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## Further information

For more information on data or government initiatives please access the report from the Department's website at: [www.industry.gov.au/oce](http://www.industry.gov.au/oce)

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## Executive Summary

The outlook for Australian resource and energy commodity exports has improved slightly since the June 2023 *Resources and Energy Quarterly* (REQ). In the September quarter, commodity prices held up better than we expected in the June REQ, adding to the positive impact on export revenues of the weaker AUD/USD. Australian exports are forecast to fall to \$400 billion in 2023–24, down from a record \$467 billion in 2022–23. Exports are forecast to decline further to \$352 billion in 2024–25.

Economic growth in Western economies is holding up better than expected in the June REQ, outweighing worries over the outlook for the Chinese economy — the world’s largest consumer of resource and energy commodities and Australia’s largest export destination. Relatively slow growth in the Chinese economy in 2023 reflects a range of cyclical factors — including the slowdown in Western economies in 2023 and a downturn in the Chinese property sector — and structural factors — such as the growing share of consumption in GDP. Weaker economic growth in China has led to bouts of weakness in iron ore and base metal prices, but recent Chinese stimulus measures and low global inventories of most base metals have helped limit price falls.

Energy prices have normalised relative to 2022, as global trade has now largely reorganised in response to the sanctions placed on Russian exports. However, prices remain above levels traded pre-Russian invasion of Ukraine: some Russian fossil fuel output remains stranded, limiting world supply. Europe is likely to be the main driver of global LNG demand over the outlook period, as the region continues to replace Russian pipeline gas with LNG, mainly from the US. World oil stocks are low, making oil prices vulnerable to supply shocks.

The end of both the La Niña weather episode and major COVID-related workforce disruptions have also helped improve world supply of most resource and energy commodities. With high chances of drier than normal conditions in eastern Australia over the next 6-9 months, the risk of mines and transport routes being flooded are sharply reduced. But an El Niño-driven drought in Indonesia would lower river levels, making thermal coal difficult to barge.

Following the end of Chinese restrictions on Australia coal imports, Australian thermal coal exports to China have returned to previous levels. However, Australian metallurgical coal has struggled to regain Chinese market share: new rail links have facilitated a recent surge of Mongolian metallurgical coal exports to China in the past year or so, and Russia has been able to divert some of its coal exports to China (and India) from the Western nations which have banned Russian exports.

Since the June REQ, there have been major developments in battery chemistry, with driving ranges rising and “refuelling” times falling towards levels comparable with internal combustion engines. This quarter’s special topic chapter explores the global battery value chain. So far, lithium remains a central element in the improved battery chemistries and demand outlook for lithium remains strong. Lithium prices have fallen from the peak in late 2022 as the global supply outlook has improved, but remain well above levels in recent years. In volume terms, Australian exports are expected to grow further, with lithium hydroxide making up an increasing share of exports.

Global investment continues to surge in all stages of the supply chain of low emission and critical technologies, underpinned by government assistance in many nations. Government actions are being driven by concerns over both supply chain security and carbon emissions. Investment is likely to pick up even further if interest rates start to fall.

# Overview



## Australia's mining sector



Contributes to around **13.6% of GDP**



Makes up more than **two-thirds** of Australia's total merchandise exports



The resources sector directly employs **more than 300,000** people

## Outlook



Commodity export earnings set a new record: **\$467 billion** in 2022-23



Earnings record reflects improving **supply conditions**, lower **Russian exports** and a **falling \$A**

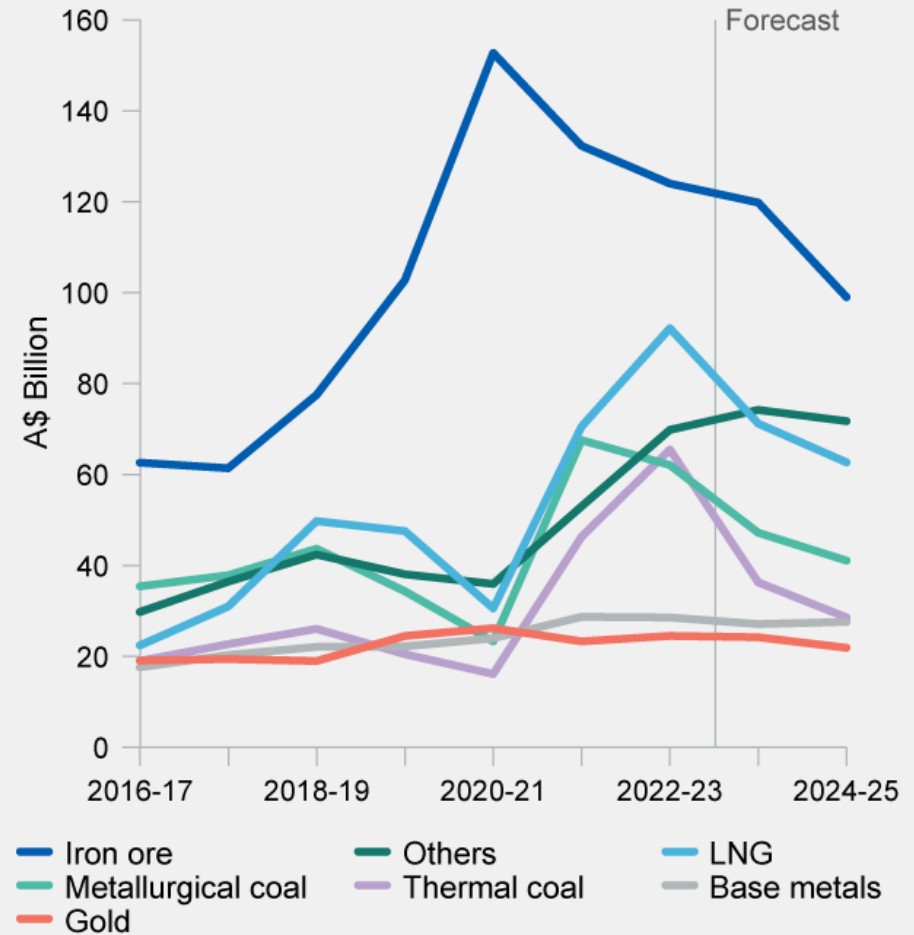


Prices and earnings **likely to ease** as the global economy slows, but the volume outlook **remains solid**



Around **\$1 billion** invested in exploration in the June quarter

## Australia's resource and energy exports



SOURCE: ABS; DISR; OCE

## 1.1 Summary

- Resource and energy commodity prices fell (further) in the September quarter 2023, driven by supply and demand factors mostly pushing in the same direction. However, supply cuts by some major oil producers are helping to stabilise oil prices, and inventory replenishment by consumers is also helping support the prices of oil and other commodities.
- Australia's resources and energy export earnings during the outlook period are expected to be broadly in line with projections in the June quarter 2023 *Resources and Energy Quarterly* (REQ). After a record \$467 billion in 2022–23, weaker growth in world demand and improving world commodity supply will cut prices and thus earnings to \$400 billion in 2023–24, with another significant fall likely in 2024–25.
- Despite the end of COVID restrictions, structural and cyclical factors are causing China's growth to remain relatively weak. A weaker outlook for China is weighing on demand and commodity prices.

## 1.2 Macroeconomic, geopolitical and policy factors

### World economic growth has steadied at a relatively low rate

The global macroeconomic backdrop remains less ebullient than in the period when the worst of the pandemic had passed. Since the June REQ, Western central banks have been forced to tighten monetary policy further in order to rein in inflation. But the key development has been the lack of a solid recovery in China after COVID restrictions ended in late 2022.

The pace of monetary tightening in major Western countries has slowed considerably in recent months, as the monetary authorities assess whether previous interest rate hikes have been sufficient given long and variable lags in the monetary policy transmission mechanism. Labour markets continue to lose some of their extreme tightness, reducing upward pressure on wages. Services inflation in Western economies now appears to be subsiding, but energy prices appear to have stopped falling.

World economic growth steadied at relatively low levels in the June quarter 2023. The IMF now forecasts world GDP growth of 3.0% in 2023 and 2024, down from growth of 3.5% in 2022. Growth in developed nations is

expected to slow from 2.7% in 2022 to 1.5% in 2023 and 1.4% in 2024. China is (still) forecast to grow by 5.2% in 2023 and by 4.5% in 2024.

### Chinese recovery stalls on a mix of cyclical and structural influences

Chinese growth has proven slower than hoped in 2023, as cyclical and structural factors weigh on the post-COVID recovery. The COVID pandemic left households and the private sector in worse shape, and confidence has been slow to recover. In addition, slowing global growth is weighing on demand for Chinese exports. These cyclical factors are compounded by structural factors, such as the increasing share of consumption in Chinese output, slowing urbanisation and population growth, the oversupplied housing sector and the diversification of supply chains. For more detail see *Macroeconomic Outlook* and *Box 2.1*.

### Global trade still re-organising as a result of Russia's invasion of Ukraine

As a result of the Russian invasion of Ukraine, Western Europe has moved away from Russia toward the US as a commodity supply source. Gas supply is the most affected; lower Russian pipeline supply coincides with a surge in US LNG output, with the US set to become the leading LNG exporter in the outlook period. Russia is sending more commodities to China and India but is hitting transport capacity constraints.

### The global energy transition picks up pace

Despite some regression in 2022 (in response to the fallout from the Russian invasion of Ukraine), the trend away from fossil fuels to achieve net zero by 2050 remains intact. According to the IEA, global investment in clean energy is expected to reach US\$1.74 trillion in 2023, bringing total energy investment in 2023 to US\$2.8 trillion. Annual clean energy investment has risen by 53% from 5 years ago, when investment in clean energy and fossil fuels was roughly equal.

Global investment continues to surge in all stages of the supply chain of low emission and critical technologies, helped in some nations by government assistance aimed both at lowering carbon emissions and securing supply chains — domestically and/or in friendly nations. Australia appears to be enjoying its share of this investment, especially at the

upstream stage. We can expect this type of investment to pick up even further in many nations once interest rates start to fall: lower borrowing costs will raise the net present value of investment projects, dragging some of them over the line. Surging investment on low emission and critical technologies in the US may exaggerate global investment: some investment in the US may merely be displacing investment elsewhere.

### Thermal coal sales to China back to pre-ban levels

Australian thermal coal exports to China have returned to levels reached in 2019–20 — before trade impediments started in October 2020. In the wake of the trade impediments, Australian coal miners were able to pivot away from China to nations such as India and South Korea. These exports filled the gap that opened when Indonesian supply switched to China to replace Australian exports.

New rail links have facilitated a recent surge of metallurgical coal exports from Mongolia to China, limiting a recovery in Australia’s share of Chinese metallurgical coal imports. Australian miners pivoted to India and other customers when the impediments were imposed. China and India have recently lifted their imports of Russian coal, as bans on Russian exports by some nations affect coal sales.

### AUD weakness mainly due to China worries

The AUD/USD has shown bouts of fresh weakness since the publication of the June REQ, mainly driven by growing concerns over the pace of growth in the Chinese economy. The currency market is also looking at the likely peak in Australian versus US official cash rates over the outlook period. The consensus forecast adopted is for the AUD/USD to lift modestly during this time.

### Risks are evenly balanced

Risks appear evenly balanced. While the outlook for the world economy is still for only relatively modest growth in the outlook period, unemployment remains low in historical terms, helping to sustain household consumption and profitability. Unemployment may rise as the more recent official interest rate hikes impact fully. Persistent inflation would require interest

rates to stay high for longer, possibly raising unemployment. The Russia-Ukraine conflict aside, geopolitical tensions have recently eased slightly.

The emerging El Niño weather episode has the potential to impact thermal coal markets. While Australian miners are less likely to be affected by the flooding of mines and transport routes that impacted during the La Niña of the 2020-23 period, drought in Indonesia will see river levels fall and create difficulties with barging — a very common way of accessing ports that are deep enough for large cargo ships used in export trade.

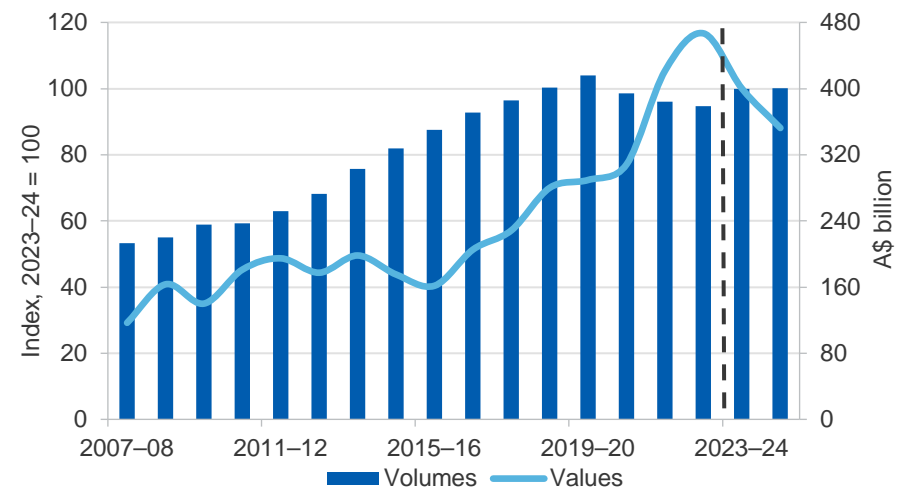
## 1.3 Export values

### Australia’s export values are forecast to be \$400 billion in 2023–24

The world economic slowdown and fewer supply disruptions has generally reduced commodity prices over the past quarter. The Resources and Energy Export Values Index fell 20% from the September quarter 2022: a small rise in volumes partly offset the impact of a sharp fall in prices.

