Market Insights: Iron ore market dynamics

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frontier

About

Frontier has been at the forefront of institutional investment advice in Australia for over two decades and provides advice on more than $470b in assets across the superannuation, charity, insurance, public sector and higher education sectors.

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KC Low is a Senior Consultant, having joined Frontier as an Associate in 2012. His responsibilities at Frontier include providing analytical support to clients, asset allocation advice, plus investment research. KC is a member of Frontier’s Capital Markets and Asset Allocation team. KC was previously with Fairfax Media as the Head of Research and Valuation Analyst for BRW Magazine. He has also published business articles in print and online for Fairfax's various mastheads. KC has also interned in the Advisory division of PricewaterhouseCoopers. KC holds a Bachelor of Commerce, majoring in Accounting and Finance at Monash University with the Dean's Commendation. He also holds a Master of Applied Finance from Monash University. KC is a CFA Charterholder.

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Key insights

High iron ore prices unlikely to be sustained as China growth moderates but global demand could continue to support

- The broad increase in commodity prices is driven by a combination of pent-up demand (as economies reopen) and supply side constraints. It is an indication of the strength in the general recovery of the global economy. It also highlights the risk of higher inflation if higher production input costs persists.
- Chinese demand for iron ore has been strong over the last year due to government stimulus for infrastructure and property construction. Chinese demand is expected to remain strong in the near term, however the growth rate in demand has likely peaked as authorities have started to tighten policy support. The increase in global ex-China demand for steel (driven by large increases in infrastructure spending) is likely to offset some of the Chinese demand slowdown but it is unclear if it can offset all of it given the overall size of China's share of iron ore demand globally, developed economies predominantly relying on scrap steel to meet its steel demand (unlike in China), and the type of infrastructure projects being announced globally being less steel intensive (i.e. more focussed on digital and renewable infrastructure).
  - Longer term, China is in the process of reducing its reliance on foreign-owned iron ore by investing in iron ore deposits in Africa (namely the Simandou region in Guinea). Production is not expected to start by 2025 at the earliest.
- Although there is some increase in planned mining capital expenditure in Australia, it is so far small relative to the previous commodity boom. Overall Australian production is expected to only increase marginally over the next few years as some of the new added capacity replaces existing depleting production. Global supply of iron ore has been constrained in recent years due to Brazil's Vale being impacted by a dam collapse in early 2019. The pace of recovery in production will likely be the key factor on the supply side as increasing output from Australian miners is limited in the near-term. It is widely expected in the market that the recovery in Vale's production capacity will be very gradual and over several years due to the need to reconstruct infrastructure and gain regulatory approvals. This means global iron ore supply is likely to improve over time but remain constrained in the near-term.
- Forecasting commodities is very difficult. At the current high price for iron ore, over the medium-term, the outlook is likely to be more on the downside as supply issues are gradually resolved and the demand rebound fades. In the near-term, the outlook is more uncertain depending on how much ex-China demand offsets China's moderating growth.
- On the geopolitical front, as mentioned in our May 2021 China virtual trip paper, geopolitical tensions with China are likely to be ongoing given structural differences and competing interests. As such, it is quite possible for China to escalate geopolitical tensions with Australia to set an example. However, it is unlikely for China to act on Australian iron ore exports given Australia's share of the iron ore market and the sheer size of China's demand.

