

Canadian Iron Ore A safer bet for LT iron ore supply?

Century Iron Conference, Toronto, Canada 9 October 2013 Phil Newman

Presentation outline

- Introduction to CRU
- Why iron ore?
- What makes a good project?
- How does Canada fit in?
- Conclusions





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Leading research group focused on mining and metals, chemicals and fertilizers



- Fundamental analysis
- Market forecast
- Cost analysis

- Asset & Project Valuation
- **Negotiation Support**
- Market Decisions
- Strategy Development ٠

- Seminars
- Events
- Workshops
- Networking



Presentation outline

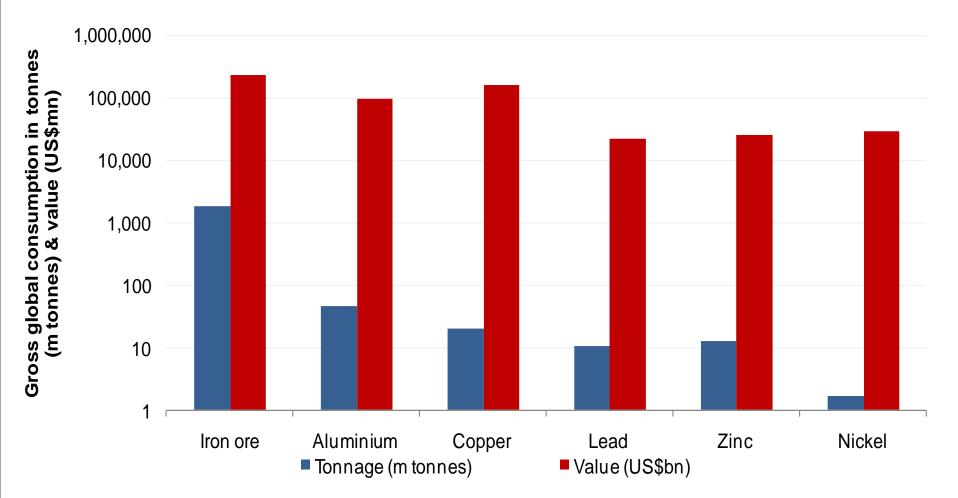
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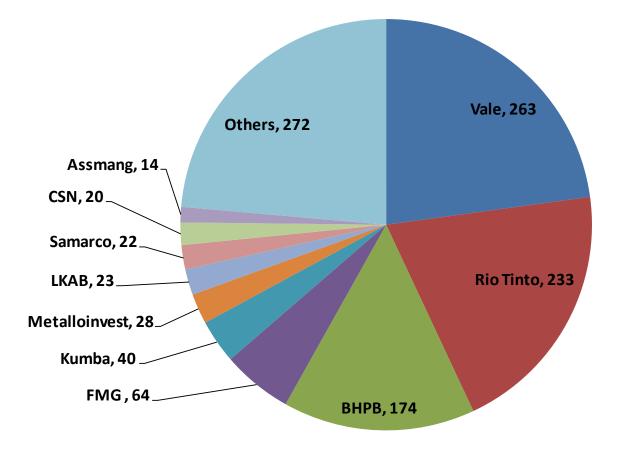
Iron ore is the largest metal commodity by volume and value...

Shown by gross consumption in tonnes and by gross value, 2012



...its a highly consolidated industry with high barriers to entry...

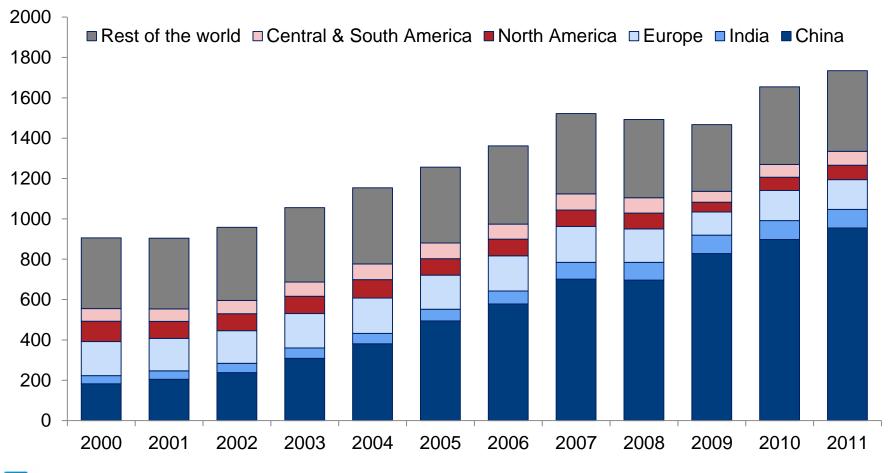
Top ten iron ore exporting companies, 2012 (m tonnes)





...and demand is driven by economic growth and highly leveraged to China.

Global iron ore consumption by major region/country, 2000-2011 (m tonnes)

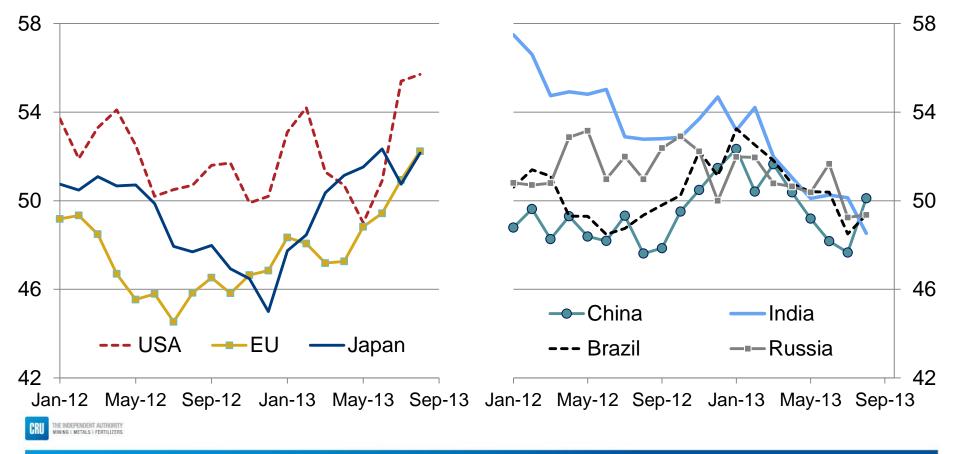


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Interestingly the OECD is now leading the recovery...

