GOLD FOCUS 2020

Gold Focus 2020

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Metals Focus
Gold Focus 2020

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Tables

Chapter 1

- The macro backdrop turned positive for gold in 2019 as the Fed cut interest rates. The COVID-19 crisis has further boosted gold's appeal to investors in 2020.

- Global supply rose by 2% in 2019 to 4,831t, due to a rise in recycling, which was partly offset by mine production easing from its 2018 all-time-high.

- Demand fell by 9%, mainly as a result of declines in physical investment and jewellery, with smaller losses elsewhere.

Executive Summary

Introduction

Just as it has for all other markets and asset classes, the COVID-19 crisis has had profound implications for gold. Specifically, the resulting sharp economic contraction and an uncertain outlook have encouraged investment in safe haven assets. The monetary and fiscal policy response seen around the world, unprecedented in both magnitude and structure, have also benefited gold, fuelling strong inflows of institutional money.

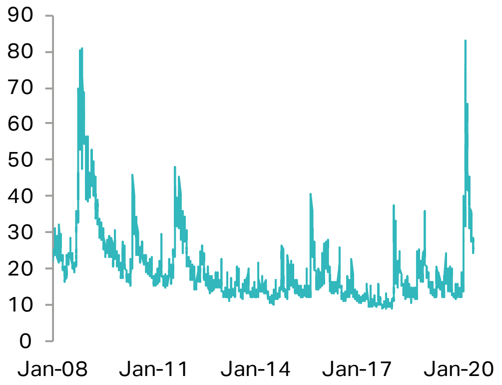
This environment builds on last year's developments, which saw the global macroeconomic backdrop at last turn positive for gold, after a several years of mainstream investor indifference. A change in US monetary policy was the catalyst for this turnaround. Partly in an effort to mitigate risks to growth from the US-China trade war, the Fed cut interest rates three times in the second half of 2019. That helped gold rally from the mid-$1,200s in early May to its September peak for the year of $1,557. More recently, in May of this year, gold topped $1,765 amid COVID-19 anxieties, its highest level since October 2012.

Gold Supply and Demand

											Year on Year	
Tonnes	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**	**2017**	**2018**	**2019**	**2020F**	**2019**	**2020F**
Supply												
Mine Production	2,893	2,976	3,138	3,242	3,336	3,460	3,494	3,561	3,534	3,359	-1%	-5%
Recycling	1,617	1,662	1,229	1,170	1,103	1,264	1,138	1,160	1,297	1,403	12%	8%
Net Hedging Supply	32	-	-	105	13	33	-	-	-	-	na	na
Total Supply	**4,542**	**4,638**	**4,366**	**4,517**	**4,453**	**4,756**	**4,632**	**4,721**	**4,831**	**4,762**	**2%**	**-1%**
Demand												
Jewellery Fabrication	2,196	2,213	2,766	2,544	2,479	2,019	2,257	2,285	2,137	1,596	-6%	-25%
Industrial Demand	387	365	350	348	332	323	333	335	326	291	-3%	-11%
Net Physical Investment	1,401	1,300	1,719	1,060	1,072	1,062	1,035	1,067	850	925	-20%	9%
Net Hedging Demand	-	47	25	-	-	-	24	9	1	10	-93%	1351%
Net Official Sector Buying	516	582	653	601	580	395	379	657	646	350	-2%	-46%
Total Demand	**4,499**	**4,508**	**5,512**	**4,554**	**4,463**	**3,798**	**4,028**	**4,352**	**3,959**	**3,171**	**-9%**	**-20%**
Market Balance	**44**	**130**	**-1,146**	**-37**	**-10**	**958**	**604**	**369**	**872**	**1,590**	**137%**	**82%**
Net Investment in ETPs	261	251	-882	-153	-129	541	271	75	404	900	438%	123%
Market Balance less ETPs	-217	-121	-265	116	119	417	332	294	469	690	59%	47%
Gold Price (US$/oz, London)	1,572	1,669	1,411	1,266	1,160	1,251	1,257	1,268	1,393	1,700	10%	22%

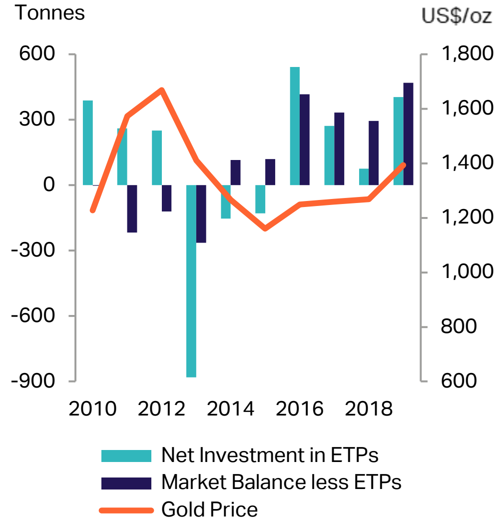
Source: Metals Focus

VIX Volatility Index



Source: Bloomberg

Market Balance



Source: Metals Focus, Bloomberg

The impact of the crisis on physical demand this year has in contrast been largely negative. Jewellery demand has collapsed as a result of shut-downs, higher prices and poor consumer sentiment. The harm to industrial demand has been less dramatic, but this was mainly thanks to defensive inventory build by users. Physical investment has been mixed; western markets have enjoyed a recovery whereas, in much of Asia, financial distress and higher prices have put pressure on demand. The impact on supply has also been mixed; shut-downs have disrupted mine production, but recycling has increased due to higher prices. This should leave total supply little changed, as reflected by our 2020 forecast of a 1% y/y decline.

All this follows already lacklustre conditions for physical offtake in 2019, as both fabrication demand and physical investment both registered falls. A number of factors were at play in this, including the impact of the US-China trade war, a slowing economy and rising gold prices. Total demand fell by 9% to just under 4,000t, in spite of robust official sector purchases. As the drop in physical demand was met by a small increase in global supply (owing to higher recycling), the global market surplus more than doubled.

Looking ahead, as we discuss in detail in Chapter 2, we are confident that the macroeconomic backdrop will continue to be positive for gold for the remainder of this year. Even under the most optimistic scenarios for an economic recovery, risks will abound and ultra-loose monetary and fiscal policy will continue. We thus expect professional investors will remain buyers. This is the main assumption behind our forecast that the price will test all-time-highs before the end of the year and the average for 2020 will be 22% higher y/y, at $1,700.

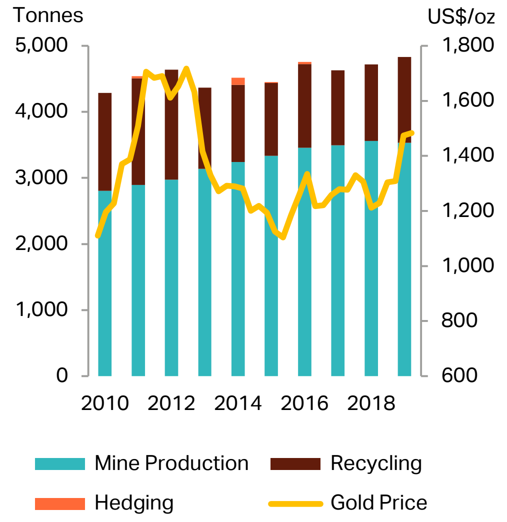
The physical market will remain a casualty of all this. We expect the challenges to demand discussed earlier will persist over the rest of the year. We also expect significantly lower net official sector purchases, as the economic crisis and weak oil price limits buying activity.

Market Balance & Above-Ground Inventories

The global physical market for gold was 872t in surplus last year, more than double that seen in 2018. The surplus we forecast for 2020 is higher yet, at an all-time-high of 1,590t. Given ample investor appetite for gold last year this was comfortably absorbed by institutional players and we are confident this will happen again in 2020. Indeed, looking at year-to-date inflows into gold ETFs alone, these account for well over one-third of this year's projected surplus.

In 2019, we estimate that 2,368t were added to above-ground stocks of gold bullion, this being the sum of physical investment, official sector purchases, net hedging demand and the market surplus. This compares with an 834t increase in loco-London inventories reported by the LBMA and a marginal increase in stocks held in COMEX-approved depositories.

Global Supply



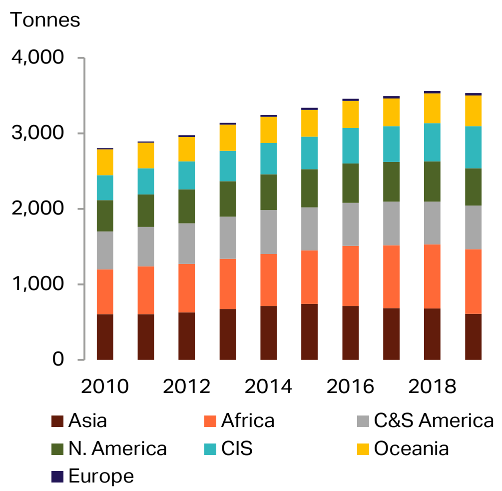
Source: Metals Focus, Bloomberg

Gold Supply in 2019

Global gold **mine production** in 2019 fell for the first time in over 10 years, with a year-on-year drop of 28t (0.8%) to 3,534t. The biggest fall came in Indonesia as a result of lower output from Grasberg. Gold production from the mine fell by 59t y/y as open pit mining finished and it transitioned to underground operations. Notably lower volumes also came from the US, China and Peru. In contrast, higher output from countries such as Russia, Turkey and Bolivia helped mitigate the overall fall. Global all-in sustaining costs (AISC) increased by 2% y/y. However, this was outpaced by a 10% y/y rise in the gold price which resulted in higher margins for gold miners. Consolidation within the industry continued in 2019 with the second mega-merger in as many years. In April, Newmont completed their acquisition of Goldcorp in a $12.3bn deal which followed the $5.4bn Barrick-Randgold merger in 2018. These deals encouraged higher M&A activity in the gold mining industry as a whole, which diverted company resources from elsewhere. As a result, both exploration activity and capital expenditure on growth projects declined year-on-year.

After a small rise in 2018, **recycling** shot up by 12% in 2019 to 1,297t (its highest level since 2013), mainly as a result of strong local gold prices. China saw a jump of 15% to a record high, as, on top of high prices, supply was also boosted by the trade's scrapping of old jewellery styles. India also saw a price-derived record, with its 37% rise to 120t. Having fallen for seven years, western recycling rose by 8%, again due largely to price-led gains. However, these volumes were still far lower than previous peaks, due to depleted near-market stocks. This helps explain why global scrap supply was considerably short of levels seen early in the decade.

Mine Supply by Region



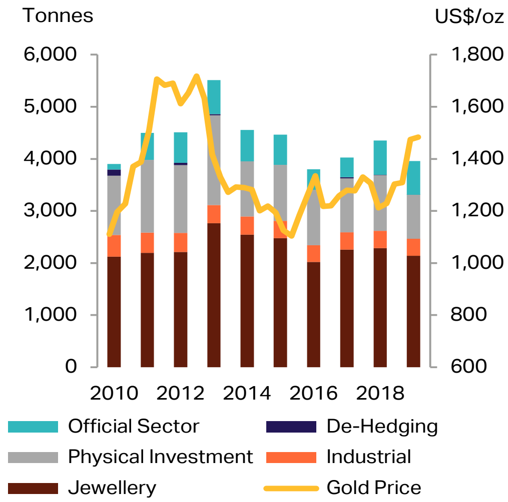
Source: Metals Focus

Gold Demand in 2019

Following two years of gains, **jewellery** fabrication last year dropped by 6.5% to 2,137t, its lowest level since 2016. That said, performances varied considerably last year; meaningful declines were seen in South and East Asia, while activity in the West and Middle East was virtually flat y/y.

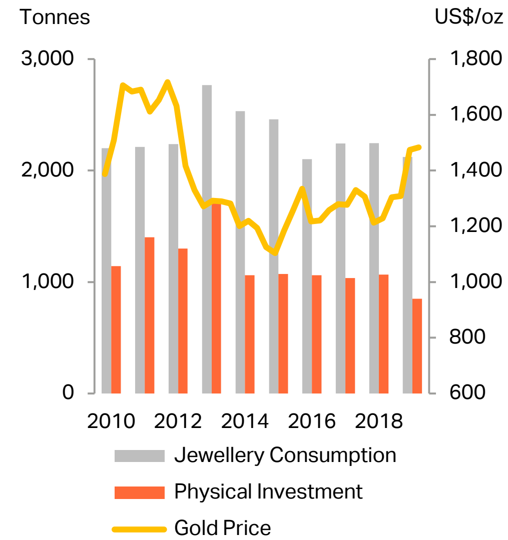
At the country level, the largest declines occurred in the two largest markets, China and India. The former's drop of 9% (67t) reflected a deterioration in consumer sentiment linked to the US-China trade war and the lingering impact of structural changes in its jewellery market (in particular, the jewellery supply chain placing a strong focus on light-weighting in product innovation last year). India suffered the next most sizeable loss with a 62t (-10%) drop, primarily due to rising gold prices and a deteriorating local economic backdrop. In Europe, Italian fabrication fell 2% y/y, mainly owing to price-led weakness in exports in the second half. Rival exporter, Turkey, also saw a dip in demand (of 1%), despite its exports rising, thanks to higher imports and a stagnant local market. In marked contrast, Iran and Egypt posted gains, but this reflected little more than a partial recovery from previous years' steep losses. A more meaningful positive was the 2% increase in US jewellery consumption thanks to solid GDP growth and a clear interest in plain gold basics.

Global Demand



Source: Metals Focus, Bloomberg

Jewellery Consumption & Physical Investment



Source: Metals Focus, Bloomberg

Physical investment in 2019 dropped by a fifth to a low for the decade, with losses seen in almost all key markets. East Asia accounted for the bulk of the decline, with the loss in China being the largest globally. This was mainly due to easing fears about yuan depreciation, expectations of a price correction and a trade war-derived preference for cash. Thailand also saw a large decline and there was a swing to disinvestment in Japan, with both countries' losses due primarily to profit taking into the rally. Similarly, losses were recorded in India, reflecting several factors, including strong equity market returns, wider access to other financial products and the continued clampdown on high-value cash transactions. The Middle East followed suit with a fall of 8%, as gains in Turkey were more than offset by declines in the rest of the region.

Western activity fared no better, with US gold coin and bar demand hitting a new low of just 19.6t, down 25% on 2018's already depressed total. This owed much to the impact of often range-bound prices over the first half of the year, which contrasted sharply with the record highs achieved by US equities. Disappointment with gold's performance was also key to the losses in Europe, where demand fell by 10% to its lowest since the 2008 financial crisis. The chief exception last year was South Africa, which retained its position as the largest gold bullion coin fabricator in 2019. This reflected increased demand for the Krugerrand, both locally and overseas.

Industrial demand also fell last year, albeit by a modest 3% to 326t, a three-year low. Electronics fabrication, the largest segment in this broad category, declined by 2% in 2019, mainly due to the impact of the trade war between the US and China. That said, there were two important positives, namely the acceleration in 5G adoption and the introduction of WiFi 6 standards which lifted offtake in the wireless and PCB segments. Decorative demand also fell, with most of the losses attributable to India and Italy. The downtrend in dental demand accelerated last year as the breakneck rally in the palladium price hit Japanese demand for kinpala dental alloys.

Net **official sector** purchases are estimated to have eased by a modest 2% in 2019. That said, it is worth stressing that this dip came from a high base in 2018 when net buying hit its highest level since the collapse of the Bretton Woods system in the early 1970s. Importantly, last year's fall in the net figure was mostly down to higher gross sales. In fact, gross official sector purchases grew for the fourth consecutive year. Much of this was down to Turkey where rising geopolitical tensions and a desire to diversify away from dollar-denominated assets continued to act as the key drivers. Russia remained a significant buyer, although volumes fell y/y due to the decision by the Central Bank of Russia to purchase local gold at a discount to the LBMA price from May 2019 onwards.

The global **hedge** book at end-2019 stood at 217.7t, representing net de-hedging of 0.7t. This occurred as the expiry of options, restructuring, and closing out of positions outweighed the increased hedging activity observed throughout the year.

Chapter 2

– The gold price is forecast to average $1,700 in 2020 (up 22% y/y) thanks to surging safe haven buying in the face of loose fiscal and monetary policy and the COVID-19-driven global recession.

– Total gold supply is forecast to fall by 1% as the virus-led drop of 5% in mine output outweighs the price-led 8% rise in scrap

– Gold demand is projected to fall 20% as a 9% lift in coin & bar purchases barely counters jewellery offtake's 25% slide and official sector buying's 46% slump

2020 Outlook

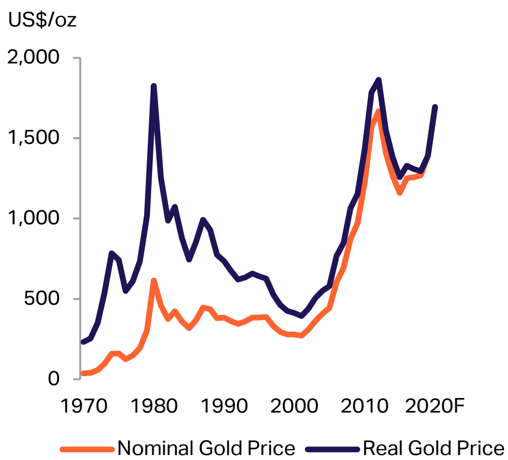
Introduction

In recent weeks, there have been positive signs that the COVID-19 health crisis is starting to come under some control, allowing economies to re-open gradually. At the same time, some economic news releases have been less bad than feared. In spite of all this, we are certain that the crisis will continue to weigh on global markets over the rest of the year and beyond. Even under the most optimistic scenarios, a full recovery in economic activity to pre-crisis levels will take time. Many industries will operate below capacity and unemployment rates are likely to remain elevated for many months to come. Importantly, the spectre of a new wave of infections and rounds of shut-downs will persist. In this uncertain environment, the case for holding safe haven assets like gold is strong.

Perhaps more importantly, we are confident that monetary and fiscal policies around the world will continue to be supportive for gold. Bond yields and short-term interest rates should stay low in nominal terms and negative in real terms for the foreseeable future. This will continue to minimise the opportunity cost of holding zero-yielding gold. Low yields will also limit bond markets' ability to act as a hedge against equity price corrections, given there is only so far down that yields can realistically go, potentially forcing investors to other safe havens. Loose monetary policies also amplify the already bloated systemic risks in the market. Efforts to channel liquidity downstream in the aftermath of the crisis will inevitably result in credit risk being mispriced. Furthermore, the "arsenal" available to policy-makers in order to deal with future mishaps is limited when short-term rates are near zero, forcing them to delve ever further into the unconventional policy tool kit.

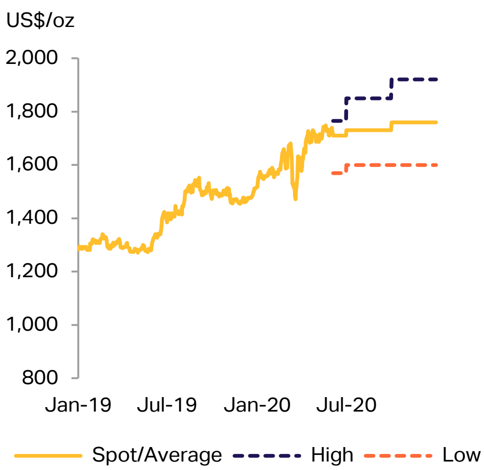
Among other things, the crisis has been unique in the extent and structure of fiscal policies that have been implemented around the world. This has

Nominal and Real Gold Prices



Source: Metals Focus, Bloomberg

Quarterly Gold Price Forecast



Source: Metals Focus, Bloomberg

Gold Price and US$:€

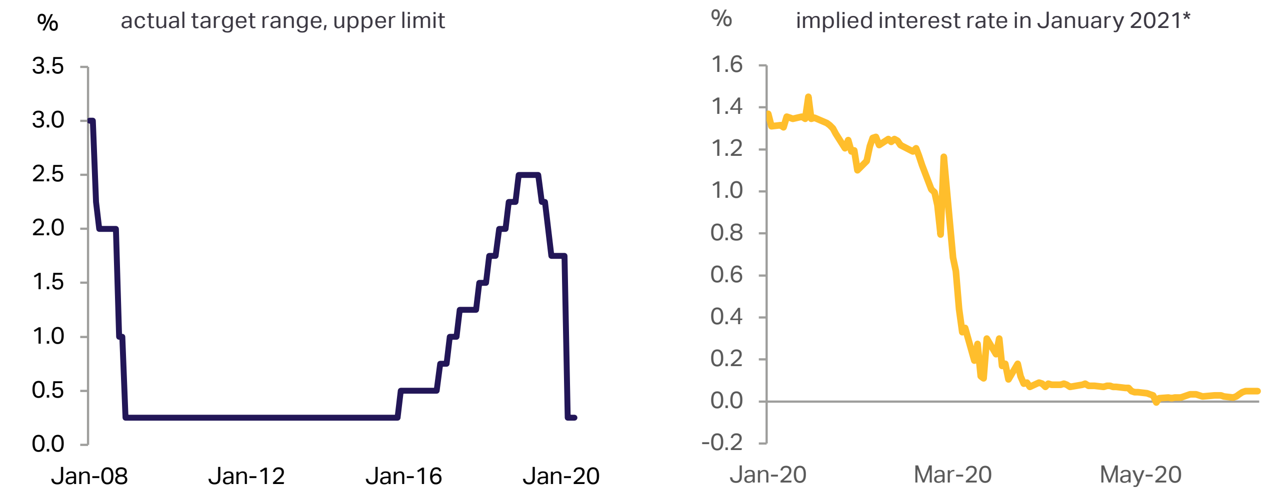
Source: Bloomberg

been instrumental in preventing economic catastrophe and we suspect will be successful in fuelling a recovery. Such aggressive measures, however, come at a price. Sovereign debt levels were already problematic before COVID-19 and will be even more so when the crisis is over. Eventually, this will have to be addressed, whether through tighter fiscal policy, perpetually low yields, higher inflation, debt restructuring or, in extreme cases, default.

We believe this backdrop will drive further inflows of institutional money into gold over the rest of the year and beyond. Importantly, we expect that much of this positioning will be strategic and therefore sticky. With all this in mind, we believe that gold continues to have plenty of upside from current levels. We expect prices to come close to the 2011 peak of $1,921, although we do not expect that it will be breached this year. It is also important to stress that we do not expect this to be a straight line rally and we think periods of liquidations, potentially to levels as low as $1,600, seem plausible. We would expect investors to buy such dips and, as a result, these moves to prove short-lived. Overall, we forecast the gold price will average $1,700 in 2020, up 22% year-on-year.

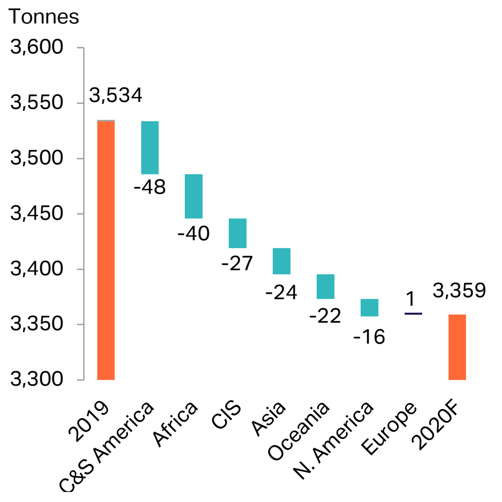
The outlook seems less rosy for gold's physical demand. A double digit-decline in jewellery fabrication is inevitable and we expect the global total will fall to its lowest point in more than 30 years. Most other areas of fabrication demand are also expected to suffer hefty declines, mainly due to the impact of the economic contraction on end-product sales. Official sector purchases are also forecast to fall, following two exceptionally strong years. The rise in physical investment will only offer a small offset to these declines, boosted by the emergence of safe haven buying in Western markets and also reflecting a low base in 2019. There will also be some "help" from a COVID-19-led drop of 5% in forecast mine production, which will outweigh the projected 8% rise in scrap. Yet, overall, the market is expected to see a massive surplus, which, as noted above, institutional investors should be all too happy to absorb.

Federal Funds Policy Rate



* inferred by Fed Funds futures; Source: Bloomberg, Federal Reserve

Mine Supply Forecast



Source: Metals Focus

Supply Outlook

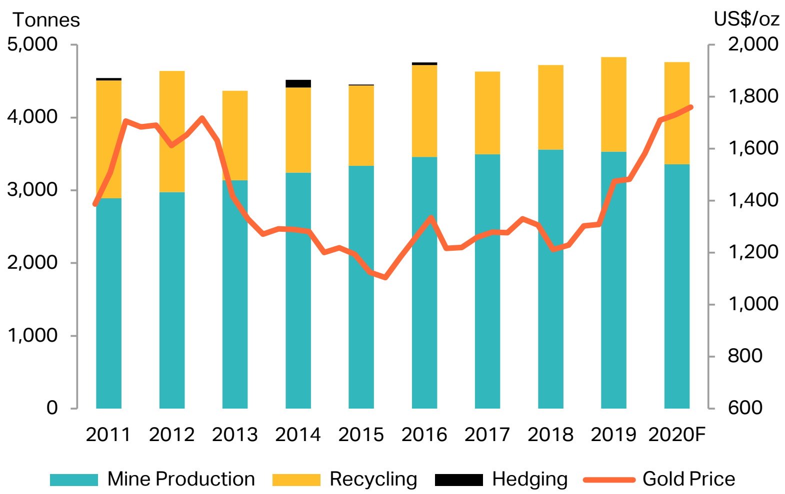
The COVID-19 pandemic will have a major impact on **mine production** in 2020. The lockdown policies implemented in several large gold producing countries, such as South Africa, Mexico and Peru, led to mine operations being temporarily suspended. Most have been able to re-start but company reports have not yet been released for the closure periods to enable us to accurately quantify their impact. This, plus many companies' withdrawal of guidance and the possibility of future outbreaks, means higher than usual uncertainty for projections. Based on current information, we expect a 5% drop year-on-year to 3,359t.

Africa and Central and South America are forecast to see the biggest declines as the major gold producing countries in these regions have been among the most impacted by lockdown policies. Increased production from new projects ramping up in Canada will partially offset losses in North America, led by COVID-19 issues. Despite limited disruption from the pandemic, output is also expected to fall in Oceania and the CIS. This will be due to new mines, which have come online in recent years, reaching steady production rates, alongside falling output from mature assets.

There was greater **hedging** activity in early 2020, but producer responses to the pandemic have led to a focus on existing contracts. As such, we expect there will be a small level of net de-hedging for the year as a whole.

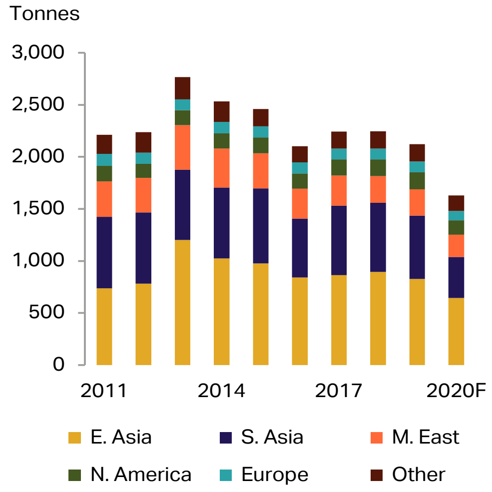
Recycling is forecast to grow by 8% in 2020, largely due to higher gold prices. India is expected to show the largest rise (to another record) thanks also to COVID's negative impact on incomes. China's scrap should also rise notably, as inventory recycling by the supply chain continues. Western recycling is expected to grow, in part due to greater distress selling. However, its forecast volumes are around half their peak and this stops the global total from reaching a new high. Recycling in the Middle East looks set to fall this year due to a reluctance to sell safe haven assets. This helps explain why the global rise of 8% is less than 2019's 12%.

Global Supply Forecast



Source: Metals Focus, Bloomberg

Jewellery Consumption Forecast



Source: Metals Focus

Demand Outlook

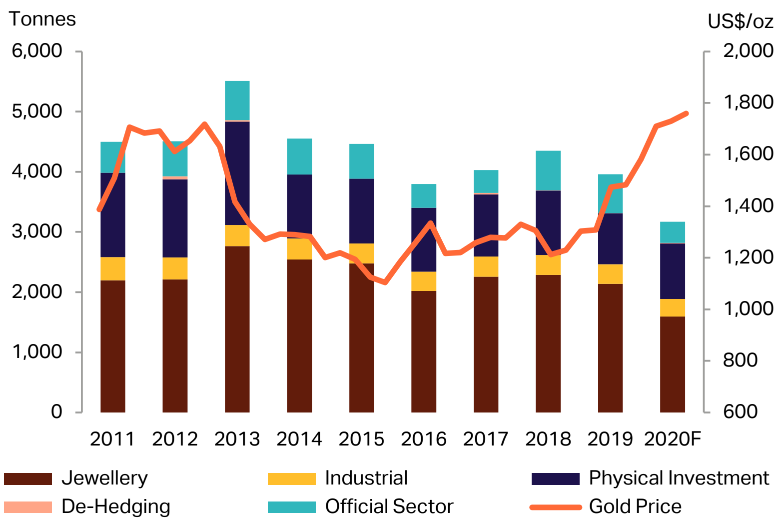
Jewellery fabrication is expected to see the largest drop on record with a 25% fall to 1,596t (the lowest since 1987). Almost all countries are slated to see double-digit losses, with emerging markets hit worst. Much of the damage is due to COVID, either directly through retailing restrictions, or indirectly through damage to global GDP and its added fuel for the gold rally. The largest fall is India's -39%, where a long shutdown is expected to hit GDP growth and discretionary spending. Our forecast for a 25% fall in China assumes that, even as life is already moving back to normal, the economic slowdown will still weigh on jewellery sales. Despite weak oil prices, demand in the Middle East is forecast to drop by "only" 15%, due to 2019's already depressed levels. Retailer closures, record gold prices, higher savings and recessions drive our forecast of consumption losses of 13% in Europe and 16% in North America.

Electronics demand is forecast to fall 9% to a low for our series thanks to the global recession plus ongoing substitution. The recession also drives our forecast of a 15% slump for **decorative & other industrial** demand. COVID damage looks set to accelerate **dental's** structural slide to -18%.

Physical investment is forecast to rise by 9% from 2019's low base thanks to an expected steep jump in western markets; Europe is forecast to see a 51% (79t) rise, while North America sees a 254% (61t) surge to a four-year high thanks to pandemic-prompted safe haven buying in both regions. In contrast, notable losses are forecast for East Asia (-13%), South Asia (-14%) and the Middle East (-6%) as lower incomes, distress selling and profit taking outweigh safe haven related acquisitions.

Net purchases from the **official sector** are expected to nearly halve to 350t in 2020, their lowest level in a decade, due to a weaker appetite for adding to gold reserves amid the COVID-19 crisis. That said, the scope for large scale distress selling looks limited (Venezuela excepted).

Global Demand Forecast



Source: Metals Focus, Bloomberg

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Chapter 3

- Gold mine production in 2019 declined by 28t y/y (1%) to 3,534t, the first drop in annual output for over 10 years.
- Global average all-in sustaining costs rose by 2% y/y to $941/oz last year. Total cash costs averaged $704/oz, up 4% y/y.
- We are forecasting a 5% y/y drop in global mine production this year as a result of the COVID-19 pandemic.

Mine Supply

Gold Mine Production

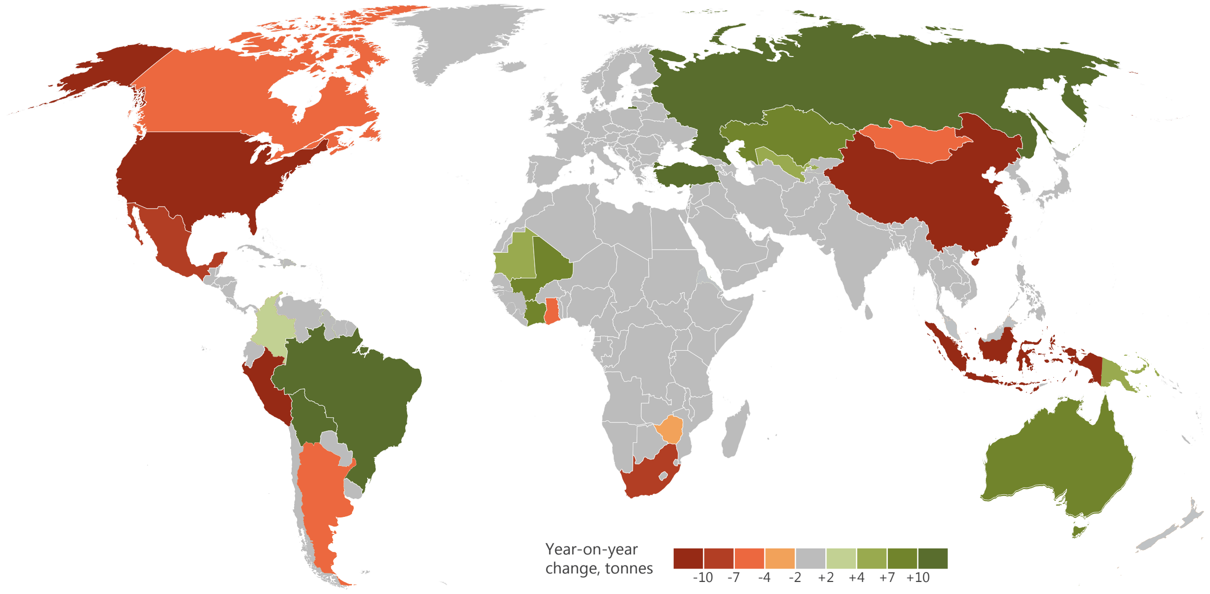
In 2019, global gold mine production fell for the first time in over 10 years, with a year-on-year drop of 28t (0.8%) to 3,534t. Lower volumes were most notable in Indonesia, the US, China and Peru, while the biggest increases came in Russia, Turkey and Bolivia. In last year's Gold Focus, we had forecast marginal growth of 0.4% in 2019. However, unexpected disruption to output at a number of significant mines resulted in gold production instead falling year-on-year.

Consolidation within the industry continued in 2019 with the second mega-merger in as many years. In April, Newmont completed their acquisition of Goldcorp in a $12.3bn deal which followed the $5.4bn Barrick-Randgold merger in 2018. This activity encouraged further M&A in the sector which reached its highest levels since 2010.

We estimate that production from the artisanal and small-scale mining (ASM) sector increased by 1% y/y as attempts to formalise production and political instability in several countries mitigated the incentive from higher gold prices. We also revised our estimates of historic production from the ASM sector resulting in upward adjustments to past mine supply figures.

The COVID-19 pandemic will have significant implications for gold mine production this year. Lockdown policies implemented in several major gold producing countries have led to mines being temporarily suspended. Prior to the outbreak, we had expected global mine production to remain almost flat year-on-year. However we are now forecasting that it will drop by 5% to a five-year low of 3,359t as a result of disruption caused by the pandemic.

Major Changes to Global Mine Production, 2019 versus 2018



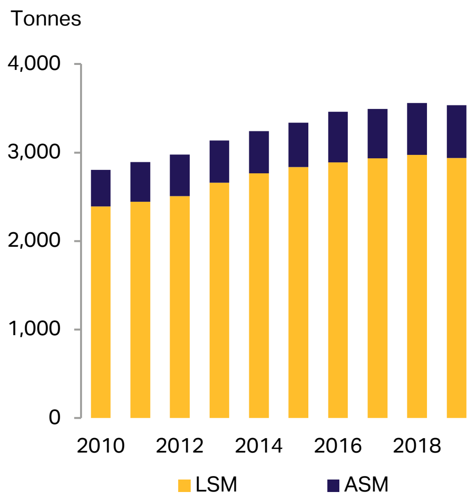
Source: Metals Focus

Top 20 Producing Countries

Tonnes	2018	2019	Y/Y
China	404	383	-5.2%
Russia	295	329	11.5%
Australia	317	325	2.6%
United States	225	200	-11.0%
Canada	189	183	-3.2%
Peru	158	143	-9.0%
Ghana	149	142	-4.5%
South Africa	128	118	-7.7%
Mexico	118	111	-5.9%
Brazil	97	107	10.6%
Uzbekistan	100	104	4.0%
Indonesia	141	83	-41.6%
Kazakhstan	68	77	12.2%
Sudan	77	77	0.0%
Papua New Guinea	69	73	5.9%
Mali	61	71	16.0%
Burkina Faso	62	62	0.0%
Argentina	59	53	-10.4%
Tanzania	48	48	0.4%
Colombia	43	46	7.5%
Others	752	797	6.0%
Global Total	**3,561**	**3,534**	**-0.8%**

Source: Metals Focus

LSM & ASM Gold Production



LSM - Large Scale Mining
ASM - Artisanal and Small-scale Mining
Source: Metals Focus

North America

North American gold production decreased by 38t to 494t in 2019, the only year-on-year decline in the last decade. This was largely due to a 25t drop in **US** gold output. The major contributor to this was the newly consolidated Nevada Gold Mines which had reduced output as a result of lower average head grades. **Canada's** gold production fell by 6t y/y. Production from the newly commissioned mines, Meliadine and Lamaque, was offset by reduced output from existing operations, such as Musselwhite and Red Lake. In **Mexico,** output was 7t lower. A big contributor to this decrease was Peñasquito, the largest gold mine in the country, which was closed twice during the year for a combined period of almost 90 days due to blockades led by local truck drivers and residents.

Central and South America

Central and South American gold production recovered from the decline in 2018 with a 10t increase to 577t. **Peru** remained the top regional producer at 143t although output fell for the second consecutive year, by 14t y/y. This was largely due to the ramp down of production at Lagunas Norte as it entered care and maintenance. Offsetting lower production from Peru was increased output from **Bolivia** and **Brazil** where production increased by 13t and 10t respectively. In Bolivia, the increase was driven by higher output from small-scale co-operatives. In Brazil, significant contributions came from Kinross Gold's Paracatu, with record production in 2019, and Equinox Gold's newly commissioned Aurizona mine. Brazil remains the second largest gold producer in the region, followed by **Argentina** where output declined by 6t to 53t.

Europe

European gold production continued to grow in small increments with output up by 0.5t y/y to 31t. **Sweden** surpassed **Finland** as the region's top producer with 8.1t, an increase of 0.2t y/y. This was due to the newly commissioned Fäboliden mine and higher production from Björkdal. Finland was the second largest producer in Europe, despite a drop of 0.7t y/y, followed by **Bulgaria** with 7.4t.

