Australian Government
Department of Industry, Science and Resources

Office of the Chief Economist

Resources and Energy Quarterly

DECEMBER 2022

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Acknowledgements

The authors would like to acknowledge the contributions of:

Jeewantha Karunarathna, James Hutson and Silvia Gong.

Cover image source: Shutterstock, Maksim Safaniuk

ISSN 1839-5007

Vol. 12, no. 4

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Foreword

Despite a sharp slowing in world economic growth during 2022, Australia's resource and energy export earnings are forecast to set a new record of $459 billion in 2022–23. But earnings are forecast to fall to $391 billion in 2023–24 (still the third highest level of earnings on record), as tepid world demand and an easing in supply disruptions reduce commodity prices.

Energy commodity prices have declined but generally remain above levels reached just prior to the Russian invasion of Ukraine. Markets have become less concerned about a drop in exports of gas, coal and oil by Russia, one of the world's largest energy exporters: Northern Hemisphere nations have been successful in building up energy stockpiles for winter. Weak Chinese energy demand (largely due to COVID lockdowns) has made it easier for Western European countries to fill gas storage.

High energy commodity prices have seen energy-intensive metal smelting and refining activity curbed, especially in Western Europe. These output cuts have partly offset the impact of weaker metal demand (induced by a sharp rise in energy costs on consumers and slower global GDP growth).

Bans on Russian exports of oil and other fossil fuels by most advanced Western countries are progressively taking effect. By early 2023, the market for Russian exports will likely have shrunk noticeably: transport and infrastructure constraints will likely prevent a full diversion of Russian energy commodities to countries without sanctions in place. The net result is a drop in world energy supply, as some Russian output becomes stranded. We thus expect the prices of energy commodities to remain relatively high over the outlook period.

Earnings from LNG are forecast to be $90 billion in 2022–23, as high prices more than offset the impact of weaker LNG export volumes. Thermal coal exports should exceed $75 billion this financial year, up from $46 billion in 2021–22. After 2023–24, earnings from these commodities are likely to fall back towards pre-COVID-19 levels, as gains in world supply bring down prices.

Lithium product exports are expected to exceed $16 billion in 2022–23, up from $5 billion in 2021–22. This will make lithium the sixth largest export of Australia's resource and energy commodities.

Since our last report, the Chinese Government has taken further action to support the property market and economic growth. COVID restrictions have eased significantly in China, and the Chinese authorities have facilitated an improvement in funds going to the residential property sector. Further easings of COVID restrictions in China would help the commodity outlook, given China's huge share of world usage. China's low inflation also provides the Government with more scope to use fiscal levers to stimulate its economy.

The IMF forecasts world GDP growth of 3.2% in 2022 and 2.7% in 2023, with China forecast to grow by 3.2% in 2022, rising to 4.4% in 2023. It is possible that inflation has peaked in most major economies; if core inflation rates fall back noticeably, monetary action may taper over 2023.

The La Niña weather pattern is forecast to fade in early 2023, and the Indian Ocean Dipole appears to be normalising. Together, this reduces the chances of wetter-than-normal conditions in eastern Australia in autumn/winter, easing concerns about disruptions to mining operations and rail transportation.

The risks to the forecast for Australia's export earnings in 2022–23 and 2023–24 are fairly evenly skewed. Markets have priced in weaker world economic growth and the loss of some Russian resource and energy commodity output from world supply in 2023. Should world economic growth (especially in China) hold up better than expected and/or non-Russian commodity supply fails to rise as expected, our export earnings could exceed current forecasts. If Russia cuts exports of oil and oil products in response to the imposition of price caps, oil prices could lift sharply. Higher oil prices would lift Australia's LNG revenues — since most LNG sales are linked to the price of oil — but would adversely impact world economic growth. A substantial widening in COVID lockdowns in China poses a downside risk to Australia's export earnings, especially our exports of base and ferrous metals.

About this edition

The *Resources and Energy Quarterly* (REQ) contains the Office of the Chief Economist's forecasts for the value, volume and price of Australia's major resources and energy commodity exports.

A 'medium term' (five year) outlook is published in the March quarter edition of the *Resources and Energy Quarterly*. Each June, September and December edition of the *Resources and Energy Quarterly* features a 'short term' (two year) outlook for Australia's major resource and energy commodity exports.

Underpinning the forecasts/projections contained in the *Resources and Energy Quarterly* is the Office of the Chief Economist's outlook for global resource and energy commodity prices, demand and supply. The forecasts/projections for Australia's resource and energy commodity exporters are reconciled with this global context. The global environment in which Australia's producers compete can change rapidly. Each edition of the *Resources and Energy Quarterly* attempts to factor in these changes, and makes alterations to the forecasts/projections by estimating the impact on Australian producers and the value of their exports.

The *Resources and Energy Quarterly* publication uses IMF economic growth forecasts as the basis of its world growth forecasts.

In this report, commodities are grouped into two broad categories, referred to as 'resources' and 'energy'. 'Energy' commodities comprise metallurgical and thermal coal, oil, gas and uranium. 'Resource' commodities in this report are all other mineral commodities.

Unless otherwise stated, all Australian and US dollar figures in this report are in nominal terms. Inflation and exchange rate assumptions are provided in tables 2.1 and 2.2 in the *Macroeconomic outlook* chapter.

Information in this edition of the *Resources and Energy Quarterly* is current as of 12 December 2022.

Resources and Energy Quarterly publication schedule

Publication	Expected release date	Outlook period final year
March 2023	3 April 2023	Australian data: 2027–28 World data: 2028
June 2023	3 July 2023	Australian data: 2024–25 World data: 2025
September 2023	3 October 2023	Australian data: 2024–25 World data: 2025
December 2023	18 December 2023	Australian data: 2024–25 World data: 2025

Source: Department of Industry, Science and Resources (2022)

Overview

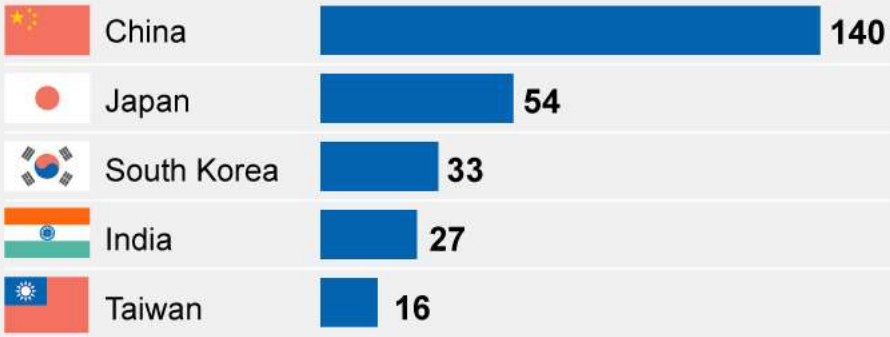
Australia's mining sector

Contributes to around ***13.7% of GDP***

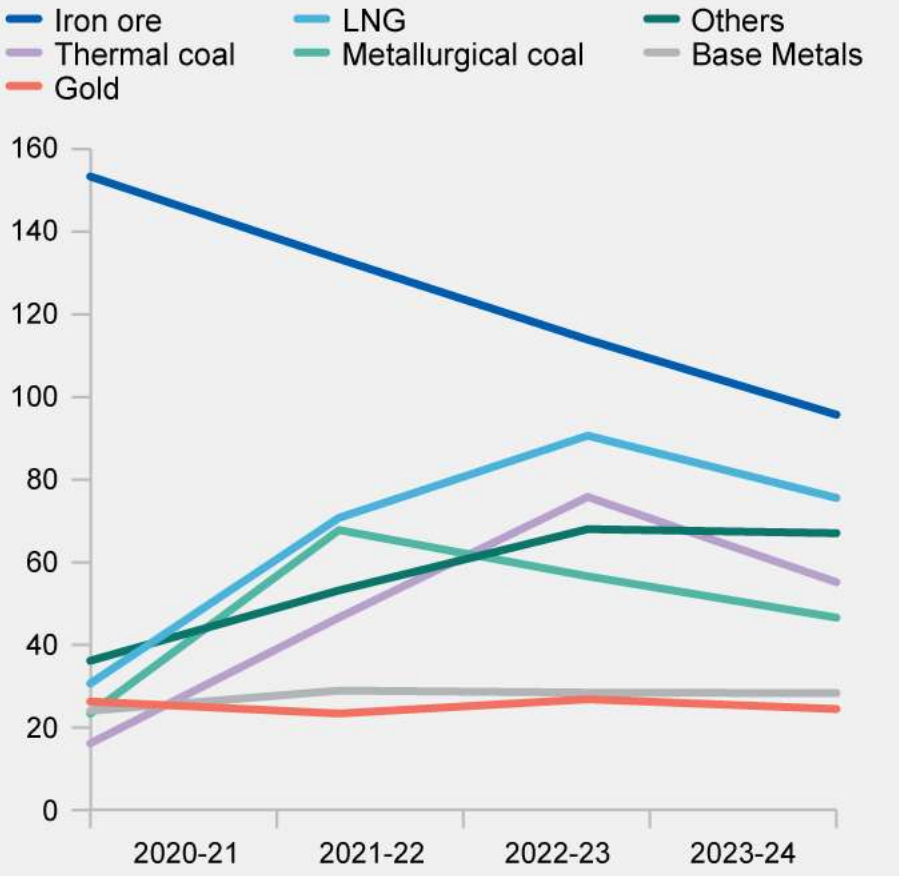
Makes up more than ***two-thirds*** of Australia's total merchandise exports

Directly employs ***over a quarter of a million people***

Major markets for Australia's resources and energy exports in 2021-22, A$billion



Australia's resource and energy exports, A$billion



1.1 Summary

- Energy commodity prices have fallen from record highs, on easing fears of Northern Hemisphere winter shortages, but will likely stay above pre-war levels in 2023, as some Russian energy supply becomes stranded.
- High energy commodity prices and strength in the US dollar are driving a surge in export earnings. After a record $422 billion in 2021–22, resource and energy export earnings are forecast to lift to $459 billion in 2022–23, before falling back to $391 billion in 2023–24.
- Lithium exports are set to earn $16 billion in 2022–23, becoming our sixth largest resource and energy export.