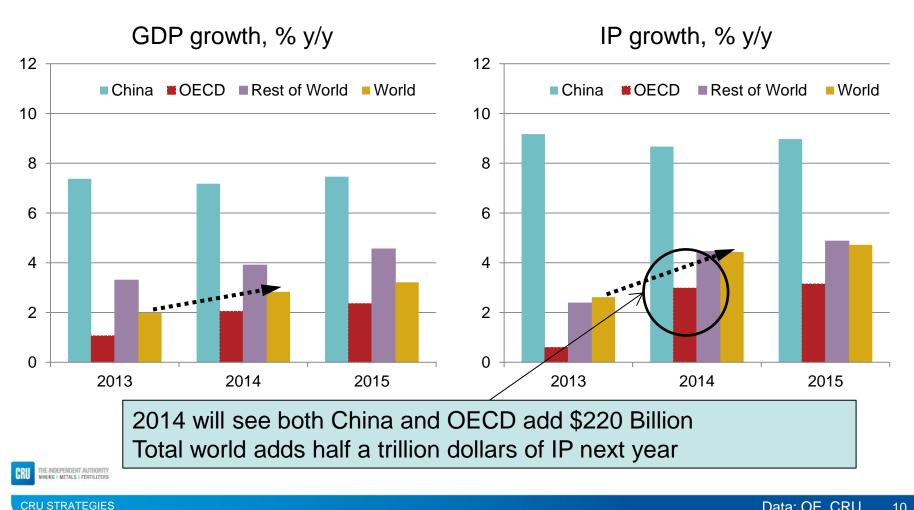
OECD Purchasing Managers Indices for manufacturing

BRICs Purchasing Managers Indices for manufacturing



CRU STRATEGIES

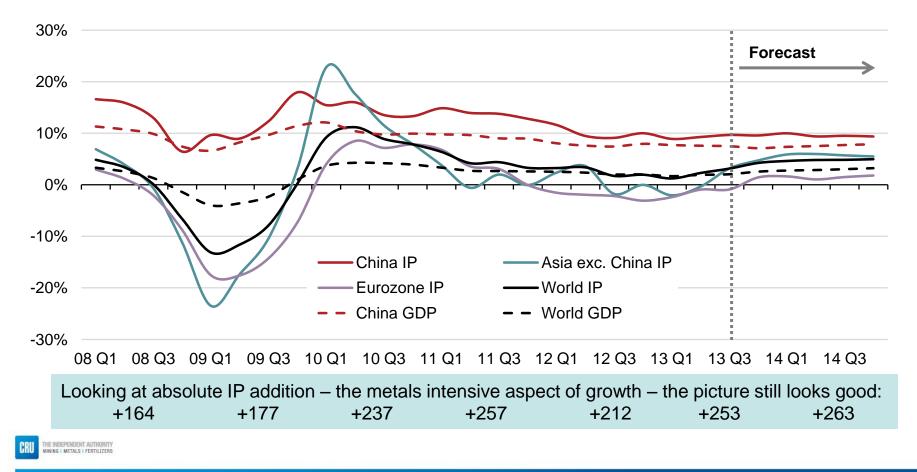
...and is expected to begin contributing to global economic growth again!



Data: OE, CRU 10

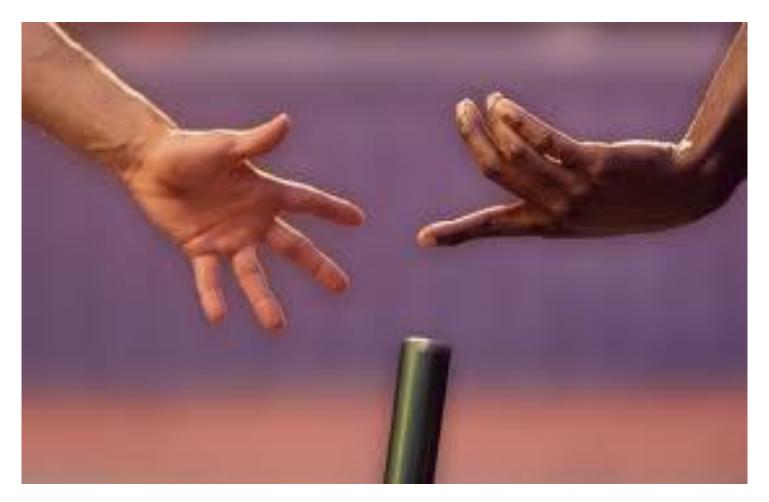
Chinese growth is expected to moderate although absolute increases will remain substantial...

y/y industrial production and real GDP⁽¹⁾ growth by country/region, %



CRU STRATEGIES

...over the longer term who is picking up the growth baton?...



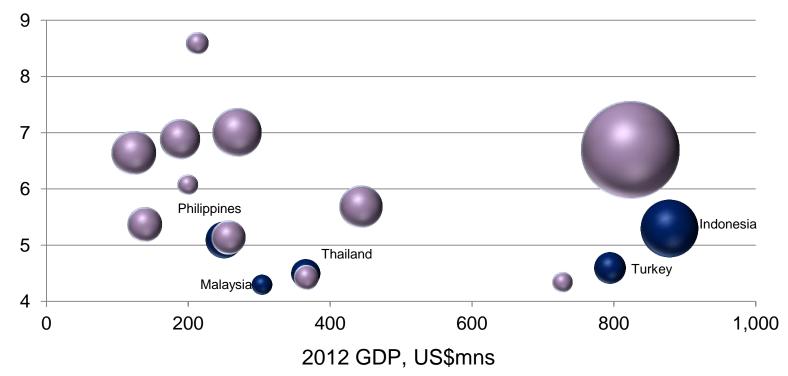


CRU STRATEGIES

...no individual country is expected to have the same impact as China...

Developing countries projected to grow faster than 4.0%pa

GDP, CAGR to 2017 (%) Bubbles sized according to population



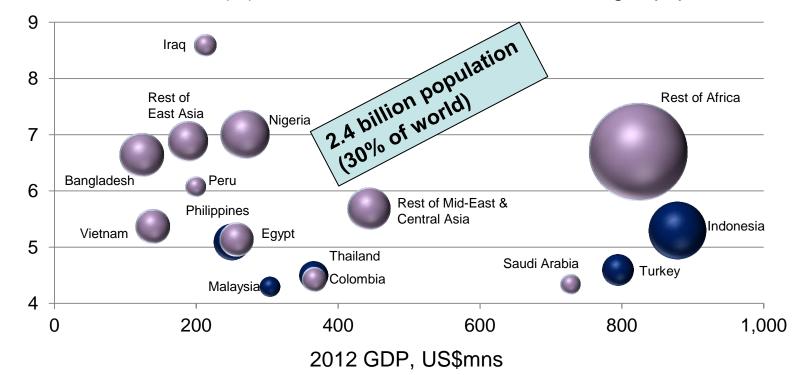
Data: IMF, CRU. Includes only developing countries projected to grow faster than 4.0%pa,



...but there are a number of small to medium sized countries that together have a material impact

