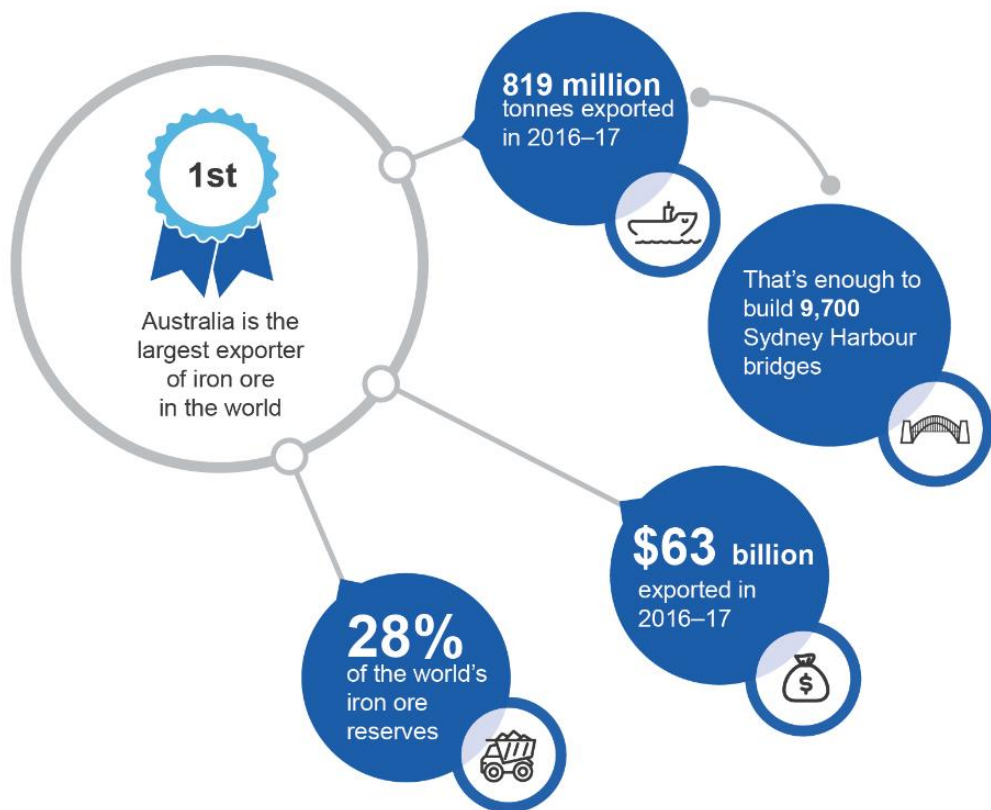


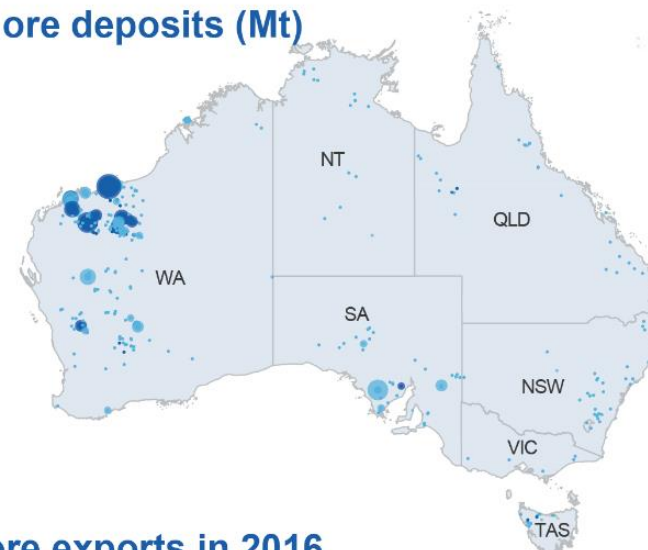
Iron Ore

Resources and Energy Quarterly December 2017

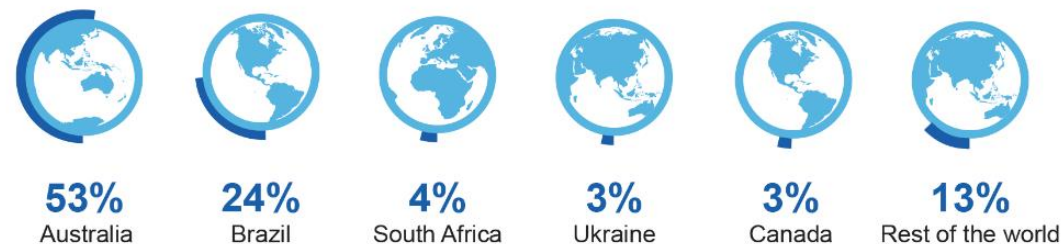


Major Australian iron ore deposits (Mt)

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



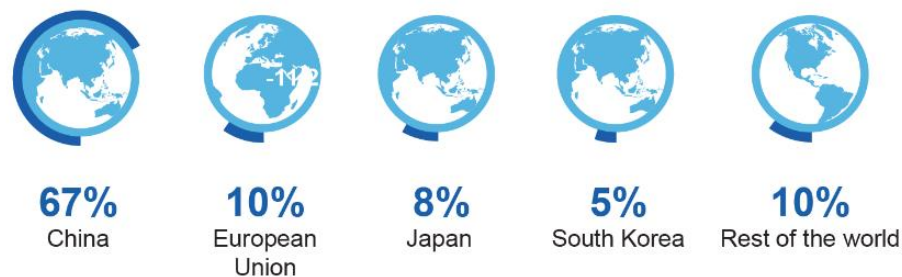
Global share of iron ore exports in 2016



Australia's iron ore key export destinations, 2016–17



Global share of iron ore imports in 2016



4.1 Summary

- Australia's iron ore export earnings grew by 31 per cent to \$63 billion in 2016–17, but are forecast to fall to \$52 billion in 2018–19, as the impact of lower prices more than offsets growth in volumes.
- The iron ore price is forecast to decline to US\$49 a tonne (FOB Australia) in 2019, due to growing low-cost supply from Australia and Brazil and moderating demand from China.
- The outlook for the iron ore price is sensitive to the pace and magnitude of the decline in China's steel production, which in turn, largely depends on government policy.

