

EABER WORKING PAPER SERIES

Paper No. 106

THE IMPACT OF CHINESE IRON ORE OVERSEAS INVESTMENT ON THE GLOBAL MARKET

LUKE HURST

CRAWFORD SCHOOL OF PUBLIC POLICY, ANU

EABER SECRETARIAT
CRAWFORD SCHOOL OF ECONOMICS AND GOVERNMENT
ANU COLLEGE OF ASIA AND THE PACIFIC
THE AUSTRALIAN NATIONAL UNIVERSITY
CANBERRA ACT 0200 AUSTRALIA

The impact of the Chinese iron ore overseas investment on the global market

Luke Hurst^{1,2}

Abstract

This article introduces a new dataset to understand the emergent trends in Chinese iron ore procurement. The analysis looks the potential benefits Chinese iron ore investors and importers receive from access to state capital; it also assesses whether the provision of Chinese state capital reduces the ability for competitors to access investment opportunities and whether market access has been reduced for foreign iron ore importers.

Keywords: iron ore; state capital; overseas investment; trade; competition
JEL Codes: Q02, P45

China's recent push into global markets has been supported by a large banking system, which is dominated by state-owned and state share-holding banks,

¹ luke.hurst@anu.edu.au, Research Fellow at The Australian National University.

² I am indebted to Shiro Armstrong, Peter Drysdale and Ligang Song for comments on drafts of this paper.

massive foreign exchange reserves³, and a managed exchange rate.⁴ But increasing the ability of Chinese investors to access state capital, to which foreign competitors do not have direct access, it might be argued, affects the competitiveness of the supply response and the ability of non-Chinese competitors for investment and market access to compete on commercial terms.

To gain a better understanding of the impact of Chinese state capital and investment abroad on global markets, this article analyses the extent and impact of Chinese procurement activities in the global iron ore market.

The iron ore market adjustment to China's recent demand shock was perceived by the Chinese state as a signal that the 'Big 3' Asian market exporters—Rio Tinto, BHP Billiton and Vale—held, and were exploiting, market power. To break up the perceived dominance of the Big 3, the barriers to market entry for fringe iron ore producers needed to be reduced. To reduce the perceived barriers to market entry for fringe producers the Chinese state looked to support the development of fringe production and increase iron ore imports from Chinese-invested resources. In 2011, Li Xinchuang, Deputy Secretary-General of CISA, said, "China currently owns less than 10 per cent of imported iron ore. We should seek 50 per cent of ore from Chinese-invested overseas resources in the next five to 10 years".⁵

To assess the impact of China's international procurement strategies on the competitiveness of the iron ore market outcomes this article applies investment theory to a unique dataset of Chinese iron ore investment abroad. The article is structured as follows: first, it discusses Chinese iron ore procurement trends based on a unique dataset of 30 Chinese iron ore investments and 20 long-term contract (LTC) transactions; second, it outlines the extent of Chinese state support for overseas iron ore investments; next, the data on Chinese international iron ore procurement are examined; after that, the article assesses the impact of Chinese state-backed procurement on market iron ore outcomes, specifically whether Chinese state support provides advantages for Chinese iron ore investors over the short and long run, and how state support affects international competitors' access to iron ore investments and market access.

1 Overview of Chinese iron ore procurement

Iron ore market access has been most often secured through LTCs or vertical integration. The choice between LTCs and vertical integration is largely based on the ownership, location and internalisation advantages of investing, such as the buyer's preference for *ex ante* contracting costs and *ex post* monitoring and negotiation costs associated with LTCs.⁶

Firms' preferences for LTCs or vertical integration and the locations in which these different types of transaction take place provide insight into the motivation

³ In 2006 China surpassed Japan as the largest holder of foreign exchange reserves globally, around US\$1.3 trillion at the end of June 2007 (Zheng and Yi 2007, 18).

⁴ Song 2015, 200; Laurenceson 2008, 92.

⁵ Zhang 2011.

⁶ Caves 2007, 16.

of buyers and the barriers they perceive in securing supplies. To analyse Chinese iron ore procurement following the recent demand shock, data was collected on a sample of 30 Chinese overseas iron ore investments and 20 LTC-only deals between 2002 and 2012—this is not a complete list but provides a representative sample of the publicly available information on Chinese iron ore procurement. The sample includes iron ore LTCs and investments (not failed transactions, such as the failed 2009 Rio Tinto-Chinalco tie-up) from publicly available sources and the Intierra database.

Table 1 provides an overview of the 30 Chinese overseas iron ore investments undertaken between 2002 and 2012. The projects were worth a total of US\$36.5 billion and were concentrated in the period after the global financial crisis (GFC)—US\$26.4 billion of the investments took place between 2008 and 2010 (72.2 per cent of the total value over the 2002 to 2012 period).

Table 1 Chinese iron ore overseas investment, 2002–2012

Year	No. of investments	Total value (US\$m)	Average value (US\$m)
2002	1	34.8	34.8
2003	0	0	0
2004	0	0	0
2005	0	0	0
2006	1	7,455.7	7,455.7
2007	1	2,154.9	2,154.9
2008	6*	17,522.6	2,920.4
2009	10	5,824.1	582.4
2010	5	3,004.5	600.9
2011	2	228.4	114.2
2012	4	275.7	68.9
Total	30	36,500.7	1,216.7