Developing countries projected to grow faster than 4.0%pa

GDP, CAGR to 2017 (%) Bubbles sized according to population

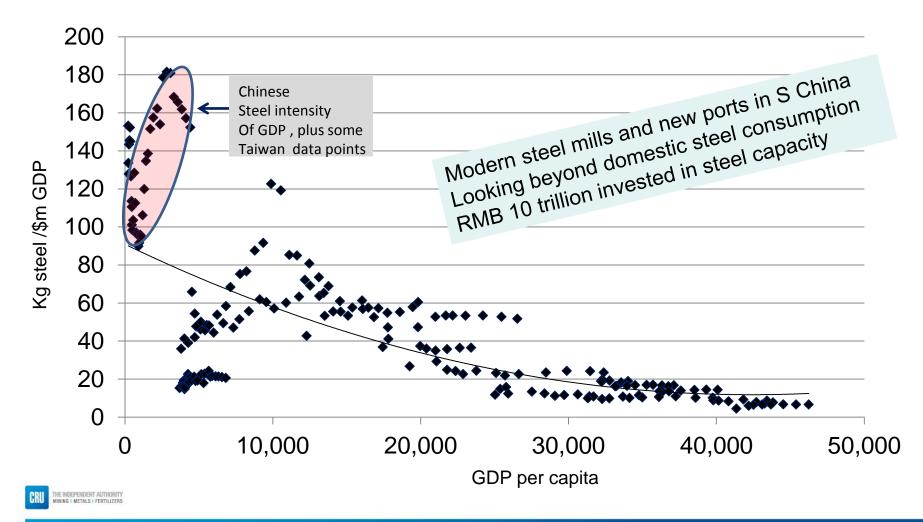


Data: IMF, CRU. Includes only developing countries projected to grow faster than 4.0%pa,



China's steel intensity has been superlative....

Steel intensity of GDP v per capita income (1980-2011 data)



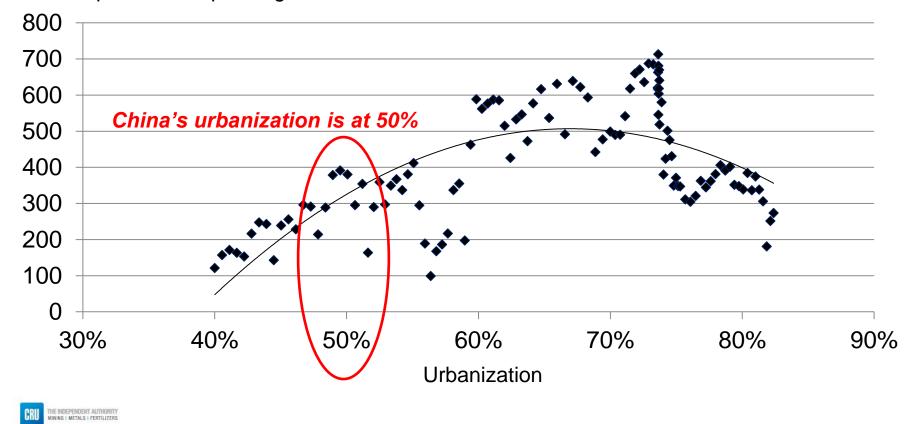
CRU STRATEGIES

Data: CRU, Country data used include: USA, Brazil Japan, Korea, Taiwan, China; 1980-2011

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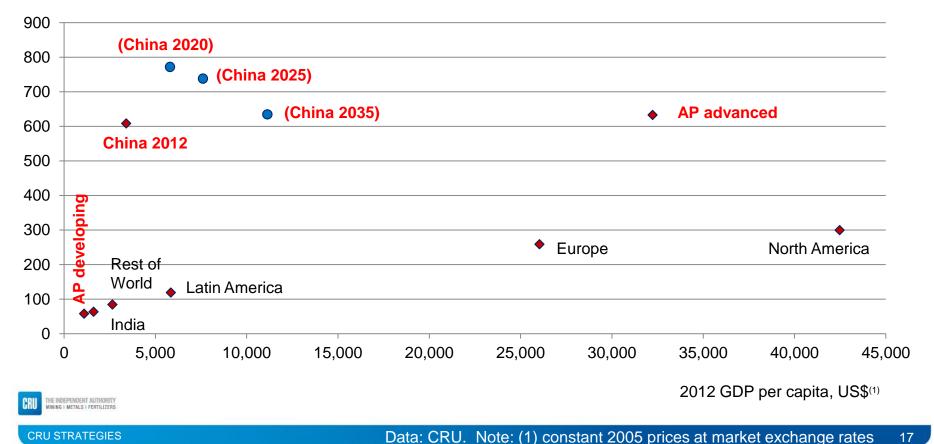
...and US data suggests peak per capita consumption comes at 65-70% urbanization

Per capita consumption kg/head

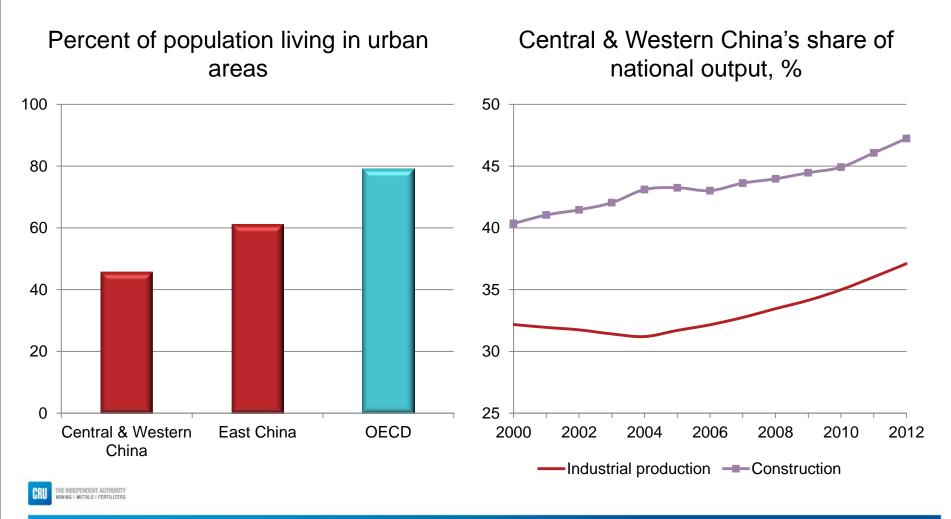


So China's per capita peak is not expected until 2020, and consumption remains strong beyond that... The steel industry is not going away!!

2012 consumption of finished steel per capita, kg



Although non-coastal China plays a part...



CRU STRATEGIES

Data: CRU 18

...urbanization continues in the populous east.