4.2 Prices

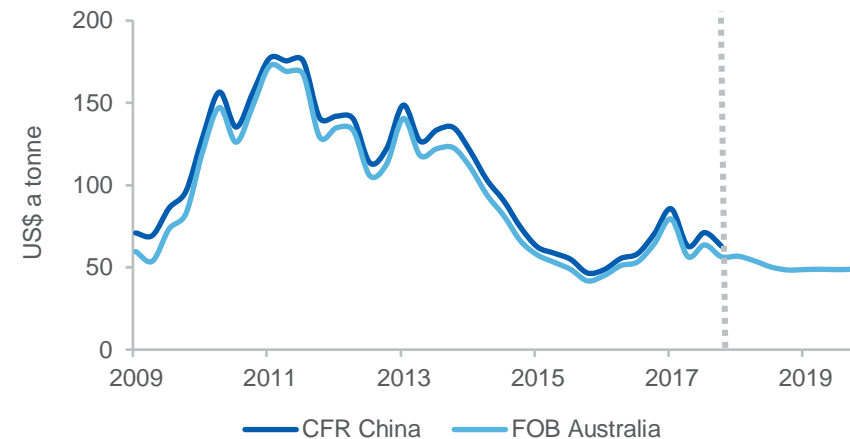
Iron ore price forecast to gradually decline following short-term support

The iron ore price is forecast to average US\$53 a tonne (FOB Australia) in 2018, and decline to average US\$49 a tonne in 2019. The iron ore price is expected to experience some ongoing volatility in early 2018, as the market responds to uncertainty regarding the impact of winter production restrictions on iron ore demand.

There are conflicting forces influencing the iron ore price. China's winter curtailment policy should result in a net loss of steel production, in turn, dampening iron ore import demand and placing downwards pressure on the iron ore price. However, the iron ore price has historically tracked China's steel prices quite closely, and the price is unlikely to experience substantial declines while steel prices and margins remain elevated.