Resource and energy exports are forecast at \$400 billion in 2023–24, down from a record \$467 billion in 2022–23 (Figure 1.1).

**Figure 1.1: Australia’s resource and energy export values/volumes**



Source: ABS (2023) International Trade in Goods and Services, 5368.0; Department of Industry, Science and Resources (2023)

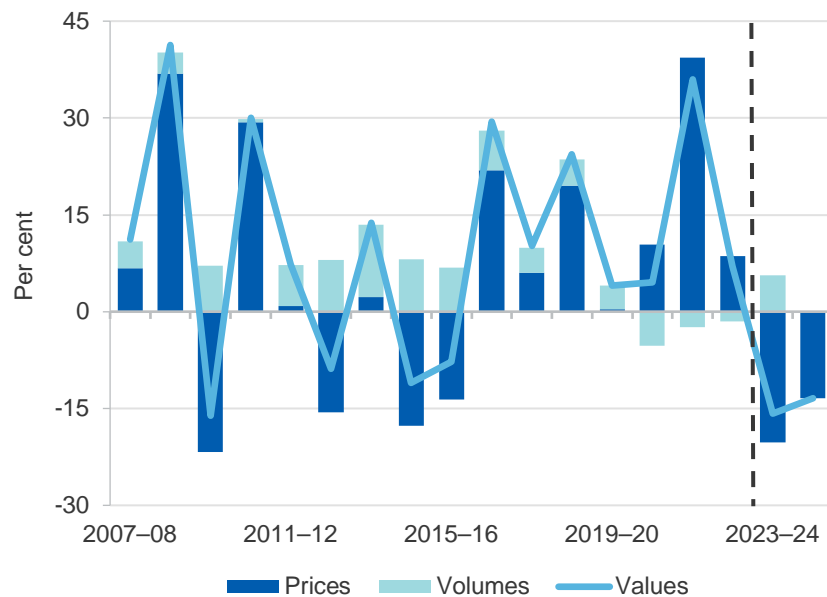
Weak demand and improved global supply of commodities is likely to depress prices. A modest rise in export volumes will be too small to offset the impact of prices sharply lower than in 2022–23 (Figure 1.2).

Export values are forecast to fall by 12% to \$352 billion in 2024–25: prices will fall but volumes will be flat.

Australian energy export earnings are set to fall sharply. LNG earnings are forecast to fall by \$21 billion to \$71 billion in 2023–24, as prices settle well below 2022 levels. A further fall of \$8 billion is forecast in 2024–25.

Thermal coal exports are forecast to fall even more sharply, from \$66 billion in 2022–23 to \$36 billion in 2023–24 and \$28 billion in 2024–25.

**Figure 1.2: Annual growth in Australia’s resources and energy export values, contributions from prices and volumes**



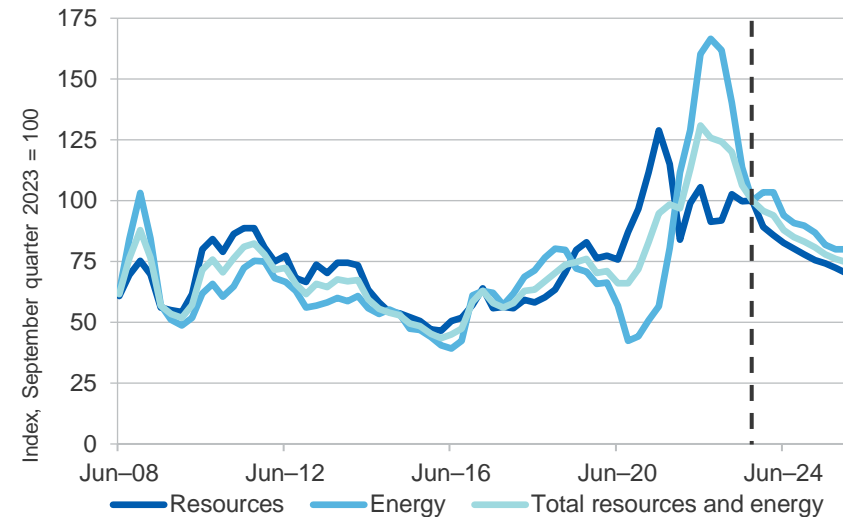
Source: ABS (2023) International Trade in Goods and Services, 5368.0; Department of Industry, Science and Resources (2023)

## 1.4 Prices

Since the June 2023 *Resources and Energy Quarterly*, most resource and energy prices have fallen in US\$ terms, as fears rise over the slow pace of economic growth in China. The fall in prices broadly line up with the June REQ forecasts when worries about growth in Western nations dominated. While prices are generally likely to fall further over the outlook period, the steepest drops seem behind us: the rate of recovery in supply has likely peaked and OPEC+ will likely keep cutting supply to support prices.

In Australian dollar terms, the Resources and Energy Commodity Price Index fell by 6% (preliminary estimate) in the September quarter 2023, to be down 21% on a year ago. In US dollar terms, the index fell by 8% in the quarter, to be down 24% on a year ago. Resource export prices (in A\$ terms) rose by 10% in the year to the September quarter 2023, while energy prices fell by 40% (Figure 1.3).

**Figure 1.3: Resource and energy export prices, A\$ terms**



Notes: The export price index is based on Australian dollar export unit values (EUVs, export values divided by volumes); the export price index is a Fisher price Index, which weights each commodity’s EUV by its share of total export values.

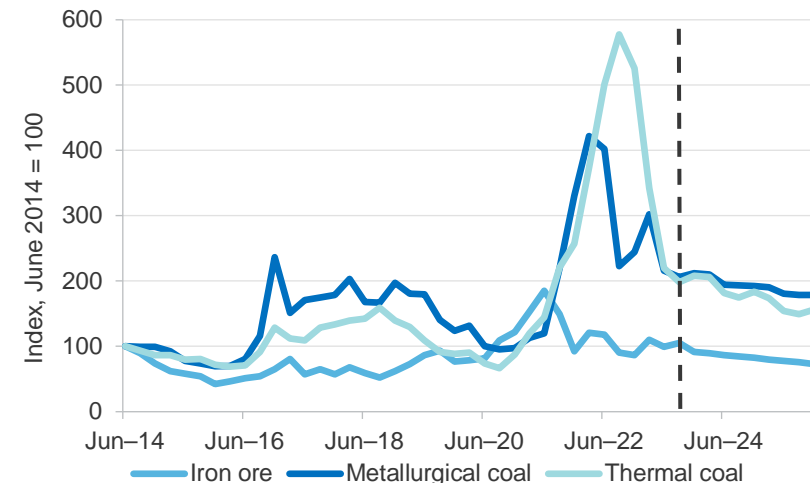
Source: ABS (2023) International Trade in Goods and Services, 5368.0; Department of Industry, Science and Resources (2023)

The **iron ore** price rose in the first half of September after worries over Chinese demand saw it drop noticeably in August (Figure 1.4). The market is watching for signs of enforced cuts in steel output by the Chinese government. **Metallurgical coal** prices have edged down as worries over low demand from Asian steel makers have added to the impact of improving supply. Prices remain above pre-war levels, as some Russian supply remains stranded from world markets. **Thermal coal** prices have held steady above pre-war levels, as better demand largely offsets the impact of improved supply. Worries over supply are likely to see Asian stockpiling ahead of the Northern Hemisphere winter.

**Oil** prices have recently lifted to the top end of the US\$70-90 a barrel range traded since the start of 2023. Driving the rise has been supply cuts by Saudi Arabia. The US Administration has delayed replenishing the strategic reserves by 6 million barrels, waiting for prices to fall to about US\$70 a barrel. Chinese imports have been strong, but it appears that some of this demand has been stockpiled rather than turned into gasoline and diesel. **LNG** prices are forecast to fall over the outlook period, as trade flows re-organise further and supply lifts. The US is set to surpass Qatar and Australia to become the world's biggest LNG exporter during the outlook period, replacing Russian (pipeline) gas supply to Europe.

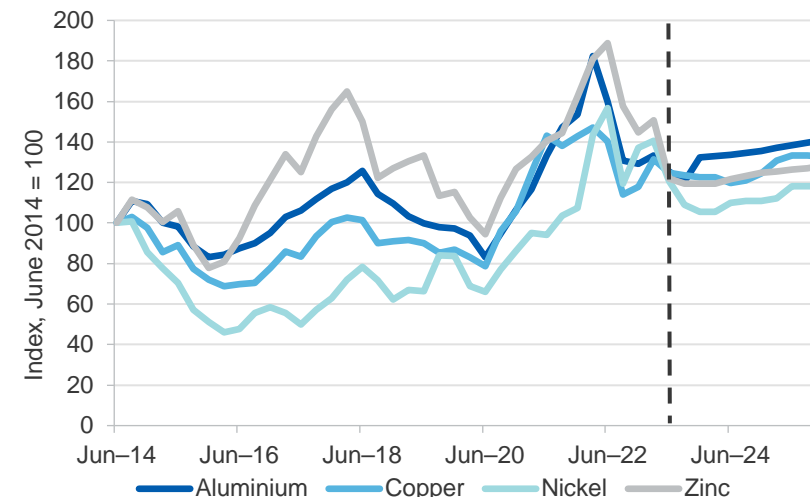
In net terms, the **gold** price has softened since the last REQ as interest rates have lifted: higher interest rates raise the opportunity cost of holding gold. The prospect of interest rates staying high for longer is also harming gold's relative attractiveness as an asset. Worries over debt defaults in the Chinese property market could boost Chinese demand. **Base metal** prices have softened, as weaker growth in world economic activity — particularly the sluggish rebound in the Chinese economy — adds to the impact of improved supply (Figure 1.5). Prices are expected to be soft over the rest of 2023, but low inventories for most metals have/will put a limit on falls. Price could pick up sharply once there are signs that China's economy has taken on a healthier hue. Since the last REQ, **lithium prices** (spodumene and lithium hydroxide) have given up some more of the large gains of recent years. Supply is starting to respond to the high prices of 2022/early 2023. Prices are expected to soften further but stay above 2020 levels.

**Figure 1.4: Bulk commodity prices**



Notes: Prices are in US dollars, and are the international benchmark prices  
Source: Bloomberg (2023); Department of Industry, Science and Resources (2023)

**Figure 1.5: Base metal prices**



Notes: Prices are in US dollars, and are the international benchmark prices  
Source: Bloomberg (2023); Department of Industry, Science and Resources (2023)



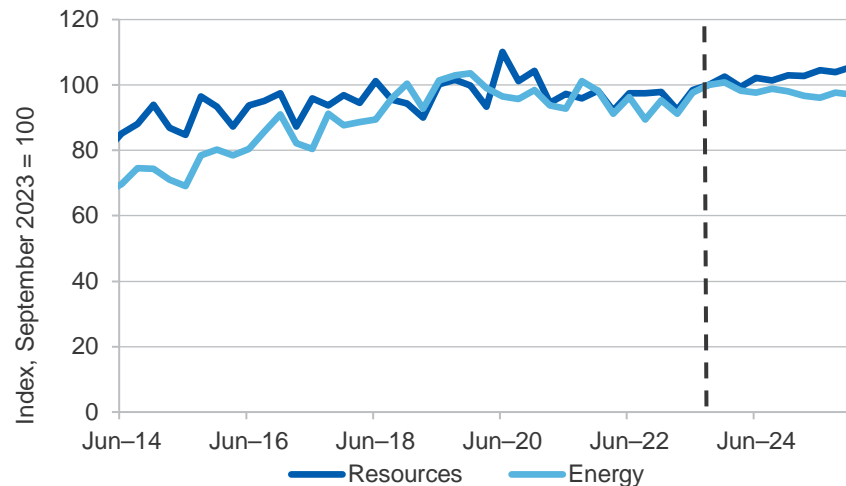
## 1.5 Export volumes

### September quarter export volumes rose

The Resources and Energy Export Volumes Index (preliminary estimate) rose 2% in the September quarter 2023 from the June quarter, to be up 8% on a year ago. Resource commodity volumes rose by 2.5% in the year to the September quarter 2023, while energy export volumes rose by 11.9% (Figure 1.6). Base effects had an impact here: transport and production problems (associated with the weather and COVID) saw energy exports hit a 4-year low in the September quarter 2022.