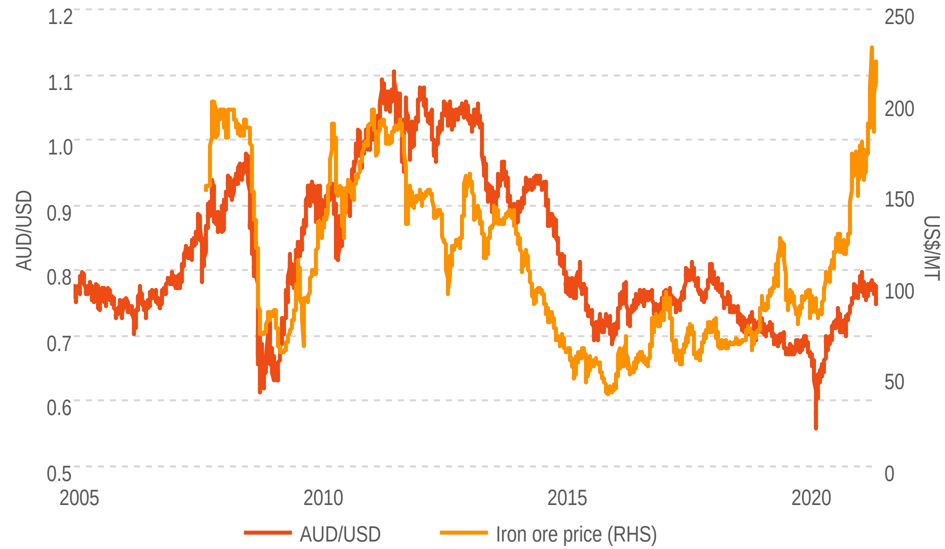
Iron ore market background

Iron ore is increasingly important to the Australian economy

Iron ore in Australian economy

Source: Refinitiv Datastream, Frontier

AUD/USD vs iron ore price

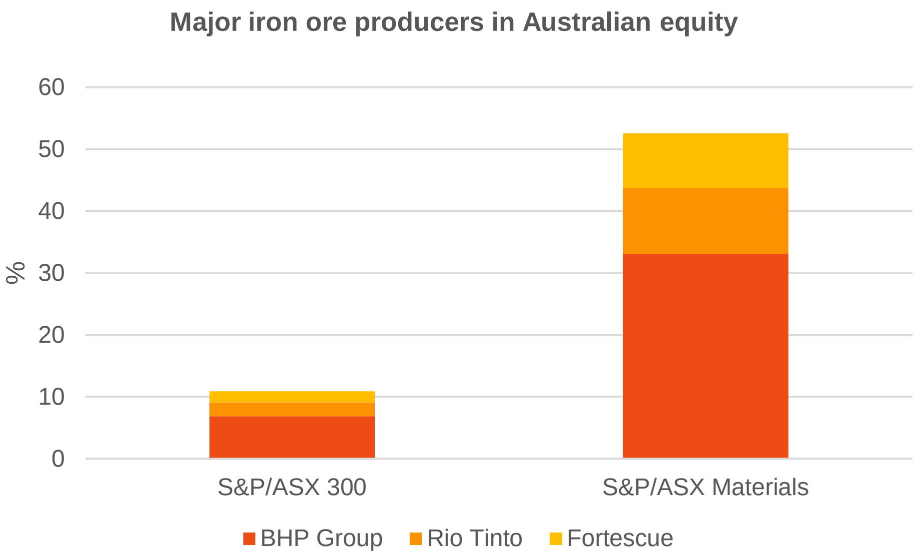


Source: Refinitiv Datastream, Frontier

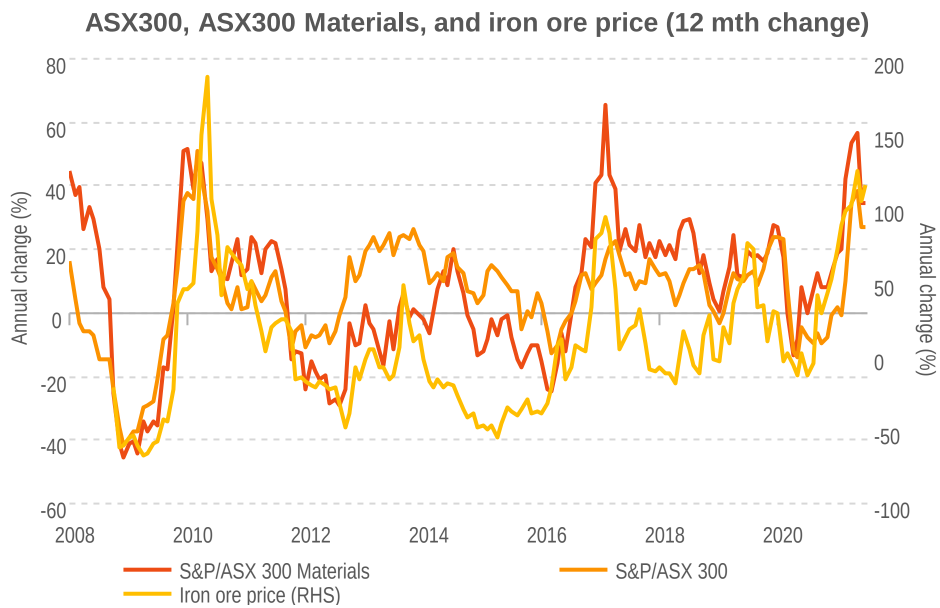
- Iron ore is an important part of Australia's economy.
  - Iron ore is Australia's largest goods export, accounting for around 40% of export revenue.
  - Iron ore exports contributes to around 7% of nominal GDP.
  - However, despite its importance, overall mining sector employment accounts for only 2% of the total workforce (however, this varies significantly by region).
- The iron ore price is a key driver of the Australian dollar (AUD). This is through the impact of the iron ore price on Australia's terms of trade (which measures the relative prices of exports to imports) and contributes to the AUD historically trading like a commodity currency.
  - The iron ore price has recently contributed to the upward movement in the AUD, although the scale of the increase in the iron ore price suggests the AUD could be even higher. This indicates that although the iron ore price is a driver of the AUD, it is not the only driver. It is possible the currency market expects the current iron ore price to be a temporary spike and/or that it is pricing in the potential downside risk from the ongoing COVID-19 pandemic.

Iron ore market background

The iron ore price can have a material influence on Australian equities



Source: GBST. Data as at April 2021.