Guangdong plans for development with rural focus

The provincial government

this record any

China Davin, Any 9, 2013

BY ZHENG CALMUNE and LI WENFAME in Zhantang

4 nation

The Gunnglong provincial Lin Xiashaa, Davy Sectary text experiments of Zhanjiang in vestors Gauge text experiments from \$72'billion yuant doogs Leizhou printatia and "The invest (\$109.75 billion) to develop the the provincial government has that the provincial government mountainous western, easiern already worked to create husiand mothern parts of the region — ness opportunities in the city 1(

optioent plan will help these areas her of infrastructure facilities. grow to suppoin an increasingly "The provincial generatment overcrowded Ivail River Delta wants Zhanjiang to become a immiliar (mangeong provincial im, one of Chinak main hubs maker competitive maxiem port automic growth. city, amodel city of the country's of momornic growth. It also hopes that companies occarrit economy, a pi ot area to

and industries in the Pserl River expanse reproduct the with the Delta will consider maying to Administration of Southeast Asian orr/perts. Nations and a metropolis in the investments will melally western Guangdong? Un said. rury rerts.

friens on the construction of He inged business representailways and inginear networks talives from home and obroad to connect the rural ateas with their plotwinversingat and rude the Pearl River Delta, which opportunities in Zhanjiang, borders the Hong Kong and One of the major targets for the Macan special administrativo provincial development, dan for regions as well as a number of Guangdong's western, eastern conorric development zones and numbern areas is foreign Ha Chunhua, Parry chief of myestment, Gaungeong province, withonce the rundeross develop sconorte also plans to build a number of first in GDP arcong all provinically after a low years, they will key prefocunt-level vities each estimated to have a pagealation of provide the province with two acconomic engines for growth the provincial government largementer of town each with oil continue to spare to effort a population of abound 502,000 tu introduce new and preterential measures for economic in rural areas, according to the Unitedly accord for less than 21 growth in the mountainous development plan, regions, and it is a development. It in flang, a professor from

rategy of the Catangdong pro-

my in the follow- infrast suctors in these sum ing years." Hi told a work conareas, which have an abun-Teresce in the provincial capital dance of land, natural rescuerces of Coungrate Council and shiller workers will help Lin Xiaohua, Party secretary - netward investment and high-

> "(The investments) indicate is making greater efforts to develop the runsi economy to

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BYSUNT

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he said. Chen Hongyu, a professor Party school, said poor infrastructure has long been a major madblock for rural economic

quality of development. ing's sta "Expanding investment to the city s help rural cities and counties to stream to improve their infrastructure market. facilities will help the caral creat become new hot investment destinations and help the Pearl River Delta cities to transfer some of their industries to the rural areas," he said. He arged Pearl River () elia cit-ics to further enhance coopera-Lon with round areas.

The province has ranked Seijing I vial areas for crore than two decades despite the fact that more than I million as well as a his rural areas have been stuck in an occupanic rut. Rural and incompanious areas cover plane. to help escalate urbanization than two-thirds of the province. percent of the provinces GDE mas am

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She the next fire value. Including the control to be the control of the control o Delts and mountainous areas,"

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Sun Yat-sen University in Coulacishe writers a closer

Guangdong government recently earmarked RMB 672 billion to develop the mountainous western, eastern and northern parts over next 5 years. Focus on railways and highways

Another example is Zhanjiang becoming a modern port city

Plans to build prefecture cities of 1 million and "small towns" of around 500,000 to help urbanization in rural areas!

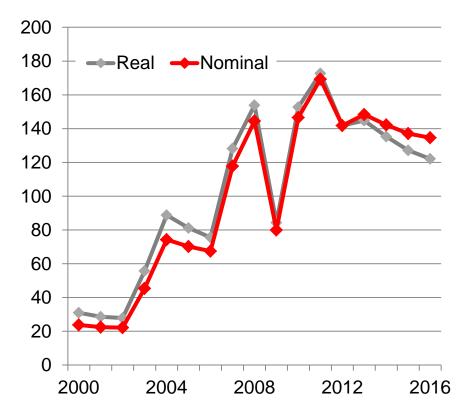
Arable land is at a premium, cities tend to expand up (more steel intensive).

Guangdong is already the leading province in GDP



It's a great business to be in \$20 to \$140/t in 10 years – what next?

Price for 62% Fe sinter fines, cfr China, US\$/tonne



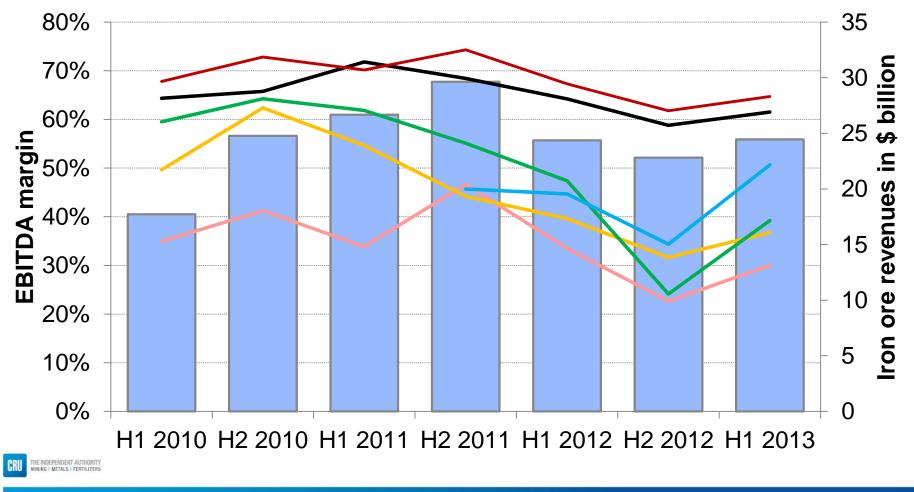


What are the projected needs for iron ore going forward?



Established producers are still making excellent returns...

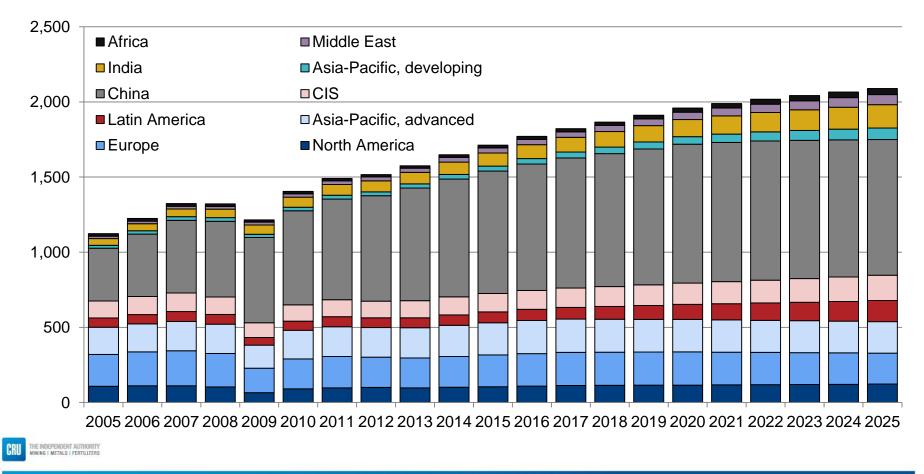
Iron ore revenues—BHPB—Rio—Atlas —Arrium—Cliffs—FMG



