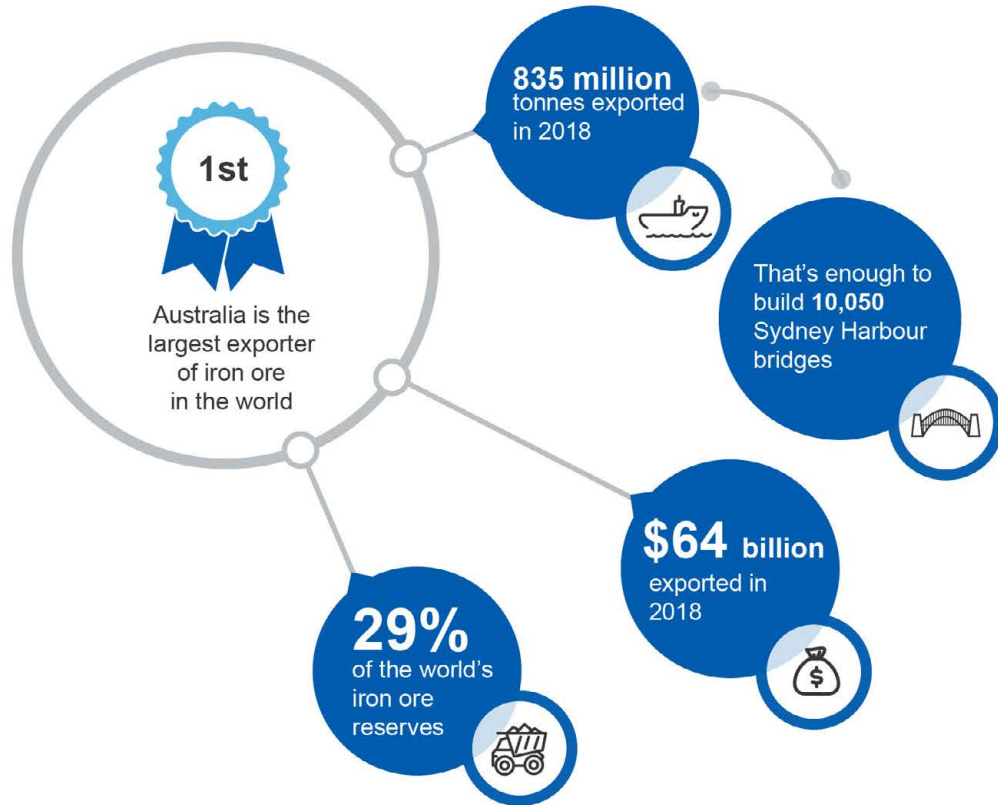


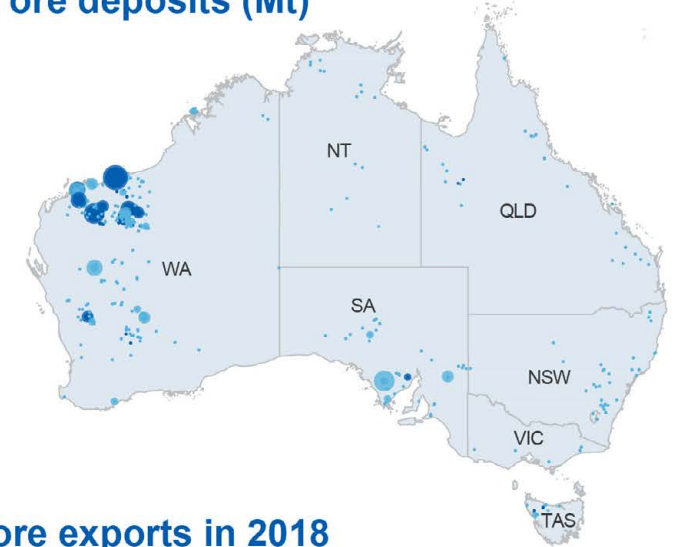
Iron Ore

Resources and Energy Quarterly September 2019

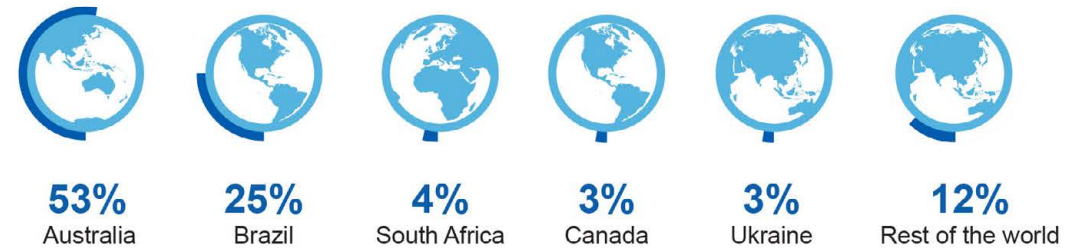


Major Australian iron ore deposits (Mt)