With steel prices and margins close to six-year highs and inventories at eight-year lows, it is likely that there will be robust growth in steel production and iron ore demand after the winter production restrictions are lifted. Demand for iron ore is also expected to be supported by a seasonal rebound in construction and manufacturing activity in China's spring months. The iron ore price has been revised up from the September 2017 *Resources and Energy Quarterly*, to average US\$55 a tonne in the first half of 2018, reflecting short-term support from these drivers.

Figure 4.1: Iron ore price, FOB Australia and CFR China, quarterly



Source: Bloomberg (2017) Metal Bulletin; Department of Industry, Innovation and Science (2017)

Figure 4.2: Steel and iron ore prices, daily



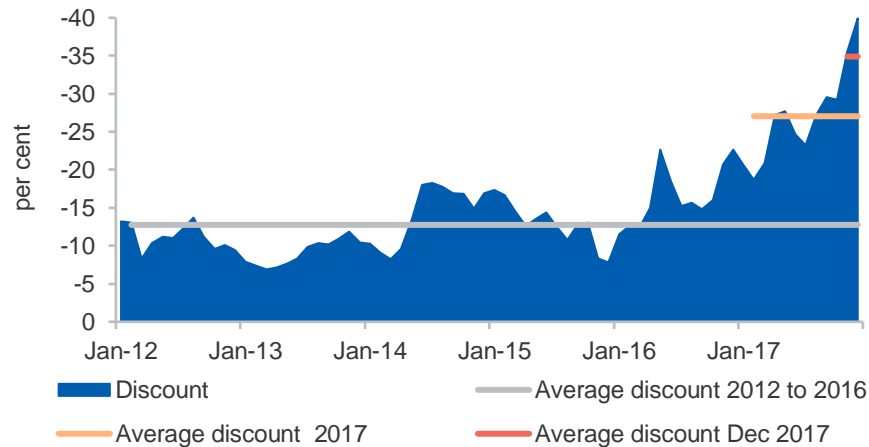
Notes: Steel price is a composite index of prices in China. Iron ore price is for CFR China.
Source: Bloomberg (2017) Beijing Custeel E-Commerce Co.; Bloomberg (2017) Metal Bulletin

However, beyond the first half of 2018, the iron ore price is forecast to decline to US\$49 a tonne, reflecting growing supply from low-cost producers in Australia and Brazil, and moderating demand from China as steel production eases. China's steel production is sensitive to a range of economic, monetary and environmental policies, and government policy remains the key uncertainty underpinning the outlook for the iron ore price.

Discount on lower grade ores likely to persist

An expected decline in steel prices over the next two years is likely to alleviate some of the downward pressure on lower grade ores, which experienced an average 35 per cent discount on the 62 per cent (premium grade) benchmark price in the December 2017 quarter. However, there are strong signals from the Chinese government that there will be an increasing emphasis on efficiency and addressing air quality concerns, supporting an ongoing preference for medium and high grade ores. As such, while the discount may narrow as steel prices decline, it is unlikely revert back to the historical average of 13 per cent.

Figure 4.3: Discount on 58 per cent fines



Notes: Discount is for 58 per cent relative to 62 per cent fines.

Source: Bloomberg (2017) Beijing Custeel E-Commerce Co.

4.3 World trade

China's iron ore imports forecast to be steady

China's iron ore imports increased by 5.7 per cent in the year to October, supported by robust steel production. China's demand for iron ore is forecast to gradually ease over the next two years, with opportunities from the 'One Belt One Road' initiative expected to partially offset the impact of slowing fixed asset investment and a cooling property market.

China's iron ore imports are forecast to remain largely steady, at around 1.05 billion tonnes to 2019, supported by a forecast decline in domestic iron ore output. China's iron ore is mostly low grade, making domestically-produced iron ore less competitive against imports, particularly as steel mills increasingly prefer higher quality iron ore. There are also government plans to cancel a third of iron ore mining licenses, predominantly from small, polluting mines, which should further weigh on domestic supply. However, China's iron ore operations tend to be highly responsive to prices, and there is potential for domestic iron ore production to decline slower than expected, which would result in lower import demand than currently forecast.