In volume terms, most resource exports are likely to show significant growth over the outlook period, as the global energy transition accelerates. Energy exports will level out in 2024, as the sharp price falls of the past year temper production and encourage delayed maintenance to occur. There are high odds of an El Niño climate episode starting in the next few months, and the Indian Ocean Dipole recently breached the 0.4 threshold (and hit a 4-year high). Both phenomena dramatically lower the chances of the type of wet weather disruptions that hampered the production and transportation of Australian mining products in the two years before 2023.

**Figure 1.6: Resource and energy export volumes**



Source: Department of Industry, Science and Resources (2023)

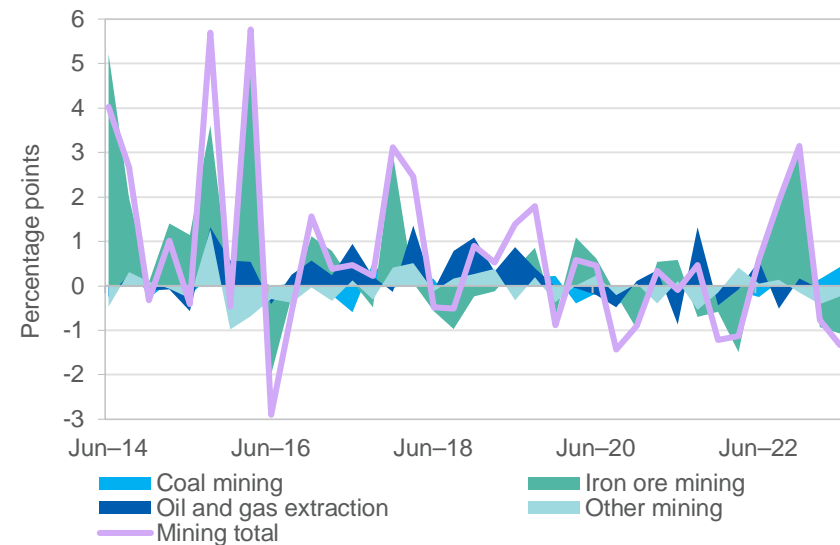
## 1.6 Contribution to growth and investment

### Mining output fell while the overall economy grew modestly

Australia's real GDP rose by 0.4% in the June quarter 2023, to be up 2.1% from a year before. Mining value-added fell by 1.3% in the June quarter but was still 2.9% higher than in June 2022 (Figure 1.7). The quarterly fall was driven by weaker Iron Ore Mining (down by 1.8% due to Cyclone Ilsa) Oil and Gas Extraction (down 1.4% due to maintenance) and Other Mining (down by 2.5%). The falls were partly offset by a rise in Coal Mining (up by 5.8%) as the end of the La Nina episode improved production/transport.

In the coming two years, while the resource sector will likely contribute to real GDP growth, the energy sector's contribution will be modest at best (Figure 1.6). The major production/transport disruptions of the past few years — arising from the COVID-19 pandemic and weather-related issues — now seem well behind us. The output of metals should grow. Coal producers will benefit from modest volume gains and prices that are still high in historical terms. LNG exports are likely to be little changed.

**Figure 1.7: Contribution to quarterly growth, by sector**



Source: ABS (2023) Australian National Accounts, 5206.0

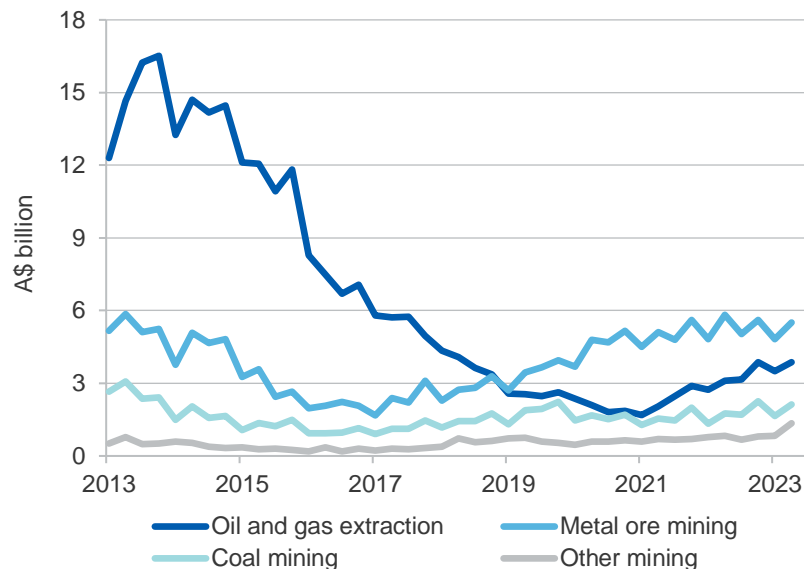
### Mining investment is picking up year-on-year

The latest ABS Private New Capital Expenditure and Expected Expenditure survey shows that Australia's resources industry invested \$12.8 billion in the June quarter 2023, up 11.9% from the June quarter 2022. In quarterly terms, investment rose across the board, with particularly notable growth in 'other mining', which includes lithium and some other critical minerals (Figure 1.8).

Expenditure for buildings and structures rose by 4% in the June quarter, while investment in equipment, plant and machinery edged back by 1% (Figure 1.9).

Spending on plant and machinery has accounted for a steadily rising share of total investment spending since 2017, but spending on buildings and structures is now growing steadily.

**Figure 1.8: Mining capex by commodity, not seasonally adjusted**



Notes: Other mining includes non-metallic mineral mining and quarrying and exploration and other mining support services; chart data is in nominal, original terms

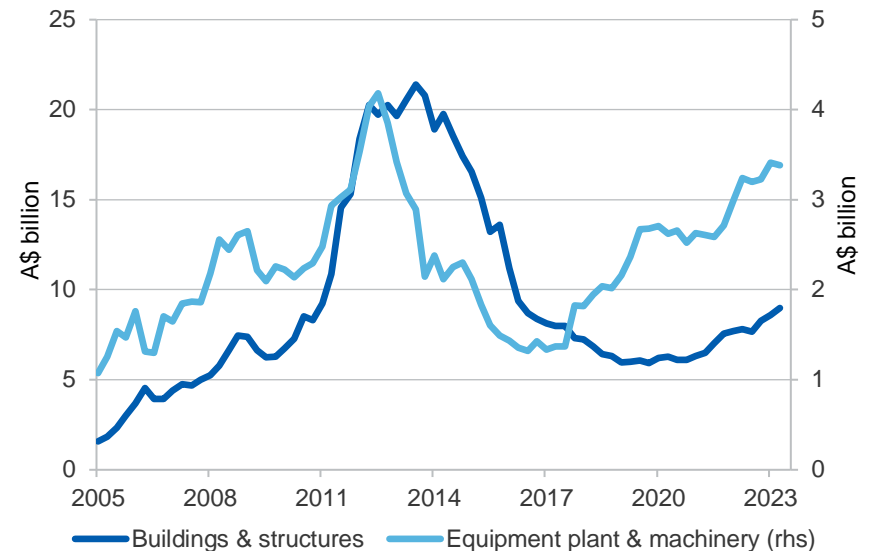
Source: ABS (2023) Private New Capital Expenditure and Expected Expenditure, 5625.0

Forward expectations suggest that total mining industry investment in 2023–24 will be little changed (Figure 1.10). The third estimate for 2023–24 suggests the mining industry will invest \$47 billion during the financial year. This is around 10% higher than the second estimate for 2023–24.

The latest data on investment among individual commodities shows 'other mining' (including lithium) is undergoing rapid growth in capital spending, and this may be driving the recent upward revisions to future spending estimates across the mining sector.

Workforce shortages appear to be easing, and inflation in construction costs appears to be coming down. This should assist investment over the outlook period.

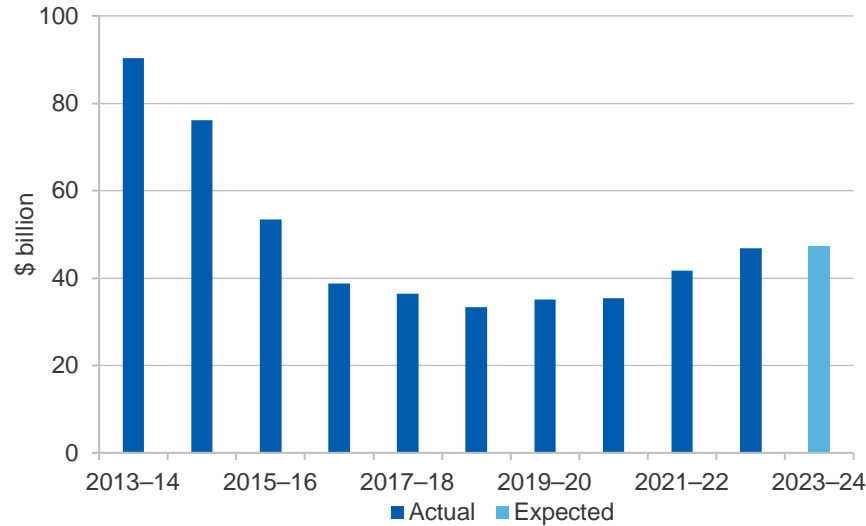
**Figure 1.9: Mining industry capital expenditure by type, quarterly**



Notes: Chart data is in nominal terms, seasonally adjusted.

Source: ABS (2023) Private New Capital Expenditure and Expected Expenditure, 5625.0

**Figure 1.10: Mining industry capital expenditure, fiscal year**



Notes: Chart data is in nominal terms

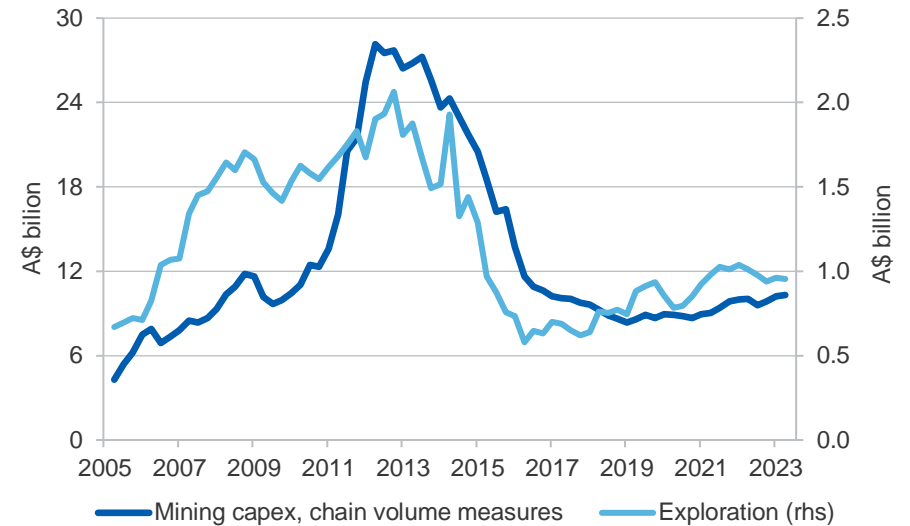
Source: ABS (2023) Private New Capital Expenditure and Expected Expenditure, 5625.0

Exploration expenditure (adjusted for inflation) edged down to \$952 million in the June quarter 2023. In trend terms, exploration is rising, encouraged by relatively high commodity prices and the need for minerals vital to the global energy transition (Figure 1.11).

Industries recording significant growth in exploration expenditure include iron ore (up by 31% in the June quarter), copper (up by 30%), gold (up by 14%), nickel (up by 7%), and 'other minerals' (up by 13%), which includes lithium, other base metals and other metals (Figure 1.12).

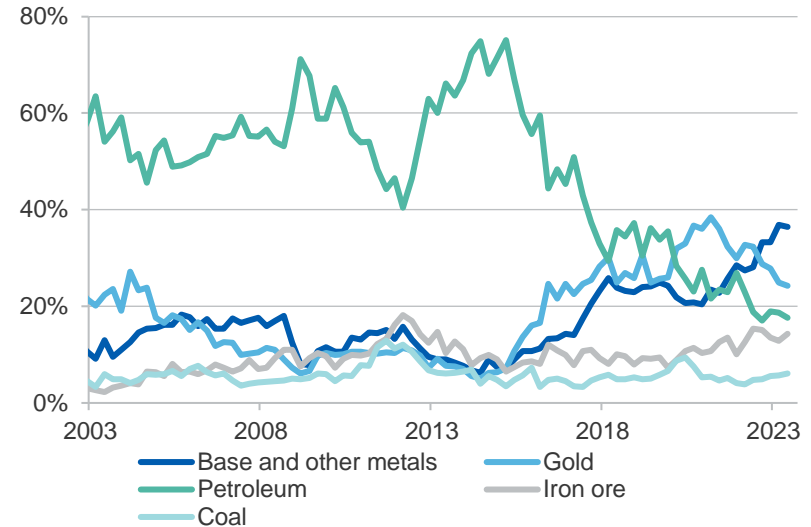
Exploration spending is a leading indicator of broader capital investment, and recent growth suggests interest is rising in base metals and critical minerals following recent strong price outcomes. Given the typical lags involved, we could expect capital spending by resource and energy companies to continue to lift over the next few years.