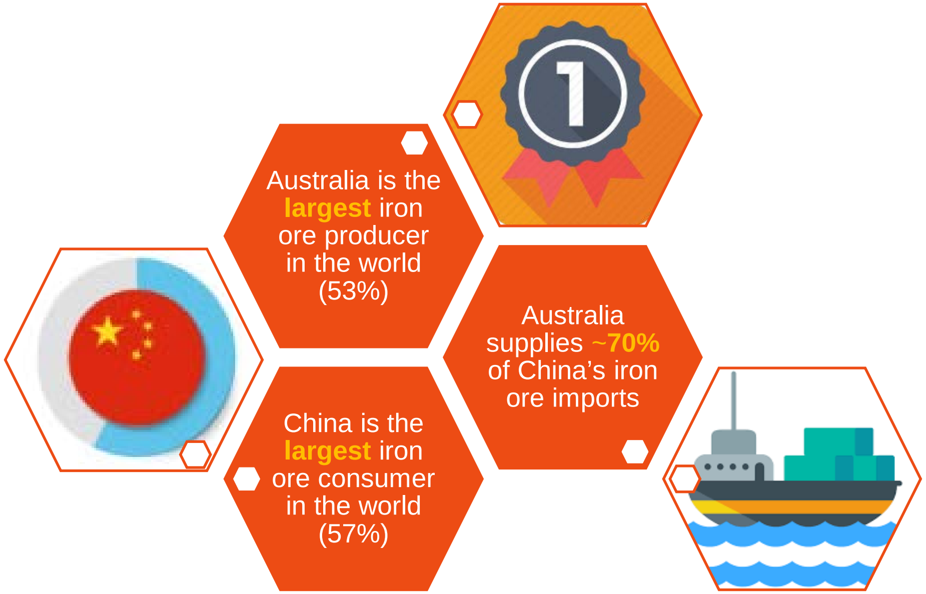


Source: Refinitiv Datastream, Frontier

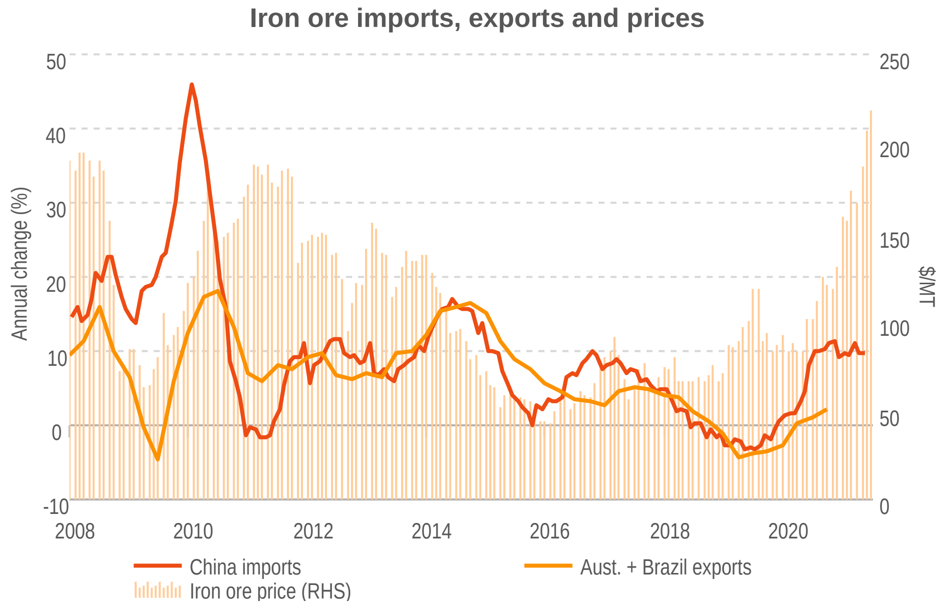
- Not only is iron ore important to Australia's economy, it is also a large part of our equities market and can materially influence the performance of Australian equities.
  - The overall performance of Australian equities has moved closely in line with the change in iron ore price historically.
- The three major Australian listed iron ore producers (BHP Group, Rio Tinto and Fortescue) account for more than 50% of the S&P/ASX 300 Materials Index and more than 10% of the S&P/ASX 300 Index.
  - However, this has reduced significantly from the peak of the commodity super-cycle in around mid-2008 where the three major iron ore producers accounted for close to 20% of the S&P/ASX 300 Index.