1.2 Export values

Australia's export values are forecast at $459 billion in 2022–23

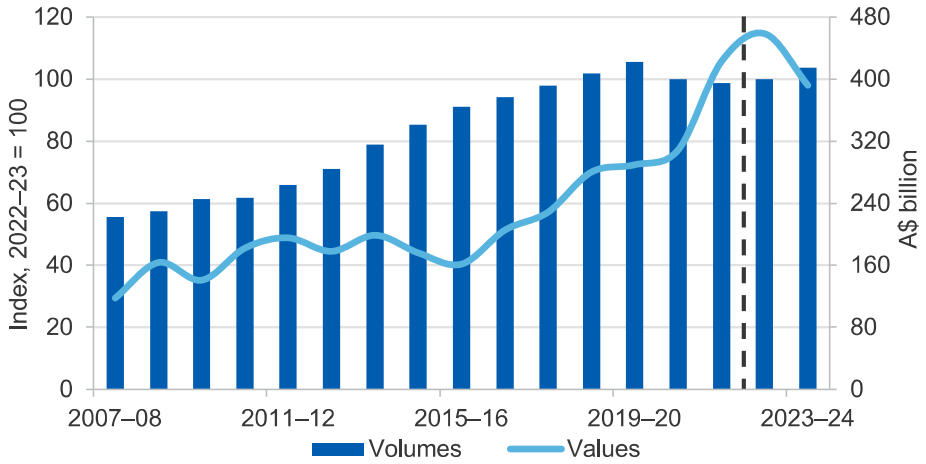
In the December quarter 2022, the Office of the Chief Economist's (OCE) Resources and Energy Export Values Index rose 26% from the December quarter 2021; a 3% rise in volumes added to a 20% gain in prices.

Despite a slowing world economy, resource and energy exports of $459 billion in 2022–23 are set to easily break last year's record of $422 billion (Figure 1.1). However, exports are forecast to fall to $391 billion in 2023–24, as the loss of some Russian fossil fuels and base metals from world markets is filled by other suppliers, cutting prices. The resulting fall in earnings in 2023–24 would be the first fall in seven years (Figure 1.2).

Energy shortages and the low exchange rate are boosting earnings

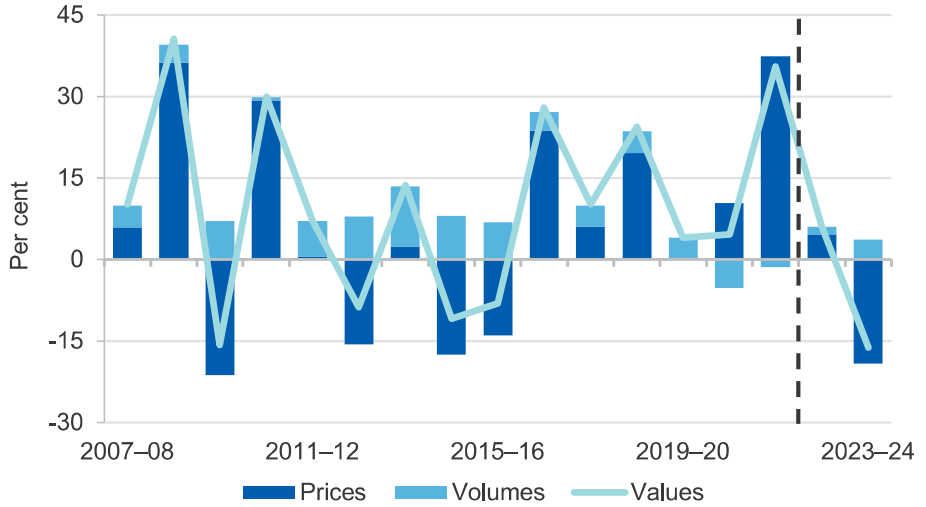
In Australian dollar terms, the OCE's Resources and Energy Commodity Price Index fell by 6% (preliminary estimate) in the December quarter 2022, but was up 19% on a year ago. In US dollar terms, the index rose by 16% in the quarter, but was 6% higher than a year ago. The prices of resource exports (Australian dollar terms) rose by 10% in the year to the December quarter 2022. Energy commodity prices rose by 30% in the year to the December quarter 2022 (Figure 1.3); having sanctioned Russia for its invasion of Ukraine, many Western nations then had to race to fill energy storages ahead of the Northern Hemisphere winter.

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



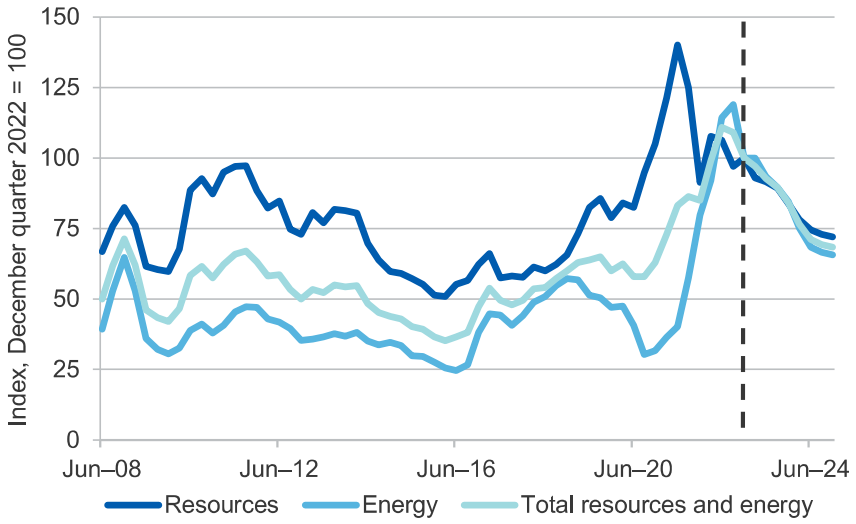
Source: ABS (2022) International Trade in Goods and Services, 5368.0; Department of Industry, Science and Resources (2022)

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



Source: ABS (2022) International Trade in Goods and Services, 5368.0; Department of Industry, Science and Resources (2022)

Figure 1.3: Resource and energy export prices, AUD 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 (2022) International Trade in Goods and Services, 5368.0; Department of Industry, Science and Resources (2022)

1.3 Macroeconomic, policy, trade and other factors

World economic growth has continued to slow in recent months. High energy commodity prices in the September quarter, and tighter financial conditions in the major Western economies, have had a major impact. Added to these have been the effects of China's ongoing struggle with COVID-19 and still disrupted supply chains. However, global gas prices have declined sharply in the past few months, and there are signs that the surge in headline inflation in most Western nations has peaked. If a meaningful slowing in core inflation allows the major Western central banks to ease monetary tightening soon, and if Chinese economic growth stabilises, the world economy may only slow modestly further.

Chinese economic growth remains sluggish, largely due to a weak property market and COVID-19 outbreaks and restrictions. In the second half of November, the authorities took a number of measures to lessen the impact of these factors. China's low inflation rate means the authorities are less constrained in adopting further measures to support growth. Such measures would help support resource and energy commodity prices.

Economic growth has slowed sharply in many European nations, hurt by extremely high energy commodity prices resulting from fallout from the Russian invasion of Ukraine. EU gas storage is now full, after a six month drive to ensure that the cessation of energy imports from Russia in late 2022 would not leave the region short in the winter peak usage period. The fallout from China's COVID-19 lockdowns has helped free up some gas/LNG to flow to Western Europe, taking pressure off gas prices.

Since the September 2022 *Resources and Energy Quarterly*, the US Federal Reserve has raised official interest rates further, in an effort to contain US inflation. With US economic growth slowing and US inflation likely having passed its cyclical peak, the bulk of the Federal Reserve's monetary tightening seems done.

The IMF forecasts world GDP growth of 3.2% in 2022 and 2.7% in 2023, with Chinese growth of 3.2% in 2022 and 4.4% in 2023.

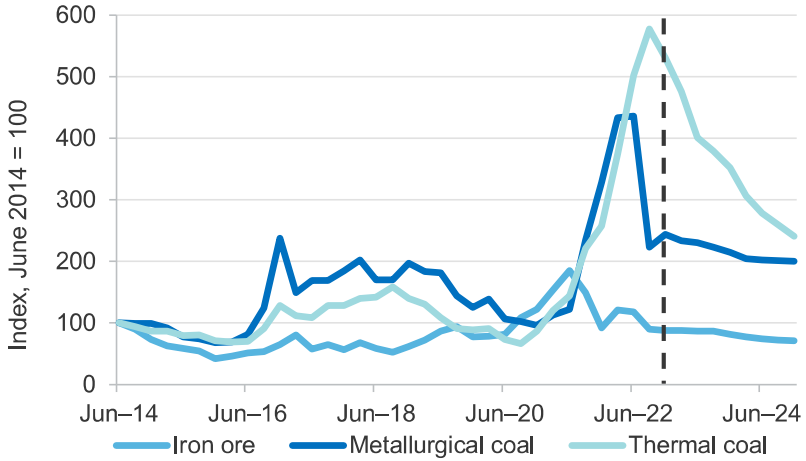
Global resource and energy commodity trade continues to re-organise, as Western sanctions imposed on Russia ramp up further. China, India and Turkey are taking Russian cargoes (at heavy price discounts) shunned by the West. As a result, China and India are now buying fewer cargoes of non-Russian commodities. Starting on 5 December, some Western nations have applied price caps to Russian oil exports, with a price cap on oil products due to start on 5 February 2023. Unless Russia chooses to stop exporting to nations who enforce the price cap, oil prices should fall: the replacement of bans with price caps cuts the likelihood of some Russian oil output being stranded. Capacity constraints on Russian coal exports to the East will likely limit world supply, holding coal prices higher than otherwise.

Higher global interest rates and new China lockdowns pose a downside risk to global economic activity and Australian mineral exports.

1.4 Prices

Since the September 2022 *Resources and Energy Quarterly*, the iron ore price has steadied, and remains well above the November 2021 cycle low. Weak Chinese demand has added to the impact of improved supply in major exporting nations (Figure 1.4). Prices are likely to ease further over the outlook period, as world supply gains faster than world demand.

