Gold
Resources and Energy Quarterly March 2018

288 tonnes
of gold produced by Australia in 2016–17

8.9%
of world mine gold supplied by Australia in 2016–17

world record find
Australia holds the record for the world’s largest gold nugget weighing 72 kg, found in Victoria in 1869

Major Australian gold deposits (t)
- <20
- 21–70
- 71–185
- 186–473
- 474–1,027
- >1,028

Map of Australia showing major gold deposits:
- Deposit
- Operating mine

Key jewellery consumer markets (tonnes)
- Turkey
- Iran
- UAE
- United States
- China
- India

Global uses of gold
- 47% Jewellery
- 24% Gold coins and bars
- 12% Gold backed Exchange Traded Funds
- 8.7% Central Bank Reserves
- 7.1% Electronics and Industrial
- 0.4% Dental and medical
10.1 Market summary

- Gold prices are projected to rise gradually over the next five years, as gold’s status as a safe haven asset fuels investor demand over the short term and world mine supply declines from 2020.
- Having averaged US$1,257 an ounce in 2017, the gold price is expected to increase by 4.8 per cent annually to reach an average of US$1,350 an ounce in 2019. Gold prices are forecast to decline in 2020, driven by lower investor demand, and then rise consecutively each year to average near US$1,300 an ounce in 2023.
- The value of Australia’s gold exports is forecast to peak in 2019–20 at near $19 billion, driven by higher prices and export volumes. Export values are projected to decline to $15 billion (in 2017–18 dollar terms) by 2022–23.
- Australian producers benefited from a historically high Australian dollar gold price in 2017. Australian dollar gold prices are expected to remain steady over the outlook period, as higher world prices offset unfavourable moves in the exchange rate.

10.2 Prices

Gold prices remained steady in 2017

The London Bullion Market Association (LBMA) gold price averaged US$1,257 an ounce in 2017, virtually unchanged from 2016. The gold price was steady as the headwind from higher interest rates was countered by persistent safe haven demand. In 2017, the US Federal Reserve increased interest rates three times and commenced reducing its balance sheet by selling US Treasuries and mortgage-backed securities. Both actions supported higher US Treasury bond yields (a common investment alternative to gold), which in turn kept pressure on gold prices. However, several events — including geo-political concerns over North Korea’s Nuclear Missile programme and political developments in the US — were supportive of gold as a safe haven asset.

Gold prices increased to average US$1,330 a troy ounce in the March quarter 2018, partly driven by a sharp selloff in US equities in February. However, the recent rise in 10 year US Treasury bond yields to near 3 per cent prevented any dramatic rise in gold — which does not offer investors any interest.

Figure 10.1: Gold prices and key US economic variables


Prices to rise in the short term

Gold prices are forecast to rise in the short term due to higher investor demand for gold as a safe haven asset. Gold prices rose alongside rising US Treasury bond yields over the first quarter of 2018 departing from their usual inverse relationship, as Figure 10.2 shows. The simultaneous rise in gold prices and bond yields (which usually have an inverse relationship) is indicative of current financial risks that will likely encourage investors to purchase gold over the short term.
Any prolonged decline or unusual volatility in equities will likely support gold prices as a safe haven asset. While traditionally, rising bond yields pressure gold prices lower, this relationship is less clear than in the past, creating an upside for gold.

The US dollar is an important driver of gold prices, as Figure 10.3 shows. When the US dollar declines, gold (which is denominated in US dollars) becomes cheaper for non-US residents to purchase, leading to higher gold prices. Over most of 2017, the US dollar declined against several major currencies including the Euro and Japanese yen, supporting gold prices.

Gold prices are expected to benefit from a weaker US dollar relative to other major currencies over the short term. The US economy is at a relatively more mature stage in its business cycle compared to the EU. As such, there is more room for interest rates to rise in Europe compared to the US — adding downward pressure on the US dollar.

A key upside risk for gold prices in the short term is an economic slowdown in the US. A slowing economy in the US would likely prevent any further interest rate rises, which would further weaken the US dollar removing a key headwind to higher gold prices.

Higher prices over the medium term

Over the outlook period, gold prices are projected to rise to around US$1,300 (2018 dollars) in 2023. Gold prices will be supported by steady investor demand, increasing jewellery consumption and declining mine supply after 2020.

Real gold prices will likely be supported by a rising supply of bonds, driven by historically high debt levels in key economies. The increasing supply of bonds over much of the past 20 years, driven by rising US debt issuance has outpaced the supply of gold. As such, the value of gold has increased relative to US Treasury bonds, and this trend is expected to continue over the outlook. US debt is expected to rise over the outlook period strengthening the price premium of gold relative to bonds.
Over the medium term, nominal gold prices are expected to be supported by steady inflation in key markets — China, India, Europe and the US. Around 60 per cent of gold demand is consumed by jewellery and in industrial fabrication. As consumer prices rise, so too does the cost of jewellery and industrial inputs and this is largely why nominal gold prices tend to rise with inflation over time.