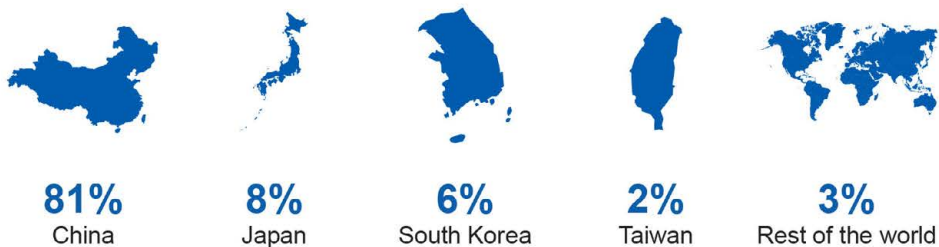
- <229
- 230–813
- 814–1,777
- 1,778–3,042
- 3,043–5,446
- >5,447
- Deposit
- Operating mine



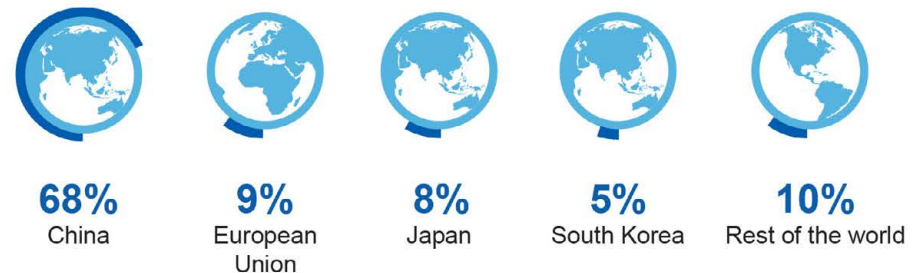
Global share of iron ore exports in 2018



Australia's iron ore key export destinations, 2018



Global share of iron ore imports in 2018



4.1 Summary

- The forecast iron ore price in 2019 has been revised up to average US\$80 a tonne Free on board (FOB). This reflects the full effect of supply disruptions — primarily in Brazil — and firm demand from China.
- The iron ore price is forecast to decline to average US\$57 a tonne (FOB) by 2021, as the seaborne market gradually returns to balance.
- Australia's iron ore export earnings are set to increase to \$77 billion in 2018–19, then to \$81 billion in 2019–20. Earnings are then projected to ease to \$65 billion in the final year of the outlook period, as seaborne prices gradually decline. Export volumes are expected to remain largely steady at just over 900 Mt over the outlook period.

4.2 Prices

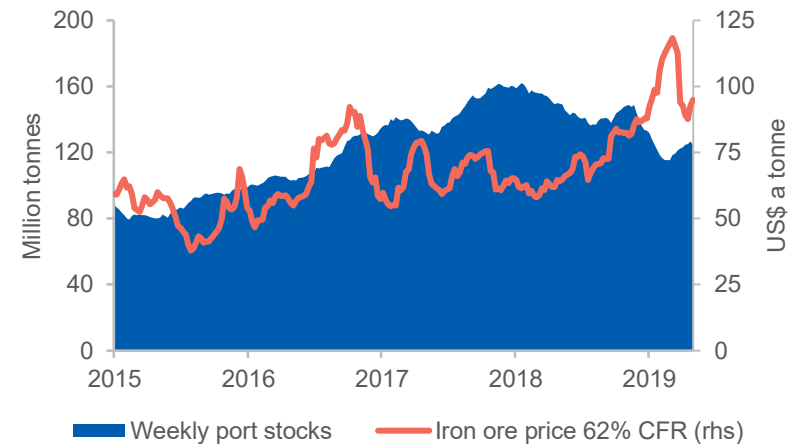
Iron ore prices have lost some of their recent surge

The FOB Australia iron ore price (62% iron content) — at which most Australian iron ore is sold — has declined noticeably in recent months after the first half surge (Figure 4.1).