**Figure 1.11: Mining capital expenditure vs exploration (real, quarterly)**



Source: ABS (2023) Private Capital Expenditure Survey, Chain Volume measure, 5625.0

**Figure 1.12: Shares of exploration expenditure by commodity type**

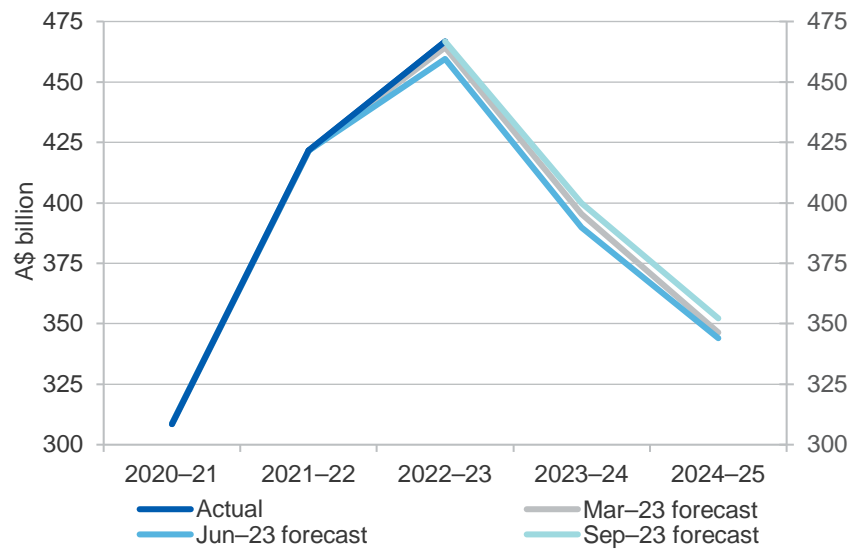


Source: ABS (2023) Private Mineral and Petroleum Exploration, 8412.0

## 1.7 Revisions to the outlook

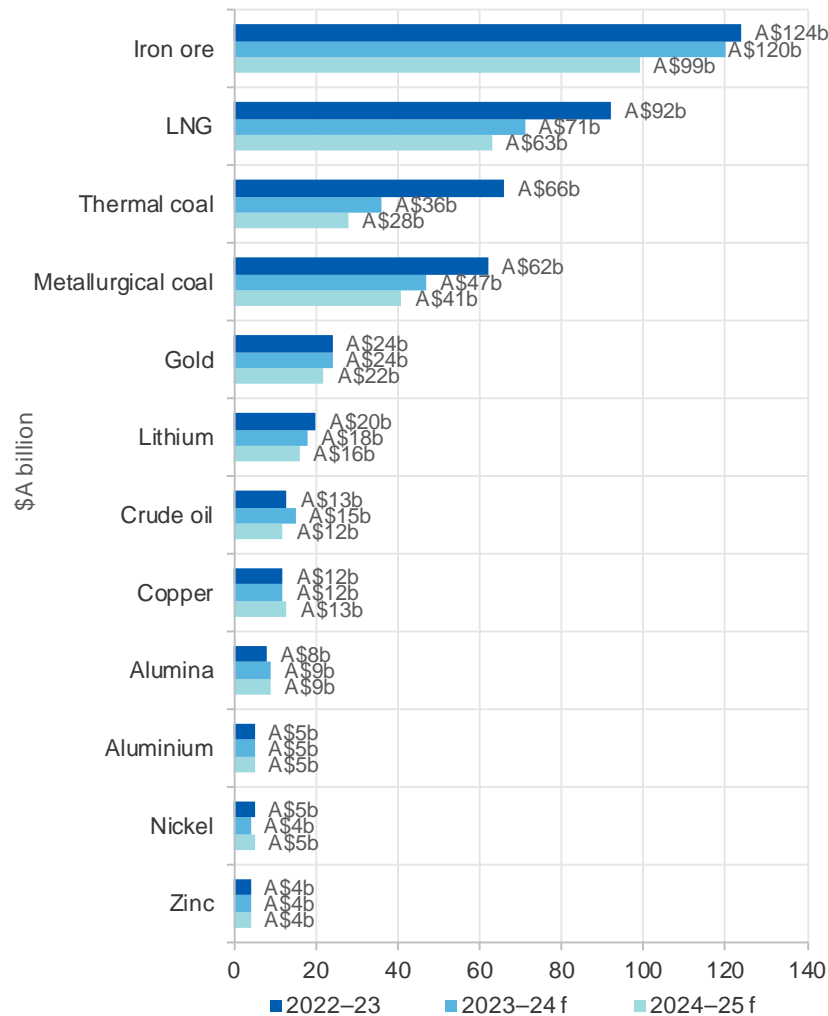
The forecast for Australia's resources and energy exports in 2023–24 is \$10 billion higher than the forecast contained in the June 2023 *Resources and Energy Quarterly*. The forecast for 2024–25 (nominal prices) is \$8 billion higher than the same report (Figure 1.13). The 2023–24 revisions have largely been driven by a stronger than expected iron ore price and the impact of a weaker than expected exchange rate against the US dollar (AUD/USD).

**Figure 1.13: Resource and energy exports, by forecast publication**



Source: Department of Industry, Science and Resources (2023)

**Figure 1.14: Australia's major resources and energy commodity exports, nominal**



**Annual per cent change**

|                    | 2023-24 f |     |       | 2024-25 f |     |       |
|--------------------|-----------|-----|-------|-----------|-----|-------|
|                    | volume    | EUV | value | volume    | EUV | value |
| Iron ore           | ▲         | ▼   | ▼     | ▲         | ▼   | ▼     |
|                    | 3         | -6  | -3    | 1         | -19 | -17   |
| LNG                | →         | ▼   | ▼     | ▼         | ▼   | ▼     |
|                    | 0         | -23 | -23   | -3        | -9  | -12   |
| Thermal coal       | ▲         | ▼   | ▼     | →         | ▼   | ▼     |
|                    | 11        | -50 | -45   | 0         | -22 | -21   |
| Metallurgical coal | ▲         | ▼   | ▼     | →         | ▼   | ▼     |
|                    | 10        | -31 | -24   | 0         | -13 | -13   |
| Gold               | ▲         | ▼   | ▼     | →         | ▼   | ▼     |
|                    | 16        | -15 | -1    | 0         | -9  | -10   |
| Lithium            | ▼         | ▼   | ▼     | ▲         | ▼   | ▼     |
|                    | -1        | -11 | -12   | 22        | -26 | -10   |
| Crude oil          | ▲         | ▲   | ▲     | ▼         | ▼   | ▼     |
|                    | 5         | 5   | 10    | -7        | -12 | -18   |
| Copper             | ▲         | ▼   | ▲     | ▲         | ▼   | ▲     |
|                    | 5         | -4  | 1     | 3         | -1  | 2     |
| Alumina            | ▲         | →   | ▲     | ▲         | ▼   | ▼     |
|                    | 6         | 0   | 6     | 2         | -3  | -1    |
| Aluminium          | ▼         | ▼   | ▼     | →         | ▼   | ▼     |
|                    | -2        | -6  | -7    | 0         | -2  | -2    |
| Nickel             | ▲         | ▼   | ▼     | ▲         | ▼   | ▲     |
|                    | 8         | -20 | -14   | 11        | -4  | 6     |
| Zinc               | ▲         | ▼   | ▼     | ▲         | ▼   | ▲     |
|                    | 4         | -19 | -16   | 5         | -1  | 3     |

Notes: f forecast; s estimate. EUV is export unit value.

Source: ABS (2023) International Trade in Goods and Services, 5368.0; Department of Industry, Science and Resources (2023)

**Table 1.1: Outlook for Australia's resources and energy exports in nominal and real terms**

| Exports (A\$m)       | 2021–22 | 2022–23 | 2023–24 <sup>f</sup> | 2024–25 <sup>f</sup> | 2021–22 | 2022–23 | 2023–24 <sup>f</sup> | 2024–25 <sup>f</sup> |
|----------------------|---------|---------|----------------------|----------------------|---------|---------|----------------------|----------------------|
| Resources and energy | 421,691 | 466,737 | 399,981              | 352,336              | 36.7    | 10.7    | –14.3                | –11.9                |
| – real <sup>b</sup>  | 469,739 | 485,784 | 399,981              | 341,210              | 30.9    | 3.4     | –17.7                | –14.7                |
| Energy               | 204,056 | 239,023 | 175,415              | 150,023              | 151.2   | 17.1    | –26.6                | –14.5                |
| – real <sup>b</sup>  | 227,306 | 248,778 | 175,415              | 145,286              | 140.5   | 9.4     | –29.5                | –17.2                |
| Resources            | 217,635 | 227,713 | 224,566              | 202,312              | –4.2    | 4.6     | –1.4                 | –9.9                 |
| – real <sup>b</sup>  | 242,433 | 237,006 | 224,566              | 195,924              | –8.3    | –2.2    | –5.2                 | –12.8                |

Notes: **b** In 2023–24 Australian dollars; **f** forecast; **g** growth rate on 2022–23 levels.

Source: ABS (2023) International Trade in Goods and Services, 5368.0; Department of Industry, Science and Resources (2023)

**Table 1.2: Australia's resource and energy exports, selected commodities**

|               | Unit     | Prices  |                      |                      | Unit | Export volumes |                      |                      | Export values, A\$b |                      |                      |
|---------------|----------|---------|----------------------|----------------------|------|----------------|----------------------|----------------------|---------------------|----------------------|----------------------|
|               |          | 2022–23 | 2023–24 <sup>f</sup> | 2024–25 <sup>f</sup> |      | 2022–23        | 2023–24 <sup>f</sup> | 2024–25 <sup>f</sup> | 2022–23             | 2023–24 <sup>f</sup> | 2024–25 <sup>f</sup> |
| Iron ore      | US\$/t   | 95      | 92                   | 80                   | Mt   | 895            | 920                  | 933                  | 124                 | 120                  | 99                   |
| LNG           | A\$/GJ   | 21.4    | 16.6                 | 15.1                 | Mt   | 82             | 81                   | 79                   | 92                  | 71                   | 63                   |
| Thermal coal  | US\$/t   | 302     | 144                  | 124                  | Mt   | 182            | 202                  | 203                  | 66                  | 36                   | 28                   |
| Metallurgical | US\$/t   | 278     | 232                  | 213                  | Mt   | 157            | 172                  | 172                  | 62                  | 47                   | 41                   |
| Gold          | US\$/oz  | 1,831   | 1,914                | 1,851                | t    | 228            | 265                  | 265                  | 24                  | 24                   | 22                   |
| Lithium       | US\$/t   | 5,174   | 3,119                | 2,254                | Kt   | 3,333          | 3,316                | 4,031                | 20                  | 18                   | 16                   |
| Crude oil     | US\$/bbl | 87      | 88                   | 83                   | Kb/d | 282            | 295                  | 274                  | 13                  | 15                   | 12                   |
| Copper        | US\$/t   | 8,289   | 8,284                | 8,649                | Kt   | 853            | 899                  | 928                  | 12                  | 12                   | 13                   |
| Alumina       | US\$/t   | 343     | 340                  | 350                  | Kt   | 16,566         | 17,494               | 17,788               | 8.3                 | 8.8                  | 8.7                  |
| Aluminium     | US\$/t   | 2,333   | 2,336                | 2,453                | Kt   | 1,441          | 1,418                | 1,419                | 5.3                 | 4.9                  | 4.8                  |
| Nickel        | US\$/t   | 23,911  | 19,863               | 20,875               | Kt   | 161            | 174                  | 192                  | 5.0                 | 4.3                  | 4.5                  |
| Zinc          | US\$/t   | 2,981   | 2,488                | 2,592                | Kt   | 1,247          | 1,298                | 1,358                | 4.3                 | 3.6                  | 3.7                  |
| Uranium       | US\$/lb  | 51      | 61                   | 63                   | t    | 5,485          | 5,855                | 6,060                | 0.8                 | 1.0                  | 1.0                  |

Notes: **a** Export data covers both crude oil and condensate; **f** forecast; **s** estimate. **Price information:** Iron ore fob (free-on-board) at 62 per cent iron content estimated netback from Western Australia to Qingdao China; Metallurgical coal premium hard coking coal fob East Coast Australia; Thermal coal fob Newcastle 6000 kc (calorific content); LNG fob Australia's export unit values; Gold LBMA PM; Alumina fob Australia; Copper LME cash; Crude oil Brent; Aluminum LME cash; Zinc LME cash; Nickel LME cash; Lithium spodumene ore.

