages for employees compared to other acquisitions.

Drawing policy conclusions from these findings is difficult, though, for a number of reasons. First, some of our findings are based on a small number of observations, mostly because the increase in Chinese acquisitions abroad is a relatively recent phenomenon. The impact of takeovers by Chinese investors on target firms and target countries may also only become more visible in the longer run, which would require a longer sample period. Second, we are unable to investigate important issues such as technology transfers due to data limitations. These questions should be addressed in future research.

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DATA AVAILABILITY STATEMENT

The data that support the findings of this study are available from Bureau van Dijk's Orbis Database. Restrictions apply to the availability of these data, which were used under license for this study. Data are available <https://orbis.bvdinfo.com/> with the permission of Bureau van Dijk's Orbis.

ORCID

Felix Hugger  <https://orcid.org/0000-0003-1495-5214>

ENDNOTES

- ¹ Investment is not the only channel via which China spreads its outreach. It can also have a strong impact via trade as, for instance Autor et al. (2016) and Hsieh and Ossa (2016) have shown.
- ² In a recent report the European Commission has analyzed challenges and prospects in the relationship with China (European Commission, 2019).
- ³ Cross-border deals are those where target and acquirer are located in different countries. To identify the origin of the acquirer, we use the location of the acquirer's global ultimate owner. Frequently, the location of the acquirer is the same as that of its global ultimate owner, but in some cases relying on the location of the acquirer would be misleading due to intricate ownership structures.
- ⁴ See Table A2 in the Appendix for the list of countries.
- ⁵ Deals are assigned to years depending on their date of completion.
- ⁶ In unreported exercises, we compare Chinese and non-Chinese acquirers in terms of their size and profitability at the time of the acquisition. We do not find any significant differences between the two types of acquirers and, hence, the observed differences in target features are unlikely to be driven by acquirers' size and profitability.
- ⁷ In the regression for Chinese private companies, acquisitions by Chinese SOEs are excluded from the sample and vice versa.
- ⁸ We use NACE industries from 77 to 99 as the reference group. This reference group includes administrative and support service activities, public administration and defense, compulsory social security, education, human health and social work activities, arts, entertainment and recreation, and other service activities.
- ⁹ The distribution of patents held by target firms is highly skewed. One standard deviation equals to around 200 patents.
- ¹⁰ Results are similar when we use a matched sample where Chinese and non-Chinese acquisitions are more comparable in terms of target size and profitability. We also use the STATA command `firthlogit` to correct for potential bias due to the low probability of Chinese acquisitions in our sample. The results are very similar to the logit estimation results (results available upon request).
- ¹¹ A list of BRI countries is provided in Table A4 in the Appendix.
- ¹² These include new generation information technology, high-end computerized machines and robots, space and aviation, maritime equipment and high-tech ships, advanced railway transportation equipment, new energy and energy-saving vehicles, energy equipment, agricultural machines, new materials, and biopharma and high-tech medical devices (Conrad et al., 2016).
- ¹³ This is to account for the fact that not all acquirers in our sample bought 100% of the target firm.
- ¹⁴ We control for book equity value instead of total assets because acquirers purchase the equity of the target firm, which is different from asset acquisition. Our results are robust to controlling for total assets instead of equity.

- ¹⁵ The corresponding estimation results are reported in Table A5 in the Appendix.
- ¹⁶ For the implementation of this approach, we rely on the STATA package described in Hainmueller and Xu (2013).
- ¹⁷ The re-weighting shown in Table A7 reports the data used for the estimations on Capital productivity 1 (turnover over total assets) as an example. Results for the samples for all other dependent variables look very similar.
- ¹⁸ As the coverage of the different dependent variables varies, individual samples are constructed for each of them. To ensure that results are comparable across time, we only keep observations that we observe in each of the three periods. For most dependent variables, the treatment group contains between 100 and 150 target firms.
- ¹⁹ We use nearest neighbor matching with three matches per observation in the control group. Using a lower number of matches per observation does not change the results substantially.
- ²⁰ For all other dependent variables from Table 11, the coefficients of *CNpriv* and *CNSOE* are not statistically significant. The control group in the estimations shown in Table A10 is re-weighted based on entropy balancing.