Figure 1.4: Bulk commodity prices



Notes: Prices are in US dollars, and are the international benchmark prices

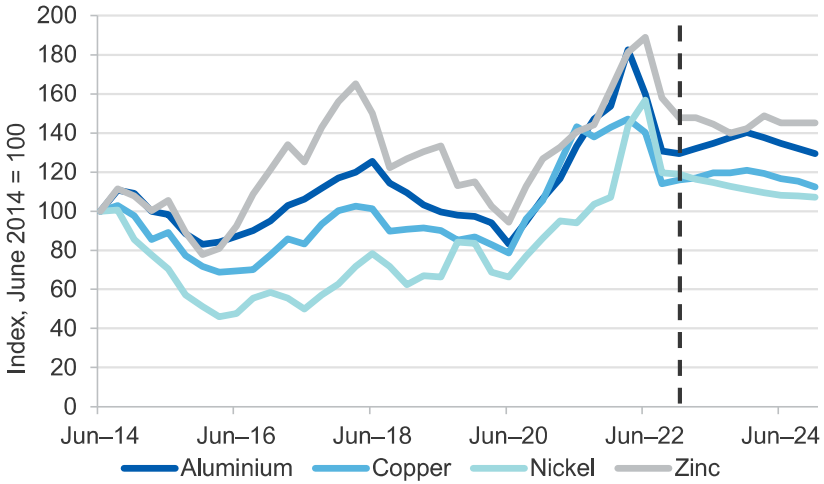
Source: Bloomberg (2022); Department of Industry, Science and Resources (2022)

Australian thermal coal prices have declined from record levels, but remain high historically. Flooding and bad weather in major producing regions has added to the impact of solid demand: customers have been scrambling to build stockpiles ahead of peak Northern Hemisphere winter, as sanctions on Russian exports take full effect. Some Russian coal production will likely be stranded from export markets. Prices are expected to ease over the outlook period, as trade flows re-organise further and export supply lifts. Metallurgical coal prices have steadied, due to supply problems and signs that Chinese steel output has ceased declining: the Chinese government's efforts to underpin economic activity should boost steel usage. Prices are likely to drift down over 2023, as supply recovers.

Oil prices have steadied below the US$90 a barrel mark, as weak demand more than offsets the impact of supply cuts. The market is likely to tighten if Russia carries through with its threat to withhold supply from nations supporting the price cap. Chinese COVID waves may contribute to lower world usage, but OPEC+ cutbacks will limit price declines. Spot LNG prices have fallen, as a warmer-than-normal Northern Hemisphere autumn lowered heating demand and helped inventories rise. Prices are likely to stay well above pre-war levels, as some Russian gas output is stranded.

The price of gold has rebounded, boosted by falling US bond yields and associated weakness in the US dollar. The price is likely to fall modestly in the next two years, as real bond yields hold their gains. Base metal prices have pushed up, as hopes of a soft landing in the world economy add to the pressure of low inventories. The loss of some Russian supply (especially nickel and aluminium) from world markets would give support to prices (Figure 1.5). Prices should be flat over the outlook period, as supply slowly catches up with demand and stockpiles stop falling.

Figure 1.5: Base metal prices



Notes: Prices are in US dollars, and are the international benchmark prices

Source: Bloomberg (2022); Department of Industry, Science and Resources (2022)

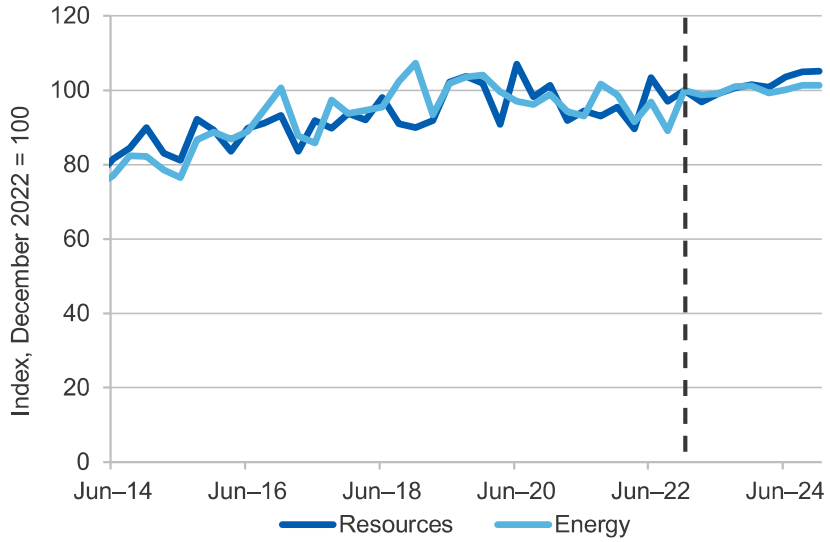
1.5 Export volumes

December quarter export volumes rose, driven by resource exports

The OCE's Resources and Energy Export Volumes Index (preliminary estimate) rose 8% in the December quarter 2022 from the September quarter, and was 3% higher than a year before. Within this total, resource commodity volumes rose by 5% in the year to the December quarter 2022, while energy commodity volumes rose 1% (Figure 1.6). Energy exports were impacted by production/transport problems: operational, weather and COVID-19 related workforce issues were central to these disruptions.

In volume terms, resource exports are likely to show further significant growth over the outlook period, particularly in 2024. The volume of energy exports has been constrained by weather conditions and problems associated with the pandemic. High prices will likely cause some demand destruction in the outlook period.

Figure 1.6: Resource and energy export volumes



Source: Department of Industry, Science and Resources (2022)

1.6 Contribution to growth and investment

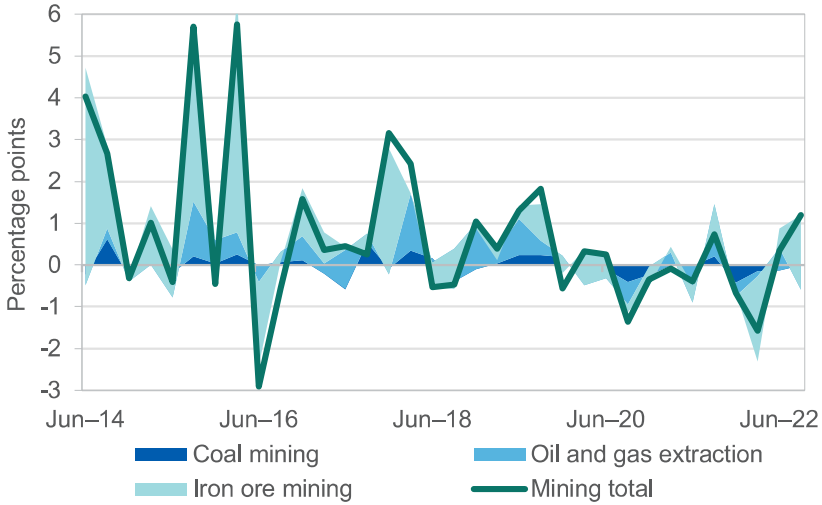
Mining industry contracted while the overall economy expanded

Australia's real Gross Domestic Product rose by 0.6% in the September quarter 2022, to be up 5.9% from the September quarter 2021.

Mining value-added rose by 1.2% in the September quarter, but was down 0.7% over the previous twelve months (Figure 1.7). COVID-19-related problems have eased, but some mining operations have been impacted by flooding and bad weather.

In the coming two years, it is likely that the resource and energy sectors will make a significant contribution to real GDP growth. The disruptions to production of the past few years — due to the COVID-19 pandemic and weather-related issues — are likely set to ease. Coal producers will seek to lift output and exports, in response to record high prices and margins. Non-ferrous metal production should experience healthy growth; Northern Hemisphere smelters are closing/cutting back production because of high energy prices, allowing Australian producers to pick up market share.

Figure 1.7: Contribution to quarterly growth, by sector

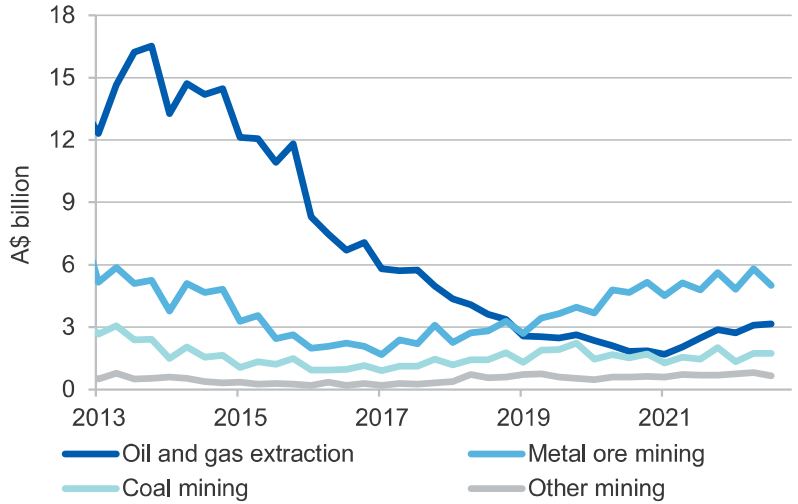


Source: ABS (2022) Australian National Accounts, 5206.0

Mining investment is picking up

The ABS Private New Capital Expenditure and Expected Expenditure survey for the September quarter 2022 shows that Australia's resources industry invested $10.5 billion in the quarter. This was up 12% from the September quarter 2021. In quarterly terms, investment in coal and gas edged up, while investment in metals and other resources lost ground (Figure 1.8).

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 (2022) Private New Capital Expenditure and Expected Expenditure, 5625.0

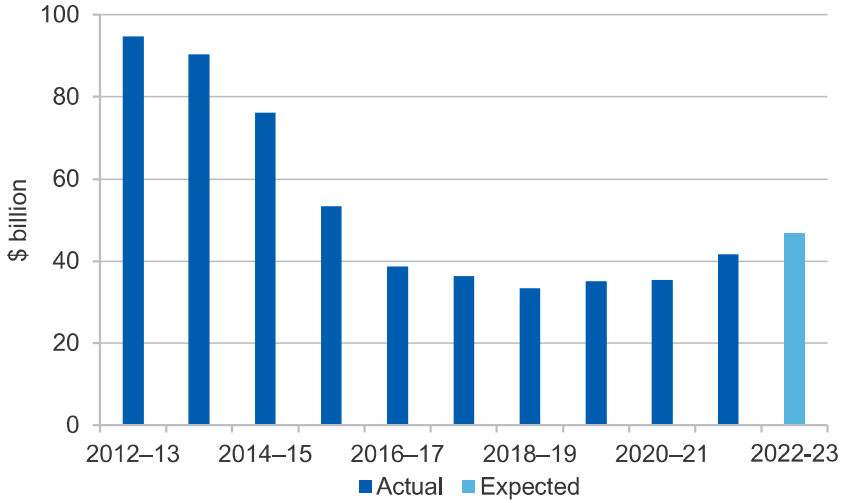
Expenditure in both measured categories (equipment plant and machinery buildings and structures) largely held their recent gains in the September quarter, though both edged back marginally (Figure 1.9). Spending has risen across the board in recent quarters, and forward expectations suggest that investment in 2022–23 will be slightly higher than in 2021–22 (Figure 1.10). Strong prices for gold and various minerals used in low-emissions energy generation are leading to new investment plans, including the re-opening of mines.