Africa

Gold production in Africa continued to rise, increasing by 7t y/y to 854t. This was driven by higher output from several countries in West Africa, notably **Mali** (+10t), **Ivory Coast** (+7t) and **Mauritania** (+4t). Projects which contributed to this growth include the phase one expansion at Tasiast, ramp-up of the Ity carbon in leach (CIL) project and commissioning and ramp-up of the Syama underground mine. For the second year, **Ghana** was the largest gold producer in the region with 142t, despite a 7t y/y fall. This reflected a 20% y/y reduction in output from the country's artisanal mines, while gold production from large-scale mines increased by 6%. **South Africa** remains the second biggest producer in Africa despite output dropping for the third consecutive year. Production fell by 10t y/y due to strike action at Sibanye-Stillwater's gold operations, which concluded in April 2019, alongside continuously falling grades from mature mines. **Sudan**, the third biggest producer in Africa, sources most of its gold from

Gold Mine Production

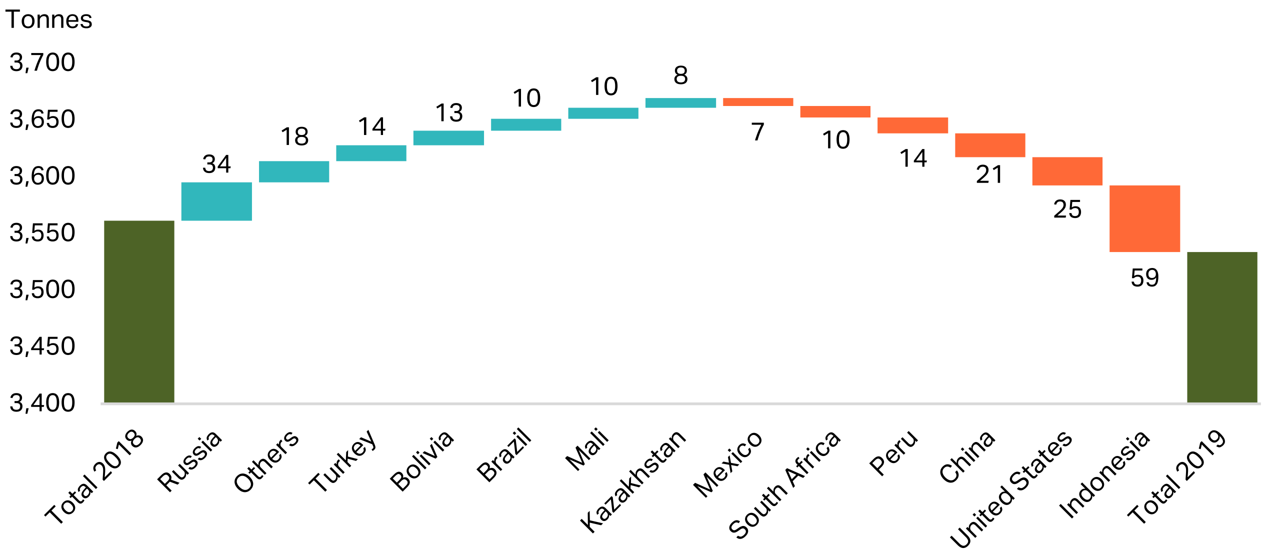
Tonnes	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	Y/Y
North America											
United States	231.3	233.9	234.6	230.1	210.0	216.7	229.1	236.4	225.0	200.2	-11%
Canada	102.1	102.0	106.4	131.4	151.2	157.7	163.1	171.2	188.9	182.9	-3%
Mexico	78.7	94.4	107.5	107.1	113.4	131.6	130.7	119.5	118.4	111.4	-6%
Sub-total	**412.1**	**430.3**	**448.5**	**468.6**	**474.6**	**506.0**	**522.9**	**527.2**	**532.3**	**494.5**	**-7%**
Central & South America											
Peru	184.8	183.8	189.8	182.4	171.1	170.5	166.0	166.6	157.6	143.3	-9%
Brazil	71.5	77.7	80.2	89.3	90.4	95.4	95.9	95.4	96.7	106.9	11%
Argentina	63.9	59.0	54.2	49.7	60.0	63.9	58.6	62.9	59.3	53.1	-10%
Colombia	43.6	45.9	56.2	45.7	47.0	49.2	51.8	44.1	43.0	46.3	8%
Bolivia	6.4	6.5	10.3	13.3	34.7	22.1	21.8	28.6	31.3	44.2	41%
Chile	39.5	45.1	49.9	51.3	46.0	42.5	40.7	35.8	36.5	37.8	4%
Suriname	20.4	20.1	20.0	18.5	18.4	17.4	21.2	34.1	34.3	32.8	-4%
Dominican Republic	0.1	0.5	4.2	26.6	36.2	31.2	38.0	35.3	31.7	31.8	0%
Venezuela	24.9	25.5	21.0	22.8	22.7	22.6	23.0	23.0	26.0	27.8	7%
Guyana	11.9	13.9	15.6	18.4	17.3	18.2	24.2	24.5	25.0	25.5	2%
Ecuador	15.2	15.6	16.0	15.9	15.3	14.2	12.2	11.5	11.5	11.0	-4%
Others	22.3	26.5	22.1	22.9	21.6	20.3	18.1	14.2	13.6	16.2	19%
Sub-total	**504.6**	**520.4**	**539.4**	**556.9**	**580.9**	**567.4**	**571.4**	**576.1**	**566.3**	**576.8**	**2%**
Europe											
Sweden	6.2	5.9	6.1	6.4	6.5	6.3	6.5	7.8	7.9	8.1	3%
Finland	5.8	6.6	9.1	8.5	7.6	8.2	8.6	8.8	8.3	7.7	-8%
Others	4.7	5.5	7.7	8.9	9.6	10.7	12.7	13.8	14.8	15.7	6%
Sub-total	**16.7**	**18.0**	**22.9**	**23.9**	**23.7**	**25.2**	**27.8**	**30.5**	**30.9**	**31.4**	**2%**
Africa											
Ghana	94.3	96.8	106.0	105.8	106.3	95.4	131.4	133.3	149.1	142.4	-5%
South Africa	210.0	205.3	179.8	179.5	168.6	162.0	162.6	154.0	128.0	118.2	-8%
Sudan	29.3	32.6	33.9	57.6	60.9	67.8	77.5	88.0	76.6	76.6	0%
Mali	42.7	42.6	47.6	47.4	47.4	49.4	50.1	50.4	61.3	71.1	16%
Burkina Faso	26.9	36.7	34.9	38.6	42.2	41.6	45.9	54.6	62.0	62.0	0%
Tanzania	47.5	54.4	56.3	52.0	51.8	53.2	55.3	54.6	47.8	48.0	0%
DR Congo	18.0	21.0	24.8	25.3	35.9	39.7	35.7	36.6	44.8	45.6	2%
Ivory Coast	7.8	13.2	13.0	14.5	23.4	28.2	32.6	36.7	34.9	41.9	20%
Zimbabwe	17.1	19.0	22.7	23.0	24.3	26.5	30.8	33.2	42.2	38.7	-8%
Guinea	25.8	25.7	24.3	21.9	26.1	26.0	26.6	30.3	26.7	27.5	3%
Senegal	5.4	4.8	7.4	8.2	8.6	8.7	10.2	11.6	16.5	16.8	2%
Mauritania	9.0	8.8	8.2	9.9	10.0	9.1	8.1	10.1	10.7	15.1	40%
Egypt	4.7	6.3	8.2	11.1	11.7	13.7	17.1	16.9	14.7	14.9	1%
Madagascar	10.0	10.4	10.8	11.1	11.1	11.7	13.5	13.3	14.0	14.5	4%
Nigeria	5.0	6.0	8.0	8.0	8.0	8.0	10.0	12.0	14.0	14.0	0%
Others	37.0	50.4	52.3	51.5	55.9	70.0	87.8	98.6	103.8	106.4	3%
Sub-total	**590.4**	**634.1**	**638.3**	**665.4**	**692.2**	**711.0**	**795.3**	**834.3**	**847.1**	**853.7**	**1%**

Gold Mine Production

Tonnes	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	Y/Y
Commonwealth of Independent States											
Russia	203.1	211.6	233.4	248.5	252.7	255.3	262.4	280.7	295.4	329.5	12%
Uzbekistan	71.0	70.6	80.0	81.0	83.5	84.0	96.0	97.0	100.0	104.0	4%
Kazakhstan	30.3	36.8	40.0	42.4	49.2	63.7	74.6	56.0	68.4	76.8	12%
Kyrgyzstan	19.0	19.7	11.3	20.2	19.3	18.7	21.2	21.0	21.9	24.2	10%
Others	9.6	9.0	8.2	8.7	9.1	11.9	12.6	18.8	18.7	23.8	27%
Sub-total	**332.9**	**347.8**	**373.0**	**400.8**	**413.8**	**433.6**	**466.8**	**473.6**	**504.5**	**558.2**	**11%**
Asia											
China	351.1	371.2	413.3	438.4	462.0	460.3	463.7	429.1	404.1	383.2	-5%
Indonesia	134.6	108.5	82.6	91.0	93.5	122.3	108.8	116.1	141.5	82.6	-42%
Philippines	40.8	38.1	38.8	39.7	40.4	40.6	40.2	38.7	36.8	38.3	4%
Turkey	16.6	24.1	29.5	33.6	31.4	28.4	24.4	24.7	22.9	37.0	62%
Mongolia	14.0	13.3	14.2	19.7	32.0	32.8	21.3	22.5	22.6	16.3	-28%
Iran	5.0	6.0	6.0	7.0	10.0	11.0	11.0	11.0	11.0	11.0	0%
Others	45.1	43.5	46.9	45.9	42.7	44.4	43.7	42.1	44.6	43.3	-3%
Sub-total	**607.2**	**604.8**	**631.3**	**675.4**	**712.0**	**739.8**	**713.2**	**684.3**	**683.5**	**611.7**	**-10%**
Oceania											
Australia	256.7	258.7	250.4	267.1	274.0	279.2	287.7	292.5	317.0	325.1	3%
PNG	69.7	63.8	59.0	64.6	58.4	60.9	63.4	64.5	68.9	72.9	6%
New Zealand	12.1	11.2	9.7	11.8	10.8	11.7	9.6	9.0	9.3	7.8	-15%
Others	2.0	3.4	3.6	3.1	2.0	1.6	1.6	1.6	1.6	1.6	0%
Sub-total	**340.4**	**337.2**	**322.7**	**346.6**	**345.2**	**353.3**	**362.2**	**367.6**	**396.7**	**407.5**	**3%**
Global Total	**2,804.3**	**2,892.5**	**2,976.0**	**3,137.6**	**3,242.4**	**3,336.4**	**3,459.7**	**3,493.6**	**3,561.3**	**3,533.7**	**-0.8%**

Source: Metals Focus

Global Mine Production Changes by Country



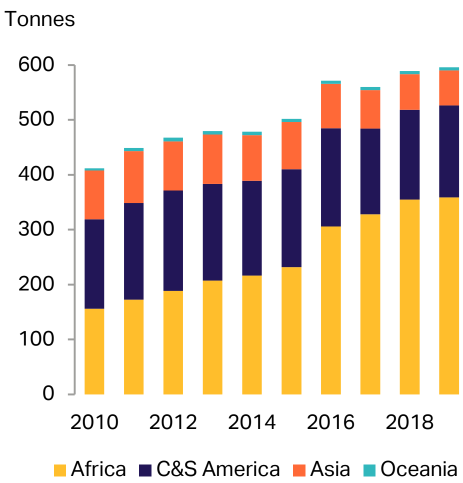
Source: Metals Focus

Top 20 Producing Companies

Tonnes	2018	2019	Y/Y
Newmont	158.7	195.7	23%
Barrick Gold	140.8	170.0	21%
AngloGold Ashanti	105.8	102.0	-4%
Polyus Gold International	75.9	88.4	16%
Kinross Gold[1]	76.5	77.2	1%
Newcrest Mining	75.1	73.0	-3%
Navoi MMC[2]	74.0	76.0	3%
Gold Fields	63.3	68.3	8%
Agnico Eagle Mines	50.6	55.4	10%
Shandong Gold Group	47.7	47.9	0%
Harmony	44.1	42.8	-3%
Polymetal International	37.8	41.0	8%
Zijin Mining	36.5	40.8	12%
China National Gold Group	40.4	40.3	0%
Nord Gold	28.3	32.4	14%
B2Gold	29.7	30.5	3%
Kirkland Lake Gold	22.5	30.3	35%
Sibanye-Stillwater[3]	37.5	29.9	-20%
Yamana Gold	32.1	28.0	-13%
Freeport McMoRan[4]	75.9	27.4	-64%

[1] Gold Sales, [2] Estimate, [3] Includes gold from PGM operations, [4] Consolidated production
Source: Metals Focus

ASM Production by Region



ASM - Artisanal and Small-scale Mining
Source: Metals Focus

artisanal mines. As a result, estimating gold output is challenging with increased levels of uncertainty around any figures. We have estimated that production remained unchanged year-on-year as significant political turmoil in the country in 2019 is likely to have offset incentives for greater production from higher gold prices.

Commonwealth of Independent States (CIS)

Gold output from the CIS reached 558t in 2019, up by 54t y/y. Production from **Russia**, the region's biggest producer, rose by 34t. This elevated Russia above Australia to become the second biggest gold producing country globally with 330t. Several new mines in the country, that came online in 2018, reached full production rates last year. Among the new mines are Natalka, Gross and Bystrinsky. Notably higher output also came from Malomir due to the ramp-up of Petropavlovsk's pressure oxidation (POX) Hub. Production from **Kazakhstan** increased by 8t due to the ramp-up of operations at Kyzyl, which came online in 2018. In **Kyrgyzstan**, gold output increased by 2t to 24t driven mostly by higher head grade at Kumtor. Meanwhile, in **Uzbekistan** we have estimated an increase of 4t from project expansions which are thought to be underway at Muruntau and the Almalyk complex.

Asia

Asian gold output remained the second highest globally at 612t in 2019, although there was a substantial drop of 72t y/y. This was largely the result of lower output from Grasberg in **Indonesia**. The mine ceased open pit operations during the year and transitioned to a completely underground mine, mainly utilising block-cave mining methods. Gold production was expected to fall during this transitional period and the losses realised led to a 59t drop in the country's total gold output. Despite this fall in production, Indonesia remained the second largest gold producer in Asia.

China was still comfortably the largest gold producer in Asia and the world, with 383t in 2019. However, output decreased for the third consecutive year by 21t. As reported in previous Gold Focus reports, the ongoing decline reflects more stringent enforcement of environmental regulations, which have disproportionately impacted small mines. The biggest increase in the region came from **Turkey** where gold production rose by 14t. A significant contribution to this came from Copler where output more than doubled due to the ramp-up of the mine's new sulphide plant. The **Philippines** remains the third highest producer in Asia with 38t, up by 2t.

Oceania

Gold production from Oceania grew by 11t to 408t in 2019. Despite an 8t y/y increase in output, **Australia** dropped below Russia, becoming the third biggest gold producer in the world with 325t. Increased production resulted from higher output at established mines, such as Fosterville and Cadia Valley, alongside new operations such as Gruyere. In **Papua New Guinea**, gold production rose by 4t to 73t, largely due to higher output from Porgera as result of increased throughput and recovery rates.

Major Mine-by-Mine Production Changes

Tonnes

Mine	Country	2018	2019	Y/Y	Commentary
Grasberg	Indonesia	86.1	26.8	-59.3	Lower throughput as mine reached the final phase of open pit
Nevada Gold Mines	United States	129.2	115.8	-13.4	Lower head grade
Musselwhite	Canada	6.4	0.1	-6.3	Processing stopped after a conveyor fire in March
Kalgoorlie Super Pit	Australia	19.5	14.1	-5.4	Lower mill throughput and grades
Red Lake	Canada	8.6	3.5	-5.1	Lower mill throughput and grades
Driefontein	South Africa	9.6	5.2	-4.4	Lower ore processed from the open pit and tailings
Kloof	South Africa	15.3	10.9	-4.4	Lower head grade
Lagunas Norte	Peru	7.6	3.3	-4.3	Ramp down of production as it goes into care and maintenance
Peñasquito	Mexico	10.0	5.8	-4.2	Shut down for almost 90 days due to blockades
Alumbrera	Argentina	3.7	0.0	-3.7	Open pit operation completed in Q3 2018
Bald Mountain	United States	8.9	5.8	-3.0	Slower ramp-up at the Vantage Complex
Lihir	Papua New Guinea	30.3	27.4	-2.9	Lower head grade and recovery rate
Beatrix	South Africa	8.6	6.1	-2.4	Lower mill throughput as a result of closure of Beatrix 1
Orcopampa	Peru	3.6	1.3	-2.3	Lower throughput as De-Bottlenecking Program is prioritised
Leonora (Gwalia)	Australia	8.0	5.7	-2.3	Lower grade stopes were mined
Pogo	United States	7.0	4.8	-2.1	Lower head grade
Albazino	Russia	9.6	7.5	-2.1	Lower recovery rate
Peak	Australia	3.2	1.3	-2.0	Restricted throughput in H1 and lower head grade in Q4
Cerro Vanguardia	Argentina	9.5	7.6	-2.0	Lower head grade
Olimpiada	Russia	41.1	43.2	2.1	Higher mill throughput and recovery rate
Aurizona	Brazil	0.0	2.3	2.3	Newly-commissioned mine
Centinela	Chile	4.6	6.9	2.4	Higher head grade and recovery rate
Shahuindo	Peru	2.6	5.1	2.6	Significant improvement in mill throughput
Bystrinsky	Russia	2.7	5.5	2.8	Ramp-up of production continues
Paracatu	Brazil	16.2	19.3	3.0	Higher mill throughput, head grade and recovery rate
Gruyere	Australia	0.0	3.1	3.1	Newly-commissioned mine
Morelos	Mexico	11.0	14.1	3.1	Higher mill throughput and grade
Malomir	Russia	2.4	5.6	3.2	Ramp-up of pressure oxidation (POX) plant
Ity	Ivory Coast	2.6	6.0	3.4	Higher ore processed due to commissioning of CIL* plant
Lamaque	Canada	0.0	3.5	3.5	Newly-commissioned mine
Cadia Valley	Australia	23.4	27.1	3.7	Higher mill throughput
Tasiast	Mauritania	7.8	12.2	4.4	Higher head grade and recovery rate
Boungou	Burkina Faso	2.0	6.4	4.4	Ramp-up of production continues
Porgera	Papua New Guinea	13.4	18.6	5.2	Higher mill throughput and recovery rate
Gross	Russia	1.8	8.1	6.2	Ramp-up of production continues
Ahafo	Ghana	13.6	20.0	6.4	Higher grade and recovery rate due to mill expansion project
Copler	Turkey	5.3	12.2	6.9	Ramp-up of sulphide plant
Meliadine	Canada	0.0	7.4	7.4	Newly-commissioned mine
Kyzyl	Kazakhstan	3.0	10.7	7.7	Ramp-up of production continues
Fosterville	Australia	11.1	19.3	8.2	Higher mill throughput, head grade and recovery rate
Natalka	Russia	4.2	12.9	8.7	Ramp-up of production continues

*CIL - Carbon In Leach
Source: Metals Focus

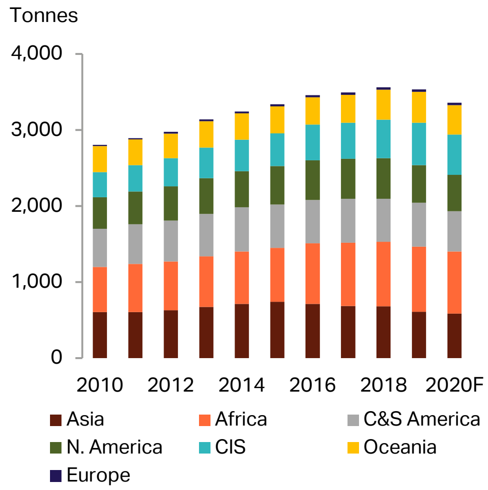
The Impact of COVID-19 on Gold Mine Supply

The COVID-19 pandemic will have a significant impact on mined gold supply this year. Lockdown policies implemented in several major gold producers required gold mining operations in these jurisdictions to be temporarily suspended. Some mines were also forced to halt operations due to localised outbreaks of the virus even if national policies did not require this. In addition, global supply chains have been severely impacted, making transport of materials to and from sites difficult, which may also impact production.

China was the first country to be impacted by the virus, with some domestic gold mines forced to shut down in February, before being allowed to re-open in March. The biggest impact in China was therefore in Q1.20, with production falling by 12% y/y. As a result, we estimate that annual Chinese gold production in 2020 will be 3% lower than anticipated at the start of the year. Elsewhere in the world, mines in several major gold producing nations were forced to shut down as a result of lockdown policies implemented in the second half of March. We estimate that the biggest impact on gold output will be in South Africa and Mexico. In **South Africa**, mining operations were shut on 26th March, before being allowed to re-open from 30th April. However, underground operations, where the majority of the country's gold comes from, were only allowed to return to 50% capacity until further restrictions were lifted on 1st June. In **Mexico**, most mines were forced to close from 30th March, with the lockdown policy remaining in place for two months. We are forecasting 16% lower output from South Africa and Mexico as a result of these mine closures. Other countries which implemented policies effecting gold mining include Argentina, Bolivia, Ecuador, New Zealand and Peru. Meanwhile, in Canada and Brazil some states and provinces enacted policies restricting mining while others allowed operations to continue. It is important to note that, even in countries with these policies in place, some operations were given exemptions and allowed to continue operating, although often at reduced capacity. In particular, heap leaching operations cannot easily halt production quickly, and so some of these facilities will have continued to produce gold.

Given the timing of the implementation of lockdown policies outside of China, the biggest impact to mined gold supply will be in Q2. As a result, the effect on production has not yet been reported by companies. This, combined with many companies withdrawing guidance and the possibility of future outbreaks, makes forecasting production in 2020 more challenging than usual, with higher levels of uncertainty surrounding any projections. At the start of the year, we expected mined gold supply to reach 3,541t in 2020, almost flat year-on-year. Based on current information, we are now forecasting a 5% y/y drop to 3,359t as a result of COVID-19 related disruptions.

Mine Supply Forecast



Source: Metals Focus

2020 Gold Mine Supply Outlook

The biggest factor influencing gold mine supply in 2020 will be the COVID-19 pandemic. As explained above, lockdown policies implemented in several major gold producing countries such as South Africa, Mexico and Peru, led to gold mines being temporarily suspended in these jurisdictions. As a result of these disruptions, we expect mined gold supply to fall by 5% y/y in 2020 to a five-year low of 3,359t.

The biggest decreases are expected in regions where countries have enacted policies requiring mines to temporarily halt operations. Africa and Central and South America will be impacted the most, while the fall in North America will be mitigated by new projects that will increase production rates in Canada. Although mines in Oceania and the CIS have been largely unaffected by the pandemic, we anticipate a drop in production from both regions. This is a result of new projects which have been coming online in recent years reaching steady production rates combined with falling output from mature mines. Supply chain issues caused by the COVID-19 pandemic and, for Oceania, recent issues at Porgera in Papua New Guinea have increased the magnitude of decreases expected in these regions.

Gold Mine Production Costs

US$/oz	2018	2019	Y/Y
North America			
Total Cash	663	732	10%
All-In Sustaining	941	1,032	10%
Central & South America			
Total Cash	636	662	4%
All-In Sustaining	933	967	4%
Europe			
Total Cash	799	784	-2%
All-In Sustaining	1,048	1,079	3%
Africa			
Total Cash	815	852	5%
All-In Sustaining	1,010	1,027	2%
CIS			
Total Cash	494	501	1%
All-In Sustaining	718	701	-2%
Asia			
Total Cash	573	614	7%
All-In Sustaining	821	846	3%
Oceania			
Total Cash	656	649	-1%
All-In Sustaining	867	854	-2%
Global Total			
Total Cash	680	704	4%
All-In Sustaining	918	941	2%

Source: Metals Focus Gold Mine Cost Service

Gold Production Costs

Costs in the gold mining industry in 2019 grew for the third consecutive year. Average industry total cash costs (TCC) rose by 4% to $704/oz while global all-in-sustaining costs (AISC) hit $941/oz, an increase of 2% y/y. This change was driven by higher input costs such as labour, reagents and power costs, largely as a result of local inflation, alongside lower average head grades year-on-year. These inflationary cost pressures offset the deflationary impact of local currencies weakening against the US dollar.

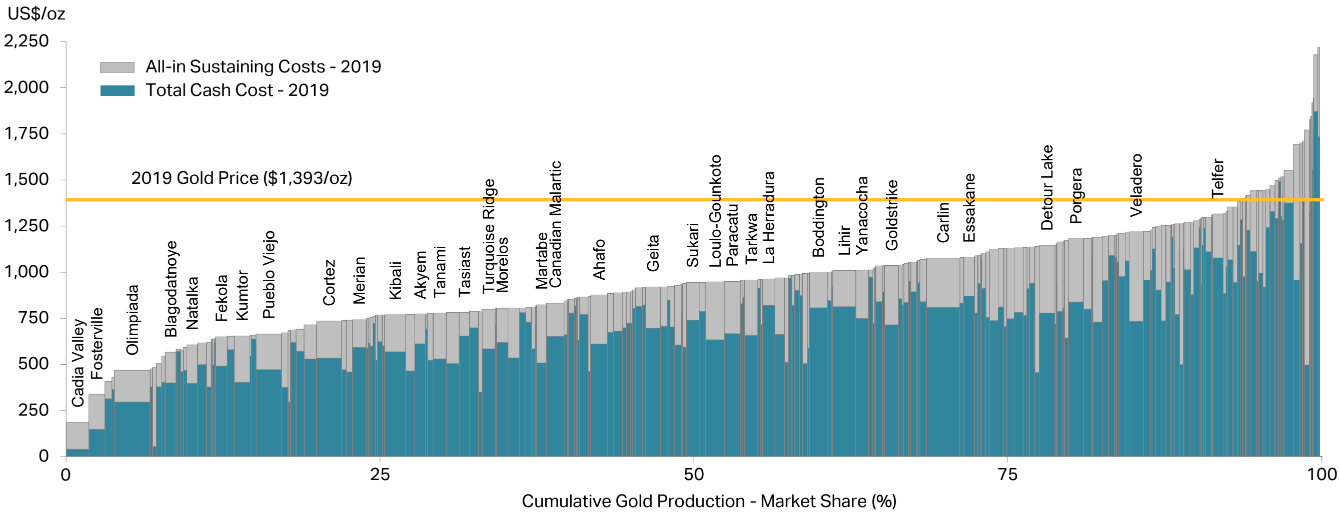
During periods when the US dollar is strengthening, the depreciating currencies of gold producer countries provide relief to mine production cost pressures, as locally-priced inputs such as wages are reduced in US dollar terms. Most major producer currencies weakened year-on-year in 2019. However, on a regional basis, this was only enough to offset cost inflation in Oceania, even if it did lessen increases elsewhere.

The gold price increased by 10% y/y in 2019, significantly outpacing rising costs. This led to a 29% y/y rise in global AISC margins (the difference between gold prices and AISC), which averaged $453/oz over the year. The increase in both price and margins allowed lower grade material to become economic to extract and this was a driver of falling head grades year-on-year. This was partly behind some of the cost increases seen in the industry. The average price in 2019 of $1,393/oz was comfortably above the 90th percentile of the cost curve, highlighting that most gold mines were profitable last year.

Regional Performances

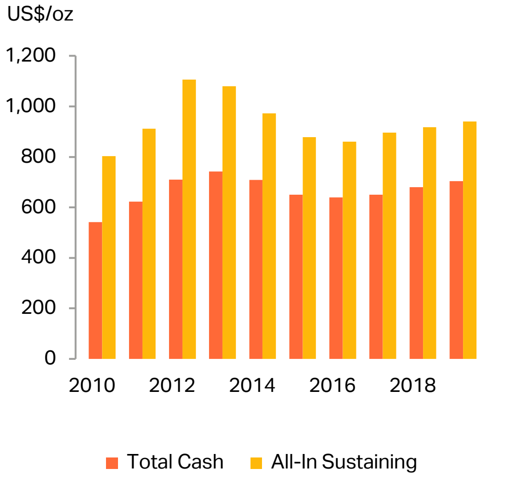
The **Commonwealth of Independent States** maintained its position as the lowest cost region with AISC declining by 2% y/y to $701/oz. Average AISC in Russia, which constitutes 81% of the region's costed production, fell by 1% as local cost inflation was offset by a 3% y/y weakening in the rouble to the US dollar. This was aided by Natalka, which will become the

Primary Gold Mine Production Costs - 2019



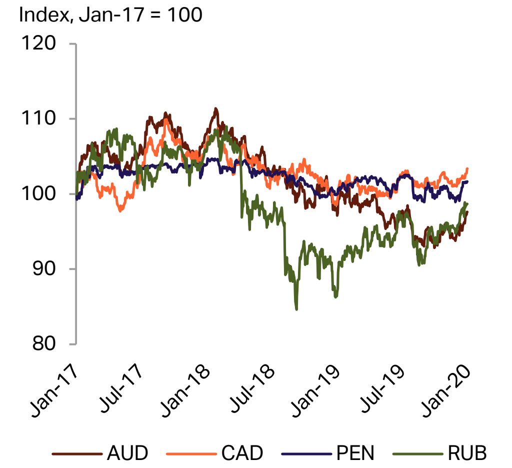
Source: Metals Focus Gold Mine Cost Service

Global Production Costs



Source: Metals Focus Gold Mine Cost Service

Exchange Rates to the US dollar



AUD - Australian dollar, CAD - Canadian dollar, PEN - Peruvian nuevo sol, RUB - Russian ruble
Source: Metals Focus, Bloomberg

second biggest gold mine in the country, reaching full production rates and reducing unit costs over the year.

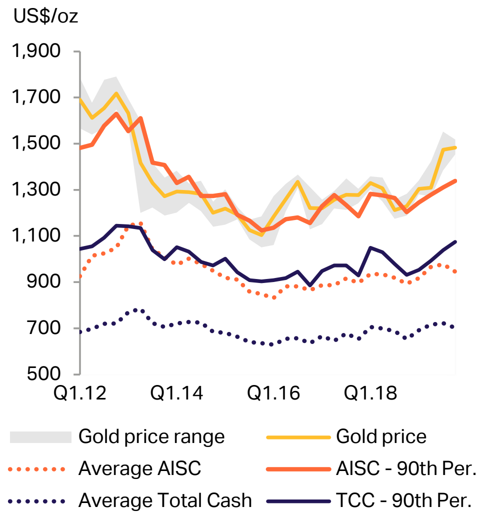
Costs increased the most in **North America**, with AISC up by 10% y/y to $1,032/oz, their highest level on record. All three countries in the region contributed to this increase, with AISC in Canada and Mexico up by 6% y/y while in the US they rose by 14%. Higher costs in the US were a result of lower production from several major mines alongside higher levels of sustaining capex to extend mine lives at mature assets. This type of expenditure may have been deferred in previous years, but stronger gold prices have boosted margins and allowed for more flexibility in capital spending. Costs were driven higher in Mexico due to local inflation of input costs with no relief from foreign exchange rates as the peso maintained its value against the US dollar. There was also upward pressure on costs as a result of industrial action at Peñasquito, the country's biggest gold mine. The operation was closed twice during the year due to blockades (led by local truck drivers and residents) for a combined period of almost 90 days, leading to substantially higher AISC. Meanwhile in Canada, a 12% y/y drop in average head grades was the main driver behind increasing unit costs.

Average AISC rose by 4% y/y in **Central and South America** reaching $967/oz. The two biggest producers in the region, Peru and Brazil, had relatively stable costs year-on-year, with AISC in both countries increasing by 1% to $952/oz and $1,045/oz respectively. In Argentina, AISC rose by 7% y/y to $1,021/oz. The country's economic crisis led to the inflation rate hitting 54% in 2019 which pushed local costs higher and offset a 42% devaluation of the Argentine peso against the US dollar. AISC at the largest gold mine in the region, Pueblo Viejo in the Dominican Republic, fell by 5% y/y due to lower sustaining capex.

In **Africa**, AISC averaged $1,027/oz, a 2% y/y increase but still marginally lower than in North America. The average AISC of the two biggest producers in Africa, Ghana and South Africa, have diverged since 2016. In Ghana, AISC fell by 2% y/y continuing a four-year trend of declining costs which have dropped from $1,041/oz in 2016 to $935/oz last year. This is largely a result of increased head grades which averaged 1.7g/t in 2019 and represents a 10% y/y rise and a 23% increase since 2016.

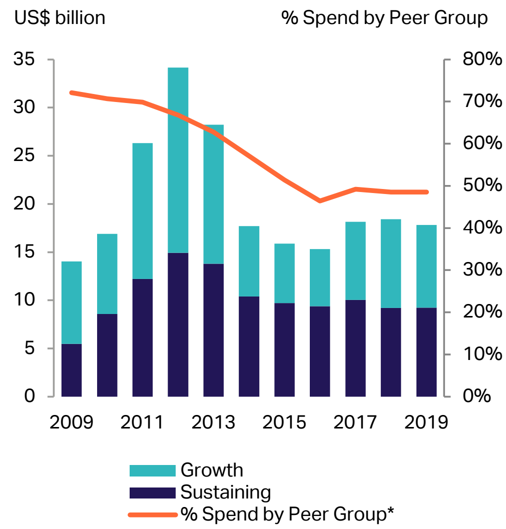
Meanwhile in South Africa, AISC increased for the fourth consecutive year reaching $1,364/oz, a 4% y/y rise. This is only $29/oz below 2019's average annual gold price. However, the higher gold price means that this is an improvement on 2018, when the average AISC in South Africa was $48/oz above the average gold price for that year. This means that on average the South African gold mining industry was running at a loss in 2018. Most gold mines in South Africa are deep, narrow and mined using labour intensive methods, resulting in high fixed costs. This, combined with falling grades from mature mines, which have decreased by 27% since 2016, leads to increasing unit costs each year. There has been some relief from the weakening of the rand, but this has not been sufficient to offset inflationary cost pressures.

Gold Price vs. Marginal Cost



Source: Metals Focus Gold Mine Cost Service

Global Industry Capital Expenditure



*Our peer group of 12 of the biggest gold miners.
Source: Metals Focus Gold Mine Cost Service

In **Oceania**, AISC fell by 2% y/y to $854/oz. The region's costs are dominated by Australia which accounts for 80% of costed production. Australian AISC fell for the third year in a row, by 4% y/y to $801/oz. This was attributable to higher output from low cost mines, such as Cadia Valley and Fosterville, alongside a 7% y/y weakening of the Australian dollar relative to the US dollar. Meanwhile, AISC in Papua New Guinea increased by 6% to $1,079/oz due to local cost inflation combined with lower grades and recovery rates at Lihir, the country's biggest producer.

2020 Gold Production Cost Outlook

The COVID-19 pandemic and related economic turmoil will have significant implications for costs across the gold mining industry this year. Lockdown policies implemented by several major gold producing nations meant that companies have been forced to temporarily halt some mining operations. These operations will have higher operating costs this year as a result of care and maintenance costs, lower production and reduced efficiency. Unit costs will only stabilise when these mines are able to return to full production rates. In addition, many mines will face higher costs to get consumables to site as a result of disruption to international and local transport routes.

However, the economic turmoil caused by the pandemic has resulted in a strengthening of the US dollar against many local producer currencies, while the collapse in oil prices will eventually feed through to lower diesel prices. Both of these factors will put downward pressure on operating costs and will lead to those mines, which have been able to continue operating as normal, having lower costs this year. Finally, the uncertainty in the global economy caused by the pandemic has led to the gold price rising above $1,700/oz for the first time since 2012. This will boost margins for mines which have been able to operate as normal and allow many operations to remain profitable even if costs increase as a result of temporary closures.

Capital Expenditure

Following two consecutive years of growth, capital expenditure in the gold mining industry fell by 3% y/y to US$17.8bn. This was driven by a 7% fall in growth capex, to US$8.6bn, while sustaining capex remained almost unchanged from the previous year at US$9.2bn. This reflects the continued focus of miners on controlling capital expenditure, alongside operating costs, to ensure that margins remain healthy.

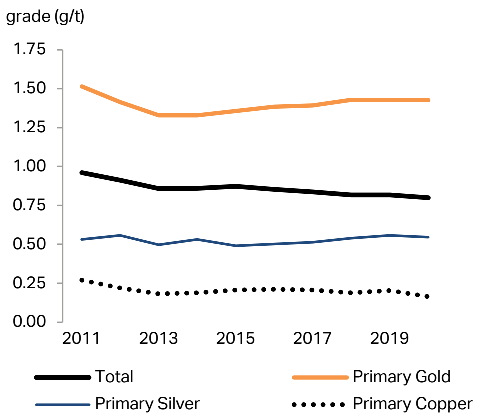
The drop in growth capex has coincided with M&A value almost doubling year-on-year in the gold mining industry. This suggests that companies have been increasingly turning to M&A for growth instead of investing in projects that they already own. This approach appears more prevalent for the major gold producers. Growth capex from our peer group of 12 of the largest gold miners dropped by 11% y/y, a greater fall than seen across the industry as a whole, while there were several major M&A deals involving these companies over the year.

Global Reserves & Resources*

Tonnes	Reserves	Resources^
N America	11,030	35,470
C&S America	7,480	24,350
Europe	1,250	3,330
Africa	7,640	29,470
CIS	15,330	35,450
Asia	6,860	36,630
Oceania	5,870	18,540
Global Total	**55,460**	**183,240**

* Contained gold estimates based on available data as of end-2019.
^ Mineral resources (measured, indicated and inferred) stated are inclusive of reserves
Source: Metals Focus

Global Head Grades



Source: Metals Focus

Gold Reserves & Resources

Gold contained in ore reserves attributable to the top-20 listed gold miners increased by 9% y/y in 2019. This was due to increased M&A activity consolidating more of the global reserve base into fewer companies.

Of the major gold miners, Sibanye-Stillwater reported the greatest fall in gold reserves (-7%), due to depletion from mining. Reserve depletion was partially offset by a marginal increase in underground reserves at Beatrix, following the preliminary study of the Bloemhoek decline project. Polyus Gold reported the next-largest fall (-6%), due to inventory adjustment from lower grade stockpiles and mining depletion. However, a maiden reserve report from Sukhoi Log is expected to be completed by late-2020 that will add to the company's reserve base. In contrast, Newmont reported a rise in reserves of 53%. This was mainly from the incorporation of Goldcorp assets, the joint venture formation of the Nevada Gold Mines (NGM), and notable reserve growth at Tanami, NuevaUnión, Merian and Ahafo. Barrick also increased its reserves by 15% largely due to the additions from former Randgold assets following their acquisition. There were also increases from the refinement of economic assumptions in operating mines such as NGM, Veladero, and Kibali.

Overall, we estimate global proven and probable mineral reserves dropped by 1% y/y to stand at 55,460t at the end of 2019 - sufficient for almost 16 years of global mine production at current rates. A further 183,240t of measured, indicated, and inferred resources have also been identified, which would allow production for an additional 52 years if successfully converted to reserves. Most producers continue to estimate reserves and resources based on a gold price of between $1,200-1,400/oz. If price assumptions are increased due to higher gold prices then there may be meaningful increases to reserves and resources in the coming years.

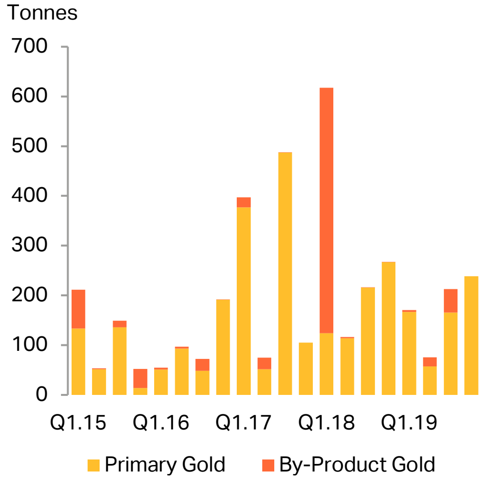
The accompanying chart shows the trend in gold head grades since 2010, which have fallen by 13% over the period to 0.9 g/t in 2019. The greatest fall in average grades has occurred at primary copper mines with gold grades dropping by 39% since 2010. This is because very large lower-gold grade open-pit operations have been brought into production, including Constancia, Las Bambas, Oyu Tolgoi, Red Chris and Sierra Gorda.

Meanwhile, primary gold grades have been flat over the last three years, which suggest there have not been significant structural changes in either the grade or mine type of primary gold operations over this period. However, with gold prices now significantly higher than those in recent years, lower grade ore will become economic to process. Therefore it is likely that head grades will fall in the future if gold prices remain high.

Exploration Activity

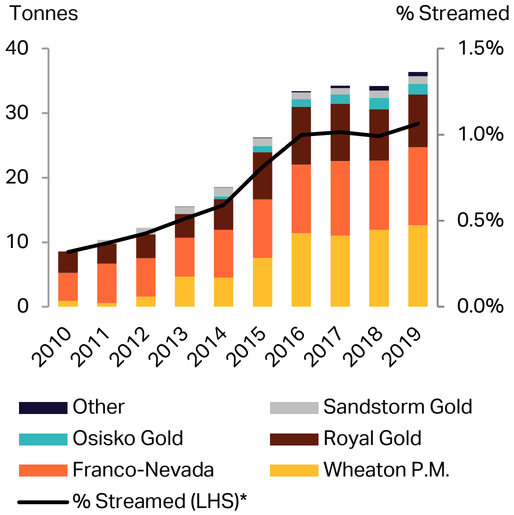
The increase in M&A activity, alongside a weaker gold price in the second half of 2018, fuelled a drop in exploration spending in 2019. This is reflected in data provided by Opaxe, which reveals a 76% y/y increase

New Gold Discoveries*



*Volume of gold contained in initial resource announcements.
Source: Opaxe

Gold Streaming & Royalties



*Percentage of global mine supply covered by royalty and streaming agreements
Source: Metals Focus

in exploration reports supporting acquisitions and a 29% y/y drop in preliminary economic assessments, pre-feasibility and feasibility studies. Australia and Canada continued to attract the most exploration interest, accounting for 35% and 28% of the exploration updates, highlighting the preference for politically stable countries with promising geological terrains. The number of reports attributed to the US fell by 27% y/y, reducing its global share to 8%. Africa accounted for 8% of the exploration updates in 2019. However, activity varied by country, with updates from the Ivory Coast rising by 70% y/y whereas announcements from South Africa fell by 71% y/y.

The number of initial gold resource announcements rose by 17% y/y, but the contained gold reported fell by 43% y/y to 697.3t. Of this figure, primary gold deposits accounted for 627.9t. The largest resource announcements were all primary gold deposits and all based in North America. IAMGOLD Corporation reported 99.3t of gold in resource at its Nelligan gold project in Canada, Nova Minerals announced 77.8t of gold in resource at the Estelle gold project in the US and Sirios Resources stated 49.8t of gold in resource at its Cheechoo gold project in Canada.

With the onset of the COVID-19 pandemic during Q1, a number of companies took the decision to reduce capital expenditure and exploration spend in order to preserve balance sheets and cash flow. This, combined with the restrictions on international travel, will result in reduced exploration activity in 2020.

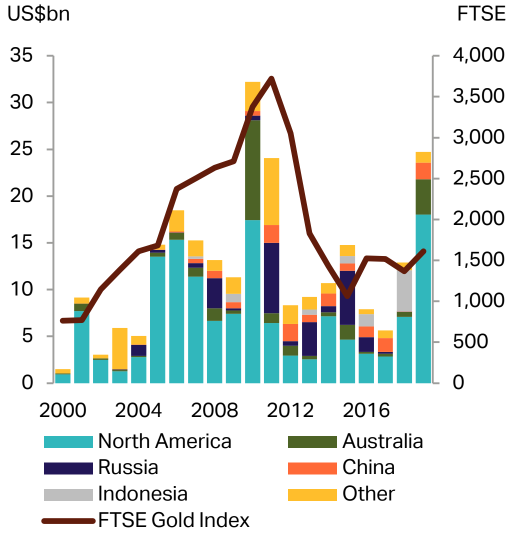
Gold Streaming & Royalty Agreements

The volume of gold produced under royalty and streaming agreements rose by 6% to 36.4t in 2019. This was driven by organic growth from the major streaming companies as disruption from 2018 normalised and new projects came online.

Franco-Nevada posted the largest increase, up 1.4t, as Cobre Panama delivered first production and output from Candelaria grew following last year's pit wall failure. Wheaton Precious Metals production grew 0.7t primarily due to an increase from San Dimas and growth from Sudbury. The junior royalty and streaming companies had variable results, with limited impact on year-on-year changes.

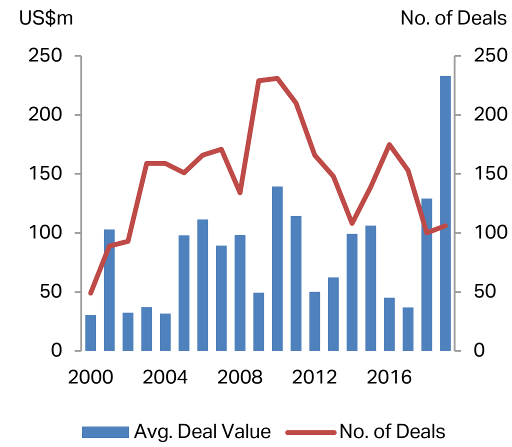
The majors did not enter any new significant deals in 2019. The increasing gold price means cashflow within the industry has improved, leading to stronger balance sheets with fewer miners looking to recapitalise. However, some developers are still turning to streaming and royalty deals in order to secure funding to advance projects. Franco-Nevada acquired a 1% royalty on all minerals from Solgold's Alpala project, in Ecuador, for US$100m in May 2020. Although new deals were scarce in 2019, Franco-Nevada acquired two royalties from Premier Gold Mines Limited for US$6m, and Maverix acquired a portfolio of 25 precious metal royalties from Kinross in a cash and shares deal.

Value of Completed Deals by Acquiring Country



Source: Bloomberg, Metals Focus

Number of Deals Completed & Average Value



Source: Bloomberg, Metals Focus

Corporate Activity

The value of M&A activity in the gold sector almost doubled year-on-year, reaching $24.7bn. This was still below the record level achieved in 2010 of over $30bn. Despite this increase in value, the number of completed transactions remained almost the same as the previous year at 106.

The Newmont-Goldcorp merger, valued at $12.3bn, was by far the largest deal of 2019 and pushed the yearly average deal value to an all-time high. This was the second mega-merger in as many years following the $5.4bn Barrick-Randgold deal in 2018. However, even if this large transaction is excluded, other deals completed in 2019 totalled more than $12bn, highlighting strong M&A activity for the second year in succession.

