Accepted Manuscript

Not looking for trouble: Understanding large-scale Chinese overseas investment by sector and ownership

Limin Luo, Zhen Qi, Paul Hubbard

PII: S1043-951X(17)30111-6
DOI: doi: 10.1016/j.chieco.2017.08.006
Reference: CHIECO 1092

To appear in: *China Economic Review*

Received date: 16 August 2016
Revised date: 8 May 2017
Accepted date: 18 August 2017

Please cite this article as: Limin Luo, Zhen Qi, Paul Hubbard , Not looking for trouble: Understanding large-scale Chinese overseas investment by sector and ownership, *China Economic Review* (2017), doi: 10.1016/j.chieco.2017.08.006

Not looking for trouble: Understanding large-scale Chinese overseas investment by sector and ownership

Limin LUO, Assistant Professor, Shantou University Department of Social Sciences, lmluo@stu.edu.cn

Zhen QI, Corresponding Author, Assistant Professor, Shantou University Business School, zhenqi@stu.edu.cn or qizhen_cat@163.com

Paul HUBBARD, Sir Roland Wilson PhD Scholar, Crawford School of Public Policy, Australian National University, paul.hubbard@anu.edu.au

Acknowledgement：Funding for this project was provided by Guangdong Provincial Innovative Young Scholar Project (2016WQNCX039 & 2016WQNCX038) & the Social Sciences Fund of Shantou University(7400115 & 07400114).

Thanks go to Jingyi Li, Australian National University, for valuable research assistance.

Not looking for trouble: Understanding large-scale Chinese overseas investment by sector and ownership

Abstract

This paper contributes to the systematic understanding of Chinese investment abroad, and particularly the role of state-owned enterprise (SOE) investors, in two ways. Firstly, we identify major problems in the literature stemming from wide-spread data deficiencies in data. Specifically, the reliability of previous research results has been limited by data sets that do not identify the final destination for Chinese investment, nor suitably differentiate between different ownership types. By augmenting the project-level data from the China Global Investment Tracker with detailed ownership information for each firm, this study reveals that large-scale investment in natural resource investment, which surged after 2008, is dominated by state-owned enterprises controlled by China's central government. But it also reveals a newer wave of non-resource investment after 2009 in which non-state enterprise plays the leading role.

Further, we investigate the destination selection of large-scale Chinese investment to 192 countries from 2005 to 2015 – to test the extent to which SOEs might be attracted to poorer institutional host environments. We find that Chinese SOE investment in resources, regardless of ownership type is attracted to countries with political stability, but is negatively related to the rule of law measure. For non-resource investment, we find no strong institutional preferences. We therefore suggest that previous findings of different investment motivations between state- and non-state investors likely reflects the dominance of state-ownership in resource sectors, rather than different investment behaviour based on ownership.

Key words: China's overseas direct investment; state-owned enterprises; private enterprises; data deficiencies

JEL Code: F21, F02, F15

1. Introduction

The recent surge of Chinese overseas investment was led by state-owned enterprises (SOEs) from a country that is still rapidly developing. Given that earlier large scale investment flows have come tended to be private investment from developed market economies, this has provoked three major questions about Chinese overseas investment.

To what extent is Chinese overseas investment seeking natural resources for China's continued urbanisation and industrialisation, compared to other market-seeking and technology seeking motivations?

Compared to overseas investment from developed countries that flows to host countries with good economic governance, do Chinese investors prefer, or at least better tolerate, hosts with poor economic governance?

And finally, are there any significant differences in Chinese overseas investment behaviour on account of its SOEs?

The final question is relevant to policy makers considering whether a country's foreign investment regime requires special provisions for SOEs.[1] Some previous studies have argued differences in formal property rights and corresponding political connections between SOEs and the governments can cause their investment behaviour to diverge from private profit-seeking companies (Deng et al. 2015; Yeung and Liu 2008), and therefore fall outside mainstream theories of overseas investment (Child, J. and Rodrigues 2005). However, if SOEs behave like 'ordinary' investors, then the case for special policy treatment is less clear.

Leading studies of the drivers and motivations of Chinese overseas investment, including Buckley et al (2007; 2009), Cheung and Qian (2009), Pradhan (2009), Cheng and Ma (2010), Sanfilippo (2010), Bhaumika and Co (2011), Hurst (2011), Kolstad and Wiig (2012), and Wang et al (2015) fail to reach a consensus.[2] The major problems with the literature stem from inadequate data that does not properly identify the destination for Chinese investment, nor suitably differentiate between different ownership types.

Attempts to compare overseas investment behaviour have been hampered by limited data as we will discuss in detail in the next section. For example, Ramasamy et al (2012) use data for only 63 publicly-

[1] For example, while Australia's Foreign Investment Review Board (FIRB) generally reviews only very large foreign proposals, it reviews all investments foreign-government entities regardless of project value.

[2] A large proportion of the empirical literature supports the hypothesis for market seeking behaviour. The market-seeking hypothesis has garnered the most supports within OECD economies (Buckley, Clegg, and Cross 2007; Y. W. Cheung and Qian 2009; Hurst 2011; Kolstad and Wiig 2012). The resource-seeking hypothesis for Chinese overseas investment has also gained some support, particularly within non-OECD countries (Buckley, Clegg, and Cross 2007; Hurst 2011; Kolstad and Wiig 2012; Pradhan 2009; Sanfilippo 2010; Wang, Du, and Wang 2015). But there is also research that does not support the resource seeking hypothesis (Bhaumik and Co 2011). There is a much larger controversy surrounding the question of whether Chinese overseas investment is attracted to countries with relatively weak institutional environments, specifically a preference for Chinese overseas investment into countries with comparatively weak institutions (Buckley, Clegg, and Cross 2007; Amighini, Rabellotti, and Sanfilippo 2013; Kolstad and Wiig 2012; Quer, Claver, and Rienda 2012; Sanfilippo 2010; Wang, Du, and Wang 2015). Of these, one strand of the literature supposes that the structure of Chinese overseas investment might be more suitable for countries which reflect China's own domestic institution (Buckley, Clegg, and Cross 2007; Cheng and Ma 2010; Hurst 2011), while others draw the opposite conclusion (Y. W. Cheung and Qian 2009; Bhaumik and Co 2011; Q. Li and Liang 2012), detecting no strong preference for Chinese overseas investment to weak institutional environments.

listed companies from 2006-2008 to compare the overseas investment motivations for SOEs and non-SOEs, and found that listed SOEs sought host countries that had poor institutions but rich natural resource endowments. Duanmu (2012) using investment to 47 countries from 189 companies (SOEs and non-SOE are distinguished) in Jiangsu province between 1999 and 2008 discovered the opposite – that countries with abundant natural resources were not especially attractive for Chinese overseas investment, to the point of being negative. Obviously, the small samples used in these two papers are not representative.

Amighini et al (2013) extended this earlier analysis by separating the number of green field investments for each country-sector-year for SOEs and non-SOEs from 2003 to 2008. They discovered that Chinese private companies preferred large markets and strategic resources (high technology), and avoided countries with poor institutions. The investment behaviour of SOEs accorded more with the demands of China's domestic economy, flowing to resource rich areas, and largely insensitive to political risk. However, their dataset (fdiMarkets) does not consistently report project size, and so the authors had to rely solely on the count of investments. This effectively treats a $15 billion project equally to a $100 million project. Where studies do distinguish between SOEs and non-SOEs, they do not distinguish between central SOEs, administered by the State-Owned Assets Supervision and Administration Commission (SASAC) and those administered by provincial and county-level authorities or outside the SASAC system. This is a further limitation, given that the investment behaviours and motivations of central and local SOEs may be quite different. For example, central SOEs might be expected to fulfil a 'national champion' role that leans more closely to national political and development priorities, compared to local SOEs which might fulfil more profit-oriented development objectives of their local owners (Li, Cui, and Lu 2014).

To investigate this, we augmenting a database of large-scale overseas investment projects with detailed information on company ownership, including distinguishing central SASAC SOEs from others. We do find differences in the motivations of central SOEs compared to local SOEs and private investors. However, we explain this on the basis of sectoral distribution between resource and non-resource sectors, rather than fundamentally different drivers on the basis of ownership. The rest of this paper is presented in three sections. Section 2 briefly describes the limitation of the data that were applied in the existing literature and discusses our data's representativeness and reliability. Section 3 investigates the drive of China's ODI in different sectors and with different ownerships. Section 4 discusses the implications of this study and concludes.

2. Chinese overseas investment data

2.1. *Data limitations*

Official data on Chinese overseas direct investment (ODI) is reported by China's Ministry of Commerce.[3] This is also the basis of foreign direct investment statistics reported for China by the United Nations Conference on Trade and Development. The Ministry of Commerce provides aggregate data on the value of the flow and stock of Chinese outbound investment categorised by industry, by destination country, and by registered ownership type. For a subset destination country, industry-specific breakdowns of aggregate investment flows are also reported.

The Ministry of Commerce's role in data collection stems from its administrative function to approve overseas investments above a certain scale, and so potentially misses cases of smaller-scale projects

[3] An authoritative source from the Ministry of Commerce is the Chinese Overseas Direct Investment Statistical Report (2002-2014) (中国对外直接投资统计公报)

that do not require registration, larger-scale projects which fail to register, and the reinvestment of retained foreign earnings (Tan 2013; Rosen and Hanemann 2009). In addition to the investment aggregate, the website of the Ministry of Commerce also provides a searchable database of around 41,000 registered outbound investments, but does not reveal project size.

The official data records only the first destination of the overseas investment, even if the substantive economic investment often occurs in a third country. For example, an investment from a Chinese company into an Australian resource project, via a Hong Kong listed subsidiary, would be officially recorded as an overseas investment to Hong Kong, rather than to Australia. As a consequence, the top three official destinations in the official statistics are Hong Kong, the British Virgin Islands and the Cayman Islands. These account for 68 per cent of the recorded stock. Researchers using data that include flows to these destinations therefore introduce a large bias into their results. By contrast, research that omits flows to these destinations without being able to track the ultimate recipient cannot claim to be representative since it misses at least two thirds of Chinese ODI.

The official data understates the role of SOEs in Chinese overseas investment by relying on official registration categories for state-owned enterprises.[4] According to this definition, SOEs held more than 55 per cent of the stock of outbound investment in 2013. But this statistic excludes investment made by shareholding and limited liability companies that may be partially- or wholly state owned. This includes all publicly-listed (and therefore partially state-owned) SOEs. In 2015, the head of the SASAC reported that 107 central SOEs had 8,515 branches in 150 countries and regions, which collectively account for 70 per cent of the country's total outbound direct investment (Xinhua 2015). In addition to this are investments from state-owned institutions that are not administered by central SASAC, which include state owned banks and financial companies, and local SOEs.

Some of the deficiencies in the official data can be remedies by reliance on third party data is available (Table 1). Many of these independent data sources observe Chinese investments in a final destination and then trace it back to particular owners in China. Some provide information on company ownership. However, none presents a complete overview of Chinese direct investment – often being restricted by tracking Chinese investment only in a certain country, above a certain monetary threshold, or of a certain type.

[4] For a discussion of these, see Hubbard (2016a)

Table 1: Non-official data sources on Chinese overseas investment

Name	Publisher	Time	Host country	Ownership	Scope and Scale	Public Access
China Global Investment Tracker	American Enterprise Institute and The Heritage Foundation	2005-	Final destination (world)	Owner recorded, but not classified.	Direct and indirect investment valued more than US $100 million	Open
fDiMarkets	Financial Times	2003-	Final destination	Yes	Greenfields investment (Scale not consistently recorded)	Paid
Zephyr Database	Bureau van Dijk	1980s-	Official registration	No	Foreign mergers and acquisitions	Paid
China Investment Monitor	Rhodium Group	2000-	Final destination (United States)	Yes	China's Investment in US	Paid
Demystifying Chinese Investment in Australia	KPMG and University of Sydney	2007-	Final destination (Australia)	Yes	Direct investment valued more than US$5 million	Summary report available, not project level data.
China-Canada Investment Tracker	China Institute of University of Alberta	1993-	Final destination (Canada)	Yes	China's Investment in Canada	Paid
Thompson-Reuters	Thompson-Reuters	1980s-	Official registration	No	Foreign mergers and acquisitions	Paid

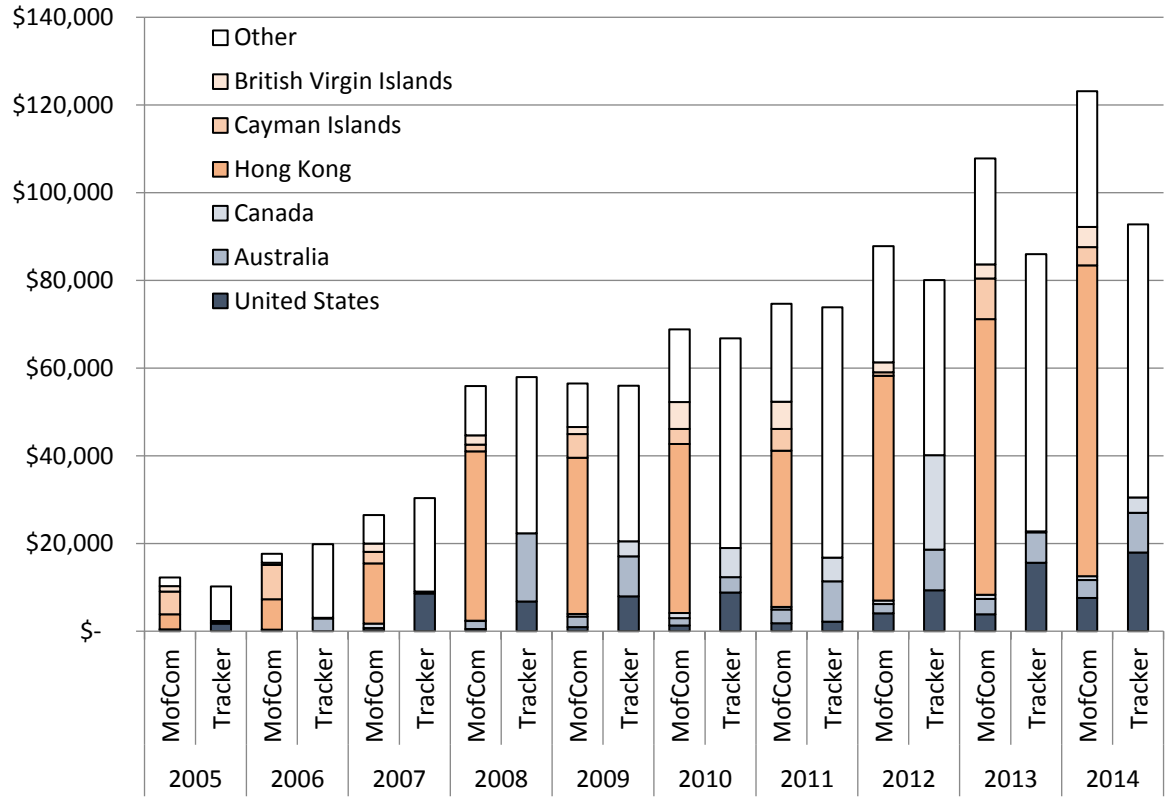
The China Global Investment Tracker (the Tracker) covers Chinese investments announced in the open-source media valued above $100 million. It does not purport to be a comprehensive measure of actual overseas direct investment flows. It does not distinguish between direct investments (where the investor takes a stake of more than 10 per cent) and (indirect) portfolio investments (other than bonds, which are excluded). The Tracker dates investments from when they are announced rather than when (or if) actual investment flows occur, although Tracker data is continually revised on the basis of new information. Nor does it track exit of capital and so should not be added together to provide a net stock of Chinese investment at any particular time.