There is potential for volatility in gold prices

While gold prices are projected to rise slightly over the medium term, a range of factors could trigger temporary rallies in prices. These include prolonged price declines in financial markets, unexpected geo-political events, and poor economic data emanating from the US, China or Europe.

Risks to the downside include a rising US dollar and higher Treasury bond yields led by rising interest rates due to a stronger US economy.

### 10.3 Consumption

Global gold consumption is forecast to rise by 1.8 per cent annually over the forecast period, reaching over 4,380 tonnes in 2023. Higher gold consumption will be driven by rising jewellery purchases and greater use of gold in industrial fabrication. Investment demand is expected to pick up over the short term, but remain largely unchanged after 2020.

**Jewellery consumption rises in 2017**

Gold jewellery consumption increased by 4.0 per cent in 2017 — led by improved sales in India. In 2017, several auspicious festivals boosted Indian gold sales, which more than offset the dampening impact of the demonetisation of large currency notes and the introduction of a Goods and Services Tax (GST) in July — which hurt gold sales.

Gold jewellery sales rose in China in 2017, ending 4 years of consecutive decline. Chinese consumers continue to demand more fashionable designed jewellery while demand for pure gold pieces has been subdued.

**Figure 10.5: Outlook for gold consumption by sector**

Jewellery consumption expected to rise in the short to medium term

Gold jewellery consumption is projected to rise over the next five years, driven by rising incomes in India and China — the world’s two major jewellery markets. Higher incomes in these key markets will support higher discretionary spending on gold over the outlook period. In China, the shift towards more fashionable (non-pure gold) pieces and expansion into e-commerce should boost sales among young consumers and in 3rd and 4th tier cities.

Indian consumers are particularly sensitive to price, as well as other factors that adversely impact on affordability, such as falling rural incomes, which contributed to declining gold sales in 2016.

Industrial consumption is expected to rise over the outlook

Gold used in electronics rose by 2.9 per cent in 2017 — the second consecutive year of growth. Going forward higher industrial consumption will be underpinned by growth in demand for gold bonding wire used in memory chips, particularly for producing smartphones. Increased industrial consumption will also be driven by the use of gold in the production of sensor technology and LED lighting in the automotive industry. Gold consumption in industrial applications is forecast to increase by 1.0 per cent annually over the outlook period, from 329 tonnes in 2017 to 353 tonnes in 2023.

ETF holdings to rise in the short term and hold steady in the long term

Investors increased Exchange Traded Funds (ETF) holdings by 200 tonnes in 2017, representing a decline of 63 per cent year-on-year, due to an exceptional 2016 which included Brexit and unexpected developments in US politics.

Over the forecast period investment in gold — including gold bars, coins and bullion-backed Exchange Traded Funds (ETF) — is forecast to increase by 0.4 per cent annually, from 1,232 tonnes in 2017 to 1,263 tonnes in 2023. Most of the rise is expected to occur in the short term, with total investment projected to plateau from 2020 onwards.

Central bank purchases expected to taper over the outlook

Central bank buying decreased by 4.7 per cent year-on-year in 2017. The majority of central bank purchases over the past several years have been facilitated through rising local mine production. Two of the world’s largest producers — China and Russia — have retained much of their recent mined gold production in state reserves over the past several years, and neither are expected to sell any of their gold reserves over the outlook.

In 2017 — the world’s largest central bank purchases were made by Russia, Turkey and Kazakhstan — all of whom had rising domestic mine supply. Central bank purchases are forecast to taper off over the outlook period, declining to 200 tonnes in 2023. The largest purchases over the outlook are expected to come from Russia, where rising mine supply is expected to peak in 2019. Russian official purchases are expected to taper off from 2020, reducing total central bank demand.

10.4 Production

Total world gold supply is forecast to reach a peak of 4,630 tonnes in 2019, and then steadily decline to 4,460 tonnes in 2023. In the short term, increasing total gold supply will be propelled by higher mine production, with scrap production forecast to be steady over the outlook period. From 2020, world gold supply is forecast to decline, due to a lack of new gold mining projects in the investment pipeline.

World mine production was steady in 2017, rising just 0.2 per cent to 3,270 tonnes. Output benefited from new mines, which more than offset declines at established mines and lower production in China, which fell by 40 tonnes year-on-year in 2017. China — the world’s largest gold producer — closed several mines in 2017 for breaching environmental standards. China’s efforts to reduce the discharge of cyanide tailings from gold mining operations will weigh on production over the short term. Production in the United States and Canada increased by 21 and 13 tonnes in 2017, respectively, with both nations benefiting from new mine supply.
Mine production expected to rise in the short term
World mine production is forecast to reach a peak of over 3,370 tonnes in 2019. Several new projects and expansions in Russia and Canada are expected to support higher mine supply, more than offsetting declining supply from the United States and Peru. Production in Canada is forecast to rise over the short term, increasing by 21 and 11 tonnes year-on-year in 2018 and 2019, respectively. In contrast, gold production in the United States reached a ten year high in 2017 of 246 tonnes, and is forecast to decline over the short and medium term, as long established mines reach the end of their production life. Russia’s Natalka project is expected to reach full capacity in 2018 and produce 15 tonnes per year.