The strategy behind the Newmont-Goldcorp merger is broadly the same as for Barrick-Randgold. Post-merger, both entities have attempted to divest non-core assets, reduce overheads, and configure the combined business to maximise shareholder returns. A continuation of this strategy resulted in Barrick making an $18bn takeover offer for Newmont in February 2019. This was subsequently withdrawn, but has resulted in the two companies agreeing a joint venture that consolidated their Nevada operations with Barrick owning 61.5% and having management control. These two mega-mergers have to some extent bifurcated the senior gold mining space, with the two companies creating a substantial gap in terms of production and cashflow over the rest. They have also acted as a catalyst for M&A activity elsewhere in the gold mining industry.

In November 2019, Kirkland Lake Gold announced plans to acquire Detour Gold. The deal was completed in early 2020 and was valued at $3.5bn. Kirkland Lake is a growing gold producer operating in Canada and Australia that produced over 30t in 2019. Detour's main asset was the Detour Lake open pit gold mine in north-eastern Ontario. Zijin Mining, a Chinese state-owned public company, entered into an agreement to acquire Continental Gold in early December in a deal valued at $1.2bn. Continental Gold is developing the Buriticá project in Colombia, one of the world's largest and highest-grade new gold projects, with first production scheduled for 2020.

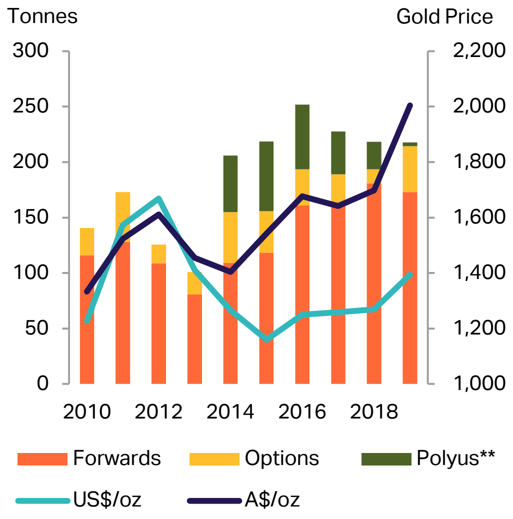
In other notable deals during the year, Equinox Gold and Leagold Mining merged, creating a gold producing firm operating entirely in the Americas. Announced in December last year, the deal adds Leagold's four mines in Mexico and Brazil to Equinox's two mines in the US and one in Brazil. The deal was valued at $816M. In July 2019, Australian gold miner St Barbara bought smaller Canadian peer Atlantic Gold Corp for $600M. At the time of the announcement, St Barbara's share cash offer represented a 39% premium to Atlantic Gold's share price. Meanwhile, Newcrest entered North America through the acquisition of a 70% joint venture interest in Imperial Metals' Red Chris mine for $804M. Red Chris is a copper-gold porphyry mine, located in the prospective 'Golden Triangle' of British Columbia. Lastly, Lundin Mining acquired the Chapada copper-gold mine in Brazil, from Yamana Gold. Production at the Chapada mine started in 2007, with the deal valued at $800M.

Hedge Book Composition*

Tonnes	2018	2019	Y/Y
Forwards	180.7	172.9	-4.3%
Options	37.6	44.8	19.1%
Total	**218.3**	**217.7**	**-0.3%**

* Delta adjusted position at end-year
Source: Metals Focus

Hedge Book Evolution*



*Delta-adjusted position at end-year **Exotic options
Source: Metals Focus

Producer Hedging

On a delta-adjusted basis, the global hedge book stood at 217.7t at year-end, a net de-hedge of 0.7t y/y. This small drop belies the activity that occurred throughout the year as producers took advantage of rising gold prices in local currency terms.

During 2019, the US$ gold price rose steadily towards a Q3 high of $1,543/oz before settling back to $1,517/oz at year-end. The Australian dollar and South African rand gold prices increased more steeply, before falling to A$2,162/oz and R682,925/kg. These price rises encouraged more hedging as producers looked to reduce debt and strengthen cashflow. For example, in order to facilitate a real net debt reduction of $300-400M, Goldfields hedged 9.8t of 2020 production in Q2. Meanwhile Harmony, looking to manage the variability of their cashflow, hedged 5.3t of production out to June 2022 in Q3. Although hedging activity continued into Q4, weaker gold prices resulted in a shift in activity, with those producers holding multiple currency hedge books preferring to add to the US$ component rather than the local currency.

The options book increased by 7.2t y/y to 44.8t. Significant additions in Q2 were mitigated by options expiring, restructuring, and closing out of positions in Q3 and Q4. Fresnillo delivered the final 10.8t into its legacy hedge during the year. This hedge has now expired and so the company is fully exposed to the gold price. Polyus restructured their options during Q4, reducing the amount of gold covered by the options by 50% to 8.7t.

The forwards book ended the year at 172.9t, a decrease of 7.9t y/y. Hedging activity picked up pace during the year with Australian producers the most active. Eight of the top 10 biggest hedge books at year-end belonged to Australian producers, accounting for 58% of the global hedge book. Newcrest remained the biggest hedger with 20.5t in the Telfer book at year-end, but did not make any additions, only deliveries into the existing book. Other producers sought to take advantage of the increase in the A$ gold price for a variety of reasons. Perseus Mining increased their hedge book to 8.6t in line with their debt refinancing deal for Edikan, Sissingué and the development of Yaouré. Northern Star Resources expanded its hedge book to 16.9t to protect cash flow during the Pogo and Jundee expansions. Saracen Mineral Holdings increased their hedge book position to 16.8t as part of their acquisition of 50% of the Kalgoorlie Super Pit.

Looking at 2020, price expectations for gold in both US$ and A$ are positive. The rising gold price has already contributed to an additional 46.7t of hedging in Q1.20. However, disrupted production in Q1 and Q2 due to the COVID-19 pandemic and the possibility of further disruption later in the year have led to producers rolling hedge contracts over, extending maturity dates and pre-deliveries into existing contracts rather than taking out additional hedges. As a result, we anticipate that there will be a small level of net de-hedging for the year as a whole.

Chapter 4

Recycling

– In 2019, recycling jumped by 12% to a seven-year high of 1,297t, driven by gains in every region.

– The most significant increases emerged in South and East Asia and Europe, the result of elevated or record high prices in local currency terms.

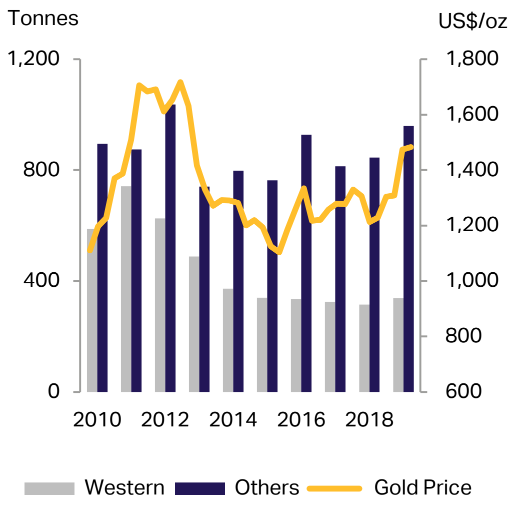
– This year, a more modest 8% lift is forecast, to a total of 1,403t, as further gains in South and East Asia and Europe will be partially offset by a slight drop in Middle East recycling.

Introduction

Last year, global recycling rose by a noteworthy 12% y/y to 1,297t, a seven-year high. This reflected increased levels of scrap supply in every key region. Of note, was the jump in recycling in the price sensitive jewellery markets of East Asia (+42t), South Asia (+40t) and the Middle East (+22t). In each case, this reflected the impact of far higher local gold prices, which in some markets, notably India, hit record levels. Price strength also underpinned gains in western markets, especially Europe. Despite that, western scrap was less than half the peak levels of earlier this decade and this helps explain why global volumes were 22% down on their 2012 high.

For 2020, gold scrap supply is forecast to rise for the third year in a row, by 8% to 1,403t, its highest since 2012. The relatively modest increase may surprise, given our forecast of near record dollar prices before year-end, which is likely to translate into new highs in local currency terms in a number of key markets. However, we expect to see recycling ease back in the Middle East, led by a decline in Turkey where the desire to buy gold as a safe haven will temper selling. This development will offset healthy increases in a number of other locations, including South and East Asia. Still depleted near-market stocks in the West will also constrain volumes.

Global Recycling



Source: Metals Focus, Bloomberg

Europe

Gold scrap in Europe rose by 9% in 2019 to a five-year high of 218.3t. The rise was overwhelmingly due to individuals selling back old jewellery in reaction to the price rally. This meant a quiet first five months swinging to strong gains as the gold price breached €40/g in June, a price level last seen in 2013. This led to a rise of over 15% y/y for the third quarter in isolation. All countries saw strong gains, although those in southern Europe saw the largest, chiefly as a function of a larger pool of 18-carat old jewellery. The pool of product is also important for a longer-term comparison; while 2019's rise was impressive, the total reached was still 40% below the 2011 peak due to depleted near-market stocks.

As for 2020, the COVID outbreak has complicated forecasts. On the one hand, logistical problems for businesses and restrictions on individuals' movements have at times constrained scrap, even though refineries have mostly been permitted to stay open. On the other, the rally to all-time highs over €50/g in April and possible future price gains, plus much greater distress selling later in the year, should boost recycling. On balance, we currently forecast another rise of 8%.

North America

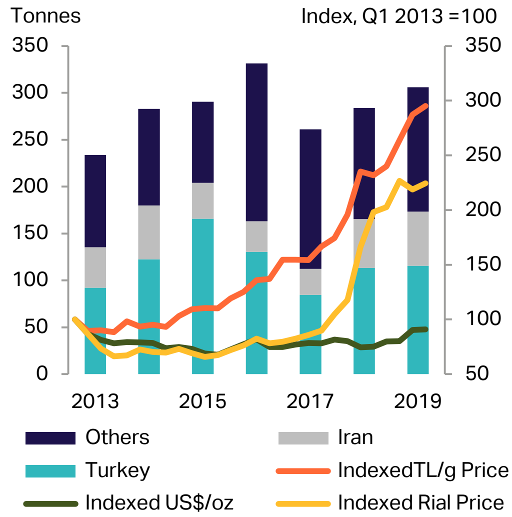
Gold scrap in the **US** in 2019 rose by 5% to a four-year high of 84.9t due to price-led gains in the selling back of old jewellery starting in the summer. Growth lasted through to year-end, despite more rangebound prices, as consumers were said to have again been slow in reacting to

Global Recycling Forecast

Tonnes	2019	2020F	Y / Y
Europe	218	235	8%
CIS	36	39	9%
North America	120	126	5%
C & S America	44	47	6%
Middle East	306	302	-1%
South Asia	153	184	20%
East Asia	344	386	12%
Africa	72	81	12%
Oceania	3	3	7%
Global Total	**1,297**	**1,403**	**8%**

Source: Metals Focus

Middle East Recycling



Source: Metals Focus, Bloomberg

higher prices. (There were also strong gains in the niche of dental scrap.) Despite that, total scrap last year was a dramatic 68% down on its 2011 peak due to heavy depletion of the near-market pool of old jewellery. This year, recycling began broadly flat y/y, but then slumped from mid-March to May due to individuals' reluctance to venture out to sell old jewellery (or to sell by post). This mattered as the areas hit hardest by COVID were often the most important for recycling. It was not down to the closure of pawnbrokers as these businesses (and refineries) were permitted to stay open. Scrap should grow strongly from now on due to greater distress selling and our forecast of higher prices to give a full year rise of 5%.

Middle East

Recycling in the Middle East in 2019 rose by 8% to 306t, driven by strong local gold prices in every key market and with the most notable gain being that in Iran. Perhaps surprisingly, we forecast Middle East recycling to ease back slightly in 2020. This is the product of reduced supplies from Turkey and Iran as a reluctance to relinquish safe haven assets offsets the impact of distress selling (driven by the COVID pandemic).

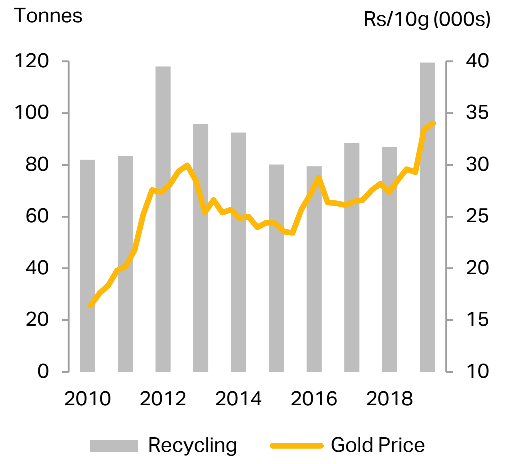
Turkish scrap supply in 2019 rose for a second straight year, albeit by a mere 2% (compared to the 34% jump in 2018). The year was mixed in terms of the strength of flows. The first quarter saw strong gold demand and this led to a 5% y/y fall in recycling in that period, but this was followed by a 10% increase in the second quarter. Although the local gold price hit a new high in that period, scrap flows were restrained by increasingly positive price expectations which therefore discouraged selling back.

The poor economic backdrop and political turmoil also curtailed the selling of jewellery in light of its position as a safe haven asset. The steep q/q rise in scrap in Q3 was mainly in response to local prices jumping by 15% compared to the first half of the year. Although the local price remained strong for the rest of the year, Q4 volumes fell q/q. For 2020, we expect local prices to strengthen further but we forecast a 10% drop in recycling to 104t, as interest in safe haven assets proves to be the stronger motive.

Currencies also continued to play a role in **Iran** as the ongoing depreciation in the rial saw scrap increase last year by 11% y/y to 58t, following the massive increase of 89% in 2018. This picture did not apply to the entire year though; the rial recovered some ground in June (when the local market began trading at a 2% discount to London) and this fed through to scrap in Q3 falling by 24% y/y as the local gold price fell 19% from its peak. However, as a result of the country-wide protests that erupted in mid-November, the rial reversed course and depreciated sharply, leading to heavy distress selling. For this year, we forecast a 5% decline in scrap volumes as a result of motivations similar to those noted above in Turkey.

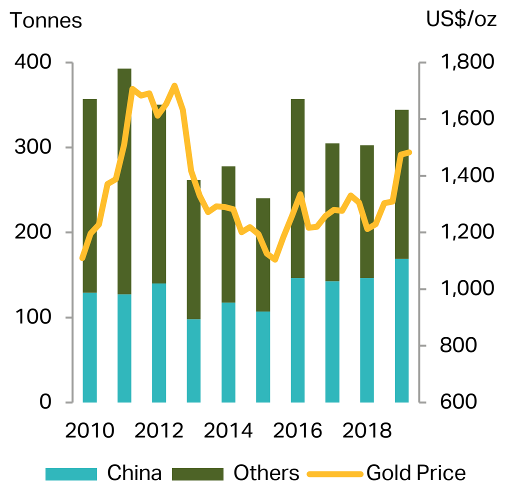
Egyptian scrap supply increased by 6% in 2019, mainly as a result of higher local gold prices triggering selling back in the second half of the year. Looking ahead, we expect a slight decline in volumes for this year.

Indian Recycling



Source: Metals Focus, MCX

East Asian Recycling



Source: Metals Focus, Bloomberg

South Asia

Gold recycling in **India** rose by 37% y/y last year to 120t, a record high in our series (going back to 2010). This was driven by an increase in the rupee gold price (which saw a fresh all-time high of over Rs.35,000/10g) and, to a lesser extent, the slowdown in the Indian economy. The share of gold sold for cash also rose from an estimated 50% in 2018 to 55% last year, which was also the highest level in our series. As such, the share of scrap generated by the exchange of old for new jewellery fell (which is not captured in our scrap data). Turning to 2020, we expect recycling to remain buoyant, leading to some 140t of gold being sold back for cash in the domestic market. Along with record domestic gold prices, this reflects the impact of COVID-19 and its massive impact on consumers, particularly among lower income groups.

East Asia

After falling for two consecutive years, **Indonesian** scrap supply rose in 2019 by 15% to 27t as higher rupiah gold prices encouraged consumers to liquidate their gold holdings. Within the year, the selling back of gold was particularly strong in the second half (our research points to a 22% y/y increase). Turning to this year, we expect recycling to increase further, albeit at a slower pace.

Thai recycling rose by 13% to 35t in 2019. A weak economy and higher domestic gold prices resulted in consumers selling gold back to the retail trade. Interestingly, the selling was not just limited to consumers, as gold shops also sold back unsold stock to large bullion dealers/fabricators. Turning to this year, we expect to see a material jump in scrap supply, the result of a weak economy and higher gold prices. This trend had already emerged in March and April, when we saw a rush by consumers to liquidate their old jewellery.

Chinese scrap supply rose by 15% last year, with consecutive year-on-year growth recorded in each quarter. The main reason behind the increase was the higher gold price. This also reflected healthy demand for the new product assortments (especially "5G" gold). This meant that the supply chain restructured their product offerings, scrapping old pieces to make way for new. In the first quarter of 2020, scrap was down 35% y/y despite the higher gold price. This was because over 90% of retail jewellery stores and bank branches in China were closed throughout February under lockdown policies. As fears of contracting the virus have eased considerably in China and our price projection is positive, we currently forecast a 10% rise for gold recycling this year.

The yen-denominated gold price was historically high for the better part of 2019, particularly in the second half of the year when it rose to levels not seen since 1980. This resulted in a 12% rise in **Japanese** scrap last year, to 23t. For 2020, we only forecast a 5% increase, even though the local price has continued rallying (reaching an all-time-high in May). Logistics challenges in exporting scrap and the impact of local authorities' clamp-down on unofficial imports have weighed on collection volumes.


Responsible
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Recycling

Tonnes	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	Y/Y
Europe											
Italy	95.0	118.5	120.4	104.5	86.0	82.9	82.7	79.6	76.6	85.5	12%
Germany	41.2	44.5	40.0	31.1	23.8	24.4	24.9	24.3	23.9	24.9	4%
UK	47.0	59.0	53.0	33.0	17.5	15.0	19.3	18.3	16.5	19.4	17%
Others	114.4	140.2	137.7	112.2	101.2	94.1	89.6	84.4	82.8	88.5	7%
Sub-total	**297.6**	**362.2**	**351.1**	**280.8**	**228.4**	**216.3**	**216.5**	**206.6**	**199.8**	**218.3**	**9%**
CIS											
Russia	12.6	9.3	51.5	28.0	32.2	38.2	35.4	34.9	31.2	32.7	5%
Others	3.1	2.3	12.8	7.0	2.7	3.2	3.2	3.0	2.8	2.9	3%
Sub-total	**15.7**	**11.7**	**64.4**	**35.0**	**34.9**	**41.4**	**38.6**	**37.9**	**34.0**	**35.6**	**5%**
North America											
United States	229.5	306.0	224.6	160.5	104.3	86.6	83.0	81.5	80.8	84.9	5%
Others	62.0	74.0	49.8	46.6	39.5	36.7	36.1	36.5	33.9	35.1	3%
Sub-total	**291.5**	**380.0**	**274.4**	**207.1**	**143.7**	**123.3**	**119.0**	**118.0**	**114.6**	**120.0**	**5%**
Middle East											
Turkey	139.9	104.9	155.5	92.0	122.6	165.8	130.2	84.7	113.1	115.6	2%
Iran	63.0	45.0	66.3	43.3	57.4	38.2	32.9	27.7	52.2	57.8	11%
Egypt	30.6	44.9	40.8	34.4	32.2	29.6	92.6	76.5	46.9	49.8	6%
Saudi Arabia	50.7	35.5	39.0	23.0	23.3	16.4	19.4	15.1	13.2	15.7	19%
Others	38.1	23.7	52.4	40.9	47.4	40.6	56.1	57.1	58.3	67.0	15%
Sub-total	**322.3**	**254.0**	**354.0**	**233.5**	**282.9**	**290.7**	**331.3**	**261.1**	**283.8**	**305.9**	**8%**
South Asia											
India	82.0	83.6	118.0	95.8	92.5	80.2	79.5	88.4	87.0	119.5	37%
Others	26.7	32.3	24.7	21.2	24.1	23.8	21.8	22.7	26.4	33.9	28%
Sub-total	**108.7**	**115.8**	**142.7**	**116.9**	**116.6**	**104.0**	**101.3**	**111.1**	**113.4**	**153.4**	**35%**
East Asia											
China	129.3	127.3	140.0	98.0	117.6	107.0	146.3	142.6	146.5	169.1	15%
Thailand	33.0	38.0	28.0	27.0	27.5	21.0	40.2	31.0	31.0	35.1	13%
Indonesia	48.0	42.0	30.0	25.0	22.5	15.9	43.2	24.0	23.2	26.7	15%
Japan	32.5	68.0	48.6	35.0	38.7	31.4	22.6	22.1	20.8	23.3	12%
Others	114.5	117.6	103.7	76.7	71.4	65.0	104.8	85.0	81.2	90.3	11%
Sub-total	**357.2**	**392.8**	**350.3**	**261.7**	**277.7**	**240.2**	**357.0**	**304.7**	**302.6**	**344.4**	**14%**
Other Regions											
C&S America	47.0	58.7	66.1	46.2	39.8	38.1	43.8	43.2	43.9	44.4	1%
Africa	38.8	35.6	53.8	44.0	45.4	48.6	53.9	53.4	65.4	72.3	11%
Oceania	5.2	6.6	5.2	3.4	0.4	0.7	2.1	2.0	2.1	2.9	35%
Sub-total	**91.0**	**100.9**	**125.1**	**93.7**	**85.6**	**87.5**	**99.7**	**98.7**	**111.4**	**119.6**	**7%**
Global Total	**1,484.1**	**1,617.4**	**1,661.9**	**1,228.7**	**1,169.8**	**1,103.4**	**1,263.5**	**1,138.1**	**1,159.6**	**1,297.3**	**12%**

Source: Metals Focus

Chapter 5

Jewellery

– Jewellery fabrication in 2019 fell by 6% to a nine-year low of 2,137t. This 148t y/y fall was almost all through losses of 10% in India and 9% in China due mainly to high prices and poor consumer sentiment.

– Outside of those two, offtake fell by just 18t or 2%, with the best results being Iran's 5t fabrication rise and the 3t lift in US consumption.

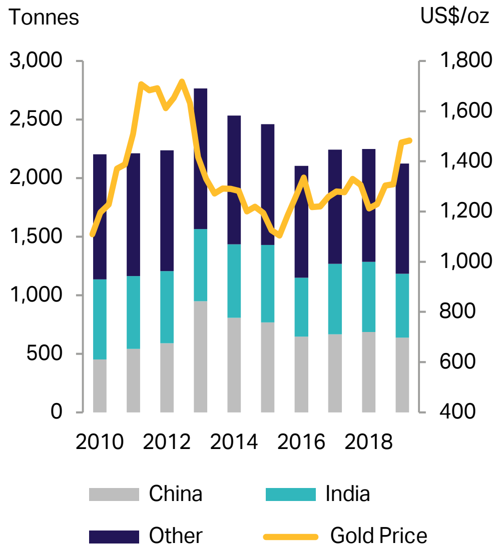
– The decline in global fabrication in 2020 is forecast to accelerate to a steep 25% due to COVID restrictions on retailing and its economic harm, plus higher gold prices.

Introduction

Gold jewellery fabrication in 2019 fell by 6.5% to a nine-year low of 2,137t. This was overwhelmingly due to losses in China and India. The former saw a 9% (or 67t) drop as a result of higher prices, a deterioration in consumer sentiment linked to the US:China trade war and the lingering impact of structural changes in its jewellery market. Similarly, India's 10% (62t) drop was due to higher prices and poor consumer sentiment (as GDP growth slowed), although liquidity issues were also damaging. Losses in the rest of the world were a modest 2% (or 18t). Of note here were the two big exporters, Italy and Turkey, which saw demand ease by just 2% and 1% respectively. Some countries saw gains, such as Egypt and Iran, where offtake recovered from earlier steep losses. A more meaningful gain was the 2% rise in US consumption to a high for our series going back to 2010.

A much steeper fall of 25% is forecast for world jewellery fabrication in 2020. Almost all countries are slated to see double-digit percentage losses, with emerging markets hit worse than the industrialised world. Much of the damage, unsurprisingly, is due to COVID, either directly through the associated restrictions on retailing, or indirectly through its damage to global GDP and the added fuel for the gold price rally.

Gold Jewellery Consumption



Source: Metals Focus, Bloomberg

Europe

Jewellery **consumption** in Europe remained weak last year, slipping 1.3% to a low for the decade of 104.0t. Political uncertainties, a dispiriting economic backdrop and higher gold prices were often cited as drivers and this seems borne out by UK hallmarking; after a 1% y/y rise in H1.19, the full year swung to a drop of 3%. Company-specific factors also hit sales, such as some French hypermarkets pulling out of jewellery. There were still some positives. These included rising online sales, in part as traditional catalogue sellers look to have had fair success in transitioning online. There were also some market share gains from silver plus higher sales to tourists. The latter tend to buy higher ticket items and so the value of sales often outperformed the fine weight. For example, Société 5 report a 2% rise in value for French gold sales, which contrasts to the 3% drop in weight. Tourist purchases look set to slump this year due to COVID, which together with higher gold prices, economic contraction and retailer closures lead us to forecast a 13% slump in the region's consumption.

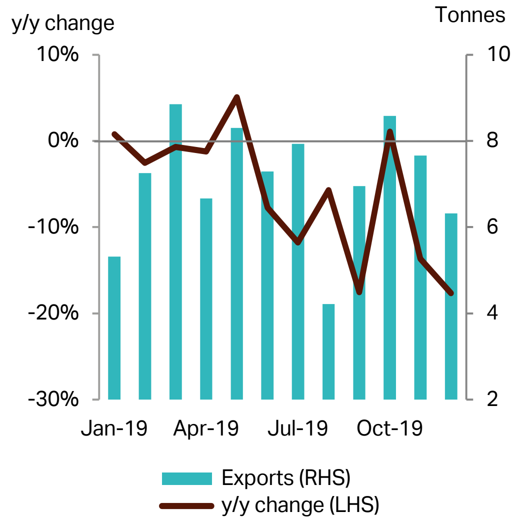
European jewellery **fabrication** in 2019 slipped 0.4% to 207.1t, much of which was due to the 2% drop in Italian offtake. That in turn was mainly driven by price-led weakness in exports in the second half. There were also regional factors at work. The most important was the 11% fall in shipments to Hong Kong as a result of ongoing market share losses in mainland China and political unrest in the former colony (and despite strong re-exports to south-east Asia). The drop in shipments to the Middle East was also sizeable, the result of continued weakness in the Dubai market plus the relocation of Italian factories from the region to the Americas. In contrast,

Jewellery Consumption Forecast

Tonnes	2019	2020F	Y/Y
Europe	104	91	-13%
CIS	52	46	-11%
North America	162	137	-16%
C & S America	57	51	-10%
Middle East	253	215	-15%
South Asia	607	396	-35%
East Asia	828	643	-22%
Africa	51	44	-14%
Oceania	8	7	-12%
Global Total	**2,123**	**1,630**	**-23%**

Source: Metals Focus

Italian Gold Jewellery Exports



Source: Metals Focus

exports to the EU were stable, while there was strong growth in exports to the Americas. This was most marked for the US, stemming from Italian fabricators' marketing efforts, that market's ongoing interest in heavy chain and healthy re-exports to Latin America. Flows to Canada also continued to benefit from that country's free trade deal with the EU.

Not all countries within Europe, however, saw demand losses. Switzerland and France for example saw modest gains due to ongoing strength for the top-end watch and jewellery brands. That strength looks unlikely to continue this year due to COVID losses (Swiss gold watch hallmarking was down 37% y/y to end-May). Of particular importance is the closure of Italian factories from early March to early May, followed by their slow return to normal operations plus lost sales through cancelled jewellery fairs. As a result, we forecast a steep drop of 19% for European offtake this year.

Russian jewellery demand rose by 1% to 38.5t, a five-year high. That said, this fell comfortably short of the 53.8t achieved in 2014. The recovery of the past few years continued into 2019 and this resulted in increased optimism early on across much of the supply chain. However, as the gold price strengthened during 2019, sales fell away, resulting in a disappointing end to the year for the country's jewellery industry.

North America

US gold jewellery consumption saw its third year of growth in 2019, as a 2% rise took the total to a high for the decade of 131.1t. That level was also some 21% up on the 2012 trough. Underpinning last year's gain and the longer-term rise was a combination of solid economic growth and a clear cultural interest in the metal, in part due to a belief in gold jewellery acting as a store of value. This was apparent in buoyant sales of plain gold basics, often to lower income groups. This is evidenced by the strength in sales of heavier chains (those in the 20-40g range in particular).

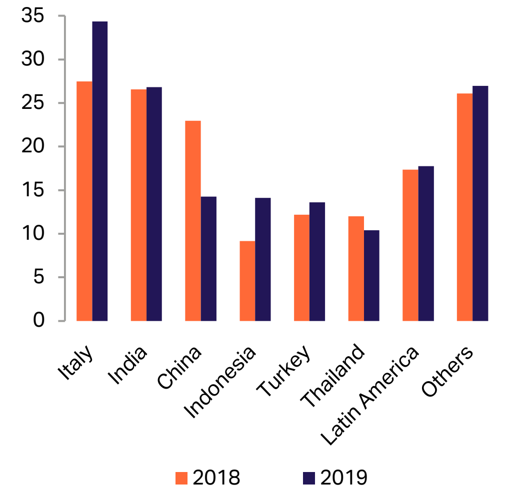
It is of note that the mid-year rise in the gold price did little harm as many pieces in-store would not have been re-priced and contacts advised us that gold prices had not yet reached especially damaging levels. In fact, it was common to hear that sales gains in the second half of 2019 were stronger than in the first, a phenomenon usually attributed to improving consumer sentiment. Another sign that price was not a major negative was that, if anything, the dominance of 14-carat over 10-carat jewellery became more entrenched. The year did see more sales of 1-carat items, but they remained small in scale and their launch by retailers was often motivated by a desire to expand product ranges, not replace higher carats. The headline news on retailing often looked negative but the actuality was typically less bleak. For example, department stores had a tough year but jewellery often performed better than other segments, while chain store closures in malls were typically in lower income and so less important areas. Similarly, the number of independent retailers continued to fall but the pace slowed and the majority of closures remained voluntary. At the same time, online sales saw another year of double-digit growth, little of which was due to market share gains from catalogue sellers.

Jewellery Consumption

Tonnes	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	Y/Y
Europe											
UK	20.3	20.0	19.4	21.3	25.7	25.9	25.2	23.1	22.5	21.8	-3%
Italy	31.3	26.1	22.7	21.2	19.9	19.2	19.0	18.8	18.5	18.2	-2%
Others	75.1	68.1	66.5	63.5	64.5	63.8	63.0	63.4	64.3	64.0	0%
Sub-total	**126.6**	**114.1**	**108.7**	**106.0**	**110.1**	**109.0**	**107.2**	**105.3**	**105.4**	**104.0**	**-1%**
CIS											
Russia	61.4	63.9	66.7	80.3	67.6	43.1	38.3	39.8	43.0	44.5	3%
Others	7.1	5.8	7.9	9.5	7.7	6.5	6.4	6.8	7.2	7.4	3%
Sub-total	**68.5**	**69.6**	**74.5**	**89.8**	**75.2**	**49.6**	**44.8**	**46.6**	**50.1**	**51.9**	**3%**
North America											
United States	126.7	121.8	108.4	112.7	116.6	119.5	118.8	123.7	128.4	131.1	2%
Others	30.8	29.9	27.3	29.5	29.7	30.8	29.7	30.7	31.1	31.1	0%
Sub-total	**157.6**	**151.7**	**135.7**	**142.2**	**146.3**	**150.3**	**148.5**	**154.4**	**159.5**	**162.2**	**2%**
Middle East											
Saudi Arabia	60.2	53.3	50.0	67.0	68.4	69.5	49.4	45.7	39.4	37.9	-4%
Turkey	70.9	79.0	68.3	80.0	68.1	49.0	40.8	41.2	36.4	36.7	1%
UAE	51.4	53.5	49.1	64.2	56.0	51.4	45.2	46.7	36.2	34.0	-6%
Iran	63.8	59.5	50.3	66.0	39.3	37.2	40.5	45.4	29.4	30.5	4%
Egypt	50.5	34.4	43.3	45.6	45.1	38.3	25.5	22.0	24.6	26.5	8%
Others	46.0	61.1	71.0	106.4	95.4	93.6	84.9	88.9	91.7	87.6	-4%
Sub-total	**342.7**	**340.8**	**332.0**	**429.2**	**372.3**	**339.0**	**286.3**	**289.9**	**257.6**	**253.3**	**-2%**
South Asia											
India	683.3	620.9	617.5	616.2	627.5	662.3	504.5	601.9	598.0	544.6	-9%
Others	56.0	64.6	67.0	58.8	56.1	57.5	62.0	67.3	65.1	62.6	-4%
Sub-total	**739.3**	**685.5**	**684.5**	**675.0**	**683.6**	**719.8**	**566.6**	**669.2**	**663.1**	**607.2**	**-8%**
East Asia											
China	452.4	543.0	589.2	948.7	806.8	767.4	644.8	665.2	686.3	638.0	-7%
Indonesia	37.1	32.2	33.3	40.7	36.5	38.9	38.4	38.6	41.9	40.4	-4%
Hong Kong	36.1	51.8	54.7	85.6	60.0	51.4	41.4	44.3	50.6	38.3	-24%
Japan	18.0	14.9	15.8	16.7	16.4	16.5	16.9	16.6	16.5	17.0	3%
Others	97.2	95.0	88.1	109.8	103.0	102.8	98.5	97.8	99.4	94.3	-5%
Sub-total	**640.8**	**737.0**	**781.0**	**1,201.4**	**1,022.8**	**977.0**	**840.0**	**862.4**	**894.7**	**828.0**	**-7%**
Other Regions											
C&S America	64.3	59.3	61.0	59.2	57.5	55.7	55.3	56.7	57.9	56.7	-2%
Africa	54.0	48.1	54.2	57.9	57.9	51.2	47.0	50.1	50.9	51.0	0%
Oceania	8.3	6.8	5.3	5.7	7.4	8.2	7.7	7.8	8.2	8.3	1%
Sub-total	**126.6**	**114.2**	**120.5**	**122.9**	**122.8**	**115.1**	**110.0**	**114.7**	**117.0**	**116.0**	**-1%**
Global Total	**2,202.1**	**2,212.8**	**2,237.0**	**2,766.4**	**2,533.2**	**2,459.8**	**2,103.4**	**2,242.4**	**2,247.5**	**2,122.6**	**-6%**

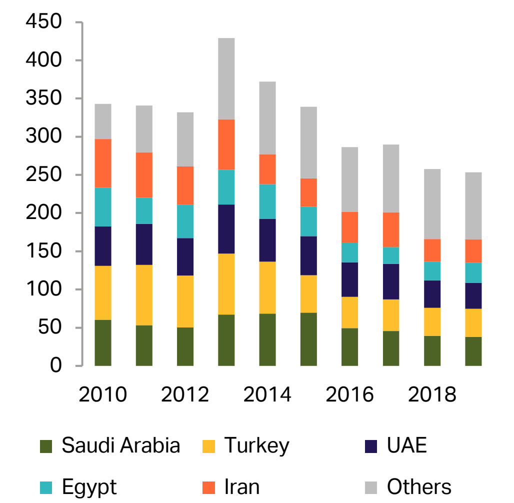
Source: Metals Focus

US Gold Jewellery Imports*



*As reported by origin, adjusted gross weights, excludes Hong Kong (to avoid double-counting with China).
Source: Metals Focus, IHS Markit

Middle East Gold Jewellery Consumption



Source: Metals Focus

Understandably, we are expecting recent years' consumption gains to abruptly reverse this year, with a fall of 16% forecast. The year actually began with further growth but, as soon as COVID-related restrictions were imposed, sales slumped. A particularly damaging aspect to the virus is that the areas hardest hit are often those of most importance to jewellery sales. In addition, the economic downturn looks to be hitting lower income groups hardest and these have been key buyers of the plain gold basics that have done so much to support consumption in weight terms. Such items will also be those most affected by higher gold prices. In addition, all jewellery will be hit by a move away from discretionary spending and a diversion in incomes to savings and any increases in health costs. There are some factors, however, that should restrain the fall. Firstly, the busiest time of the year for jewellery, its last eight weeks, should see a situation much improved on today. Secondly, ongoing gains in online sales will help to partially mitigate brutal bricks & mortar losses.

Middle East

Jewellery consumption in the Middle East fell by 2% y/y in 2019 to 253t (its sixth successive annual decline), whereas fabrication was flat y/y at 278t. Results at the country-level were mixed; Iran and Egypt for example posted gains, Turkey was little changed and Saudi Arabia and the United Arab Emirates (UAE) saw losses. Far steeper declines should prove the norm for the entire region this year in light of ongoing economic and political problems, the COVID crisis, high gold prices and low oil prices.

After a collapse in 2018, the jewellery market in **Iran** recovered last year, with jewellery consumption up 4% and fabrication up a hefty 27% y/y. This recovery (from Q2.19 onwards) was mainly just because of a very low base (consumption in 2019 was still 33% down on 2017). The main reasons that the recovery was incomplete was that US sanctions remained in place and a weak rial exacerbated gains in the US$ gold price. That said, Q3 saw a marked improvement in sentiment, triggering a surge in consumption, as the rial almost recovered to early 2019 levels, bringing with it the stabilisation of local gold prices. This in turn saw fabricators working at full capacity to meet pent-up demand. These improvements lasted until mid-November when country-wide protests soured consumer sentiment. 2019's partial recovery looks likely to be unwound this year, due to the impact of COVID-19 and low oil prices. We therefore forecast a 15% drop in consumption, cutting 2020 volumes to below 2018's dismal levels.

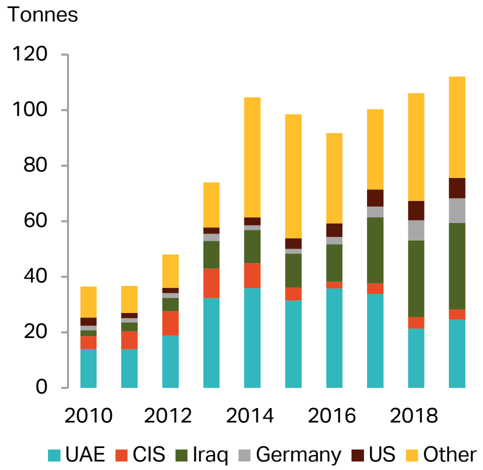
The other market of note to see gains was **Egypt**, whose consumption rose for a second consecutive year in 2019 (although growth slowed to 8% from 2018's 12%). This rise was mainly due to the stability of the Egyptian pound, a still low base and the ongoing improvement in the local economy. Fabrication rose a similar 8%, as a result of the gains in local sales plus higher exports to the UAE and Saudi Arabia. Last year, however, was not uniformly strong; the sudden rise in gold prices in late June led to a 5% y/y dip for consumption in Q3.19. We also forecast a drop of around 10% in consumption of this year due to COVID-19's economic damage.

Jewellery Fabrication

Tonnes	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	Y/Y
Europe											
Italy	119.0	96.8	92.2	114.2	124.2	121.1	110.2	118.4	128.9	126.7	-2%
Switzerland	26.5	31.3	34.2	35.2	35.8	33.0	29.8	29.8	33.3	34.2	3%
Others	50.3	47.3	42.9	41.5	43.0	42.8	41.9	44.5	45.8	46.2	1%
Sub-total	**195.8**	**175.5**	**169.3**	**190.9**	**203.0**	**196.9**	**181.9**	**192.7**	**207.9**	**207.1**	**0%**
CIS											
Russia	34.3	33.8	37.7	61.9	53.8	33.7	29.8	35.1	38.0	38.5	1%
Others	1.5	1.4	2.2	3.2	2.2	1.7	1.6	1.7	1.7	1.8	4%
Sub-total	**35.8**	**35.2**	**39.9**	**65.1**	**56.0**	**35.4**	**31.4**	**36.8**	**39.7**	**40.3**	**2%**
North America											
United States	55.4	50.4	56.0	62.0	63.1	61.7	59.5	61.3	63.8	64.6	1%
Others	24.4	24.0	20.5	23.0	23.7	24.6	25.1	26.4	28.1	28.1	0%
Sub-total	**79.8**	**74.4**	**76.5**	**85.0**	**86.8**	**86.3**	**84.6**	**87.7**	**91.9**	**92.7**	**1%**
Middle East											
Turkey	105.2	111.3	114.6	146.3	140.4	117.4	114.3	137.7	126.9	126.2	-1%
Saudi Arabia	64.8	55.9	60.4	72.6	63.3	66.4	47.4	42.3	39.2	36.1	-8%
UAE	29.8	30.5	32.2	39.1	40.2	36.5	28.8	30.5	29.9	28.8	-4%
Egypt	39.2	29.0	39.8	42.3	38.7	33.9	21.1	20.7	25.7	27.8	8%
Iran	56.2	50.5	46.8	57.0	25.3	27.1	28.2	33.1	19.8	25.1	27%
Others	31.9	35.5	33.4	41.6	40.5	40.3	34.4	35.7	37.4	34.1	-9%
Sub-total	**327.1**	**312.8**	**327.2**	**399.0**	**348.4**	**321.5**	**274.2**	**300.2**	**278.9**	**278.0**	**0%**
South Asia											
India	699.5	702.1	651.1	634.3	676.0	724.1	501.6	664.3	636.2	573.8	-10%
Others	47.2	55.2	50.8	48.5	44.3	41.8	47.2	50.3	48.0	44.6	-7%
Sub-total	**746.6**	**757.3**	**701.9**	**682.9**	**720.2**	**765.9**	**548.8**	**714.6**	**684.2**	**618.3**	**-10%**
East Asia											
China	487.3	609.1	670.0	1,080.0	868.6	820.7	661.0	692.3	741.0	673.8	-9%
Indonesia	49.5	40.6	36.0	43.3	45.7	45.6	40.8	41.8	46.4	43.5	-6%
Malaysia	49.3	49.6	48.7	64.4	59.4	58.7	51.4	47.1	46.4	42.4	-9%
Thailand	37.6	36.0	33.4	42.1	39.2	35.0	34.5	33.5	35.8	32.6	-9%
Others	61.4	57.8	55.3	63.4	70.2	72.2	71.8	71.6	74.1	71.2	-4%
Sub-total	**685.1**	**793.1**	**843.5**	**1,293.2**	**1,083.2**	**1,032.2**	**859.6**	**886.4**	**943.8**	**863.6**	**-8%**
Other Regions											
C&S America	29.4	24.7	29.9	27.9	26.2	24.2	23.3	23.5	23.5	23.2	-1%
Africa	23.9	21.8	23.9	20.8	19.1	15.4	13.4	13.9	13.2	12.2	-8%
Oceania	1.3	1.0	1.2	1.0	1.4	1.4	1.5	1.6	1.6	1.6	-4%
Sub-total	**54.6**	**47.5**	**55.0**	**49.6**	**46.7**	**41.0**	**38.3**	**39.1**	**38.4**	**36.9**	**-4%**
Global Total	**2,124.9**	**2,195.8**	**2,213.2**	**2,765.7**	**2,544.4**	**2,479.2**	**2,018.8**	**2,257.5**	**2,284.6**	**2,137.0**	**-6%**

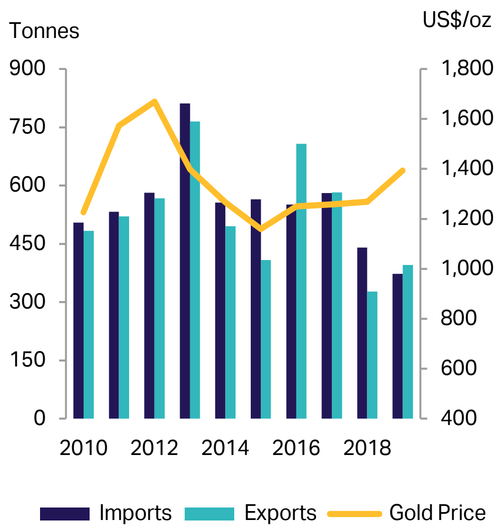
Source: Metals Focus

Turkish Gold Jewellery Exports*



*Official
Source: Metals Focus, IHS Markit

Dubai Gold Bullion Imports/ Exports



Source: Metals Focus, Bloomberg

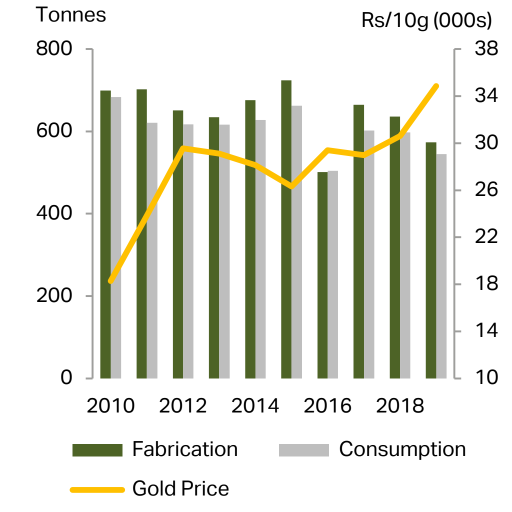
Jewellery fabrication in the region's heavyweight, **Turkey**, fell, if only by 1% y/y. This was mainly due to growth in jewellery imports and stagnant local sales. Growth might have been possible but for a slowdown in exports in Q3.19 as a result of high local gold prices in key markets. This brought to an end the y/y gains in quarterly shipments seen since Q3.18. Despite that, full year exports rose, with shipments to the key wholesale market of the UAE recovering by around 27%. This followed a slump of 36% in 2018 after the 5% import duty was implemented. Deliveries to Iraq also increased further (by a significant 24%), while exports to the US, Germany and Hong Kong continued to grow. However, shipments to other Middle East destinations that went direct, rather than through the UAE, fell significantly as the wholesale trade shifted to the UAE once more.