Nevertheless, there is evidence that the Tracker is a reasonable proxy for large scale Chinese investment. Its main advantage, when compared to proprietary datasets, is that the complete list of projects is made publicly available. This allows users of the database to identify potential mistakes or

inaccuracies at the project level, and gives the authors of the database the opportunity to revise and correct the dataset on a semi-annual basis.[5]

In practice there is also a strong correlation both in levels and growth rates between the Tracker and the official Ministry of Commerce aggregate figures (Chart 1), at least until 2011 (Scissors 2014). The biggest discrepancy between the two relates to the destination of investment, which is easily explained through the distinction between first and final destinations (Liao and Tsui 2012). Amongst other datasets which record the first destinations (including the MofCom, Zephyr, Thompson-Reuters etc), the leading recipients are the Hong Kong, and tax havens in the British Virgin Islands, and the Cayman Islands. The Tracker does not report any large-scale investments in these locations.

Chart 1: Chinese Official ODI statistics v Tracker ($US million), by destination



Source: China Global Investment Tracker, Ministry of Commerce.

This correspondence is remarkable given that Tracker only identifies 899 different projects from only 353 unique Chinese companies between 2005 and 2015. By contrast, between 2005 and 2015 there were 41168 investment proposals from 29343 unique companies officially registered with Mofcom. By comparing gross non-financial ODI recorded by Tracker and official dataset, this means that roughly 90 per cent[6] of Chinese (non-financial) ODI during that period came from less than 2.2 per cent of China's officially approved overseas investments. The divergence of the series may be due to the growth in smaller scale (below $100 million) investments (whether actual growth, or improved data collection for smaller investments). Therefore, the Tracker should only be considered as

[5] Since the most recent year's data is the most unreliable by this measure, we rely on the 2016 version of the database but do not include the most recent year's projects.

[6] Only non-financial ODI is considered for both dataset to keep consistency.

representative of large-scale investments, and is likely to under-represent smaller scale investments which are more likely to be from private investors and local SOEs.

Out of 899 tracked projects, we identify 55 as joint ventures between multiple owners. We allocate capital according to different ownership types according to the reported share. Where the reported share is not available, we assume equal shares between owners. The joint venture investments account for $53,490 million of tracked investment (7. 7per cent of total). Of this, $37,674 million (70 per cent) are joint ventures in energy or metals sectors. This gives a total of 957 large-scale investments.

The Tracker does not identify the ownership status of investors. However, it does name the parent company involved, making it possible to identify the ultimate controlling owner manually. Accordingly, we classify controlling owners into five categories. If the ultimate owner is controlled by the SASAC of the State Council then we identify the owner as a 'Central SASAC' enterprise. China's major banks and financial institutions are also owned by the central government, but not supervised by central SASAC. We designate these as 'Central Finance' enterprises. Enterprises that are supervised by provincial and other local governments are classified as 'Local SOEs'. Enterprises that are controlled by non-state companies are classified as 'Private', although these can in fact include minority state ownership. We cannot identify owners for 21 projects, accounting for 1.2 per cent of recorded total investment.

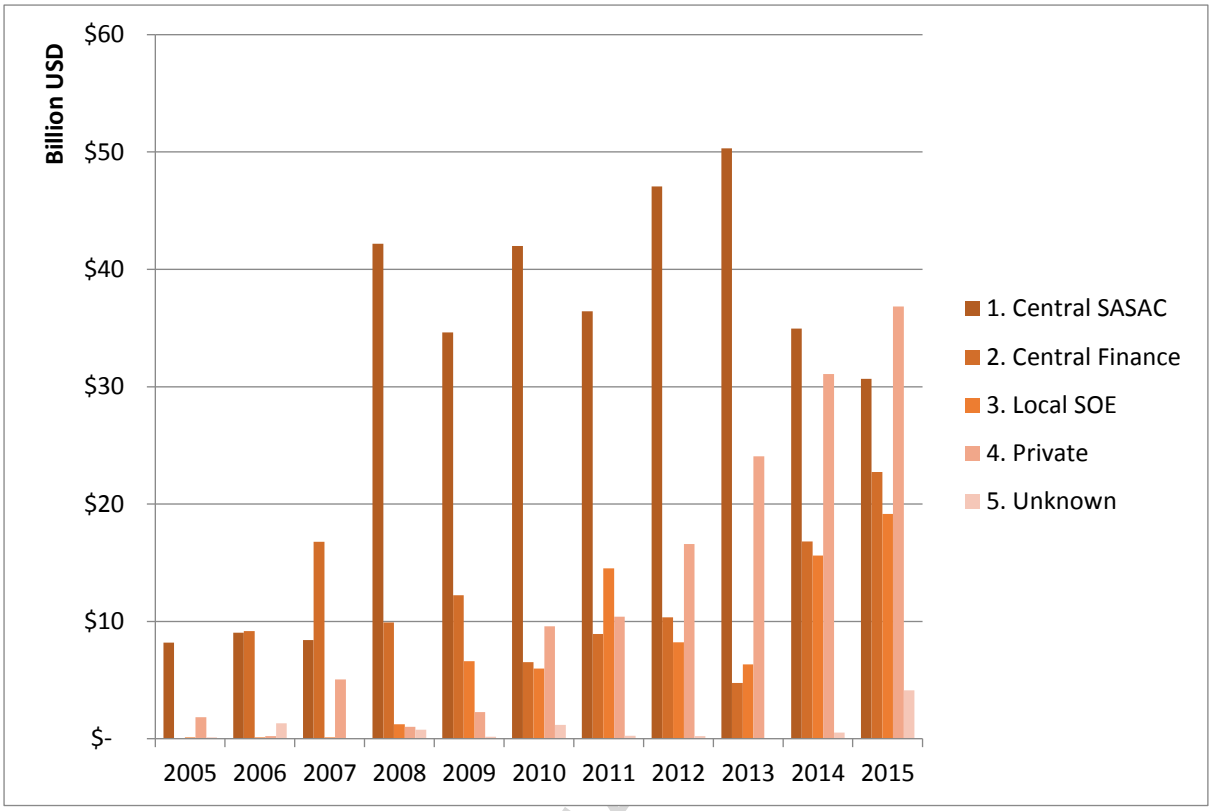
Table 2 shows investment-level statistics by owner. From this we see that projects from central SOEs are by the largest, with an average value of $1.1 billion. Average project size declines for central financial SOEs, local SOEs and private companies. Overall, state-owned investment accounts for 79 per cent,

Table 2: China Tracker Investments by Ownership Type ($US million)

	Total value	(%)	N	Average	Max
1. Central SASAC	$343,858	0.50	335	$1,026	$15,100
2. Central Finance	$118,184	0.17	157	$753	$5,600
3. Local SOE	$77,987	0.11	134	$582	$3,500
4. Private	$138,920	0.20	310	$448	$7,100
5. Unknown	$8,621	0.01	21	$411	$1,990
Grand Total	**$687,570**	**1.00**	**957**	**$718**	**$15,100**

Chart 2 shows trends over time. We observe that investment from central SOEs surges from 2008 until 2013, before falling. By contrast, private investment and local SOE investment is very low before 2009, but grows rapidly from then. This is consistent with Li et al's (2014) proposition that local SOEs are "more likely to follow a gradual internationalization path when conducting outward" investment than central SOEs.

Chart 2: Large scale Chinese overseas investment, by ownership of ownership type



Source: China Global Investment Tracker, Authors.

2.2. *Large scale Chinese investment by sector and ownership*

This distribution is likely driven by the distribution of sectors in which different types of state owners are dominant. Table 3 shows that the largest single projects are in the energy sector, which includes oil, coal, gas and electricity) ($15.1 billion) and minerals ($12.8 billion).

Table 3: Maximum project size by sector and ownership ($US million)

	1. Central SASAC	2. Central Finance	3. Local SOE	4. Private	5. Unknown
Energy	15,100	3,240	2,950	1,400	180
Metals	12,800	2,920	1,490	2,700	764
Transport	7,860	970	2,810	2,700	100
Agriculture	1,440	2,040	1,940	7,100	1,990
Finance		5,600	100	2,700	
Real estate	500	1,790	3,500	2,000	1,300
Technology	1,000	1,800	310	2,910	
Other	1,150	800	625	2,600	790
Chemicals	2,010		1,660	1,850	
Tourism	450	1,950	1,490	1,130	
Utilities		920	800		

Table 4 shows the distribution of tracked investments by sector and owner. We observe that two resource-related sectors (metals and energy) make up nearly 60 per cent of tracked investments. They

are dominated by central SASAC SOEs (which themselves account for half of tracked investment). The dominance of central SASAC SOEs in overseas investment in these sectors reflects the dominance of the state in these sectors within China (Hubbard 2016b). Central financial companies (17 per cent of total investment) are most heavily invested in finance sectors, followed by energy, real estate and metals. Private Chinese investments (which account for 20 per cent of tracked investment) are the dominant investor in real estate, agriculture, technology, other (including entertainment, textiles, forestry and consumer goods) and tourism sectors. Local SOEs account for only 11 per cent of total tracked investments. Local SOE investments range across all sectors, but dominate only in chemicals sectors.

Table 4: Share of all tracked investment by sector and ownership

	1. Central SASAC	2. Central Finance	3. Local SOE	4. Private	5. Unknown	Grand Total
Energy	33.5%	3.7%	1.8%	2.0%	0.1%	41.1%
Metals	9.9%	1.9%	2.4%	2.8%	0.2%	17.2%
Real estate	0.5%	2.8%	2.5%	4.0%	0.5%	10.3%
Finance	0.0%	6.3%	0.0%	1.8%	0.0%	8.1%
Transport	3.7%	0.4%	2.0%	1.4%	0.0%	7.5%
Agriculture	0.7%	0.4%	1.2%	2.1%	0.3%	4.6%
Technology	0.7%	0.6%	0.0%	3.2%	0.0%	4.5%
Other	0.4%	0.4%	0.4%	2.3%	0.2%	3.6%
Tourism	0.1%	0.4%	0.4%	0.5%	0.0%	1.4%
Chemicals	0.4%	0.0%	0.5%	0.3%	0.0%	1.2%
Utilities	0.0%	0.3%	0.1%	0.0%	0.0%	0.4%
Grand Total	**50.0%**	**17.2%**	**11.3%**	**20.2%**	**1.3%**	**100.0%**

This suggests an appropriate categorisation of Chinese investment is into resources (energy and minerals) and non-resource sectors. Separating resource investment from non-resource investment reveals two time trends in Chinese investment abroad. Chart 5A shows an average $10 billion per year of resource investment from 2005-2007, before leaping to $50 billion a year from 2008 to 2013. By contrast, Chart 5B shows that Chinese investment in non-resource sectors has taken much longer to grow, but by 2014 exceeded the total value of resource investment.