India's iron ore exports forecast to moderate

India's iron ore exports have surged in 2017, though from a low base. The rise was driven by more supportive government policies, including the easing of mining and export restrictions. India's iron ore exports are forecast to moderate over the next two years. India's rapidly growing steel industry is expected to consume more domestic iron ore, and exports will be weighed down by ongoing production and export restrictions and a 30 per cent tax on medium grade iron ore exports. The government reduced export taxes for low grade ores in 2016, however there has been a growing preference for medium and higher grade ore from steel mills in China. India's iron ore imports are forecast to remain low through to 2019, as domestic output largely satisfies local needs. The outlook for India's iron ore trade is sensitive to government policy, which has historically been more supportive of securing low cost inputs for the steel industry.

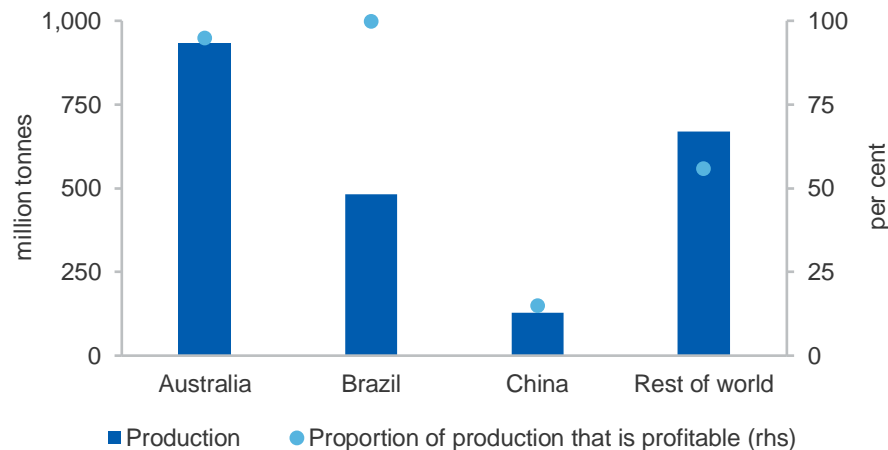
Iron ore exports from Brazil forecast to grow strongly

Strong growth in Brazil's iron ore exports will be driven by the ongoing ramp up of Vale's 90 million tonne S11D project. In its September quarterly report, Vale's production guidance of 360–380 million tonnes in 2017 was unchanged from the previous quarter, and a longer-term target of 400 million tonnes a year was reaffirmed. Anglo American Plc's Minas Rio expansion aims to increase annual output from 17 million tonnes to 26.5 million tonnes by 2019. However, ongoing delays in obtaining environmental permits puts the project at risk.

Seaborne trade to be dominated by Australia and Brazil

Rising iron ore prices in the last couple of years has resulted in increased iron ore production from smaller producers, however, this is likely to be temporary. Exports of medium grade ore from low-cost producers in Australia and Brazil are forecast to grow, placing downward pressure on the iron ore price and displacing higher cost and lower grade supply.

Figure 4.4: Iron ore production and profitability in 2019



Notes: Based on share of mines producing at a profit at a forecast US\$49 a tonne.
Source: AME Group (2017); Department of Industry, Innovation and Science (2017)

The majority of Australia and Brazil's production is expected to remain profitable at the forecast price of US\$49 a tonne in 2019. Both countries' share of global seaborne trade are forecast to increase, with Australia forecast to increase its market share from 53 per cent in 2016 to 54 per cent in 2019, and Brazil from 24 per cent in 2016 to 26 per cent in 2019.

4.4 Australia

Iron ore exploration expenditure stabilises

In the September 2017 quarter, iron ore exploration expenditure increased by 5.0 per cent year-on-year to \$84 million. Australia's iron ore exploration expenditure totalled \$291 million in 2016–17, stabilising after four consecutive years of large declines.

Australia's exports earnings continued to grow in the September quarter

In 2016–17, Australia's iron ore exports increased by 31 per cent to \$63 billion in 2016–17, propelled by higher prices and, to a lesser extent, growth in export volumes. Export volumes rose by 4.1 per cent to 818 million tonnes, while production rose by 4.4 per cent to 872 million tonnes.

Australia's iron ore export earnings continued to grow in the September 2017 quarter, rising by 21 per cent year-on-year to \$16 billion, while export volumes rose by 3.5 per cent to 212 million tonnes.