Iron ore market background

China has been the key driver of iron ore demand



Source: Department of Industry, Science, Energy and Resources. Data at 2019-2020

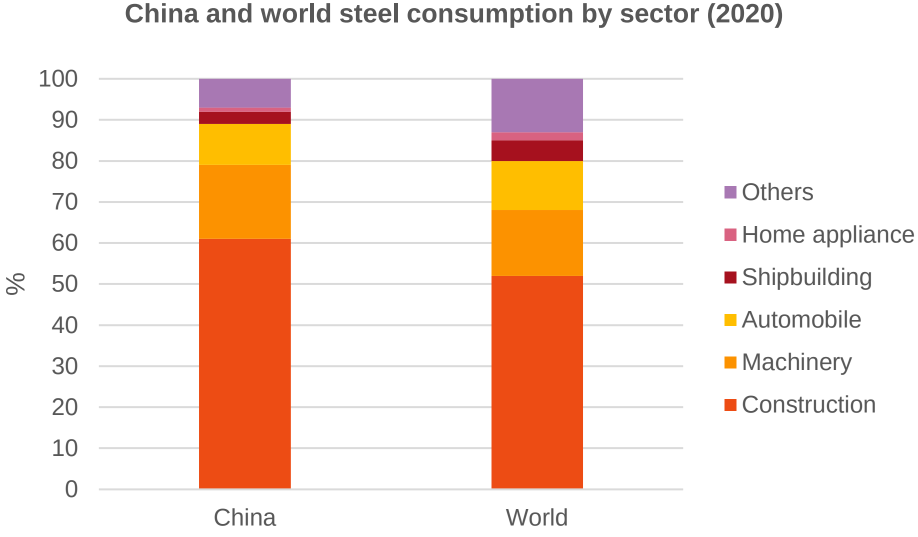


Source: Refinitiv Datastream, Frontier

- Despite the elevated trade tension, Australia and China are highly interdependent on each other for trade.
  - Although China is Australia's largest trading partner, the same cannot be said the other way round. However, China is highly dependent on Australia's iron ore supply as there are currently no alternative suppliers that can meet the scale of its demand.
  - By destination, circa 80% of Australia's iron ore export goes to China. On the other side, circa 70% of China's iron ore import comes from Australia (with Brazil a distant second place at circa 15%).
- Most recently, the combination of strong Chinese iron ore demand, recovering global ex-China demand for iron ore, and constrained Brazilian supply has caused the price of iron ore to rise sharply.

Iron ore demand

Chinese iron ore demand largely driven by its construction sector



Source: DBS HK, World Steel Association
World steel consumption includes China. Construction includes infrastructure and property. Others include (but not exclusive to) metal products and electrical equipment.

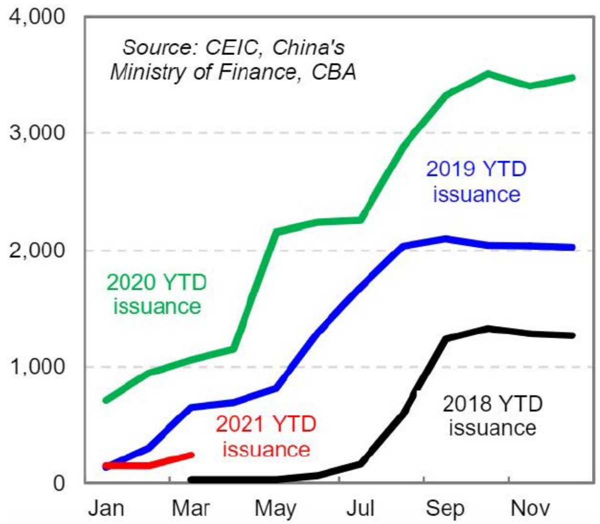
Source: Macrobond, Macquarie Macro Strategy

- China steel production accounts for more than 50% of global steel production.
- Chinese steel (in turn iron ore) demand has predominantly been driven by its construction sectors (infrastructure and property).
  - Of the 61% of steel consumed by the construction sector, around 37% is consumed by the property sector and 24% by the infrastructure sector.
  - China's steel demand from its construction sector is somewhat higher as a proportion of overall demand than the rest of the world.
- In 2020, authorities in China relied heavily on fixed asset investment to support its sharp V-shape economic recovery from COVID-19. This, in turn, has led to a sharp increase in demand for Australian iron ore.