Chart 5A: Large scale Chinese overseas investment over time – metals and energy

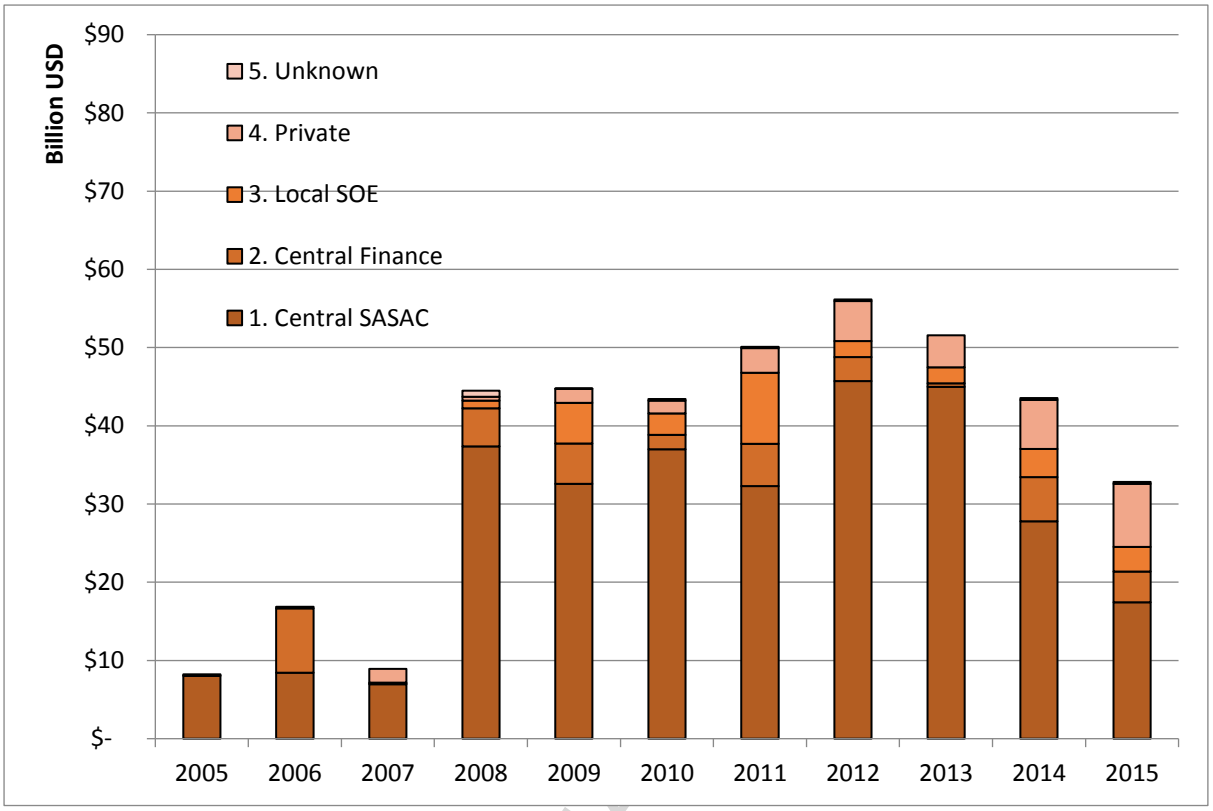
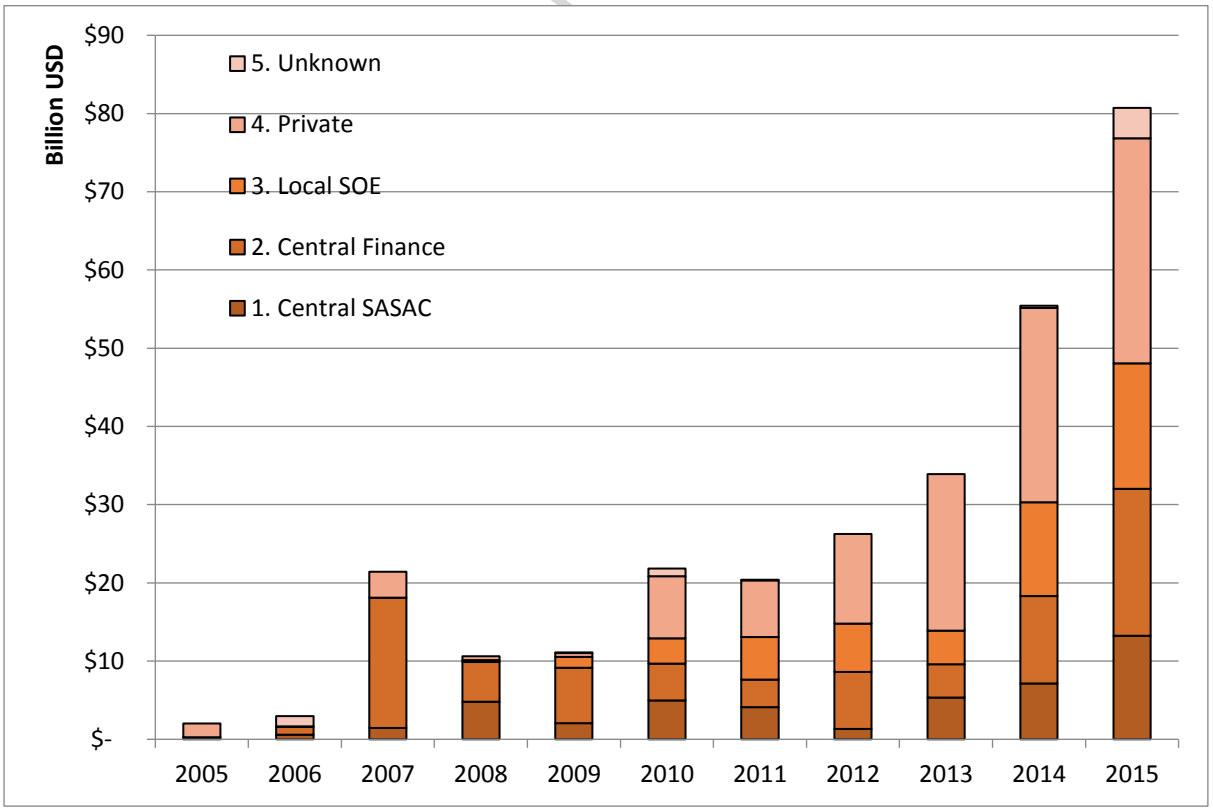


Chart 5B: Large scale Chinese overseas investment over time – other sectors



2.3. *Large scale Chinese investment by host country and ownership*

The destinations for Chinese overseas investment also vary significantly between resource and non-resource investments. Chart 6A shows the ten largest single recipients of tracked resource investment, led by Australia and Canada. By contrast, Chart 6B shows that the United States is by far the largest destination for non-resource investment. The private share of investment to the United States is much greater. While central financial companies are the second largest categories, central SASAC enterprise investment in the United States' non-resource sectors is less than other much smaller host economies.

Chart 6A: Large scale Chinese overseas investment by host country (Metals and Energy)

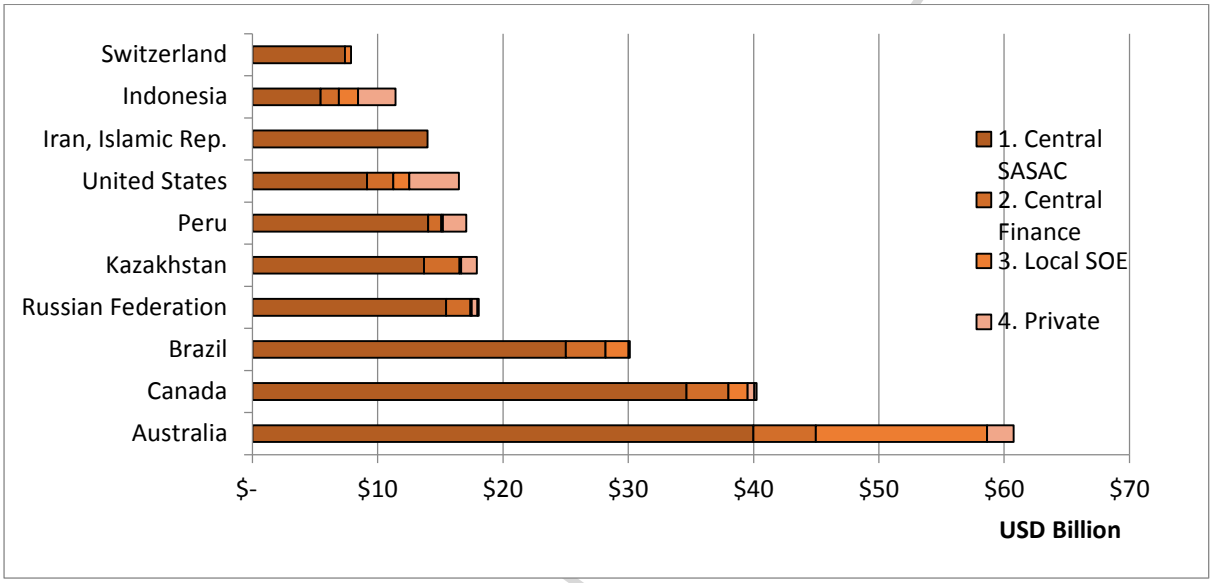
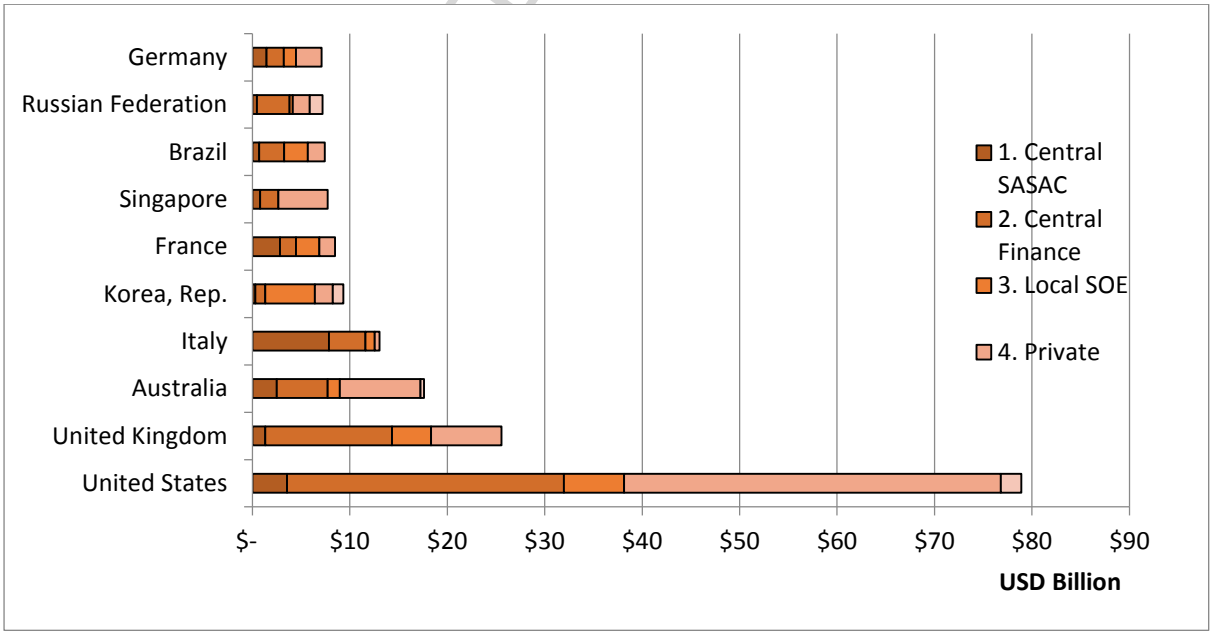


Chart 6B: Large scale Chinese overseas investment by host country (Other Sectors)



3. Re-estimating the motivations of China's ODI

3.1 *Descriptive research*

Any early study of Chinese investment in the 1980s and 1990s found that Chinese investment appeared to be attracted to environments that were less politically stable, and speculated that "Chinese firms seek foreign investment opportunities in environments that resemble their home environment" and may be "unconstrained by the ethical and governance obligations that are normally expected of Western MNEs today" (Buckley, Clegg, and Cross 2007).

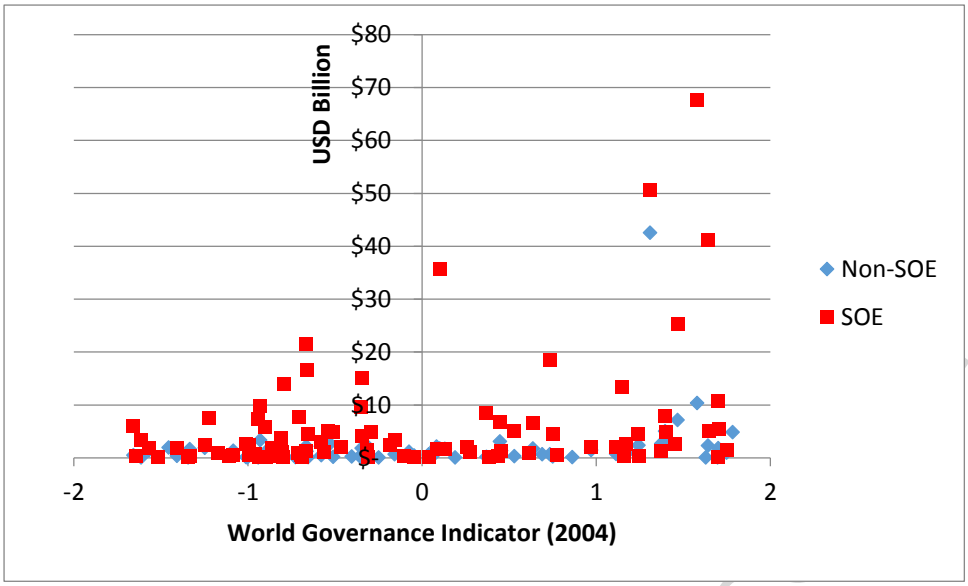
However, the relationship may not be entirely one way. Whether or not a Chinese overseas investment occurs will also be constrained by the regulatory regime in the host economy. Less stable countries may be forced by necessity to adopt a 'beggars can't be choosers approach' to investment, while richer hosts might for internal political reasons have more restrictive regimes (if not explicitly against Chinese investment, then potentially relating to state-owned enterprises or in particular 'strategic' sectors where SOEs are more likely to invest.)

For example, not only did the political reaction of the United States to the 2005 takeover deal of United States' oil company Unocal by the China National Offshore Oil Corporation (a central SOE) prevent that $13 billion transaction from occurring, but an event study of estimated that it reduced the market value of other US oil and gas firms by nearly $59 billion (Wan and Wong 2009), presumably by reducing the potential for other deals in that sector. If other Chinese SOEs interpreted this as hostility to state-owned investments in general, rather than being sector-specific, this would also lead to Chinese SOEs choosing to invest in more welcoming destinations.[7]

Chart 7 shows the tracked data, by owner, plotted against a proxy for the quality of governance, the World Governance Indicators (WGI). We see that Chinese SOEs do invest in countries with below average WGI scores. But the bulk of investment when measured in terms of value is concentrated in countries with very high WGI scores. The largest single recipient of tracked non-state investment is to the United States, which is ranked highly in terms of its WGI as well as being the world's largest economy in market exchange rate terms.