Source: ABS (2023) International Trade in Goods and Services, Australia, Cat. No. 5368.0; LME; London Bullion Market Association; The Ux Consulting Company; US Department of Energy; Metal Bulletin; Japan Ministry of Economy, Trade and Industry; Department of Industry, Science and Resources (2023)

# Macroeconomic Outlook



## Global GDP and economic change in 2022

| Country                            | China  | US     | EU     | India  | ASEAN  | Japan  | S Korea | Taiwan | Australia |
|------------------------------------|--------|--------|--------|--------|--------|--------|---------|--------|-----------|
| Per cent share of global GDP (PPP) | 18     | 16     | 15     | 7      | 5      | 4      | 2       | 1      | 1         |
| Yearly change                      | ▲ 3.0% | ▲ 2.1% | ▲ 3.7% | ▲ 7.2% | ▲ 5.3% | ▲ 1.0% | ▲ 2.6%  | ▲ 2.5% | ▲ 3.7%    |
| Share of Australia's two-way trade | 30%    | 6%     | 9%     | 4%     | 10%    | 12%    | 7%      | 4%     | –         |

### Global overview

- In 2022, global economic activity increased by 3.4%. Growth is expected to slow to 3.0% in 2023 and 2024.
- **Tighter fiscal and monetary conditions** in most major economies are expected to **slow global economic growth** over 2023 and early 2024.



### Global risks

The balance of risks facing the macroeconomic outlook has deteriorated slightly through the middle of 2023. The key risks to the outlook are:

- **Tighter monetary policy for longer** if inflation pressures, particularly in services, remain persistent
- Cyclical and structural **slowing of the Chinese economy**



SOURCE: IMF; ABS; OCE

## 2.1 Summary

- The balance of risks surrounding the global macroeconomic outlook have deteriorated slightly since the June 2023 *Resources and Energy Quarterly*. While the core outlook for global growth has improved, there is a mounting risk China's growth could be weaker-than-expected.
- Continued tight fiscal and monetary conditions in most major economies are expected to further slow global growth over H2 2023 and into 2024.
- Slowing growth in the Chinese economy is due to a combination of cyclical and structural factors. *Box 2.1* explores three key structural challenges to China's growth outlook.

## 2.2 World economic outlook

### Tighter fiscal and monetary conditions weighing on global growth

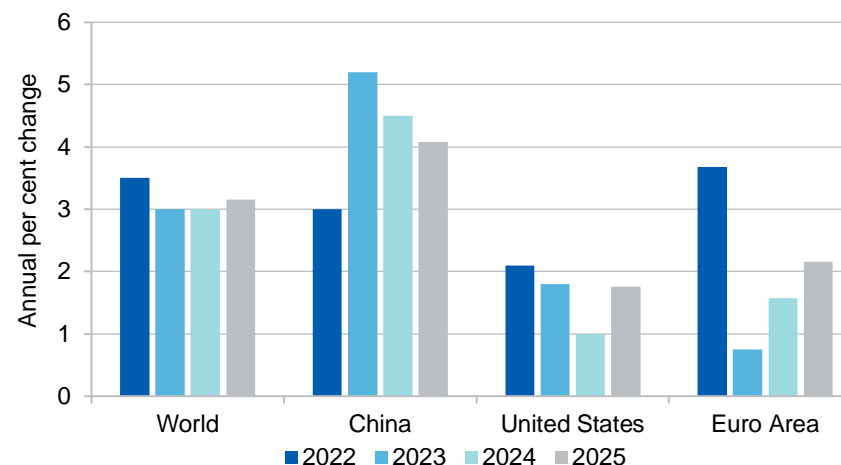
The International Monetary Fund (IMF) forecasts the world economy to grow by 3.0% in both 2023 and 2024, then rising to 3.2% in 2025 (Figure 2.1). Compared to the April 2023 World Economic Outlook, this represents an upward revision of 0.2 percentage points for 2023 but no change for 2024 and 2025.

The IMF continues to expect a notable divergence to emerge over the next two years between the performance of advanced and emerging economies. After recording growth below the global average in 2022 — for the first time in over 40 years — the IMF expects China's economy to grow by over 5% this year. However, the US and European economies are expected to slow in 2023, under the weight of tighter monetary policy.

Whilst global growth forecasts have been revised upward due to stronger than expected consumption growth over the June quarter 2023 in most advanced economies, additional downside risks to the global outlook have emerged in recent months. Headline inflation has continued to moderate in most economies this year — due to lower energy and food prices — but there has not been a sufficient decline in core inflation.

Despite still-tight labour markets, reduced consumption in advanced economies — due to inflation and tighter monetary policy — is driving

Figure 2.1: GDP growth forecasts



Source: IMF (2023)

expectations for slower global growth over the remainder of the year.

Weaker consumer demand for goods relative to services in the US and Europe will also weigh on the economic growth of manufacturing exporters — including China, Japan and Korea.

The IMF notes that tighter monetary policy is a key risk to the outlook if inflation pressures, particularly in services, prove more persistent than expected. This could lead to the emergence of further financial sector vulnerabilities, tightening global financial conditions. Additional sources of global economic vulnerability include possible escalations in the Ukraine war, geopolitical fragmentation and increasing trade restrictions.

An additional risk the IMF has emphasised is the potential for China's economic recovery to disappoint if the contractions of its property sector and consumer demand continue. China's recent economic data releases have been weaker than was expected earlier this year with near-zero inflation, weak investment and construction activity related to its property sector. Longer-term, structural challenges to China's growth outlook are discussed in *Box 2.1*, while shorter-term, cyclical drivers of China's growth are discussed in the *Major trading partners' economic outlook* section.



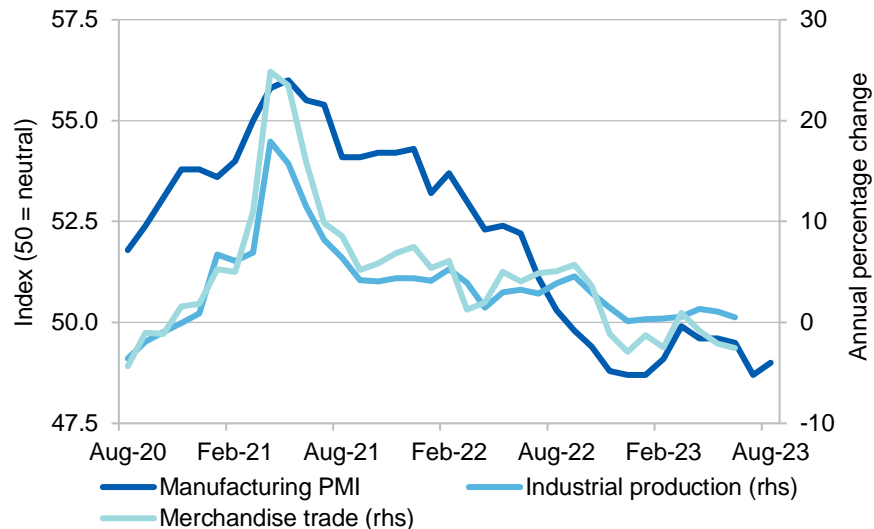
### Global industrial production and trade weaken as orders drop

Global industrial production (IP) declined over the June quarter 2023, but was 1.0% higher year-on-year. Quarter-on-quarter declines were driven by the slowing of China’s economic rebound and the continued contraction in Europe’s industrial sector. World IP growth remained positive year-on-year due to increasing US industrial output and base effects — given COVID-related declines for China in June quarter 2022.

Global merchandise trade volumes declined in the June quarter 2023 to be 1.8% lower year-on-year (Figure 2.2). Weaker demand for goods in advanced economies, especially electronic equipment, has driven exports from Japan, South Korea and emerging Asia lower year-on-year.

Forward indicators of manufacturing activity indicate a contraction so far in 2023. The JP Morgan Global Manufacturing Purchasing Managers Index (PMI) was 49 in August 2023, and has remained in contractionary territory (less than 50) since September 2022.

**Figure 2.2: World industrial production, trade and PMI**



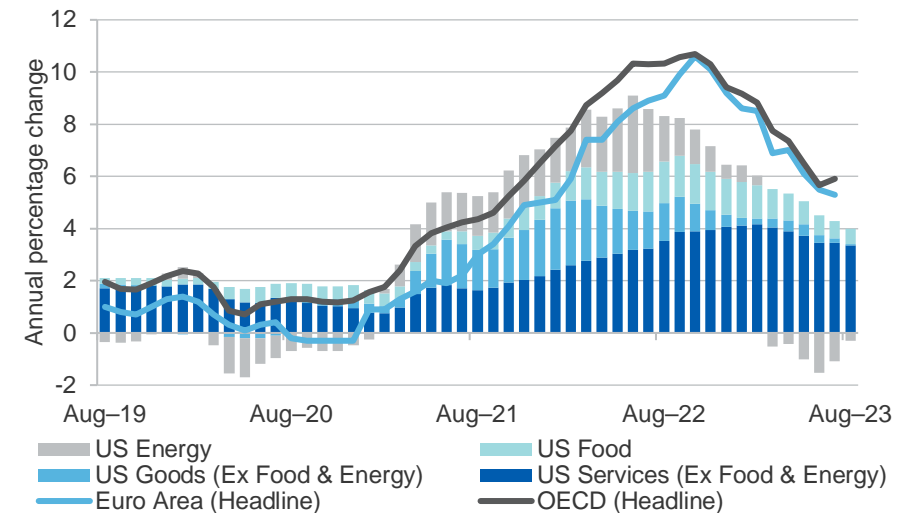
Notes: PMI data is up to August 2023; IP and trade data only available to June 2023.  
Source: IHS Markit (2023); CPB Netherlands Bureau for Economic Policy Analysis (2023)

Global manufacturing activity has declined through the middle of 2023 due to weakening activity in Asia and a sharp downturn in the European manufacturing sector. Global manufacturing orders declined in August, signalling a further deterioration in the demand for goods — linked to pressures from inflation and monetary policy — as well as a post-pandemic preference for services consumption.

### As headline inflation pressures ease, the focus shifts to core inflation

While headline inflation measures have continued to decline, persistent core inflation remains a concern for the pace of further declines, with inflation still well above most central bank targets. US inflation, for example, measured 3.6% in August 2023, after declining to a 2-year low of 3.0% in June 2023 (Figure 2.3). US core inflation — which excludes food and energy — has been slower to decline as housing and consumer service inflation were above 6% until June 2023. Eurozone inflation, while still high, has declined notably from its peak in October 2022, due largely to falling energy prices this year.

**Figure 2.3: Consumer Price Indices — US, Europe and OECD**



Source: Bloomberg (2023); Board of Governors of the Federal Reserve System (2023); U.S. Bureau of Economic Analysis (2023); OECD (2023)

On the other hand, Eurozone core inflation in August was only 0.4% below its peak of 5.7% in March 2023.

In July 2023, the IMF forecast global inflation would fall from 8.7% in 2022 to 6.8% in 2023 and 5.2% in 2024. Compared to the April 2023 outlook, the forecast for 2023 was revised down by 0.2 percentage points, largely based on low inflation in China. The forecast for 2024 was revised up by 0.3 of a percentage point due to higher-than-expected core inflation.

### Global clean energy investment driving additional commodity demand

According to the IEA, global investment in clean energy is expected to reach US\$1.74 trillion in 2023, bringing total energy investment in 2023 to US\$2.8 trillion. Annual clean energy investment has risen by 53% from 5 years ago, when investment in clean energy and fossil fuels was roughly equal. Recent growth in clean energy investment has been dominated by advanced economies and China, collectively accounting for 90% of the growth since 2021.

This growth in clean energy investment has increased demand for many non-ferrous and critical minerals, of which Australia has abundant resources. As a result, non-ferrous and critical minerals accounted for the largest share (43%) of Australian mineral and petroleum exploration expenditure in 2022–23. Ongoing investment into clean electrification, transmission and energy storage will continue to underpin additional demand for Australian non-ferrous metals and critical minerals over the medium- and long-term.

## 2.3 Major trading partners' economic outlook

The outlook for Australia's major trading partners remains weak, with their GDP growth in 2023 forecast by the RBA in August to be around 3.25%, well below its pre-pandemic decade average and lower than the May 2023 forecast. Slower growth in Australia's major trading partners is expected to reduce demand for Australia's exports. With that said, the IMF expects a recovery in China's economy and ongoing development in India to contribute about half of global economic growth this year. Growth from these key markets should support growth in their trade partners'

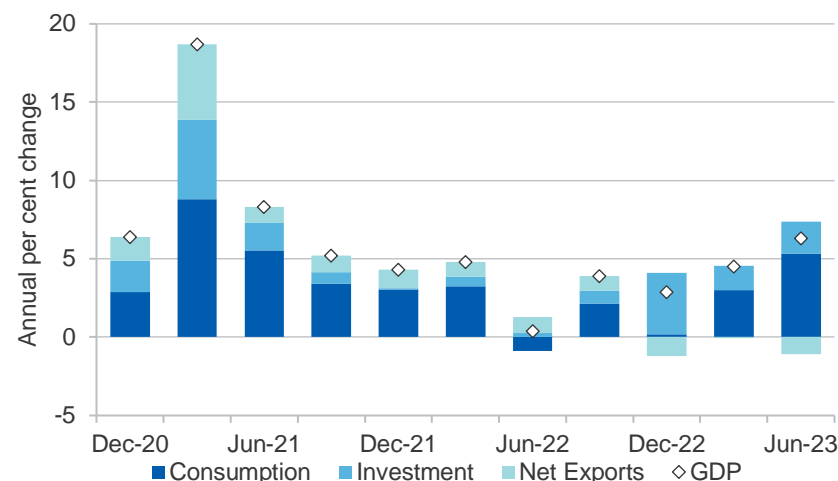
economies, underpinning Australian resource and energy export earnings over the outlook period.