Iron ore demand

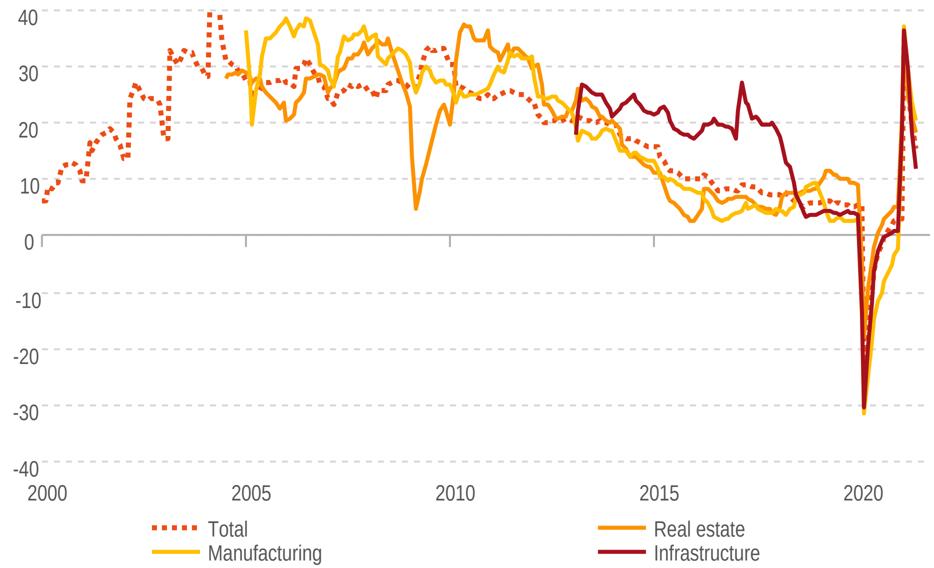
Chinese iron ore demand growth has likely peaked

China local government special bond net issuance (CNY bn)



Source: CEIC, China Ministry of Finance, CBA

China fixed asset investment 12-month change (by sectors)



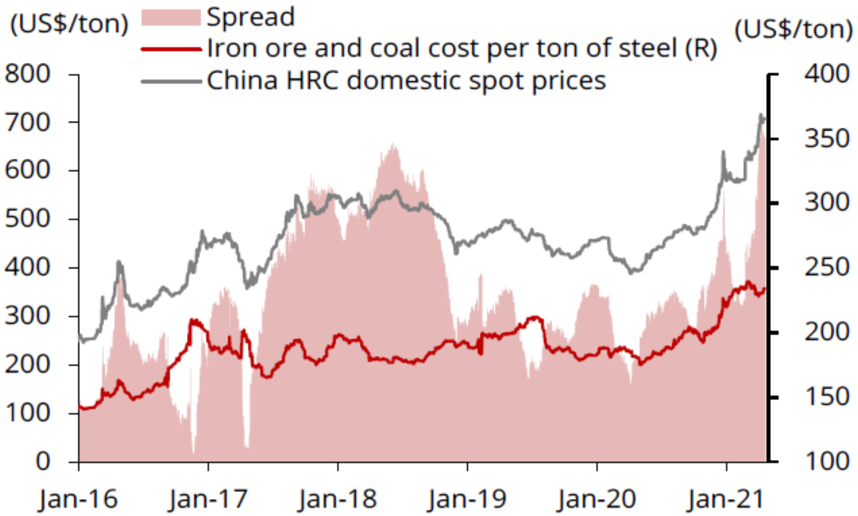
Source: Refinitiv Datastream, Frontier

- The Chinese authorities issued a large amount of local government special-purpose bonds in 2020 to fund infrastructure projects to support its economic recovery.
  - The quotas for local government special-purpose bonds were set at a similar but slightly lower level this year compared to last year. The issuance of bonds has also slowed down this year. This suggests that although steel demand for infrastructure projects will remain strong, the growth rate in the demand has likely peaked.
  - Steel demand is likely to remain supported in the near term given the lagged nature and time required for infrastructure construction projects.
- The ultra-accommodative monetary policy in China in response to COVID-19 has led to a booming property market (like in many countries). However, as authorities re-focus efforts on managing financial stability risks, macroprudential policies have been applied on property developers to curb debt growth and on banks to reduce lending to the property sector.
  - This is likely to dampen steel demand from the property construction sector.

Iron ore demand

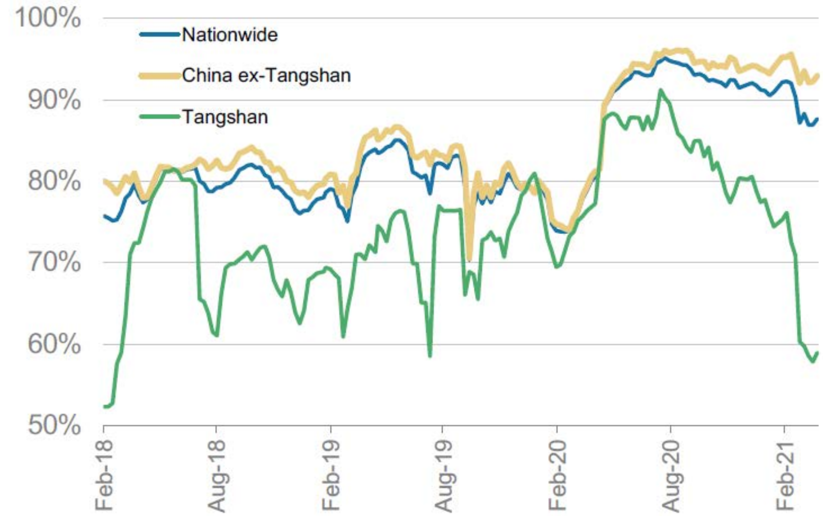
Elevated profit margin versus impact of China carbon emission cuts on steel production

China spread between steel (HRC) price and raw material costs



Source: Bloomberg, DBS Bank
HRC refers to hot-rolled coil steel, a widely used production input.