Turkish jewellery consumption was stagnant, rising by less than 1%, as sales continued to be hurt by the economic slowdown and the ever rising lira gold price. The latter jumped from TL218/g at end-2018 to a new all-time high of TL289 at end-August due to a deepening political crisis plus a surge in the dollar gold price. However, the price then eased, touching TL270 in late November, but this was short-lived and, by the end of the year, the price was back at TL289. This, plus greater economic uncertainty, explains why growth was so paltry, even compared to 2018's low base (consumption that year was the lowest in our series going back to 2010). We expect both jewellery consumption and fabrication to fall markedly this year due to COVID-19 exacerbating the impact of rising gold prices and the ongoing issues in both Turkey and its export markets.

Jewellery consumption in the region's largest market, **Saudi Arabia**, continued to suffer in 2019, falling by 4% (although that was modest compared to the decrease of 14% in 2018). The chief reasons for this were the ongoing negative effects of the introduction in 2018 of 5% VAT, the lingering negative effects of the 5% import duty levied on jewellery in 2017 and the ongoing 'localisation' of the economy (the replacement of expat by local workers). The latter policy has harmed jewellery consumption in three ways. Firstly, vacant positions due to a lack of trained staff constrain GDP growth. Secondly, it has led to a decline in the expat population. Thirdly, budgets of the remaining expats have been hit by the high cost of keeping family members. Other negatives last year included the rise in gold prices from June and the austerity measures adopted to reduce the budget deficit. Further losses seem inevitable this year as COVID-19 damage and weaker oil prices only intensify the above longer-term factors.

In a manner similar to Saudi Arabia, jewellery consumption in the **UAE** fell by 6% in 2019 but that was much slower than the previous year's 23% slump. This again reflected the ongoing negative effects of the introduction of a 5% VAT in January 2018 and the implementation in 2017 of a 5% import duty. Also of importance last year was an underperforming economy, worries about job security, high local gold prices and weak tourist demand (mainly from India). This year, we expect to see a yet larger consumption decline of 18% due to higher gold prices, COVID-19 damage to tourist numbers, weak oil prices and poor consumer sentiment.

Indian Gold Jewellery Fabrication and Consumption



Source: Metals Focus, MCX

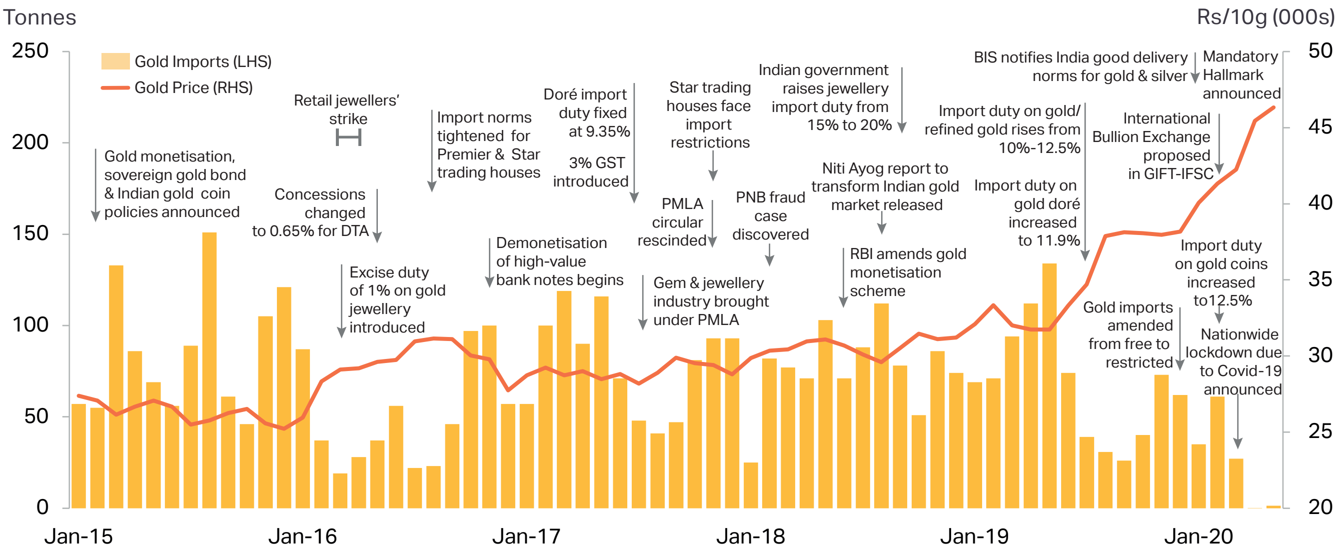
South Asia

Indian jewellery consumption fell for a second consecutive year in 2019, by 9% to 545t, its lowest since 2016. That said, it is worth highlighting some of the divergent intra-year trends. The first half saw 9% y/y growth, driven by strong wedding sales. However, rising gold prices and a deteriorating economic backdrop, along with a deepening liquidity crisis, impacted consumption during the final six months, which fell by 24% y/y.

Looking at these factors in more detail, the rupee gold price jumped by 24% last year (compared to end-2018 levels), achieving a record high of Rs.39,000/10g. This reflected a rising dollar gold price, a depreciating rupee and an increase in the import duty (from 10% to 12.5% in July 2019). Unsurprisingly, these higher local prices and the slowing economy hit consumers purchases. In addition, banks were reluctant to lend due to rising delinquencies or non-performing assets (NPAs), which hit both the trade and consumers. The liquidity issue was further aggravated by the delay in processing Goods and Service Tax (GST) refunds.

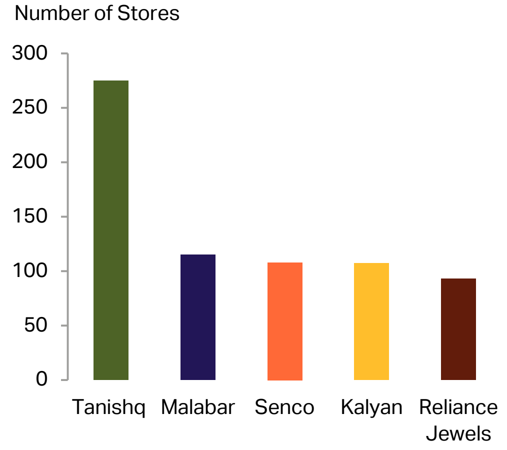
In contrast to previous years, when rural markets outperformed urban centres, consumption was weak across the spectrum last year. Even though India enjoyed above normal monsoons and higher minimum support price (MSP, which is set by the government), the erratic nature of some monsoons in key agricultural centres and the damage this caused to standing crops during October-December negatively impacted rural incomes. Other indicators which attest to the health of the rural economy, such as sales of fast-moving consumer goods (FMCGs) and two-wheelers were also weak, reflecting the true extent of the slowdown. Urban centres, on the other hand, have experienced structural changes as gold jewellery faced increasing competition from lifestyle products, such as mobile phones, cars and holidays.

Indian Gold Market - Key Events & Bullion Imports



Source: Metals Focus, MCX

Indian Retail Jewellery Stores - Top Five Chains



Source: Metals Focus, company websites

Indian Gold Bullion Imports

Tonnes	2018*	2019	Y/Y
Official bullion imports	490	497	1%
Doré imports	276	211	-24%
Total official imports	**766**	**708**	**-8%**
Semis imports*	6	3	-50%
Unofficial bullion imports	100	117	17%
Gross bullion imports	**873**	**828**	**-5%**
Bullion exports	-	-	na
Round tripping	116	181	71%
Net Bullion Imports	**756**	**647**	**-14%**

*Includes coin imports from South Korea
Source: Metals Focus

Another important theme last year was the further market share gains realised by regional and national chain stores, at the expense of independents. The top 17-18 retailers now enjoy a market share of around 38% compared to less than 30% five years ago. This was also the first time their combined share exceeded that of stand-alone retailers (with their 37% market share). This was driven by their expansion into Tier 2 and Tier 3 cities. However, it is worth noting that stand-alone retailers still dominate the bridal jewellery market as they provide flexible payment options and also tend to focus on bespoke designs.

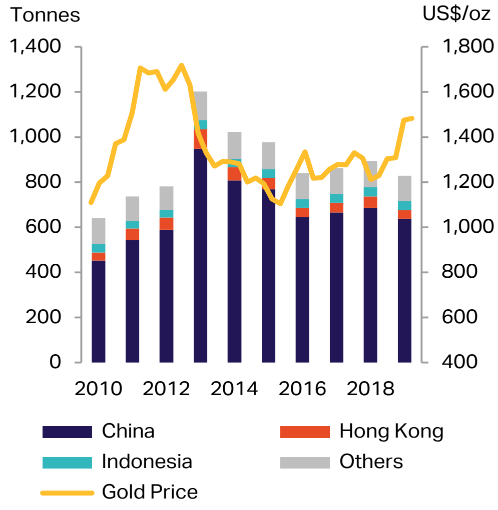
Jewellery fabrication underperformed consumption for the second straight year, dropping by 10% to 574t. The total was impacted by the cautious approach adopted by retailers towards inventory build amid the slowdown in consumer demand. The last few years have seen a rise in inventory due to increased competition. However, falling sales have resulted in a reduced stock-turn, leading to rising inventory costs. Our discussions with the retail trade also revealed high levels of poorly selling stock, especially of studded jewellery. This has prompted retailers to now reduce stocks, which has resulted in fewer purchases at jewellery shows.

Reflecting the drop in demand, bullion imports fell by 8% to 708t, making it the second lowest total in our series. Within this, refined bullion imports stood at 497t (490t in 2018), and doré imports at 211t (276t in 2018). Refined bullion imports rose due to a surge in round tripping (which meant a steep 14% drop in total net bullion imports). Doré imports fell as the rise in the import duty pushed the market to a wide discount, making it unprofitable to import doré. While official imports have fallen, unofficial flows jumped as the price differential between them and official flows grew, following the duty hike in July 2019.

Looking ahead, the outlook for Indian jewellery demand remains exceptionally weak, given the adverse impact of COVID-19 on the Indian economy, which this year is likely to post its lowest growth in four decades. India's nationwide lockdown (announced on 25th March and exceeding 70 days) led to large-scale job losses, with incomes in the informal sector hit particularly hard. This has been especially true for the urban economy which has been worst affected by COVID-19. That said, some positive signs are emerging. This is especially true for the rural economy, which was far less impacted by COVID-19 and as agricultural activity saw minimal disruption even during the lockdown. As a result, the rural economy is poised to recover relatively quickly and outperform urban India this year.

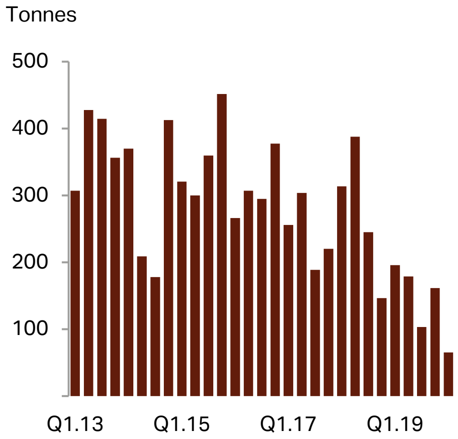
Overall, we believe that over the next 6-12 months, weddings are likely to be much smaller in scale and some savings from this could be used to buy more gold for the bride and family members. However, high value purchases will still be negatively impacted. As a result, while demand could benefit from higher wedding related purchases, the all-important daily wear segment could be severely impacted due to lower discretionary spending. We therefore forecast a 36% drop in demand to just 348t, comfortably the lowest level in our series.

East Asian Gold Jewellery Consumption



Source: Metals Focus, Bloomberg

Net Chinese Gold Bullion Imports



Source: Metals Focus

Sri Lankan jewellery fabrication fell by 15% in 2019, a second consecutive year of double-digit losses and the lowest level in our series. This was largely due to an economic slowdown (GDP growth is estimated to have fallen to 2.3% in 2019, the lowest in nearly two decades). Another negative for demand was the terrorist attacks in April 2019 which hit tourism significantly and undermined consumer sentiment.

After rising for three years, jewellery fabrication in **Nepal** fell by 6% in 2019 to 12t. This reflected a slowing economy and the hike in the import duty on gold. Following the duty increase by India in July 2019, Nepal followed suit by raising its own duties as a jump in unofficial flows into India led to a shortage in the tightly regulated domestic market. This, coupled with the weak local currency, also meant that domestic gold prices posted record highs, which further weighed on demand.

East Asia

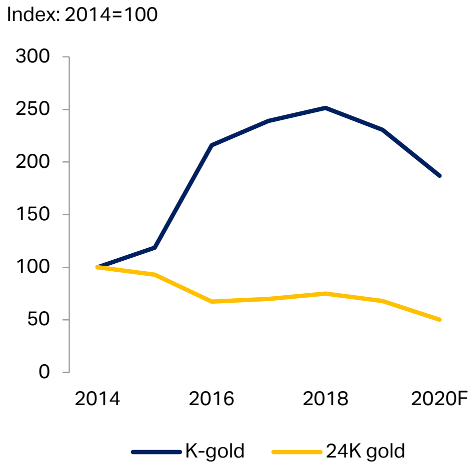
East Asian jewellery fabrication fell by 8% 2019, with China accounting for 83% of all losses. Jewellery consumption fell a similar 7% and China was again largely responsible, but Hong Kong's 24% slump was also of note.

After two consecutive years of healthy growth, **Chinese** gold jewellery consumption fell by 7% to 638t in 2019. Last year began well, thanks to a healthy Chinese New Year (CNY) period. However, sales were modest from February to May and then suffered notable declines from June onwards. In fact, the last two quarters recorded double-digit losses due to a rallying gold price and deteriorating consumer sentiment, resulting from the trade war and wider economic uncertainties. The ongoing structural change in jewellery product assortments and a shift to lighter pieces also continued to weigh on demand and indeed accelerated last year.

The above noted strong focus on light-weight items was a key aspect to product innovation in the jewellery supply chain last year. The lower weight per piece helps reduce financing costs as less raw material is needed. Their lower price points also make lighter pieces easier to sell. In addition, they often have sophisticated designs and so retailers can sell them by piece rather than weight, ultimately resulting in better profit margins for the whole supply chain. This helps explain why, despite consumption falling in fine weight terms, many manufacturers saw higher profits in 2019. In addition, the ever-widening product range also lent support to sales.

The other key aspect of structural change was sales of generic three 9s and four 9s gold jewellery continuing to fall due to competition from products with greater added value. This did not include generic five 9s pieces, which only held steady thanks to some retailers' aggressive expansion in lower tier cities. Nor does it include K-gold; after a small rise in the first half of 2019, K-gold saw a double-digit slide in the second half. This meant a drop for the full year of 8%, its first decline since its launch. This was in turn largely due to poor consumer sentiment, market saturation and competition from newer types of product. As these factors should remain in place in 2020, we expect K-gold to see another drop this year.

Indexed Chinese Gold Jewellery K-Gold vs 24k Gold



Source: Metals Focus

Instead, the main success story in 2019 was "5G" gold, which achieves a similar hardness to K-gold and thus exploits its design advantages while maintaining a 24-carat purity. Shenzhen showrooms started aggressively pushing this after the Chinese New Year. Retailers were initially cautious, due to concerns over product differentiation and the lack of consistent standards for hardness. However, thanks to the efforts made to improve the hardness and provide a wider range of designs, a growing number of retailers embraced 5G during the year. Some platinum factories also shifted into 5G gold. This all led to 5G gaining market share from K-gold (especially 22k items) from Q2.19 onwards and, in the second half, 5G outperformed all other segments. This trend has continued so far in 2020; even under lockdown, online sales of 5G were helped by their lower price points through lighter designs, which better suited consumer budgets.

Sales growth for 3D "hard gold" also continued in 2019, if at a slower pace than the two prior years' rapid rise. This, plus fierce price competition, led to the closure of smaller-scale plants which only focused on generic 3D items. Some leading manufacturers shifted to premium or cyanide-free products to maintain an advantage. For instance, "5D hard gold", thanks to its greater hardness, can achieve a wider range of designs in lighter pieces. The better integration of enamel in designs was another approach tried. Similarly, sales of "antique crafted gold" were up for the full year but they slowed q/q during 2019 due to the rising gold price and, to some extent, market saturation. In response to higher prices, the supply chain

The Evolving Range of Chinese Gold Jewellery

"5D" earrings and bangle, courtesy of XIFU Jewellery

Goldstyle collection ("5G gold") pendant, courtesy of Luk Fook Jewellery

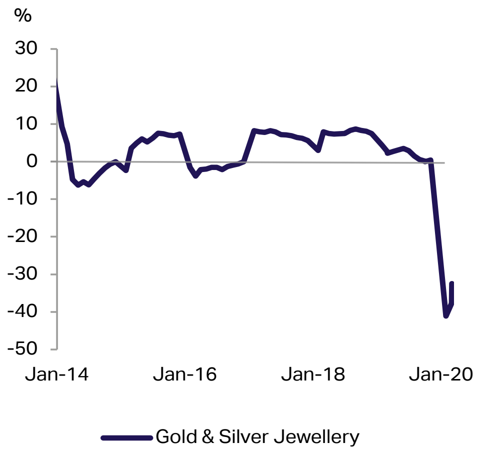
Premium 3D hard gold pendant with coloured stone and charm with enamel accent, courtesy of 3D Ket

Small antique crafted gold ring with enamel accents and bangle, courtesy of Yuehao Jewellery

Major Retailers - Number of Branches in Mainland China

* Chow Tai Fook and Luk Fook numbers from end-Sep
Source: Company reports/presentations

Chinese Retail Sales, y/y Change



Source: National Bureau of Statistics

developed "small antique crafted gold" by providing a wider range of designs in lower weights such as six-gram bracelets and one-gram rings.

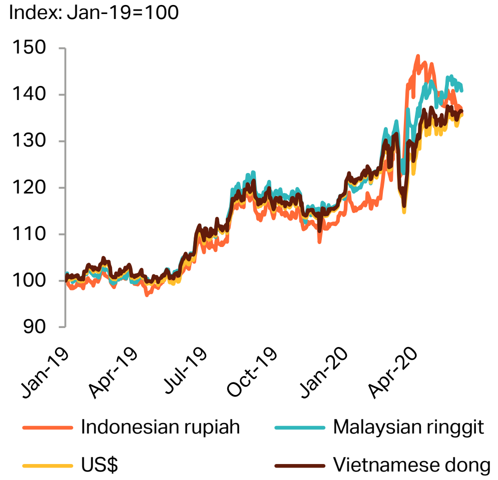
Looking at retailing in more detail, the leading companies continued their aggressive network expansion despite fears of deteriorating market sentiment and economic slowdown. Chow Tai Fook (CTF) reported 650 net store openings in mainland China last year with a focus on lower-tier cities and small towns. Laofengxiang and Luk Fook respectively saw 372 and 249 net new store openings. By contrast, many regional brands suffered, as some of their operators swapped to leading brands, to benefit from access to better store locations, higher rebates in shopping malls, credit support and higher premiums. There was also a continuation to leading retailers' multi-brand strategy, designed to capture different consumer tastes. For instance, CTF opened 52 Monologue stores, 45 Soinlove stores and the first CTF • HUÁ store (which only sells antique crafted gold). Also of note was Luk Fook's opening of 45 Goldstyle stores, which focus on 5G gold.

In 2019, jewellery fabrication experienced a slightly greater decline than consumption, mainly reflecting de-stocking activities and a slower pace of retailer network expansion. In the fourth quarter in particular, the under performance of fabrication versus consumption was amplified by lower jewellery exports to Hong Kong and the US. Manufacturers (and wholesalers), whose client base consists more of top end, branded retailers continued to do better than their peers in 2019.

In Q1.20, China's jewellery consumption slid by 65% y/y. Demand before CNY enjoyed modest growth, but this was more than offset by the COVID-19-related collapse that followed. Over 90% of retail stores were closed throughout February. Footfall in jewellery stores also remained low in March, as fears about the virus persisted. In contrast, online sales grew strongly. Many retailers have been making efforts to improve their online shopping experience, through store live-streaming on social media and e-commerce mobile apps. Most of the promoted items are lightweight, with retail prices of ¥500-2,000 per piece (around $70-280). This is a budget that 3D hard gold, 5G gold, and K-gold can achieve with appealing designs. However, e-commerce lent limited overall support as it still only accounts for a small share of total consumption.

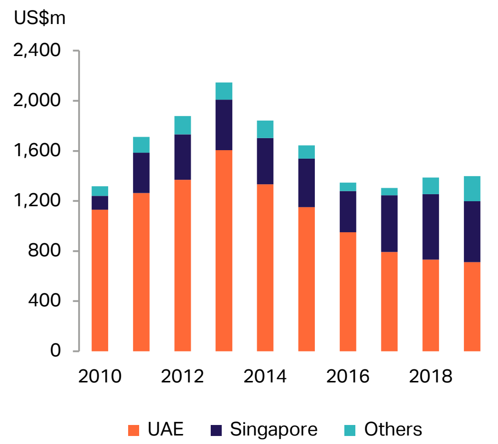
We currently forecast a 23% decline to 493t for Chinese gold jewellery consumption in 2020. Although life has moved back to normal in most of China and local governments have announced fiscal and monetary stimulus policies, the economic slowdown, and by extension lower disposable incomes, should continue to weigh on consumer spending on jewellery. Consolidation across the jewellery industry is also likely to accelerate. Although the pace of leading retailers' network expansion is very likely to slow down, they have been taking this opportunity to optimise their product management and R&D. By contrast, small and medium-sized regional brands are struggling with cash flow. Besides, the target client group of the latter has a higher likelihood of being more severely affected by unemployment and more generally by the economic downturn.

Indexed Local South East Asian & US$ Gold Prices



Source: Bloomberg

Malaysian Gold Jewellery Exports



Source: IHS Markit

Hong Kong jewellery consumption saw a notable drop of 24% in 2019, mainly due to political unrest and the 14% decline in mainland visitor arrivals (who account for almost half of gold jewellery sales). This was most marked from August to December, when according to the Hong Kong Tourism Board, mainland visitor numbers halved. In Q1.20, consumption fell by a massive 64% because of the spread of COVID-19. Our full year forecast is little better, but still down 35% y/y, as last year's headwinds are reinforced by the negative impact of COVID-19 on consumer sentiment.

Jewellery offtake in **Vietnam** fell by 4% to 18t, its first fall since 2012, as the rise in domestic gold prices and slower store expansions countered the benefits from GDP growth. While the gold market in Vietnam remains highly regulated, some changes to Decree 24 have been announced by the State Bank of Vietnam (SBV). These include reducing administrative and reporting mechanisms, making it easier to operate. This year, we expect demand to fall further due to a weak economy and tight liquidity among consumers due to problematic investments in equities and real estate.

After rising for two years, **Indonesian** fabrication fell by 6% in 2019. This in part reflected high domestic gold prices and a weak economy which saw consumers hold back from making high value purchases. Retailers were also cautious in increasing stocks. This year, we expect demand to fall sharply due to the adverse impact of COVID-19 on discretionary spending.

Thai jewellery fabrication fell by 9% to 33t, the lowest level in our series. Some of this was due to structural changes (such as a shift in consumer spending towards other high value items), but the slowdown in the economy, increased government vigilance over cash transactions and high gold prices also mattered. In fact, consumers in Thailand used higher prices to book profits last year. Fabrication this year is expected to fall by a yet steeper 22%, as both domestic and export markets are likely to be weaker. Many Thais depend on tourism for their incomes and so the COVID-19 pandemic's impact on tourism means many retailers do not expect to see a tangible recovery in the next six months.

Malaysian jewellery offtake declined by 9% to 42t, as the high gold price and weak regional consumption undermined exports in weight terms to the UAE and other key markets. Moving to 2020, jewellery fabrication is forecast to decline sharply as the country's exports look set to suffer from this year's gloomy economic backdrop. **South Korean** jewellery consumption fell by 10% to 19t. Much was due to rising trade tensions weighing on the domestic economy and local consumers being cautious about spending on luxury items amid fears of a recession. **Japanese** jewellery consumption rose by 3% last year, mainly as a result of strong sales of gold kihei (curb) chains. Other jewellery sales were flat or even down at the margin. Fabrication demand rose by a stronger 6%, this reflecting continued successes of Japanese manufacturers in penetrating other Asian markets. COVID-related pressures and in particular the postponement of the Olympics are behind the decline forecast for 2020.

Chapter 6

Industrial Fabrication

– Electronics demand fell by 2% in 2019 as US:China trade tensions, coupled with concerns about global economic growth, weighed on demand.

– Decorative and other industrial fabrication weakened by 3% in 2019 largely due to the drop in India and Italy.

– With a fall of 9%, dental demand in 2019 slumped to the lowest level in our series going back to 2010.

Electronics Fabrication

Electronics demand weakened by 2% in 2019, mainly due to the impact of the trade war between the US and China. This pressure on offtake was most acute during the first six months of the year as tensions between the two countries remained high and at times escalated. Considerable uncertainty for global electronic supply chains was also apparent throughout this period due to changing and threatened tariffs between the two countries. In addition to this direct impact of the trade war, last year's demand losses also reflected rising concerns about the global economy.

There were several developments of importance at the sectoral level. For example, end-use in LEDs was poor due to high inventories caused by weakness in the automotive industry and saturation in general lighting and display backlight applications. There were even more dramatic losses in the memory market due to a slowdown in the construction of data centres, lacklustre output of PCs and laptops (due to tight supplies of CPUs) and sluggish mobile device shipments (which also hit the wireless and PCB sectors). This situation gradually improved in the third quarter as the CPU shortage eased and as a pick up in PC/laptop shipments and consequent drawdown in inventories led to a recovery in the memory sector. Lastly, lower smartphone shipments also hit offtake last year. There was one important positive; the acceleration in 5G adoption and the introduction of WiFi 6 standards lifted offtake in the wireless and PCB segments. Despite that, total gold offtake in 2019 fell short of earlier forecasts.

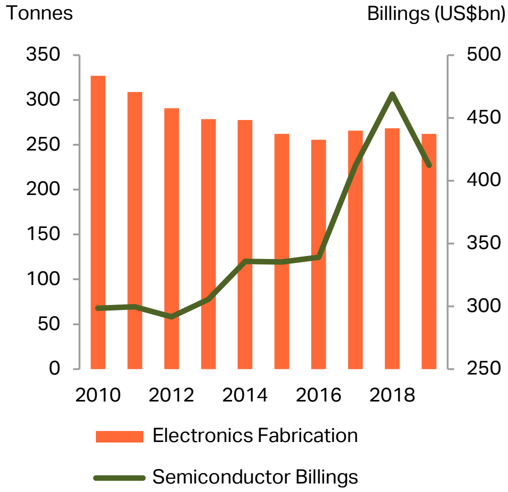
In **East Asia,** Chinese demand declined by 3%, chiefly as concerns about the outlook for the domestic economy hit local sales in such areas as automobiles and consumer electronics (including smartphones and PCs/ laptops). In addition, US tariffs led to components production shifting to

Electronics Fabrication

Tonnes	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	Y/Y
Japan	115.6	104.1	93.6	89.0	84.5	83.2	76.7	77.3	76.0	72.7	-4%
China/Hong Kong	56.4	63.2	67.9	62.9	63.9	60.6	61.1	65.4	66.0	63.8	-3%
United States	70.5	61.3	55.7	53.2	56.3	54.6	53.5	55.2	57.5	58.3	1%
South Korea	31.9	28.6	26.5	25.2	24.0	20.5	20.8	22.7	23.3	23.0	-1%
Switzerland	18.7	17.6	13.7	14.5	11.5	10.6	10.7	11.2	11.6	11.3	-3%
Germany	12.5	12.1	12.1	10.8	10.5	10.3	10.3	10.5	10.7	10.6	-1%
Singapore	8.2	8.4	8.2	9.3	11.3	8.6	8.7	8.9	8.7	8.1	-7%
Taiwan	4.2	4.2	4.0	4.6	6.0	5.1	4.8	5.1	5.1	5.2	2%
Other	9.0	9.3	9.1	9.4	9.6	8.8	9.1	9.4	9.4	9.3	-1%
Global Total	**326.9**	**308.7**	**290.7**	**278.7**	**277.5**	**262.1**	**255.6**	**265.6**	**268.4**	**262.3**	**-2%**

Source: Metals Focus

Electronics Fabrication



Source: Metals Focus, WSTS

plants outside China. Partly as a result of this, offtake in Taiwan rose a marginal 1.5% last year (it also benefited from strong gains in the wireless sector and a shift of PCB orders from China). South Korean demand fell by 1% as sluggish smartphone sales dragged down output in flash memory and high-end PCBs. Similar factors, plus weakness in the auto sector, drove the 4% decline in Japanese demand. Hong Kong offtake fell by 7%, as economic activity was significantly harmed by the social unrest triggered by the extradition bill. Singapore's demand also fell, by 7%, mainly as a result of the falling utilisation of semiconductor capacity.

North American offtake was essentially flat in 2019 as a weak year-end undid earlier gains. That mixed picture was also seen in one key demand segment, automotive end-use. That may be enjoying the structural positive of vehicles becoming more sophisticated (requiring for example more CPUs for infotainment systems), but US light vehicle output fell by 4%. **European** electronics offtake slipped by 2%, primarily as a result of the escalating US:China trade war, as well as slowing economic growth.

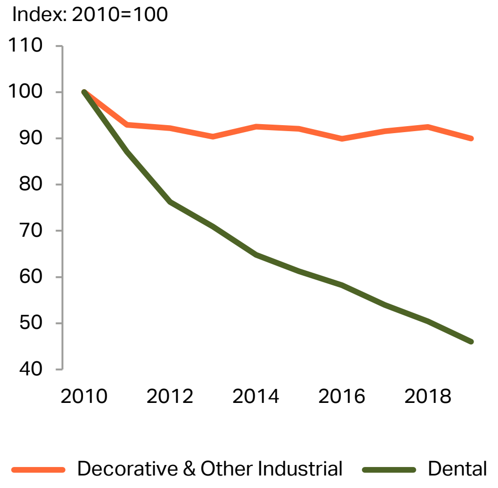
In 2020, global electronics demand is forecast to decline by 9% to a low for our series back to 2010 and to a level 27% down on that year's peak. Substitution and thrifting explain much of the longer-term slide but the threats of new technologies using less or no gold and miniaturisation are still weighing on demand. Among these, mini-LED and 3D stacked memory technology with thinner bonding wire are worth mentioning. That said, this year's steep drop is overwhelmingly down to the COVID-19 crisis. Specifically, widespread shutdowns have hit manufacturing and disrupted supply chains in the first half and, as many companies have raised their inventory levels in the wake of these disruptions, stock adjustments (plus uncertainty over economic growth) pose downside risks in the second half. Product sales have also been hurt as the pandemic has changed consumer spending patterns and reduced incomes. Electronics' decline is smaller than most other areas of fabrication and this is in part due to support in certain sectors. Good examples are the deployment of 5G infrastructure and the boost to data centre-related applications stemming from greater remote working, online learning and people spending more time at home.

Decorative and Other Industrial Fabrication

Tonnes	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	Y/Y
India	15.1	11.2	10.7	10.3	10.0	10.4	10.4	10.2	10.3	9.7	-6%
Italy	4.6	5.0	5.4	5.8	7.0	8.0	7.6	8.0	8.1	7.8	-4%
China	5.8	6.5	7.0	6.5	6.7	6.3	6.4	6.9	6.9	6.7	-3%
Japan	6.1	5.5	4.9	4.7	4.4	4.4	4.0	4.0	4.0	4.4	11%
Germany	3.0	3.2	3.1	3.1	3.2	3.3	3.3	3.3	3.4	3.5	1%
United States	3.2	2.8	2.5	2.5	2.4	2.3	2.2	2.3	2.3	2.4	3%
Other	17.6	17.4	17.4	17.1	17.5	16.3	15.8	16.1	16.0	15.3	-5%
Global Total	**55.3**	**51.4**	**51.0**	**50.0**	**51.2**	**51.0**	**49.8**	**50.7**	**51.2**	**49.8**	**-3%**

Source: Metals Focus

Decorative and Other Industrial and Dental Fabrication



Source: Metals Focus

Industrial Fabrication Forecast

Tonnes	2019	2020F	Y/Y
Electronics	262	237	-9%
Decorative & Oth. Ind.	50	42	-15%
Dental	14	11	-18%
Global Total	**326**	**291**	**-11%**

Source: Metals Focus

Decorative and Other Industrial Fabrication

In 2019, global decorative and other industrial demand fell by 3% to 49.8t, with most of the losses attributable to India and Italy. Yet steeper losses of 15% are forecast for 2020 due to COVID-damage and higher gold prices.

European demand in 2019 slipped by 2% to just below 15t, with Italy accounting for much of the drop. The first few months of the year actually saw gains but offtake weakened sharply mid-year as the US:China trade war led to a steep drop in sales to producers of luxury accessories. There was, however, some compensation from gains in gold-plated silver and brass jewellery. COVID-related damage to incomes, the willingness of those still with money to indulge in conspicuous consumption and caution from the top-end brands towards holding stocks mean yet steeper losses are likely this year, even if we do see further gains for plated jewellery.

India's decorative and other industrial demand fell by 6% y/y to 9.7t, the first time in our series it has fallen below 10t. This largely reflects the economic slowdown and rising gold prices, which led to a shift within jari (or zari, a decorative gold thread) towards more cost effective versions like electro-plated jari. There was some offset to these steep losses from gold-plated brass and silver jewellery, which saw growth last year, albeit at a slower pace. We also expect demand to fall further in 2020 due to the impact of COVID-19 on discretionary spending.

Dental Fabrication

The downtrend in dental demand accelerated last year, with offtake falling by 9% to 13.9t. The main driver behind this acceleration was the break-neck rally in the palladium price, as that hit **Japanese** demand for kinpala dental alloys, which account for the lion's share of dental gold demand in the country. Similar to last year, in addition to the absolute increase in the raw materials' prices, the gap between them and insurance contributions also widened during parts of the year. For 2020, even higher palladium prices and the impact of COVID-19 on dental treatments are behind the 18% decline Metals Focus forecasts for global dental demand.

Dental Fabrication

Tonnes	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	Y/Y
Japan	9.1	8.2	7.4	7.0	6.8	6.7	6.5	6.0	5.6	4.9	-12%
United States	8.1	7.0	6.4	6.1	5.9	5.5	5.2	4.9	4.6	4.2	-8%
Germany	5.1	4.0	3.4	3.2	2.9	2.6	2.4	2.3	2.2	2.1	-3%
South Korea	4.4	3.9	3.0	2.6	1.9	1.7	1.6	1.4	1.4	1.1	-16%
Other	3.6	3.2	2.9	2.6	2.2	2.0	1.9	1.7	1.6	1.5	-3%
Global Total	**30.3**	**26.4**	**23.1**	**21.5**	**19.6**	**18.6**	**17.6**	**16.3**	**15.3**	**13.9**	**-9%**

Source: Metals Focus

Chapter 7

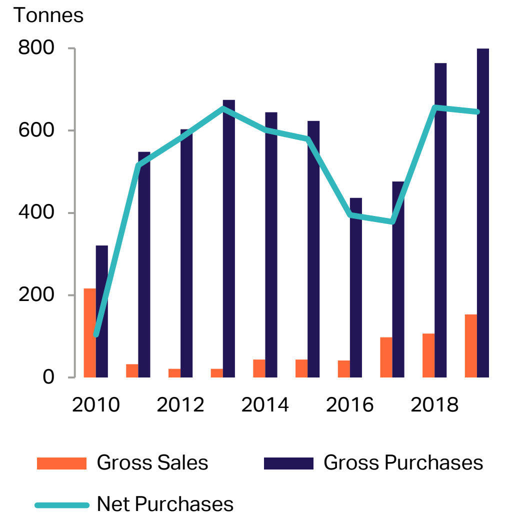
Official Sector

– Net official sector purchases slipped by 2% in 2019, but volumes remained elevated by historical standards.

– Gross purchases in fact climbed to a fresh multi-decade high, though this growth was outweighed by larger gains in aggregate sales volumes.

– Net purchases are expected to almost halve to 350t in 2020.

Official Sector Purchases & Sales



Source: Metals Focus

Official Sector Purchases & Sales

Net official sector purchases are estimated to have eased by a modest 2% in 2019. That said, it is worth stressing that this decline came from an exceptionally high base in 2018 when net buying hit the highest since the collapse of the Bretton Woods system in the early 1970s. As such, despite the fall, the 2019 figure remained elevated by historical standards.

Last year's fall was led by a further rise in gross disposals which grew to an eight-year high. That said, as discussed below, this rise was essentially driven by two countries. More importantly, this does not represent a fundamental shift in attitudes towards gold among reserve managers.

In fact, gross purchases from the official sector also posted healthy gains in 2019 from an already high base. Portfolio diversification remained the key driver behind central banks' interest in gold, especially in the light of rising geopolitical tensions. Moreover, as central banks launched a new round of monetary loosening last year, real yields are expected to stay negative across most reserve currencies for some time to come. This marks a contrast to the gold market where sentiment and price expectations improved dramatically during 2019.

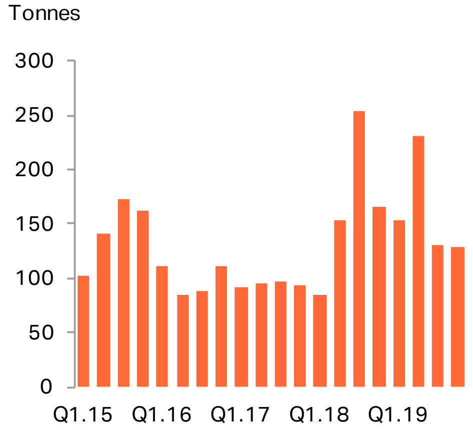
Gross Purchases

Gross official sector purchases grew for the fourth consecutive year in 2019. After hitting a multi-decade high in 2018, total purchases rose by a further 5% to 779t in 2019.

With a net increase of 159t, **Turkey** overtook Russia to become the largest reported buyer in 2019. Rising geopolitical tensions and a desire to diversify away from dollar-denominated assets remained the key drivers behind the country's move into gold. Last year's growth was also boosted by a marked rise in gold bonds and gold lease certificates issued by the Turkish Treasury, as gold collected via these programmes was transferred to the central bank's account. After a slow start in 2017, gold bonds and lease certificates gained traction in the local market in 2019, with 82t collected in 2019 (compared 2t in each of 2017 and 2018).

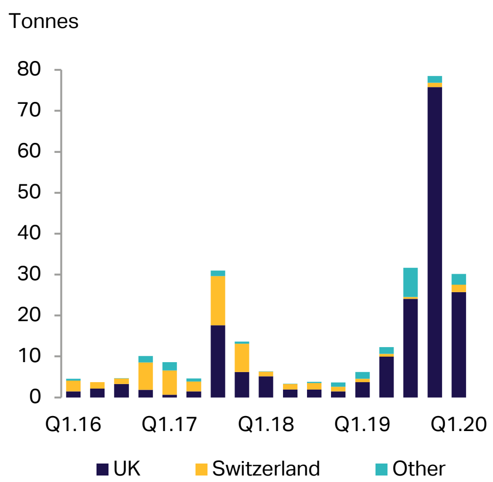
Russia remained a significant bullion buyer, with gold added via regular purchases of local mine production. At 158t in 2019, however, 2019's additions were down by 42% y/y and the smallest annual increase since the rise in tensions between Russia and the West in 2014. Such a notably slower pace came as result of the decision by the Central Bank of Russia (CBR) to purchase gold at a discount to the LBMA price from May 2019 onwards. (Prior to this, the CBR had used the London benchmark price.) The drop in gold acquisition prices clearly weighed on the desire of some local players to sell gold to the CBR, which led to a rapid pick-up in Russian gold exports later in the year. To a large extent, this policy change could be related to the

Net Official Sector Purchases



Source: Metals Focus

Russian Bullion Exports



Source: IHS Markit

fact that, after years of hefty purchases, gold's share of total reserves had already reached a desired level. At the start of 2019, Russian gold holdings accounted for almost 20% of its total international reserves, more than double the figure in 2014. Moreover, rising bullion exports could also boost foreign exchange revenues.