It is unlikely that prices will drop substantially further in the short-term. Vale has lost 90 million tonnes of output — around one-quarter of its total annual capacity — following the catastrophic collapse of a Brazilian tailings dam in January. In its latest quarterly report, the company has confirmed that production is not expected to return to normal for at least three years. However, the impacts of a second supply disruption — caused by Cyclone Veronica, which affected Australian output early in 2019 — now appear to have passed.

China's port stocks fell continuously over the first eight months of 2019, but have recently shown signs of stabilising. It is not yet clear whether the stabilisation reflects temporary factors — such as the timing of shipments — or whether it is the start of a more sustained recovery in stocks.

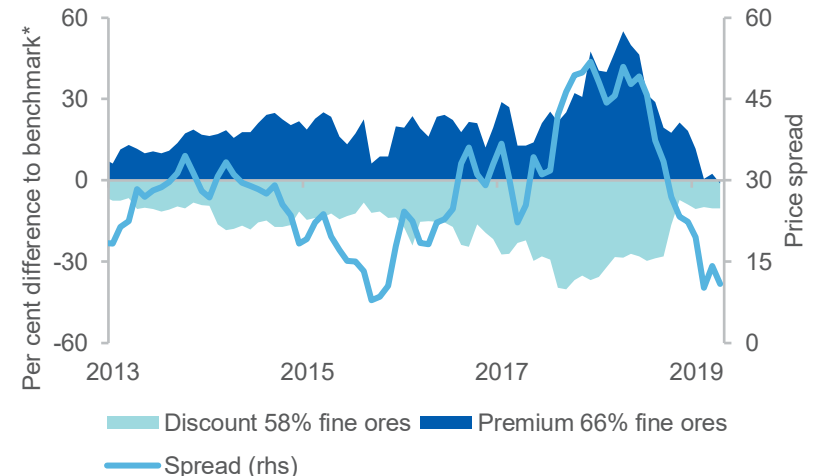
Figure 4.1: China's iron ore port stocks and spot price



Notes: China import Iron ore fines 62% Fe spot (CFR Tianjin port)

Source: Bloomberg (2019) Antaika iron ore port stocks and Metal Bulletin

Figure 4.2: Iron ore price spread between grades



Notes: *Benchmark used is 62 per cent iron fines CFR

Source: Bloomberg (2019) China import prices

As outlined in Chapter 3 *Steel*, steel production in China remains high, though the rapid growth in production of early 2019 appears to have paused. With the supply of high grade iron ore (65% Fe content) from Brazil heavily disrupted, Chinese steel makers have pivoted to lower grade ores. This has pushed the price of lower grade ores up in recent months, leading to a reduction in the price premium for higher grades (Figure 4.2).