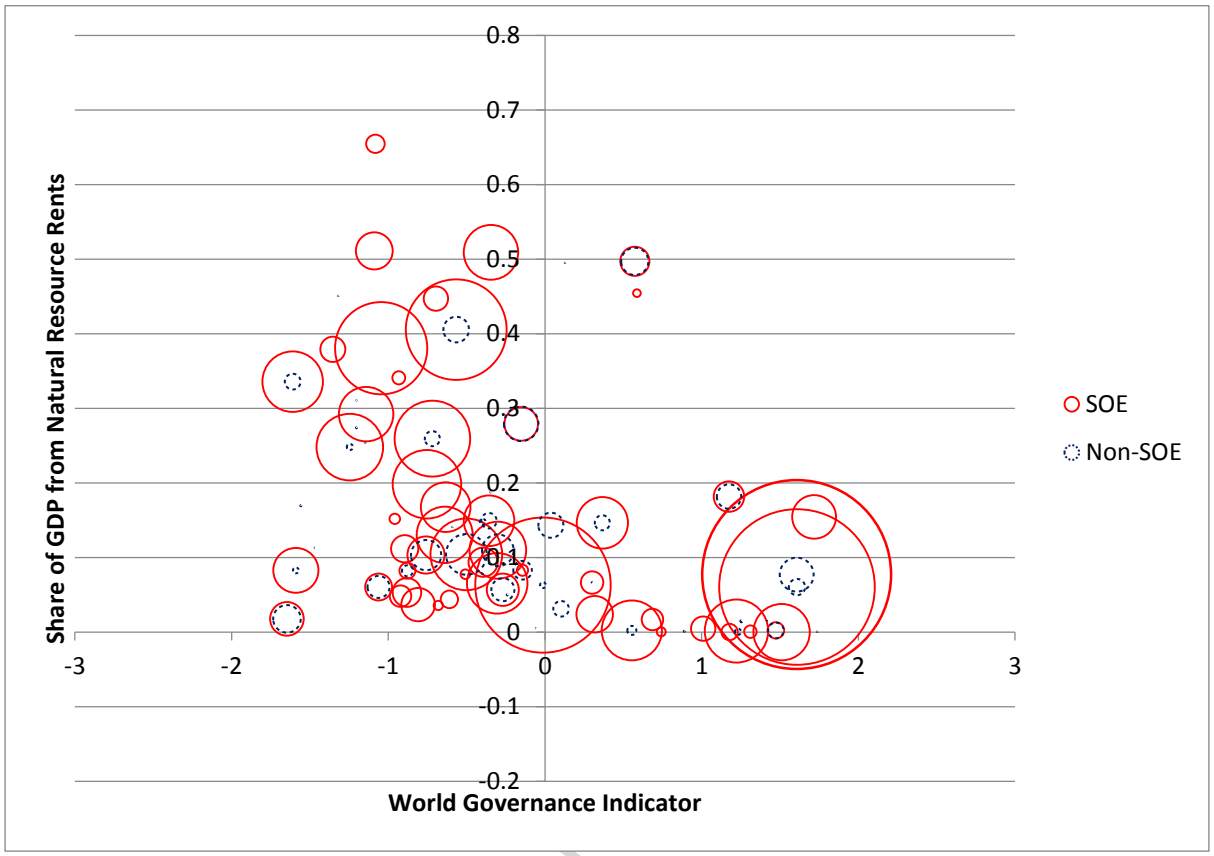
[7] Thanks to Derek Scissors for pointing out this particular example.

Chart 7: Total tracked investment by 2004 World Governance Indicator ($US million)



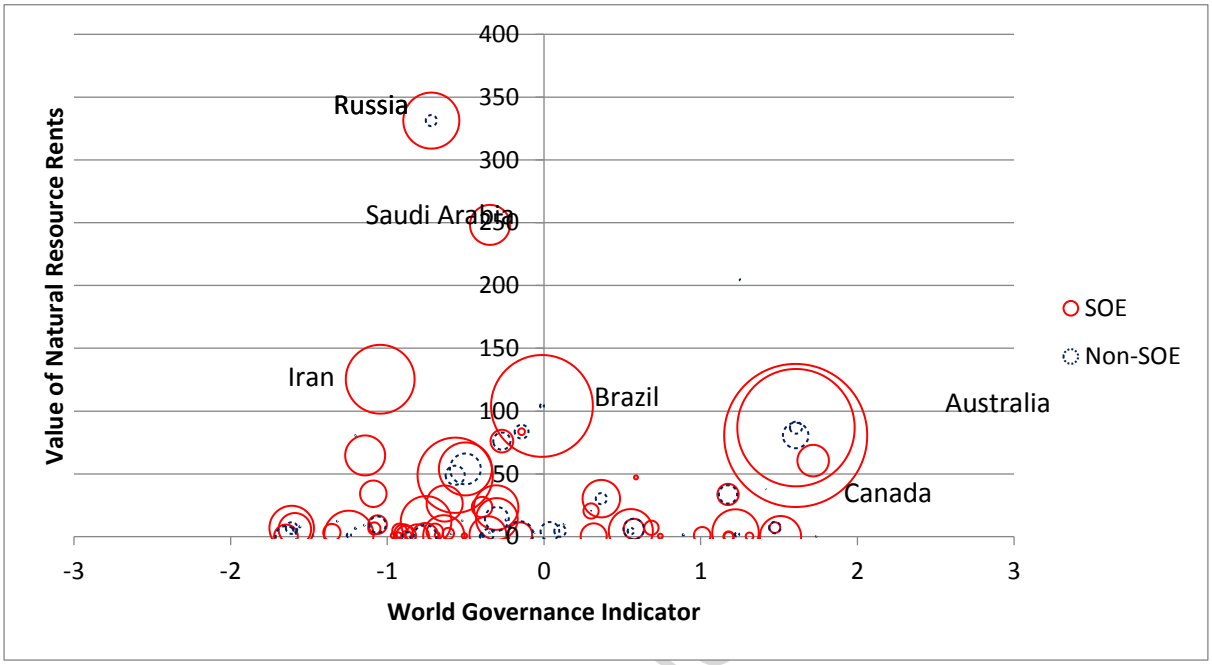
Nevertheless, we observe that state investors in particular have significant (but smaller) investments in countries with poor governance. This pattern may be related to resource investment. Chart 8 shows the size of tracked state and non-state investment in each host country by the size of circle. The horizontal axis remains the same measure of world governance indicator, while the vertical axis shows the proportion of natural resource rents in the host country's GDP. The largest recipients on Chinese resource investment, Australia and Canada are developed economies with high WGI scores in which the relative share of resources is actually quite low. However, we observe significant smaller scale Chinese investment in resource-intensive economies with poor WGI scores.

Chart 8: Tracked Chinese resource investment, by country's average world governance indicator and relative resource dependence



However, even large share of resource rents in a small economy (for example, Papua New Guinea) may not be large enough in absolute value to support large scale investment. Chart 9 calculates an absolute value of resource endowments, by multiplying the share of relative resource rents by GDP in 2004. The top four countries for resource endowments in order are Canada, Russia, Australia and Brazil. We observe that Brazil is the third largest recipient of tracked resource investment after Australia and Canada, even though its absolute resource rents are much less than Russia.

Chart 9 Tracked investment by country's average world governance indicator and absolute resource rents



Overall, there is no easily stylized fact about the institutional preferences of Chinese investors to draw from these descriptive statistics. Untangling this requires more thorough regression analysis.

3.2 *Determinants of Chinese Investment*

Armed with this broadly representative dataset of large-scale Chinese investment and carefully defined ownership categories, we are now able to overcome some of the problems with earlier studies. Following Amighini et al (2013), we construct a variable which observers the total value of all tracked investment for a given owner for each potential recipient country-sector-year.[8] Table 5 shows summary statistics for the non-zero dependent variables based on the Tracker data from 2005 to 2015, with our detailed ownership classifications.

Table 5 Dependent Variables, Summary Statistics ($US million)

	Mean	Sum	Nonzero observations
All	1,145.4	686,080	599
All State	1,257.6	539,509	429
Central SASAC	1,374.9	343,718	250
Central Finance	957.8	117,804	123
Local SOE	684.1	77,987	114
Non-state	618.6	137,950	223

Because there are 23,232 potential country-sector-year observations, but only 957 tracked investments, it is inevitable that most of the observations will be zero. For this reason we follow

[8] Taiwan is excluded due to absence of control variables.

Amighini et al's (2013) choice of a poisson regression model. Although their observations were based on the number of projects rather than total investment value, Silva and Tenreyro (2006) show that a Poisson pseudo-maximum-likelihood (PPML) estimation is appropriate in this situation, and has previously been applied by Zhu (2012) and Liao and Tsui (2012) to Chinese direct investment using the Tracker data.[9]

With subscripts for each country, sector, year omitted, our model takes this form.

$E(\textit{investment in country } i, \textit{ sector } j, \textit{ year } t) = \exp(\alpha + \beta_1 \text{institutions}_{it} + \beta_2 \text{naturalresources}_{it} + \beta_3 \text{lngdpcurrent}_{it} + \beta_4 \text{lngdppercapita}_{it} + \beta_5 \text{gdpgrowth}_{it} + \beta_6 \text{hightech}_{it} + \beta_7 \text{lndistw}_i + \beta_8 \text{im\_exchina}_{it} + \beta_9 \text{ex\_import}_{it} + \beta_{10} \text{gdpgrowthchina}_t + \beta_{11} \text{year}_t + \varepsilon)$

To avoid problems of endogeneity, all independent variables are lagged by one year. Summary statistics for each of these independent variables are presented in Table 6. A correlation matrix is included in the appendix.

We are required to choose a measure for resource endowments.[10] This could be a measure of absolute volume or value of resource (used for example in Wang et al 2014, Hurst 2011) or a measure that is relative to some other indicator, such as GDP or total exports. As we saw earlier in Charts 8 and 9, the choice can present a different picture. In our study we apply both methods, for consistency with Amighini et al (2013), we present findings in the main paper based on a relative resource measure. However, we present findings based on absolute resource measure in the appendix. Given the functional form of the model we are using, we argue in the appendix that the relative measure provides a better fit.

We use WGI as a summary measure of general host country institutional quality. Following the presentation of overall results, we will decompose this index into its six subindices for a more detailed discussion of the influence of institutions on Chinese investment and comparison with other results.

[9] An anonymous reviewer also suggested incorporating fixed effects. While easily implementable for linear models, the inclusion of fixed effects estimator in nonlinear models such as poisson is not straightforward. In non-linear models, the estimator suffers from an "incidental parameters problem" (Neyman and Scott 1948). This causes the maximum likelihood estimator (MLE) to be inconsistent in the presence of fixed effects when the number of individuals (n) is large relative to the time series dimension (T) (Greene 2004). Recent research to incorporate fixed effects into nonlinear models (Helpman, Melitz, and Rubinstein 2008; Silva and Tenreyro 2006) remains largely theoretical, and not yet incorporated into STATA code for the purpose of our study.

[10] Following the advice of an anonymous reviewer, we check robustness by measuring resource and technology intensity proxied by share of fuel and mineral in the total export and R&D expenditure (% of GDP) respectively. The new regression results reveal that our ppml model is robust for different proxies' setting (see appendix), although missing observations in the alternative proxies suggested cause the loss of around 7,000 observations.

Table 6 Explanatory Variables, Summary Statistics

Variable Name	Motivation, measurement and source	Mean	Median	Max	Min
institutions	measure of host country governance World Governance Indicators (WGI)	-0.06	-0.22	1.99	-1.93
naturalresources	Relative resource endowment natural resource rent as % of total GDP	0.11	0.04	0.89	0.00
lngdpcurrent	Market size of host country GDP (logged, $US billion)	23.91	23.73	30.49	18.32
lngdppercapita	Market affluence in host country per capita GDP ($US logged)	8.17	8.16	11.36	4.90
gdpgrowth	Growth in host market annual % growth	4.08	4.05	104.49	- 62.08
hightech	Technology seeking behaviour High-tech exports as % of total manufactured exports	9.35	4.95	87.40	0.00
lndistw	Geographic proximity to China Distance from China weighted relative to population (CEPII)	9.01	9.05	9.86	6.93
im_exchina	Importance of trade with China (imports from China + exports to China) / GDP (UN Comtrade)	0.11	0.04	6.07	0.00
ex_import	Openness to trade (imports + export) as % of GDP	92.59	83.09	455.28	0.31
gdpgrowthchina	Growth in China (time control) annual % GDP growth in China	10.00	9.82	14.19	7.27
year	Trend in investment over time	2010	2010	2015	2004

Source is WDI: World Development Indicators (http://data.worldbank.org/data-catalog/world-development-indicators), except where specified as WGI: Worldwide Governance Indicators (http://info.worldbank.org/governance/wgi/index.aspx#home) , CEPII (www.cepii.fr/) , UN Comtrade Database (http://comtrade.un.org/)

We have considered other possible variables that may influence Chinese overseas investment, include the exchange rate between RMB and host countries' currency, host countries' inflation and total tax rate. These variables were not significant in our preliminary regressions; therefore we dropped them from our study.

Table 7 shows the regression results for all sectors and owners (column 1). We observe that overall Chinese investment is attracted to countries of larger economic size with resource endowments. As for market-seeking, most of the existing literature supports the market seeking hypothesis for countries with good institutions (Buckley, Clegg, and Cross 2007; Y. Cheung, Haan, and Qian 2011; Hurst 2011; Kolstad and Wiig 2012). We also spilt the whole sample into two subsamples with good and poor institutions. In contrast to these earlier studies, our evidence support market seeking hypothesis in both of these two subsamples (results are in the appendix).

Institutions are a significant positive attractor; although per capita incomes are not[11]. We note some significant attraction to hosts with higher technology output, as well as for those that are more distant

[11] The question of potential multicollinearity problem between the institutional measure and GDP per capita, as suggested by one anonymous review, is considered in the appendix.

from China. The degree of trade with China is a significant positive predictor of Chinese investment, but trade with the world more generally is not.

These results are not common across all ownership types – compared to central SASAC SOEs (column 3) or central financial enterprises (column 4), local SOEs (column 5) and non-state investors (column 6) appear not to be attracted by resources, but are significantly attracted to host countries that trade more with China and countries with higher technology intensity.