Figure 1.9: Mining industry capital expenditure by type, quarterly

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

Source: ABS (2022) Private New Capital Expenditure and Expected Expenditure, 5625.0

Figure 1.10: Mining industry capital expenditure, fiscal year

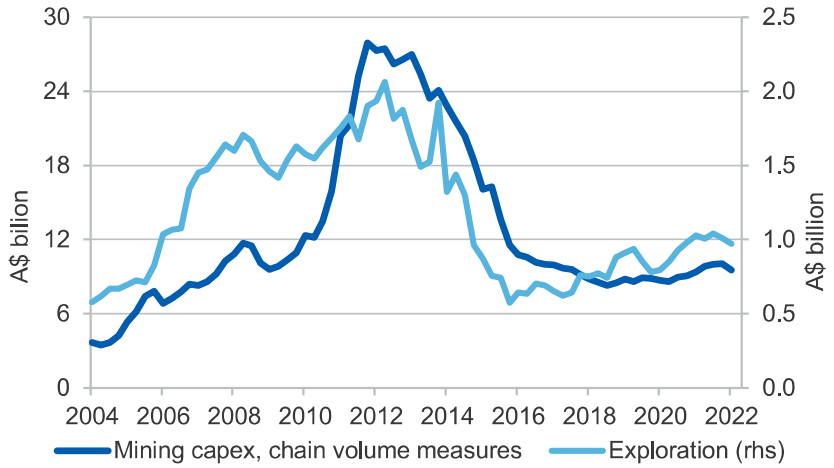


Notes: Chart data is in nominal terms

Source: ABS (2022) Private New Capital Expenditure and Expected Expenditure, 5625.0

Exploration expenditure (adjusted for inflation) edged down to $970 million in the September quarter. Exploration has now been trending off for two consecutive quarters, but remains well above the recent low of $783 million in the June quarter 2020. The generally positive trend is consistent with growth in capital expenditure since 2018–19 (Figure 1.11) and reflects a solid outlook for minerals used in low emission technologies.

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



Source: ABS (2022) Private Capital Expenditure Survey, Chain Volume measure, 5625.0

1.7 Revisions to the outlook

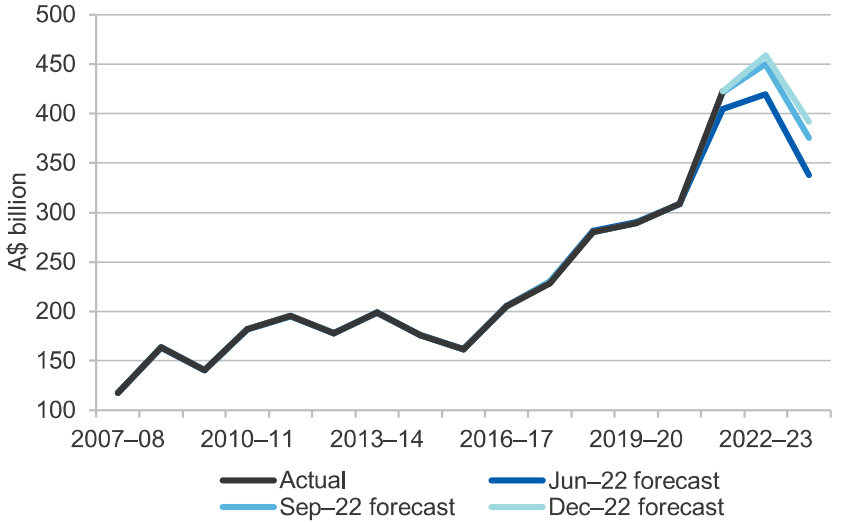
At $459 billion, the estimate for Australia's resources and energy exports in 2022–23 is $9 billion higher than the forecast contained in the September quarter 2022 *Resources and Energy Quarterly*. The forecast for 2023–24 is up by $16 billion from the September 2022 *Resources and Energy Quarterly* (Figure 1.12).

A lift in forecast thermal coal prices and a weaker than expected exchange rate against the US dollar (AUD/USD) have driven the revisions. Many Western nations are having to pay substantially more for energy, on the high chance that sanctions on Russia will see some Russian production — particularly gas and coal — become stranded from world markets.

Thermal coal earnings in 2022–23 and 2023–24 have been revised up by $13 and $17 billion, respectively. Weather problems in major producing nations have hurt supply and helped keep the price of thermal coal (especially high quality grades) very high. Gas/LNG shortages are causing some Northern Hemisphere nations to seek thermal coal to generate power for heating during winter; many Western European nations need high quality thermal coal for their coal-fired power stations. Australian coal is likely to take the place of some lost Russian contracts. LNG earnings in 2022–23 have been revised up by $1 billion, but down by $2 billion in 2023–24. The 2023–24 revisions reflect the impact of forecast lower LNG prices in 2023–24.

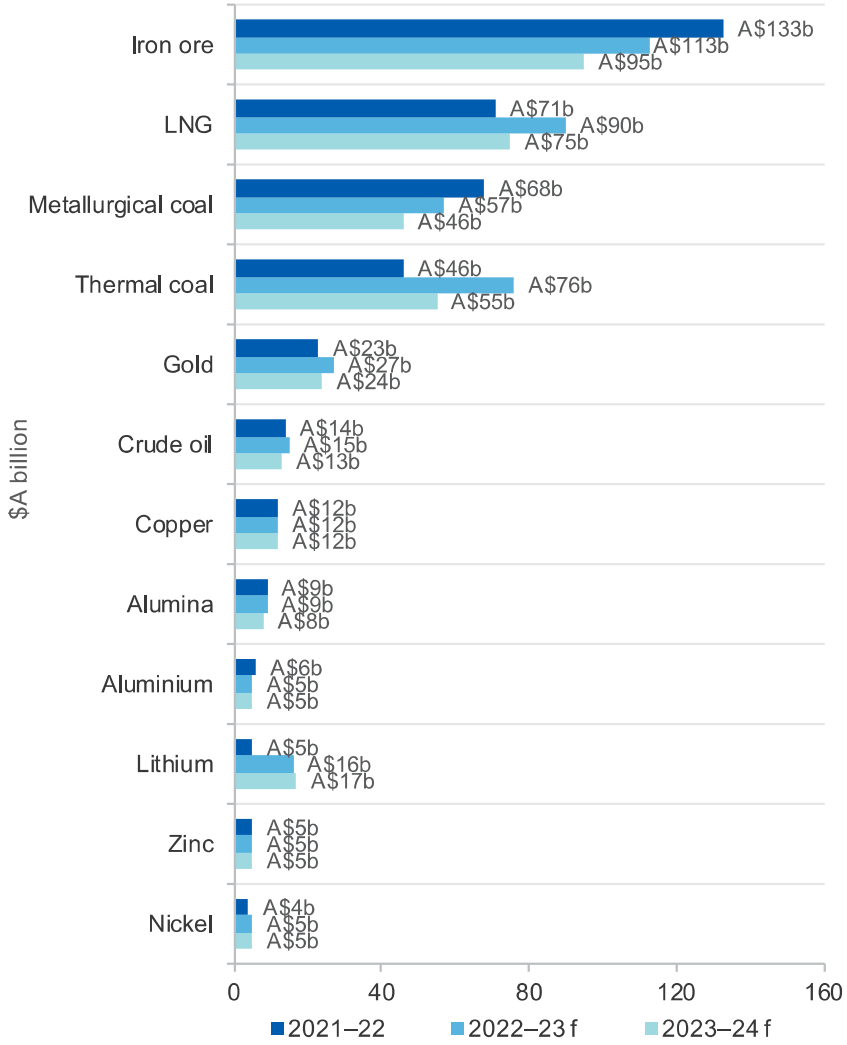
Iron ore earnings in 2022–23 have been revised down by $5 billion, but are virtually unchanged in 2023–24. The revisions reflect forecasts of a shallower fall in prices than envisioned in the September 2022 REQ. World iron ore demand in 2023 is likely to be weaker than previously expected.

Figure 1.12: Resource and energy exports, by forecast release



Source: Department of Industry, Science and Resources (2022)

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



Annual per cent change

	2022–23 f			2023–24 f		
	volume	EUV	value	volume	EUV	value
Iron ore	3	-17	-14	3	-18	-16
LNG	-2	31	28	0	-16	-17
Metallurgical coal	7	-21	-15	5	-23	-19
Thermal coal	-3	69	63	7	-32	-27
Gold	23	-7	15	8	-16	-9
Crude oil	-7	18	9	7	-18	-13
Copper	2	-6	-4	8	-2	6
Alumina	1	-2	-1	2	-9	-7
Aluminium	5	-13	-9	1	-5	-4
Lithium	19	176	228	18	-10	6
Zinc	14	-8	5	8	-10	-3
Nickel	12	4	17	7	-16	-11

Notes: f forecast. EUV is export unit value.
Source: ABS (2022) International Trade in Goods and Services, 5368.0; Department of Industry, Science and Resources (2022)

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

					Percentage change			
Exports (A$m)	2020–21	2021–22	2022–23[f]	2023–24[f]	2020–21	2021–22	2022–23[f]	2023–24[f]
Resources and energy	308,589	421,855	459,217	391,371	6.6	36.7	8.9	–14.8
– real[b]	345,266	451,903	459,217	373,692	4.9	30.9	1.6	–18.6
Energy	81,229	204,072	244,597	195,491	–29.7	151.2	19.9	–20.1
– real[b]	90,883	218,608	244,597	186,660	–30.8	140.5	11.9	–23.7
Resources	227,360	217,783	214,620	195,880	30.7	–4.2	–1.5	–8.7
– real[b]	254,383	233,295	214,620	187,032	28.6	–8.3	–8.0	–12.9

Notes: **b** In 2022–23 Australian dollars; **f** forecast.
Source: ABS (2022) International Trade in Goods and Services, 5368.0; Department of Industry, Science and Resources (2022)