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APPENDIX

TABLE A1 Target-level control variables

Variable	Definition	Source	Obs.	Mean	Std. Dev.
Industry diversity	Dummy = 1 if target and acquirer are in different industries	Orbis	58,385	0.543	0.498
Ln(Total assets)	Ln of total assets of the target firm	Orbis	21,999	8.51	2.12
ROA	(Profit or loss before taxes)/total assets	Orbis	21,907	0.027	0.339
Book equity	Ln of total assets—(loans + long-term debt)	Orbis and own calculation	23,589	71,019	806,934
Patents	Number of patents the target firm holds as reported in 2017	Orbis	71,525	5.39	204.3
Any patent	Dummy variable indicating whether the target firm holds any patent	Orbis	71,525	0.133	0.339
Leverage	(Short-term loans + long term debt)/Total assets	Orbis	18,591	0.313	6.91
Asset growth	Annual growth rate of total assets	Orbis	23,783	14.04	1,114
Intangibles %	Intangible fixed assets/total assets	Orbis	20,550	0.050	0.140

Notes: All variables are winsorized at the 1% level.

TABLE A2 List of investment hubs

Andorra	Gibraltar	Netherlands Antilles
Anguilla	Grenada	Niue
Antigua and Barbuda	Guernsey	Panama
Aruba	Isle of Man	Samoa
The Bahama	Jersey	San Marino
Bahrain	Liberia	Seychelles
Bermuda	Liechtenstein	St. Lucia
Belize	Malta	St. Kitts and Nevis
British Virgin Islands	Marshall Islands	St. Vincent and the Grenadines
Cayman Islands	Mauritius	Turks and Caicos Islands
Cook Islands	Monaco	US Virgin Islands
Cyprus	Montserrat	Vanuatu
Dominica	Nauru	

Source: OECD (2000).

TABLE A3 Country-level control variables

Variable	Definition	Source	Obs	Mean	Std. Dev.
Ln(GDPPC)	Ln of GDP per capita (USD)	WDI	69,540	10.36	0.815
GDP growth	GDP growth rate (%)	WDI	69,540	2.24	2.65
Distance	Population weighted distance to China (1,000 km)	CEPII	71,783	8.87	2.42
Ln(Population)	Ln of no. of inhabitants	WDI	69,656	3.52	1.73
Ln(Trade)	Ln of the sum of exports and import in goods with China (USD)	UN Comtrade	69,543	3.53	1.54
Inflation	Annual inflation of consumer prices (%)	WDI	68,306	2.49	3.03
Investment hub	Dummy = 1 if the target country is defined as an investment hub (see Table A3 for the list of countries)	OECD	72,056	0.028	0.164
Resource rents	Share of resource rents in GDP	WDI	63,653	0.021	0.020
Δ Exchange rate	Annual growth rate of target country currency relative to Chinese Yuan	WDI and own calculations	66,687	0.021	0.259
Political stability	Measured on a scale from -2.5 to 2.5	WGI	68,918	0.538	0.609
Regulatory quality	Measured on a scale from -2.5 to 2.5	WGI	68,894	1.284	0.633
Rule of law	Measured on a scale from -2.5 to 2.5	WGI	68,917	1.287	0.750
Control of corruption	Measured on a scale from -2.5 to 2.5	WGI	68,896	1.288	0.880

Notes: All variables are winsorized at the 1% level.

TABLE A4 BRI countries

Region	Countries
East Asia	China and Mongolia
South East Asia	Brunei, Cambodia, Indonesia, Laos, Malaysia, Myanmar, Philippines, Singapore, Thailand, Timor-Leste, and Vietnam
South Asia	Afghanistan, Bangladesh, Bhutan, India, Maldives, Nepal, Pakistan, and Sri Lanka
Central Asia	Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan, and Uzbekistan
Middle East and North Africa	Bahrain, Egypt, Iran, Iraq, Israel, Jordan, Kuwait, Lebanon, Oman, Qatar, Saudi Arabia, Palestine, Syria, United Arab Emirates, and Yemen
Europe	Albania, Armenia, Azerbaijan, Belarus, Bosnia and Herzegovina, Bulgaria, Croatia, Czech Republic, Estonia, North Macedonia, Georgia, Hungary, Latvia, Lithuania, Moldova, Montenegro, Poland, Romania, Russia, Serbia, Slovakia, Slovenia, Turkey, and Ukraine

Source: Steer Davies Gleave (2018).