Production growth in the September 2017 quarter was supported by an increase in production at Rio Tinto's operations (due to productivity enhancement projects), at Roy Hill, which reached its nameplate capacity run rate of 55 million tonnes a year in September, and at Mount Gibson's Iron Hill project as it ramped up. However, there was lower production at BHP's operations, due to a fire at the Mt Whaleback screening plant in June 2017, and planned maintenance in the September quarter, which more than offset record production at Jimblebar.

Iron ore export earnings forecast to decrease but volumes forecast to rise

Australia's iron ore export earnings are forecast to decline over the next two years, by 1.0 per cent in 2017–18 to \$62 billion, and by 16 per cent in 2018–19 to \$52 billion. The decline in export earnings will be driven by the

forecast decline in the iron ore price. Export volumes are forecast to grow by 6.2 per cent in 2017–18 to 869 million tonnes, and by 1.6 per cent in 2018–19 to 883 million tonnes.

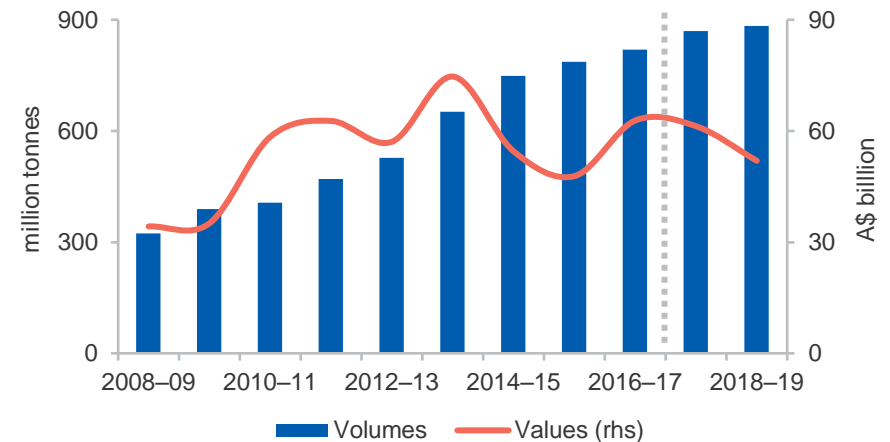
Growth in export volumes is expected to be supported by ongoing productivity improvements and new additions to capacity. The restart of Mount Gibson’s Koolan Island project is on track to achieve first sales in early 2019. Rio Tinto’s Silvergrass mine remains on target for completion, and will ramp up to full capacity in 2018. The automation of Rio Tinto’s Pilbara train system remains on track for completion by the end of 2018, supporting further operational improvements. Rio Tinto announced production guidance of 330–340 million tonnes for 2018, and BHP expects production to be 275–280 million tonnes in 2017–18.

There are minor risks to the outlook for Australia’s iron ore production. An estimated 95 per cent of Australia’s iron ore production is expected to remain profitable at the forecast price of US\$49 a tonne in 2019. However, margins will be tight at some operations with higher costs or lower grade ores, and some producers may be exposed to persistently low prices.

Revisions to forecast export values

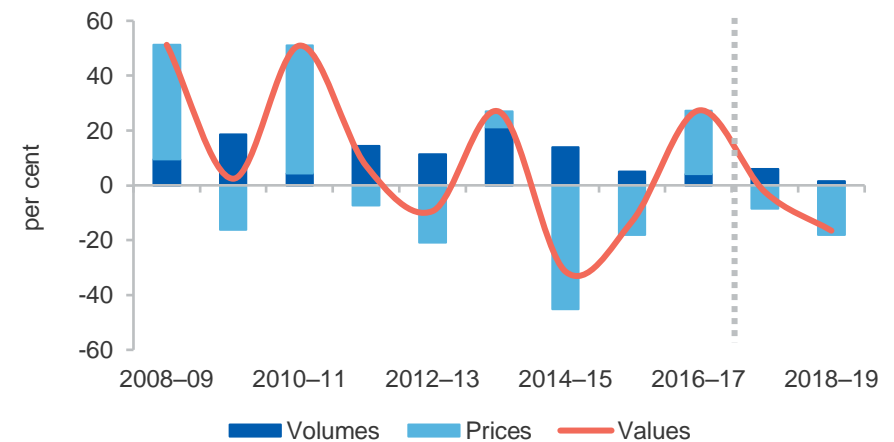
The forecast for Australia’s iron ore export values in 2017–18 has been revised up by \$2.5 billion from the September 2017 *Resources and Energy Quarterly*. The revision reflects an upwards adjustment to the forecast iron ore price in the first half of 2018, with some short-term support expected from persistently high steel prices, and upwards revisions to production growth at several operations. The value of Australia’s iron ore exports in 2018–19 has been revised down by \$1.9 billion from the September 2017 *Resources and Energy Quarterly*, as a result of minor downwards revisions to production forecasts to reflect new production guidance for several operations. An upward revision to the AUD-USD exchange rate also contributed to the downward revision of export earnings.