Poland was the third biggest buyer, lifting its holdings by 100t to 229t. This followed a 26t increase in 2018, which made the country the first EU member to add a meaningful amount of gold reserves this century. In contrast to Russia and Turkey, Polish purchases took place in the international market. Later in the year, the country stated that it repatriated 100t from the Bank of England's vaults, with the rest of its gold reserves remaining in the UK.

With an escalating trading war between the US and **China**, the latter reported a 96t increase in its official reserves in 2019, via steady additions over January-August. Thereafter, declared gold reserves have stayed unchanged, a development that has remained in place so far in 2020.

Elsewhere, many of countries that had raised gold holdings in previous years continued to do so in 2019. Among these, SOFAZ (**Azerbaijan's** sovereign wealth fund) bought 50t last year, which was the largest increase since the country first reported gold additions in 2013. Both **Kazakhstan** and **India** bought 35t in 2019, though volumes were down modestly from the 2018 figure. Elsewhere, the **UAE** (15t), **Qatar** (11t) and **Serbia** (10t) reported their highest annual purchases of the last decade. The balance of reported buying was accounted for by small-scale transactions (typically less than 5t), including those by **Mongolia**, **Kyrgyzstan** and **Albania**.

Gross Sales

Aggregate disposals jumped by 43% to a nine-year high of 153t in 2019, with transactions dominated by two countries, namely Venezuela and Uzbekistan. Excluding the two, the global total remained subdued, as the bulk of disposals were related to sovereign coin minting programmes.

The **Venezuelan** government has entered a series of gold swaps with commercial banks since 2014 in order to boost liquidity. With a deepening economic crisis, the country has since been struggling to recover its collateral. It is reported that Venezuela missed a deadline to repay $1.1bn in March 2019, under a gold swap it took with Citibank in 2015. In June 2019, Citibank and Deutsche Bank took control of another $1.4bn of Venezuelan gold (which they received as guarantees for loans), as a result of US sanctions. In addition to these two reported deals, our figures also include an allowance for additional sales from Venezuela in 2019.

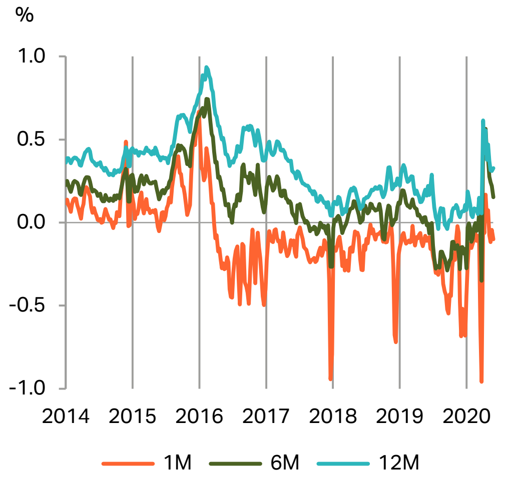
Turning to **Uzbekistan**, the country sold 19t on a net basis in 2019. This marked a shift in official attitude towards gold, given that the country was a regular bullion buyer of local mine production over much of the 2010s. According to the country's officials, with gold accounting for over 50% of its international reserves, the central bank would like to diversify its portfolio by shifting some gold holdings to US Treasuries.

Top 10 Official Gold Reserves*

	Gold Reserves (Tonnes)	Gold's Share of Total Reserves
United States	8,134	77%
Germany	3,367	73%
IMF	2,814	n.a.
Italy	2,452	68%
France	2,436	63%
Russia	2,271	20%
China, Mainland	1,948	3%
Switzerland	1,040	6%
Japan	765	3%
India	635	7%
Global Total	**34,232**	

* End-2019
Source: IMF

Indicative Gold Leasing Rates



Source: Bloomberg

2020 Official Sector Outlook

Net purchases from the official sector are expected to slump by 46% to 350t in 2020, which would be the lowest figure in a decade. In essence, this reflects a much weaker appetite for adding gold reserves amid the COVID-19 crisis. It is worth highlighting that a significant portion of gold purchases in recent years came from countries dependent on commodity exports. For many, the COVID-19 pandemic therefore has posed a series of challenges amid collapsing exports, tightening international credit conditions and ballooning public deficits. Already, Russia has announced that the CBR suspended local gold purchases from April onwards. With subdued local gold consumption, the majority of Russian gold output is now expected to be exported this year, which will help to cushion the blow to Russia's foreign exchange revenues due to a cut in oil production and low prices. Similar considerations may also apply to other gold buyers, which could lead to a much slower pace of gold acquisitions.

That said, the scope for large scale distress selling by the official sector remains limited in the foreseeable future, with Venezuela the only notable exception. In May, Venezuela reached a deal with the United Nations to relinquish part of its gold stored at the Bank of England to buy food and medicine during the coronavirus pandemic. Excluding that country, gross sales should remain low, as gold typically accounts for a small portion of overall reserves for most emerging markets.

More importantly, with unprecedented monetary easing by the major central banks, real yields on government bonds are expected to remain negative for some time to come, which will justify a rotation to gold in the coming years. In addition, increasingly harsh rhetoric from the Trump administration means geopolitical factors will continue to justify portfolio diversification away from dollar denominated assets for certain countries. In Turkey, for instance, official gold holdings have grown by over 110t since the start of 2020 to end-April.

Official Sector Lending

Continuing the trend of previous years, official outstanding loan positions remained light over the course of 2019, partly due to low leasing rates and concerns about counterparty and geopolitical risks. As illustrated in the chart, implied indicative leasing rates (using Bloomberg forward data on forward rates and LIBOR) fell further from an already depressed level during 2018. This in turn can be attributed to relatively low demand for gold borrowing, as producer hedging activity remained broadly neutral on a net basis and weaker fabrication reduced gold leasing.

For central banks that disclosed information on gold loans, Australia is worth noting. Basis the latest annual report, the Reserve Bank of Australia held 80t of gold at end-June 2019, roughly 14% of which was lent out. The IMF data shows a 20t decline in the country's gold holdings in late 2019, which is most probably due to new gold lending (as the country excludes gold loans in its IMF reporting). This decrease therefore is not included in our estimate for gross official sector sales in 2019.

Chapter 8

Investment

– Sentiment towards gold improved notably among institutional investors over the course of 2019.

– Physical investment in contrast dropped by a fifth in 2019 to a low for the decade, with losses being the norm in almost all the key physical markets.

– Both institutional and retail investment are expected to strengthen in 2020, as the COVID-19 crisis raises gold's appeal.

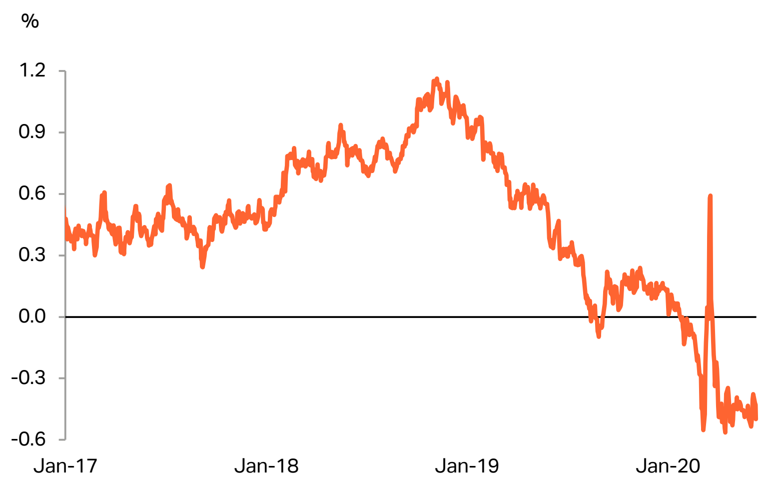
Introduction

Last year was a turning point for gold investment. During much of the previous few years, the appetite for gold, particularly among professional investors, was modest at best, as rising US interest rates, a strong dollar and rallying equity prices limited gold's appeal. There were times when specific events would fuel buying but that tended to short-lived and the long positions built tended to be tactical and were sooner or later unwound. Indeed, for much of the second half of 2018, many funds were short gold.

This mood carried over into the first half of 2019, but our field research during the first few months did suggest that investors were on balance starting to become positive towards gold. Concerns about the US-China trade war, rich equity prices and the risk of the US economy slowing at a faster pace than consensus expectations (or even turning negative) were all factors mentioned at the time. Nevertheless, most stopped short of actually adding the metal to their portfolios, against the backdrop of still rising US equities and a strong dollar. Sentiment towards gold then altered dramatically from June onwards. The key catalyst for this was a change, initially in tone and eventually action, from the Fed towards monetary policy accommodation. In its July meeting, the FOMC announced the first policy rate cut since 2008, which was followed by two more cuts in September and October.

The loosening of US monetary policy is naturally bullish for gold. It generally comes with a decline in yields in both nominal and real terms, reducing the opportunity cost of holding the metal. It also, other things remaining equal, puts pressure on the US currency. Monetary policy

Yield on US 10-Year Treasury Inflation-Protected Security

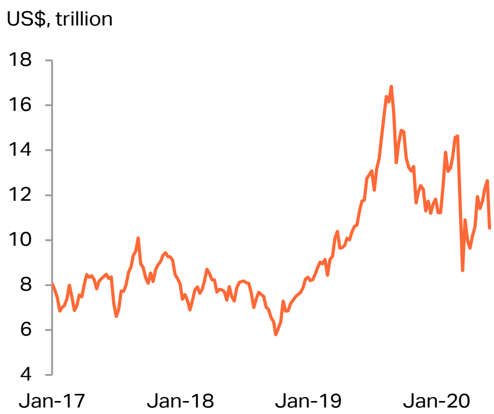


Source: Bloomberg

S&P 500 & MSCI Emerging Markets Index

Source: Bloomberg

Value of Negative Yielding Bonds



Source: Bloomberg

was also loosened elsewhere, notably in the Eurozone. As a result, 2019 witnessed a further shrinking of positive yields, which ultimately led to the record level of negative-yielding bonds. Furthermore, the factors behind the monetary policy shift last year, notably the spectre of a trade war and a global economic slowdown, were themselves gold-positive. Related to these concerns, so too was the volatility that equity prices experienced in the third quarter. All this saw professional investors once again become keen on gold. Activity in futures, ETPs and the OTC market all rose strongly in the second half of the year, particularly during the summer months.

In contrast to institutional investment, 2019 was not a great year for bar and coin demand; global net offtake fell by a fifth to 850t. East Asia accounted for the lion's share of the 217t drop and most other regions also suffered declines. The improving macroeconomic backdrop for gold in the second half had a mixed impact on physical investment, with some countries seeing safe-haven buying emerge while demand in others instead suffered as a result of profit taking in the face of higher prices.

It is finally worth noting the proliferation of digital gold offerings, which continued last year. Success rates varied across the different providers but, overall, they continued to account for only a small share of the overall gold investment market.

2020 Investment Outlook

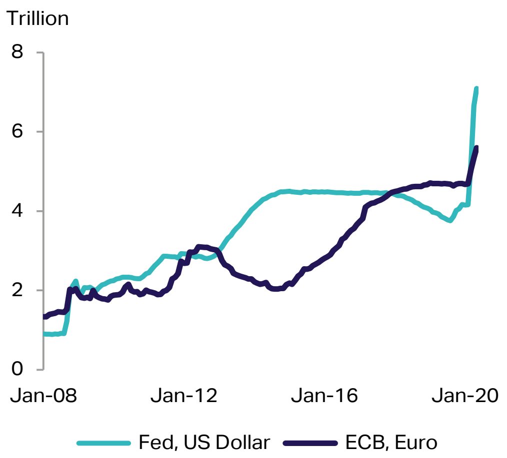
2020 has so far been exceptionally good for gold investment. The year started on a positive note, as the common pattern of seasonal strength was amplified by geopolitical tensions, concerns about the trade war and expectations that the monetary policy behind many key currencies would remain accommodative.

Soon though, all these factors were overshadowed by the spread of COVID-19 around the globe. Initially, in a short period in mid-March, gold was liquidated during a melt-down in global commodity and equity markets. However since then, the crisis has had a positive impact on gold prices. This flowed through from the resulting economic uncertainty and, more importantly, the policy responses to the crisis, which have increased gold's appeal to investors immensely.

Authorities around the world have enacted some of the most aggressive monetary and fiscal policies ever seen to mitigate the effects of the crisis on economies. In addition to their unprecedented magnitude, these initiatives have been unique in that they have been structured in a way to reach consumers and businesses of all sizes directly. In contrast, the policy responses to the 2008 crisis and the Eurozone crisis targeted financial intermediaries, sovereigns and a handful of large businesses.

The implications of these actions are profound and potentially long-lasting. Ballooning government deficits, rising unemployment and lasting damage to a number of industries all point to negative real yields being the norm for some time to come for most major currencies. The expansion

Fed & ECB Total Assets



Source: Bloomberg

Annual Turnover on Major Commodity Exchanges & LBMA[1]

Tonnes	2018	2019	Y/Y
COMEX	249,766	269,072	8%
LBMA	n/a	229,328	n/a
SGE Spot[2]	3,070	2,320	-24%
SGE T+D[2]	5,824	9,337	60%
SHFE[2]	16,164	46,209	186%
Tocom	8,091	8,430	4%
MCX	2,256	3,626	61%
LME	2,277	840	-63%
DGCX	231	478	107%
Borsa Istanbul	265	281	6%

1) Turnover on all exchanges includes futures, spot or deferred contracts where applicable; turnover on LBMA includes spot, swap and forward.
2) Both the SGE and SHFE record each transaction twice, from the point of view of the buyer and also the seller. However, to compare these volumes with other exchanges, such as the COMEX, the reported figures have been halved (as shown above).

Source: respective exchanges, LBMA, Nasdaq, Bloomberg

of the monetary base also re-kindles inflation concerns. The case for gold investment is extremely strong in this environment, even taking into account the bounce back that equity prices have recently enjoyed.

The impact of COVID-19 on physical investment has been mixed. Western markets have certainly seen strong safe haven appetite emerge. However, this is being partly offset by losses in the price-sensitive Asian markets.

The crisis also disturbed the mechanics of the gold market, albeit only in the short term. As logistics links broke down and some major refineries were temporarily shut down due to government restrictions, the market saw the emergence of physical shortages in some locations and inventory build-up elsewhere. In turn, this fuelled price dislocations, most notably the EFP (exchange for physical - the futures-spot swap) squeeze in April.

Although there are welcome signs that the virus spread is coming under control in some hard-hit countries, we believe that the factors that have helped gold recently will remain in place for some time to come. We therefore expect investment to remain strong over the rest of 2020. This is the main driver behind our bullish price outlook.

Institutional Investor Activity

All areas of institutional investment saw greater activity in 2019. For example, from a relatively subdued level early in the year, investors' net longs in COMEX futures posted a sharp rise from June onwards. A similar theme emerged in ETPs, where global holdings rose to all-time highs in September. In the OTC market, trading volumes also picked up in the second half of the year. Turning to 2020, the COVID-19 pandemic has further boosted professional investors' appetite for gold.

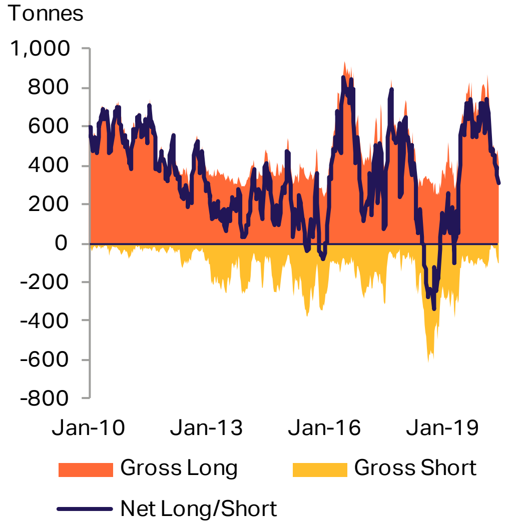
Commodity Exchanges

2019 saw higher gold turnover on most commodity exchanges. As illustrated in the table, COMEX remained the largest, accounting for 79% of global exchange turnover for spot and futures contracts.

On the CME Group's **COMEX**, aggregate turnover increased by 8% y/y to another record high of 8,651Moz (269,072t) in 2019. This was the result of strong growth in the second half of the year, partly offset by declines in the first half. Of particular note was turnover's growth of 46% y/y in the third quarter with that period's volumes reaching 2,765.5Moz (86,018t).

Looking at CFTC reports on managed money positions in COMEX futures, investor sentiment towards gold was lacklustre before early June; the net position ranged between a net short of 3.4Moz (227t) to a net long of 8.2Moz (256t) and, by end-May, the net long had fallen to just 2.6Moz (82t). Much of this was due to US dollar strength. From early June onwards, rising market uncertainty and a shift by the Fed to a more accommodative stance raised gold's appeal. Investors' net long on COMEX soared quickly to 23.8Moz (740t) by end-September, a two-year high.

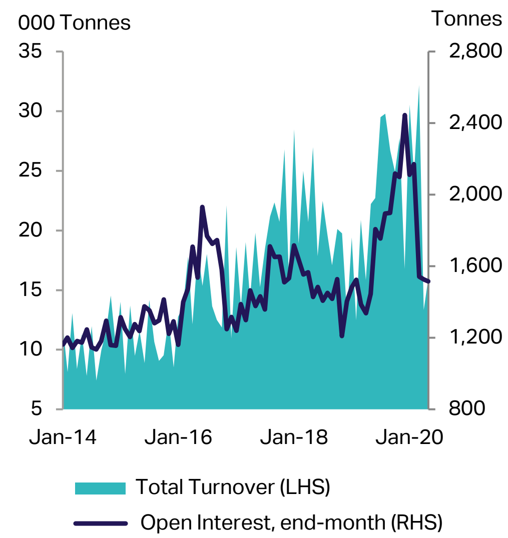
CME Futures Net Investor Positions*



*Managed money positions

Source: CFTC

COMEX Monthly Turnover & Open Interest



Source: Bloomberg

Activity on the COMEX has been very volatile in 2020-to-date, due to the impact on investor sentiment of the COVID-19 pandemic and the policy responses that have followed. During March, gold futures on the exchange were heavily sold off by investors in need of liquidity in the face of the global markets' meltdown seen in the middle of the month. This saw turnover for March rise sharply to 1,036Moz (32,212t). Moreover, as explained earlier, a dislocation emerged between the COMEX and OTC prices. This resulted in a reduction in investors positioning on the exchange as many shifted to OTC contracts, whether because they themselves or their counterparties wanted to avoid the basis risk. The price dislocation also resulted in inflows of metal into COMEX depositories; inventories roughly quadrupled from 9.9Moz (309t) in early April to almost 40Moz (1,250t) in early June.

In contrast, the combined turnover of spot contracts on the **Shanghai Gold Exchange's** (SGE) main board fell by 24% y/y in 2019. This decline reflected lower domestic jewellery and physical investment demand during the year. It was also exacerbated by the tightness of import quotas at times. Indeed, despite lower demand, a sharper decrease in gold bullion imports saw the SGE premium surge to an average of $11/oz over the London a.m. price during 2019, the highest in six years. However, this situation changed in the aftermath of the COVID-19 crisis. A steep contraction in gold consumption as well as an inventory overhang saw the SGE price switch to a hefty discount to the London price from February onwards. After hitting a record of $67/oz mid-April, this discount has since gradually narrowed, resulting in an average of $14 through to end-May.

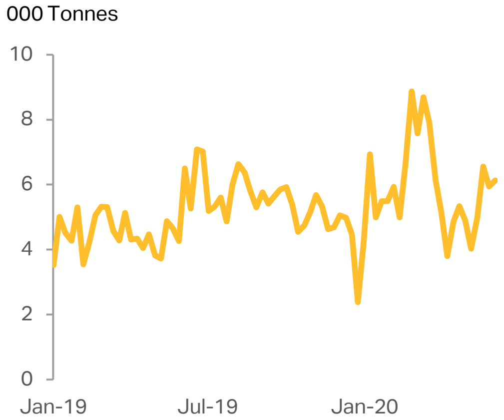
Unlike the above spot contract, the deferred contract (T+D) turnover recorded a notable 60% gain y/y in 2019, albeit from a low base in 2018. T+D contract trading increased dramatically in March this year, with volumes nearly trebling both m/m and y/y. It is finally worth noting that the SGE extended its trading hours to 13 hours in June 2019, and that the SGE and COMEX launched new bilateral contract (code NYAuTN) in October.

The annual turnover on the **Shanghai Futures Exchange** (SHFE) nearly trebled in 2019 (up by 186% y/y), although this came from a low base. Similar to COMEX, turnover was strongest in the third quarter, which accounted for around 44% of the annual total. Similar to the SGE, the SHFE also launched new contracts last year. In late December, it launched the first exchange-traded gold options contract in the country, backed by the exchange's gold futures.

Elsewhere, total trading volume on the **LME** slumped by 63% y/y to 840t in 2019. On **Tocom**, trading volume grew by a modest 4% y/y to 8,430t, although the absolute total remained relatively low by historical standards.

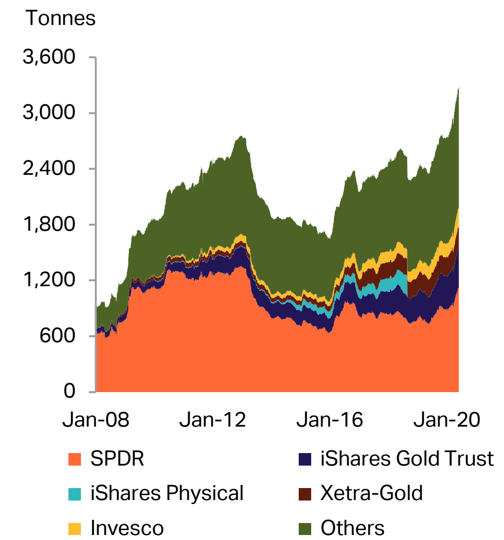
Having slumped by 42% in 2018, gold transactions on the **Borsa Istanbul** staged a minor 6% recovery in 2019. Although the Turkish lira continued to depreciate (driving local gold prices higher and hurting demand), the central bank's gold purchases have cushioned volumes. Looking at the

LBMA Weekly Trading Volumes



Source: LBMA, Nasdaq

Gold ETP Holdings



Source: Respective Fund Issuers, Bloomberg, World Gold Council

first five months of this year, total turnover continued to grow, nearly trebling y/y to a level equal to 82% of the 2019 total. In India, aggregate trading volumes on the **MCX** rose by more than 50% in 2019 (including options and mini-gold futures contracts). While absolute volumes remained a third of their 2011 peak, the introduction of options contracts has improved market participation in the last three years and resulted in volumes almost doubling from 2017 lows.

Over-the-Counter Market

OTC gold investment also posted a turnaround over the course of 2019. The market through to early June was characterised by lacklustre interest, as a strong dollar weighed on the price, which struggled to break out of an increasingly tight trading range. Thereafter, a marked shift towards looser monetary policies, coupled with growing concerns about the outlook for the global economy, led to a return of gold buying for the rest of the year. That said, with still relatively sanguine sentiment towards stocks among most asset/wealth management institutions, the scale of fresh allocations to gold remained restrained, even more so when it comes to the metal's share of global investable assets.

Looking at 2020-to-date, unsurprisingly, investor interest in gold has picked up notably since the COVID-19 crisis. As discussed earlier in this chapter, many of the aggressive fiscal and monetary stimuli should have long-term implications for financial assets. Real yields on government bonds, for instance, are likely to remain negative for some time to come. In addition, still poor economic conditions clearly cast doubts about the solidity of the recent recovery in stock markets.

Exchange Traded Products

For the fourth year in a row, gold ETPs recorded net inflows in 2019, rising by 13Moz (404t) or 16% to 92.8Moz (2,887t) by year-end. This was also the second-largest annual inflow since 2009. In value terms, this was equivalent to an inflow of $39bn, lifting total holdings to $141.3bn.

The majority of inflows in 2019 were concentrated in the second half of the year, particularly from June to October. With the exception of January, a strong US dollar and the lack of clear price trend during the first half weighed on gold ETP investment, resulting in total holdings falling to 79.4Moz (2,470t) in late May. The situation then changed abruptly in the summer as the Fed started to cut US interest rates. Concerns over the economic slowdown, trade tensions, geopolitical risks and uncertainty over the impact of Brexit on European markets also boosted safe-haven demand. All this drove global holdings through a series of all-time highs, eventually reaching 93.3Moz (2,901t) in October.

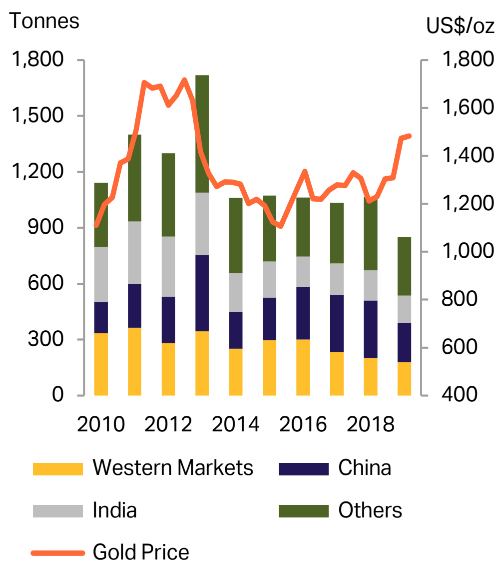
Compared to the previous high in December 2012, when North American-listed ETPs accounted for two-thirds of global holdings, a broader base was seen for last year's inflows. In 2019, North American and European ETPs accounted for 49% and 47% of the global annual inflow respectively, with the latter mainly driven by UK-listed funds.

Physical Investment Forecast

Tonnes	2019	2020F	Y/Y
Europe	155	234	51%
North America	24	85	254%
Middle East	115	108	-6%
South Asia	165	142	-14%
East Asia	317	277	-13%
Africa	60	66	9%
Others	13	15	17%
Global Total	**850**	**925**	**9%**

Source: Metals Focus

Global Physical Investment



Source: Metals Focus

2020 has so far been an exceptionally good year for gold ETPs. The factors discussed elsewhere benefiting gold investment in general helped their global holdings rise by 20Moz (623t) through to end-May, reaching a new record high of 109.2Moz (3,510t). If our forecasts are proven right and we see further net inflows over the rest of the year, 2020 will mark an all time high for net gains in ETP holdings, exceeding the previous high of 19.3Moz (600t) that was seen in 2009.

Similar to last year, gold ETPs listed in all regions have experienced strong inflows in 2020 so far. Of note, North American gold ETPs gained 375t, accounting for 60% of global inflows, and soared to a record high.

Physical Investment

Physical investment fell by 20% in 2019 to a decade low of 849.5t. China underpinned much of these losses, as fears eased about yuan depreciation and higher prices weighed on gold investment. Losses were also the norm elsewhere in South and East Asia and the Middle East. In western countries, investment weakened notably in H1 in response to gold's range-bound trading before a decent recovery emerged later in the year. Turning to 2020, western investment has rebounded sharply, a reflection of a growing desire for hard assets in response to the COVID-19 crisis. By contrast, gold bar and coin sales have contracted further in emerging markets, a result of government lockdowns and the sharp rise in gold prices, particularly in local currency terms.

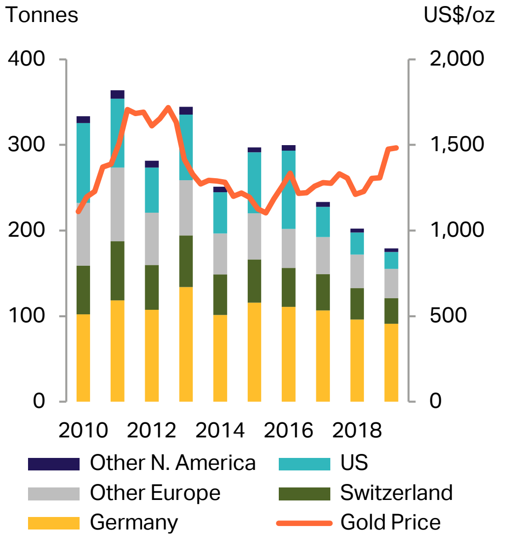
Europe

European physical investment slipped for the fourth consecutive year, by 10%, to its lowest since the 2008 financial crisis. Disappointment with gold's performance was key to this outcome, with losses particularly acute in the first few months of the year. As prices started to improve from June and then broke all-time highs in September in euro and sterling terms, investment saw a healthy recovery on improving investor confidence.

At the country-level, the rebound in Europe's largest market, Germany, in late 2019 is worth highlighting as it limited its annual decline to just 5%. Leaving aside improving price expectations, gold investment received a strong boost from the federal government's decision to lower the limit on anonymous cash purchases in Germany from €10,000 to €2,000, effective from the start of 2020. With a deep historical affinity for cash among the German public, concerns about trust and privacy saw many investors rush to purchase gold anonymously ahead of the change. A further policy rate cut by the ECB in September also favoured gold, which saw more German banks pass on the cost of negative rates to retail savers.

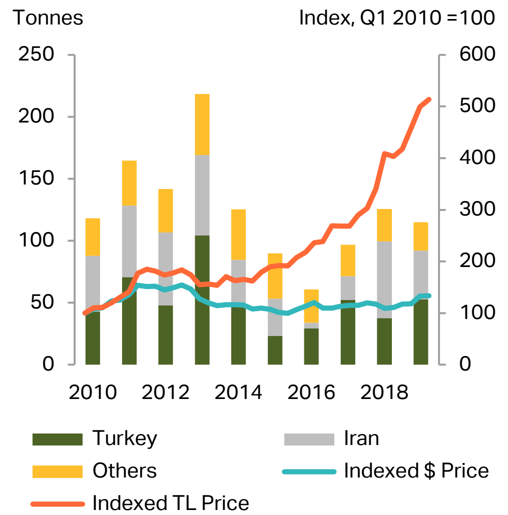
2020-to-date has witnessed a rapid pick-up in retail investment across Europe, as the pandemic has prompted safe haven purchases. This, along with COVID-19 related disruptions, has led to bottlenecks at the wholesale and retail levels and significantly higher premiums on bullion products. For the full year, we expect investment to jump by over 50% to a 7-year high.

European & North American Physical Investment



Source: Metals Focus, Bloomberg

Middle East Physical Investment



Source: Metals Focus, Bloomberg

North America

US coin and bar demand in 2019 hit a new low of just 19.6t, down 25% on 2018's already depressed total (and almost 80% down on 2010). This owed much to the impact of often range-bound prices over the first half of the year, which contrasted sharply with the record highs achieved by US equities. This dynamic produced two outcomes, a sharp fall in retail purchases combined with greater quantities sold back into the secondary market. Weak sentiment was so pervasive that when the gold price jumped in June, the lack of optimism about the metal saw selling back accelerate. As gold then continued to strengthen, buying returned, but many dealers were able to satisfy this demand from product they had already purchased in the secondary market, rather than acquire newly struck products. This explains why net retail investment remained depressed in the second half, in spite of the renewed investor interest in gold.

For 2020, we expect to see a marked turnaround with the full year total reaching a four-year high. Late Q1 saw demand surge as prices corrected and despite the nationwide lockdown and massive disruptions to deliveries (across the country and from overseas) exacerbating the shortages that much of the supply chain encountered. That said, we do not expect to see the same "run rate" during the second half but we do expect the surge in gold prices to attract new interest, which will outweigh the expected jump in profit taking.

Middle East

Physical investment in the Middle East fell by a modest 8% y/y in 2019 following strong respective gains of 59% and 30% in 2017 and 2018. This was almost entirely because of the reversal in Iran's robust growth in 2018, with purchases in 2019 falling by 23t y/y. In contrast, the other key player in the region, Turkey, saw demand rise by 15t (40%). Demand in the rest of Middle East fell by 3t or 12%. Similar to last year, we forecast demand in 2020 to fall by 6%, due to a continued slowdown in Iran and a slight drop in Turkey, due to rising local gold prices and falling disposable incomes.

The 15t y/y rise for investment last year in **Turkey** was the largest globally. Demand was also strong throughout 2019 due to the number of supportive factors. These included the lira continuing to weaken and policy interest rates falling further, thereby eroding savings. There were also disputed municipal elections and tensions with the US over Turkey's purchase of Russian air defence systems. For 2020, we forecast a 5% decline as rising local gold prices and investors' need for cash in the face of financial distress should limit further growth and potentially trigger selling back. Last year saw strong inflows into gold bonds and certificates issued by the Turkish Treasury (which we do not include in our retail investment figures). The success of the products has continued into 2020. In total, 165t of gold certificates were issued last year and in the first five months of 2020.

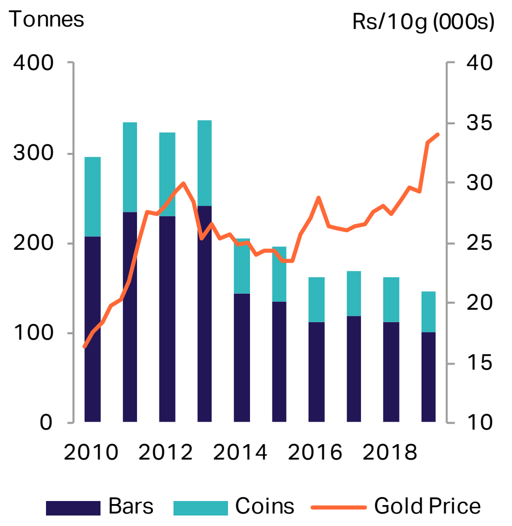
The above noted 37% fall for retail investment **Iran** was down to a wide range of factors. These included falling disposable incomes as a result of high inflation, stubborn unemployment and the rial's weakness, which

Physical Investment

Tonnes	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	Y/Y
Europe											
Germany	102.3	118.5	107.6	134.0	101.3	116.0	110.8	106.5	96.3	91.2	-5%
Switzerland	56.8	69.1	52.2	60.5	47.7	50.3	45.6	42.5	36.6	30.0	-18%
UK	19.4	16.4	10.7	10.4	7.6	8.5	11.9	10.5	12.1	10.8	-11%
Austria	12.3	14.3	10.4	13.1	10.2	12.2	10.8	9.7	8.2	6.2	-24%
France	1.4	6.1	2.5	2.0	1.0	-0.5	-4.2	-0.1	-1.2	0.4	n/a
Others	39.9	49.3	37.2	38.9	28.6	33.7	27.0	23.4	19.9	16.7	-16%
Sub-total	**232.1**	**273.7**	**220.7**	**258.9**	**196.4**	**220.2**	**201.9**	**192.5**	**171.8**	**155.2**	**-10%**
North America											
United States	93.4	80.4	53.0	76.5	48.2	71.1	91.3	35.2	26.1	19.6	-25%
Others	7.9	9.9	7.8	9.2	6.6	5.7	6.4	5.6	4.2	4.4	3%
Sub-total	**101.3**	**90.3**	**60.8**	**85.7**	**54.8**	**76.8**	**97.7**	**40.8**	**30.3**	**24.0**	**-21%**
Middle East											
Turkey	42.9	70.6	47.9	104.4	48.6	23.1	29.4	52.4	37.8	52.9	40%
Iran	44.9	57.7	58.8	64.7	36.1	30.1	4.6	19.2	61.8	39.1	-37%
Saudi Arabia	14.8	18.1	17.2	18.4	15.6	14.9	10.8	9.9	10.2	8.8	-13%
UAE	9.7	10.0	9.6	14.2	9.9	8.7	6.0	5.5	5.8	5.0	-14%
Others	5.9	8.2	8.3	16.7	15.2	12.9	10.0	9.8	10.2	9.2	-10%
Sub-total	**118.2**	**164.6**	**141.8**	**218.4**	**125.5**	**89.8**	**60.9**	**96.8**	**125.7**	**115.0**	**-8%**
South Asia											
India	296.4	334.4	322.3	337.5	206.0	194.9	161.6	169.3	162.4	145.8	-10%
Others	16.8	23.6	19.2	26.5	19.2	19.5	21.0	22.5	20.2	19.4	-4%
Sub-total	**313.2**	**357.9**	**341.5**	**364.0**	**225.2**	**214.5**	**182.6**	**191.8**	**182.6**	**165.1**	**-10%**
East Asia											
China	167.4	236.3	249.5	407.4	198.5	228.1	284.6	306.4	308.0	211.1	-31%
Vietnam	73.9	94.4	77.2	88.3	54.2	47.8	42.9	37.4	41.3	39.1	-5%
Thailand	70.6	110.9	100.3	138.1	96.4	78.0	69.7	64.0	68.5	34.7	-49%
Indonesia	26.1	31.2	28.9	47.9	26.9	20.1	21.1	20.2	22.2	14.2	-36%
Japan	-35.5	-59.7	-11.4	2.6	-2.7	16.2	17.1	-3.3	12.5	-20.1	n/a
Others	34.7	37.7	38.8	51.5	44.9	43.7	35.3	39.3	40.0	38.5	-4%
Sub-total	**337.1**	**450.7**	**483.2**	**735.9**	**418.0**	**433.9**	**470.6**	**464.0**	**492.5**	**317.4**	**-36%**
Other Regions											
CIS	11.9	19.6	14.6	21.2	9.4	4.1	4.0	3.9	3.9	3.9	0%
C&S America	2.2	2.3	1.9	2.3	2.1	2.3	2.1	1.8	1.6	1.6	-3%
Africa	9.2	12.8	17.0	14.7	13.3	16.3	25.5	35.4	51.1	60.1	18%
Oceania	16.2	28.6	18.5	17.7	15.5	14.7	16.5	8.2	7.4	7.1	-4%
Sub-total	**39.5**	**63.3**	**52.0**	**55.8**	**40.5**	**37.3**	**48.1**	**49.3**	**64.0**	**72.7**	**14%**
Global Total	**1,141.3**	**1,400.6**	**1,300.1**	**1,718.8**	**1,060.4**	**1,072.5**	**1,061.9**	**1,035.2**	**1,066.9**	**849.5**	**-20%**

Source: Metals Focus

Indian Physical Investment



Source: Metals Focus, Bloomberg

raised local gold prices. We expect retail investment to fall again this year, albeit modestly, in light of COVID-19 adding further pressure on disposable incomes.

South Asia

Indian physical investment fell by 10% in 2019 to 145.8t, a low for the decade and less than half of the 2013 peak. This downtrend that retail investment has experienced in recent years reflects several factors, including strong equity market returns, wider access to other financial products and the continued clampdown on high-value cash transactions.

With equities rising to record levels, retail interest in stock markets has grown considerably over the years, reflected by strong flows into mutual funds through Systematic Investment Plans (SIPs). Monthly contributions through SIPs averaged a record Rs.82bn ($1.1bn) last year. Furthermore, the government's push towards financial inclusion across rural India in the last few years has made it easier for investors to access other savings and investment vehicles.

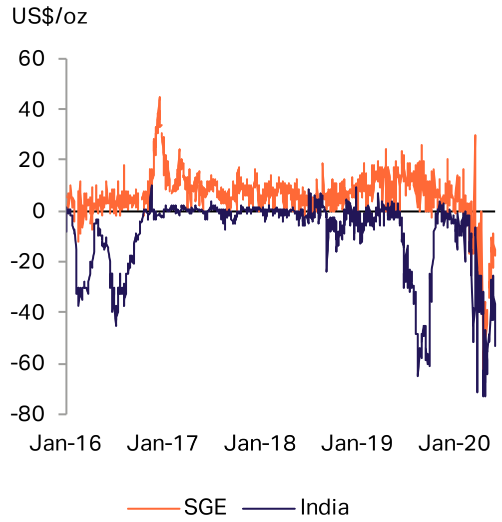
Even if an investor were considering the yellow metal, the government's sovereign gold bond (SGB) programme, which provides an alternative to physical gold, has enjoyed growing investor interest. Essentially, SGBs are government securities denominated in grams of gold (but not backed by gold), which, along with exposure to gold, also provide annual interest of 2.5%. These bonds have attracted investments equivalent to 6t so far in 2020 and a cumulative 35.2t since 2015. While the volumes are

Physical Investment - Bars and Coins

Tonnes	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	Y/Y
Bar Investment											
Europe	175.9	209.0	174.5	191.8	146.3	165.1	158.0	149.4	126.9	114.4	-10%
North America	14.9	17.3	13.7	19.7	16.3	19.9	27.8	15.3	11.2	10.8	-4%
Middle East	35.3	45.4	41.1	57.1	43.1	35.4	30.3	36.9	35.0	32.2	-8%
South Asia	217.6	248.9	243.9	260.4	158.5	151.0	129.1	135.6	127.6	115.9	-9%
East Asia	302.1	407.1	426.6	693.2	389.0	398.0	429.4	428.3	461.0	294.7	-36%
Others	26.3	45.7	32.5	37.6	27.0	20.7	22.4	14.0	12.9	11.9	-8%
Global Total	**772.1**	**973.4**	**772.1**	**1,259.8**	**932.4**	**790.2**	**780.3**	**779.4**	**797.0**	**579.9**	**-27%**
Coin Investment											
Europe	56.2	64.7	46.2	67.2	50.1	55.1	44.0	43.1	44.9	40.9	-9%
North America	86.4	73.0	47.1	66.0	38.5	56.9	69.9	25.6	19.1	13.2	-31%
Middle East	82.9	119.2	100.8	161.3	82.3	54.4	30.6	59.9	90.7	82.8	-9%
South Asia	95.6	109.0	97.6	103.6	66.7	63.5	53.4	56.2	54.9	49.2	-10%
East Asia	35.0	43.6	56.6	42.7	29.0	35.8	41.2	35.7	31.5	22.7	-28%
Others	13.1	17.6	19.5	18.2	13.5	16.6	25.7	35.3	51.1	60.8	19%
Global Total	**369.2**	**427.2**	**367.7**	**459.0**	**280.1**	**282.3**	**264.8**	**255.8**	**292.2**	**269.6**	**-8%**

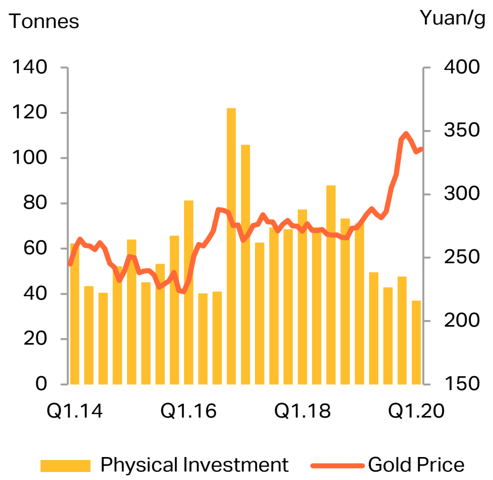
Source: Metals Focus

SGE* & Indian Prices Premium/ Discount**



* 10-day rolling average; **SGE spot & Indian landed prices over London AM price
Source: Metals Focus, Bloomberg

Chinese Physical Investment



Source: Metals Focus, Bloomberg

still modest, on average, they represent 4% of India's annual physical investment and could potentially take away further market share and undermine physical demand.