Mine production set to decline over the medium term
World mine production is projected to decline after the peak in 2019, as long established projects reach life end and few new projects and expansions take their place. World mine production is projected to fall from 3,360 tonnes in 2020 to 3,040 tonnes in 2023. Declining world mine production is expected across most countries, and will be particularly evident in Australia, Russia and Mexico — which together will account for over 200 tonnes of decline between 2020 and 2023.

Recycled supply falls in 2017, but is expected to rise in the short term
World recycled supply — gold that is reclaimed from jewellery, industrial use and electronics — declined by 10 per cent in 2017, to 1,160 tonnes — falling from exceptionally high recycled output in 2016. Recycled gold supply is forecast to rise by 5.1 per cent year-on-year to 1,220 tonnes in 2018, supported by higher gold prices. After 2018, recycled supply is projected to decline as gold prices slide in the second half of the outlook period.
10.5 Australia

Export values expected to peak in 2019–20

The value of Australia’s gold exports is forecast to set a record peak near $19 billion in 2019–20, driven by higher prices and export volumes. Export volumes are forecast to peak in the same year, rising by 2.0 per cent annually to reach 354 tonnes. Rising export volumes will be supported by higher local mine production in Western Australia and the Northern Territory. Export volumes will also be driven in the short term by imports of gold doré for refining, as production ramps up at the Ok Tedi mine in Papua New Guinea.

Export values and volumes are projected to decline after 2019–20, falling by 4.6 per cent annually to 308 tonnes worth over $15 billion in 2022–23. The steady decline will be driven by lower domestic production (discussed below) and lower imported gold doré, as production in Papua New Guinea is expected to decline from 2020 onwards.

**Figure 10.8: Australia’s gold exports**

The Australian gold price averaged A$1,754 a troy ounce in 2016–17, its highest level since the recent historical peak in 2011–12. The Australian gold price was supported by higher US dollar gold prices and a low AUD-USD exchange rate.

Over the short and medium term, the Australian gold price is projected to decline to an average of A$1,557 an ounce in 2022–23. The Australian dollar gold price will be weighed down by lower world gold prices, with the AUD/USD exchange rate assumed to remain around A$0.80 over the outlook.

**Australian gold mine production set to peak in 2019–20**

Australian gold mine production is forecast to increase by 3.8 per cent annually over the next three years, to reach a peak of 322 tonnes in 2019-20. Higher production will be driven by several new projects, including Gold Roads’ Gruyere project in Western Australia, and Regis Resources’ McPhillamys in New South Wales. Gruyere is expected to produce 8.4 tonnes annually commencing in the March quarter of 2019. McPhillamys is expected to produce 6.0 tonnes annually from the December quarter 2019 onwards. Other new mines include Capricorn’s Karlawinda in Western Australia and OZ Mineral’s Carrapateena, which are expected to produce around 3 tonnes annually from 2019 onwards.

**Lower production in the medium term**

After reaching a peak in 2019–20, Australian mine production is projected to decline by 5.6 per cent annually to 271 tonnes in 2022–23. Production will be weighed down by several mine closures and declining ore grades, as mature assets approach their end of life. Declining production will be partly offset by several new mines that are expected to come online in the second half of the outlook period, including Vista Gold’s Mount Todd in the Northern Territory. Set to commence in late 2020, Mount Todd is expected to become Australia’s fourth largest gold mine, producing around 15 tonnes of gold annually.
Exploration expenditure continues to increase

Australia’s gold exploration expenditure increased by 21 per cent in 2017 to $750 million — accounting for 44 per cent of Australia’s total minerals exploration expenditure during the year. Gold exploration expenditure was driven by high gold prices of recent years. Western Australia remains the centre of gold exploration activity in Australia, accounting for $550 million of exploration expenditure. Expenditure increased in most States, reaching $58 million in Queensland and $45 million in Victoria — the highest level since 2010.

Figure 10.11: Australian exploration expenditure

## Table 10.2: Gold outlook

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<th>Unit</th>
<th>2017</th>
<th>2018 f</th>
<th>2019 f</th>
<th>2020 z</th>
<th>2021 z</th>
<th>2022 z</th>
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<td>3,129</td>
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<td>Nominal</td>
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<td>1,351</td>
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Notes: b includes jewellery consumption and industrial applications; c London Bullion Market Association PM price; d in 2018 calendar year US dollars; e in 2017–18 financial year Australian dollars; f Forecast; s Estimate; z Projection; r Compound annual growth rate for the period from 2017 to 2023, or from 2016–17 to 2022–23.