Our results suggest that investment increases as distance from China increases, which deviates from earlier literature. This is most likely on account of the correct treatment of investment to Hong Kong in the Tracker database which shows that Chinese investment is not concentrated in Asia. According to the Tracker, investment to Africa accounts for 21 per cent of investment. There are only six Asian countries that account for more than 1 per cent of large-scale Chinese investment (Indonesia 2.4%, Malaysia 1.1%, Singapore 1.8%, India 1.0%, South Korea 1.4%, and Kazakhstan 2.8%). This is much lower than the United States (14.3%) or Australia (11.2%).

Table 7 Regression Results, All Sectors

	(1) All (Value)	(2) All State (Value)	(3) Central SASAC (Value)	(4) Central Finance (Value)	(5) Local SOE (Value)	(6) Non-state (Value)
institution	0.82***	0.74***	0.71**	0.65*	0.72*	1.17***
	(3.92)	(3.05)	(2.26)	(1.70)	(1.72)	(4.53)
relativeResource	3.67***	3.76***	4.30***	3.14*	-0.58	2.63
	(4.85)	(4.60)	(4.49)	(1.91)	(-0.33)	(1.72)
lngdpcurrent	0.74***	0.68***	0.62***	0.97***	0.56***	0.91***
	(14.49)	(11.34)	(7.20)	(9.71)	(6.59)	(9.39)
lngdppercapita	-0.49***	-0.44***	-0.49***	-0.30	-0.09	-0.59***
	(-3.89)	(-3.15)	(-2.93)	(-1.26)	(-0.36)	(-2.90)
gdpgrowth	-0.01	-0.02	-0.03	-0.03	0.11**	0.06
	(-0.27)	(-0.86)	(-1.27)	(-0.84)	(2.47)	(1.14)
hightech	0.02***	0.02***	0.01	0.02	0.02***	0.03***
	(3.34)	(2.61)	(1.27)	(1.54)	(2.60)	(3.37)
lndistw	0.51***	0.53***	0.55***	0.62***	0.22	0.55***
	(4.06)	(3.53)	(2.63)	(2.85)	(0.75)	(3.18)
im_exchina	1.41***	1.31***	1.20***	0.76	1.63***	1.87***
	(4.82)	(4.17)	(3.13)	(0.72)	(3.49)	(2.93)
ex_import	-0.00*	-0.01*	-0.01	-0.00	-0.01**	-0.00
	(-1.86)	(-1.73)	(-1.17)	(-0.33)	(-2.25)	(-0.70)
gdpgrowthchina1	0.13*	0.17**	0.16	0.22**	0.05	-0.09
	(1.88)	(2.23)	(1.56)	(2.43)	(0.38)	(-0.76)
year	0.23***	0.21***	0.19***	0.22***	0.33***	0.31***
	(5.88)	(4.99)	(3.33)	(3.38)	(3.96)	(4.02)
_cons	-489.02***	-448.98***	-401.16***	-468.80***	-670.72***	-638.12***
	(-6.11)	(-5.19)	(-3.48)	(-3.57)	(-4.04)	(-4.16)
Obs.	22044	22044	22044	22044	22044	22044
Log likelihood	-1974202	-1793912	-1412471	-417315	-313286	-395526
Adj. R^2	0.064	0.028	0.009	0.042	0.017	0.143

t statistics in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Having observed significant differences across between ownership types across all sectors, we investigate whether this is on account of differences in the character of the owner, or whether it simply reflects the dominance of central SOEs in resource investment and non-state investors in other sectors.

First we examine results for the resource sector (Table 8). We observe consistent coefficient sizes and significant levels across the key indicators. All ownership types are attracted to resource endowments,

and low income countries with the exception of central financial enterprises. This may be because central finance companies could be more likely to make portfolio investments[12] in resource assets, which presupposes an assets market which may not exist in lowest income countries. In terms of differences between ownership types, we note that the preference for distance only pertains significantly to central SASAC SOEs. Other ownership types prefer hosts with more bilateral trade with China.

Table 8 Regression Results, Resources Sectors

	(1) All (Value)	(2) All State (Value)	(3) Central SASAC (Value)	(4) Central Finance (Value)	(5) Local SOE (Value)	(6) Non-state (Value)
institution	1.09***	1.05***	0.93***	0.94*	2.44***	1.47***
	(4.01)	(3.60)	(2.82)	(1.65)	(4.38)	(3.02)
relativeResource	5.48***	5.50***	5.39***	5.23**	6.75***	5.24***
	(6.19)	(6.01)	(5.54)	(2.45)	(2.87)	(2.79)
lngdpcurrent	0.65***	0.65***	0.66***	0.67***	0.56***	0.65***
	(7.67)	(7.12)	(6.51)	(4.63)	(4.99)	(4.49)
lngdppercapita	-0.68***	-0.65***	-0.66***	-0.33	-0.86***	-0.96***
	(-4.79)	(-4.31)	(-4.05)	(-0.90)	(-3.70)	(-2.96)
gdpgrowth	-0.03	-0.03	-0.03	-0.07	-0.01	0.05
	(-1.15)	(-1.41)	(-1.19)	(-1.59)	(-0.11)	(0.89)
hightech	0.01*	0.01*	0.01*	0.00	-0.03	0.01
	(1.71)	(1.66)	(1.87)	(0.10)	(-0.54)	(0.81)
lndistw	0.51***	0.58***	0.66***	0.38	0.24	-0.00
	(2.73)	(2.90)	(2.68)	(1.40)	(1.00)	(-0.01)
im_exchina	1.71***	1.58***	1.32***	1.62*	3.23***	2.23***
	(5.35)	(4.61)	(3.06)	(1.84)	(4.74)	(4.12)
ex_import	-0.01	-0.01	-0.01	-0.02**	-0.04**	-0.02***
	(-1.62)	(-1.41)	(-1.00)	(-2.23)	(-1.97)	(-3.40)
gdpgrowthchina1	0.16*	0.16*	0.15	0.23	0.14	0.11
	(1.74)	(1.73)	(1.38)	(1.47)	(0.89)	(0.75)
year	0.19***	0.17***	0.17***	0.15	0.21*	0.40***
	(3.67)	(3.34)	(2.85)	(1.43)	(1.82)	(3.24)
_cons	-389.79***	-365.46***	-364.28***	-323.35	-420.33*	-803.10***
	(-3.81)	(-3.49)	(-2.99)	(-1.49)	(-1.84)	(-3.28)
Obs.	4008	4008	4008	4008	4008	4008
Log likelihood	-900907	-875787	-805321	-127242	-84444	-89436
Adj. R^2	0.073	0.062	0.042	0.023	0.105	0.075

t statistics in parentheses
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 9 presents regression results for the non-resource sector. Here we see no preference for natural resource rich hosts, nor investment in lower-income countries. There is no longer a significant relationship between trade with China and overall investment levels. Both local SOEs and non-state investors are attracted to countries with a higher share of higher-technology goods, suggesting some kind of technology seeking behavior. However, while private investors appear to prefer investment in more remote places (probably driven by preference for the United States), we observe that local SOEs exhibit no significant preference for distance.

Table 9 Regression Results, Non-resource Sectors

	(1) All (Value)	(2) All State (Value)	(3) Central SASAC (Value)	(4) Central Finance (Value)	(5) Local SOE (Value)	(6) Non-state (Value)
institution	0.00	-0.39	-1.02	0.42	-0.32	0.87***

[12] The Tracker does not distinguish portfolio investment from direct investment other than excluding unconverted bonds.

	(0.00)	(-1.01)	(-1.58)	(0.76)	(-0.69)	(2.70)
relativeResource	-2.24	-4.34**	-7.62**	0.43	-5.39**	1.38
	(-1.50)	(-2.36)	(-2.08)	(0.20)	(-2.15)	(0.54)
lngdpcurrent	0.80***	0.71***	0.49***	1.08***	0.55***	0.97***
	(11.29)	(8.83)	(3.94)	(8.68)	(4.82)	(7.85)
lngdppercapita	0.15	0.35	0.79	-0.22	0.41	-0.26
	(0.72)	(1.24)	(1.63)	(-0.63)	(1.09)	(-0.98)
gdpgrowth	0.05	0.04	-0.01	-0.01	0.17***	0.04
	(1.64)	(1.24)	(-0.45)	(-0.09)	(2.97)	(0.59)
hightech	0.03***	0.02**	-0.03	0.03	0.04***	0.04***
	(3.07)	(2.17)	(-1.22)	(1.54)	(4.15)	(2.87)
lndistw	0.41***	0.35*	-0.06	0.68**	0.10	0.66***
	(2.98)	(1.96)	(-0.35)	(2.18)	(0.26)	(3.35)
im_exchina	0.71	0.49	1.09	-0.04	-0.40	1.15
	(1.29)	(0.63)	(1.45)	(-0.03)	(-0.28)	(1.57)
ex_import	-0.00	-0.00	-0.01	0.00	-0.00	0.00
	(-0.28)	(-0.67)	(-1.13)	(0.54)	(-0.78)	(0.41)
gdpgrowthchina1	0.08	0.18*	0.24	0.23**	-0.02	-0.15
	(0.94)	(1.86)	(1.07)	(2.07)	(-0.15)	(-0.96)
year	0.31***	0.32***	0.35**	0.26***	0.42***	0.29***
	(6.30)	(5.25)	(2.53)	(3.26)	(4.21)	(3.14)
_cons	-655.43***	-669.16***	-731.10**	-556.12***	-869.13***	-616.95***
	(-6.52)	(-5.43)	(-2.56)	(-3.46)	(-4.29)	(-3.29)
Obs.	18036	18036	18036	18036	18036	18036
Log likelihood	-708682	-546447	-208412	-272604	-198665	-279530
Adj. R^2	0.158	0.052	0.014	0.049	0.024	0.169

t statistics in parentheses
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

3.3 *Detailed analysis of institutions and interactions*

The World Governance Indicator used above as a proxy for institutional quality is composed of six subindices: control of corruption, government effectiveness, political stability, regulatory quality, rule of law, and voice and accountability.

Dollar (2016) found that, unlike ODI from other countries, after controlling for other factors Chinese investment appeared to be indifferent to the quality of governance as measured. Amighini et al (2013) found that the SOEs in particular are not attracted specifically to politically unstable countries (as measured the political stability index), but that investment is often drawn there because there tends to be an abundance of resources in such places.

To examine these in more detail, we replace the 'institution' variable in earlier regressions with the six subindices. All are constructed in the same way as an index with a mean of zero[13] and standard deviation of one.[14] Of these, government effectiveness, rule of law, regulatory effectiveness and control of corruption are most associated with higher income countries.

Table 10 shows the regression results. Other than replacing the 'institution' measure with the WGI subindices, all the independent variables from the earlier regressions are retained. We do not report them since the levels and significance of these is largely unchanged

The results show quite a different influence of different subindices. Overall, there is significant attraction to political stability, and against rule of law, that is driven by central (SASAC and financial SOEs).

[13] The mean for the 192 countries in our sample of is actually less than zero, compared to 215 countries in the WGI

[14] The potential problem of multicollinearity between these subindices, as suggested by an anonymous reviewer, is considered in an appendix.

Table 10 Regression results summary for detailed governance indicators, all sectors

	(1) All (Value)	(2) All State (Value)	(3) Central SASAC (Value)	(4) Central Finance (Value)	(5) Local SOE (Value)	(6) Non-state (Value)
controlofcorruption	0.42	0.67**	1.12**	-0.35	-0.33	-0.76**
	(1.48)	(1.99)	(2.49)	(-0.73)	(-0.62)	(-1.96)
governmenteffectiveness	0.10	-0.03	0.13	-0.92	0.32	0.83
	(0.28)	(-0.08)	(0.26)	(-1.23)	(0.39)	(1.00)
politicalstability	**0.53*** **	**0.58*** **	**0.76*** **	**0.77** **	-0.36	0.40
	(3.04)	(2.86)	(3.08)	(2.31)	(-1.02)	(1.62)
regulatoryquality	0.81**	0.90**	0.74*	2.95***	0.86	0.78
	(2.39)	(2.46)	(1.74)	(3.61)	(1.21)	(1.26)
ruleoflaw	**-0.69** **	**-1.02*** **	**-1.54*** **	**-0.82***	-0.12	0.66
	(-1.96)	(-2.58)	(-3.03)	(-1.80)	(-0.20)	(1.25)
voiceandaccountability	-0.11	-0.11	-0.16	0.03	0.66**	-0.33
	(-0.83)	(-0.72)	(-0.89)	(0.06)	(2.31)	(-0.94)
relativeResource	3.67***	3.93***	4.65***	4.97**	1.38	1.61
	(4.32)	(4.27)	(4.13)	(2.30)	(0.82)	(0.78)
_cons	-499.54***	-470.84***	-429.13***	-489.82***	-715.33***	-569.87***
	(-5.93)	(-5.15)	(-3.54)	(-3.12)	(-4.16)	(-3.88)
Obs.	22044	22044	22044	22044	22044	22044
Log likelihood	-1958111	-1773875	-1386036	-401877	-309298	-390802
Adj. R^2	0.066	0.032	0.012	0.053	0.020	0.146

We again consider whether this is driven by the distribution of ownership across resources and non-resource sectors. Consistent with our earlier findings that the sector rather than ownership drives the difference, Table 11 shows that political stability is a significant positive factor for resource investment across all ownership categories, while rule of law is a negative factor for all ownership types.

The coefficient on the control of corruption subindex is positive and significant for central SASAC enterprises. That indicates that a clean government will attract larger SOE investment in its resource sector, and contradicts notion that Chinese enterprises are somehow more capable of dealing with corrupt environments.