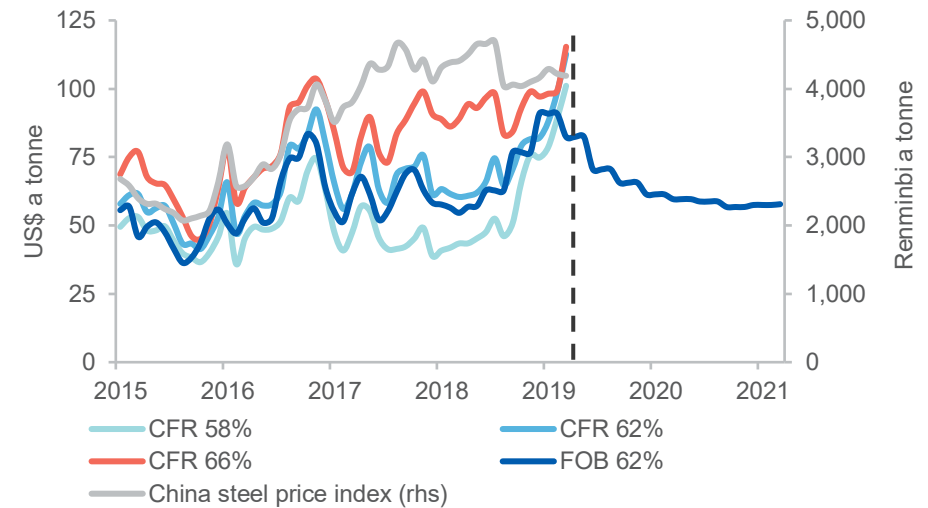
Prices face higher downside risks

Iron ore prices are expected to average around 30 per cent higher in 2019 relative to 2018 (FOB), as supply cuts imposed after the Brazilian tailings dam collapse continue to constrain supply (Figure 4.3). However, Vale's best mining assets — based in northern Brazil — continue to operate without issues. Vale is ramping up its Brazilian output by recommencing production from its large project at Brucutu, and through a greater use of dry tailings stacking. This would allow for some of the lost production to be offset late in 2019, though at least one-third of the supply cut is expected to persist for several more years.

The key influence on future prices is likely to be pace of global economic growth. Recessionary risks appear to be rising at present, with industrial production annual growth close to turning negative (see Chapter 2 *Macro economy*). Among the potential catalysts for a sharper global downturn are rising trade tensions between the US and China, slowing US growth (as corporate tax cuts finish working through the system), high debt in China, and downturns in Germany and other European countries. As steel remains deeply connected to global industrial production, the downside risks to the steel outlook are lifting. However, the overall effect of a downturn on the global economy remains difficult to project, as many countries are likely to respond to a further downturn by enacting new stimulus measures, which typically involve infrastructure development and efforts to stimulate greater production of steel (Figure 4.4).

The iron ore price is forecast to decline to an average US\$57 a tonne in 2021, as global production gradually recovers.

Figure 4.3: Iron ore price by grade and China steel price index



Notes: The OCE forecasts the FOB (free on board) Australia iron ore price, not the benchmark CFR (cost and freight) North China iron ore price.

Source: Bloomberg (2019) Metal Bulletin; Department of Industry, Innovation and Science (2019)

Figure 4.4: Iron ore price and China steel production growth



Notes: China import Iron ore fines 62% Fe spot (CFR Tianjin port)

Source: Bloomberg (2019) China import prices; World Steel Association (2019)

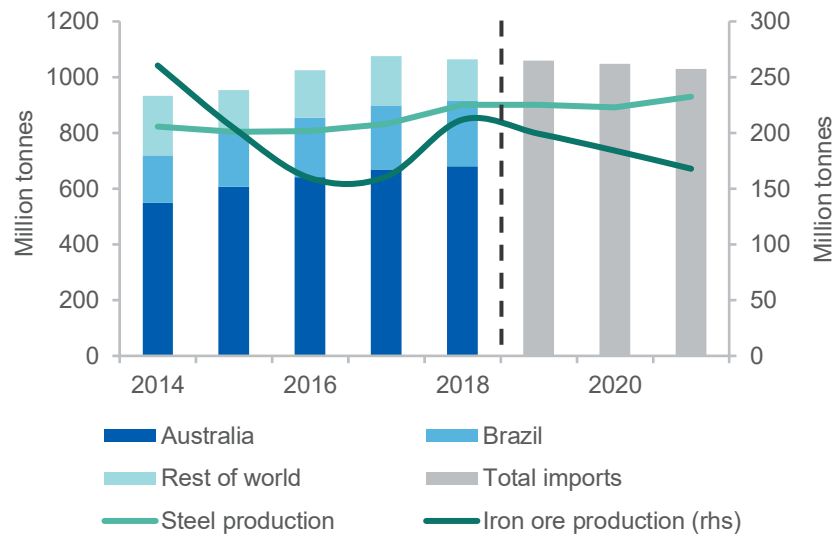
4.3 World trade

China's iron ore imports are forecast to gradually decline

China's iron ore imports have edged back in recent months, falling by around 5 per cent in June (the latest available data) despite high steel production. Supply disruptions have accelerated an existing trend towards greater use of scrap and recycled steel as an alternative to iron ore imports and primary production.

China's iron ore imports peaked at 1,075 million tonnes in 2017, and are forecast to decline over the outlook period — reaching 1,029 million tonnes in 2021 (Figure 4.5) — as rising scrap use substitutes for traditional steel production.

Figure 4.5: China's iron ore imports and production



Notes: China's iron ore production is quality adjusted.