TABLE A5 Prices paid for targets by Chinese acquirers—Using the level of prices as the dependent variable

Dep. variable: $Price_{i,t}$	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
CN	-2,424.5* (1,417.9)		-2,203.6 (1,523.2)		-2,960.9** (1,474.8)		0.053 (0.165)	
CNpriv		-4,653.2** (1,997.4)		-4,218.2** (1,973.6)		-5,013.6** (2,362.1)		-5,116.8* (2,982.7)
CNSOE		-535.9 (1,535.7)		-511.0 (1,821.9)		-1,228.7 (1,291.0)		-2,104.9 (1,698.1)
Ln(Equity)	0.016*** (0.004)	0.016*** (0.004)	0.016*** (0.004)	0.016*** (0.004)	0.016*** (0.004)	0.016*** (0.004)	0.015*** (0.003)	0.015*** (0.003)
ROA	3,463.6*** (926.7)	3,463.3*** (926.5)	2,793.1*** (751.1)	2,788.6*** (750.9)	3,757.7*** (1,066.5)	3,760.8*** (1,066.2)	4,846.7*** (1,507.1)	4,867.7*** (1,509.4)
Leverage	3,908.2*** (1,123.5)	3,879.6*** (1,121.6)	3,619.3*** (1,113.4)	3,587.9*** (1,112.8)	3,740.5*** (1,077.1)	3,714.8*** (1,073.5)	3,275.3** (1,655.4)	3,260.3** (1,654.7)
Full AC	306.1 (396.6)	291.0 (396.4)	670.9 (411.3)	646.6 (411.2)	-106.0 (422.1)	-119.0 (421.3)	54.4 (783.4)	32.6 (784.8)
Any Patent	728.1 (621.8)	719.5 (620.4)	1,034.2 (682.2)	1,026.3 (680.9)	1,199.5** (571.6)	1,188.7** (570.9)	1,730.3* (975.3)	1,729.7* (974.2)
Macro controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Target country FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry year FE			Yes	Yes				
Target country year FE					Yes	Yes		
Target country industry year FE							Yes	Yes
No. of obs.	5,315	5,315	5,307	5,307	5,288	5,288	3,485	3,485

Notes: This table analyzes whether the prices paid by Chinese acquirers are different to those paid by non-Chinese investors. The dependent variable is the price paid for a 1% share of the target firm (in thousand EUR). *CN* is a dummy that equals 1 if the acquirer is a Chinese firm. *CNpriv* is a dummy that equals 1 if the acquirer is a Chinese private firm, and *CNSOE* is a dummy that equals 1 if the acquirer is a Chinese state-owned or state-controlled firm. *ROA*, *Ln(Equity)*, and *Leverage* are the average value of return on assets, the book value of equity, and total debt in total assets over the 3 years prior to the deal. *FullAC* is a dummy variable indicating whether 100% of the target were acquired. *Any Patent* is a dummy indicating whether the target firm holds any patent. Standard errors are robust and clustered at the target firm level.

* $p < .10$; ** $p < .05$; *** $p < .01$.

TABLE A6 Variable description and summary statistics for effects estimations

Variable	Definition	Source	Obs	Mean	Std. Dev.
Δ Labor productivity 1	Δ (Turnover/no. of employees)	Orbis	7,273	21.24	276.7
Δ Labor productivity 2	Δ (Added value/no. of employees)	Orbis	4,918	12.97	145.1
Δ Capital productivity 1	Δ (Turnover/total assets)	Orbis	10,226	0.012	0.941
Δ Capital productivity 2	Δ (Added value/total assets)	Orbis	6,308	-0.012	0.342
Δ Leverage	Δ ([Short-term loans + long term debt]/total assets)	Orbis	10,389	-0.020	0.213
Δ ROA	Δ ([Profit/loss before taxes]/total assets)	Orbis	11,078	-0.018	0.387
Δ Average cost of employees	Δ (Total compensation of employees/no. of employees)	Orbis	6,595	2.57	19.14
Δ Intangibles %	Δ (Intangible fixes assets/total assets)	Orbis	10,977	-0.004	0.058

Notes: All information on the number of observations, mean, and standard deviation of variables refer to the difference between the pre-acquisition year and the acquisition year. All variables are winsorized at the 1% level.