Table 11 Regression results summary for detailed governance indicators, resources

	(1) All (Value)	(2) All State (Value)	(3) Central SASAC (Value)	(4) Central Finance (Value)	(5) Local SOE (Value)	(6) Non-state (Value)
controlofcorruption	1.25***	1.42***	1.57***	-0.90	1.33*	-0.91
	(3.18)	(3.39)	(3.46)	(-1.09)	(1.85)	(-1.55)
governmenteffectiveness	0.57	0.51	0.41	1.05	1.90*	0.76
	(1.22)	(1.05)	(0.74)	(1.16)	(1.73)	(0.84)
politicalstability	1.03***	1.05***	1.02***	1.51***	1.09**	1.04***
	(4.85)	(4.54)	(3.91)	(2.73)	(2.17)	(2.74)
regulatoryquality	0.99**	0.94**	0.84*	1.71**	2.00**	3.13***
	(2.41)	(2.25)	(1.83)	(2.07)	(2.16)	(3.83)
ruleoflaw	-2.10***	-2.19***	-2.16***	-1.82**	-3.65***	-1.26
	(-4.53)	(-4.50)	(-4.03)	(-2.18)	(-4.42)	(-1.11)
voiceandaccountability	-0.08	-0.12	-0.20	1.01**	0.78	0.04
	(-0.48)	(-0.71)	(-1.09)	(2.14)	(1.35)	(0.09)
relativeResource	6.34***	6.39***	6.21***	8.76***	9.23***	6.93***
	(6.24)	(5.93)	(5.30)	(4.66)	(3.19)	(2.98)
_cons	-431.15***	-409.97***	-408.26***	-339.99	-539.59**	-803.95***
	(-3.99)	(-3.71)	(-3.18)	(-1.37)	(-2.16)	(-3.31)
Obs.	4008	4008	4008	4008	4008	4008
Log likelihood	-853701	-828222	-763002	-117618	-79539	-82238
Adj. R^2	0.107	0.098	0.069	0.033	0.125	0.074

t statistics in parentheses
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Amighini et al (2013), Kolstad and Wiig (2012) considered the interaction between political stability and relative resource endowments and found the interaction term to be negative and significant for SOE investment but not for private investment. Taking the political stability measure as a proxy of risk, this would support the notion that Chinese direct investors are prepared to take on political risk in order to access resources. Our results reject this argument. We find the coefficient on political stability to be either insignificant or positive, consistent with a preference for political stability.

When we interact the political stability index with the measure of relative resource endowments (politicalstability_REL in Table 12) we find that for local SOEs and non-state Chinese investors, total investment value in resources depends highly on natural resources – the more stable the government of the host country, the more Chinese investment is attracted by natural resources.

Table 12 Regression results summary for detailed governance indicators, interaction between political stability and resources

	(1) All (Value)	(2) All State (Value)	(3) Central SASAC (Value)	(4) Central Finance (Value)	(5) Local SOE (Value)	(6) Non-state (Value)
politicalstability_REL	-0.02	-0.38	-0.51	0.93	3.25*	5.81***
	(-0.03)	(-0.66)	(-0.82)	(0.96)	(1.77)	(2.92)
controlofcorruption	1.25***	1.37***	1.49***	-0.82	1.61**	-0.49
	(3.19)	(3.27)	(3.35)	(-0.98)	(2.02)	(-0.64)
governmenteffectiveness	0.57	0.55	0.45	0.97	1.82*	0.35
	(1.21)	(1.10)	(0.81)	(1.07)	(1.69)	(0.40)
politicalstability	1.04***	1.15***	1.15***	1.32**	0.58	0.36
	(3.90)	(3.87)	(3.40)	(2.43)	(0.97)	(0.86)
regulatoryquality	0.99**	0.99**	0.91*	1.63**	1.71*	2.84***
	(2.41)	(2.33)	(1.93)	(1.99)	(1.71)	(3.47)
ruleoflaw	-2.10***	-2.21***	-2.17***	-1.79**	-3.70***	-1.21
	(-4.52)	(-4.47)	(-3.99)	(-2.19)	(-4.42)	(-1.04)
voiceandaccountability	-0.08	-0.16	-0.26	1.11**	0.93	0.07
	(-0.47)	(-0.88)	(-1.31)	(2.13)	(1.54)	(0.17)
relativeResource	6.34***	6.26***	6.01***	8.78***	8.47***	5.37**
	(6.32)	(5.90)	(5.32)	(4.67)	(2.63)	(2.31)
_cons	-431.14***	-409.79***	-408.62***	-342.48	-560.19**	-845.19***
	(-3.99)	(-3.72)	(-3.19)	(-1.37)	(-2.21)	(-3.05)
Obs.	4008	4008	4008	4008	4008	4008
Log likelihood	-853700	-827899	-762499	-117490	-78829	-78974
Adj. R^2	0.107	0.098	0.070	0.034	0.125	0.078

t statistics in parentheses
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Next we test if the divergence in our results from Amighini et al (2013) might be based on the count of the investments, rather than totally value. This approach weights all projects equally, and would therefore fail to capture the possibility that investors might limit their exposure to risk by limiting investment size. Table 13 shows our regression results based on count value. Again, we find a preference for political stability, this time observing that politically-stable resource-rich countries attract significantly more investment projects from central SASAC companies.

Table 13 Regression results summary for detailed governance indicators, interaction between political stability and resources (count data)

	(1) All (Count)	(2) All State (Count)	(3) Central SASAC (Count)	(4) Central Finance (Count)	(5) Local SOE (Count)	(6) Non-state (Count)
politicalstability_REL	1.29***	0.99**	0.91*	0.95	2.22**	3.41***
	(2.93)	(2.18)	(1.77)	(1.11)	(2.08)	(2.88)
controlofcorruption	0.91***	1.25***	1.24***	-0.67	2.38***	-0.38
	(2.58)	(3.21)	(3.11)	(-0.77)	(3.03)	(-0.63)
governmenteffectiveness	0.55	0.34	0.16	1.43	0.72	1.20
	(1.40)	(0.83)	(0.38)	(1.39)	(0.63)	(1.45)
politicalstability	0.50***	0.53***	0.43**	1.25**	0.57	0.35
	(2.99)	(2.81)	(2.05)	(2.31)	(1.29)	(0.96)
regulatoryquality	0.78***	0.75***	0.45	1.87***	2.11***	1.54**
	(2.77)	(2.61)	(1.49)	(2.70)	(2.64)	(2.07)
ruleoflaw	-1.69***	-1.87***	-1.50***	-2.14**	-4.29***	-1.13*
	(-4.87)	(-4.94)	(-3.66)	(-2.42)	(-6.19)	(-1.66)
voiceandaccountability	0.20	0.15	-0.00	0.92	0.97**	0.18
	(1.25)	(0.82)	(-0.01)	(1.63)	(2.22)	(0.58)
relativeResource	5.39***	5.30***	4.55***	8.81***	8.10***	5.42***
	(6.69)	(6.13)	(4.89)	(5.59)	(3.99)	(3.42)
_cons	-358.97***	-317.38***	-269.45***	-248.85	-642.64***	-594.55***
	(-5.02)	(-4.34)	(-3.34)	(-1.62)	(-3.99)	(-3.35)
Obs.	4008	4008	4008	4008	4008	4008
Log likelihood	-1032	-893	-724	-157	-184	-253
Adj. R^2	0.191	0.148	0.104	0.057	0.129	0.169

t statistics in parentheses
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 14 shows a more equivocal interaction between rule of law and resource abundance. Overall, the coefficients on rule of law remain negative and mostly significant, however, no interaction between rule of law and resource endowment is detected.

Table 14 Regression results summary for detailed governance indicators, interaction between rule of law and resources

	(1) All (Value)	(2) All State (Value)	(3) Central SASAC (Value)	(4) Central Finance (Value)	(5) Local SOE (Value)	(6) Non-state (Value)
ruleoflaw_REL	0.08	-0.16	-0.15	-2.09	3.78	3.52
	(0.12)	(-0.23)	(-0.20)	(-1.36)	(1.30)	(1.63)
controlofcorruption	1.26***	1.41***	1.56***	-0.99	1.34*	-0.87
	(3.20)	(3.35)	(3.43)	(-1.19)	(1.69)	(-1.27)
governmenteffectiveness	0.56	0.52	0.41	1.18	1.73	0.61
	(1.21)	(1.06)	(0.75)	(1.27)	(1.64)	(0.71)
politicalstability	1.03***	1.07***	1.03***	1.61***	0.95*	1.04**
	(4.79)	(4.53)	(3.92)	(2.96)	(1.81)	(2.56)
regulatoryquality	0.98**	0.96**	0.86*	1.93**	1.73*	2.87***
	(2.33)	(2.22)	(1.81)	(2.13)	(1.85)	(3.68)
ruleoflaw	**-2.11*** **	**-2.18*** **	**-2.14*** **	**-1.73** **	**-3.80*** **	-1.54
	(-4.53)	(-4.43)	(-3.96)	(-1.96)	(-4.51)	(-1.26)
voiceandaccountability	-0.07	-0.14	-0.22	0.90	0.82	0.20
	(-0.38)	(-0.72)	(-1.04)	(1.62)	(1.44)	(0.46)
relativeResource	6.38***	6.31***	6.13***	8.15***	8.15**	7.09***
	(6.16)	(5.76)	(5.13)	(4.50)	(2.24)	(3.01)
_cons	-431.06***	-410.10***	-408.39***	-346.89	-523.45**	-785.89***
	(-3.99)	(-3.71)	(-3.18)	(-1.40)	(-2.14)	(-3.17)
Obs.	4008	4008	4008	4008	4008	4008
Log likelihood	-853686	-828167	-762960	-116992	-78543	-81040
Adj. R^2	0.108	0.097	0.069	0.032	0.126	0.068

t statistics in parentheses
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Finally, we consider institutional preferences in the non-resource sector. Table 15 reveals no strong preference or aversion to any particular component of the governance indicators. Especially, for the index of rule of law, its coefficient becomes positive for local SOE and non-state companies, rather than significantly negative. This suggests that the observed preferences of SOEs in the full sample that includes resources reflects the characteristics peculiar to resource investment, rather than characteristics peculiar to state ownership.

Table 15 Regression results summary for detailed governance indicators, non-resource sectors

	(1) All (Value)	(2) All State (Value)	(3) Central SASAC (Value)	(4) Central Finance (Value)	(5) Local SOE (Value)	(6) Non-state (Value)
controlofcorruption	-0.66**	-0.60	-0.66	0.03	-1.06	-0.79
	(-2.05)	(-1.40)	(-0.76)	(0.05)	(-1.57)	(-1.50)
governmenteffectiveness	-0.80	-1.59**	-1.52**	-2.29*	-0.59	1.29
	(-1.34)	(-2.53)	(-2.10)	(-1.89)	(-0.50)	(1.12)
politicalstability	-0.22	-0.38	-0.51	0.39	-0.80**	0.04
	(-1.13)	(-1.53)	(-1.37)	(0.81)	(-2.09)	(0.15)
regulatoryquality	0.95**	1.39**	0.29	3.87***	0.24	0.02
	(2.05)	(2.48)	(0.68)	(3.43)	(0.25)	(0.03)
ruleoflaw	1.14***	1.05*	1.29	-0.17	1.42*	1.25**
	(2.73)	(1.96)	(1.30)	(-0.25)	(1.70)	(2.17)
voiceandaccountability	-0.38	-0.27	-0.08	-0.77	0.57*	-0.66
	(-1.31)	(-0.72)	(-0.11)	(-1.20)	(1.65)	(-1.29)
relativeResource	-2.58	-3.74**	-6.33**	-0.04	-2.59	-0.92
	(-1.56)	(-2.08)	(-2.03)	(-0.01)	(-1.13)	(-0.25)
_cons	-616.42***	-657.10***	-702.41***	-608.80***	-876.34***	-540.41***
	(-6.32)	(-5.35)	(-2.80)	(-2.81)	(-4.11)	(-3.13)
Obs.	18036	18036	18036	18036	18036	18036
Log likelihood	-694462	-531558	-205315	-259058	-193376	-274534
Adj. R^2	0.162	0.059	0.016	0.068	0.028	0.173

t statistics in parentheses
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

4. Conclusion

Using representative and reliable data on large-scale Chinese investment classified with detailed ownership information, we show significant differences in drivers of Chinese resource and non-resource investment. Earlier findings concerning state-ownership reflected the concentration of central-state ownership in the resources sector, and private investment in other sectors, rather than different preferences between ownership types. In particular, we note that local SOEs are closer in character to non-state enterprises than they are to central SOEs, suggesting that care needs to be taken in empirical studies to determine the nature of state ownership.

Resource investors are not indifferent to host country's governance situation. We show that resource investors have a preference for political stability, and non-corrupt host countries, but are nevertheless prepared to work in weak rule of law areas.

Our overall finding is that sectoral composition between resources and non-resources rather than ownership differences drive's China's large scale investment abroad. As the sector composition continues to change from resources toward non-resource sectors, we would expect to see overall

Chinese investment, whether private or state-owned, tend toward more 'normal' behaviour rather than be 'looking for trouble'.