China steel mill blast furnace utilisation survey



Source: Mysteel, Morgan Stanley Research

- Due to the strong demand for steel within China, the price of steel has increased faster than the price of iron ore, leading to an elevated profit margin for Chinese steel mills (see ‘spread’ in above left chart). As a result, demand for iron ore from steel mills has continued to be strong.
- However, in addition to re-focusing on financial stability risks, Chinese authorities have announced cuts of between 30-50% of steel production in Tangshan (a key steel production region that accounts for circa 8% of global steel output) to reduce carbon emissions and improve air quality.
  - The Chinese government has indicated a desire to keep steel production in 2021 capped at or below 2020 levels.

Iron ore demand

Strong recovery in global ex-China steel demand as economies re-open from COVID-19

Global steel demand

Regions	2020 (mt)	2020 growth rate (%)	2021 (f) growth rate (%)	2022 (f) growth rate (%)
China	995	9.1	3.0	1.0
Developed markets	343	-12.7	8.2	4.2
Emerging markets (ex-China)	434	-7.8	10.2	5.2
World ex-China	777	-10.0	9.3	4.7
World	1,772	-0.2	5.8	2.7

Source: World Steel Association

US President Biden's infrastructure plan

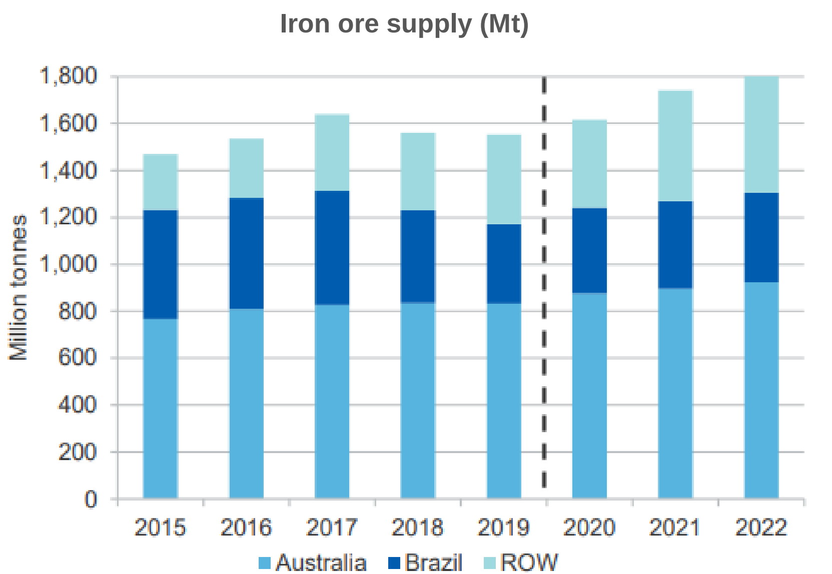
Areas	New spending ($bn)
Roads and bridges	109
Rail	66
Electric vehicle (EV) infrastructure	15
Airports	25
Ports and waterways	16
Other transport spending	81
Other infrastructure (e.g. water, broadband, power infrastructure)	266
Total	**579**