TABLE A7 Re-weighting

Variable	Treatment		Control	
	Mean	Variance	Mean	Variance
<i>Part A: Without weighting</i>				
Leverage	0.295	0.195	0.203	0.093
ROA	-0.050	0.142	0.037	0.094
Ln(Total assets)	9.813	4.403	8.794	3.926
GDPPC	32,593	2.95E+08	33,677	4.94E+08
GDP growth	1.956	5.56	1.695	11.16
Inflation	2.189	5.197	3.062	18.81
Population	47.66	2,135	51.56	10,773
Distance	7,634	5.40E+06	3,482	1.31E+07
Trade	99.32	5,410	83.79	1,868
CIT rate	26.49	43.53	26.02	45.05
<i>Part B: After re-weighting based on entropy balancing</i>				
Leverage	0.295	0.195	0.294	0.194
ROA	-0.050	0.142	-0.050	0.142
Ln(Total assets)	9.813	4.403	9.788	4.392
GDPPC	32,593	2.95E+08	32,509	2.94E+08
GDP growth	1.956	5.556	1.951	5.542
Inflation	2.189	5.197	2.184	5.189
Population	47.66	2,135	47.54	2,130
Distance	7,634	5.40E+06	7,615	5.39E+06
Trade	99.32	5,410	99.07	5,396
CIT rate	26.49	43.53	26.42	43.43
<i>Part C: After re-weighting based on propensity score matching</i>				
Leverage	0.295	0.195	0.252	0.117
ROA	-0.050	0.142	-0.048	0.173
Ln(Total assets)	9.813	4.403	9.553	4.263
GDPPC	32,593	2.95E+08	29,645	3.29E+08
GDP growth	1.956	5.556	2.064	6.584
Inflation	2.189	5.197	2.254	5.080
Population	47.66	2,135	52.70	10,262
Distance	7,634	5.40E+06	8,065	1.67E+7
Trade	99.32	5,410	94.99	4,293
CIT rate	26.49	43.53	26.51	49.62

Notes: All variables as in the year before the acquisition. In addition to the variables reported here, re-weighting is also based on deal year and industry. The samples shown here are used for the estimations on *Capital productivity 1*, but look very similar for the other estimations on the effects of Chinese acquisitions. The unweighted sample shown here contains 113 treated units and 6,083 control units. Apart from the variables listed here, re-weighting is also based on deal year and industry. For Part C, nearest neighbor matching with three matches per observation in the control group is used.

TABLE A8 Acquisition effects of Chinese acquirers—Asset and turnover growth

Dep. variable	Total Assets			Turnover		
	(1) Acquisition year	(2) 1 year after	(3) 2 years after	(4) Acquisition year	(5) 1 year after	(6) 2 years after
CN	0.303*	0.121	0.108	0.277	0.376*	0.150
	(0.161)	(0.080)	(0.069)	(0.243)	(0.211)	(0.136)

Notes: This table reports estimation results on the acquisition effects for Chinese companies using a DiD approach. The dependent variable is the difference in the growth rate between treatment and control group in the respective variable. *CN* is a dummy that equals 1 if the acquirer is a Chinese firm. The control group is re-weighted using entropy balancing based on the first and second moments of target firm characteristics and the deal year. Standard errors are robust.

* $p < .10$; ** $p < .05$; *** $p < .01$.