Appendix 1 – Correlation between explanatory variables

Explanatory variables in basic regression.

	institution	relativeRe~e	lngdpcurrent	lngdpperca~a	gdpgrowth	hightech	lndistw	im_exchina	ex_import	gdpgrowthc~1	year
institution	1.0000										
relativeRe~e	-0.3885	1.0000									
lngdpcurrent	0.3165	0.0364	1.0000								
lngdpperca~a	0.8299	-0.1445	0.4967	1.0000							
gdpgrowth	-0.2067	0.2226	-0.0264	-0.2104	1.0000						
hightech	0.2702	-0.0886	0.1734	0.2131	-0.0443	1.0000					
lndistw	-0.0390	-0.0711	-0.2274	-0.0701	-0.1099	-0.2314	1.0000				
im_exchina	-0.0825	0.1174	-0.0519	-0.1153	0.0713	0.1154	-0.3044	1.0000			
ex_import	0.3003	-0.0871	-0.1075	0.2840	0.0087	0.1852	-0.2682	0.3423	1.0000		
gdpgrowthc~1	0.0010	0.0432	-0.0662	-0.0221	0.2306	0.0232	0.0000	-0.1389	-0.0183	1.0000	
year	-0.0013	-0.0215	0.1251	0.0449	-0.1782	-0.0206	0.0000	0.2202	0.0507	-0.6427	1.0000

World Governance Indicator Subindices

	lngdpperca~a	institution	controlofc~n	government~s	politicals~y	regulatory~y	ruleoflaw	voiceandac~y
lngdpperca~a	1.0000							
institution	0.8214	1.0000						
controlofc~n	0.7888	0.9528	1.0000					
government~s	0.8342	0.9539	0.9301	1.0000				
politicals~y	0.6464	0.8078	0.7264	0.6693	1.0000			
regulatory~y	0.7953	0.9282	0.8622	0.9307	0.6231	1.0000		
ruleoflaw	0.8072	0.9747	0.9418	0.9394	0.7605	0.8999	1.0000	
voiceandac~y	0.6347	0.8679	0.7636	0.7635	0.6522	0.7777	0.8040	1.0000

An anonymous reviewer raised concerns about the potential for multicollinearity amongst our dependent variables. For the regression with institution and GDP per capita, the multicollinearity problem is not severe: the VIF statistics are less than 5 and thereby acceptable by conventional standard, especially given the large number of our observations. For the regression with all sub-indices of institution, the VIF are more than 10. This can be a sign of severe multicollinearity. However, that does not mean our results and the explanations of the results are wrong. The main concern raised by multicollinearity is that it increases the standard errors of the coefficients. This in turn means that coefficients for some independent variables may be found not to be significantly different from zero. In other words, by overinflating the standard errors, some variables appear to be statistically

insignificant when they are in fact significant. Without multicollinearity (and thus, with lower standard errors), those coefficients might be significant. Therefore, in our regression the degree of confidence of coefficients with high significance are not violated by multicollinearity. When these sub-indices are included in the regression individual, each is very significant. But this causes the omitted variable problem, which would introduce even more severe bias into our analysis. For these reasons, our preferred approach is a careful explanation of our results: we only confirm the role of sub-indices with significant coefficients, rather than refuse the role of sub-indices with insignificance coefficients.

Subsample regression for countries with above-median (>= -0.24) institutional quality

	(1)	(2)	(3)	(4)	(5)	(6)
	All (Value)	All State (Value)	Central SASAC (Value)	Central Finance (Value)	Local SOE (Value)	Non-state (Value)
institution	1.008***	1.005***	1.174**	0.852*	0.763	0.987***
	(3.05)	(2.58)	(2.15)	(1.67)	(1.39)	(2.62)
relativeResource	3.082***	3.354***	4.178***	1.779	-0.135	1.819
	(2.71)	(2.79)	(2.74)	(0.76)	(-0.07)	(0.83)
lngdpcurrent	0.756***	0.716***	0.706***	0.909***	0.541***	0.841***
	(11.15)	(9.31)	(6.26)	(7.83)	(5.41)	(6.57)
lngdppercapita	-0.441**	-0.460**	-0.558*	-0.482	-0.113	-0.235
	(-2.12)	(-1.97)	(-1.80)	(-1.22)	(-0.32)	(-0.68)
gdpgrowth	0.00725	-0.0179	-0.0346	-0.0690	0.123*	0.102
	(0.20)	(-0.43)	(-0.59)	(-1.29)	(1.86)	(1.46)
hightech	0.0201**	0.0165	-0.00394	0.0322	0.0350***	0.0356***
	(2.30)	(1.52)	(-0.19)	(1.47)	(3.46)	(2.77)
lndistw	0.585***	0.604***	0.705***	0.790***	0.158	0.660***
	(4.39)	(3.75)	(2.99)	(3.45)	(0.54)	(3.68)
im_exchina	1.895***	1.789***	1.824*	0.997	1.482*	2.338**
	(3.11)	(2.63)	(1.78)	(0.66)	(1.95)	(2.06)
ex_import	-0.00447*	-0.00527	-0.00411	-0.00303	-0.00845**	-0.00363
	(-1.65)	(-1.44)	(-0.68)	(-0.54)	(-2.29)	(-0.88)
gdpgrowthchina1	0.209**	0.261***	0.297**	0.287***	0.0200	-0.128
	(2.49)	(2.98)	(2.24)	(2.91)	(0.13)	(-0.91)
year	0.304***	0.289***	0.279***	0.265***	0.330***	0.295***
	(6.18)	(5.36)	(3.51)	(3.33)	(3.55)	(3.49)
_cons	-631.4***	-601.3***	-580.8***	-562.3***	-676.9***	-618.2***
	(-6.37)	(-5.53)	(-3.64)	(-3.47)	(-3.61)	(-3.63)
N	12221	12221	12221	12221	12221	12221
R^2	0.074	0.031	0.009	0.045	0.018	0.162

t statistics in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Subsample regression for countries with below-median (WGI < -0.24) institutional quality

	(1)	(2)	(3)	(4)	(5)	(6)

	All (Value)	All State (Value)	Central SASAC (Value)	Central Finance (Value)	Local SOE (Value)	Non-state (Value)
institution	0.941***	0.790**	0.815**	0.530	0.145	2.196***
	(2.74)	(2.19)	(2.06)	(0.52)	(0.21)	(3.34)
relativeResource	3.777***	3.862***	4.363***	0.699	-1.514	3.750
	(3.51)	(3.25)	(3.20)	(0.23)	(-0.50)	(1.60)
lngdpcurrent	0.615***	0.558***	0.518***	0.815**	0.833***	0.830***
	(6.41)	(5.26)	(4.43)	(2.56)	(3.57)	(5.64)
lngdppercapita	-0.358*	-0.268	-0.292	0.609	-0.438	-0.838***
	(-1.87)	(-1.25)	(-1.24)	(1.17)	(-0.97)	(-2.89)
gdpgrowth	-0.0258	-0.0262	-0.0365	0.0514	0.0706	-0.0610
	(-1.04)	(-1.02)	(-1.36)	(1.15)	(0.96)	(-1.05)
hightech	0.0125*	0.0129*	0.0155*	-0.00418	-0.0238	0.0118
	(1.86)	(1.70)	(1.90)	(-0.25)	(-1.21)	(1.32)
lndistw	0.312	0.330	0.380	-0.874	0.954	0.286
	(0.87)	(0.85)	(0.88)	(-0.77)	(1.15)	(0.51)
im_exchina	1.425***	1.424***	1.445***	1.189	1.696***	1.745***
	(4.43)	(3.98)	(3.34)	(1.40)	(3.19)	(3.63)
ex_import	-0.0137**	-0.0166**	-0.0200**	-0.00521	-0.000849	-0.00384
	(-2.33)	(-2.34)	(-2.24)	(-0.49)	(-0.08)	(-0.48)
gdpgrowthchina1	-0.0290	-0.0216	-0.0134	-0.197	0.163	0.0729
	(-0.25)	(-0.17)	(-0.10)	(-1.48)	(0.73)	(0.42)
year	0.0928	0.0781	0.0764	-0.0322	0.288	0.363**
	(1.62)	(1.32)	(1.17)	(-0.49)	(1.48)	(2.37)
_cons	-198.0*	-168.0	-163.8	49.43	-607.0	-746.6**
	(-1.71)	(-1.41)	(-1.24)	(0.37)	(-1.57)	(-2.42)
N	9823	9823	9823	9823	9823	9823
R^2	0.017	0.013	0.010	0.016	0.004	0.019

t statistics in parentheses
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Appendix 2 – On the choices of proxy for destination country resources

China's top three destinations for foreign investment, both Australia and Canada are extremely abundant in natural resources, and have attracted a large amount of Chinese foreign investment: 95.3 per cent of Chinese investment in Canada is related to resources, while 82.5 per cent of Chinese investment in Australia is resource related. However, because both countries' level of economic development is relatively high, other economic sectors are also very advanced and so the relative share of natural resources relative to the overall economy is not high.

In our dataset, these two countries do not appear as relatively resource-rich countries: the annual share of resource rents in Canada is 5.9 per cent of GDP, and 7.4 per cent in Australia making them a medium level.

This might suggest the use of an absolute rather than relative resource measure in regressions. We run alternative regressions based on this specification, but find that the explanatory power tends to be less than a measure of relative resources. While in a linear-linear regression an absolute measure would be appropriate since there would be no interaction between the resource term and GDP, given that our variables sum together in an exponential function, the effect of the relative resource measure is to scale up the (logged) GDP amount by a factor given by the coefficient on the relative resource variable.

For this reason, a positive coefficient on the 'relative resource' measure does not mean that Chinese investors have a preference for resource-dependent economies; rather, that they are more attracted for to a greater resource share *for a given economy size*, they are more attracted to an economy

Regression results summary based on absolute resource measure, all sectors

	(1) All (Value)	(2) All State (Value)	(3) Central SASAC (Value)	(4) Central Finance (Value)	(5) Local SOE (Value)	(6) Non-state (Value)
institution	0.55***	0.40*	0.26	0.47	0.80**	1.24***
	(2.74)	(1.76)	(0.86)	(1.33)	(2.27)	(4.76)
absoluteResource	3.41***	3.10***	3.38***	2.66	0.70	4.68***
	(4.16)	(3.23)	(2.86)	(1.47)	(0.33)	(4.32)
lngdpcurrent	0.55***	0.52***	0.45***	0.79***	0.55***	0.68***
	(10.72)	(8.54)	(5.51)	(8.13)	(5.93)	(7.39)
lngdppercapita	-0.28**	-0.21	-0.22	-0.15	-0.14	-0.56***
	(-2.42)	(-1.62)	(-1.32)	(-0.62)	(-0.68)	(-2.77)
gdpgrowth	0.02	0.00	-0.00	-0.02	0.10***	0.06
	(0.73)	(0.15)	(-0.16)	(-0.52)	(2.68)	(1.15)
hightech	0.01*	0.01	0.00	0.02	0.02**	0.02***
	(1.91)	(1.29)	(0.25)	(1.18)	(2.48)	(3.02)
lndistw	0.37***	0.40**	0.44*	0.48**	0.18	0.31
	(2.64)	(2.45)	(1.94)	(2.02)	(0.55)	(1.63)
im_exchina	1.38***	1.36***	1.29***	0.87	1.53***	1.57**
	(6.09)	(5.78)	(4.80)	(0.95)	(3.01)	(2.51)
ex_import	-0.00**	-0.01*	-0.01	-0.00	-0.01**	-0.00
	(-2.15)	(-1.94)	(-1.23)	(-0.48)	(-2.17)	(-0.78)
gdpgrowthchina1	0.13*	0.16**	0.16	0.22**	0.05	-0.09
	(1.77)	(2.15)	(1.54)	(2.35)	(0.41)	(-0.69)
year	0.23***	0.20***	0.18***	0.21***	0.33***	0.31***
	(5.58)	(4.69)	(3.06)	(3.19)	(3.89)	(3.88)
_cons	-466.60***	-422.38***	-366.28***	-446.40***	-673.22***	-647.36***
	(-5.75)	(-4.86)	(-3.18)	(-3.33)	(-3.94)	(-3.97)
Obs.	22044	22044	22044	22044	22044	22044
Log likelihood	-1988649	-1812732	-1435478	-417683	-313281	-391786
Adj. R^2	0.064	0.027	0.007	0.044	0.017	0.148

t statistics in parentheses
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Regression results summary based on absolute resource measure, resource sectors

	(1) All (Value)	(2) All State (Value)	(3) Central SASAC (Value)	(4) Central Finance (Value)	(5) Local SOE (Value)	(6) Non-state (Value)
institution	0.55**	0.49*	0.37	0.27	2.33***	1.11***
	(2.03)	(1.69)	(1.14)	(0.50)	(3.84)	(2.60)
absoluteResource	4.48***	4.49***	4.64***	1.37	8.17***	4.99**
	(4.47)	(4.28)	(4.10)	(0.40)	(3.02)	(2.28)

lngdpcurrent	0.43***	0.43***	0.43***	0.54***	0.28**	0.40**
	(5.44)	(5.18)	(4.76)	(3.31)	(2.30)	(2.55)
lngdppercapita	-0.34**	-0.30*	-0.32*	0.08	-0.68***	-0.67**
	(-2.33)	(-1.94)	(-1.87)	(0.24)	(-3.34)	(-2.09)
gdpgrowth	0.01	0.00	0.00	-0.04	0.04	0.10**
	(0.35)	(0.03)	(0.08)	(-0.66)	(0.66)	(2.55)
hightech	0.00	0.00	0.01	-0.01	-0.06	0.00
	(0.21)	(0.18)	(0.50)	(-0.39)	(-0.91)	(0.33)
lndistw	0.37*	0.45**	0.54**	0.30	-0.17	-0.17
	(1.78)	(1.99)	(2.02)	(0.90)	(-0.46)	(-0.43)
im_exchina	1.57***	1.51***	1.34***	1.91***	2.66***	1.96***
	(6.01)	(5.63)	(4.48)	(4.56)	(4.91)	(4.49)
ex_import	-0.01*	-0.01	-0.01	-0.02**	-0.03*	-0.02***
	(-1.65)	(-1.43)	(-0.98)	(-2.20)	(-1.91)	(-3.18)
gdpgrowthchina1	0.15*	0.15*	0.15	0.22	0.14	0.10
	(1.67)	(1.68)	(1.36)	(1.42)	(0.86)	(0.68)
year	0.17***	0.16***	0.15**	0.13	0.19*	0.39***
	(3.34)	(2.99)	(2.52)	(1.23)	(1.66)	(3.13)
_cons	-353.55***	-325.42***	-321.51***	-283.70	-388.98	-791.77***
	(-3.43)	(-3.09)	(-2.62)	(-1.27)	(-1.64)	(-3.14)
Obs.	4008	4008	4008	4008	4008	4008
Log likelihood	-939302	-912423	-835175	-131035	-84289	-90912
Adj. R^2	0.057	0.045	0.029	0.023	0.100	0.084

t statistics in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Regression results summary based on absolute resource measure, non-resource sectors