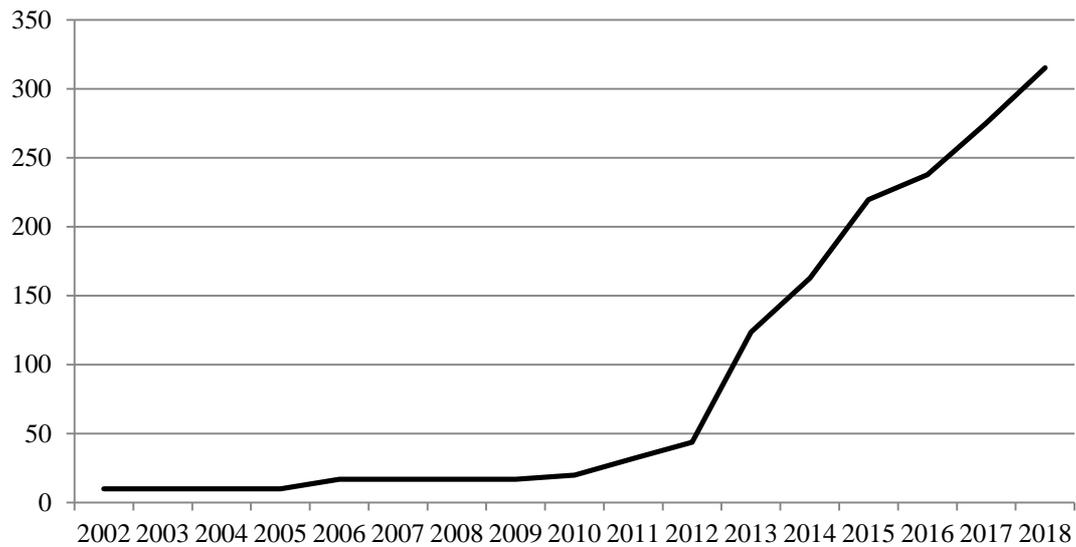
* Includes successful US\$14 billion Chinalco acquisition of 9 per cent of equity in Rio Tinto.

Sources: Intierra database; Wilson (2011, pp. 269–270); Tex Report (2013); many news articles.

The economies of scale required and capital-intensive nature of iron ore projects mean there is often a long lag between the investment and production. Figure 1 shows how the lag between investment and production may impact Chinese projects—less than 50 mt/a was planned to reach production by 2012, by 2018 the reported planned output of Chinese iron ore investment projects sampled is around 315.2 mt/a (planned output data was available on 16 of the 30 projects). For context, the Australian Bureau of Resource and Energy Economics (BREE) estimates that by 2018 global iron ore exports will be around 1,561 mt/a.⁷

Figure 1 Potential supply increase from Chinese overseas iron ore investments, 2002–2018 (mt/a)

⁷ BREE 2012.



Sources: Intierra database; Wilson (2011, pp. 269–270); Tex Report (2013); many news articles.

Table 2 provides an overview of the 20 LTCs entered into by Chinese iron ore buyers in 2012. Chinese iron ore LTCs range from 0.5 to 20 mt/a over 3 to 15 years. The available data on 20 LTCs entered into by Chinese importers as at 2012 accounts for at least 64.9 to 95.1 mt/a in 2012. The 20 LTCs recorded in the Tex Report (2013, 202), represent just 8.7 to 12.8 per cent of China’s total iron ore imports in 2012 (743.4 mt). The data on LTCs provided in the Tex Report (2013) appears to be incomplete, especially with respect to LTCs with the Big 3, and conclusions should be interpreted with a degree of caution.

Table 2 Chinese iron ore LTCs, as at 2012

Chinese firms	Suppliers	Country	Period	Volume (mt/a)
			Lesser of LOM or 15 years	
Rizhao Steel	Mt. Gibson	Australia		1.5
Rizhao Steel	OneSteel	Australia	July 2008 - June 2018	>6
Haixin Steel	OneSteel	Australia	July 2008 - June 2018	>6
Tanshan Guafeng	OneSteel	Australia	Oct 2007 - 2016	>6
Jinxi Steel	OneSteel	Australia	Jan 2008 - Dec 2017	>5
Baosteel	FMG	Australia	10 years	5 to 20
Hebei Iron & Steel (Tanggang)	FMG	Australia	10 years	5 to 20
Xinxing Ductile Pipes	Vale	Brazil	5 years	0.5
			Long term (from Dec 2008)	
Shanxi Zhongyang	Vale	Brazil		N/A
			Long term (from Dec 2008)	
Zongtian Iron & Steel	Vale	Brazil		N/A
Hebei Iron & Steel	Aurox Resources	Australia	15 years	3
Rockcheck Steel	Aurox Resources	Australia	15 years	7
Baotou Steel	Centrex Metals	Australia	5 years	1
Shenyang Orient Steel	Centrex Metals	Australia	5 years	1
Hunan Valin Iron & Steel	GWR	Australia	15 years (from Aug 2008)	5
China Minmetals Corp.	SNIM	Mauritania	2008 - 2012	1.5
Worldlin	CLM	Canada	7 years from 2007	7
Nanjing Iron & Steel	Grace Wise	Malaysia	June 2011 - May 2021	2
Tonghua Iron & Steel	IMX	Australia	3 years	1.2-1.3
Sichuan Taifeng Group	IMX	Australia	3 years	1.2-1.3

Source: Tex Report (2013, p. 102).

Table 3 shows that over the 2002 to 2012 period, Chinese overseas iron ore investments were concentrated in Australia, with 19 investments made worth around US\$31.3 billion (the average size of each project was around US\$1.65 billion); five smaller investments were made in Canada worth a total of US\$651.8 million (US\$127.7 million each, on average); the remaining six investments were spread across five countries with an average value of US\$903.1 million.

Table 3 Chinese overseas iron ore investment by country, 2002–2012

Host country	No. of investments	Total value (US\$m)	Average value (US\$m)
Australia	19	31333.3	1649.1
Canada	5	651.8	127.7
Peru	2	1330.4	665.2
Brazil	1	1121.8	1121.8
Liberia	1	426.2	426.2
Guinea	1	1241.3	1241.3
Russia	1	396	396
Total	30	36500.7	1216.9

Sources: Intierra database; Wilson (2011, pp. 269–270); Tex Report (2013); many news articles.

In 2009, the Chinese iron ore investors' preference for Australian projects appears to have changed. Just one Chinese overseas investment in iron ore was made outside of Australia between 2002 and 2008, and none of the seven LTC-only deals were with any other country apart from Australia before 2007. From 2009 to 2012, 10 of 21 Chinese overseas investments in iron ore took place in countries other than Australia, and five of the 13 LTC-only deals were with countries other than Australia.