TABLE A9 Estimation results on acquisition effects—Robustness

	Baseline OLS			Propensity score matching		
	(1) Acquisition year	(2) 1 year after	(3) 2 years after	(4) Acquisition year	(5) 1 year after	(6) 2 years after
Labor productivity 1	-13.27 (25.42)	-16.93 (29.04)	65.46 (60.73)	1.431 (26.96)	-46.48 (34.23)	45.35 (63.27)
Labor productivity 2	-8.458 (10.18)	-9.503 (9.715)	17.340 (15.88)	11.63 (18.27)	5.598 (15.07)	12.14 (15.23)
Capital productivity 1	-0.177*** (0.059)	-0.046 (0.080)	-0.086 (0.095)	-0.160** (0.074)	0.001 (0.092)	-0.065 (0.105)
Capital productivity 2	-0.064*** (0.025)	-0.051* (0.030)	-0.055 (0.041)	-0.030 (0.029)	0.018 (0.032)	0.002 (0.040)
Leverage	0.004 (0.021)	0.045 (0.032)	0.025 (0.031)	-0.011 (0.028)	0.031 (0.038)	0.004 (0.040)
Return on assets	-0.031 (0.036)	-0.010 (0.021)	-0.007 (0.025)	0.018 (0.043)	0.007 (0.039)	0.017 (0.041)
Average compensation of employees	0.308 (1.751)	2.416 (2.304)	8.849** (3.624)	-0.979 (2.349)	1.102 (2.644)	7.373* (3.971)
Intangibles %	0.000 (0.005)	0.000 (0.007)	0.001 (0.008)	0.005 (0.006)	0.004 (0.008)	0.008 (0.009)

Notes: This table summarizes robustness tests for the effects of Chinese cross-border acquisitions on target firms. Labor Productivity 1 and 2 measure the turnover and value-added per employee; Capital Productivity 1 and 2 measure the ratios of turnover and value-added to total assets (see Table A6). We report the marginal effects of DiD estimations using an unbalanced sample (Columns 1–3), and a sample created with propensity score matching (Columns 4–6). Dependent variables are the differences in the respective variable between the pre-acquisition year and the year noted. The estimations in the first three columns contain target firm-level controls and target country-level controls and as well as industry and deal year dummies. Propensity score matching is based on the same variables. Standard errors are robust.

* $p < .10$; ** $p < .05$; *** $p < .01$.

TABLE A10 Estimation results on acquisition effects—Heterogeneity

	CNpriv versus CNSOE			EU versus non-EU targets			Manuf. versus non-Manuf. targets			
	(1) Acq. year	(2) 1 year after	(3) 2 years after	(1) Acq. Year	(2) 1 year after	(3) 2 years after	(1) Acq. year	(2) 1 year after	(3) 2 years after	
Labor productivity 1	CN priv (17.87)	-12.74 (22.27)	-2.832 (60.25)	CN EU	-36.87 (27.70)	-27.25 (34.73)	53.96 (70.86)	CN M. (17.82)	-9.796 (22.38)	-23.15 (40.49)
CN SOE	-23.77 (48.80)	-36.88 (54.45)	91.91 (106.1)	CN non-EU	69.54 (97.47)	-4.686 (23.76)	-33.19 (33.49)	CN non-M. (44.68)	-36.90 (49.99)	99.02 (104.9)
Labor productivity 2	CN priv (9.829)	-7.151 (10.98)	-3.248 (19.88)	CN EU	-9.206 (10.66)	-7.174 (12.19)	15.20 (18.21)	CN M. (7.777)	-0.362 (9.954)	7.422 (15.97)
CN SOE	-10.12 (14.60)	-8.498 (15.80)	27.60 (24.08)	CN non-EU	-0.701 (7.099)	3.323 (9.750)	7.770 (10.85)	CN non-M. (17.19)	-13.24 (17.93)	22.44 (28.71)
Capital productivity 1	CN priv (0.098)	-0.215*** (0.154)	-0.244 (0.185)	CN EU	-0.182*** (0.074)	-0.067 (0.088)	-0.149 (0.107)	CN M. (0.073)	-0.126*** (0.093)	-0.225*** (0.108)
CN SOE	-0.146*** (0.0656)	0.023 (0.065)	0.060 (0.075)	CN non-EU	-0.163*** (0.072)	0.149 (0.166)	0.130 (0.195)	CN non-M. (0.083)	0.071 (0.116)	0.032 (0.141)
Capital productivity 2	CN priv (0.038)	-0.065** (0.039)	-0.086 (0.060)	CN EU	-0.065** (0.026)	-0.045 (0.029)	-0.064 (0.041)	CN M. (0.029)	-0.055** (0.029)	-0.105** (0.043)
CN SOE	-0.063*** (0.029)	-0.062** (0.035)	-0.042 (0.045)	CN non-EU	-0.046*** (0.012)	-0.050 (0.036)	-0.008 (0.042)	CN non-M. (0.036)	-0.072** (0.043)	-0.015 (0.058)
Leverage	CN priv (0.043)	0.022 (0.056)	0.057 (0.061)	CN EU	-0.040 (0.030)	-0.033 (0.038)	-0.048 (0.040)	CN M. (0.036)	-0.025 (0.049)	-0.047 (0.051)
CN SOE	-0.023 (0.031)	0.013 (0.047)	-0.045 (0.044)	CN non-EU	0.125*** (0.046)	0.208** (0.088)	0.170** (0.086)	CN non-M. (0.036)	0.030 (0.051)	0.035 (0.051)