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

		Prices				Export volumes			Export values, A$b		
	Unit	2021–22	2022–23[f]	2023–24[f]	Unit	2021–22	2022–23[f]	2023–24[f]	2021–22	2022–23[f]	2023–24[f]
Iron ore	US$/t	119	86	79	Mt	874	896	920	133	113	95
LNG	A$/GJ	16.1	21.1	17.6	Mt	83	81	81	71	90	75
Metallurgical coal	US$/t	404	262	238	Mt	163	174	183	68	57	46
Thermal Coal	US$/t	245	360	239	Mt	196	190	203	46	76	55
Gold	US$/oz	1,832	1,726	1,661	t	248	304	329	23	27	24
Crude oil[a]	US$/bbl	91	98	87	Kb/d	290	269	287	14	15	13
Copper	US$/t	9,645	7,923	8,084	Kt	810	827	895	12	12	12
Alumina	US$/t	381	333	326	Kt	17,739	17,889	18,246	9.0	8.8	8.2
Aluminium	US$/t	2,891	2,372	2,473	Kt	1,368	1,431	1,451	5.7	5.2	5.0
Lithium	US$/t	1,470	3,813	3,579	Kt	2,264	2,693	3,173	4.9	16.1	17.0
Zinc	US$/t	3,506	3,100	2,985	Kt	1,220	1,386	1,497	4.5	4.7	4.6
Nickel	US$/t	23,594	22,415	20,688	Kt	157	176	188	4.4	5.1	4.6
Uranium	US$/lb	45	54	59	t	4,933	5,697	5,855	0.6	0.8	0.9

Notes: **a** Export data covers both crude oil and condensate; **f** forecast. **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 (2022) 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 (2022)

Macroeconomic Outlook

Global GDP and economic change in 2021

Country	China	US	EU	India	ASEAN	Japan	S Korea	Taiwan	**Australia**
Per cent share of global GDP	19	16	15	7	6	4	2	1	1
Change	▲ 8.1%	▲ 5.7%	▲ 6.0%	▲ 8.7%	▲ 3.4%	▲ 1.7%	▲ 4.1%	▲ 6.3%	▲ **4.9%**

Global overview

- In 2021, global economic activity ***increased by 6.0%.***
- Growth is expected to ***slow to 3.2% in 2022*** and ***2.7% in 2023.***
- Spiralling energy costs and problems with ***COVID-19 outbreaks and containment measures*** (particularly in China) are weighing heavily on global growth.

Global risks

There are significant downside risks to the global outlook for 2023.

- Heightened levels of global economic uncertainty triggered by the fallout from **Russia's invasion of Ukraine** are set to continue into 2023.
- The **most rapid synchronised global tightening of monetary policy** seen in decades triggered by **record inflation** in many countries, is weighing heavily on markets.

2.1 Summary

- The world macroeconomic environment has weakened further over the latter half of 2022, as headwinds from war, inflation and COVID-19 outbreaks continued to weigh on global economic growth.
- Tighter fiscal and monetary conditions in most major economies — due to strong and persistent inflation, driven by higher energy and food prices — are increasing pessimism about global growth prospects for 2023.
- In October 2022, the IMF forecast the world economy to grow by 3.2% in 2022 and 2.7% in 2023, down from 6.0% in 2021. The 2023 forecast represented a downward revision of 0.2 percentage points from the previous forecast (published in July 2022).

2.2 World economic outlook

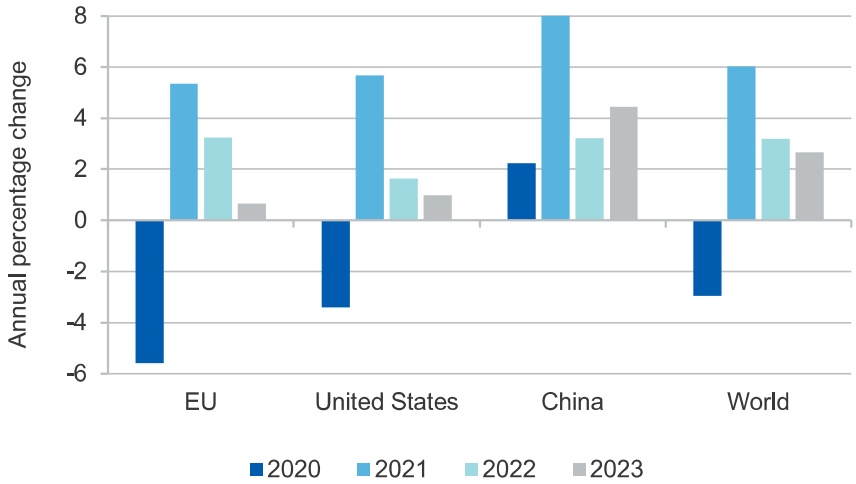
Global outlook for 2023 weakens as growth momentum slows

The International Monetary Fund (IMF) forecasts the world economy to grow by 2.7% in 2023, after growth of 3.2% in 2022 (Figure 2.1). This represents a downward revision of 0.2 percentage points in 2023 from the July 2022 World Economic Outlook (and an unchanged forecast for 2022). The lower forecast growth for 2023 was broadly based, with downward revisions to forecast growth for most advanced nations.

The heightened levels of global economic uncertainty triggered by the fallout from Russia's invasion of Ukraine are set to continue into 2023. The energy crisis in Europe continues to burden businesses and households, and is putting heavy pressure on government finances. Record inflation in many economies has resulted in the most rapid, synchronised global tightening of monetary policy seen in decades. Policymakers are focussed on ensuring the current high rates of inflation do not become entrenched in wage and price expectations of households and businesses. However, the policy challenges are rising as global growth continues to slow.

Additional challenges are posed by the lingering effects from the pandemic, including supply chain problems, concerns about the impact of COVID-related disruptions on Chinese growth as authorities seek a pathway out of zero-COVID and China's weak property sector. In view of these headwinds, the IMF states that there is a significant downside risk that global growth could fall below 2% in 2023, noting that "for many people 2023 will feel like a recession."[1]

Figure 2.1: GDP growth forecasts



Source: IMF (2022)

Forecasts in the November 2022 OECD Economic Outlook point to an even sharper loss of momentum, with world GDP growth forecast to slow to 2.2% in 2023 (down from 3.2% previously). High energy prices are proving a significant drag on growth, with OECD nations spending almost 18% of GDP on electricity, natural gas, oil and coal in 2022, up from about 10% in 2021.

[1] *IMF WEO* — October 2022.

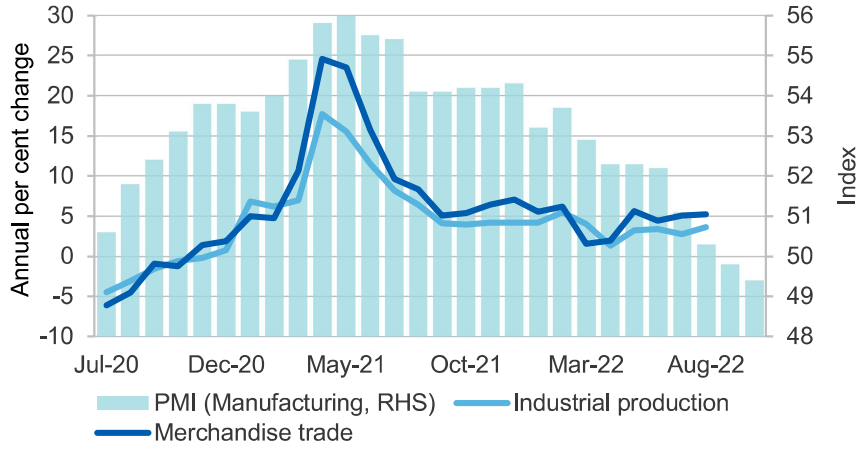
However, labour markets in many economies remain resilient, with near full employment conditions persisting in a number of nations, including, crucially, the US. This has been critical for households facing pressures from higher prices while servicing historically high debts.

Another positive sign has been the steady easing in supply chain pressures in recent months. While this points to further relief in global price pressures in coming months, it is also a reflection of weaker global consumer demand flowing through into a slowdown in new orders as volumes of shipped goods decline.

Global industrial production stabilises but forward orders stall

Growth in global industrial production and trade has levelled out after the strong recovery in the first half of 2021. Growth dipped in March/April 2022, due to COVID-related shutdowns in China. Global industrial output grew by 3.6% year-on-year in August 2022 (Figure 2.2).

Figure 2.2: World industrial production, trade and PMI



Notes: PMI data is to October 2022; IP and trade data only available to August 2022.
Source: IHS Markit (2022); CPB Netherlands Bureau for Economic Policy Analysis (2022)

Global merchandise trade remained steady to be up 5.3% year-on-year in August 2022, up slightly from 5.1% in July 2022.

However, forward indicators of manufacturing activity have continued to weaken. The global manufacturing Purchasing Managers Index (PMI) has declined steadily since the start of the year, driven by falls in the US, Eurozone and China. The PMI slipped into negative territory (signalling contraction) in September 2022 (49.8) and deteriorated further in October 2022 (49.4). Results for individual countries are discussed below.

The outlook for Australia's major trading partners remains weak, with GDP growth in 2022 and 2023 forecast by the RBA to be around 3.5%, a full percentage point below its pre-pandemic decade average of 4.5%.[2]

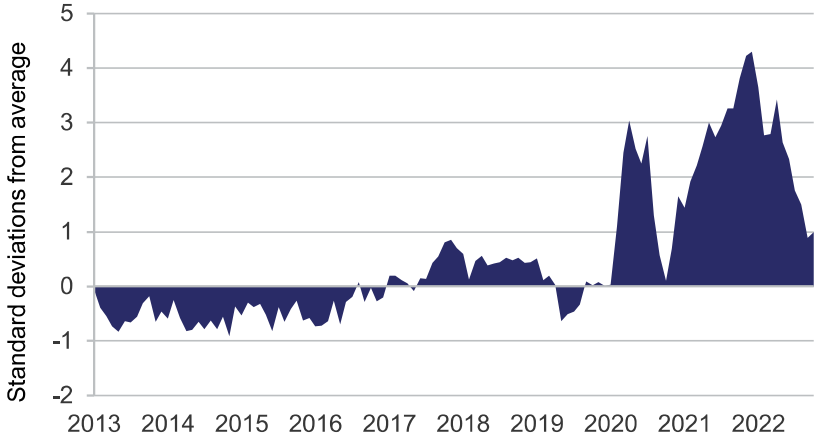
Supply chain pressures fall as global consumption slows

Global supply chain pressures continue to fall. The Global Supply Chain Pressure Index — a composite measure of cross-border transportation costs, delivery times, and order backlogs — increased slightly in October 2022, but remained more than 75% below the December 2021 peak (Figure 2.3).