Chinese iron ore investors were initially drawn to Australian projects due to the relatively stable institutional environment, established infrastructure, technical mining knowledge and close geographic proximity. The freight sharing mechanism, which provided Chinese importers with around 80 per cent⁸ of the transport cost differential up until 2010, made Australian production expansion particularly attractive for Chinese iron ore investors as the price of freight soared in the short run as the boom in international demand for iron ore developed.⁹

Over the decade following the surge in China's international iron ore demand, Australia's operating environment became less attractive to iron ore investors. The cost of doing business in Australia rose due to the appreciation of the Australian dollar—from an average of US\$0.54 in 2002 to US\$0.85 in 2008 before peaking at US\$1.10 in 2012—and there were growing labour shortages¹⁰ in the mining sector. In 2011, Liu Han, former Chairman of Hanlong Group¹¹, said:

Australia and Brazil both have great resources, but they don't provide many opportunities for

Chinese investors due to rising cost pressures and policy barriers. Furthermore, most of their sources and the attached infrastructure are controlled by the largest mine companies.¹²

Large-scale investment failures in Australia seared Chinese investors and increased the relative attractiveness of pursuing projects in other locations.¹³ Two investments have been particularly important in reducing the perception of Australia as a stable and friendly investment location for Chinese iron ore investment: Sino Iron CITIC Pacific and the failed Chinalco-Rio Tinto tie-up.

The CITIC Pacific Sino Iron magnetite project in Western Australia, announced in 2006, experienced cost blowouts and delays. The budget for the project more than tripled by 2012—from an estimated US\$2.5 billion to US\$7.8 billion—because of poor due diligence, the rising Australian dollar, and rising labour costs.¹⁴ In response to the CITIC Pacific failures, China's State-owned Assets Supervision

⁸ 2008 freight sharing mechanism.

⁹ Hurst 2015.

¹⁰ Chinese investors are unable to import labour into Australia.

¹¹ Hanlong Group is a conglomerate with holdings in mineral exploration and other industries. Its subsidiary Hanlong Mining failed in a takeover bid for Sundance Resources, which owns mining rights to the Mbalam and Nabeba projects in Cameroon and Congo (Ker 2013).

¹² Zhang 2011.

¹³ Laurenceson 2012.

¹⁴ Garvey 2012.

and Administration Commission of the State Council (SASAC) suspended all investments in magnetite projects in Western Australia as of 2011.¹⁵

The failed 2009 Rio Tinto-Chinalco tie-up worth US\$19.5 billion (9.5 per cent equity) would have been the largest Chinese commercial investment abroad ever at that time. In its initial form the deal would have reserved 30 per cent of Rio Tinto's iron ore production for a jointly run marketing company selling exclusively to China (Uren 2012, p. 106). The failed deal followed the successful 2008 investment by Chinalco worth US\$14 billion for 9 per cent of Rio Tinto's equity.

The 2009 Rio Tinto-Chinalco deal fell apart due to failures by all those involved. The *ad hoc* foreign investment policy reforms undertaken by the Australian government during the proposal screening process were perceived by many as signalling likely bias in Australia's investment review process against Chinese state-owned investors. For example, the Foreign Investment Review Board (FIRB) General Manager, Patrick Colmer, was quoted in a leaked US Embassy cable about the new foreign investment guidelines, which had been introduced during the 2009 Chinalco-Rio Tinto review process:

The new guidelines reduce uncertainty for potential investors, but pose new disincentives for larger-scale Chinese investments.

... The new guidelines are mainly due to growing concerns about Chinese investments in the strategic resources sector.¹⁶

The failed Rio Tinto-Chinalco tie-up was eventually rejected following Rio Tinto's board withdrawing support for the deal before the Australian Treasurer ruled on whether the investment was in the 'national interest'. But even without the government making the final call on the fate of the tie-up, the saga caused significant uncertainty and frustration for potential Chinese investors in the Australian investment process and heightened public anxiety about the Chinese state-owned investors. Drysdale (2009) summed up the fallout from the failed Rio Tinto-Chinalco deal:

No one comes out of the Rio-Chinalco experiment looking good. The Australian press fell hook line and sinker for the feed of Australian vested interests in the play. Unfortunately there's little ballast in the way of Chinese expertise in the fifth estate. Australian policymakers directly responsible for the deal looked like a bunch of stumblebums and will have to work hard to restore confidence in the Australian investment environment. Chinalco made some seriously bad calls while Rio was a house divided against itself. Opposition political leaders (Turnbull, Costello and Hockey) performed like a bunch of clowns (on a par with the self-confessed ignorance of Joyce and Xenophon) who couldn't be trusted with managing the national estate. Australia's political leadership was missing in action. And the analysts, like me, assumed too readily that lessons learned in the past are lessons learned permanently.

¹⁵ Hurst et al. 2012, 21.

¹⁶ Wikileaks 2009.

Unless there is a massive effort to get things sorted out quickly, don't think that there will be no fallout from this episode for Australia. The fallout has nothing to do with iron price negotiations or peripheral noise in the commercial relationship with China. It has to do with the damage to Australia's standing as an investment destination, especially in China but also among other global investors, and with our position in this business in the world.

Chinese foreign investors, especially state-owned investors (discussed below), have often struggled to engage in Australia's investment environment and build local legitimacy.

The failed Rio Tinto-Chinalco deal also brought to bear the inexperience of many Chinese investors in foreign markets and their ignorance of the importance of establishing legitimacy with the host public. According to Pokarier (2004, 218) identity is a key part of nationalism and therefore fear of investment from culturally separate countries is to be expected; this is especially true for state-owned foreign investors, which may be seen as pursuing government strategies over profits. A report by the State Council's Development Research Centre revealed that Chinalco had not been able to match BHP Billiton in terms of its lobbying of the public and policy makers:

BHP Billiton took advantage of its skillful mass media propaganda and lobbying capacity to arouse the public emotions so as to influence the judgment of the government policy makers. BHP Billiton tightly seized the point that Chinalco had the state-owned background.¹⁷

2 State support for Chinese iron ore investment abroad

State support for Chinese iron ore overseas investors was provided through the state-owned banking system, which provided preferential access to financing to increase imports from Chinese-owned iron ore projects. Financing was available from two state-owned policy banks—the China Export-Import Bank (ExIm) and China Development Bank (CDB)—which provide 'policy-finance' often on concessional terms; and four state owned-commercial banks (SCBs), which are mandated to finance SOE activities and to support state industrial plans.¹⁸

Information is scarce on the terms of financing for Chinese iron ore projects. Data collected by Wilson (2011, 269–270) on the source of financing for Chinese iron ore projects between 2002 and 2010 is used here as a proxy for the extent of Chinese state engagement in iron ore investment.