Source: US Whitehouse

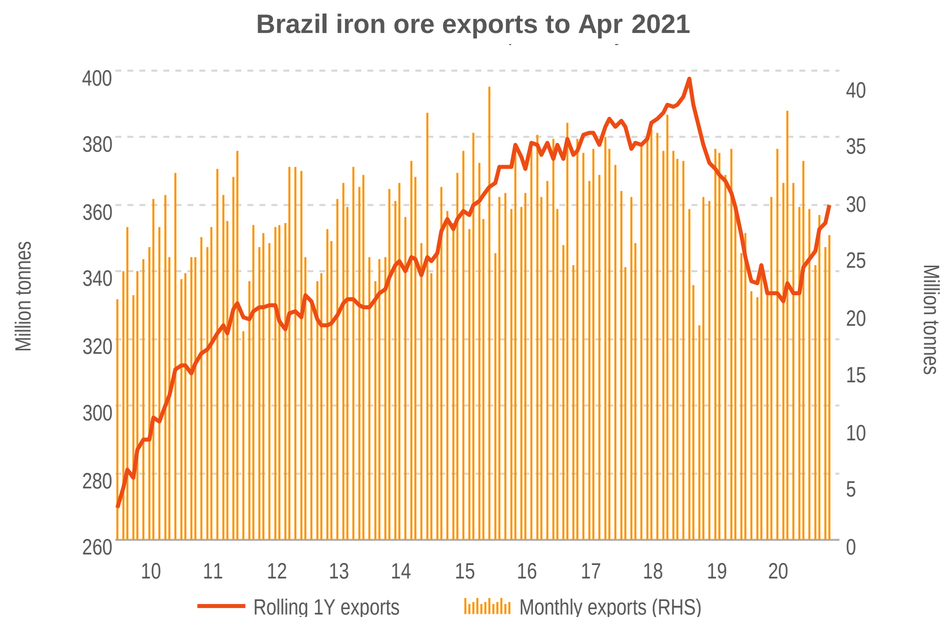
- Although the growth rate in Chinese demand for steel is likely to slow from current elevated levels, aggregate global demand for steel will likely increase over the next several years as the global economic recovery progresses.
  - Businesses to catch-up/ramp-up on capital expenditure plans. Household demand for automobiles to increase due to pent-up demand and social distancing.
  - Governments to invest in infrastructure to support the recovery (e.g. plans already announced in Australia and US) and to assist in the 'green and digital transition' of the economy.
- As at late June, there is support for US President Biden's 'Bipartisan Infrastructure Framework' which plans to invest US$579b in new spending on infrastructure (US$1.21t over eight years when renewal of existing funding of infrastructure is included). Although the plan seeks to invest in new areas such as electric vehicle infrastructure, a significant amount of the spending will still be in commodity-intensive areas (e.g. rail and bridges). Europe has announced infrastructure investments (part of the EUR750b 'NextGenerationEU' plan) but details of the plan are currently lacking.
- A global infrastructure boom may lead to an aggregate increase in demand for iron ore, however, there are mitigating factors.
  - Increasingly, new infrastructure projects are in less steel intensive areas (e.g. data centres, electric vehicle charging stations, renewable energy, batteries).
  - Unlike China, developed countries heavily use recycled scrap steel rather than iron ore to meet their steel demand. For example, electric arc furnaces (which predominantly use scrap steel) account for around 10% of China's steel production while in the US, it accounts for an estimated 70% of steel production.

Iron ore supply

Supply outlook from major supplier, particularly Brazil remains quite subdued



Source: World Steel Association (2020); Department of Industry, Science, Energy and Resources (2020). Note: Mt = million tonnes.



Source: Refinitiv Datastream, Frontier

- Supply is expected to expand but unlikely to catch up to strong demand at least in the near-term.
  - Australian major iron ore producers are operating near their long-term capacity, suggesting capacity to increase output to meet the increase in demand is limited in the near-term. Although there is some increase in planned mining capital expenditure in Australia, it is so far small relative to the previous commodity boom. Overall Australian production is expected to only increase marginally over the next few years as some of the new added capacity will replace existing depleting production.
- Additional supply will rely on Vale’s recovery post the dam collapse disaster in early 2019. Vale’s production is expected to recover very gradually.
  - The collapse of the Brumadinho dam was estimated to reduce Vale’s output by 40 million tonnes per year. Vale is now facing much stricter regulatory requirements and has needed to take a more cautious approach to rebuilding its production. Production plans have also been derailed by the impact of COVID-19 and unexpected higher rainfalls.
  - Vale is forecasting to achieve a full recovery by end 2022, but this schedule faces delays arising from the resurgence of COVID-19 in Brazil. Vale has missed their earlier production target for 2020.

Iron ore supply

Geopolitical risk and longer term supply

Location of Simandou mine

Source: Google Maps, Frontier

Ownership of high-grade Simandou deposits

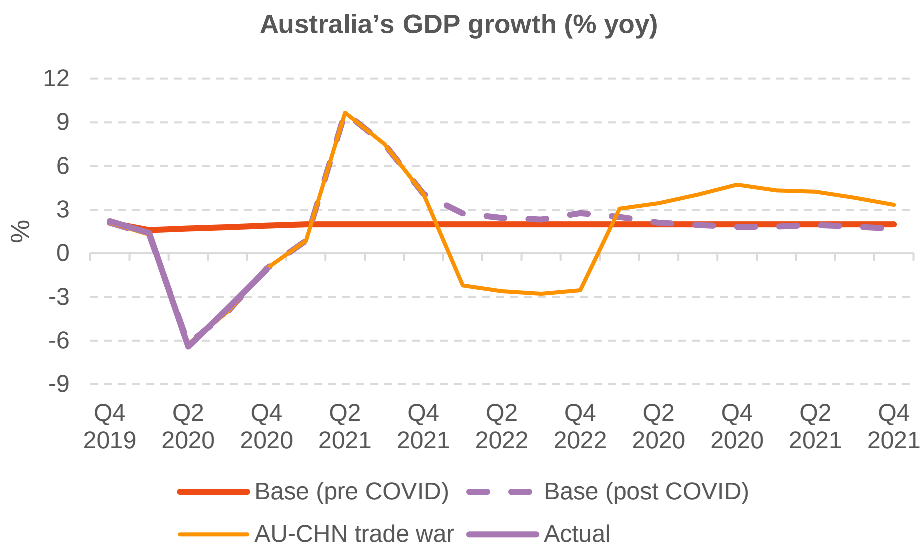
Ownership	Deposit	Resource (Mt)	Grade (Fe %)
China-led consortium: SMB 25%, Singapore's Winning Logistics 25%, Guinean's United Mining Supply 25%, China's Shandong Weiqiao 25%.	Simandou North (Block 1 & 2)	2,000	65%
Rio-led consortium: Rio 45%, Chinalco 40%, Guinean gov. 15%.	Simandou South (Block 3 & 4)	2,757	65.5%