Global freight cost reductions have accelerated since August 2022, with the average price for a 40-foot shipping container (Drewry's composite World Container Index) falling to around US$2,770 in November 2022, down almost three-quarters from a peak of US$10,400 in late 2021. While this indicates that prices are returning to historic levels, container rates have yet to reach pre-pandemic rates, which averaged around US$1,400 a container in 2019. These falls signal a decline in demand for containers in recent months with reports of container depots — used to house containers after they are unloaded — either filling up or full. This, along with reports of increasing cancellations of sailings by shipping companies, confirms weaker global consumption demand is leading to lower demand for freight and cargo.

[2] *RBA Statement on Monetary Policy* — November 2022.

Figure 2.3: Global supply chain pressure index



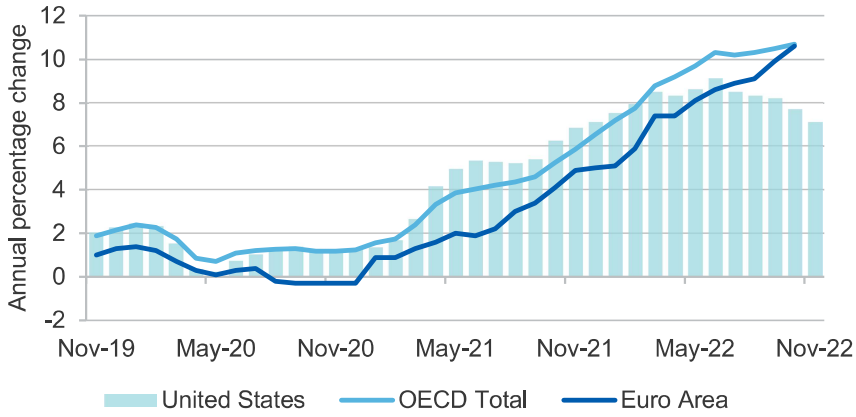
Source: Bloomberg (2022); New York Federal Reserve (2022)

Headline inflation likely peaked in some markets, rising in others

With inflation rates remaining well above central bank targets in most economies, reining in inflation continues to be the major concern for most policy makers. In October 2022, the IMF revised up its forecast of global inflation for 2022 to 7.2% in advanced economies and 9.9% in emerging market and developing economies — upward revisions of 0.6 and 0.4 of a percentage point, respectively.

However, reductions in energy prices, and the easing in lingering supply-demand imbalances and supply chain bottlenecks, suggest headline inflation may have peaked in some economies. US CPI, for example, fell to 7.1% in November 2022, down from 7.7% in October 2022, the fifth monthly fall since the peak of 9.1% in June 2022 (Figure 2.4). US core inflation — which excludes food and energy — also fell to 6.0%, down from 6.3% in October 2022. High-frequency forward looking indicators such as apartment rents indicate housing costs, a major component on US CPI, recorded their slowest year-on-year growth in 18 months in October, with month-on-month falls in many cities.

Figure 2.4: Consumer Price Indices — US, Europe and OECD



Source: Bloomberg (2022); Board of Governors of the Federal Reserve System (2022); U.S. Bureau of Economic Analysis (2022); OECD (2022)

By contrast, Euro Area inflation has continued to rise, reaching 10.6% in October 2022 — the highest since the start of the monetary union — and UK inflation hit 11.1% in October 2022. The energy crisis saw Eurozone industrial producer prices rise by 41.9% year-on-year in September 2022. For the OECD as a whole, September 2022 inflation was 10.5%.

In contrast to easing goods inflation in many economies, services inflation — particularly discretionary services like air travel and recreation — has increased in many economies.[3]

Monetary policy tightening by central banks has accelerated in recent months. The US Federal Reserve lifted rates at its November meeting, the sixth time this year, for a cumulative increase in its benchmark overnight interest rate of 375 points. The European Central Bank raised its key policy rates by a cumulative 150 basis points at its September and October 2022 meetings, following a 50 basis points increase in July. Most central banks have signalled further tightening will be required, and market expectations are that rates will peak around mid-2023.

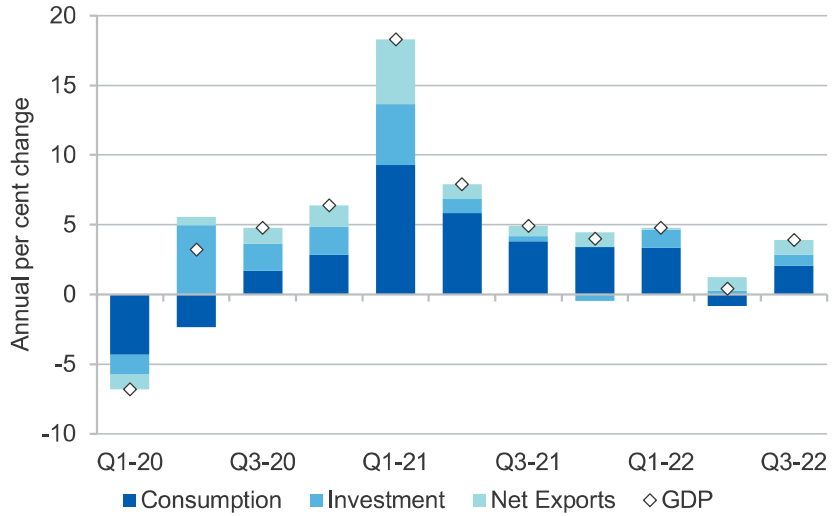
[3] RBA *Statement on Monetary Policy — November 2022*.

2.3 Major trading partners' economic outlook

Chinese GDP recovers in September quarter

China's economy grew by 3.9% year-on-year in the September quarter 2022 (Figure 2.5). This was a substantial turnaround from the COVID-affected June quarter result, which saw GDP rise by only 0.4% year-on-year and fall by 2.7% quarter-on-quarter. The stronger September quarter result exceeded market forecasts; it reflected a turnaround in consumption which added to positive contributions from investment and net exports.

Figure 2.5: China contributions to quarterly real GDP



Notes: Consumption is made up of both household and government sectors.
Source: Bloomberg (2022); National Bureau of Statistics of China (2022)

China's property sector weakness continues to weigh on economic growth, with lower consumption and investment in real estate. Household and business sentiment remains subdued, and property demand continues to fall. In the year to October 2022, the value of sales of residential buildings was down 23%, with new house prices falling for the 6th consecutive month in October (year-on-year). In volume terms (measured in square metres of floor space) newly-started residential property was down 39% in the year to October, and residential building sales were down 26%.

Continued weakness in property-related lending saw the People's Bank of China (PBoC) ease monetary policy in August by lowering its key policy rates by 10 basis points. In response, the 5-year Loan Prime Rate, the benchmark lending rate for most mortgages, fell by 15 basis points. The PBoC announced a 25bp cut in the Reserve Requirement Ratio, for the second time this year. While the cut provides some additional loanable funds to banks, of greater importance is the signal it gives to markets confirming policy easing.

The Chinese government is providing more fiscal support for the property sector, with more than RMB 5 trillion in special purpose bonds issued in 2022, the majority directed to infrastructure investment. This will be supported by RMB1.4 trillion in new lending for infrastructure projects from China's three major policy banks.

In November 2022, following the Communist Party Congress, the PBoC and the China Banking and Insurance Regulatory Commission (CBIRC) provided a 16-point plan to financial institutions to support the real estate sector by ensuring financially healthy developers are able to borrow. The plan reportedly included a mix of measures encouraging financial institutions to provide more flexibility to real estate companies on loan repayments, expanded access to finance and reducing down-payment and mortgage rates for homebuyers.

At the same time the National Health Commission released a 20-point plan to reduce the economic and social impacts of future COVID containment measures. New measures included cutting the quarantine period for close contacts and inbound travellers and no longer identifying secondary close contacts. Subsequent to the release of the plan authorities have continued to adjust policies to optimise the approach to containing COVID to minimise economic disruption and strengthen growth prospects for 2023.

Following the lockdown-induced plunge in China's Caixin General Manufacturing PMI in May, and subsequent recovery in June 2022, the

index has since weakened. The PMI was 49.4 in November 2022, a slight increase from October result, but the fourth consecutive deterioration in manufacturing sector conditions. China's industrial output increased by 5.0% year-on-year in October, down from of 6.3% in September. Manufacturer survey responses suggest the slowdown was linked to softer demand conditions, particularly in external markets. COVID-19 containment measures continue to be a key concern for Chinese companies, weighing on both output and demand.

Passenger vehicle production and sales continue to grow strongly, averaging over 2 million vehicles produced a month since June, reaching 2.4 million vehicles produced in September. Vehicle sales have closely matched production. This pick up in vehicle production and sales is being supported by policy measures, including subsidies for the purchase of conventional and electric vehicles.

China's weakening economic outlook over the course of 2022 has seen downward revisions to forecast growth by a range of analysts and market commentators, including the RBA and Treasury. In October, the IMF forecast Chinese GDP growth of 3.2% in 2022, a downward revision of 0.1 percentage points, following the 1.1 percentage point downgrade in July. The IMF also downgraded China's GDP growth for 2023 by 0.2 percentage points to 4.4%.

Japan's GDP stalls as yen weakness drives input costs

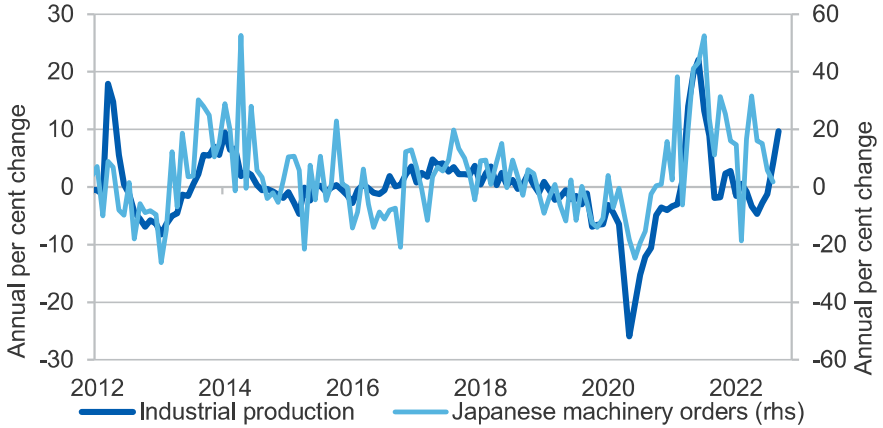
Contrary to market expectations, Japan's GDP fell by 0.2% in the September quarter 2022, but was 1.5% higher year-on-year. Weighing on growth were net exports — due to surging imports — and housing investment declines, as construction costs continued to rise.