Table 4 presents the data for 32 international iron ore investments undertaken by Chinese investors. It shows that the average value of privately funded projects was lowest at US\$27.2 million (across two projects), while SCB funded projects were on average US\$943.7 million (across 21 projects), sovereign wealth fund (SWF) financing averaged US\$475.9 million (across two projects), policy bank-funded projects averaged \$367.8 million (across six projects), and there was one

¹⁷ in Uren 2012, 109.

¹⁸ Laurenceson & Chai 2010, 22; der Heiden & Taube 2011, 60–72; Wilson 2011, 270.

provincial bank financed project worth US\$1.3 billion. The average equity taken by state-financed investors also appears to have been higher than that taken by privately financed investors, which took 16.5 per cent equity on average. SCB-financed projects took, on average, 32.2 per cent equity, SWF projects averaged 57.5 per cent, policy bank-funded projects averaged 43.1 per cent equity, and the provincial bank financed project took 100 per cent equity.

Table 4 Source of iron ore investment funding, 2002–2010

Source of finance	No. of investments	Value (US\$m)	Average value (US\$m)	Average equity (%)
Private bank	2	54.3	27.2	16.5
SCB	21	19816.9	943.7	32.2
SWF	2	1427.6	475.9	57.5
Policy bank	6	2206.7	367.8	43.1
Provincial bank	1	1300.1	1300.1	100.0
TOTAL	32	24805.6	3114.6	49.9

Note: SCB (state-owned commercial bank); SWF (sovereign wealth fund); PB (policy bank: CDB and China ExIm Bank)

Source: Wilson (2011, pp. 269–270); author’s calculations.

The data in Table 5 shows that the sources of financing provided to private Chinese overseas iron ore investors included a private bank (one project, worth US\$46.6 million) and SCBs (three projects, worth on average just US\$14.6 million). Financing for centrally-owned SOEs’ international iron ore investments came from SCBs (nine projects, worth on average US\$1.8 billion) and policy banks (two projects, worth on average US\$603 million). Sub-central (provincial and prefectural) SOEs received financing from all sources; one project received US\$7.9 million from a private bank, nine projects received financing from SCBs worth on average US\$365.7 million, two projects were funded by SWFs worth on average US\$713.8 million, and one project received provincial bank funding of US\$1.3 billion.

Table 5 Source of iron ore investment funding by firm ownership type, 2002–2010

Source of finance	CENTRAL SOE			SUB-CENTRAL SOE			PRIVATE ENTERPRISE		
	#	Total value (US\$m)	Average value (US\$m)	#	Total value (US\$m)	Average value (US\$m)	#	Total value (US\$m)	Ave. value (US\$m)
Private	0	0	0	1	7.9	7.9	1	46.4	46.4
SCB	9	16481.3	1831.2	9	3291.6	365.7	3	43.9	14.6
SWF	0	0	0	2	1427.6	713.8	0	0	0
Policy bank	2	1206.1	603	4	1000.5	250.1	0	0	0
Provincial bank	0	0	0	1	1300.1	1300.1	0	0	0

Source: Wilson 2011, pp. 269–270; author’s calculations.

As suggested above, the GFC appears to have encouraged a large increase in Chinese overseas investment in iron ore. According to CDB head, Chen Yuan, investing in energy and minerals in the aftermath of the GFC provided a hedge against the declining US dollar and rising commodity prices. In 2009, Chen stated,

Everybody is saying that we should go to the international markets to buy up low-price assets. But I don't think we should go to Wall Street. We should think more about making acquisitions or partnerships in areas with natural resources.¹⁹

A report published by Ernst & Young estimated that the market value of mining and metal companies has dropped about 40 to 60 per cent due to the global economic downturn.²⁰ In 2009, China's Ministry of Industry and Information Technology released the *Adjustment and Revitalization Program for the Iron and Steel Industry*.²¹ The Program instructed, "companies [to] seize opportunities and actively pursue the Going Global Strategy", specifically, to make full use of three special funds: the Fund for Mining Rights to Overseas Mineral Resources, the Fund for Economic and Technical Co-operation Overseas, and the Fund for Reducing Risk in Prospecting of Overseas Mineral Deposits. MOFCOM also signed agreements on the protection of investments, with many countries and the state-owned China Export and Credit Insurance Company to provide investment insurance services.²²

China's iron ore investment push following the GFC is reflected in the data with 27 of the 30 state-finance projects tracked in Table 5 occurring between 2008 and 2010. The international iron ore investments occurring between 2008 and 2010 accounted for 97.4 per cent of the value of state financing for iron ore projects from 2002 to 2010.

The increased push by Chinese investors into iron ore projects largely reflects the fact that western banks were highly risk averse following the GFC. Chinese state-owned lenders saw opportunities in investing in iron ore as projects struggled to attract financing.²³

3 Impact of Chinese state procurement support on market outcomes

In 2011, Australian Senator Barnaby Joyce announced that, "[Chinese state-owned foreign investors] have a long-term view, they don't necessarily have to rely on the market principle".²⁴ The remarks by Senator Joyce relate to the distortions Chinese state support might have on 'competitive neutrality'. Competitive neutrality requires that government business activities should not enjoy net competitive advantages over their private sector competitors simply by virtue of public sector ownership.

¹⁹ Downs 2011, 73.

²⁰ in Yang 2009.

²¹ Downs 2011.

²² der Heiden & Taube 2011.

²³ Hurst 2013, 528–529.

²⁴ Grattan 2011.