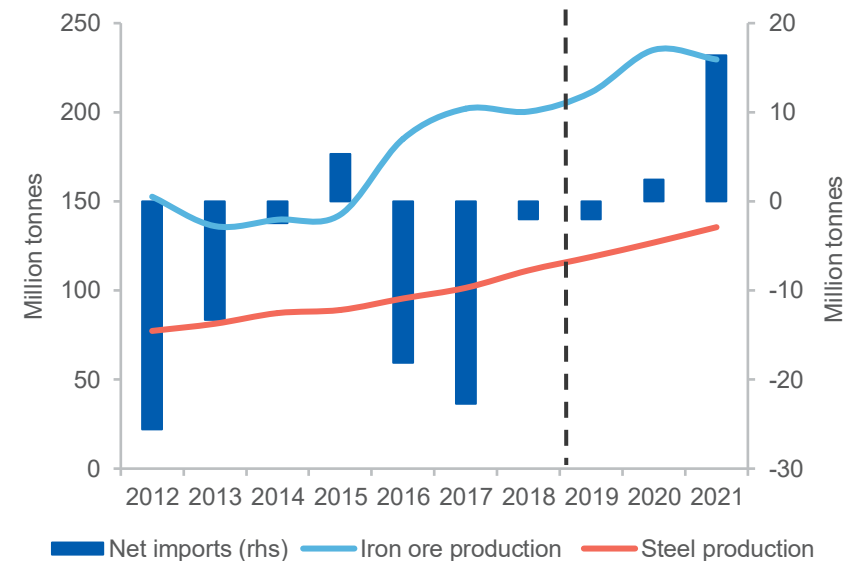
Source: Bloomberg (2019) Antaike Information Development; Bloomberg (2019) China Customs General administration; Department of Industry, Innovation and Science (2019)

India is set to become a net importer of iron ore

India is set to become a highly significant influence on global iron ore markets, as the country continues to industrialise. India currently has low iron ore use per capita, but the government has recently announced that an increase in this measure will be part of its economic plan. India's iron ore production is forecast to increase by 4.6 per cent annually, from an estimated 200 million tonnes in 2018 to 230 million tonnes in 2021. Rising iron ore production will be driven by growing demand from the domestic steel industry.

India is forecast to remain a small net importer of iron ore from 2020 onwards, as the government pursues ambitious steel production targets, but tightly regulates the domestic iron ore industry and continues to clamp down on illegal iron ore mining (Figure 4.6).

Figure 4.6: India's iron ore imports and domestic production



Source: World Steel Association (2019); Department of Industry, Innovation and Science (2019)

Export growth is likely to taper off in the short-term

Global seaborne iron ore supply is forecast to edge down to around 1,550 million tonnes in 2019. This reflects a decline in output from Brazil, offset by rising production elsewhere, including Australia, which is expected to fill much of the gap by 2021 (Figure 4.7).

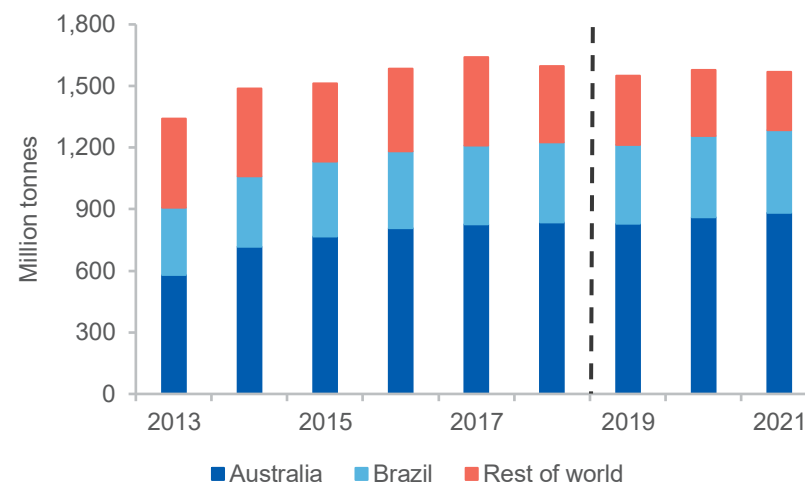
While Vale is seeking to increase production from its other projects in the north of Brazil, overall output is expected to remain below the company's recent average of around 400 million tonnes of output for at least the next three years. High-grade (65% Fe content) iron ore is likely to be particularly affected until Vale's S11D project at the Carajás complex ramps up towards its full capacity. The project is expected to reach its full capacity by 2020.