Downside risks for the Japanese economy remain, due to slowing growth in Japan's major trading partners and higher inflation. Japan's core inflation — which excludes fresh food but includes fuel costs — was 3.6% in October 2022, exceeding the Bank of Japan (BoJ) inflation target of 2.0% for the seventh month in a row.

Inflationary pressures are being driven by higher raw material costs, particularly for imported materials in the context of a weak Yen. The Yen has lost almost 30% of its value since the start of the year, reaching 150 against the US dollar in October. The Yen weakness has been driven by the growing interest rate differential between Japan and its trading partners.

Rapid currency depreciation saw Japanese authorities intervene to support the Yen in September and October, the first intervention in over two decades. The BoJ continues to maintain its accommodative monetary policy. It continues to hold the 10-year Japanese government bond yield near zero, and in October it announced that it would carry out emergency bond-buying operations to rein in surging yields.

Figure 2.6: Japan industrial production and machinery orders



Notes: IP data are to September 2022 and machinery orders data are to August 2022.
Source: Bloomberg (2022)

Japan's industrial output increased by 9.6% year-on-year in September 2022. This was largely driven by base effects, due to lower output in September 2021 resulting from COVID related disruptions. In month-on-month seasonally adjusted terms industrial production fell in September. Machinery orders have also weakened, with orders up only 1.8% year-on-year in August 2022, down from 32% growth in April (Figure 2.6).

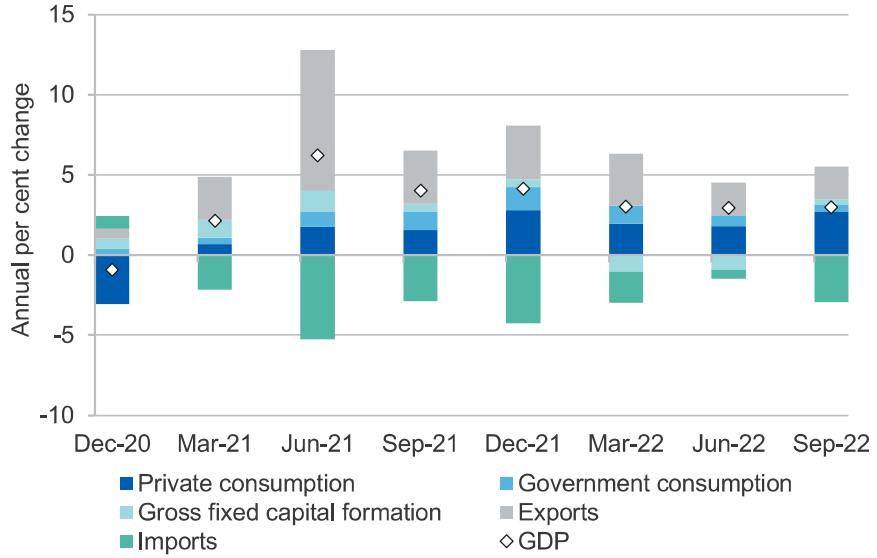
The Jibun Bank Japanese Manufacturing PMI was 50.7 in October 2022, down slightly from September's result of 50.8. While this represented the 21st consecutive month of positive (above 50) readings, the index has been falling steadily over the past year. Contributing to the weakness was falling international demand for Japanese manufacturers, with October marking the eighth consecutive monthly fall in new export orders.

Looking ahead, the IMF October 2022 forecasts were for Japanese economic growth of 1.6% in 2023 (after 1.7% in 2022), a downward revision of 0.1 percentage points for 2023 from the July 2022 forecast.

South Korea's economy slows in September quarter

South Korea's GDP increased by 3.1% year-on-year in the September quarter 2022. A recovery in consumer spending was the major driver of growth, while a surge in imports weighed on growth in the quarter (Figure 2.7).

Figure 2.7: South Korea contributions to quarterly real GDP



Source: Bloomberg (2022)

South Korea's industrial production growth slowed sharply to 0.8% year-on-year in September 2022: down from 1.5% in August and well down from the 7.5% growth in May. South Korea's manufacturing PMI improved slightly in October, but remained in contraction territory for the fourth consecutive month, with a reading of 48.2, up from 47.3 in September. The negative October result was due to falls in both output and new orders, with respondents citing subdued global economic demand and inflationary pressures.

South Korean inflation increased at 5.0% year-on-year in November 2022, down from 5.7% in October and well below the peak of 6.3% in July. High inflation prompted the Bank of Korea to raise its benchmark interest rate by an additional 25 basis points to 3.25% in November, an increase of 2.75 percentage points since August 2021. Given current debt levels, managing tighter monetary conditions while maintaining economic growth presents a key challenge to South Korea over the outlook period.

In October 2022, the IMF lowered its forecast of South Korean economic growth to 2.0% in 2023 (down from 2.6% in 2022), a minor downward revision of 0.1 percentage points.

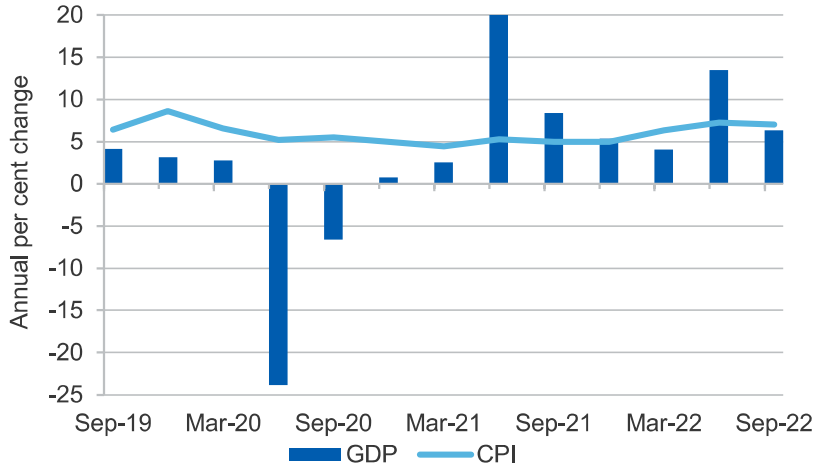
India's manufacturing and mining output falls

India's GDP growth slowed to 6.3% year-on-year in the September quarter 2022, down from 13.5% in the June quarter (Figure 2.8). The growth was slightly above market expectations (6.2%) and was supported by growth in services, public administration, construction and real estate. Falls in manufacturing and mining weighed on growth.

India's manufacturing PMI strengthened in November 2022, to 55.7 from 55.3 in October, the strongest improvement in 3 months. The healthy result was accompanied by increases in employment and the second-strongest growth in new export orders since May 2022. Price pressures faced by manufacturers were subdued, with the November 2022 result the joint-weakest in more than two years. India's retail price inflation eased to 6.8% in October due to slower growth in food prices, but remained above the Central Bank's target range (2–6%).

The IMF forecasts Indian economic growth to slow to 6.1% in 2023, down from 6.8% in 2022. The forecast for 2022 — a downward revision of 0.6 percentage points from the July estimate — reflects softer external demand (due to slower global growth).

Figure 2.8: India quarterly GDP and CPI



Source: Bloomberg (2022)

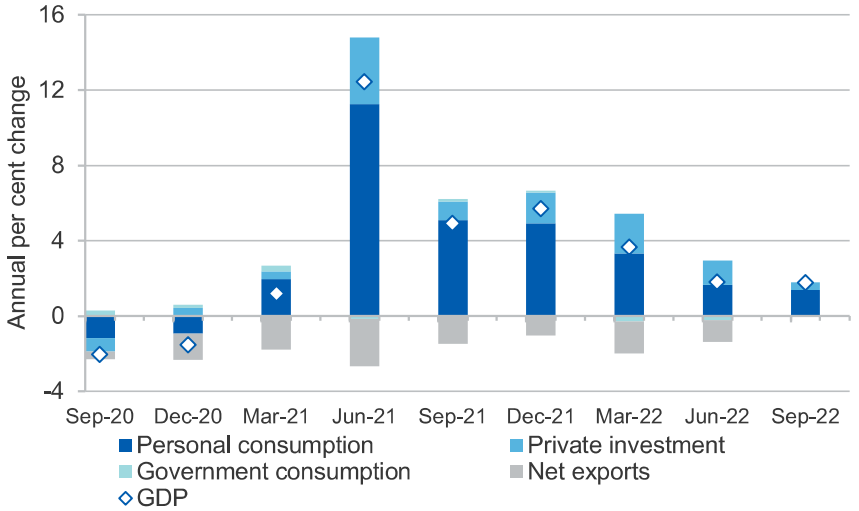
US consumption spending continues to slow

In year-on-year terms, the US economy grew by 1.9% in the September quarter 2022. This growth was driven primarily by personal consumption, with the weakest contribution from private investment in two years. Faster growth in US exports, combined with slower growth in imports, meant that net exports did not detract from overall GDP growth (q/q) for the first time in over two years (Figure 2.9). In quarter-on-quarter terms, US GDP increased 0.6% in the September quarter 2022, a welcome return to growth following the falls in the March and June quarters.

The US labour market remains tight, with nonfarm payroll employment rising by 261,000 in October 2022. Monthly job growth has averaged 407,000 in 2022. While unemployment increased to 3.7% in October from 3.5% in September, it remains close to 50-year lows. Despite downwards revisions in recent months, US corporate profits remain at the highest levels in decades.

Growth in personal consumption spending — which has driven GDP growth over the past year — also slowed to 2.1% year-on-year in the September quarter 2022. This was down from 4.8% in the March quarter, and well below the high growth rates achieved in 2021. The slowdown was particularly evident for goods purchases. While rapid price increases over the past year have seen total nominal spending on goods continue to rise, the volume of goods purchased by US consumers has fallen, with inflation-adjusted spending on goods falling 0.4% year-on-year in September 2022. US housing demand has also weakened, with home sales around 20–30% lower than at the start of the year.