The impact of Chinese state support on competitive neutrality has been cited widely in the academic literature.²⁵ Proponents of the argument—that preferential access to state financing distorts the competitive landscape—conclude that Chinese state-backed procurement negatively impacts the ability of private sector actors to compete on commercial terms, and that access to state financing can lead to moral hazard²⁶ as Chinese investors are able to over-bid for procurement contracts without fear of reprisal if investments fail.

The Chinese government offers several different kinds of loan finance, which have supported the majority of iron ore projects (Table 3 & 4 above). Although information on the terms of individual iron ore loans is scarce, Bräutigam (2011) found that most loans made by China ExIm Bank and CDB (the two sources of official bank financing that are used as tools to support government policy) were made on commercial terms—London Interbank Offered Rate²⁷ (LIBOR) plus a margin—rather than on a concessional basis²⁸.

China ExIm Bank's main mandate in the iron ore industry is to facilitate exports and assist imports for Chinese companies with comparative advantages in their offshore project contracting and outbound investment, and promote international economic cooperation and trade. To support its mission China ExIm loans are given at LIBOR plus a margin²⁹, usually with a maturity of 12 to 15 years and a grace period of two to five years. A small proportion of the export buyers' credits are offered at preferential rates, usually with a fixed interest rate of two or three per cent.³⁰

The CDB was originally set up to provide finance for China's own development but in recent years it has been providing very large lines of credit overseas³¹. The bank issues commercial loans based on LIBOR plus a margin—usually at least 200 basis points.³² For example, the 12 year Karara Iron Ore Project loan facility is being provided on competitive commercial terms principally by CDB and Bank of China, based on the US six month LIBOR with a competitive margin (the actual margin was not specified publicly).³³

²⁵ See, for example, Buckley et al. 2007; Sauvant & Chen 2014.

²⁶ This refers to a situation where the agent is encouraged to increase their appetite for risk knowing that the cost of failure will be incurred by another party.

²⁷ LIBOR is the interest rate applied to comparatively short term borrowing of funds in the London interbank market (loans between banks). LIBOR is a preferential rate for low risk borrowers and is often used as a baseline for less preferred borrowers who pay a rate of LIBOR plus a margin.

²⁸ When a donor government provides a loan at a rate equivalent to the private capital market plus a margin, this is not concessional as there is no subsidy at all (Bräutigam 2011, p. 755).

²⁹ The lowest rate of credit for which information is publicly available was issued at LIBOR plus 1 per cent (100 basis points).

³⁰ Bräutigam 2009, 335.

³¹ To complement the increased access to state capital, the CDB set up branch offices in 2006. The branch offices operate out of Chinese embassies and are mandated to gather information about the host countries, establish relationships with local officials and businesses to support Chinese energy and mining companies find investment opportunities. By the end of 2009, CDB had established work teams in 141 countries, including in 45 African countries (Downs 2011, 28).

³² Bräutigam 2011, 206.

³³ Gindalbie Metals Ltd. 2010.

While the terms of China ExIm and CDB loans are generally based on international benchmarks plus a margin, the margin appears generally to be lower than that available to international competitors who do not have direct access to Chinese state financing. For example, Chinalco's profits dropped by 99 per cent in 2008 owing to the collapse in demand for aluminium and its original 2008 investment of US\$14 billion for a nine per cent stake in Rio Tinto lost 70 per cent of its market value – about US\$10 billion by 2009.³⁴ Despite Chinalco's losses, four of the biggest Chinese state-owned banks—the China Development Bank, China ExIm, Agricultural Bank of China, and Bank of China—offered to lend US\$21 billion—more than the US\$19.5 billion required for the additional nine per cent equity to fund Chinalco's Rio Tinto tie-up (discussed above). Interest on the loan was just 94.5 basis points above the six-month LIBOR, and a repayment period was not set. In contrast, following Chinalco's bid, BHP Billiton offered Rio Tinto a 15 year bond, which charged interest at 345 basis points above the six-month LIBOR.³⁵

The above analysis indicates that Chinese overseas iron ore investors do have access to cheap state financing, which is not directly available to competitors. Song (2015, 200–201) notes that the Chinese banking system is dominated by state-owned and state share-holding banks, which traditionally favour SOEs. The favouritism of SOEs by Chinese state banks is due to the perception that SOEs pose a lower risk or are “at least backed by the government in the event of loan forfeiture”.

In a paper analysing the impact of state financing on Chinese investment (across all sectors), Buckley et al. (2007, 514–515) concluded:

More challenging is the unprecedented finding that Chinese ODI is attracted, rather than deterred, by political risk (as measured conventionally and with market returns controlled for by market size). This suggests that Chinese firms do not perceive or behave towards risk in the same way as do industrialised country firms. In accordance with our theory, we attribute this to the low cost of capital that Chinese firms (for the most part SOEs) enjoy as a consequence of home country capital market imperfections. Indeed, state ownership can be considered as a firm-specific advantage for many Chinese MNEs in this context.

... State-sponsored soft budget constraints make acquisition by Chinese enterprises a 'normal' mode of entering and penetrating a host economy ... Over-bidding by Chinese MNEs is attributed to the absence of private shareholders and sanguine views of the associated technical, commercial and political risks, to limited fear of failure, close government support and low cost of capital.

There are two important questions arising from Buckley et al.'s (2007) conclusion, which need to be addressed: first, has Chinese state support through low cost capital provided ownership advantages for Chinese iron ore investors over their foreign competitors? Second, has the access to state support for Chinese investors

³⁴ Yao and Sutherland 2009, 829.

³⁵ Yao and Sutherland 2009, 832; White 2009.

reduced opportunities for non-Chinese iron ore investors and procurers to compete on commercial terms?

3.1 Implications for non-Chinese iron ore investors

In-line with the Chinese state's objective of diversifying supply away from the Big 3, only three³⁶ of the 30 Chinese iron ore foreign investments in the dataset involved any of the Big 3 (all Rio Tinto). The three projects included Baosteel's 2002 JV with Rio Tinto in the BaoHI Ranges worth US\$34.8 million; Chinalco's initial investment of US\$14 billion for a 9 per cent share of Rio Tinto shares in 2008; and a 47 per cent (US\$1.5 billion) stake in Rio Tinto's Simandou development project in Guinea.