### Weakening balance of risks facing China's growth outlook

China's economy grew by 0.8% in the June quarter 2023, with GDP 6.3% higher year-on-year (Figure 2.4). Fixed asset investment in infrastructure and manufacturing was a key driver of China's economic growth in this period. GDP was affected by weakness in the property sector and softening global demand for manufactured goods, with exports falling for the fourth straight month by 8.8% year-on-year in August. The strong rebound in consumption demand — following the relaxation of COVID-related restrictions — has faded since the March quarter 2023, raising concerns over China's growth expectations for the rest of the year.

To date in the September quarter 2023, key indicators of economic growth have remained subdued, though an uptick in latest figures suggest China's slowing growth may be stabilising under government stimulus measures. Retail sales grew by 4.6% year-on-year in August, accelerating from 2.5%

**Figure 2.4: China contributions to quarterly real GDP**



Notes: Consumption is made up of both household and government sectors.

Source: Bloomberg (2023); National Bureau of Statistics of China (2023)

growth in July, but remained below historical consumption levels. China's growth in industrial production rose from 3.7% in July to 4.5% in August, the strongest rate since April 2023. The Caixin General Manufacturing Purchasing Managers' Index (PMI) rose to 50.1 in August, signalling the sector's return to expansion after a slump in July. Output growth increased but continued to be offset by a decline in new export orders. Business sentiment, while positive, fell to an 11-month low amid concerns over weak domestic and foreign market conditions.

The official manufacturing PMI, which is more orientated to large businesses, indicated a fifth consecutive month of contraction, with a moderating decline in sales. Notably, the official PMI reading for the services sector fell from 51.5 to 50.5, its lowest rate since China's economic reopening. The construction index rose to 53.8 in August, following four months of decline, suggesting increased infrastructure spending by local governments.

Despite positive signs in the March quarter 2023, the recovery of China's property sector has taken a deepening downturn in recent months. Year-to-date growth in property investment declined to 8.8% year-on-year in August 2023. Floor space of newly started residential property declined by 25% year-on-year in August 2023, while residential property sales year-to-date fell by 1.5% year-on-year. Financial stability concerns have heightened as Evergrande — formerly China's second largest and now heavily indebted property developer — has filed for bankruptcy and the country's largest developer Country Garden may be at risk of default on its bond payments. Adding to this, consumer credit growth has remained subdued, posing a downside risk to near-term improvements in the sector.

Following efforts to support the economy throughout 2022 and in the March quarter 2023 (see *March 2023 Resources and Energy Quarterly*), Chinese authorities have further loosened monetary policy to support the announced 2023 GDP growth target of 5%. In addition to loan rate cuts, the People's Bank of China (PBoC) introduced lower minimum mortgage rates and down payment requirements in August. In September, the PBoC reduced reserve requirement ratios for the second time in 2023.

The IMF forecasts Chinese GDP growth of 5.2% in 2023, reflecting improved mobility compared with COVID-related disruptions in 2022. It is anticipated that growth will be powered by continued infrastructure investment and further supportive fiscal and monetary policy measures. The IMF forecasts growth to decline to 4.5% in 2024 and 4.1% in 2025, in line with a long-term trend towards structurally lower growth.

#### Japan and South Korea facing weaker external demand

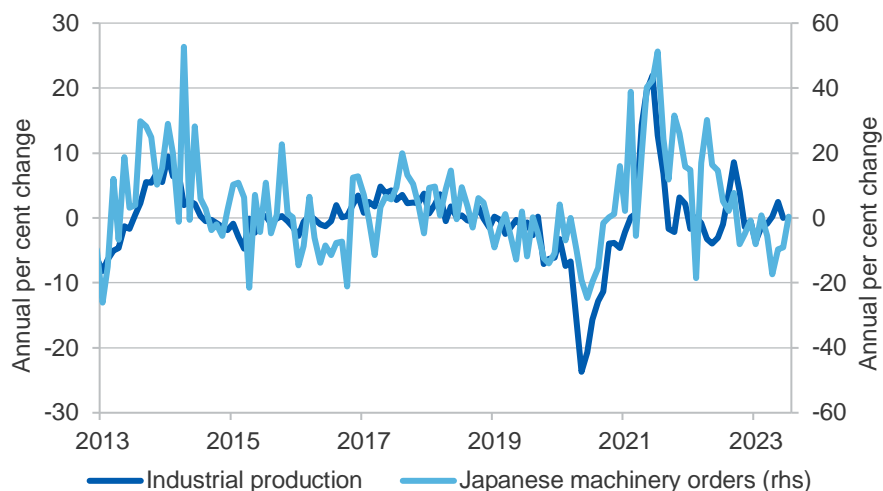
Japan's GDP increased by 1.5% in the June quarter 2023, resulting in 2.1% growth year-on-year. Net exports were the key driver of the strong quarterly growth result, with exports increasing by 3.2% while imports declined for a third consecutive quarter. Private consumption declined by 0.5% quarter-on-quarter due to cost pressures on consumers — for example, food inflation averaged 8.5% over the June quarter 2023. Gross fixed capital formation increased by 3.2% year-on-year, due mostly to strong growth in September quarter 2022 and March quarter 2023.

Slowing growth in Japan's major trading partners is a key issue for its economy, particularly its industrial sector. Japanese industrial production tracked flat year-on-year in June 2023, recovering from 6 months of annual declines that ended in April. Machinery orders have, on average, decreased at an annual rate of 7.0% since October 2022 (Figure 2.5).

The Jibun Bank Japanese Manufacturing PMI was unchanged at 49.6 in August, marking 7 months of contraction so far in 2023. The contraction in manufacturing activity was driven by declines in new orders and output, amid cooling demand both domestically and internationally. Business sentiment remained high as surveyed firms expect demand conditions to improve as COVID- and inflation-related impacts subside. However, confidence levels have fallen since the June quarter 2023.

Japan's core inflation — which excludes fresh food but includes fuel costs — was 3.1% in July 2023, still exceeding the Bank of Japan (BoJ) inflation target of 2%, but down markedly from 4.2% in January.

**Figure 2.5: Japan industrial production and machinery orders**



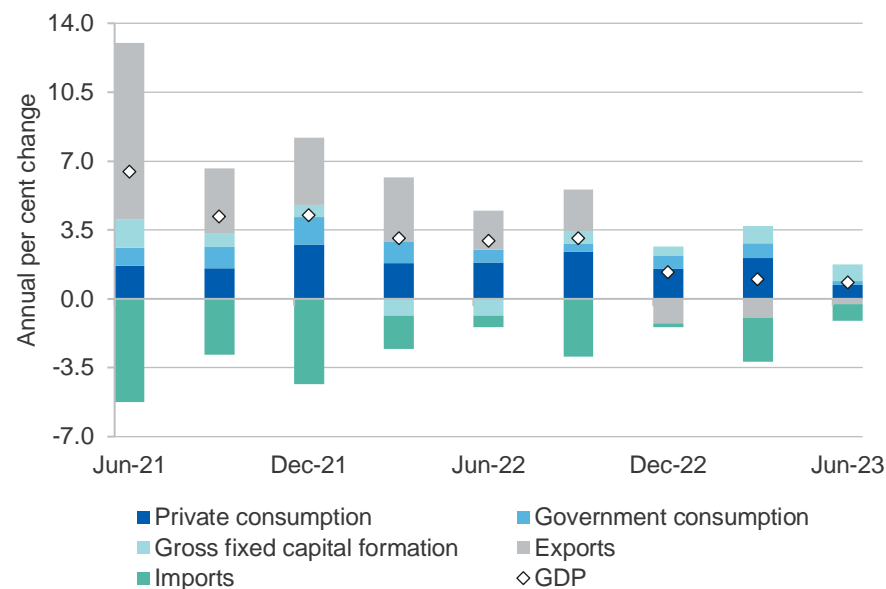
Source: Bloomberg (2023)

The BoJ has maintained its accommodative monetary policy and continues to target the 10-year Japanese Government Bond yield at 0%, now with an allowance for yields to exceed 0.5% before intervening.

Looking ahead, the IMF forecasts Japan's economic growth to rise to 1.4% in 2023, on the back of pent-up demand and supportive fiscal and monetary policy. As the effects of past stimulus efforts fade, Japan's economic growth is expected to slow to 1.0% in 2024, before slowing further to 0.6% in 2025.

South Korea's GDP grew by 0.8% year-on-year in the June quarter 2023, the lowest annual growth rate since December quarter 2020. Annual growth was supported by positive contributions from private consumption and gross fixed capital formation. Net exports were a key dampener on growth, with weaker exports and stronger imports driving a 16% year-on-year decline in the country's trade balance (Figure 2.6).

**Figure 2.6: South Korea contributions to quarterly real GDP**



Source: Bloomberg (2023)

South Korea's industrial production declined in the month of June 2023 to be 5.6% lower year-on-year. While output of semiconductors rose by 3.6% over the month, production of automobiles and oil refining both fell by over 10%. Exports of semiconductors declined by over 33% year-on-year in July, due to declining global demand. South Korea's manufacturing PMI declined in August to remain in contraction territory for a 14th consecutive month. The negative August result was due to declines in output and new orders, due to weak domestic and global demand. Positive signs emerged for business sentiment as employment growth was stable and the year-ahead production outlook improved to its best in over a year.

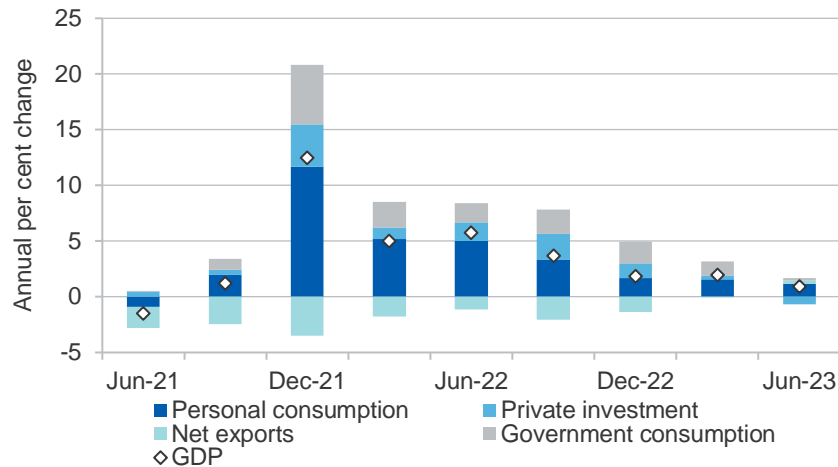
In July, the IMF forecast South Korean economic growth of 1.4% in 2023 — a slight downward revision from April — and 2.4% in 2024. In April, the IMF noted that the downturn in the technology cycle is expected to erode the nation's growth momentum in the short-term.

### Resilient US labour market and strong investment supporting growth

In year-on-year terms, the US economy grew by 0.9% in the June quarter 2023, driven strongly by 0.6% quarter-on-quarter growth. This growth was driven by personal consumption of goods and services, though goods consumption growth has eased in 2023. Net exports contributed positively to US GDP growth, as exports rose by more than imports (Figure 2.7).

A notable source of recent growth has been private non-residential investment, which rose by 4.6% year-on-year in the June quarter 2023. Annualised US private investment in manufacturing structures rose by 69% year-on-year in the June quarter 2023, driven by sharp growth in computers, electronics and electrical manufacturing. Major policies such as the US Inflation Reduction Act (IRA) and the CHIPS & Science Act have provided strong incentives for investment into clean energy and semiconductor manufacturing within the US. Macquarie Research reported about US\$269 billion of private sector investment plans relating to clean energy — namely EVs and batteries — have been announced since the US IRA was enacted. Another US\$231 billion of manufacturing investment in semiconductor/electronics production was associated to the CHIPS Act.

**Figure 2.7: US contributions to quarterly real GDP**



Source: Bloomberg (2023)

US industrial production declined by 0.2% year-on-year in July 2023, with a sizeable 1.0% month-on-month increase offset by weaker growth previously. The US Manufacturing PMI remained in contractionary territory at 47.6 in August, bringing the contraction in the US manufacturing sector to a 10th consecutive month. The continued deterioration in manufacturers' operating conditions reflects sharp falls in new orders as both domestic and external demand weaken.