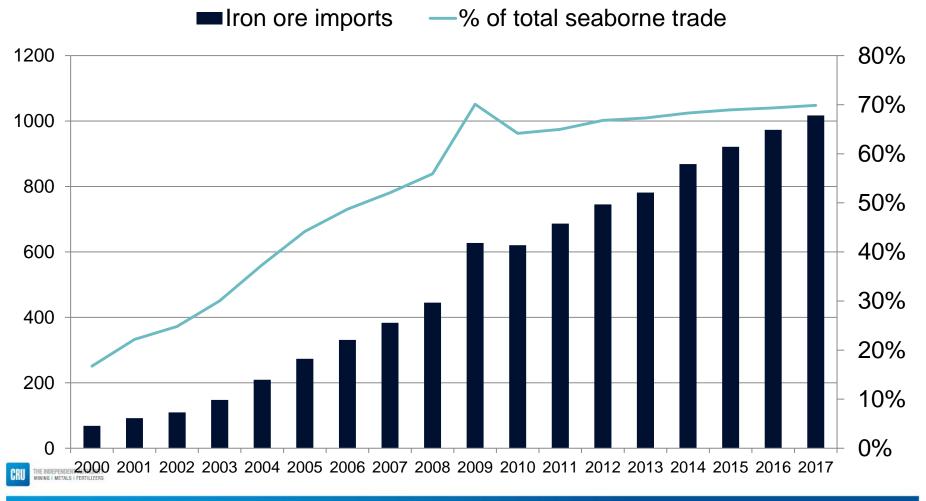
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Steel production shows steady growth, which becomes less China centric into the next decade..

Crude steel production, Mt



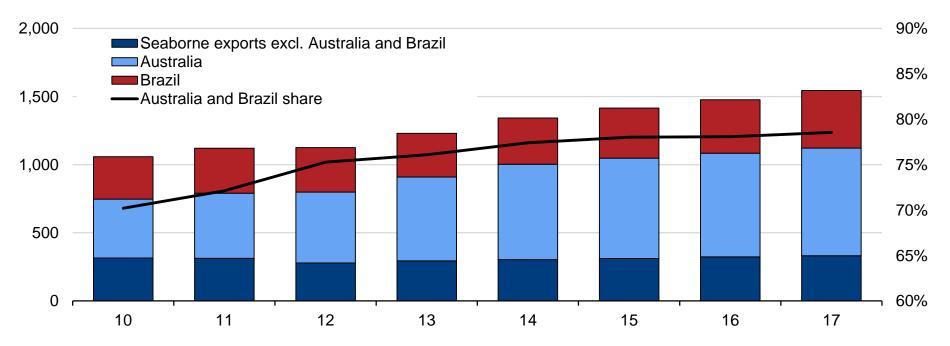
Chinese iron ore imports will rise to 1bn tonnes by 2017 or two-thirds of all seaborne total trade...



CRU STRATEGIES

...and given robust growth from the majors, Australia and Brazil's share of total seaborne exports is on the rise...

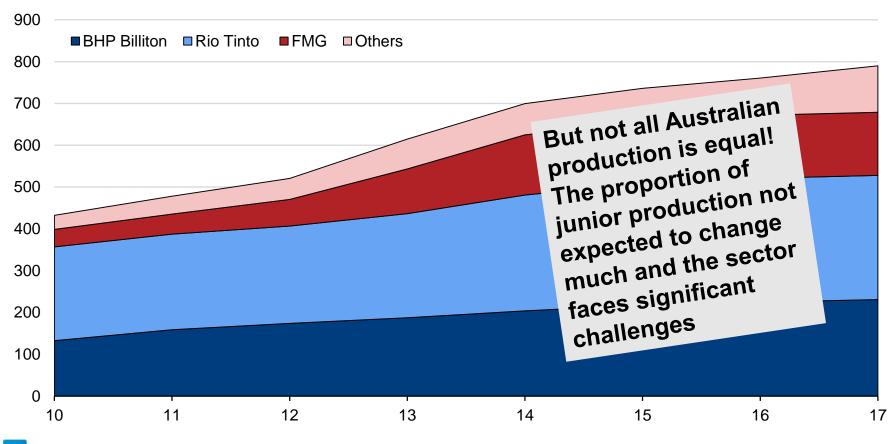
LHS: Seaborne exports of iron ore, Mt RHS: Australian and Brazilian share of global seaborne market, %





...with Australia leading the way.

Australian iron ore exports by company, Mt



Data: GTIS, CRU, company reports.

CRU STRATEGIES

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How do we compare different mining projects? Here are a few ideas

Project assessment

What is the true level of development of a given project?

Product assessment

Will a steel mill take it? What value will I receive for it?

Competitiveness

How does this project compare to its peers? what is the impact of shortterm market fluctuations?



Project gateways: a project must progress in a number of different areas before it can reach production

	1	2	3	4	5
	Speculative	Possible	Probable	Committed	Operating
Geology					
Metallurgy/ technology					
Engineering					
Social and environmental					
Marketing/ commercial					
Transportation					
Ownership/ management					
Financial					



Product assessment: Iron ore is not a homogenous commodity – it is important to understand the value of the final product

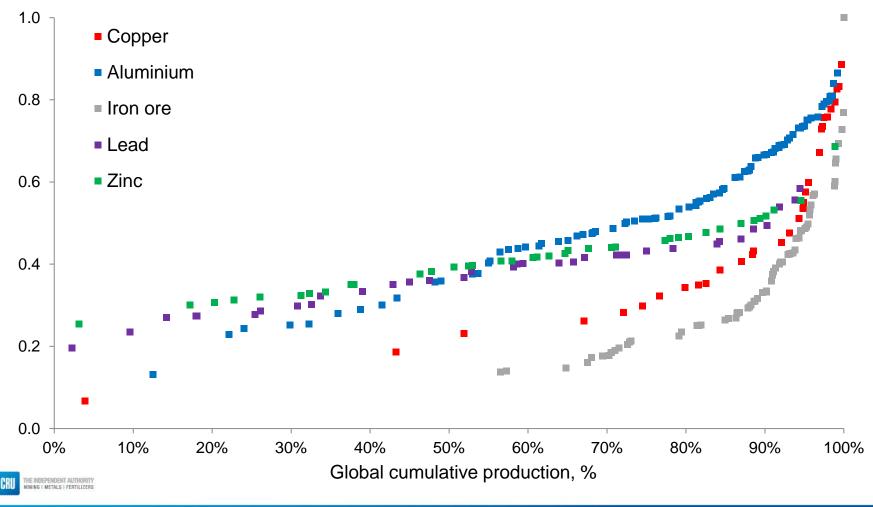
- Base price
- Iron adjustment and value-in-use
- Penalties
- Product form
- Energy
- Freight





It's wrong to say China is high cost in all commodities (but you can in iron ore!)