The desire to diversify supply away from the Big 3 meant that Chinese investors were required to look to less well established projects to acquire or develop, often entailing higher risk. These higher risk projects frequently faced long financing lags with commercial banks (especially following the GFC), that created a new business opportunity for the CDB. According to the CDB's (2004) annual report:

A number of Chinese enterprises have been exploring opportunities overseas and some of the potential projects are relatively large. The high risk inherent in such projects and their relatively large borrowing requirements have made many commercial banks uncomfortable about participating in their funding. Many of the enterprises in search of financing for outbound investment have turned to us. In reality, these projects are typical of the development financing that we typically undertake and we are well positioned to be of service. We are known to have both the adequate resources to fund these projects and a demonstrated track record of achievement in effectively managing the credit risk.

Ownership decisions for international investors are largely based on the firm's possessing advantages over competitors in the host country, such as managerial skills or proprietary knowledge. But the favouritism of China's banking system towards SOEs and the involvement of the CDB and China ExIm have seen the most of the financing for Chinese iron ore investments abroad provided to the largely state-owned iron and steel production (not mining) sector.

Of the 30 Chinese iron ore investments reviewed for this study 21 were made by Chinese firms with an operating competency outside of mining, only one is listed as a specialised iron ore miner. The lack of mining expertise by Chinese international iron ore investors suggests they have, on average, few long-run operational ownership advantages and instead rely on their access to cheap state capital to gain access to concessions. Access to cheap capital and support for

³⁶ Chinalco's failed tie-up for a further 9.5 per cent of Rio Tinto shares worth US\$19.5 billion was not included in the dataset.

Chinese investors abroad may have provided short-run ownership advantages over foreign competitors, which do not have access to the Chinese state capital, as they are able to overcome financing lags and can potentially ‘over-bid’ for projects due to the relatively cheap cost of capital.³⁷

The short-run ownership advantages provided by Chinese iron ore investors’ access to state capital and short-run ownership advantages create the potential for moral hazard. But Downs (2011, 61) suggests that on a straight commercial basis, it may be rational for the CDB to offer lower interest rates than western banks because the Bank is backed by the Chinese government—borrowers who fail to fulfil their loan agreements with the Bank risk angering not only the bank but also the Chinese government, which could lower the risk of moral hazard.

The acknowledgement of the lack of long-run ownership advantages of Chinese iron ore investors is shown in the trend toward taking minority equity positions (‘quasi-integration’) in partnership with specialised non-Chinese fringe iron ore firms (discussed above). The Chinese iron ore procurement data presented above, although incomplete, indicates that Chinese procurers are entering both LTC-only deals and vertical integration through minority ownership. The sampled Chinese iron ore investments exhibited a preference for JVs and minority acquisitions (22 out of 30 investments) taking on average 41.1 per cent equity. Eight investments were wholly owned acquisitions or development projects.

Chinese iron ore investors—generally steel mills—generally lacked long-run ownership advantages required to develop complex iron ore mine projects. The lack of long-run ownership advantages caused Chinese iron ore investors to engage in ‘quasi-integration’, whereby they would take minority ownership shares and partner with specialised mining firms, which would develop and operate the projects. This ‘quasi-integration’ provided increased supply security compared to LTC-only procurement and the needed capital for large-scale projects to overcome the lag associated with finalising financing. The quasi-integration strategy also ensured project partners had specialised skills to develop complex mine projects while having more ‘skin in the game’ as compared to contractors.

The preference to partner with non-Chinese fringe iron ore firms has meant that the provision of Chinese state capital has, in fact, increased access to partnership opportunities for non-Chinese iron ore investors, rather than reducing opportunities. The increased access to partnership opportunities is especially important in the context of the post-GFC business environment, which further reduced opportunities for non-Chinese fringe iron ore projects to secure financing.

3.2 Impact of Chinese state procurement on competitors’ market access

Analysts have also raised the issue of whether Chinese iron ore procurers could use their advantageous access to state capital to limit market access for foreign competitors. These concerns were highlighted by Brahma Chellaney in his 2012 testimony to the *US-China Economic and Strategic Review Commission* hearing

³⁷ Buckley et al. 2007.

on 'China's Global Quest for Resource and Implications for the United States'. During his testimony, Chellaney (2012) stated:

China has pursued an aggressive strategy to secure (and even lock up) supplies of strategic resources like water, energy and mineral ores. Gaining access to or control of resources has been a key driver of its foreign and domestic policies. China, with the world's most resource-hungry economy, is pursuing the world's most-assertive policies to gain control of important resources.

Much of the international attention on China's resource strategy has focused on its scramble to secure supplies of hydrocarbons and mineral ores. Such attention is justified by the fact that China is seeking to conserve its own mineral resources and rely on imports. For example, China, a major steel consumer, has substantial reserves of iron ore, yet it has banned exports of this commodity. It actually encourages its own steel producers to import iron ore. China, in fact, has emerged as the largest importer of iron ore, accounting for a third of all global imports. India, in contrast, remains a major exporter of iron ore to China, although the latter has iron-ore deposits more than two-and-half times that of India.

To assess Chellaney's claims about the ability of Chinese investors to reduce market access for competitors this study applies Moran's (2010) scorecard approach, which attempts to operationalise a definition of 'tying-up' resources. The scorecard identifies four fundamental natural resource procurement patterns a large buyer can take. They are: special relationship with major producer; special relationship with competitive fringe; loan capital to major producer to be repaid in output; and loan capital to competitive fringe to be repaid in output.

The first of Moran's (2010) procurement category involves the investor taking an equity stake in a very large established producer to secure an equity share of production on terms comparable to other co-owners. This form of supply internalisation provides some degree of control to the investor over the long run strategic decision-making of the project, and is zero-sum (tying-up) as the acquired project is already in production; the investment does not expand production. The second procurement pattern describes when a buyer takes an equity position in a project that is yet to reach production on terms comparable to other co-owners; this strategy expands the overall supply base while providing the investor some degree of control over the long-run strategic direction of the project.