Source: Company reports, Goldman Sachs

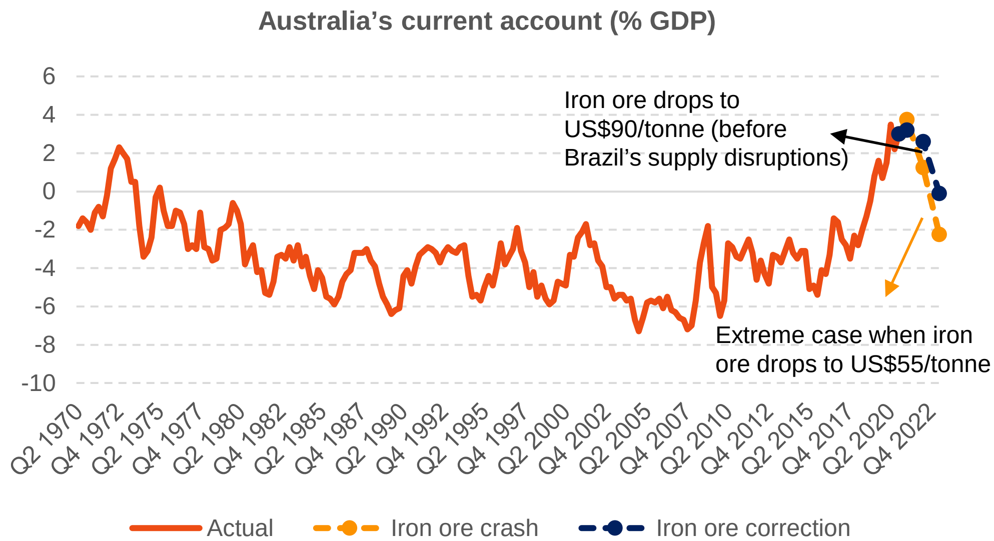
- As mentioned in our May 2021 China virtual trip paper, geopolitical tensions between China and Western democratic countries are likely to be structural given deeply rooted differences that are difficult to resolve. An escalation in geopolitical risk seems unlikely in the near term given governments are focused on their country's economic recovery. China is also unlikely to escalate trade tensions with the US given their reliance on key sectors like technology.
- As such, it is quite possible for China to escalate geopolitical tensions with Australia to set an example. However, it is unlikely for China to act on Australian iron ore exports given Australia's share of the iron ore market and the sheer size of China's demand. However, we have heard anecdotes that some Australian iron ore producers are worried China may impose taxes or price caps on Australian iron ore.
- China has been investing in African iron ore deposits to reduce its reliance on foreign-owned iron ore. This remains more of a medium- to longer-term issue. One of the key projects is the Simandou mines in Guinea. Production from these mines is not expected to start until at least 2025 with the deposits potentially supporting 150-200Mt/pa at full production capacity (equates to around 10% of current iron ore seaborne supply).
  - The mines are expected to take an extended time to develop. It will require around 700km of rail tracks with multiple bridges and tunnels to haul the iron ore to a deep-water seaport that has yet to be built.

Economic implications

The concentration of Australian exports to iron ore is a potential risk to the economy



Source: Refinitiv Datastream, Frontier



Source: Refinitiv Datastream, Treasury, Frontier
Note: The Australian Treasury forecasts that the iron or price declines to US$55/tonne by the end of the March quarter 2022.

- Given the importance of iron ore to Australian exports a reversal of iron ore price would be detrimental to economic growth and our current account positioning.
  - Although unlikely, under an extreme trade war scenario where there is a 'sudden stop' in commodity and services exports to China in 2022, the modelling suggests Australia's GDP could contract by 3%. Although not as severe as the COVID-19 recession, it is still a materially negative scenario.
  - The increase in iron ore prices has also improved the Federal government's financial position. Almost half the increase in tax revenue in the March 2021 quarter compared to the same quarter last year was attributed to the higher iron ore prices by the Parliamentary Budget Office.
- Australia has posted a current account surplus in recent years due to an increase in our commodity export (driven by volume and price).
  - In a scenario where the iron ore price reverts to pre-Brazil's supply issue levels (circa US$90/tonne), Australia's current account will likely be flat. In a more extreme scenario where the iron ore price falls to US$55/tonne (as forecasted by the Treasury), Australia will have a modest current account deficit.

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