Figure 4.5: Australia’s iron ore export volumes and values



Source: ABS (2017) *International Trade, Australia*, 5454.0; Department of Industry, Innovation and Science (2017)

Figure 4.6: Annual growth in Australia’s iron ore export values, and contributions from prices and export volumes



Source: ABS (2017) *International Trade, Australia*, 5454.0; Department of Industry, Innovation and Science (2017)

Table 4.1: World trade in iron ore

World trade in iron ore	Unit	2016 s	2017 f	2018 f	2019 f	Annual percentage change		
						2017 f	2018 f	2019 f
World trade	Mt	1,536	1,573	1,604	1,630	2.4	2.0	1.6
Iron ore imports								
European Union 28	Mt	147	152	157	158	3.1	3.0	0.9
Japan	Mt	130	126	132	133	-3.2	4.5	0.9
China	Mt	1,025	1,048	1,049	1,051	2.3	0.1	0.1
South Korea	Mt	72	74	78	79	3.8	4.7	1.9
India	Mt	4	6	11	13	58.3	96.9	12.3
Iron ore exports								
Australia	Mt	808	834	880	894	3.2	5.4	1.7
Brazil	Mt	374	384	400	424	2.6	4.2	6.0
India	Mt	22	28	12	12	30.0	-57.5	0.0
Ukraine	Mt	39	47	47	48	20.4	0.3	2.5

Notes: s Estimate; f Forecast

Source: World Steel Association (2017); International Trade Centre (2017); Department of Industry, Innovation and Science (2017)

Table 4.2: Iron ore outlook

World	Unit	2016	2017 f	2018 f	2019 f	Annual percentage change		
						2017 f	2018 f	2019 f
Prices bc								
– nominal	Mt	53.5	64.3	52.6	48.8	20.2	-18.3	-7.2
– real d	Mt	54.6	64.3	51.5	46.7	17.7	-20.0	-9.2
Australia	Unit	2015–16	2016–17	2017–18 f	2018–19 f	2016–17 s	2017–18 f	2018–19 f
Production								
– Steel hs	Mt	5.00	5.35	5.28	5.28	6.8	-1.1	0.0
– Iron ore	Mt	836.0	872.4	909.9	924.2	4.4	4.3	1.6
Exports								
Steel	Mt	0.77	1.00	0.95	0.98	30.2	-5.0	3.7
– nominal value	A\$m	598	875	761	743	46.3	-12.9	-2.4
– real value hi	A\$m	620	893	761	727	43.9	-14.7	-4.6
Iron ore	Mt	785.8	818.2	868.9	883.0	4.1	6.2	1.6
– nominal value	A\$m	47,799	62,689	62,039	52,231	31.2	-1.0	-15.8
– real value i	A\$m	49,616	63,979	62,039	51,069	28.9	-3.0	-17.7

Notes: **b** fob Australian basis; **c** Spot price, 62 per cent iron content basis; **d** In 2017 US dollars; **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 2017–18 Australian dollars; **f** Forecast; **s** Estimate

Source: ABS (2017) International Trade in Goods and Services, Australia, 5368.0; Bloomberg (2017) Metal Bulletin; World Steel Association (2017); AME Group (2017); Company Reports; Department of Industry, Innovation and Science (2017)