The third category of Moran's (2010) scorecard occurs when buyers and/or their government make a loan to an already established producer in return for a purchase agreement to service the loan, such as an LTC. The LTC in category three does not provide long-term control over the operations of the producer but does increase the buyer's legal claim to pre-existing resource supply (zero-sum). This is seen as a strategy to tie-up resources. The final procurement strategy included in Moran's scorecard occurs when a buyer and/or their government make a loan to finance an up-and-coming producer in return for a purchase agreement to service the loan—this can include infrastructure for resources and resource-contingent loans. The fourth category supports the expansion of the supply base

without conferring long-term strategic control to the investor (categories are summarised in Table 6).³⁸

Table 6 Summary of Moran’s procurement scorecard

	Tying-up (zero sum)	Expansion (positive sum)
Equity	<p>Category 1: Special relationship with major producer Buyers and/or their home governments take an equity stake in a ‘major’ producer to procure an equity share of production on terms comparable to other co-owners.</p>	<p>Category 2: Special relationship with competitive fringe Buyers and/or their home governments take an equity stake in an ‘independent’ producer to procure an equity share of production on terms comparable to other co-owners.</p>
Non-equity (LTC)	<p>Category 3: Loan capital to major producer to be repaid in output Buyers and/or their home governments make a loan to a ‘price maker’ producer in return for a purchase agreement to service the loan.</p>	<p>Category 4: Loan capital to competitive fringe to be repaid in output Buyers and/or their home governments make a loan to a ‘price taker’ producer in return for a purchase agreement to service the loan.</p>

Source: Kotschwar et al. (2012, p. 27).

The procurement scorecard provides a useful method to proxy whether there are zero-sum (tying-up) implications of a country’s procurement activities, that is, whether they consolidate their legal claim to resources, which is captured by the first and third categories. If the country’s resource procurement activities result in an expansion and/or diversification of supply beyond the growth of their demand, all consumers will have access to a more competitive export market; this positive sum result is captured by the second and fourth categories in the scorecard.

Of the sample of 50 iron ore procurement arrangements entered into by Chinese investors between 2002 and 2012, three were identified as a special relationship with a major producer (Category 1); 27 were special relationships with the competitive fringe (Category 2); seven saw capital loaned to major producers for output (Category 3); and 13 procurement arrangements saw capital loaned to competitive fringe to be repaid in output (Category 4). The results of the scorecard suggest the majority of Chinese procurement arrangements were in development projects and served to expand the competitive supply base over the long run rather than reduce market access for competitors³⁹.

The scorecard result is consistent with Moran (2010, p. 2) analysis of 16 Chinese oil and mining procurement arrangements, which found that in 13 of 16 cases Chinese investors took an equity stake and/or wrote long-term procurement contracts with producers on the competitive fringe. In that study the authors concluded that:

Chinese investors will be more willing to take on new frontier—or even fringe—projects that the major established oil and mining companies might pass by ... Chinese efforts, like Japanese deployments of capital and purchase agreements in

³⁸ Moran 2010.

³⁹ There were eight LTC-only transactions, but only eight of the 29 projects with publicly available information recorded having an LTC with the Chinese investor recipient.

the late 1970s through the 1980s, predominantly help expand, diversify, and make the global energy-supply system more competitive.

The findings of the scorecard analysis are also supported by the data collected on 32 iron ore investments between 2002 and 2010 by Wilson (2011). The investment data shows that in nine of 32 iron ore investments, no LTC was entered into by the Chinese investors. In the remaining 23 cases where LTCs were entered into, only 63.8 per cent of projected iron ore output was reserved for the Chinese investor. This provides support for the conclusion that Chinese procurement has expanded, not tied-up, the competitive supply base.

The results of the scorecard analysis on Chinese iron ore procurement outcomes contradict Chellaney's claim that China's supply security strategy has locked up iron ore supply. Chellaney's testimony is also flawed in its understanding of China's iron ore endowments as it overlooks the high cost of China's iron ore production, on average, and the fact that domestic producers would be unable to compete on the global market with the added cost of seaborne freight. Chellaney is also incorrect in his comparison between China and India's iron ore protectionism. In fact in 2011 Indian authorities adopted policies to ensure steel production would be served by its own iron ore supply—the same charge of non-market orientation that Chellaney levelled at China. On 2 January 2012—22 days before Chellaney's testimony—the Indian Government announced a further increase of export tariffs to iron ore lump and fines of up to 30 per cent.

4 Conclusion

The Chinese state viewed the iron ore price boom as a signal of the Big 3's strategic market behaviour. In response it moved to reduce reliance on the Big 3 and secure long-run market access for its steel industry by supporting international investment in alternative supplies.

To reduce reliance on the Big 3 and secure supplies for the Chinese steel industry, the Chinese state supported investment in international iron ore projects in order to reduce the barriers for fringe investors to enter the market. Chinese state support was delivered mainly through its state financing institutions in the form of project financing, insurance and information.

Prior to 2008, the majority of Chinese investments and LTC-only transactions were undertaken in Australia. Since 2008, the decreasing attractiveness of Australia as an investment destination due to the increasing cost of doing business, and large-scale Chinese project failures, have seen Chinese investors diversify in terms of destination. There are similarities between China's movement away from Australia with Japan's push into the Brazilian market, and provides an example of the long-run contestability of the iron ore market despite Australia's constrained bilateral monopoly with Asia.

Analysis of Chinese iron ore procurement arrangements shows that state-owned financing institutions were involved in the majority of investments and that most investments were undertaken by central and provincial SOEs in concert with non-Chinese partners. The link between the Chinese state and the firms procuring iron

ore has led many commentators to raise concerns that the increased access to finance provides Chinese investors with advantages over other competitors and creates barriers for investors competing on commercial terms.

Chinese iron ore investors were most often operating outside their core competency and lack of long-run ownership advantages. The lack of iron ore development and operating competence meant they generally paired with a non-Chinese specialised iron ore fringe producer. The preference for quasi-integration through JVs with non-Chinese fringe iron ore producers means that Chinese state support had effectively lowered barriers to market entry for non-Chinese fringe iron ore miners.