US labour market resilience continues, with the unemployment rate remaining low at 3.8% in August 2023. However, employment growth appears to have slowed in recent months, with nonfarm payroll employment rising by 187,000 in August 2023, below the average monthly increase of around 257,000 over the past 12 months.

The resilient US labour market continues to support spending, with retail trade showing improved growth through the middle of 2023. Total inflation-adjusted spending on goods and services increased month-on-month in June 2023, to be 2.3% higher year-on-year. Advance indicators for inflation-adjusted retail sales in July suggest retail trade also increased over the month to be flat when compared year-on-year. Strength in the retail trade outlook has supported the ongoing narrative for the US economy to avoid recession.

In July 2023, the IMF upgraded its forecast for US economic growth in 2023 by 0.2 percentage points to 1.8% on account of resilient consumption and ongoing labour market tightness. The resolution of US debt ceiling talks and easing concerns over banking sector turmoil, have improved the balance of risks facing the US economy. Growth is still forecast to ease to 1.0% in 2024, with tightening monetary and financial conditions expected to slow private consumption — reducing labour market tightness and moderating wage growth.

### Eurozone economies face slower growth, manufacturing downturn

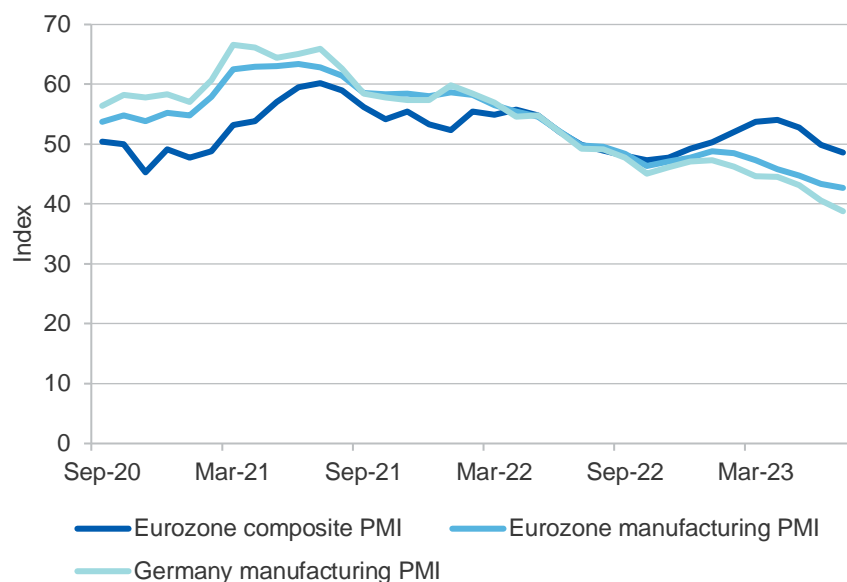
Eurozone GDP growth was 0.3% over the June quarter 2023, after zero growth in the March quarter 2023. This brought GDP growth to 0.6% year-on-year, its weakest since the 2020–21 recession. Among the larger economies, Spain grew by 0.4% over the quarter, while France grew by

0.5%. Italy's economy unexpectedly contracted by 0.3% over the quarter, while Germany's economy did not grow — bringing its annual GDP growth to -0.2%.

In August 2023, the Eurozone Composite PMI Index decreased to 46.7, signifying the worst slump in private sector activity since November 2020 (Figure 2.8). The third consecutive month of decline reflected a further deterioration in manufacturing conditions and the contraction of the services sector for the first time in 2023.

Industrial production in the Eurozone declined by 2.2% year-on-year in July 2023. Declining durable and capital goods production month-on-month offset continued increases in energy production. Industrial production in major producer Germany was down by 0.8% month-on-month.

**Figure 2.8: Eurozone composite and manufacturing PMIs**



Source: Bloomberg (2023)

The Eurozone manufacturing PMI recorded a reading of 43.5 in August, with declines in output, new orders, employment and purchasing activity. Within this, Germany's manufacturing sector continued its deepest contraction since May 2020 with a PMI reading of 39.1 in August. This reflected a deterioration in demand conditions, with output and demand facing their sharpest contractions since the Global Financial Crisis (excluding pandemic- and lockdown-affected months). Declining input prices and weak demand led to a third month of discounting final products and the strongest decline in output prices in almost 14 years.

In its July update, the IMF forecast Euro Area growth to be slightly higher than previously expected: at 0.9% in 2023 and 1.5% in 2024. In line with current economic conditions, growth in services- and tourism-driven economies (such as Italy and Spain) was revised up, while the weak outlook for manufacturing resulted in a downgrade to growth in Germany (now -0.3% in 2023).

#### India's GDP growth to be relatively resilient

India's GDP growth increased to 7.8% year-on-year in the June quarter 2023, up from 6.1% in the March quarter. This annual growth figure was in line market expectations and was driven by strong growth in consumption expenditure and fixed capital formation.

India's manufacturing PMI continued to be strongly expansionary in August 2023 at 58.6. Accelerated growth was reported in both output and new orders, with manufacturers citing strong demand conditions. Surveyed firms broadly expected demand to remain elevated over the next year, citing increasing new order commitments in the coming months.

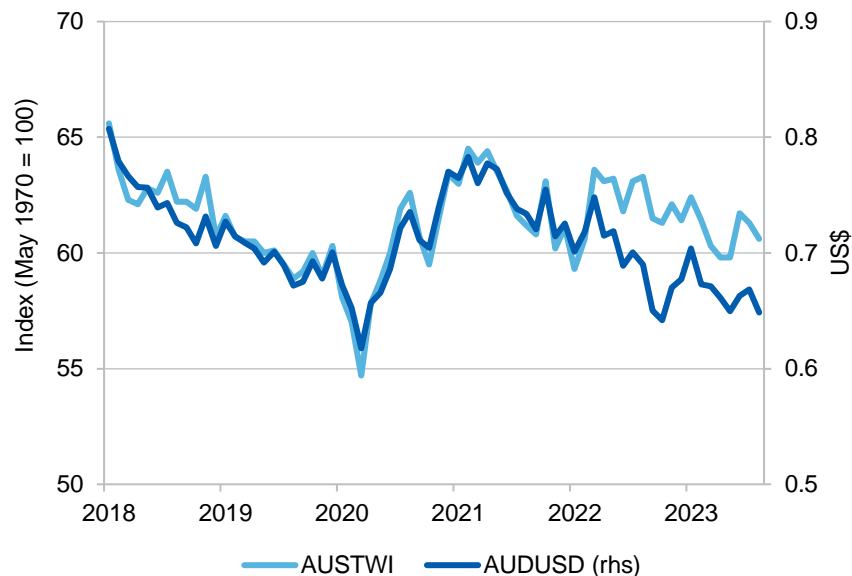
The IMF forecasts India's economic growth to slow to 6.1% in 2023, revised up from 5.9% in April, due to stronger-than-expected domestic investment. Growth is down from 7.2% in 2022 as domestic demand is pressured by tighter monetary policy. Growth is expected to pick up to 6.3% in 2024. From 2024 onwards, household spending is expected to pick up as pressures from inflation and monetary policy ease.

### Exchange rate assumption revised lower

Over the past quarter, the Australian dollar has fallen slightly relative to the US dollar but held constant on trade-weighted terms (Figure 2.9).

The AUD/USD exchange rate assumption has been revised lower by US\$0.02 in 2023 and US\$0.03 in 2024 compared with the June 2023 *Resources and Energy Quarterly*, in line with changes in market consensus (surveyed by Bloomberg) on the outlook for the exchange rate. The median consensus on 27 August 2023 for the AUD/USD exchange rate was an average of US\$0.67 during the second half of 2023, US\$0.70 in 2024 and US\$0.74 in 2025.

**Figure 2.9: Australian trade-weighted index and AUD/USD**



Source: Bloomberg (2023)

### Box 2.1: Structural challenges to Chinese growth

In their 2022 Article IV Consultation report on China, the IMF forecast China's GDP growth to decrease below 4% over the medium-term due to weakening factors on both supply and demand in the economy (IMF, 2023a). Demographic headwinds have been compounded by declining productivity growth and business dynamism, resource misallocation through continued high investment in sectors with declining productivity, and foreign export markets close to reaching saturation.

China was the largest export market for Australia's resources and energy exports in 2021–22, accounting for more than 35% of export earnings, and it is also one of the largest consumers of energy and metals globally. As such, Chinese demand has a strong influence on commodity prices, so a weaker outlook for Chinese outlook implies weaker Australia's export earnings over the long term.

This box highlights 3 key structural drivers of declining growth potential for China's economy: (1) slowing demographics, urbanisation and residential property sales, (2) a shift in growth towards domestic consumption and services, (3) declining returns on investment and lower foreign investment.

#### China's property market faces falling population and oversupply

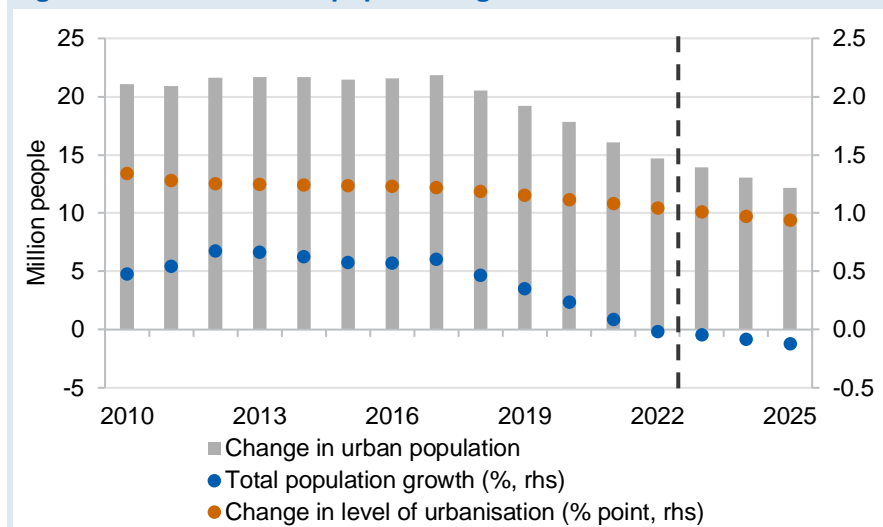
China's residential property sector is facing a substantial mismatch in supply and demand, driven by falling population, overinvestment, and a financing model past its time. This fundamental mismatch in supply and demand suggests the collapse in residential construction activity since 2020 reflects a structural rather than cyclical decline, noting that the decline was initially triggered by the introduction of the "three red lines" policy in 2020 under the principle of "housing is for living in, not for speculation". This reduction in activity will weaken China's commodity demand, as its residential construction sector is a major end user of commodities such as steel and non-ferrous metals.

The slowdown in China's residential construction sector has triggered a broader slowdown in other parts of the economy. China's investment in residential buildings was about 10% of its GDP in 2020 and the real estate

sector has been estimated through input-output modelling, including construction, equipment, furnishing and real estate services, contributed up to 29% of China's final demand in 2016 (Rogoff and Yang, 2021).

The property boom in China in the first two decades of the 21st century was underpinned by a growing population and large-scale urban migration. Between 2002 and 2018, the growth in China's urban population was stable at 20-22 million people each year (Figure 2.11). However, an apparent slowing in the rate of rural migration to cities, as well as a slowdown in fertility rates to 1.1 births per woman in 2022, has slowed overall urban population growth. In 2022, China's urban population only increased by 15 million and the outlook suggests urban population growth will fall to 12 million by 2025.

**Figure 2.11: China urban population growth**

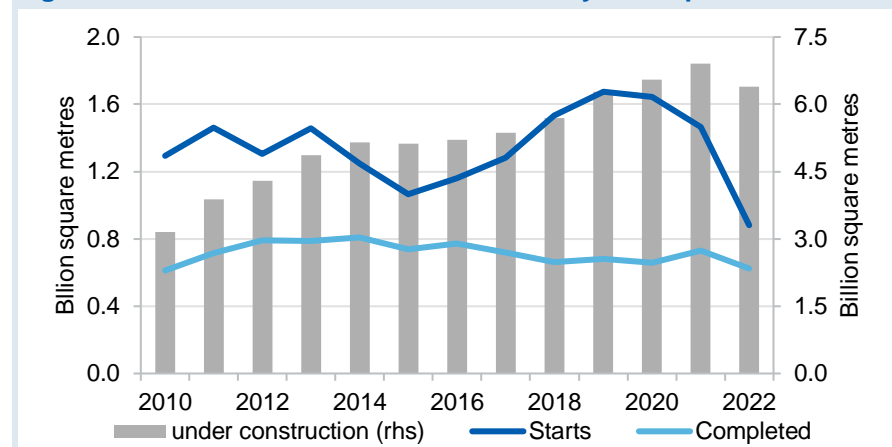


Notes: The outlook for China's population growth is adopted from the International Monetary Fund's World Economic Outlook (April 2023), while the outlook for China's change in level of urbanisation is produced by the Department of Industry, Sciences and Resources.