(Continues)

TABLE A10 (Continued)

	CNpriv versus CNSOE			EU versus non-EU targets			Manuf. versus non-Manuf. targets			
	(1) Acq. year	(2) 1 year after	(3) 2 years after	(1) Acq. Year	(2) 1 year after	(3) 2 years after	(1) Acq. year	(2) 1 year after	(3) 2 years after	
Return on assets	CN priv (0.074)	-0.048 (0.057)	-0.026 (0.064)	CN EU (0.045)	0.010 (0.040)	0.005 (0.041)	CN M. (0.041)	0.002 (0.030)	-0.0541** (0.030)	-0.039 (0.036)
	CN SOE	-0.032** (0.029)	-0.006 (0.036)	CN non-EU (0.069)	-0.113** (0.056)	-0.077 (0.076)	CN non-M. (0.058)	-0.069 (0.053)	0.003 (0.053)	0.002 (0.055)
Average compensation of employees	CN priv (2.713)	0.660 (3.492)	1.383 (5.186)	CN EU (2.107)	2.270 (2.645)	7.993** (3.916)	CN M. (1.850)	-0.290 (1.850)	1.848 (2.490)	-1.394 (2.122)
	CN SOE	1.122 (2.671)	3.657 (3.377)	CN non-EU (1.337)	-1.816 (2.575)	-2.711 (2.401)	CN non-M. (3.319)	-0.898 (4.144)	2.503 (4.144)	16.16** (6.621)
Intangibles %	CN priv (0.007)	0.013** (0.008)	0.018** (0.010)	CN EU (0.006)	0.001 (0.008)	-0.004 (0.010)	CN M. (0.005)	0.007 (0.005)	0.010 (0.009)	0.007 (0.008)
	CN SOE	-0.008 (0.007)	-0.010 (0.010)	CN non-EU (0.008)	0.003 (0.012)	0.016 (0.013)	CN non-M. (0.008)	-0.002 (0.010)	-0.006 (0.010)	-0.003 (0.012)

Notes: This table contains estimation results on acquisition effects of Chinese acquisitions for different target groups. *CN* is a dummy that equals 1 if the acquirer is a Chinese firm. *CNpriv* is a dummy that equals 1 if the acquirer is a Chinese private firm, and *CNSOE* is a dummy that equals 1 if the acquirer is a Chinese state-owned or state-controlled firm. *CNEU* is a dummy equal to 1 if the acquirer is Chinese and the target is located in the European Union; *CNnonEU* is a dummy that equals 1 if the acquirer is Chinese and the target is not located in the European Union. *CNEU* is a dummy equal to 1 if the acquirer is Chinese and the target is located in the European Union; *CNM* is a dummy that equals 1 if the target is a manufacturing company. The control group is re-weighted using entropy balancing on the first and second moments. Labor Productivity 1 and 2 measure the turnover and value-added per employee; Capital Productivity 1 and 2 measure the ratios of turnover and value-added to total assets (see Table A6). Standard errors are robust.

* $p < .10$; ** $p < .05$; *** $p < .01$.