	(1) All (Value)	(2) All State (Value)	(3) Central SASAC (Value)	(4) Central Finance (Value)	(5) Local SOE (Value)	(6) Non-state (Value)
institution	0.31	-0.05	-0.60	0.63	-0.06	1.09***
	(1.16)	(-0.14)	(-1.11)	(1.31)	(-0.16)	(3.26)
absoluteResource	1.47	-0.28	-7.07*	3.21	-3.83	4.27***
	(1.21)	(-0.16)	(-1.65)	(1.50)	(-1.47)	(3.30)
lngdpcurrent	0.78***	0.77***	0.70***	0.92***	0.73***	0.77***
	(11.17)	(8.92)	(3.40)	(8.22)	(6.00)	(6.95)
lngdppercapita	-0.01	0.15	0.51	-0.29	0.20	-0.34
	(-0.04)	(0.65)	(1.25)	(-0.90)	(0.71)	(-1.35)
gdpgrowth	0.03	0.02	-0.03	-0.01	0.13***	0.03
	(0.93)	(0.54)	(-1.14)	(-0.27)	(3.77)	(0.34)
hightech	0.03***	0.03***	-0.02	0.03	0.04***	0.03***
	(3.52)	(2.74)	(-0.95)	(1.49)	(4.60)	(2.79)
lndistw	0.31**	0.34*	0.20	0.48	0.24	0.40*
	(2.08)	(1.73)	(0.92)	(1.36)	(0.58)	(1.78)
im_exchina	0.26	-0.14	0.77	-0.64	-0.77	0.71
	(0.44)	(-0.17)	(0.78)	(-0.45)	(-0.48)	(0.90)
ex_import	0.00	-0.00	-0.00	0.00	-0.00	0.00
	(0.09)	(-0.33)	(-0.84)	(0.63)	(-0.49)	(0.48)
gdpgrowthchina1	0.10	0.19**	0.26	0.23**	0.02	-0.13
	(1.09)	(1.99)	(1.10)	(2.11)	(0.12)	(-0.80)
year	0.33***	0.33***	0.37**	0.26***	0.45***	0.31***
	(6.26)	(5.27)	(2.54)	(3.20)	(4.02)	(2.95)
_cons	-676.98***	-695.83***	-774.18***	-560.94***	-928.97***	-645.16***
	(-6.43)	(-5.42)	(-2.58)	(-3.35)	(-4.11)	(-3.05)
Obs.	18036	18036	18036	18036	18036	18036
Log likelihood	-709567	-551588	-210951	-270763	-199940	-276403
Adj. R^2	0.159	0.052	0.014	0.052	0.022	0.170

t statistics in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Following the advice of an anonymous reviewer, we also check robustness by adopting alternative proxies for resources and technology, namely the share of fuel and mineral in the total export and

R&D expenditure (% of GDP) respectively. The new regression results reveal that our poisson (ppml) model is robust for different proxies' setting. The downside of these alternative proxies is that, due to data availability, around one third of total observations is lost.

	(1)	(2)	(3)	(4)	(5)	(6)
	value_all	value_soe	value_sasac	value_finance	value_local	value_private
institution	0.539**	0.476*	0.501	0.814**	0.568	0.955***
	(2.56)	(1.91)	(1.51)	(2.33)	(1.49)	(4.34)
ore_metal_fuel	0.0212***	0.0228***	0.0269***	0.0192***	0.0118	0.0113**
	(5.97)	(5.55)	(5.15)	(3.16)	(1.37)	(2.45)
lngdpcurrent	0.761***	0.708***	0.634***	1.215***	0.569***	0.920***
	(13.59)	(10.27)	(6.23)	(7.60)	(6.03)	(9.46)
lngdppercapita	-0.407***	-0.336**	-0.379*	-0.265	-0.343	-0.688***
	(-3.00)	(-2.16)	(-1.92)	(-1.06)	(-1.45)	(-3.07)
gdpgrowth	0.00744	-0.0106	-0.0251	-0.0473	0.0931**	0.0791
	(0.32)	(-0.42)	(-0.85)	(-1.10)	(2.57)	(1.60)
randdexpenditure	0.298**	0.250	0.185	-0.354	0.652**	0.441**
	(2.23)	(1.57)	(0.87)	(-1.29)	(2.52)	(2.24)
lndistw	0.557***	0.583***	0.576**	0.392	0.501*	0.605***
	(3.74)	(3.22)	(2.18)	(1.33)	(1.78)	(2.88)
im_exchina	1.377***	1.325***	1.213**	-0.0679	1.584***	1.746***
	(4.16)	(3.61)	(2.53)	(-0.05)	(3.75)	(2.70)
ex_import	-0.00132	-0.00278	-0.00388	0.00215	-0.00349	0.00103
	(-0.57)	(-0.82)	(-0.62)	(0.40)	(-1.17)	(0.32)
gdpgrowthchina1	0.112	0.147*	0.138	0.218**	0.0458	-0.107
	(1.55)	(1.94)	(1.29)	(2.36)	(0.38)	(-0.85)
year	0.186***	0.163***	0.135**	0.173**	0.296***	0.271***

	(4.43)	(3.57)	(2.19)	(2.49)	(3.36)	(3.33)
_cons	-393.9***	-347.7***	-288.6**	-382.7***	-613.2***	-568.2***
	(-4.66)	(-3.78)	(-2.34)	(-2.73)	(-3.44)	(-3.47)
N	15312	15312	15312	15312	15312	15312
R^2	0.071	0.034	0.013	0.041	0.019	0.148

References

Amighini, Alessia A., Roberta Rabellotti, and Marco Sanfilippo. 2013. "Do Chinese State-Owned and Private Enterprises Differ in Their Internationalization Strategies?" *China Economic Review* 27. Elsevier Inc.: 312–25. doi:10.1016/j.chieco.2013.02.003.

Bhaumik, Sumon Kumar, and Catherine Yap Co. 2011. "China's Economic Cooperation Related Investment: An Investigation of Its Direction and Some Implications for Outward Investment." *China Economic Review* 22 (1): 75–87. doi:10.1016/j.chieco.2010.09.002.

Buckley, PJ, LJ Clegg, and AR Cross. 2007. "The Determinants of Chinese Outward Foreign Direct Investment." *Journal of International Business Studies* 38 (4): 499–518. doi:10.1057/palgrave.jibs.8400277.

———. 2009. "The Determinants of Chinese Outward Foreign Direct Investment (Erratum)." *Journal of International Business Studies* 40 (4): 353–54. doi:10.1057/palgrave.jibs.8400277.

Cheng, Leonard K., and Zihui Ma. 2010. "China's Outward Foreign Direct Investment." In *China's Growing Role in World Trade*, edited by Robert Feenstra and Shangjin Wei, 545–78. University of Chicago Press. doi:10.1093/jiel/jgv045.

Cheung, Yin-wong, Jakob De Haan, and Xingwang Qian. 2011. "China's Outwide Direct Investment in Africa." 13. 2011. https://www.researchgate.net/profile/Shu_Yu/publication/228119646_Chinas_Outward_Direct_Investment_in_Africa/links/004635167d21a89e05000000.pdf.

Cheung, Yin Wong, and Xingwang Qian. 2009. "Empirics of China's Outward Direct Investment." *Pacific Economic Review* 14 (3): 312–41. doi:10.1111/j.1468-0106.2009.00451.x.

Child, J. and Rodrigues, S. B. 2005. "The Internationalization of Chinese Firms: A Case for Theoretical Extension?" *Management and Organization Review* 1 (3): 381–410. doi:10.1111/j.1740-8784.2005.0020a.x.

Deng, Yongheng, Randall Morck, Jing Wu, and Bernard Yeung. 2015. "Monetary and Fiscal Stimuli, Ownership Structure, and China's Housing Market." *Review of Finance,* 16871, . doi:10.1513/pats.201104-033MS.

Dollar, David. 2016. "China as a Global Investor." 4. *Order from Chaos*. Asia Working Group. http://www.brookings.edu/~/media/research/files/papers/2016/05/china-as-a-global-investor-dollar/china-as-a-global-investor_asia-working-paper-4.pdf.

Duanmu, Jing Lin. 2012. "Firm Heterogeneity and Location Choice of Chinese Multinational Enterprises (MNEs)." *Journal of World Business* 47 (1). Elsevier Inc.: 64–72. doi:10.1016/j.jwb.2010.10.021.

Greene, William. 2004. “The Behaviour of the Maximum Likelihood Estimator of Limited Dependent Variable Models in the Presence of Fixed Effects.” *Econometrics Journal* 7: 98–119. doi:10.1111/j.1368-423X.2004.00123.x.

Helpman, Elhanan, Marc Melitz, and Yona Rubinstein. 2008. “Estimating Trade Flows: Trading Partners and Trading Volumes.” *The Quarterly Journal of Economics* 123 (2): 441–87. doi:10.1162/qjec.2008.123.2.441.

Hubbard, Paul. 2016a. “Reconciling China’s Official Statistics on State Ownership and Contr.” 120. EABER Working Paper Series. http://www.eaber.org/node/25575.

———. 2016b. “Where Have China’s State Monopolies Gone?” *China Economic Journal,* 9 (1): 75–99. doi:10.1080/17538963.2016.1138695.

Hurst, Luke. 2011. “Comparative Analysis of the Determinants of China’s State-Owned Outward Direct Investment in OECD and Non-OECD Countries.” *China and World Economy* 19 (4): 74–91. doi:10.1111/j.1749-124X.2011.01251.x.

Kolstad, Ivar, and Arne Wiig. 2012. “What Determines Chinese Outward FDI?” *Journal of World Business* 47 (1): 26–34. doi:10.1016/j.jwb.2010.10.017.

Li, Ming Hua, Lin Cui, and Jiangyong Lu. 2014. “Varieties in State Capitalism: Outward FDI Strategies of Central and Local State-Owned Enterprises from Emerging Economy Countries.” *Journal of International Business Studies* 45 (8): 980–1004. doi:10.1057/jibs.2014.14.

Li, Quan, and Guoyong Liang. 2012. “Political Relations and Chinese Outbound Direct Investment : Evidence from Firm- and Dyad-Level Tests Political Relations and Chinese Outbound Direct Investment : Evidence from Firm- and Dyad-Level Tests” 47405 (February).

Liao, Wei, and Kevin K Tsui. 2012. “China’s Outward Direct Investment: Evidence from a New Micro Dataset.” 17. http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2087385.

Neyman, J., and Elizabeth L. Scott. 1948. “Consistent Estimates Based on Partially Consistent Observations.” *Econometrica* 16 (1): 1–32. doi:http://www.jstor.org/stable/1914288.

Pradhan, Jaya Prakash. 2009. “Emerging Multinationals from India and China: Origin, Impetus and Growth.” *SSRN Electronic Journal*, 1–32. doi:10.2139/ssrn.1515676.

Quer, Diego, Enrique Claver, and Laura Rienda. 2012. “Political Risk, Cultural Distance, and Outward Foreign Direct Investment: Empirical Evidence from Large Chinese Firms.” *Asia Pacific Journal of Management* 29 (4): 1089–1104. doi:10.1007/s10490-011-9247-7.

Ramasamy, Bala, Matthew Yeung, and Sylvie Laforet. 2012. “China’s Outward Foreign Direct Investment: Location Choice and Firm Ownership.” *Journal of World Business* 47 (1): 17–25. doi:10.1016/j.jwb.2010.10.016.

Rosen, Daniel H., and Thilo Hanemann. 2009. “Chinas Changing OFDI Profile: Drivers and Policy Implication.” *Peterson Institue*, no. June: 21.

Sanfilippo, Marco. 2010. “Chinese FDI to Africa: What Is the Nexus with Foreign Economic Cooperation?” *African Development Review* 22 (SUPPL. 1): 599–614. doi:10.1111/j.1467-8268.2010.00261.x.

Scissors, Derek. 2014. “China Invests (Somewhat) More in the World.” Asian Outlook. http://www.aei.org/wp-content/uploads/2014/01/-china-invests-somewhat-more-in-the-world_151254764847.pdf.

Silva, J.M.C. Santos, and Silvana Tenreyro. 2006. "The Log of Gravity." *The Review of Economics and Statistics* 88 (November): 641–58. doi:10.1162/rest.88.4.641.

Tan, Xiaomei. 2013. "China's Overseas Investment in the Energy/resources Sector: Its Scale, Drivers, Challenges and Implications." *Energy Economics* 36. Elsevier B.V.: 750–58. doi:10.1016/j.eneco.2012.11.019.

Wan, Kam Ming, and Ka fu Wong. 2009. "Economic Impact of Political Barriers to Cross-Border Acquisitions: An Empirical Study of CNOOC's Unsuccessful Takeover of Unocal." *Journal of Corporate Finance* 15 (4). Elsevier B.V.: 447–68. doi:10.1016/j.jcorpfin.2009.03.004.

Wang, Yongqin, Julan Du, and Kai Wang. 2015. "The Determinants of Location Choices of China ' S ODI : Institutions , Taxation and Resources" 10 (3): 540–65. doi:10.3868/s060-004-015-0024-6.

Xinhua. 2015. "SOE Overseas Assets Surge." *China Daily, Europe*, June 19. http://europe.chinadaily.com.cn/business/2015-06/19/content_21055661.htm.

Yeung, Henry Wai-chung, and Weidong Liu. 2008. "Globalizing China: The Rise of Mainland Firms in the Global Economy." *Eurasian Geography and Economics* 49 (1): 57–86. doi:10.2747/1539-7216.49.1.57.

Zhu, Leiyin. 2012. "DETERMINANTS OF ODI FROM CHINA AND OTHER EMERGING ECONOMIES : EVIDENCE FROM NEW MIRO-LEVEL DATASET." Clemson University. http://tigerprints.clemson.edu/cgi/viewcontent.cgi?article=2448&context=all_theses.

Highlights

1. The major problems in the literature stemming from wide-spread data deficiencies in data. Specifically, the reliability of previous research results has been limited by data sets that do not identify the final destination for Chinese investment, nor suitably differentiate between different ownership types.

2. The distribution of Chinese ODI is extremely uneven: 90 per cent of Chinese ODI came from 2 per cent of China's officially approved overseas projects. Therefore, data representativeness and reliability are very important.

3. Chinese SOE investment in resources, regardless of ownership type is attracted to countries with political stability, but is negatively related to the rule of law measure. For non-resource investment, we find no strong institutional preferences.

4. Previous findings of different investment motivations between state- and non-state investors likely reflects the dominance of state-ownership in resource sectors, rather than different investment behaviour based on ownership