Chinese residential property investment ramped up even as urban population growth began to fall from 2017. Chinese households demonstrated a strong preference for investing in domestic property, as

other Chinese assets historically had poor returns and tight capital controls restrict investing abroad (Glaeser et al., 2017). In 2017, housing wealth made up 78% of all Chinese assets, compared to 35% in the United States (Rogoff and Yang, 2021). Much of this investment is funded by a pre-payment model, where properties are sold off the plan and paid in full by mortgage prior to completion. This resulted in a significant oversupply of new dwellings. Between 2010 and 2020, on average there were 1.4 billion square metres of residential construction starts each year, while only 0.7 billion square metres of residential construction was reportedly completed. As a result, over the 12-year period, the floor space of buildings under construction has doubled (Figure 2.12) while urban population growth fell by a third.

**Figure 2.12: China residential construction by floor space**



Source: National Bureau of Statistics of China (2011-2023)

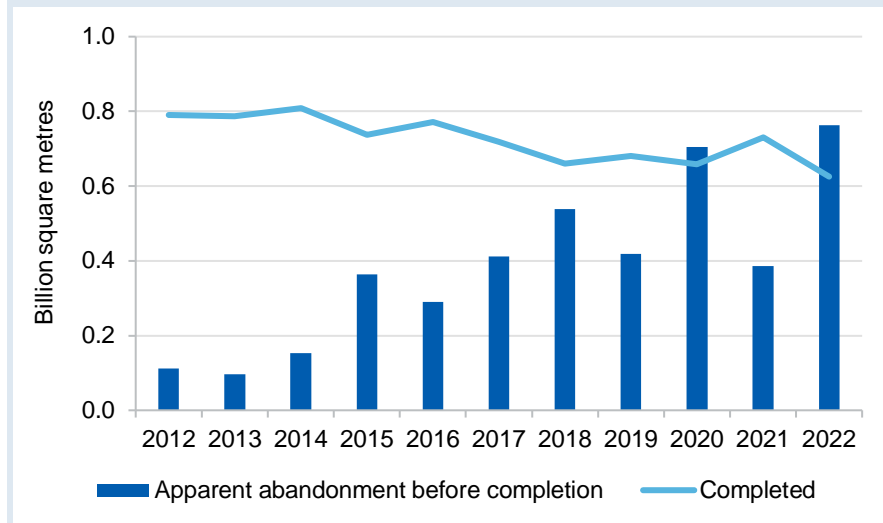
The supply-demand imbalance is acute in small- to medium-sized 'tier 3' cities, which exclude cities given privileged administrative status as classified by Rogoff and Yang (2023). Rogoff and Yang further estimated that residential construction in tier 3 cities accounted for 80% of the national total in 2020, and that housing stock in tier 3 cities rose from 32 to 43 billion square metres between 2011 and 2020. Population growth in tier 3 cities averaged -0.1% over the same period, driven in part by accelerating population outflows.



When the Chinese property developer Evergrande defaulted on debt obligations in 2021, house price declines in tier 3 cities were particularly large. Rogoff and Yang (2023) estimates that from February 2021 to June 2022, house prices in tier 3 cities fell by almost 20%, while prices in tier 1 and 2 cities rose slightly, although it should be noted that prices are often subject to regulation. Confidence in the sector fell, resulting in slowing sales which triggered a liquidity crunch, as pre-sales made up the largest source of financing for Chinese real estate developers between 2016 and 2020 (Kemp et al., 2020). This resulted in a wave of defaults amongst other builders and left work on many existing, often already paid for, projects to cease.

Apparent floor space abandonment before completion exceeded floor space completed in 2020 and 2022, underlining the extent of China's property market downturn, although the magnitude may be partly due to statistical discrepancies between the different measures (Figure 2.13).

**Figure 2.13: Apparent abandonment vs completion, residential**



Notes: Apparent abandonment before completion of residential floor space is estimated by subtracting the change in floor space under construction from the difference between floor space started and completed for each year.

Source: National Bureau of Statistics of China (2011-2023)

### China's transition from real estate and manufacturing-led growth

A second structural trend is the slow decrease in the share of exports in the Chinese economy over time. China's integration into the global economy is largely bedded down, and the export-driven, high growth era of the Chinese economy has largely run its course. This occurred despite relatively low per-capita income in China, but foreign markets are reaching saturation, with China's share in global manufacturing exports reaching 17% by 2016 (Deb et al., 2019). Growth is increasingly driven by domestic consumption, and China's industries are relying less on exports, with exports of goods and services as a percent of GDP falling from 36% in 2006 to 21% by 2022. New opportunities to export manufactured goods to foreign markets may diminish given global concerns around national security and government policies focused on de-risking supply chains.

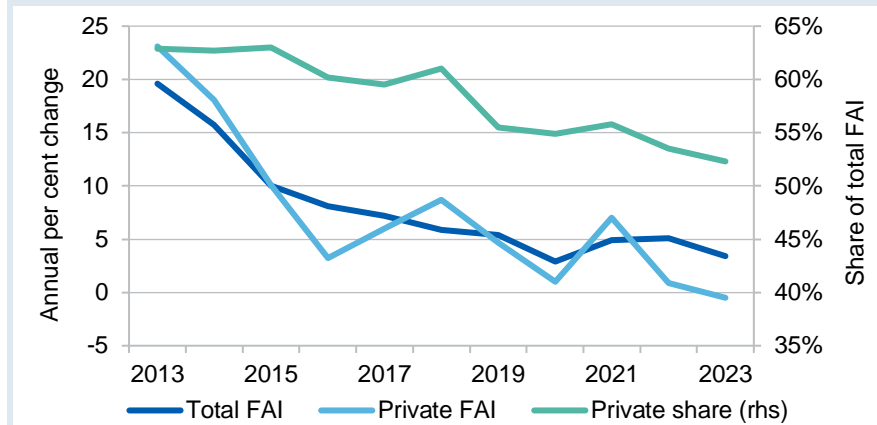
Services may not be able to replace manufacturing and real-estate led growth in China. A large services sector in middle income countries has been observed to lead to lower rates of economic growth (Bulman et al., 2014), and the services sector is less tradeable across borders. A domestically focused Chinese manufacturing industry has shown some ability to remain dynamic and innovative, but recent evidence remains mixed. A notable example is recent success and technical advances in electric vehicle production, largely driven by strong domestic demand and government support. But as the size of the manufacturing sector diminishes, so does its ability to drive a high level of economic growth. China's services sector has contributed more to GDP growth than its manufacturing sector since 2011. Capital investment in real estate and infrastructure has also driven growth, but the bulk of productive investment in the space - particularly in real estate - is likely to be already complete.

### Declining returns to investment and lower foreign investment

The third trend of note is a decline in Chinese productivity growth, related to falling investment including foreign direct investment. China's investment — measured by gross fixed capital formation — peaked at just below 47% of GDP in 2011. Growth in fixed asset investment (FAI), has been declining since that peak: from around 20% in 2013 to 3.4% in

2023 year-to-date (Figure 2.14). This has coincided with declining private sector investment and a rising share of FAI from state-owned enterprises (SOE). As SOE's have been less productive than private companies, declining private sector investment means decreasing capital productivity (IMF, 2023a). A further consequence of declining private sector activity has been declining business dynamism, also linked to lower productivity.

**Figure 2.14: Fixed asset investment (FAI) in China**



Notes: 2023 data is for January-July 2023.

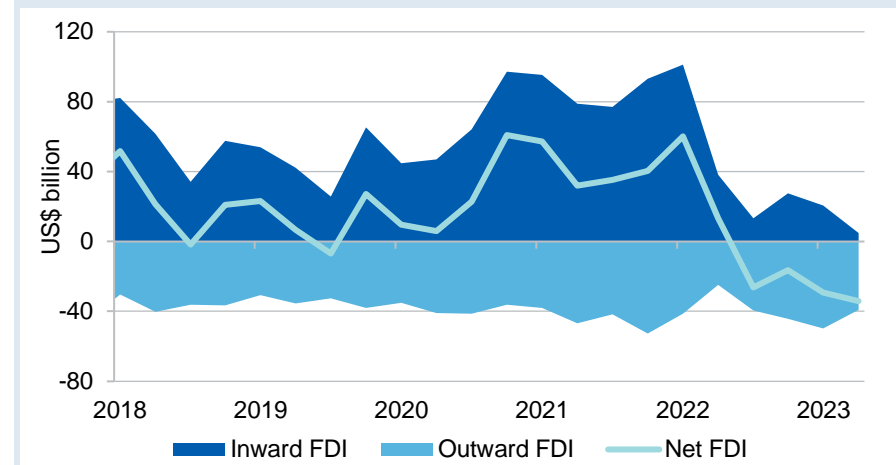
Source: Bloomberg (2023); National Bureau of Statistics of China (2023)

Foreign direct investment (FDI) into China — which has traditionally been considered a key channel of technology transfer — also fell substantially between 2015 to 2022: by around 60% in selected strategic sectors (IMF, 2023b). This has intensified since mid-2022; FDI flows into China fell by 82% year-on-year in H1 2023 to be US\$25.4 billion (Figure 2.15). Recent declines in FDI align with weakening investment sentiment in Asia, driven by factors such as rising interest rates, slowing global growth — especially in Asia's export markets — and greater economic uncertainty.

Political factors may also work to lower FDI into China, including the widespread desire to diversify supply chains. Analysis by Exante Data indicates recent declines have largely been the result of multinational companies repatriating their Chinese earnings, rather than reinvesting their earnings within China.

This could be indicative of fundamental shifts in investment or risk sentiment, rising interest rates, or changing business conditions in China. 'Greenfield' investment has also declined, but to a lesser extent — year-to-date utilised foreign capital fell 9.8% year-on-year in July 2023. Supporting this analysis, some surveys suggest investment sentiment for US and European businesses operating in China has declined notably over the past year (AmCham 2023, EU Chamber of Commerce in China 2023).

**Figure 2.15: Quarterly FDI flows into and out of China**



Source: CEIC (2023); OECD (2023)

If foreign direct investment into China continues to fall or remain low, structurally lower foreign investment will lead to lower economic growth and productivity going forward. The IMF has assessed that fragmentation of global FDI arising from geopolitical blocs could result in greater declines in vertical (knowledge intensive) FDI flows globally, with permanent losses of around 2% to Chinese GDP (IMF, 2023b).

Noting softer foreign direct investment flows recently, China's State Council in August issued 24 guidelines to optimise foreign investment. These guidelines intend to increase protection of intellectual property rights of foreign investors and encourage R&D activity within the country. An increasingly complicated external environment could affect China's access to foreign investment and technical expertise going forward.

## 2.4 References for Box 2.1

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**Table 2.1: IMF annual GDP growth projections for major trading partners**

|                          | 2022 | 2023 <sup>a</sup> | 2024 <sup>a</sup> | 2025 <sup>a</sup> |
|--------------------------|------|-------------------|-------------------|-------------------|
| <b>World<sup>b</sup></b> | 3.5  | 3.0               | 3.0               | 3.2               |
| China <sup>c</sup>       | 3.0  | 5.2               | 4.5               | 4.1               |
| Japan                    | 1.0  | 1.4               | 1.0               | 0.6               |
| South Korea              | 2.6  | 1.4               | 2.4               | 2.3               |
| India <sup>d</sup>       | 7.2  | 6.1               | 6.3               | 6.2               |
| ASEAN-5 <sup>e</sup>     | 5.3  | 4.9               | 5.3               | 5.2               |
| Eurozone                 | 3.7  | 0.8               | 1.6               | 2.2               |
| United States            | 2.1  | 1.8               | 1.0               | 1.8               |

Notes: **a** Assumption. **b** Calculated by the IMF using purchasing power parity (PPP) weights for nominal country gross domestic product. **c** Excludes Hong Kong. **d** Based on fiscal years, starting in April; **e** Indonesia, Malaysia, Philippines, Thailand and Vietnam.

Sources: IMF (2023) World Economic Outlook; Bloomberg (2023)

**Table 2.2: Exchange rate and inflation assumptions**

|                                   | 2022    | 2023 <sup>a</sup>    | 2024 <sup>a</sup>    | 2025 <sup>a</sup>    |
|-----------------------------------|---------|----------------------|----------------------|----------------------|
| AUD/USD exchange rate             | 0.69    | 0.67                 | 0.70                 | 0.74                 |
| <b>Inflation rate<sup>b</sup></b> |         |                      |                      |                      |
| United States                     | 8.0     | 4.4                  | 2.8                  | 2.1                  |
|                                   | 2021–22 | 2022–23 <sup>a</sup> | 2023–24 <sup>a</sup> | 2024–25 <sup>a</sup> |
| Australia                         | 4.4     | 7.0                  | 4.1                  | 3.3                  |

Notes: **a** Assumption; **b** Average CPI growth over the specified year (fiscal or calendar).

Sources: ABS (2023) Consumer Price Index, 6401.0; Bloomberg (2023); Department of Industry, Science and Resources; RBA (2023); IMF (2023)