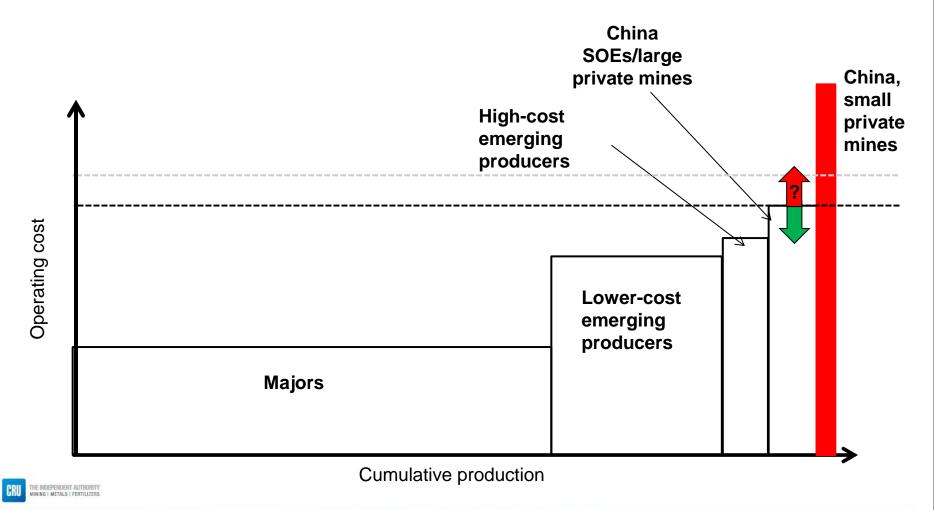
Chinese business costs, 2013, normalised (0=global minimum, 1=global maximum)



SOUSCEATERES

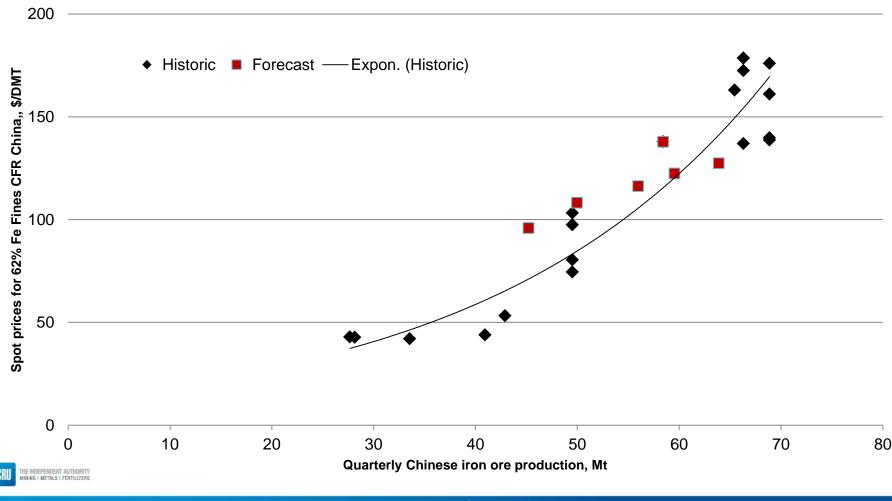
Small, privately-owned Chinese mines occupy the tail of the global cost curve...

Representative global cost curve





...and thus Chinese domestic production is highly price responsive



CRU STRATEGIES

Data: CRU. Note: Prices assessed at one point mid-month. 32

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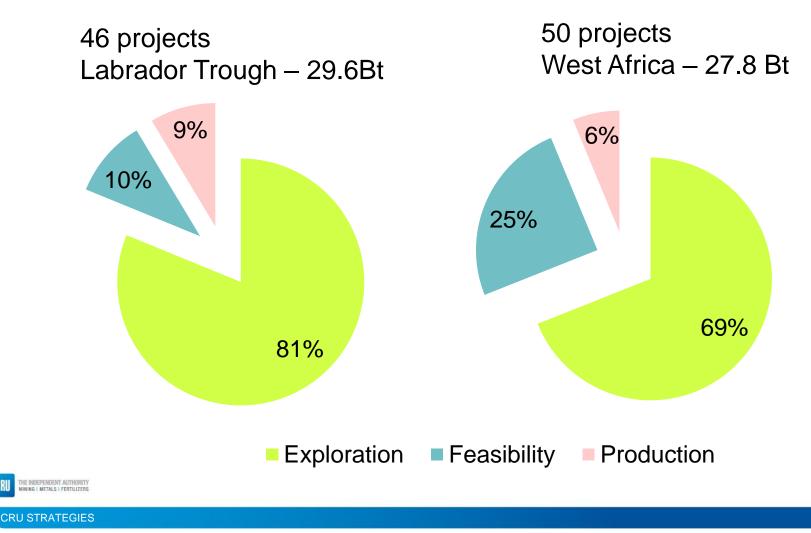
Canada – land of opportunity?

- Iron ore demand remains strong in absolute terms
- Scarcity is not a relevant word for iron ore resources
- The value of iron ore is in the logistics always has been always will be!!
- So where will supply come from?
 - Australia
 - Brazil
 - West Africa
 - Canada
- Things to consider: resources, infrastructure, politics, location, infrastructureoh, and infrastructure.....



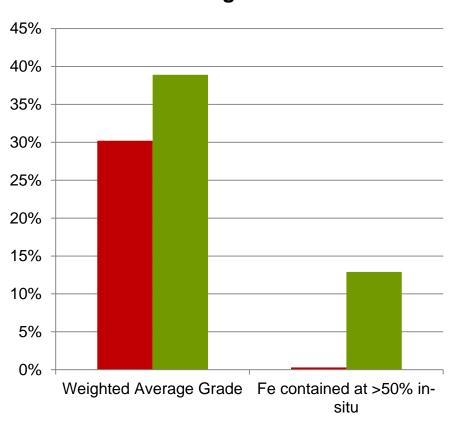
How does Canada compare? West Africa vs Labrador Trough

Contained Fe (in resources/reserves) by project stage(%)

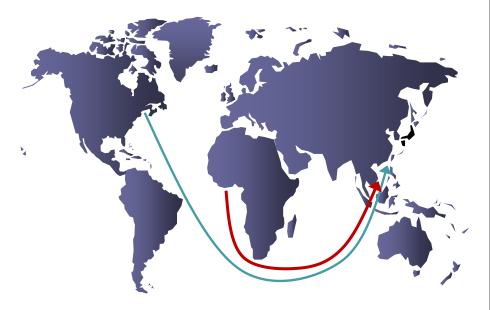


W. Africa has better in-situ grades...

...and its closer to China...