Another interesting trend in the Indian gold investing landscape is the growth of digital gold, with 5-7 platforms now offering these physically backed products. While absolute volumes involved (around 1t) are still trivial, demand has picked up significantly as newer entrants have improved the penetration and accessibility of these products. Moreover, during the recent festival of Akshaya Trithiya, digital gold transactions picked up notably owing to lockdowns across India. These platforms could in time grow to account for a material portion of gold investment.

This year, while still outperforming jewellery demand, we expect to see a further slowdown in physical investment despite the favourable outlook for the rupee gold price. Even as stock markets have corrected sharply, retail interest in equities still remains high due to the value buying opportunities thought to be offered by many blue-chip stocks. In addition, amid the COVID-19 pandemic, the economic slowdown and decline in consumer savings is likely to undermine gold investment.

Africa

South Africa retained its position as comfortably the largest gold bullion coin fabricator last year, with a 20% rise to 81.1t. In a similar fashion to 2018, the growth last year reflected increased retail demand for the Krugerrand in the local market, due to growing political uncertainty, and also in key overseas markets.

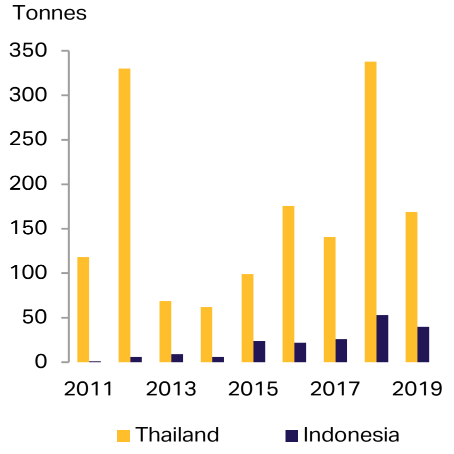
East Asia

East Asian retail investment fell by 36% in 2019. This was mainly due to heavy losses in China and Thailand and a swing to disinvestment in Japan. Having said this, most other countries in the region suffered losses.

2019 was a turning point for **China**. After four consecutive years' increase, physical investment fell by 31% to 211t. Demand suffered particularly from June onwards, as rising prices fuelled concerns of a correction. Interest in gold as a hedge against yuan devaluation was also not a big theme in 2019 as the currency was far more stable than it had been in 2017-18. Also, when it was weakest, in August, a rallying gold price was a disincentive for investors. Lastly, headwinds from the trade war and economic slowdown weighed on physical demand, as individuals had less disposable income and many preferred to hold cash. As a result of all this, both bar and coins sales were weak while net gold accumulation plans (GAPs) experienced outflows due to redemptions during periods of high prices.

Turning to 2020, we forecast Chinese physical investment will fall by 14%, with most of the losses from the COVID-19 related collapse in the first quarter. We are cautiously optimistic for gold bar demand in the rest of the year, although that is partly just because of the low base in 2019. That said, macroeconomic uncertainties and equity market volatility should

Thai & Indonesian Bullion Exports*



*Gross exports
Source: IHS Markit, Metals Focus

support high net worth investor interest in gold. Furthermore, all the local commercial banks have suspended their oil trading account services and this has led to a shift among some retail investors to physical gold.

Net **Thai** purchases fell by 49% to 35t last year, their lowest level since the start of our series in 2010. This is also the first time that retail investment has fallen below 60t. The decline largely reflects disinvestment by Thai investors, who used high gold prices to book profits. Metals Focus estimates gross disinvestment to the tune of 18-20t in 2019. Turning to this year, we expect demand to fall further due to fresh selling by investors.

After rising in 2018, retail investment in **Vietnam** fell last year by 5% to 39t. This is only the second time in the last decade that demand slipped below 40t. This partly reflects government policies which discouraged gold investment and also other factors such as tight liquidity among investors who are heavily invested in real estate and equities. The fall in property prices and a correction in equities meant that such investors could not liquidate these assets easily and move into gold. Finally, rallies in the local price were behind a swing in **Japanese** demand to net disinvestment last year, a situation we expect to persist in 2020.

Official Coin Fabrication

Tonnes	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	Y/Y
South Africa	20.0	23.7	23.7	27.5	21.5	27.7	35.2	47.3	67.9	81.1	20%
Turkey	35.7	58.8	39.9	90.5	40.5	19.7	22.8	38.3	27.8	39.8	43%
Iran	42.8	54.9	56.0	61.6	34.3	28.7	-	7.0	50.3	30.8	-39%
Canada	35.0	36.2	23.9	35.5	22.1	29.7	30.6	18.6	14.7	13.8	-7%
UK	3.9	5.1	3.8	5.0	4.8	9.5	9.2	7.5	13.0	11.9	-9%
China	16.6	20.8	25.3	25.0	12.8	28.3	31.2	22.3	22.0	11.5	-48%
Australia	14.8	26.2	17.0	16.2	11.6	10.8	11.2	8.2	9.6	8.5	-12%
Austria	17.9	21.1	12.4	20.3	15.0	23.5	16.6	12.8	11.4	6.6	-42%
United States	44.5	36.5	27.5	34.1	21.9	31.8	37.5	12.5	11.4	6.6	-42%
Germany	5.8	4.7	4.9	4.2	3.0	3.2	3.0	4.3	3.9	3.2	-17%
Russia	5.1	5.1	5.1	5.9	2.7	1.6	1.2	1.2	1.3	1.4	10%
Mexico	1.1	1.2	0.8	2.2	1.9	0.5	0.8	1.2	1.3	0.8	-40%
Others	15.6	16.0	14.0	15.6	13.5	10.3	9.0	7.5	7.8	8.2	5%
Global Total	**258.8**	**310.4**	**254.3**	**343.6**	**205.6**	**225.2**	**208.3**	**188.8**	**242.3**	**224.1**	**-8%**

N.B. The sum of official coin, medallion and other non-official coin fabrication may not be equal to coin investment due to inventory changes.
Source: Metals Focus

Medallions & Other Non-Official Coin Fabrication

Tonnes	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	Y/Y
India	88.9	100.2	92.6	97.2	62.1	59.2	48.8	51.2	50.3	44.8	-11%
Others	18.3	22.3	16.4	22.9	18.8	17.0	19.2	25.2	22.9	22.0	-4%
Global Total	**107.2**	**122.5**	**109.0**	**120.1**	**80.9**	**76.3**	**67.9**	**76.4**	**73.3**	**66.8**	**-9%**

Source: Metals Focus

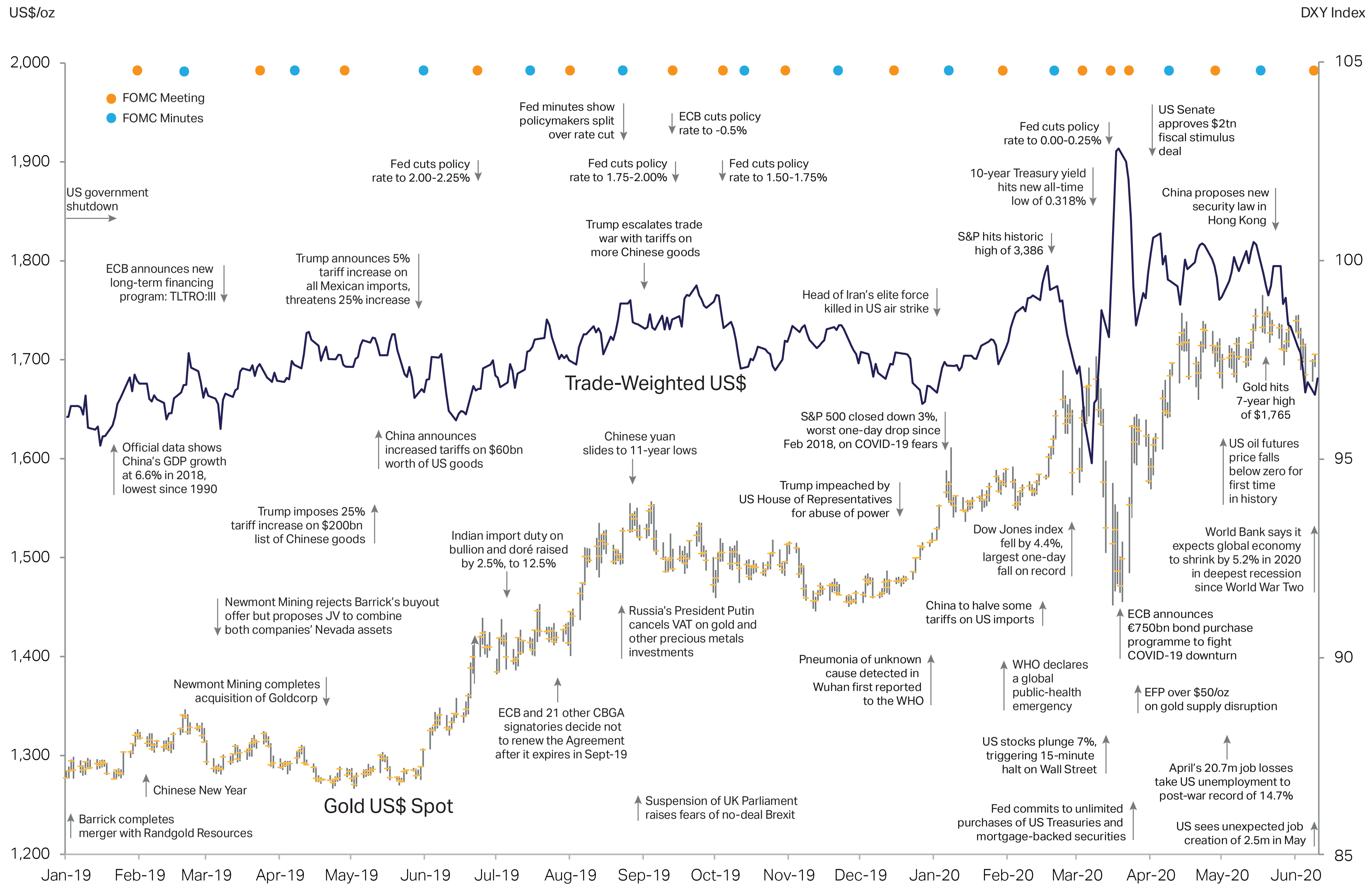
Appendices

Appendix 1 - Gold Supply and Demand

Million ounces	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	Y/Y
Supply											
Mine Production	90.2	93.0	95.7	100.9	104.2	107.3	111.2	112.3	114.5	113.6	-1%
Top 5 Countries:											
China	11.3	11.9	13.3	14.1	14.9	14.8	14.9	13.8	13.0	12.3	-5%
Russia	6.5	6.8	7.5	8.0	8.1	8.2	8.4	9.0	9.5	10.6	12%
Australia	8.3	8.3	8.1	8.6	8.8	9.0	9.2	9.4	10.2	10.5	3%
United States	7.4	7.5	7.5	7.4	6.8	7.0	7.4	7.6	7.2	6.4	-11%
Canada	3.3	3.3	3.4	4.2	4.9	5.1	5.2	5.5	6.1	5.9	-3%
Recycling	47.7	52.0	53.4	39.5	37.6	35.5	40.6	36.6	37.3	41.7	12%
Top 5 Countries:											
China	4.2	4.1	4.5	3.2	3.8	3.4	4.7	4.6	4.7	5.4	15%
India	2.6	2.7	3.8	3.1	3.0	2.6	2.6	2.8	2.8	3.8	37%
Turkey	4.5	3.4	5.0	3.0	3.9	5.3	4.2	2.7	3.6	3.7	2%
Italy	3.1	3.8	3.9	3.4	2.8	2.7	2.7	2.6	2.5	2.7	12%
United States	7.4	9.8	7.2	5.2	3.4	2.8	2.7	2.6	2.6	2.7	5%
Net Hedging Supply	-	1.0	-	-	3.4	0.4	1.1	-	-	-	n/a
Total Supply	**137.9**	**146.0**	**149.1**	**140.4**	**145.2**	**143.2**	**152.9**	**148.9**	**151.8**	**155.3**	**2%**
Demand											
Jewellery Fabrication	68.3	70.6	71.2	88.9	81.8	79.7	64.9	72.6	73.5	68.7	-6%
Top 5 Countries:											
China	15.7	19.6	21.5	34.7	27.9	26.4	21.3	22.3	23.8	21.7	-9%
India	22.5	22.6	20.9	20.4	21.7	23.3	16.1	21.4	20.5	18.4	-10%
Italy	3.8	3.1	3.0	3.7	4.0	3.9	3.5	3.8	4.1	4.1	-2%
Turkey	3.4	3.6	3.7	4.7	4.5	3.8	3.7	4.4	4.1	4.1	-1%
United States	1.8	1.6	1.8	2.0	2.0	2.0	1.9	2.0	2.1	2.1	1%
Other Fabrication	13.3	12.4	11.7	11.3	11.2	10.7	10.4	10.7	10.8	10.5	-3%
Electronics	10.5	9.9	9.3	9.0	8.9	8.4	8.2	8.5	8.6	8.4	-2%
Dentistry	1.0	0.8	0.7	0.7	0.6	0.6	0.6	0.5	0.5	0.4	-9%
Decorative & Other Industrial	1.8	1.7	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	-3%
Net Physical Investment	36.7	45.0	41.8	55.3	34.1	34.5	34.1	33.3	34.3	27.3	-20%
Top 5 Countries:											
China	5.4	7.6	8.0	13.1	6.4	7.3	9.1	9.9	9.9	6.8	-31%
India	9.5	10.8	10.4	10.9	6.6	6.3	5.2	5.4	5.2	4.7	-10%
Germany	3.3	3.8	3.5	4.3	3.3	3.7	3.6	3.4	3.1	2.9	-5%
Turkey	1.4	1.9	1.9	2.1	1.2	1.0	0.1	0.6	2.0	1.3	-37%
Iran	2.3	3.6	3.2	4.4	3.1	2.5	2.2	2.1	2.2	1.1	-49%
Net Hedging Demand	3.8	-	1.5	0.8	-	-	-	0.8	0.3	0.0	-93%
Net Official Sector Buying	3.4	16.6	18.7	21.0	19.3	18.6	12.7	12.2	21.1	20.8	-2%
Total Demand	**125.4**	**144.6**	**144.9**	**177.2**	**146.4**	**143.5**	**122.1**	**129.5**	**139.9**	**127.3**	**-9%**
Market Balance	**12.4**	**1.4**	**4.2**	**-36.8**	**-1.2**	**-0.3**	**30.8**	**19.4**	**11.9**	**28.0**	**137%**
Net Investment in ETPs	12.5	8.4	8.1	-28.3	-4.9	-4.2	17.4	8.7	2.4	13.0	438%

Source: Metals Focus

Appendix 2 - Gold Price High, Low, Close (London, $/oz), Trade Weighted US Dollar Index and Key Events in 2019-2020

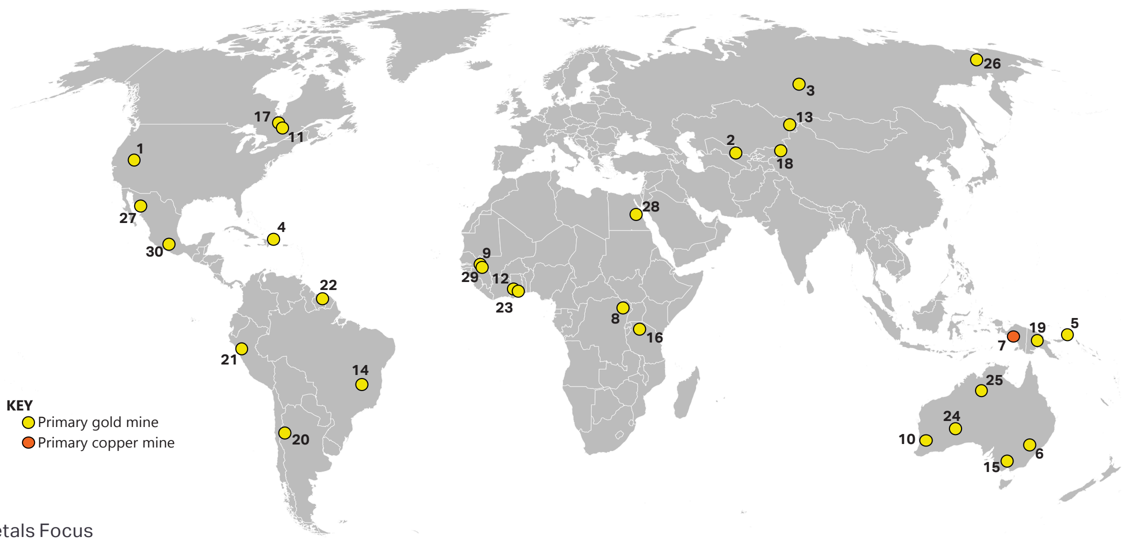


NB: Grey line indicates daily trading range; Source: Metals Focus, Bloomberg

Appendix 3 - Top 30 Gold Producing Mines

Rank	Mine	Country	Ownership	2018	2019	Y/Y
				Tonnes		
1	Nevada Gold Mines[1]	United States	Barrick Gold Corp. (61.5%) / Newmont Corp. (38.5%)	129.2	115.8	-10%
2	Muruntau[2]	Uzbekistan	Government of the Republic of Uzbekistan (100%)	64.0	66.0	3%
3	Olimpiada	Russia	Polyus Gold (100%)	41.1	43.2	5%
4	Pueblo Viejo	Dominican Republic	Barrick Gold Corp. (60%) / Newmont Corp. (40%)	30.1	30.6	2%
5	Lihir	Papua New Guinea	Newcrest Mining (100%)	30.3	27.4	-10%
6	Cadia Valley	Australia	Newcrest Mining (100%)	23.4	27.1	16%
7	Grasberg	Indonesia	Government of Indonesia (51.2%) / Freeport McMoRan (48.8%)	86.1	26.8	-69%
8	Kibali	DR Congo	AngloGold Ashanti (45%)/Barrick Gold Corp. (45%)/Okimo (10%)	25.1	25.3	1%
9	Loulo-Gounkoto	Mali	Barrick Gold Corp. (100%)	20.5	22.2	8%
10	Boddington	Australia	Newmont Corp. (100%)	22.1	21.9	-1%
11	Canadian Malartic	Canada	Agnico Eagle Mines (50%)/Yamana Gold (50%)	21.7	20.8	-4%
12	Ahafo	Ghana	Newmont Corp. (100%)	13.6	20.0	47%
13	Kazzinc	Kazakhstan	Glencore (69.6%) / Samruk-Kazyna (29.8%)/Other (0.6%)	20.0	19.7	-1%
14	Paracatu	Brazil	Kinross Gold Corp. (100%)	16.2	19.3	19%
15	Fosterville	Australia	Kirkland Lake Gold (100%)	11.1	19.3	74%
16	Geita	Tanzania	AngloGold Ashanti (100%)	17.6	18.8	7%
17	Detour Lake	Canada	Detour Gold (100%)[3]	19.3	18.7	-3%
18	Kumtor	Kyrgyzstan	Centerra Gold (100%)	16.6	18.7	12%
19	Porgera	Papua New Guinea	Barrick Gold Corp. (47.5%) / Zijin Mining (47.5%)[4]	13.4	18.6	39%
20	Veladero	Argentina	Barrick Gold Corp. (50%) / Shandong Gold (50%)	17.3	17.0	-1%
21	Yanacocha	Peru	Newmont Corp. (51.35%) / Buenaventura (43.65%)/Sumitomo Corp. (5%)	16.0	16.4	2%
22	Merian	Suriname	Newmont Corp. (75%) / Government of Suriname (25%)	16.6	16.3	-2%
23	Tarkwa	Ghana	Gold Fields (90%) / Government of Ghana (10%)	16.3	16.1	-1%
24	Tropicana	Australia	AngloGold Ashanti (70%) / Independence Group NL (30%)	14.9	16.0	7%
25	Tanami	Australia	Newmont Corp. (100%)	15.4	15.6	1%
26	Kupol	Russia	Kinross Gold Corp. (100%)	14.0	15.2	9%
27	La Herradura	Mexico	Fresnillo (100%)	14.7	15.0	2%
28	Sukari	Egypt	Centamin (100%)	14.7	14.9	2%
29	Fekola	Mali	B2Gold Corp. (100%)	13.7	14.2	4%
30	Morelos	Mexico	Torex Gold (100%)	11.0	14.1	28%

NB: 1: Includes Cortez, Carlin, Goldstrike, Turquoise Ridge, Twin Creeks, Phoenix and Long Canyon, 2: Estimate, 3: Kirkland Lake Gold acquired Detour Gold in January 2020, 4: Gov. of Papua New Guinea (5%)



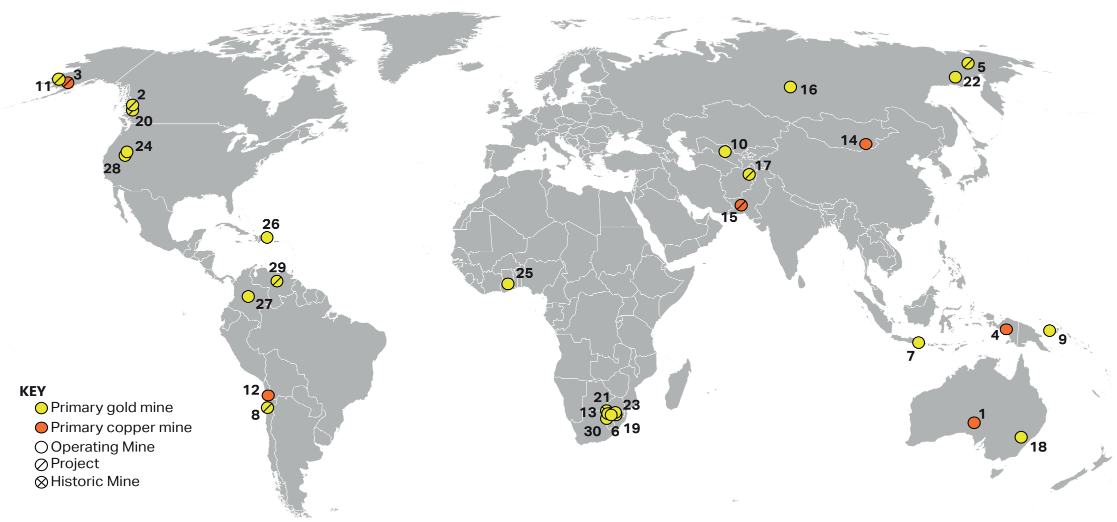
Source: Metals Focus

Appendix 4 - Top 30 Gold Mineral Resources

Rank	Asset	Country	Status	Ownership	Contained gold, tonnes	
					Reserves	Resources*
1	Olympic Dam	Australia	Operating	BHP Billiton (100%)	391	3,414
2	KSM	Canada	Project	Seabridge Gold (100%)	1,207	3,337
3	Pebble	United States	Project	Northern Dynasty Minerals (100%)	-	3,309
4	Grasberg	Indonesia	Operating	Gov. of Indonesia (51.2%) / Freeport McMoRan (48.8%)	1,443	2,992
5	Sukhoi Log	Russia	Project	Polyus Gold (100%)	-	1,969
6	South Deep	South Africa	Operating	Gold Fields (100%)	1,021	1,870
7	Tujuh Bukit	Indonesia	Operating	Merdeka Copper & Gold (99.9%) / Private & Other (0.1%)	26	1,780
8	Cerro Casale	Chile	Project	Newmont Corp. (100%/ Barrick Gold Corp. (50%)	723	1,642
9	Lihir	Papua New Guinea	Operating	Newcrest Mining (100%)	715	1,524
10	Muruntau[1]	Uzbekistan	Operating	Navoi Mining and Metallurgical Combinat (100%)	-	1,496
11	Donlin Gold	United States	Project	Barrick Gold Corp. (50%) / NovaGold Resources (50%)	-	1,431
12	Escondida	Chile	Operating	BHP Billiton (57.5%) / Rio Tinto (30%) / JECO (10%)	732	1,350
13	Mponeng	South Africa	Operating	AngloGold Ashanti (100%)	345	1,425
14	Oyu Tolgoi	Mongolia	Operating	Turquoise Hill Resources (66%) / Gov. of Mongolia (34%)	400	1,318
15	Reko Diq	Pakistan	Project	Government of Balochistan (100%)	-	1,287
16	Olimpiada	Russia	Operating	Polyus Gold (100%)	746	1,225
17	Badakhshan[1]	Afghanistan	Project	Government of Afghanistan (100%)	-	1,203
18	Cadia Valley	Australia	Operating	Newcrest Mining (100%)	653	1,151
19	Kloof	South Africa	Operating	Sibanye-Stillwater (100%)	154	1,125
20	Snowfeld	Canada	Project	Pretium Resources (100%)	-	1,092
21	Blyvooruitzicht	South Africa	C&M[2]	Blyvooruitzicht Gold Mining Ltd (74%)[3]	112	1,038
22	Natalka	Russia	Operating	Polyus Gold (100%)	454	1,008
23	Evander	South Africa	Operating	Pan African Resources (100%)	278	993
24	Carlin	United States	Operating	Barrick Gold Corp. (61.5%) / Newmont Corp. (38.5%)	648	991
25	Obuasi	Ghana	Operating	AngloGold Ashanti (100%)	221	966
26	Pueblo Viejo	Dominican Republic	Operating	Barrick Gold Corp. (60%) / Newmont Corp. (40%)	295	892
27	La Colosa	Colombia	Project	AngloGold Ashanti (100%)	-	881
28	Hycroft	United States	Operating	Hycroft Mining Corp. (100%)	331	879
29	Las Cristinas	Venezuela	Project	Citic (100%)	525	840
30	Tshepong	South Africa	Operating	Harmony Gold Mining (100%)	135	770

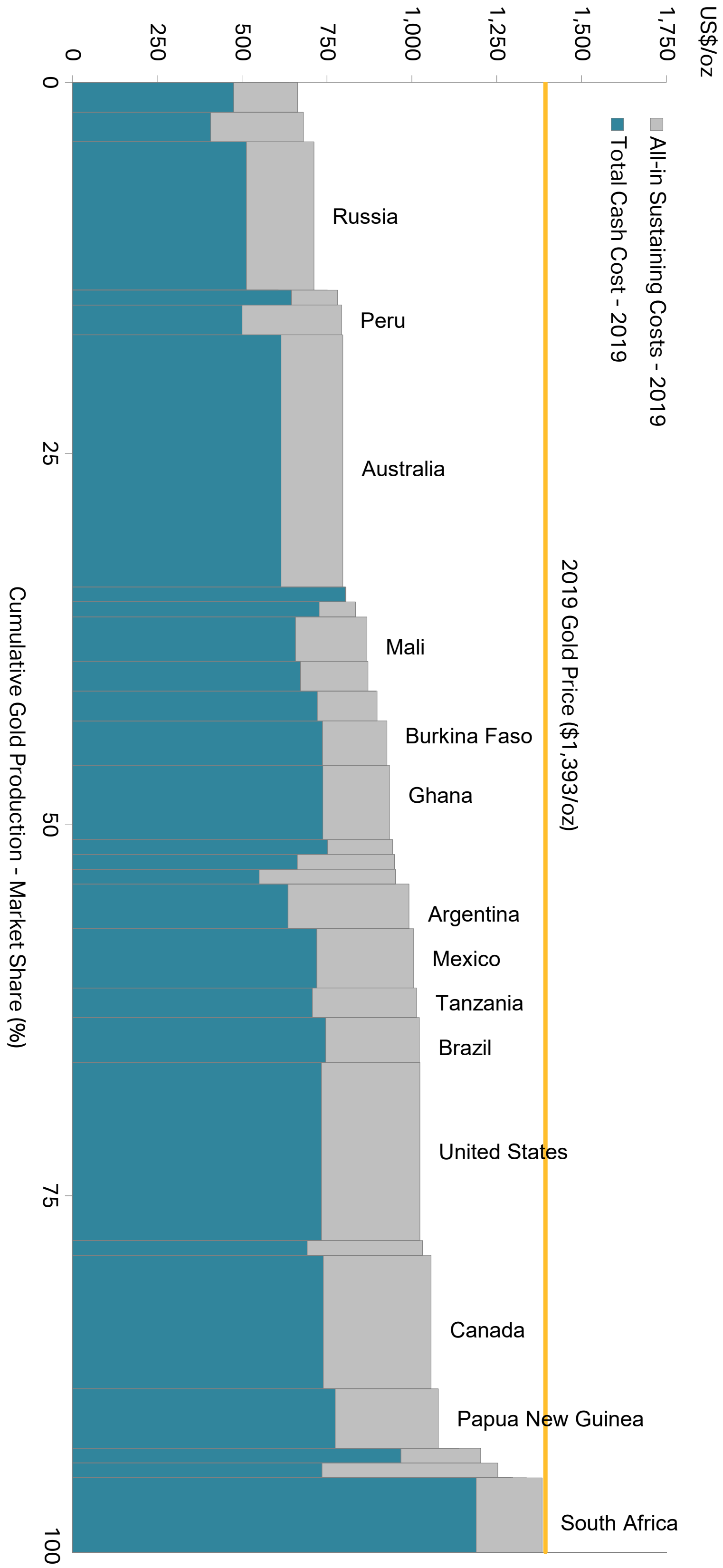
* Mineral resources stated are inclusive of reserves

NB: 1: Estimate, 2: Care & Maintenance, 3: Khumo Gold (BEE Group) (20%), DRDSA Empowerment Trust (6%)



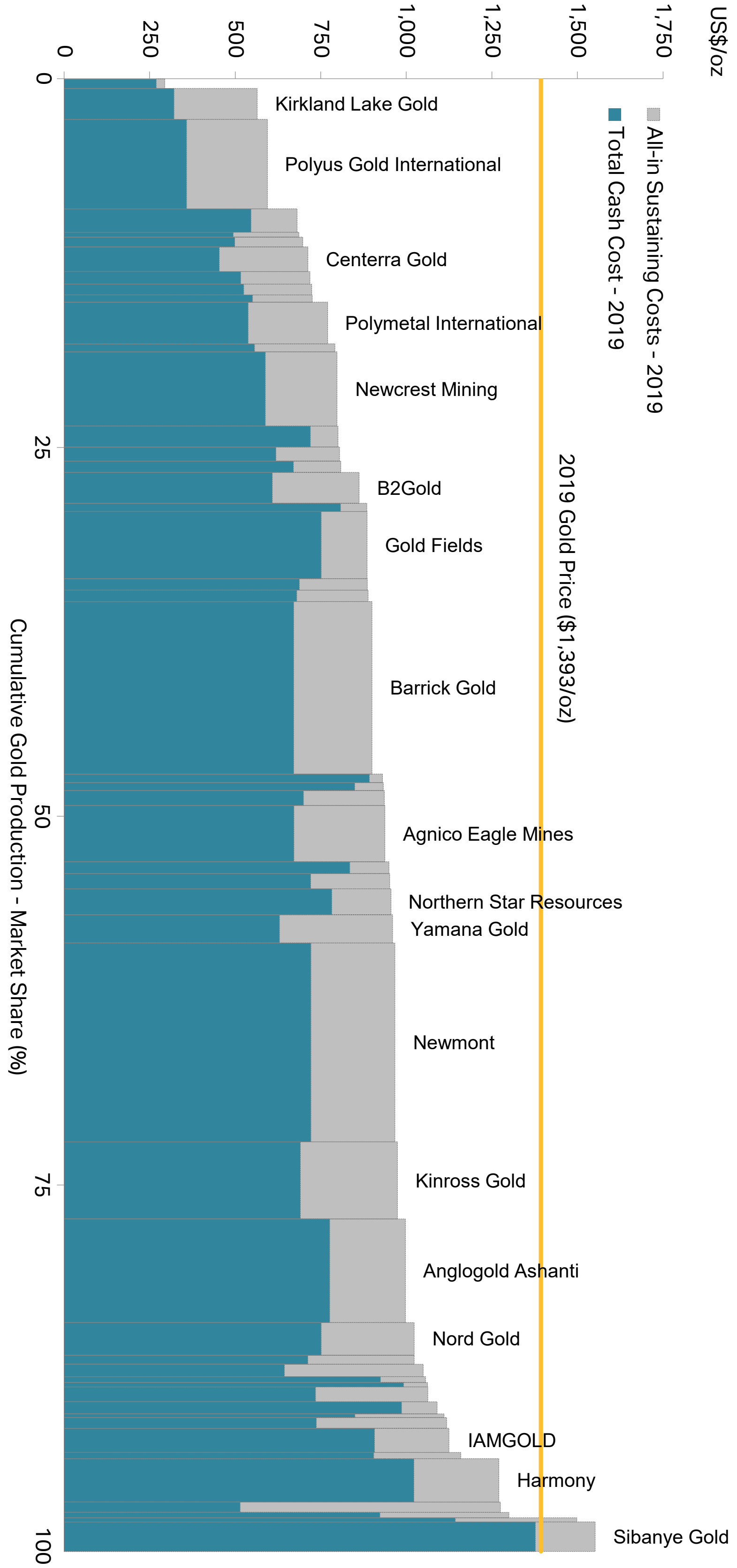
Source: Metals Focus

Appendix 5a - Global Primary Gold Cost Curve by Country - 2019



Source: Metals Focus Gold Mine Cost Service
Note: Graph covers those producers where detailed cost metrics are published.

Appendix 5b - Global Primary Gold Cost Curve by Company - 2019



Source: Metals Focus Gold Mine Cost Service
Note: Graph covers those producers where detailed cost metrics are published.

Appendix 6 - Yearly Average Gold Production Costs

US$/oz	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	Y/Y
North America											
United States											
Total Cash Cost	471	510	546	593	682	656	655	613	655	739	13%
All-In Sustaining Cost	813	819	906	929	970	886	842	844	901	1,032	14%
Costed Production (tonnes)	189.0	198.2	201.9	205.5	185.2	190.4	200.8	219.6	204.2	184.4	
Canada											
Total Cash Cost	500	649	775	795	709	675	676	684	709	738	4%
All-In Sustaining Cost	793	964	1,247	1,174	1,050	950	941	958	986	1,044	6%
Costed Production (tonnes)	83.2	87.7	90.6	109.5	128.7	135.4	138.2	150.1	169.0	166.0	
Mexico											
Total Cash Cost	264	227	278	564	605	594	589	497	580	700	21%
All-In Sustaining Cost	447	421	712	967	997	876	845	901	946	1,005	6%
Costed Production (tonnes)	55.6	65.7	78.8	77.6	79.5	96.1	90.3	83.0	76.3	68.4	
Total North America											
Total Cash Cost	443	492	545	644	675	648	648	615	663	732	10%
All-In Sustaining Cost	750	778	948	1,005	1,002	905	875	892	941	1,032	10%
Costed Production (tonnes)	327.9	351.5	371.3	392.6	393.4	422.0	429.3	452.7	449.5	418.8	
Central & South America											
Peru											
Total Cash Cost	433	457	456	559	542	483	529	533	559	600	7%
All-In Sustaining Cost	661	756	891	891	869	778	837	862	939	952	1%
Costed Production (tonnes)	96.4	92.2	97.3	80.9	75.8	75.8	64.8	59.5	49.4	41.2	
Brazil											
Total Cash Cost	593	732	849	795	822	705	682	803	783	733	-6%
All-In Sustaining Cost	919	1,115	1,237	1,133	1,120	965	977	1,137	1,040	1,045	1%
Costed Production (tonnes)	43.8	44.4	46.4	53.9	55.2	52.0	50.6	46.1	48.7	48.3	
Argentina											
Total Cash Cost	238	316	513	590	641	633	591	592	581	665	14%
All-In Sustaining Cost	419	509	983	994	969	940	822	967	952	1,021	7%
Costed Production (tonnes)	45.6	42.8	37.9	36.8	41.3	53.7	46.4	51.9	48.3	48.9	
Dominican Republic											
Total Cash Cost	-	-	-	576	469	492	388	417	476	471	-1%
All-In Sustaining Cost	-	-	-	816	660	650	553	600	705	664	-6%
Costed Production (tonnes)	-	-	-	26.1	35.6	30.8	37.7	35.0	31.5	30.6	

Appendix 6 - Yearly Average Gold Production Costs

US$/oz	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	Y/Y
Central & South America (cont.)											
Chile											
Total Cash Cost	299	174	569	629	600	676	648	691	764	636	-17%
All-In Sustaining Cost	734	634	1,095	1,064	949	1,096	939	1,055	1,065	1,092	3%
Costed Production (tonnes)	19.8	23.8	23.4	26.5	22.8	18.6	16.9	8.9	8.9	9.1	
Other Central & South America											
Total Cash Cost	367	368	627	682	731	701	708	643	710	775	9%
All-In Sustaining Cost	-	-	1,020	1,058	1,049	1,028	913	846	924	1,017	10%
Costed Production (tonnes)	29.4	35.5	30.7	30.7	30.0	29.3	33.9	43.7	44.7	45.3	
Total Central & South America											
Total Cash Cost	405	442	576	637	634	598	582	605	636	662	4%
All-In Sustaining Cost	-	-	1,011	987	937	884	837	903	933	967	4%
Costed Production (tonnes)	235.1	238.6	235.7	254.9	260.6	260.2	250.4	245.1	231.5	223.4	
Commonwealth of Independent States											
Russia											
Total Cash Cost	513	617	651	733	618	487	466	507	493	500	1%
All-In Sustaining Cost	736	892	951	1,027	835	657	643	718	704	696	-1%
Costed Production (tonnes)	100.6	104.9	116.3	127.7	138.6	135.8	135.0	138.7	141.5	162.8	
Kyrgyzstan											
Total Cash Cost	409	482	727	365	356	326	332	315	401	403	0%
All-In Sustaining Cost	566	675	1,714	827	835	801	678	745	725	654	-10%
Costed Production (tonnes)	17.7	18.1	9.8	18.7	17.7	16.2	17.1	17.5	16.6	18.7	
Other CIS											
Total Cash Cost	458	548	700	746	740	739	648	622	639	597	-7%
All-In Sustaining Cost	662	810	893	1,020	1,035	982	798	806	873	780	-11%
Costed Production (tonnes)	6.8	7.2	7.5	8.2	8.5	8.5	6.6	8.3	11.9	19.8	
Total CIS											
Total Cash Cost	496	594	659	689	597	484	459	493	494	501	1%
All-In Sustaining Cost	708	857	1,004	1,002	845	689	653	725	718	701	-2%
Costed Production (tonnes)	125.1	130.2	133.6	154.6	164.8	160.5	158.8	164.5	170.0	201.3	

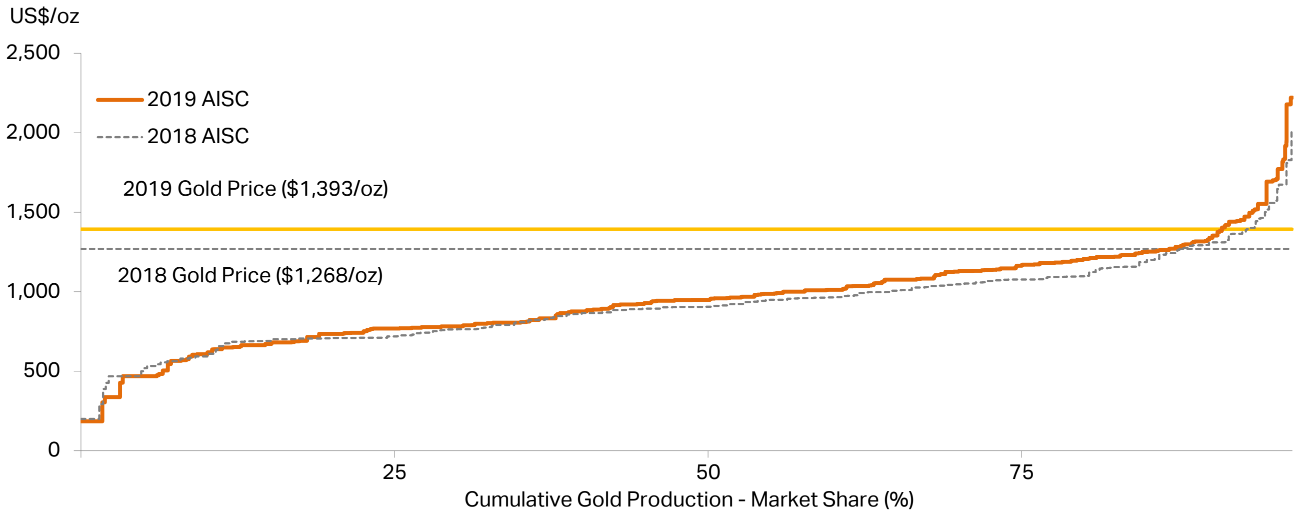
Appendix 6 - Yearly Average Gold Production Costs

US$/oz	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	Y/Y
Africa											
Ghana											
Total Cash Cost	620	706	820	862	755	765	779	738	748	735	-2%
All-In Sustaining Cost	926	1,080	1,286	1,258	983	959	1,041	956	954	935	-2%
Costed Production (tonnes)	81.7	82.6	88.2	88.7	90.8	80.3	79.6	87.2	87.6	91.3	
South Africa											
Total Cash Cost	773	911	1,032	940	910	890	840	1,007	1,113	1,176	6%
All-In Sustaining Cost	988	1,163	1,360	1,225	1,134	1,079	1,021	1,200	1,317	1,364	4%
Costed Production (tonnes)	160.5	151.4	130.0	137.3	131.3	119.7	121.1	118.3	102.2	92.5	
Mali											
Total Cash Cost	724	871	913	922	875	722	702	692	710	800	13%
All-In Sustaining Cost	940	1,094	1,155	1,257	1,085	918	824	853	851	787	-8%
Costed Production (tonnes)	36.7	36.1	41.1	40.8	40.4	41.4	41.7	43.6	53.3	34.5	
Burkina Faso											
Total Cash Cost	503	587	729	770	749	697	676	663	670	784	17%
All-In Sustaining Cost	662	750	1,127	1,138	988	909	941	865	910	981	8%
Costed Production (tonnes)	22.9	31.7	28.9	32.6	36.2	35.6	36.5	42.0	52.5	49.8	
Tanzania											
Total Cash Cost	642	642	712	734	687	657	589	609	726	675	-7%
All-In Sustaining Cost	992	1,022	1,231	1,167	1,010	942	883	884	915	901	-2%
Costed Production (tonnes)	37.5	41.4	40.1	38.5	39.8	41.7	43.7	43.1	36.3	21.4	
Democratic Republic of the Congo											
Total Cash Cost	-	-	836	630	593	597	739	804	674	664	-1%
All-In Sustaining Cost	-	-	1,471	819	671	683	932	1,108	875	870	-1%
Costed Production (tonnes)	-	-	0.8	5.3	19.4	24.2	24.4	24.6	30.9	30.4	
Other Africa											
Total Cash Cost	714	807	857	880	814	737	711	694	770	799	4%
All-In Sustaining Cost	929	1,081	1,212	1,145	989	925	902	884	945	973	3%
Costed Production (tonnes)	46.6	51.9	56.5	59.2	66.8	73.4	78.9	86.3	81.7	86.1	
Total Africa											
Total Cash Cost	700	797	889	875	809	765	746	780	815	852	5%
All-In Sustaining Cost	948	1,086	1,269	1,206	1,029	961	957	990	1,010	1,027	2%
Costed Production (tonnes)	385.9	395.2	385.7	402.4	424.7	416.3	426.0	445.1	444.5	406.0	