Also contributing to the output will be the expansion of Anglo American's Minas-Rio mine, which will provide additional high-grade supply. Anglo America has received the preliminary and installation licences for their stage 3 expansion, paving the way for the operation to ramp up towards its nameplate capacity of 26 million tonnes. The mine produced 5.9 million tonnes of high grade iron ore in the June quarter 2019.

Partly offsetting this, it is likely that Vale — and potentially other producers — will focus on shifting from wet to dry processing over the next three years. This will divert resources away from other potential expansions, and may lead to some drag on Brazilian output in the short term. However, in the longer term it will likely improve stability of supply across the global iron ore market.

Vale's high-grade Samarco mine — closed since the tailings dam burst in November 2015 — is expected to return to production by 2020, with output gradually ramping up to nameplate capacity of 32 million tonnes.

Figure 4.7: Outlook for global iron ore exports



Source: World Steel Association (2019); Department of Industry, Innovation and Science (2019)

Increased supply elsewhere to gradually help ease the market deficit

Australian production is likely to ramp up after 2020, but several African projects in the Democratic Republic of Congo are closer to commencement. These include the recently announced Glencore and Zanga joint venture, which is expected to supply 2 million tonnes of high grade iron ore over 2019 and 2020. In mid-2019, the Sapro group delivered its first shipment of high grade (65% Fe) iron ore to China, with the company projecting a ramp-up to 12 million tonnes by 2022.

Tacora's Wabush high grade iron ore mine in Canada is on track to restart in June and gradually ramp up to 6 million tonnes per annum.

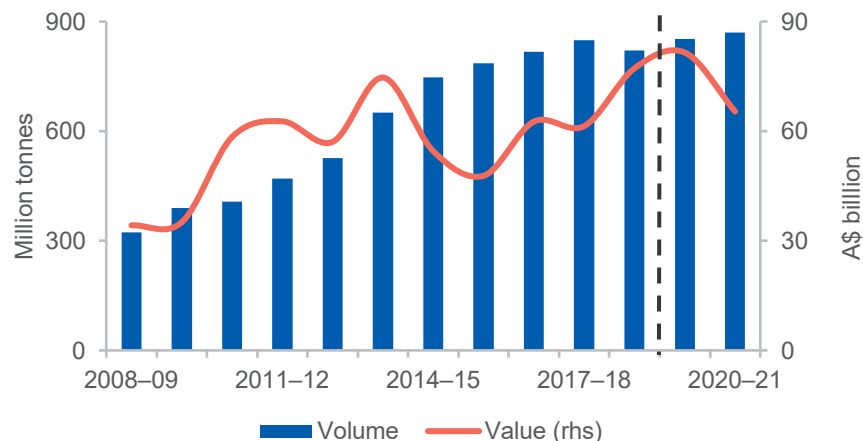
4.4 Australia

Australia's iron ore export earnings have not peaked yet

Australia's iron ore export earnings increased by 25 per cent to \$76 billion in 2018–19, the highest level on record (Figure 4.8). The result reflects rapid price growth, which more than offset a small decline in volumes — owing to weather events including Cyclone Veronica. The exchange rate also continues to trend down, adding to global competitiveness and revenue potential for Australian exporters.

Export values are forecast to rise to \$81 billion in 2019–20, driven by elevated prices and export volumes, before declining to around \$65 billion in 2020–21. Rising production in Australia and elsewhere over this period is expected to pull prices back, while demand is likely to flatten out. Prices (and export revenue) are likely to drop further should a global downturn eventuate. Such a downturn now represents the key risk to Australia's iron ore export outlook.

Figure 4.8: Australia's iron ore export volumes and values



Source: ABS (2019) International Trade, Australia, 5368.0; Department of Industry, Innovation and Science (2019)

Australia's iron ore export volumes are forecast to grow

Australia's iron ore export volumes edged down by 0.2 per cent year-on-year in the June quarter to 219 million tonnes. Export volumes fell sharply in late March following Cyclone Veronica. However, as ports in the Pilbara region returned to regular operation, production recovered again in the June quarter.