Figure 2.9: US contributions to quarterly real GDP



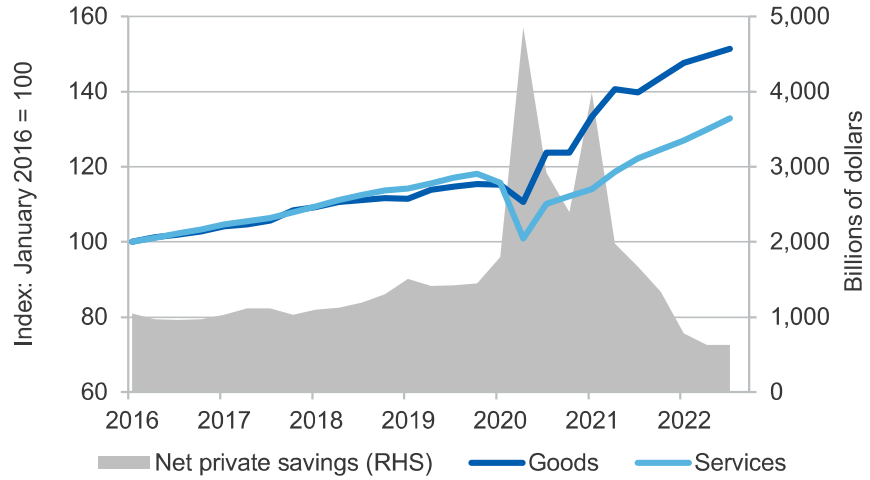
Source: Bloomberg (2022)

The US net private saving rate has fallen sharply from the record rates achieved during the pandemic. Revised US Bureau of Economic Analysis data indicate the saving rate has fallen substantially over 2022, dropping to just over US$600 million per year in the June and September quarters

(Figure 2.10). This is the lowest savings rate since the declines during the global financial crisis in 2009.

Researchers at the US Federal Reserve estimate that US households accumulated about $2.3 trillion in excess savings in 2020 and 2021. Drawdowns since then are estimated to have reduced the savings stock by around one-quarter (as at June 2022). Households across the income distribution are estimated to continue to hold a buffer of excess savings, which could help them navigate higher prices and the tightening cycle. However, around four-fifths of total excess savings are estimated to be held by households in the top half of the income distribution.[4]

Figure 2.10: US personal consumption and net private savings



Notes: Personal Consumption Expenditures; seasonally adjusted data; January 2016 =100; Net Private Savings: seasonally adjusted annual rate (quarterly data).

Source: FRED Economic Data (2022)

US industrial production grew by 3.3% year-on-year in October 2022, down from 5.0% in September. However, the US Manufacturing PMI for November 2022 dropped into contractionary territory, the first contraction since June 2020. The decline was driven by falls in output and new orders. Manufacturing output increased for the second consecutive month, reportedly due to easing supply bottlenecks contributing to the subdued conditions, which reflected weaker demand, as new orders fell for the third month in a row. However new orders fell at the fastest rate since mid-2020 signalling subdued demand conditions. The survey found prices paid by manufacturers continued to increase in October 2022 due to higher material and transportation costs, however this was the slowest increase in input costs since late 2020.

As noted earlier, the US Federal Reserve lifted rates in its November 2022 meeting, the sixth time this year, taking the cumulative rise in its benchmark overnight interest rate to 375 basis points. In a policy statement after the October 2022 increase the Fed stated that in determining the pace of future increases it would take into account the 'cumulative' impact of rate rises and the need to consider lags in activity. With US inflation still near 40-year highs, curbing price pressures remains a critical priority for the Federal Reserve. In August, the Government also passed the Inflation Reduction Act, which includes a range of measures designed to provide relief to households from rising prices and promote energy transition (see *Resources and Energy Quarterly* September 2022)

In October 2022, the IMF downgraded its forecast for US economic growth for 2022 by 0.7 percentage points to 1.6%, with growth of only 1.0% forecast for 2023. This builds on the major downward revisions in July 2022 following the negative March and June quarter 2022 GDP results, due to weakening momentum in private consumption, as household purchasing power is eroded and monetary tightening continues.

Eurozone economies resilient in 2022, but face bleak 2023

Following the surprisingly robust Eurozone GDP growth in the June quarter, growth weakened in the September quarter 2022, up only 0.3 per cent year-on year. (Figure 2.11).

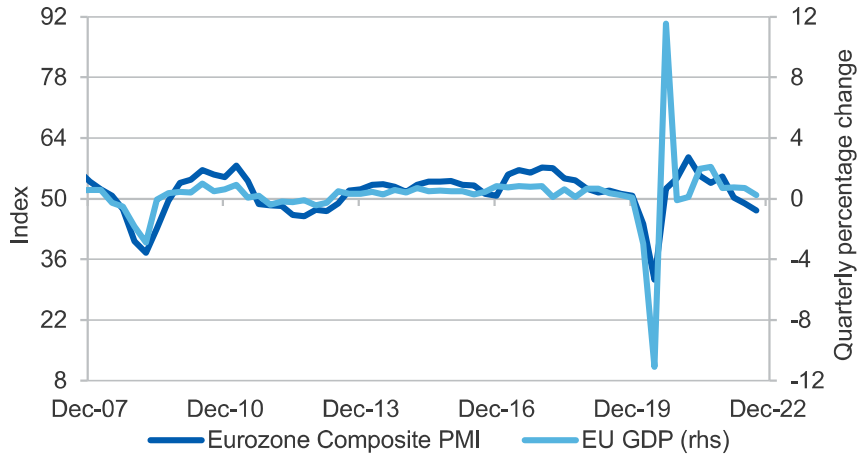
German GDP expanded 1.3% year-on-year in the September quarter 2022, down from 1.6% in the June quarter, as manufacturers continued to

[4] The Federal Reserve, *Excess Savings during the COVID-19 Pandemic,* October 2022.

struggle due to their exposure to high gas prices. The loss of competitiveness of German manufacturers is resulting in industrial closures and restructuring, and the IMF is now forecasting negative annual growth for Germany in 2023.

In response to the energy crisis, governments in the European Union and the United Kingdom announced substantial fiscal support packages in September 2022 which are the equivalent of 3.5-4.5% of GDP. These measures include caps on prices paid by households and businesses for electricity and gas as well as support for vulnerable groups. The EU will fund these measures through a combination of debt and new taxes on profits of non-gas electricity generators.

Figure 2.11: Eurozone GDP and Composite PMI (quarterly)



Source: Bloomberg (2022)

Industrial production in the Euro Area increased by 4.9% year-on-year in September 2022, up from 2.8% growth in August. This was higher than expected, and was due largely to strong growth in the output of capital goods and non-durable consumer goods. Some economic commentators believe that the stronger growth in September may be partly due to manufacturers bringing forward some production ahead of expected winter energy-related disruptions.

Leading indicators point to a weak 2023. In November 2022, the Eurozone Composite PMI Index recorded its fifth successive negative (below 50) result at 47.8, up from 47.3 in September. This reflected falls in manufacturing production and services output due to weaker customer demand and challenging global economic conditions.

In October 2022, the Eurozone manufacturing PMI recorded its sharpest monthly fall since the COVID recession in 2022. Declines in output and new orders were among the steepest on record as export demand plunged due to uncertainty, inflation and weaker global economic conditions.

As noted earlier, the European Central Bank (ECB) has raised interest rates in recent months, in response to record inflation. In October, the ECB stated that it expects inflation will stay above its target for an extended period, but it would be unhelpful to provide forward guidance — with further changes to interest rates to be decided on a "meeting-by-meeting approach."

Ongoing flow-on impacts from the Russian invasion of Ukraine continue to present the largest risk to Europe's outlook. Soaring energy prices, weaker consumer confidence — both domestically and in export markets — and slower momentum in manufacturing, are expected to drag the Eurozone and most European economies into recession in 2023 (European Commission).

In October, the IMF lifted its forecast of European growth in 2022 by 0.5 percentage points to 1.2%. This reflected stronger-than-expected growth in the June quarter, driven by tourism-dependent economies including France, Italy and Spain — which are benefiting from the gradual recovery in the sector following the easing of pandemic restrictions. However, the IMF more than halved its growth forecast for 2023, from 1.2% to 0.5%. This reflects flow-on effects from the Russian invasion of Ukraine — particularly in economies most exposed to cuts in Russian gas supply, including Germany — as well as tighter financial conditions as the ECB continues to raise policy rates.

Table 2.1: Key IMF GDP assumptions

	2021	2022[a]	2023[a]
Economic growth[b]			
Advanced economies	**5.2**	**2.4**	**1.1**
Australia	4.9	3.8	1.9
Euro area	5.2	3.1	0.5
France	6.8	2.5	0.7
Germany	2.6	1.5	-0.3
Japan	1.7	1.7	1.6
New Zealand	5.6	2.3	1.9
South Korea	4.1	2.6	2.0
United Kingdom	7.4	3.6	0.3
United States	5.7	1.6	1.0
Emerging economies	**6.6**	**3.7**	**3.7**
ASEAN-5[d]	3.4	5.3	4.9
China [e]	8.1	3.2	4.4
India	8.7	6.8	6.1
Latin America	6.9	3.5	1.7
Middle East	2.8	2.8	2.8
World [c]	**6.0**	**3.2**	**2.7**

Notes: a Assumption. b Year-on-year change. India projections are based on fiscal years, starting in April; **c** Calculated by the IMF using purchasing power parity (PPP) weights for nominal country gross domestic product. d Indonesia, Malaysia, Philippines, Thailand and Vietnam. e Excludes Hong Kong.
Sources: IMF (2022) World Economic Outlook; Bloomberg (2022).

Table 2.2: Exchange rate and inflation assumptions

	2021	2022[a]	2023[a]
AUD/USD exchange rate	0.75	0.70	0.69
Inflation rate[b]			
United States	4.7	8.1	3.5
	2020–21	**2021–22[a]**	**2022–23[a]**
Australia	4.4	7.1	4.7

Notes: a Assumption; **b** Average.
Sources: ABS (2022) Consumer Price Index, 6401.0; Bloomberg (2022); Department of Industry, Science and Resources; RBA (2022); IMF (2022).