Labrador Trough West Africa



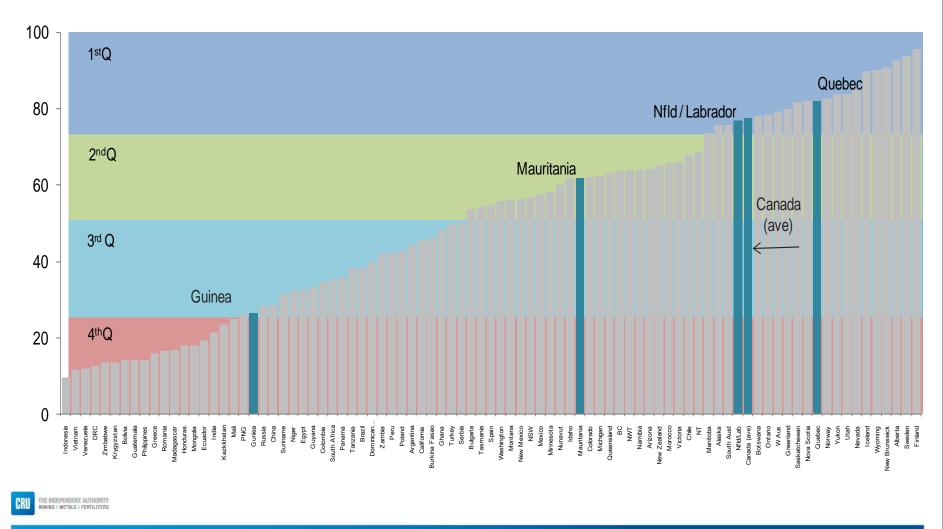
Origin	Distance	Units	2012	2020				
Canada	14,675	\$/wmt	24.6	37.4				
West Africa	9,727	\$/wmt	18.9	28.8				
Add trans-shipping to the West Africa total - \$6-8/wmt!								



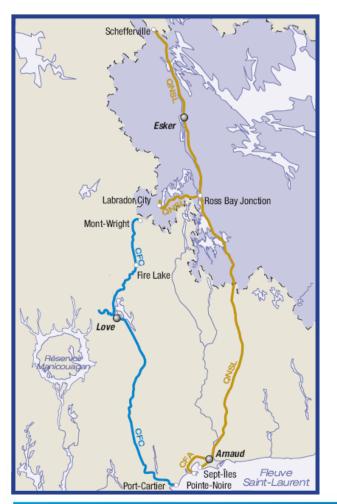
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... ...but politically Canada is a long way ahead

Policy Potential Index (the "ability to do business" there)

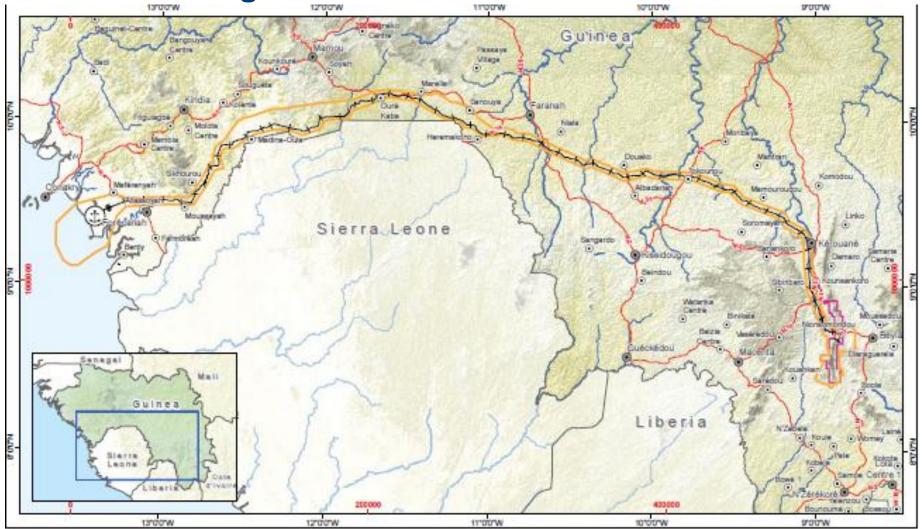


Labrador Trough projects benefit from multi-user infrastructure...

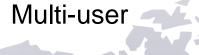


- Multi-user infrastructure
 - QNSL railway
 - Port of Sept Îles
- New wharf at Pointe-Noire through a mixture of public and private investment
 - 50-60mtpa
 - Completion by March 2014 on schedule and budget
 - Cape-size vessels (up to 250,000dwt)
 - Phase 2 to 100mtpa

...whilst West African projects face more than a multiborder challenge.



And, for large investments, politics impacts all the decisions...



Cape-size shipping

Low cost power existing

Productive labour

Multi-border

Panamax / trans-shipping

Power infrastructure required

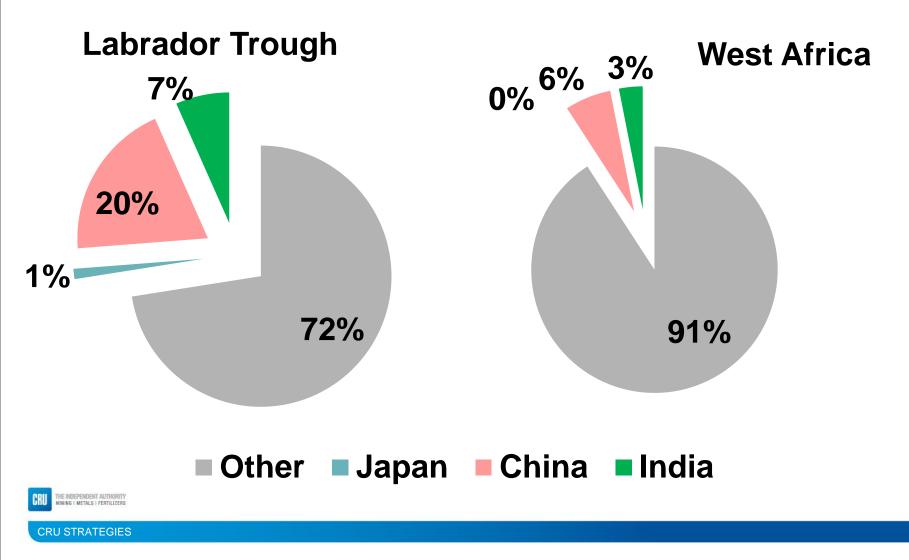
Skills transfer a key challenge (Guinea is 178/187 on HDi)

Project is often nation building (involving complex risks)



...and this is apparent when you look at foreign investment

Percentage of Fe contained that is owned or optioned by Japan/China/India



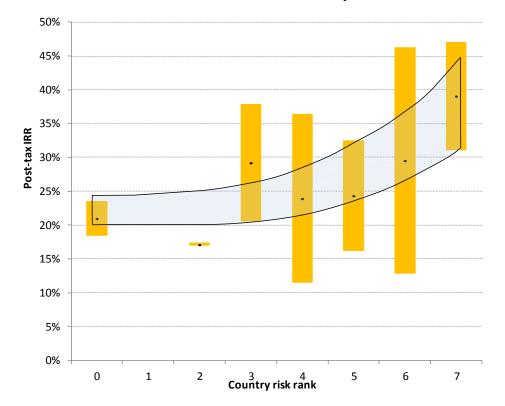
Here we look at new projects from the perspective of an investor!