Export volumes are forecast to increase by an annual average of 2.9 per cent over the outlook period, from 820 million tonnes in 2018–19 to 869 million tonnes in 2020–21. Higher volumes should be underpinned by Fortescue's Iron Bridge project, and also by development of three large iron ore projects in the Pilbara region. These are Fortescue's Eliwana, which is set to commence in December 2020 and produce 30 million tonnes per year; Rio Tinto's Koodaideri, expected to commence in late 2021 and produce 43 million tonnes per year; and BHP's South Flank, set to produce 80 million tonnes annually and replace existing production from the Yandi operations from 2021.

Revisions to export earnings

Australia's iron ore export earnings for 2018–19 have been revised up from \$75.2 billion in the June quarter *Resources and Energy Quarterly*, to \$77.2 billion in this release. The change reflects additional information on the likely timing of returns to production from Vale facilities in Brazil, and suggests more of the price gain will be retained in coming years.

Iron ore exploration expenditure expected to rise over the outlook

Australia's iron ore exploration expenditure increased by 4.9 per cent year-on-year to \$93.4 million in the June quarter 2019. Iron ore exploration has benefited from the surge in prices early in 2019, and robust demand from key markets including China.

Rising global uncertainty over the last few months may affect exploration over the coming quarters.

Table 4.1: World trade in iron ore

	Million tonnes				Annual percentage change		
	2018	2019 ^f	2020 ^f	2021 ^f	2019 ^f	2020 ^f	2021 ^f
Total world trade	1,595	1,550	1,579	1,568	-2.9	1.9	-0.7
Iron ore imports							
China	1,065	1,060	1,047	1,029	-0.4	-1.2	-1.7
European Union 28	148	150	152	153	1.4	1.4	0.2
Japan	129	130	131	129	0.5	0.7	-1.1
South Korea	73	76	75	75	3.0	-0.4	-0.4
India	16	12	15	27	-24.5	20.8	87.2
Iron ore exports							
Australia	835	828	862	881	-0.8	4.1	2.2
Brazil	390	386	396	403	-1.0	2.6	1.8
Ukraine	35	30	29	30	-14.3	-3.3	1.7
India	18	14	12	11	-21.6	-14.1	-11.1

Notes: ^f Forecast.

Source: World Steel Association (2019); International Trade Centre (2019); Department of Industry, Innovation and Science (2019)

Table 4.2: Iron ore outlook

World	Unit	2018	2019 ^f	2020 ^f	2021 ^f	Annual percentage change		
						2019 ^f	2020 ^f	2021 ^f
Prices ^{bc}								
– nominal	US\$/t	61.2	80.1	61.4	57.5	30.9	-23.4	-6.3
– real ^d	US\$/t	62.5	80.1	60.0	55.0	28.1	-25.2	-8.3
Australia	Unit	2017–18	2018–19 ^s	2019–20 ^f	2020–21 ^f	2018–19	2019–20 ^f	2020–21 ^f
Production								
– Steel ^{hs}	Mt	5.71	5.78	5.78	5.79	1.2	0.0	0.2
– Iron ore	Mt	900	913	901	912	1.4	-1.3	1.2
Exports								
Steel	Mt	1.15	1.21	0.99	1.00	5.0	-17.8	0.2
– nominal value	A\$m	926	1 261	751	752	36.1	-40.5	0.2
– real value ^{hi}	A\$m	964	1 291	751	734	33.9	-41.9	-2.2
Iron ore	Mt	848	820	852	869	-3.4	3.9	2.0
– nominal value	A\$m	61,392	77,211	81,457	65,344	25.8	5.5	-19.8
– real value ⁱ	A\$m	63,901	79,064	81,457	63,774	23.7	3.0	-21.7

Notes: **b** fob Australian basis; **c** Spot price, 62 per cent iron content basis; **d** In 2019 US dollars; **f** Forecast; **h** Crude steel equivalent; Crude steel is defined as the first solid state of production after melting. In ABS Australian Harmonized Export Commodity Classification, crude steel equivalent includes most items from 7206 to 7307, excluding ferrous waste and scrap and ferroalloys; **i** In 2019–20 Australian dollars.

Source: ABS (2019) International Trade in Goods and Services, Australia, 5368.0; Bloomberg (2019) Metal Bulletin; World Steel Association (2019); AME Group (2019); Company Reports; Department of Industry, Innovation and Science (2019)