Appendix 6 - Yearly Average Gold Production Costs

US$/oz	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	Y/Y
Asia											
Indonesia											
Total Cash Cost	272	389	474	554	512	444	572	521	563	671	19%
All-In Sustaining Cost	401	540	644	884	758	660	907	760	835	940	13%
Costed Production (tonnes)	14.9	13.5	13.9	17.7	18.8	19.6	15.2	20.4	19.8	17.3	
Turkey											
Total Cash Cost	339	372	406	420	506	528	564	535	579	525	-9%
All-In Sustaining Cost	491	561	861	928	729	777	818	674	778	720	-7%
Costed Production (tonnes)	8.5	14.6	16.9	20.8	20.1	18.2	13.1	13.5	13.6	19.8	
Other Asia											
Total Cash Cost	444	552	657	726	703	549	457	351	523	585	12%
All-In Sustaining Cost	-	-	927	968	969	784	704	639	780	825	6%
Costed Production (tonnes)	18.5	16.8	24.3	25.0	23.0	21.1	22.3	15.1	13.8	13.1	
Total Asia											
Total Cash Cost	388	461	579	604	588	546	571	493	573	614	7%
All-In Sustaining Cost	-	-	917	987	837	767	818	710	821	846	3%
Costed Production (tonnes)	53.0	56.5	68.8	77.6	78.2	75.5	62.5	54.9	51.7	54.7	
Europe											
Total Europe											
Total Cash Cost	662	848	695	635	762	707	754	751	799	784	-2%
All-In Sustaining Cost	872	1,089	867	930	1,153	944	1,032	1,008	1,048	1,079	3%
Costed Production (tonnes)	6.2	7.4	8.6	14.1	14.6	15.1	15.2	16.7	16.3	15.9	

Global AISC 2018 & 2019

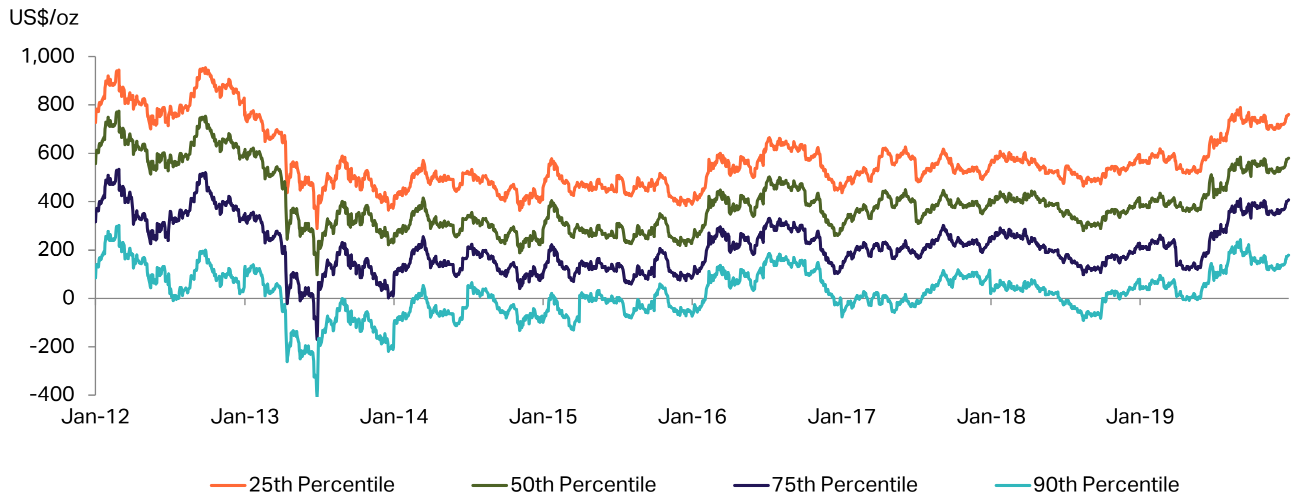


Source: Metals Focus Gold Mine Cost Service

Appendix 6 - Yearly Average Gold Production Costs

US$/oz	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	Y/Y
Oceania											
Australia											
Total Cash Cost	606	746	844	834	729	612	612	638	646	617	-5%
All-In Sustaining Cost	853	1,060	1,246	1,108	937	803	812	847	838	801	-4%
Costed Production (tonnes)	220.2	224.2	217.2	241.0	243.3	244.5	250.6	248.8	264.9	255.5	
Papua New Guinea											
Total Cash Cost	588	610	863	936	967	865	724	748	718	789	10%
All-In Sustaining Cost	970	1,033	1,400	1,385	1,206	1,072	901	1,022	1,015	1,079	6%
Costed Production (tonnes)	48.8	44.4	39.4	46.5	44.7	50.9	51.1	50.3	53.2	55.4	
Other Oceania											
Total Cash Cost	601	990	1,167	913	787	631	636	624	574	702	22%
All-In Sustaining Cost	1,041	1,473	1,592	1,279	1,060	825	1,000	963	845	1,013	20%
Costed Production (tonnes)	11.7	12.5	11.2	13.2	11.0	11.3	9.3	8.7	8.9	7.5	
Total Oceania											
Total Cash Cost	603	736	860	854	767	654	631	655	656	649	-1%
All-In Sustaining Cost	879	1,060	1,284	1,158	981	849	832	879	867	854	-2%
Costed Production (tonnes)	280.7	281.0	267.7	300.6	299.0	306.7	310.9	307.8	327.0	318.4	
Global Total											
Total Cash Cost	542	623	710	743	709	651	640	650	680	704	4%
All-In Sustaining Cost	803	912	1,106	1,080	972	878	860	896	918	941	2%
Costed Production (tonnes)	1,413.9	1,460.5	1,471.5	1,596.7	1,635.2	1,656.3	1,653.0	1,686.8	1,690.6	1,638.6	

Global All-in Sustaining Margins*



* Daily gold price less quarterly average AISC at various percentiles
Source: Metals Focus Gold Mine Cost Service

Appendix 7 - Exchange Rates*

Year	JPY	EUR[1]	CNY	INR	TRY	AUD	RUB	ZAR	CAD	DXY[2]
2010	87.73	1.33	6.77	45.73	1.51	1.09	30.37	7.32	1.03	81.21
2011	79.70	1.39	6.46	46.68	1.68	0.97	29.40	7.26	0.99	76.50
2012	79.84	1.29	6.31	53.47	1.80	0.97	31.06	8.21	1.00	80.58
2013	97.63	1.33	6.15	58.60	1.91	1.04	31.86	9.65	1.03	81.44
2014	105.92	1.33	6.16	61.03	2.19	1.11	38.62	10.85	1.10	82.58
2015	121.04	1.11	6.29	64.15	2.73	1.33	61.25	12.78	1.28	96.29
2016	108.78	1.11	6.65	67.21	3.02	1.35	66.95	14.69	1.32	96.89
2017	112.15	1.13	6.75	65.11	3.65	1.30	58.33	13.31	1.30	96.60
2018	110.46	1.18	6.62	68.38	4.84	1.34	62.82	13.25	1.30	93.58
2019	109.03	1.12	6.91	70.41	5.68	1.44	64.70	14.45	1.33	97.40
Jan-18	110.97	1.22	6.43	63.65	3.77	1.26	56.62	12.18	1.24	90.82
Feb-18	107.86	1.23	6.32	64.45	3.79	1.27	56.85	11.82	1.26	89.70
Mar-18	106.10	1.23	6.32	65.04	3.89	1.29	57.14	11.84	1.29	89.88
Apr-18	107.62	1.23	6.30	65.67	4.06	1.30	60.86	12.10	1.27	90.29
May-18	109.71	1.18	6.38	67.56	4.42	1.33	62.35	12.54	1.29	93.35
Jun-18	110.14	1.17	6.47	67.79	4.63	1.34	62.82	13.33	1.31	94.36
Jul-18	111.48	1.17	6.72	68.73	4.78	1.35	62.83	13.38	1.31	94.59
Aug-18	111.03	1.15	6.85	69.59	5.93	1.37	66.46	14.11	1.30	95.48
Sep-18	112.04	1.17	6.86	72.25	6.32	1.39	67.63	14.77	1.30	94.76
Oct-18	112.80	1.15	6.94	73.63	5.81	1.41	65.85	14.54	1.30	95.85
Nov-18	113.37	1.14	6.94	71.77	5.35	1.38	66.55	14.08	1.32	96.76
Dec-18	112.16	1.14	6.89	70.73	5.32	1.40	67.58	14.30	1.35	96.87
Jan-19	108.99	1.14	6.79	70.74	5.35	1.40	66.77	13.83	1.33	95.96
Feb-19	110.46	1.13	6.74	71.21	5.28	1.40	65.83	13.83	1.32	96.48
Mar-19	111.14	1.13	6.71	69.47	5.46	1.41	65.16	14.39	1.34	96.78
Apr-19	111.69	1.12	6.72	69.40	5.76	1.41	64.55	14.15	1.34	97.37
May-19	109.98	1.12	6.86	69.81	6.04	1.44	64.91	14.43	1.35	97.73
Jun-19	108.07	1.13	6.90	69.44	5.81	1.44	64.07	14.58	1.33	96.80
Jul-19	108.25	1.12	6.88	68.77	5.67	1.43	63.23	14.05	1.31	97.34
Aug-19	106.22	1.11	7.06	71.15	5.65	1.48	65.84	15.19	1.33	98.00
Sep-19	107.51	1.10	7.12	71.35	5.71	1.47	64.94	14.85	1.32	98.61
Oct-19	108.17	1.11	7.08	71.05	5.79	1.47	64.32	14.92	1.32	98.17
Nov-19	108.91	1.10	7.02	71.48	5.74	1.46	63.88	14.80	1.32	98.08
Dec-19	109.11	1.11	7.01	71.18	5.86	1.45	62.86	14.39	1.32	97.38
Jan-20	109.28	1.11	6.92	71.29	5.93	1.46	61.95	14.41	1.31	97.40
Feb-20	110.03	1.09	7.00	71.49	6.07	1.50	64.15	15.04	1.33	98.86
Mar-20	107.69	1.11	7.02	74.44	6.34	1.61	74.64	16.70	1.39	98.84
Apr-20	107.80	1.09	7.07	76.24	6.86	1.59	75.04	18.59	1.41	99.89
May-20	107.22	1.09	7.11	75.68	6.92	1.53	72.73	18.16	1.40	99.58

*Period average. Rates shown against the US dollar, except for (1) where the US dollar rate is shown against the euro and (2) which is the US dollar trade weighted index.
Source: Bloomberg

Appendix 8 - Nominal Gold Prices

Year	PM Price[1] USD/oz	Low[2] USD/oz	High[2] US$/oz	EUR/Kg[3]	CNY/g[4]	INR/10g[5]	TRY/g	AUD/oz	RUB/g	ZAR/Kg
1987	446.23	390.00	499.75	12,302	53.53	1,858	n/a	636.40	n/a	29,236
1988	436.86	395.30	483.90	11,826	52.41	1,948	n/a	560.22	n/a	31,907
1989	380.95	355.75	415.80	10,979	46.07	1,984	n/a	480.93	n/a	32,093
1990	383.56	345.85	423.75	9,515	59.04	2,156	n/a	490.70	n/a	31,880
1991	362.26	344.25	403.00	9,248	62.13	2,642	n/a	464.71	n/a	32,136
1992	343.95	331.50	356.48	8,357	61.09	3,106	n/a	468.02	n/a	31,517
1993	359.87	327.50	410.50	9,743	66.84	3,614	n/a	530.02	n/a	37,902
1994	384.16	368.70	398.60	10,262	106.42	3,878	n/a	525.27	27.02	43,847
1995	384.05	371.50	398.30	9,316	103.11	4,000	n/a	518.48	56.27	44,778
1996	387.87	365.95	418.40	9,652	103.68	4,414	1.01	496.02	63.77	53,453
1997	331.29	281.35	369.65	9,403	88.30	3,861	1.61	444.95	61.54	48,984
1998	294.09	271.13	314.95	8,494	78.28	3,901	2.47	467.76	93.38	52,269
1999	278.57	251.95	340.50	8,403	74.14	3,857	3.77	431.77	222.66	54,752
2000	279.10	262.27	322.00	9,730	74.28	4,030	5.60	481.01	252.71	62,157
2001	271.04	253.85	298.50	9,735	72.13	4,112	10.79	524.30	254.44	74,874
2002	309.68	277.05	354.25	10,550	87.49	4,838	15.12	569.61	312.59	104,422
2003	363.32	319.15	417.75	10,330	96.97	5,435	17.53	558.25	358.16	87,981
2004	409.17	371.65	456.89	10,579	109.50	5,961	18.80	555.97	378.93	84,678
2005	444.45	410.40	541.00	11,542	117.57	6,307	19.25	583.35	404.55	91,087
2006	603.77	516.88	730.40	15,449	155.11	8,938	27.97	801.25	527.08	131,691
2007	695.39	602.46	845.84	16,295	170.59	9,316	29.09	828.54	570.73	157,341
2008	871.96	682.41	1,032.70	19,067	195.60	12,223	36.34	1,033.11	693.87	229,809
2009	972.35	802.59	1,226.56	22,408	214.47	15,198	48.50	1,234.95	989.84	261,427
2010	1,224.52	1,044.85	1,431.25	29,729	267.79	18,273	59.26	1,331.69	1,197.17	287,609
2011	1,571.52	1,308.25	1,921.15	36,321	328.93	23,868	85.38	1,523.35	1,487.80	368,389
2012	1,668.98	1,526.97	1,796.05	41,753	339.03	29,555	96.55	1,610.40	1,665.69	440,404
2013	1,411.23	1,180.50	1,696.28	34,201	281.92	29,123	85.99	1,454.48	1,441.30	435,434
2014	1,266.40	1,131.24	1,392.22	30,636	251.66	28,139	88.98	1,402.56	1,559.01	441,249
2015	1,160.06	1,046.43	1,307.98	33,605	235.15	26,306	101.37	1,542.68	2,278.43	474,079
2016	1,250.80	1,061.42	1,375.45	36,308	268.30	29,395	121.28	1,679.72	2,690.00	589,950
2017	1,257.15	1,146.16	1,357.64	35,826	275.62	28,968	147.34	1,639.58	2,358.56	538,413
2018	1,268.49	1,160.27	1,366.18	34,516	271.05	30,612	196.11	1,695.70	2,553.02	538,375
2019	1,392.60	1,266.35	1,557.11	40,021	312.68	34,855	254.23	2,006.19	2,896.49	647,995

NB: Unless specified, prices refer to London PM Fix converted to respective currencies using Bloomberg closing prices.

1: Period averages except for US$ high and low.

2: Low and high based on spot price rather than London PM Fix, to capture intra-day moves.

3: Euro price based on euro-quoted LBMA PM Fix from 1999 onwards and the dollar price converted into euros using Bloomberg synthetic exchange rates prior to that time.

4: Renminbi price is the SGE spot 99.99 from 2002 onwards and based on the London PM Fix converted into renminbi using Bloomberg exchange rates prior to that time.

5. Indian rupee price from 1985 - 2005 is Bloomberg annual average. From 2006 - 2019 price is MCX annual average spot price, which includes the import duty on gold bullion.

Source: Metals Focus, Bloomberg, MCX, SGE

Appendix 9 - Real Gold Prices

Year	PM Price[1] USD/oz	Low[2] USD/oz	High[2] US$/oz	EUR/Kg[3]	CNY/g[4]	INR/10g[5]	TRY/g	AUD/oz	RUB/g	ZAR/Kg
1987	993.67	868.46	1,112.85	25,442	239.37	18,641	n/a	1,553.56	n/a	274,963
1988	931.63	843.00	1,031.95	23,533	197.32	17,868	n/a	1,271.44	n/a	266,989
1989	776.32	724.97	847.34	20,818	147.01	16,995	n/a	1,012.39	n/a	232,622
1990	736.66	664.23	813.85	17,163	182.73	16,953	n/a	966.43	n/a	201,550
1991	675.06	641.50	750.98	15,826	185.94	18,243	n/a	901.49	n/a	174,978
1992	622.88	600.33	645.57	13,751	171.87	19,182	n/a	904.89	n/a	156,620
1993	634.27	577.22	723.51	15,402	163.93	20,996	n/a	1,006.35	n/a	171,845
1994	659.45	632.91	684.23	15,732	210.27	20,434	n/a	971.92	2,294.20	181,446
1995	642.94	621.93	666.79	13,863	174.00	19,120	n/a	912.84	1,606.28	173,325
1996	628.45	592.94	677.92	14,096	161.54	19,364	83.75	860.26	1,232.17	188,913
1997	527.79	448.23	588.91	13,533	133.84	15,803	66.80	774.00	1,035.99	162,993
1998	461.10	425.09	493.80	12,133	119.60	14,100	60.53	801.68	1,231.26	159,469
1999	425.34	384.70	519.90	11,798	114.91	13,321	54.70	726.07	1,580.53	163,537
2000	412.19	387.34	475.55	13,330	114.65	13,382	58.38	764.62	1,484.98	173,794
2001	394.17	369.17	434.11	13,068	110.55	13,156	66.80	808.01	1,230.81	200,015
2002	439.91	393.56	503.22	13,841	135.18	14,843	72.11	852.95	1,305.91	248,085
2003	506.59	445.00	582.48	13,290	148.06	16,064	74.15	815.96	1,316.44	208,589
2004	552.53	501.86	616.97	13,302	160.91	16,977	72.74	792.68	1,255.99	193,891
2005	580.35	535.88	706.42	14,193	169.72	17,230	69.13	808.89	1,189.97	201,275
2006	768.85	658.20	930.10	18,642	220.58	23,080	91.61	1,075.13	1,413.69	274,980
2007	850.79	737.10	1,034.82	19,078	231.49	22,616	87.90	1,080.54	1,404.30	301,946
2008	1,065.85	834.35	1,261.35	21,977	250.65	27,387	99.77	1,299.21	1,496.15	402,343
2009	1,157.07	955.13	1,459.43	25,590	276.79	30,711	125.01	1,521.75	1,911.67	430,541
2010	1,435.67	1,224.88	1,677.98	33,216	334.58	32,970	143.54	1,596.93	2,163.88	457,761
2011	1,789.50	1,489.77	2,187.65	39,493	389.95	39,563	187.25	1,773.68	2,479.88	552,341
2012	1,867.96	1,709.29	2,010.20	44,416	391.73	44,814	199.46	1,834.59	2,642.31	624,913
2013	1,556.11	1,301.77	1,870.33	36,077	317.48	39,816	165.40	1,612.70	2,141.71	586,419
2014	1,385.93	1,239.02	1,523.74	32,370	277.84	36,174	158.23	1,528.87	2,148.53	564,203
2015	1,260.35	1,136.91	1,420.67	35,419	256.03	31,941	165.66	1,653.68	2,717.81	575,776
2016	1,331.32	1,130.30	1,463.88	37,852	286.39	34,012	182.61	1,774.40	2,997.63	671,363
2017	1,310.44	1,194.75	1,415.16	36,854	289.59	32,703	198.24	1,699.55	2,534.92	585,209
2018	1,297.48	1,186.90	1,397.37	34,973	278.93	32,956	219.32	1,726.91	2,667.15	560,029
2019	1,392.60	1,266.35	1,557.11	40,021	312.68	34,855	254.23	2,006.19	2,896.49	647,995

NB: Based on respective countries' CPI. Unless specified, prices refer to London PM Fix converted to respective currencies using Bloomberg closing prices.

1: Period averages except for US$ high and low.

2: Low and high based on spot price rather than London PM Fix, to capture intra-day moves.

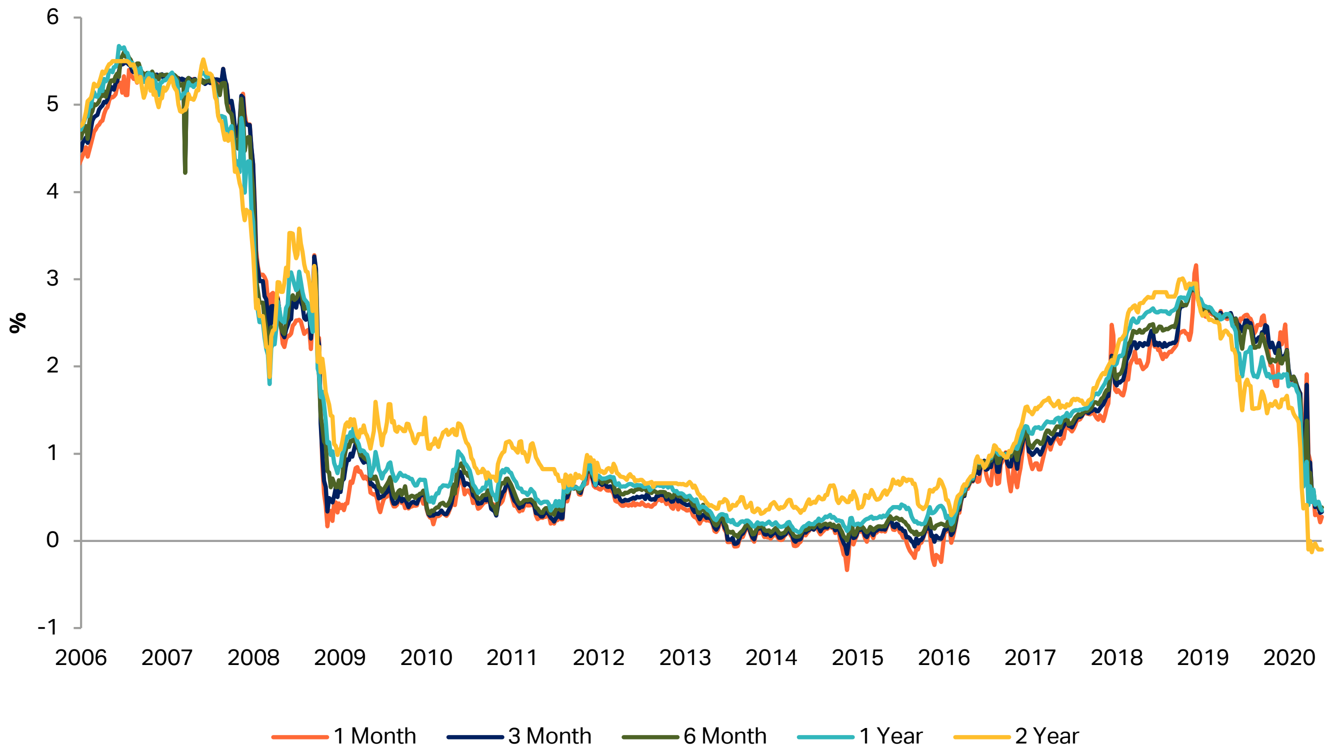
3: Euro price based on euro-quoted LBMA PM Fix from 1999 onwards and the dollar price converted into euros using Bloomberg synthetic exchange rates prior to that time.

4: Renminbi price is the SGE spot 99.99 from 2002 onwards and based on the London PM Fix converted into renminbi using Bloomberg exchange rates prior to that time.

5. Indian rupee price from 1985 - 2005 is Bloomberg annual average. From 2006 - 2019 price is MCX annual average spot price, which includes the import duty on gold bullion.

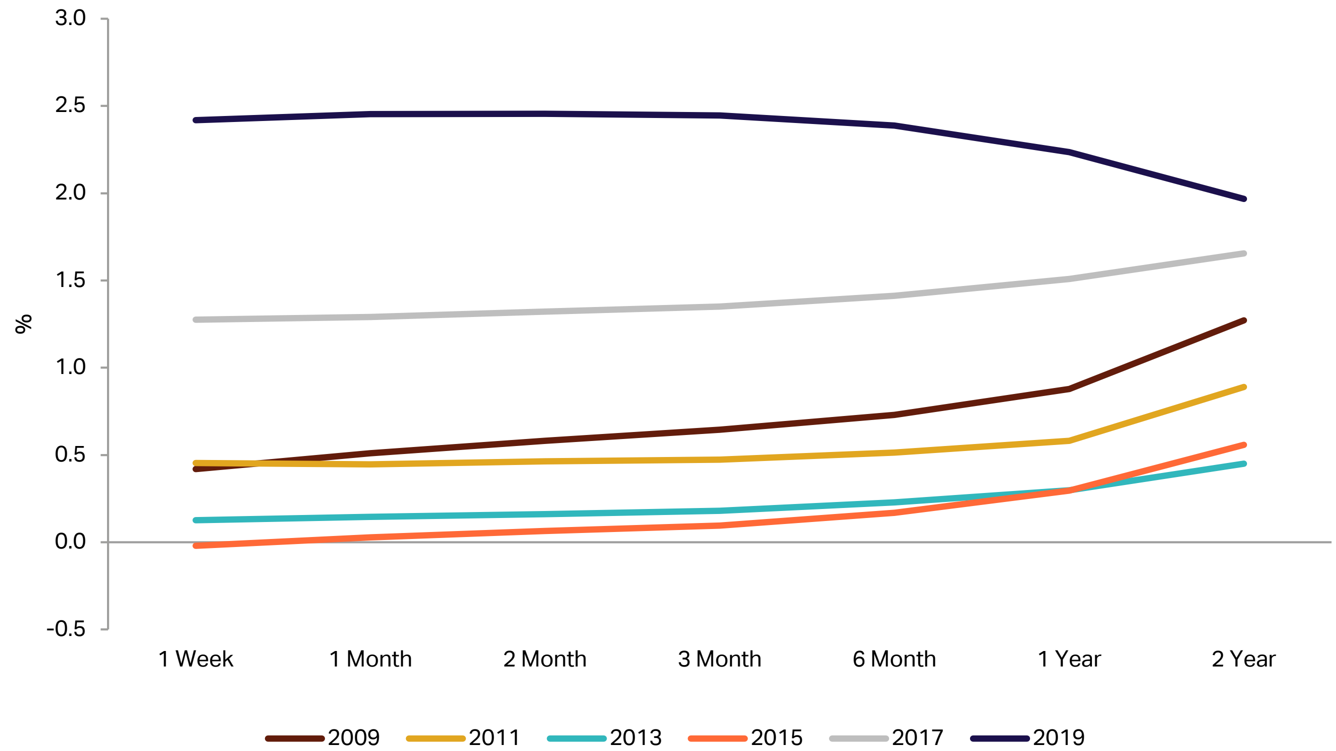
Source: Metals Focus, Bloomberg, MCX, SGE

Appendix 10 - Gold Forward Rates



Source: Bloomberg

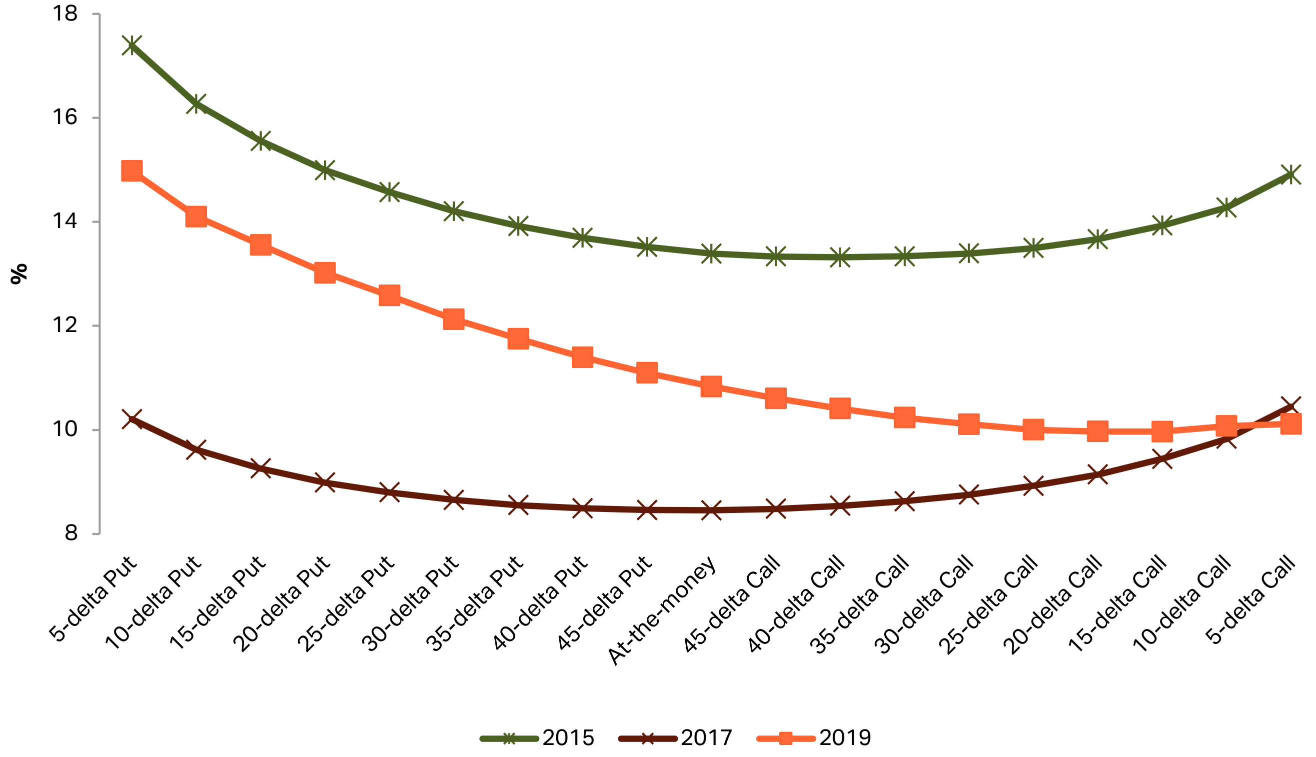
Appendix 11 - Gold Forward Curves*



* Curves are based on the average rates over each year

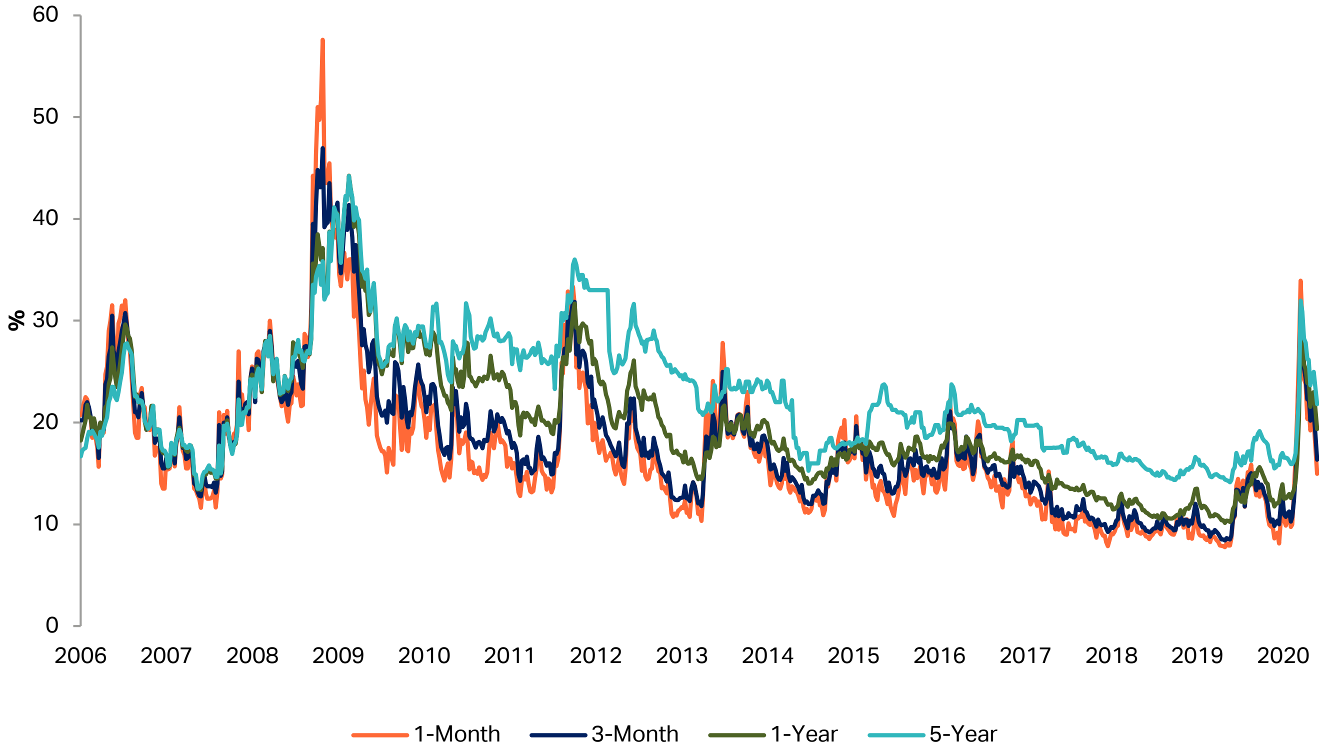
Source: Bloomberg

Appendix 12 - Year-End One-Month Option Volatility Skew



Source: Bloomberg

Appendix 13 - Historic At-The-Money Option Volatilities



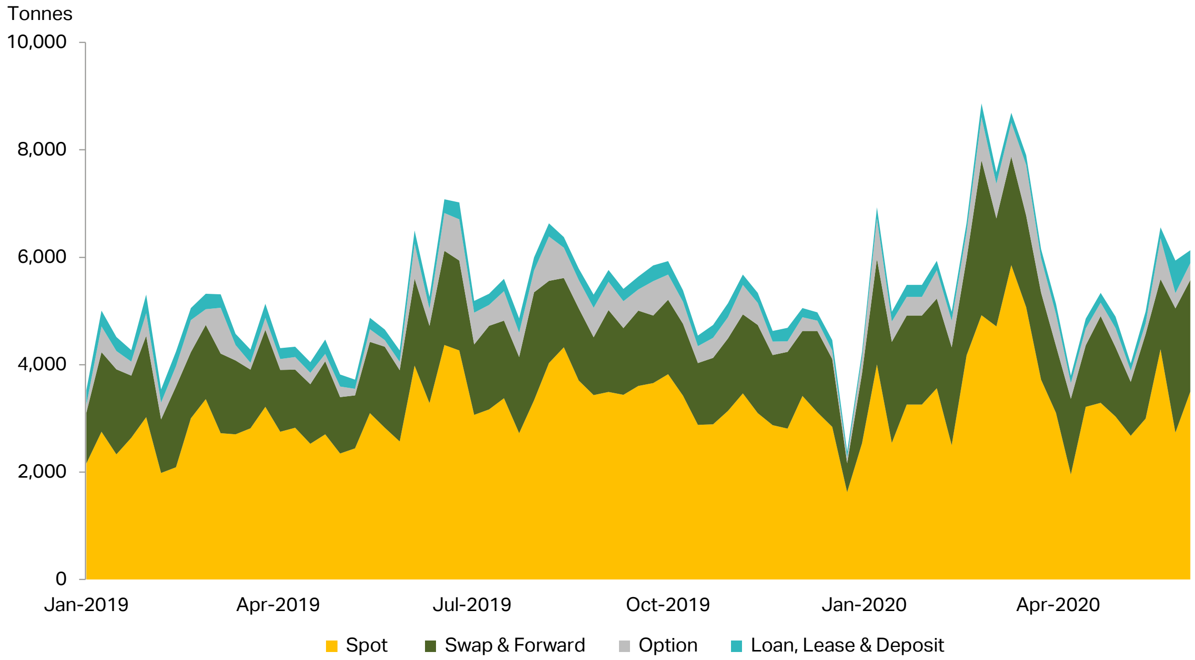
Source: Bloomberg

Appendix 14 - LBMA Trading Volumes

Nominal tonnes	Spot	Swap & Forward	Option	Loan, Lease & Deposit	Total
Month					
Jan-19	12,297	6,375	1,567	1,320	21,558
Feb-19	10,370	5,136	1,611	1,042	18,159
Mar-19	12,132	5,659	1,553	1,019	20,363
Apr-19	11,748	5,112	871	945	18,676
May-19	12,342	5,779	751	931	19,804
Jun-19	15,895	6,493	2,434	1,042	25,863
Jul-19	14,331	6,942	2,227	1,067	24,567
Aug-19	16,826	6,045	2,626	1,006	26,503
Sep-19	14,952	5,707	2,160	1,026	23,845
Oct-19	14,768	5,906	1,790	1,057	23,521
Nov-19	12,876	6,114	1,489	882	21,362
Dec-19	12,271	5,173	858	688	18,990
Jan-20	14,333	7,815	1,964	899	25,011
Feb-20	15,158	8,173	2,326	768	26,425
Mar-20	20,604	7,851	3,095	819	32,370
Apr-20	12,751	5,949	1,492	794	20,987
May-20	13,298	6,453	1,529	1,209	22,490

Source: LBMA, Nasdaq

Appendix 14 - LBMA Weekly Trading Volumes



Source: LBMA, Nasdaq

Appendix 15 - Comex Activity & Inventories

Nominal tonnes	Futures		Managed Money Positions in Comex Futures				
Year/Month	Volume[1]	Open Interest[2]	Long[2]	Short[2]	Net[2]	Net Change[3]	Comex Inventories[4]
2010	138,655	1,820	563	40	522	-87	361
2011	152,952	1,304	375	45	330	-192	353
2012	136,475	1,331	399	92	308	-22	344
2013	147,102	1,181	299	244	55	-252	243
2014	126,027	1,156	389	118	271	216	246
2015	130,132	1,291	237	321	-85	-355	198
2016	179,047	1,317	406	271	135	219	285
2017	226,440	1,533	397	62	335	200	284
2018	249,766	1,404	371	240	131	-205	262
2019	269,072	2,446	804	80	724	593	271
Jan-18	28,497	1,717	717	72	646	310	288
Feb-18	18,906	1,642	552	85	467	-179	284
Mar-18	24,995	1,554	569	65	504	38	282
Apr-18	20,700	1,567	446	136	310	-194	281
May-18	26,987	1,428	336	168	168	-142	280
Jun-18	17,850	1,485	295	295	0	-168	266
Jul-18	22,491	1,408	344	476	-132	-132	269
Aug-18	19,515	1,451	330	565	-236	-103	262
Sep-18	17,093	1,419	306	567	-260	-25	259
Oct-18	20,125	1,529	249	422	-173	88	251
Nov-18	19,755	1,210	249	430	-182	-9	249
Dec-18	12,852	1,404	371	240	131	312	262
Jan-19	19,427	1,484	393	292	101	-30	262
Feb-19	12,474	1,524	480	235	244	144	254
Mar-19	20,875	1,386	421	241	180	-64	250
Apr-19	15,851	1,337	296	296	0	-180	242
May-19	22,216	1,447	371	289	82	81	239
Jun-19	22,732	1,807	637	85	553	471	239
Jul-19	29,518	1,754	671	93	578	25	242
Aug-19	29,804	1,896	803	98	705	128	251
Sep-19	26,696	1,898	826	86	740	35	255
Oct-19	24,933	2,119	717	100	618	-122	258
Nov-19	27,767	2,099	680	76	604	-13	275
Dec-19	16,778	2,446	804	80	724	120	271
Jan-20	30,566	2,111	791	107	684	-40	271
Feb-20	24,685	2,172	819	101	718	34	269
Mar-20	32,212	1,542	488	13	475	-243	288
Apr-20	13,333	1,526	479	24	455	-19	633
May-20	16,035	1,517	453	101	352	-104	856

SNB: 1: Aggregate volume over the period, 2: Position at end-period, 3: Net change versus previous end-period, 4: Stocks at end-period
Source: Comex, CFTC, Bloomberg

Appendix 16 - Chinese Exchanges' Activity

Tonnes		Shanghai Gold Exchange				Shanghai Futures Exchange	
Year/Month	**99.99 Volume[1]**	**99.95 Volume[1]**	**T + D Volume[1]**	**T + D Open Interest[2]**	**Withdrawals[1*]**	**Futures Volume[1]**	**Futures Open Interest[2]**
2010	397	405	2,211	109	837	3,316	79
2011	560	386	2,685	134	1,043	7,062	102
2012	571	379	2,113	145	1,139	5,806	111
2013	1,594	409	3,347	169	2,197	20,088	171
2014	2,102	458	4,333	150	2,102	24,134	195
2015	3,465	491	5,648	199	2,596	25,317	259
2016	2,976	242	9,186	288	1,970	34,802	393
2017	2,829	342	9,345	218	2,061	19,509	249
2018	2,910	160	5,824	188	2,055	16,164	307
2019	2,224	96	9,337	270	1,642	46,209	439
Apr-18	257	12	488	225	213	1,554	370
May-18	243	23	495	210	151	1,537	343
Jun-18	240	30	428	205	141	1,055	365
Jul-18	190	8	476	209	137	1,112	332
Aug-18	201	11	516	198	191	1,271	333
Sep-18	175	8	406	194	188	914	318
Oct-18	163	6	538	177	143	1,592	314
Nov-18	215	6	506	178	179	1,687	235
Dec-18	256	11	540	188	178	1,571	307
Jan-19	286	12	630	232	219	2,299	373
Feb-19	133	7	400	224	100	1,567	487
Mar-19	277	12	708	267	218	2,469	470
Apr-19	219	9	656	270	152	2,247	457
May-19	186	6	638	261	123	2,239	549
Jun-19	193	7	1,031	315	107	4,275	594
Jul-19	167	6	1,100	280	129	5,259	590
Aug-19	169	8	1,447	321	108	8,699	716
Sep-19	143	5	925	231	117	6,329	636
Oct-19	111	6	577	232	91	3,464	587
Nov-19	138	12	642	218	119	3,882	422
Dec-19	202	7	583	270	159	3,480	439
Jan-20	144	4	520	217	111	1,787	270
Feb-20	73	2	701	270	29	1,048	286
Mar-20	168	2	1,968	256	82	2,103	266
Apr-20	178	2	986	215	96	1,262	231
May-20	122	3	748	222	69	2,135	243

1: Aggregate volume over the period, 2: Position at end-period

NB Both the SGE and SHFE record each transaction twice, from the point of view of the buyer and also the seller. However, to compare these volumes with other exchanges, such as the Comex, the figures in the table have been halved (as shown above).