- Simple discounted cash flow model and 54 projects
- CRU's assessment of **business costs**
- IRRs used by real companies to raise money
- Further assumptions
 - Production profile, expenditure profiles
 - 100% equity funding
 - Excludes government incentives tax, public infrastructure builds etc.



IRRs offer on projects differ significantly by jurisdiction...

- 96 projects
- Reported IRRs
- Post-tax
- OECD risk classifications 0-7
- Statistically significant



Post-tax IRR versus Country Risk



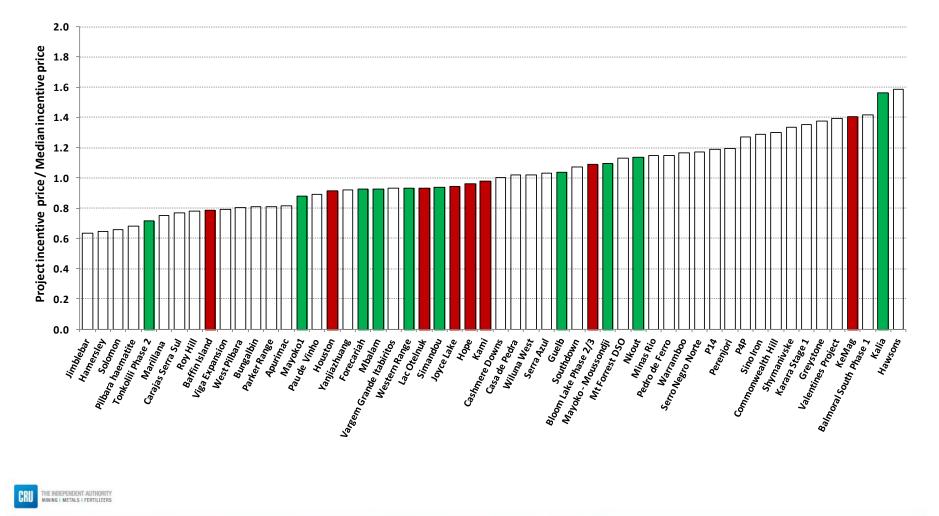
...projects in West Africa require 10% more return than their Canadian peers...

Rank	Country	Promotional IRRs Nominal	Promotional IRRs Real
0	Canada	18.0%	15.5%
6	Cameroon	26.0%	21.0%
7	Guinea, Liberia, Congo, Sierra Leone	31.0%	26.0%



...putting Canadian projects on a level playing field..

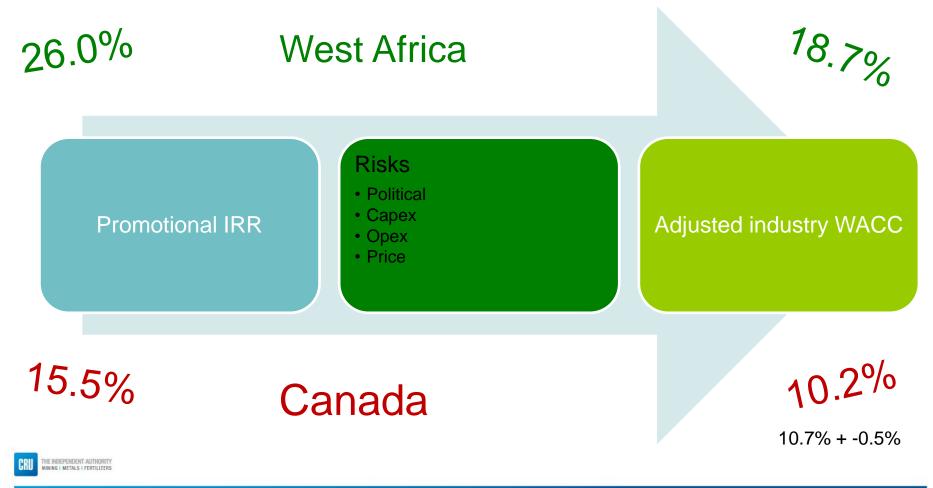
West African projects in green Canadian projects in red





...tax benefits, public infrastructure and ability to finance through debt will make the difference...

10.7% + 8.0%

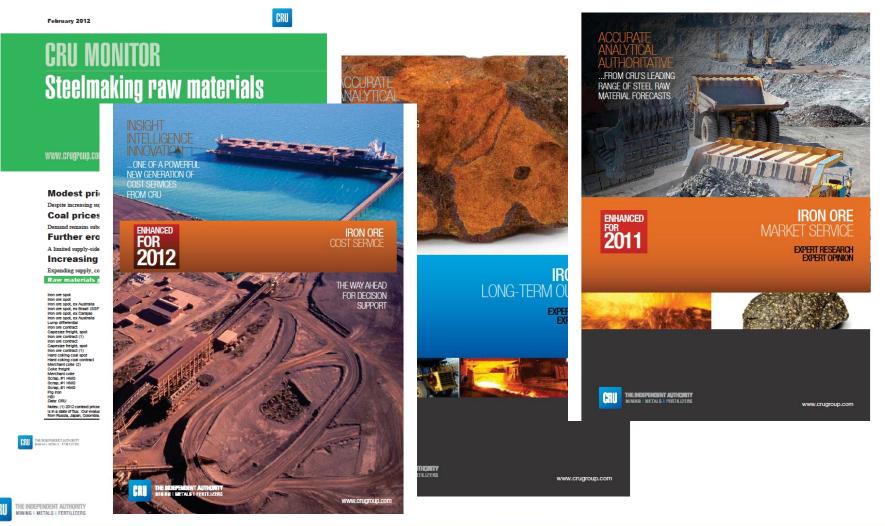


Conclusions

- China is important their demand and their strategic goals
- Oligopolistic supply provides opportunities for others
- Global demand recovery has an upside (at last!)
- From an investors perspective the risk-reward balance requires careful analysis.
- Iron ore is not about mining it is about infrastructure and that favours the less risky environments...



And just to remind you we offer a range of consultancy services and regular reports on the iron ore industry





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Thank-you