The second potential issue related to the strong link between the Chinese state and firms responsible for the procurement of iron ore, is the potential of Chinese iron ore procurers to tie-up supply and reduce market access for foreign steel producers. Moran's (2010) procurement scorecard was applied to data on a sample of 50 iron ore procurement arrangements to assess the claim that, "Gaining access to or control of resources has been a key driver of [China's] foreign and domestic policies" (Chellaney 2012). The application of the procurement scorecard to the Chinese iron ore procurement dataset suggests that instead of tying-up resources, China's aggregate iron ore procurement arrangements have led to a broadening of the competitive global supply base and increased access to iron ore for other buyers in the Asian market, as did the Japanese procurement arrangements in the 1970s and 1980s.

Bibliography

- Alston, Lee J. 2008. "The case for case studies in new institutional economics." in Éric Brousseau and Jean-Michel Glachant (eds.), *New Institutional Economics: A guidebook*. Cambridge: Cambridge University Press, 103–121.
- Bräutigam, Deborah. 2009. *The dragon's gift: the real story of China in Africa*. Oxford: Oxford University Press.
- Bräutigam Deborah. 2011. "Aid 'with Chinese characteristics': Chinese foreign aid and development finance meet the OECD-DAC aid regime." *Journal of International Development* 23, 752–764.
- BREE (Bureau of Resources and Energy Economics). 2012. *Resources and Energy Quarterly*, Canberra: Bureau of Resource and Energy Economics.
- Buckley, Peter, L. Jeremy Clegg, Adam R. Cross, Xin Liu, Hinrich Voss and Ping Zheng. 2007. "The determinants of Chinese outward foreign direct investment." *Journal of International Business Studies* 38, 499–518.
- Cai, Peter. 2012. "China takes a tougher line," *The Age*, 13 April.
- Caves, Richard E. 2007. *Multinational enterprise and economic analysis*. Cambridge: Cambridge University Press.
- Chellaney, Brahma. 2012. "Testimony: China's Global Quest for Resources and Implications for the United States," *U.S.-China Economic Security Review Commission*, 26 January.
- der Heiden, Peter and Markus Taube. 2011. "China's iron and steel industry at the global markets interface: Structural developments and industrial policy interventions." *The Copenhagen Journal of Asian Studies* 29(2), 110–142.

- Downs, Erica. 2011. *Inside China, Inc: China Development Bank's Cross-Border Energy Deals*, John L. Thornton China Center Monograph Series 3.
- Drysdale, Peter. 2009. "Australian needs to get its act together on China, and fast," *East Asia Forum*, 7 June.
- Drysdale, Peter. 2011. "A new look at Chinese FDI in Australia." *China & World Economy*, 19(4), 54–73.
- Garvey, Paul. 2012. "Citic Pacific's Sino Iron project faces new delay," *The Australian*, 17 August.
- Gindalbie Metals Ltd. 2010. "First drawdown under US\$1.2 billion project loan facility for Karara iron ore project," *Securities Exchange Announcement & Media Release*, 16 August.
- Grattan, Michelle. 2011. "Barnaby Joyce warns of threat to resource security," *The Age*, 29 August.
- Hurst, Luke. 2013. "West and central African iron ore development and its impact on world prices." *The Australian Journal of Agricultural and Resource Economics* 57(4), 521–538.
- Hurst, Luke. 2015. "A lesson in market contestability: Calculating the cost of Chinese state intervention in iron ore price negotiations." *EABER Working Paper* 94.
- Hurst Luke, Peter Y. Cai and Christopher Findlay. 2012. "Chinese direct investment in Australia: Public reaction, policy response, investor adaptation." *EABER Working Paper* 81.
- Ker, Peter. 2013. "Sundance slumps after Hanlong bid fails", *The Sydney Morning Herald*, 9 April.
- Kotschwar, Barbara K., Theodore H. Moran and Julia Muir. 2012. "Chinese investment in Latin American resources: The good, the bad, and the ugly." *Peterson Institute Working Paper Series* 12–3.
- Laurenceson, James. 2008. "Chinese investment in Australia." *Economic Papers* 27(1), 87–94.
- Laurenceson, James. 2012, "Chinese investment is Australia's great untapped resource," *East Asia Forum*, 12 May.
- Laurenceson, James and J.C.H. Chai 2010. "The economic performance of China's state-owned industrial enterprises." *Journal of Contemporary China* 9(23), 21–39.
- Moran, Theodore H. 2010. "China's strategy to secure natural resources: Risks, dangers, and opportunities." *Policy Analysis in International Economics* 92.
- Pokarier, Christopher. 2004. "The controversy over Japanese investment in Australia, 1987–1991." *Japanese Studies* 24(2), 215–231.
- Sauvant, Karl P. and Victor Z. Chen. 2014. "China's regulatory framework for outward foreign direct investment." *China Economic Journal* 7(1), 141–163.
- Song, Ligang. 2015. "State and non-state enterprises in China's economic transition." in Gregory C. Chow and Dwight H. Perkins (eds.), *Routledge Handbook of the Chinese Economy*, New York: Routledge, 182–207.
- Tex Report. 2013. *Iron Ore Manual 2011–2012*. Tokyo: The Tex Report.
- Uren, David. 2012. *The Kingdom and the Quarry*. Collingwood: Black Inc.
- White, Garry. 2009. "Chinalco confident on Rio Tinto deal approval," *The Telegraph*, 31 March.
- Wikileaks. 2009. "New foreign investment guidelines target China," *Wikileaks*.

- Wilson, Jeffrey D. 2011. "Public and private sources of governance in global production networks: The case of the Asia-Pacific steel industry." PhD diss., The Australian National University.
- Yang, Zhen. 2009. "Easier loans lean to more mergers and acquisitions," *China Daily*, 20 April.
- Yao, Shujie and Dylan Sutherland. 2009. "Chinalco and Rio Tinto: A long march for China's national champions." *China Quarterly* 199, 829–836.
- Zhang, Qi. 2011. "Ore target to break foreign grip," *China Daily*, 25 July.
- Zheng, Yongnian and Jingtao Yi. 2007. "China's rapid accumulation of foreign exchange reserves and its policy implications," *China & World Economy* 15(1), 14–25.