*"Withdrawals" refer to total bullion volumes that were withdrawn from the Shanghai Gold Exchange's vaults. The Exchange changed the name of "withdrawals" in their reporting in January 2016. Prior to that date, the "withdrawals" were reported as "deliveries" in Chinese.

Source: SGE, SHFE, Bloomberg

Appendix 17 - Official Sector Gold Holdings

	End - 2009				End - 2019			
	Gold Reserves[1] (tonnes)	Value of Gold[2] ($Bn)	Other Reserves ($Bn)	Gold's Share (%)	Gold Reserves[1] (tonnes)	Value of Gold[2] ($Bn)	Other Reserves ($Bn)	Gold's Share (%)
United States	8,134	284	120	70%	8,134	396	118	77%
Germany	3,407	119	60	67%	3,367	164	59	73%
Italy	2,452	86	46	65%	2,452	119	55	68%
France	2,435	85	47	65%	2,436	119	70	63%
Russia	649	23	417	5%	2,271	111	444	20%
China, Mainland	1,054	37	2,416	2%	1,948	95	3,127	3%
Switzerland	1,040	36	98	27%	1,040	51	804	6%
Japan	765	27	1,025	3%	765	37	1,285	3%
India	558	20	265	7%	635	31	432	7%
Netherlands	612	21	18	55%	612	30	13	69%
Turkey[2]	116	4	71	5%	523	25	79	24%
Taiwan	424	15	348	4%	422	21	478	4%
Kazakhstan	70	2	21	11%	385	19	10	65%
Portugal	383	13	2	85%	383	19	6	75%
Uzbekistan	na	na	na	na	336	16	13	56%
Saudi Arabia	323	11	410	3%	323	16	499	3%
United Kingdom	310	11	69	14%	310	15	158	9%
Lebanon	287	10	29	26%	287	14	38	27%
Spain	282	10	18	35%	282	14	61	18%
Austria	280	10	8	55%	280	14	10	58%
Poland	103	4	76	5%	229	11	117	9%
Belgium	228	8	16	33%	227	11	18	38%
Philippines	155	5	39	12%	198	10	80	11%
Algeria	174	6	149	4%	174	8	63	12%
Venezuela[3]	361	13	22	37%	161	8	2	80%
Thailand	84	3	135	2%	154	7	217	3%
Singapore	127	4	188	2%	127	6	279	2%
Sweden	126	4	43	9%	126	6	49	11%
South Africa	125	4	35	11%	125	6	49	11%
Mexico	9	0	100	0%	120	6	177	3%
IMF	3,005				2,814			
ECB	501				505			
BIS[4]	120				102			
Global Total	**30,244**				**34,232**			

1: All gold holdings are based on data published by the IMF, the BIS or respective central banks, and these may have different reporting practices.
2: Value of gold reserves is based on the London PM Fix at end-2009 and end-2019.
3: End-2009 and end-June 2018.
4: End-March 2009 and end-March 2019. BIS' gold holdings do not include gold deposits held by customers at the bank.

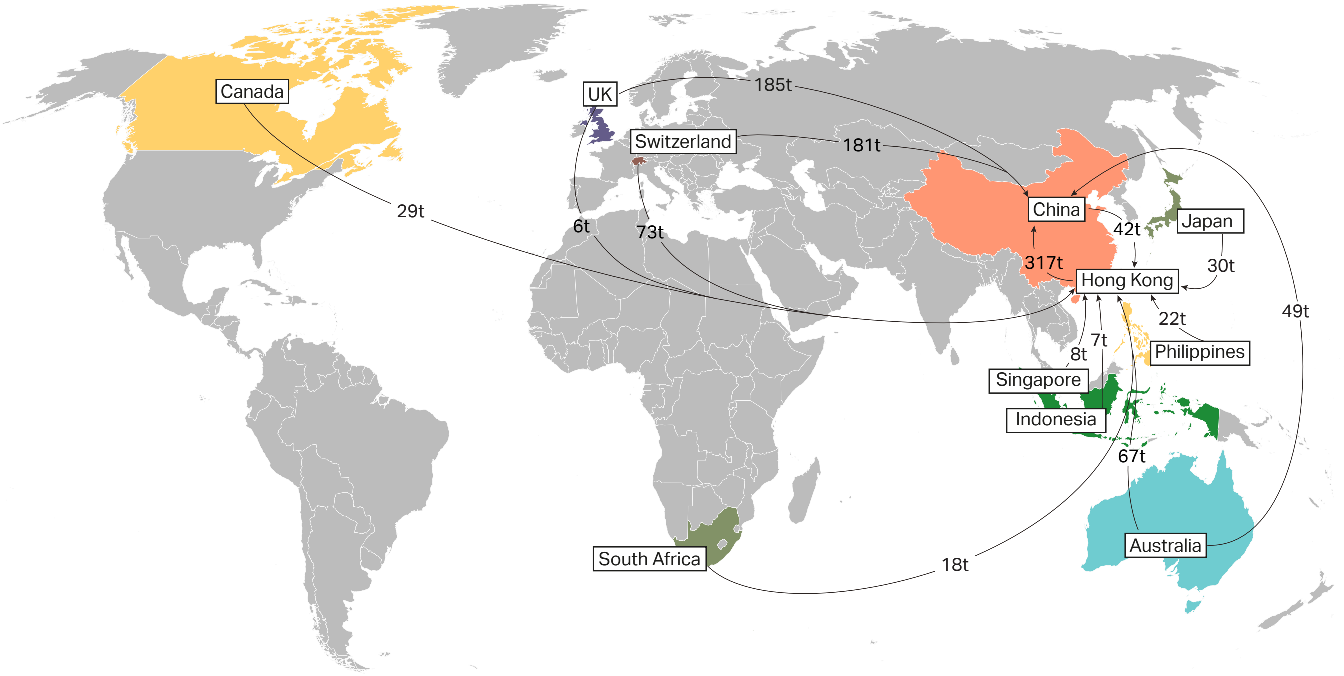
Source: IMF, BIS, respective central banks, Metals Focus

Appendix 18 - Physically Backed Gold ETP Holdings*

Tonnes Year/Month	SPDR Gold Shares	iShares Gold Trust	Xetra -Gold	ETFS Physical Gold	ZKB Gold ETF	Invesco Physical Gold	Other	Total Holdings (tonnes)	Total Value ($Bn)
2010	1,281	118	49	130	188	20	515	2,302	104.01
2011	1,255	171	51	137	224	44	603	2,484	122.27
2012	1,351	218	52	158	236	71	705	2,791	149.34
2013	798	162	45	106	179	38	557	1,885	72.82
2014	709	161	50	122	138	43	490	1,713	66.03
2015	642	153	59	103	127	48	459	1,590	54.30
2016	822	196	118	144	145	85	655	2,165	80.68
2017	837	243	175	148	146	113	708	2,371	98.85
2018	787	280	181	162	145	120	765	2,441	100.58
2019	893	360	203	147	154	146	983	2,887	141.35
Jan-18	841	261	173	151	147	112	715	2,399	103.74
Feb-18	831	266	172	149	146	112	717	2,392	101.36
Mar-18	846	271	173	148	146	114	701	2,398	102.09
Apr-18	871	288	179	148	145	120	718	2,470	104.27
May-18	847	286	182	150	144	124	751	2,484	104.23
Jun-18	819	269	182	151	145	118	749	2,432	97.79
Jul-18	800	262	181	149	145	104	752	2,393	93.94
Aug-18	755	263	179	151	146	105	753	2,353	90.96
Sep-18	742	268	180	150	146	109	733	2,328	88.86
Oct-18	754	273	179	153	145	113	726	2,343	91.52
Nov-18	761	272	181	154	145	111	739	2,364	92.55
Dec-18	787	280	181	162	145	120	765	2,441	100.58
Jan-19	824	292	189	171	146	122	813	2,557	108.78
Feb-19	784	299	191	169	146	124	810	2,523	107.01
Mar-19	784	301	192	164	146	124	813	2,526	105.21
Apr-19	746	295	193	158	145	132	797	2,467	101.73
May-19	743	283	195	158	147	137	808	2,470	102.88
Jun-19	794	295	194	160	147	143	870	2,602	117.88
Jul-19	823	308	195	157	147	138	888	2,656	121.91
Aug-19	878	326	197	159	150	148	929	2,786	136.93
Sep-19	921	342	195	157	151	149	948	2,861	136.64
Oct-19	915	357	199	163	153	153	963	2,903	141.04
Nov-19	895	358	202	152	154	148	964	2,874	134.92
Dec-19	893	360	203	147	154	146	983	2,887	141.35
Jan-20	903	372	206	141	156	151	1,020	2,948	150.17
Feb-20	934	378	207	143	159	152	1,062	3,034	157.03
Mar-20	967	391	209	146	166	185	1,122	3,185	164.76
Apr-20	1,056	422	214	147	167	199	1,151	3,355	183.68
May-20	1,123	442	217	146	170	205	1,208	3,510	195.09

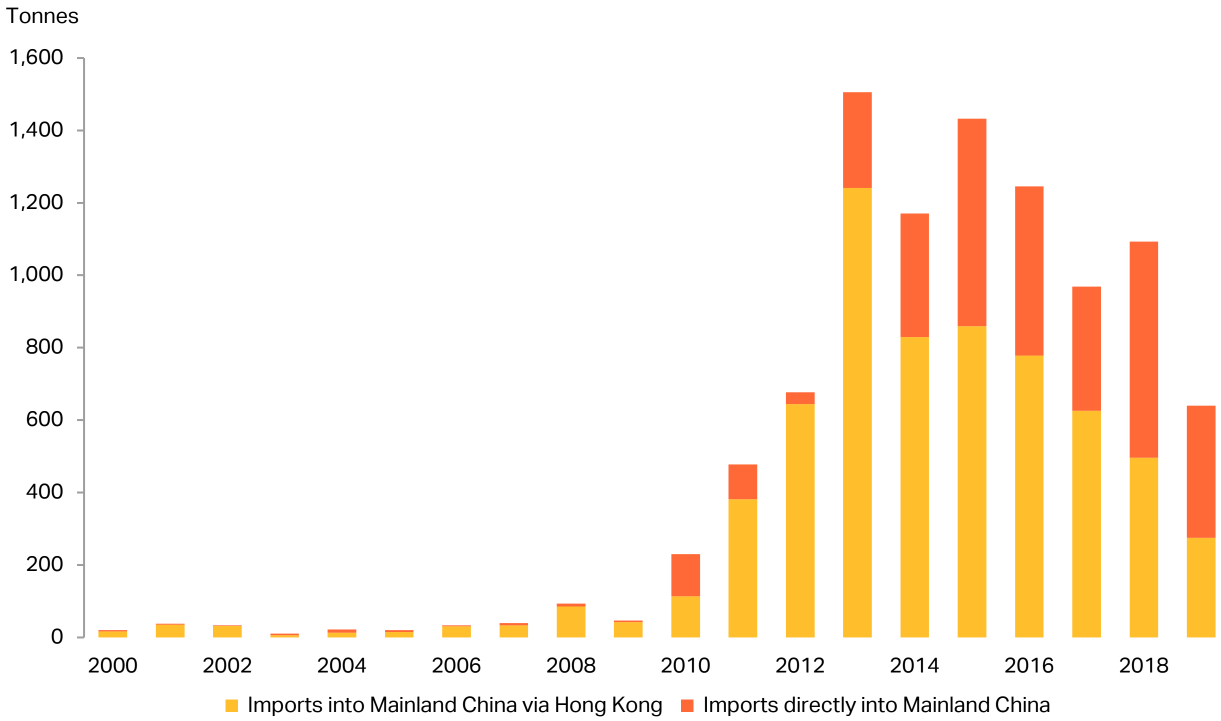
*Holdings at end-period; value calculated basis end-period price.
Source: Respective ETP providers, World Gold Council, Bloomberg

Appendix 19 - Mainland China & Hong Kong Gold Bullion Imports in 2019



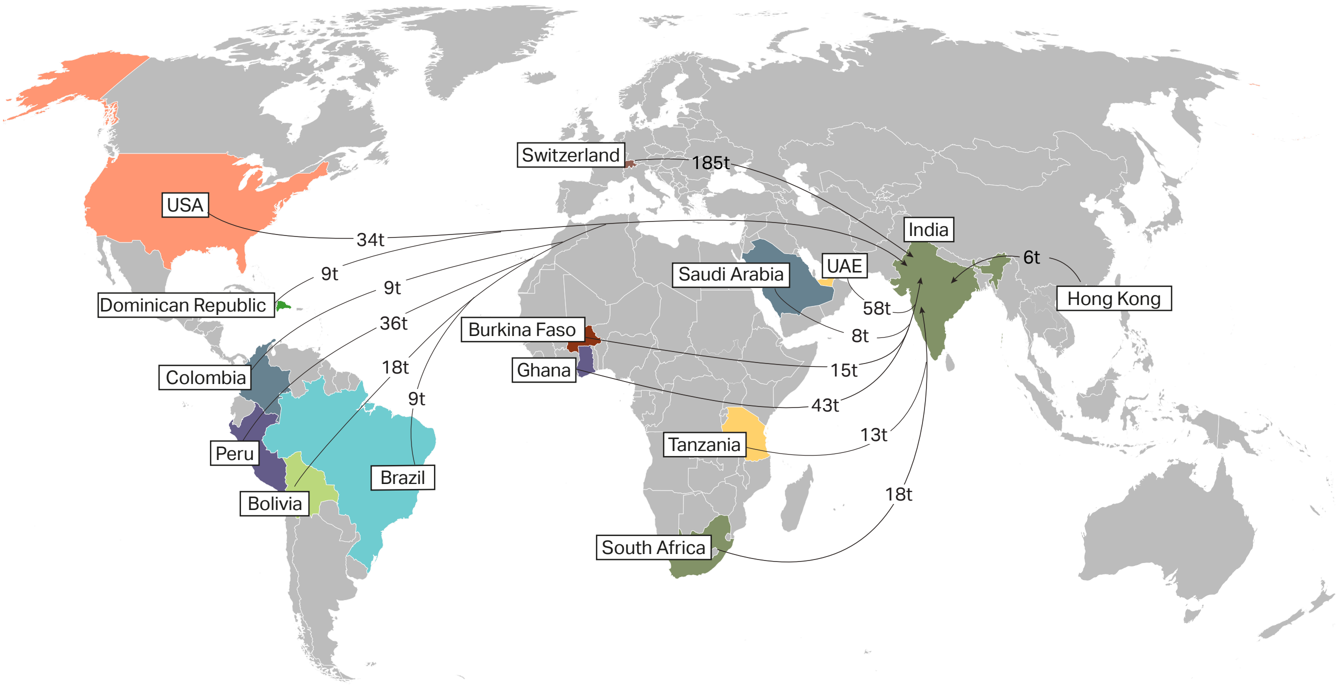
Source: Various, Metals Focus

Appendix 20 - Mainland China and Hong Kong Gold Bullion Imports



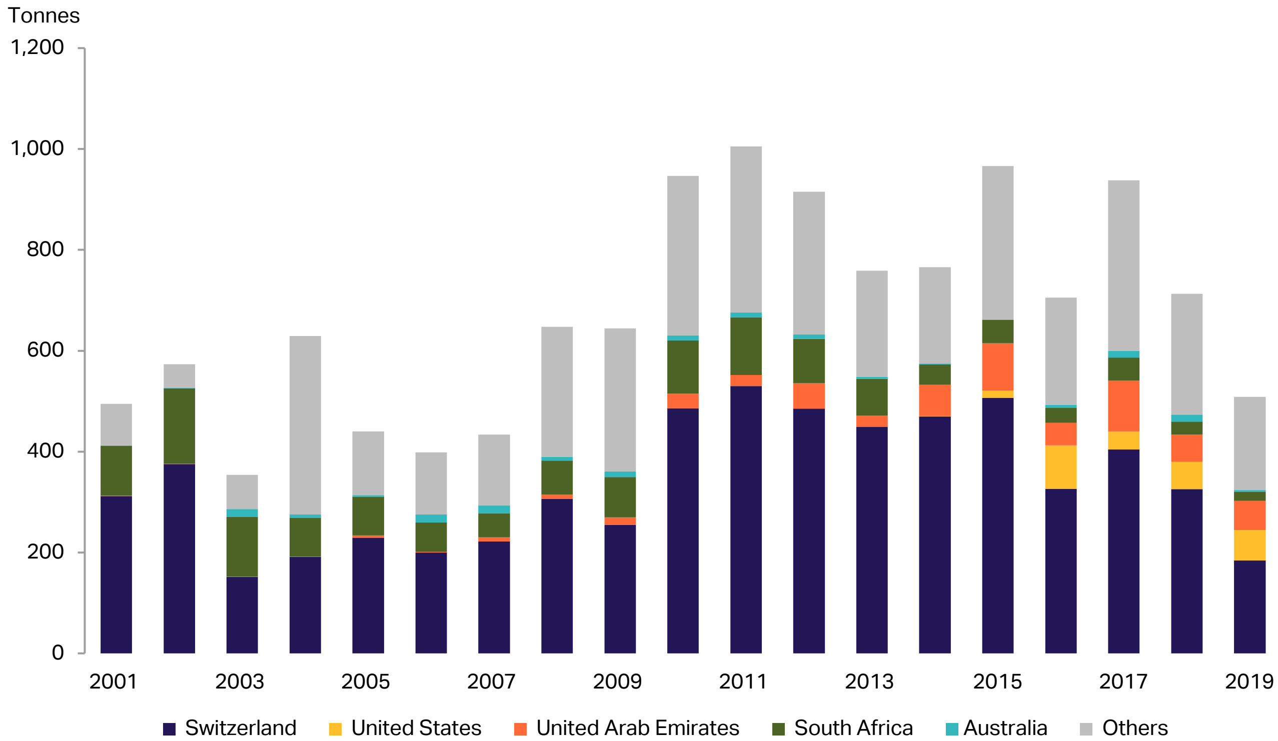
Source: Various, Metals Focus

Appendix 21 - Official Indian Gold Bullion Imports in 2019



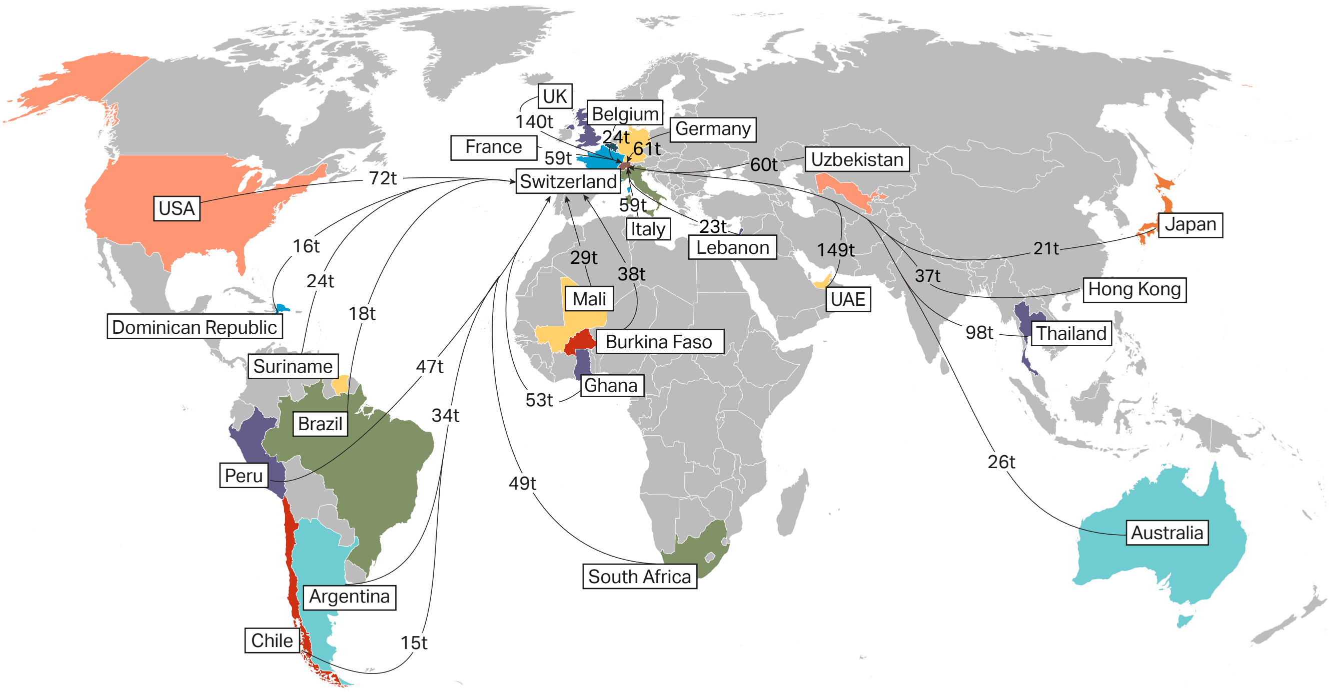
Source: Indian Ministry of Commerce, Metals Focus

Appendix 22 - Official Indian Gold Bullion Imports



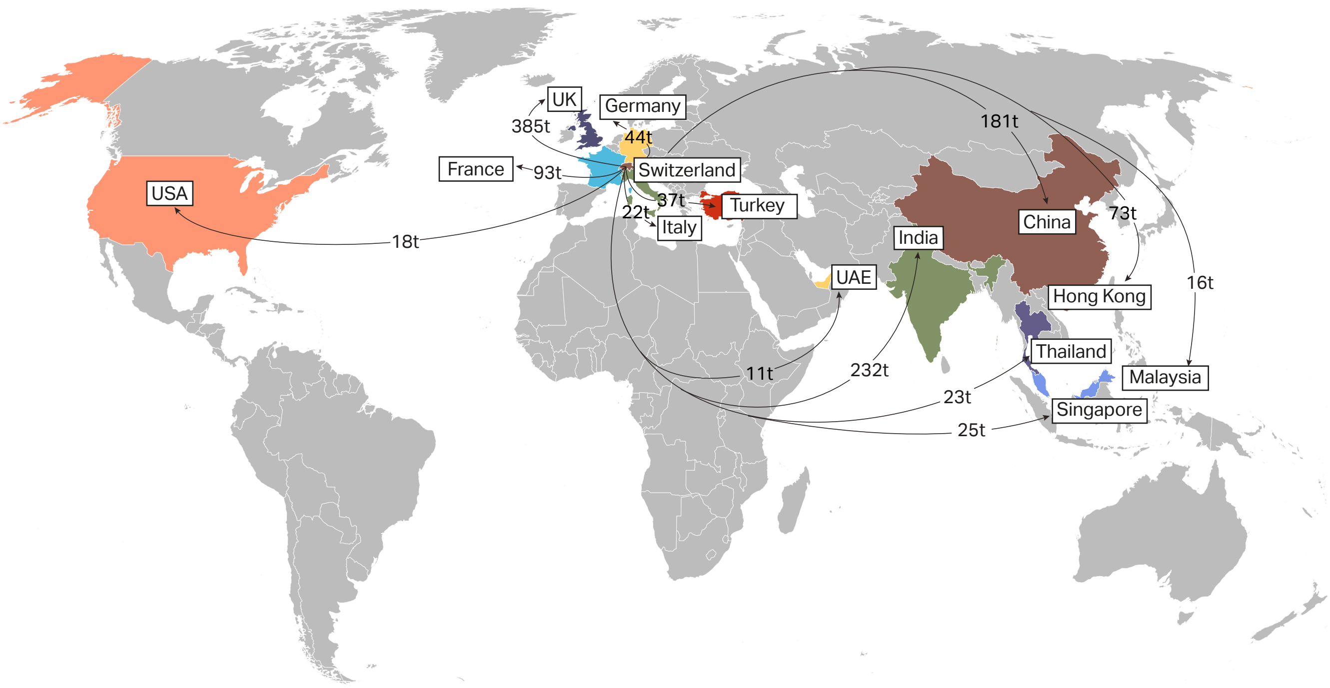
Source: Metals Focus, Indian Ministry of Commerce

Appendix 23 - Swiss Gold Bullion Imports in 2019



Source: Swiss Customs Administration, Metals Focus

Appendix 24 - Swiss Bullion Exports in 2019



Source: Swiss Customs Administration, Metals Focus

Appendix 25 - Key Historical Swiss Gold Bullion Trade Flows

Imports[1], Tonnes

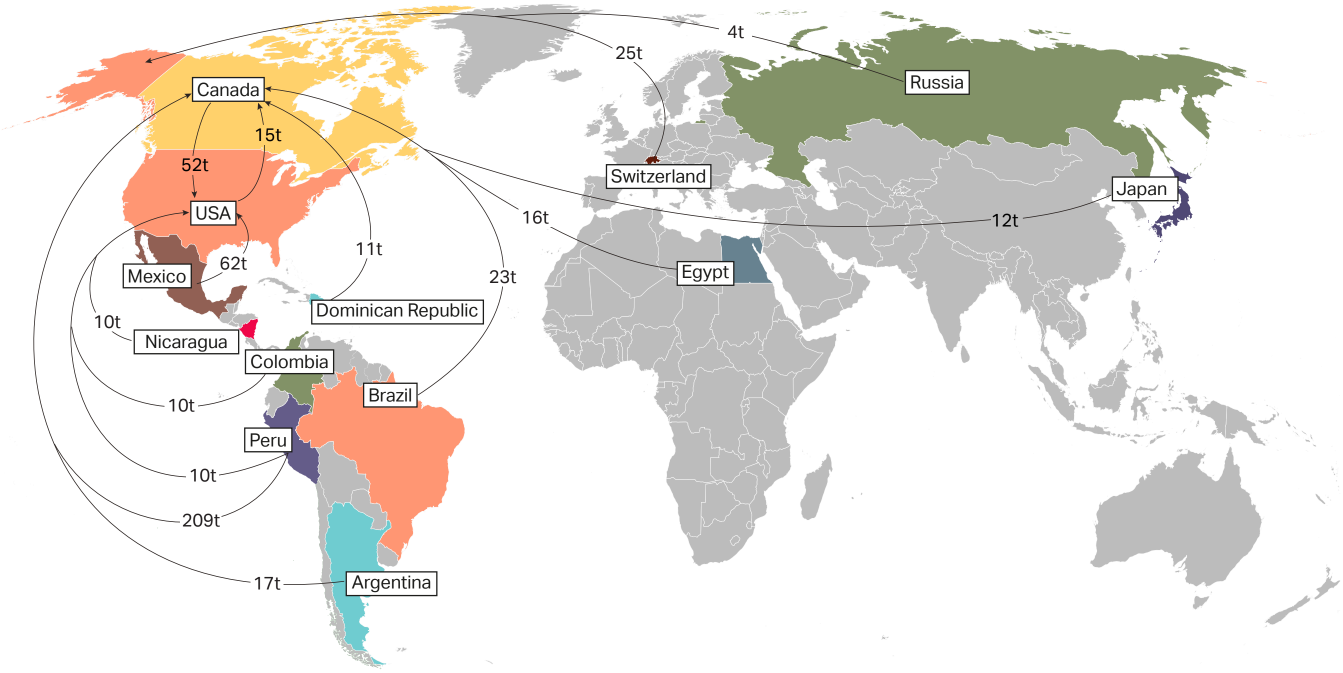
Year	UAE	UK	Thailand	USA	Germany	Uzbek-istan	Italy	France	Ghana	South Africa
2002	15.3	16.8	15.6	198.7	11.2	30.0	3.5	12.5	43.7	30.2
2003	44.6	4.6	26.3	243.4	2.0	50.0	3.2	6.8	33.7	35.9
2004	43.9	67.7	4.2	182.9	1.6	50.0	4.5	6.5	19.9	34.5
2005	44.1	440.0	0.4	234.1	7.7	69.9	3.8	45.1	13.7	66.8
2006	92.4	21.6	4.8	205.2	11.5	30.0	2.8	48.3	18.6	31.4
2007	56.8	85.2	19.0	300.3	18.5	60.0	7.5	66.6	21.7	12.0
2008	67.1	254.2	36.9	393.3	34.3	117.3	12.7	27.4	27.5	4.9
2009	104.8	71.2	80.2	209.4	51.2	86.0	48.6	74.9	30.7	5.1
2010	97.6	239.9	83.2	242.3	89.8	55.5	59.8	129.7	26.8	36.6
2011	82.3	599.1	70.1	233.0	96.6	68.3	110.1	169.6	24.6	17.0
2012	303.7	124.9	71.0	265.2	102.7	10.0	138.7	140.5	28.2	15.2
2013	52.1	1,359.5	13.4	265.9	70.7	33.9	98.1	98.4	36.8	8.2
2014	63.9	646.8	22.6	194.3	65.8	31.5	69.1	37.8	40.6	41.5
2015	76.8	665.8	41.4	183.1	61.2	49.7	58.4	44.3	34.7	47.1
2016	376.4	306.5	99.6	181.5	45.7	69.5	48.5	43.3	56.6	15.9
2017	161.2	316.9	80.3	163.5	42.0	89.8	28.7	37.5	43.0	19.7
2018	83.6	446.6	36.1	170.8	34.1	59.7	32.2	56.9	39.9	39.4
2019	149.3	140.0	98.2	71.8	61.1	59.6	59.1	58.6	52.8	48.9

Exports[2], Tonnes

Year	UK	India	China	France	Hong Kong	Germany	Turkey	Singa-pore	Thailand	Italy
2002	4.7	189.3	0.0	9.2	0.7	9.2	128.7	6.4	11.4	269.6
2003	6.4	207.5	0.0	16.7	2.2	8.5	184.2	2.8	6.0	208.5
2004	22.1	307.9	4.3	12.6	13.0	8.3	187.8	9.1	8.7	194.2
2005	86.0	435.3	1.5	29.0	14.9	13.0	161.2	8.6	23.3	149.0
2006	42.5	405.5	0.5	45.6	7.5	12.2	85.1	3.9	18.7	108.0
2007	66.1	463.1	2.8	48.6	27.9	15.9	115.1	2.0	8.1	105.1
2008	165.6	423.3	6.3	12.0	47.3	49.6	121.5	27.4	72.4	50.6
2009	272.0	308.9	2.6	20.0	20.3	56.8	31.0	15.5	34.6	31.3
2010	91.8	634.6	113.6	104.3	100.0	78.5	62.4	53.5	96.0	42.9
2011	17.2	718.8	91.2	119.1	201.0	45.3	53.9	90.6	128.0	33.6
2012	306.2	513.4	29.3	136.1	137.7	38.4	46.5	58.2	91.4	34.6
2013	8.1	487.3	249.9	105.9	956.0	61.7	148.3	179.9	143.7	40.3
2014	30.0	470.2	213.1	37.0	377.2	88.9	69.1	134.2	44.4	43.6
2015	23.5	515.7	288.1	54.7	494.1	46.4	15.9	112.5	40.3	38.0
2016	496.6	325.1	442.2	50.2	320.7	45.8	16.0	74.7	24.5	30.4
2017	106.1	408.9	316.7	45.9	244.5	49.5	105.9	73.7	58.8	32.4
2018	12.0	253.4	432.0	74.4	222.5	48.1	21.2	55.8	64.0	28.2
2019	384.7	232.0	180.6	93.2	73.2	44.4	36.7	24.5	23.1	22.2

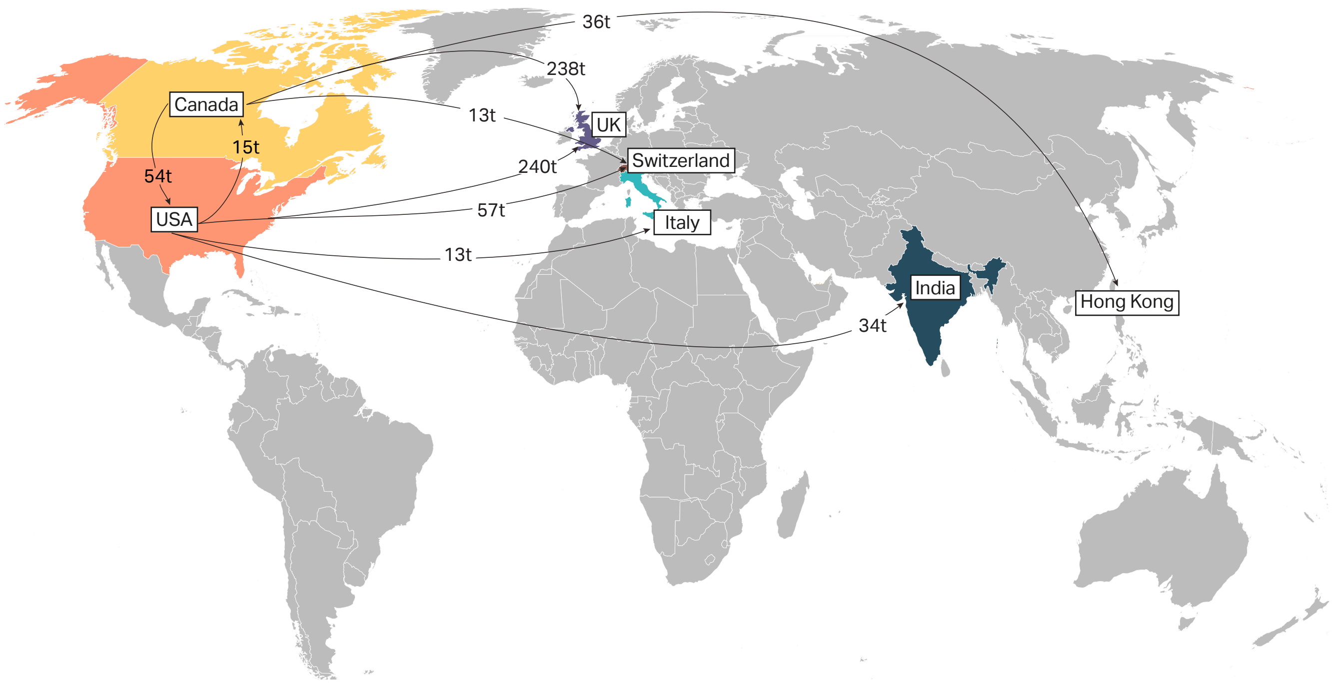
1: Calculated import volumes derived from monthly reported Swiss Customs' import values and monthly average Swiss franc gold prices.
2: Reported Swiss Customs' export volumes; Source: Swiss Customs Administration

Appendix 26 - US & Canadian Gold Bullion Imports in 2019



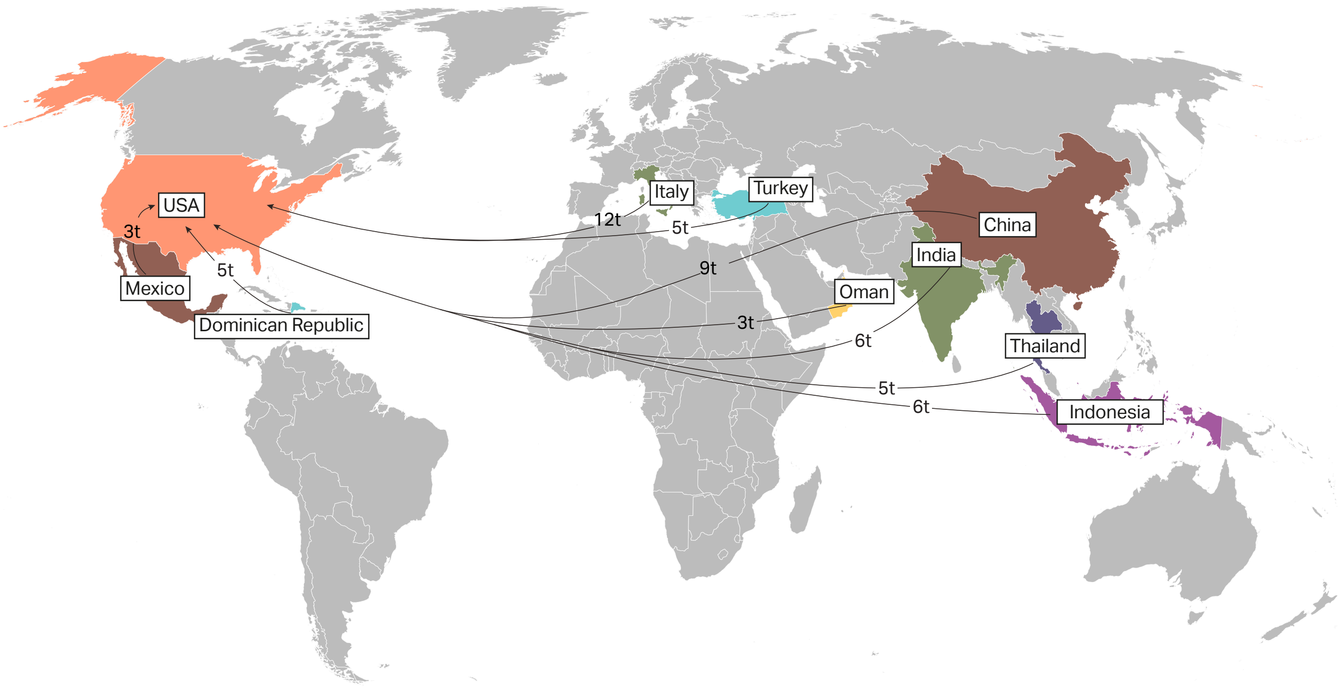
Source: Various, Metals Focus

Appendix 27 - US & Canadian Gold Bullion Exports in 2019



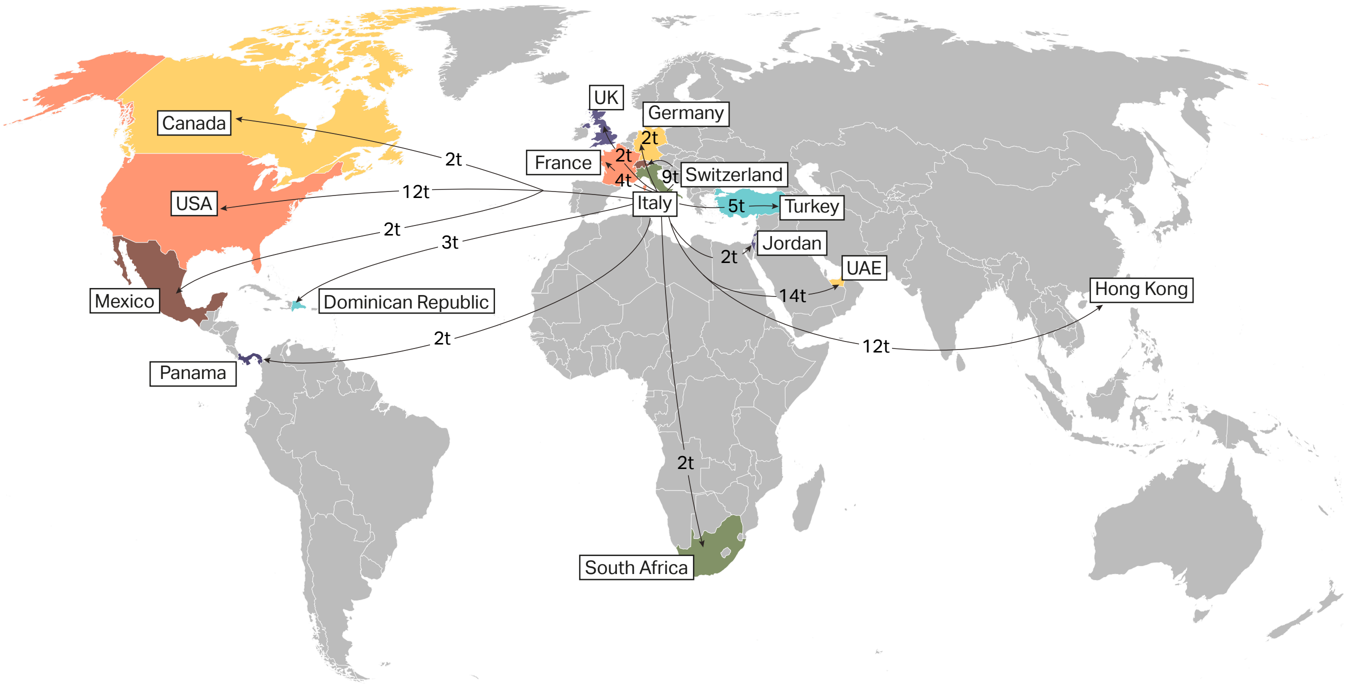
Source: US Department of Commerce, Bureau of Census, Statistics Canada, Metals Focus

Appendix 28 - US Gold Jewellery Imports in 2019



Source: Metals Focus

Appendix 29 - Italian Gold Jewellery Exports in 2019



Source: Metals Focus

Notes & Definitions

Notes

Throughout the tables, totals may not add up due to independent rounding.

What one country reports as an export to another may be different to the imports reported by that second country due to such factors as rules of origin or timing. As a result, an identical trade flow in a different map or table may show different volumes if each has a different data source. The tonnage figures shown are fine weights calculated by Metals Focus from the data provided by each origin for exports and by each destination for imports.

Units

Troy ounce (oz)	One troy ounce - 31.103 grams
Tonne (t)	One metric tonne - 1,000 kilogrammes (kg) or 32,151 troy ounces
Carat	Gold purity in parts per 24
Grade (g/t)	Grammes per metric tonne of rock
Dollar ($)	US dollar unless otherwise stated

Definitions

Consumption	The sum of domestic jewellery fabrication, plus imports, less exports, adjusted for changes in trade stocks.
Fabrication	Captured in the country where the first transformation of gold bullion or grain into a semi-finished product takes place.
Recycling	Covers the recovery of gold from fabricated products, including unused trade stocks. Excludes scrap generated during manufacturing (known as production or process scrap). The recycling is captured in the country where the scrap is generated, which may differ from where it is refined.
Mineral Resources	A concentration of material in, or on, the earth's crust of such grade or quantity where there is a reasonable prospect for economic extraction.
Mineral Reserves	The economically mineable part of a measured or indicated mineral resource demonstrated by at least a preliminary feasibility study.
Total Cash Cost	Includes all direct and indirect mine site cash costs related directly to the physical activities of producing metals, including mining, ore processing on-site, general and administrative costs, third-party refining expenses, royalties and production taxes, net of by-product revenues.
All-In Sustaining Cost	The sum of total cash costs plus community costs, sustaining capital expenses, corporate, general and administrative expenses (net of stock option expenses) and exploration expenses.