

According to a recent HSBC survey,<sup>13</sup> reserve managers are finding it increasingly difficult to navigate the divergence in monetary policies around the globe. 80% of respondents agreed that negative rates had impacted reserve management, while negative rates were also described as “counterintuitive” to the “first priority of reserve management” – namely, security. The growing use of negative interest rates means reserve managers are having to consider alternative – and potentially less conservative – investments and currencies. The case for diversification of reserves using gold remains as irrefutable as ever.

Russia and China – the two largest purchasers last year – continue to accumulate significant quantities of gold. Russia increased its gold reserves by 45.8t in the first quarter, 52% higher than the same period in 2015 (30.1t). And China purchased 35.1t between January-March,<sup>14</sup> adding to the 103.9t bought in H2 2015. Kazakhstan’s gold reserves increased in each of the first three months of 2016, extending the country’s impressive buying streak to 42 consecutive months.

Conversely, selling activity remains contained. Although Canada sold 1.7t in Q1, notably reducing its gold reserves to a mere 68 ounces,<sup>15</sup> this was part of a longer term policy initiated almost four decades ago.<sup>16</sup> Malaysia (1.9t), Mozambique (1.9t) and Mongolia (1.3t) were the only other significant net sellers during the quarter.

## Technology

Long-term decline in gold used in technology continues, although trend slows as China’s smartphone segment offered some respite.

Tonnes	Q1'15	Q1'16	Year-on-year change	Quarter-on-quarter change
<b>Technology</b>	83.3	80.9	↓ -3%	↓ -4%
Electronics	66.3	63.9	↓ -3%	↓ -4%
Other Industrial	12.3	12.4	↑ 1%	↓ -2%
Dentistry	4.7	4.5	↓ -4%	↓ -3%

The volume of gold used in technological applications dropped to 80.9t (-3% year-on-year) in the first quarter. Improvements in smartphone shipments in China and an uptick in decorative demand countered declines elsewhere in electronics and buffered the secular downward trend in dentistry.

### Widespread declines in electronics demand; outlook is bleak

Demand for gold in electronics weakened by a further 3%, to 63.9t, the lowest quarter since Q4 2013. Despite positive signs in some segments, global demand remained under pressure as uncertainty over global economic growth, and the rising gold price, drove continued thrifting and substitution.

These declines were geographically widespread. Double digit falls were witnessed in the main electronics hubs of Taiwan, Japan and South Korea. Taiwan was impacted by lower-than-expected demand for Apple products. In South Korea, the volume of gold used in LEDs was stagnant.

<sup>13</sup> HSBC Reserve Management Trends 2016, April 2016.

<sup>14</sup> Lack of data availability means no comparison can be made with Q1 2015.

<sup>15</sup> Department of Finance, Official Reserves April 2016.

<sup>16</sup> In 1980, Canada initiated a programme to sell its gold reserves “at a gradual and controlled pace,” with the last gold bullion sold in December 2003. Since the end of 2003, Canada’s gold reserves have been entirely in the form of gold coins.

And the outlook is bleak. Wireless chip manufacturers have lowered their forecasts for gold demand on a subdued outlook for smartphone shipments. And in the LED sector, slowing demand for notebooks is likely to further crimp demand.

In a notable development, volumes of gold used in bonding wire production recovered due to strong demand for fingerprint sensors (FPS) in mobile phones and electronic control units (ECUs) in vehicles.<sup>17</sup> However, the recovery in this sector is seen as a temporary pause: the medium term outlook is for gold bonding wire to resume its long term downtrend as gold replacement projects remain in place, with new applications tending to use copper wire.

#### **Only China bucks the downward trend**

The only exception in Q1 was China, which recovered some of the lost ground on higher smartphone shipments from domestic vendors. The market also benefited from the trend towards larger mobile phone screen sizes, which require larger Flexible Printed Circuit Boards (FPCBs) – which, in turn, use more gold than rigid PCBs. China is expected to reap further increases as it's home to much of the new FPCB manufacturing capacity. The amount of gold used in China/HK in industrial fabrication reached 18.2t in the first quarter (+2% year-on-year).

#### **Scientists uncover innovative new uses for gold**

Despite the decline in more 'traditional' industrial uses for gold, advances in technology continue to tap into gold's unique properties, albeit that the volumes involved

are negligible. Swiss scientists have introduced a new process – using microscopic 3D printing technology – to create highly responsive touchscreens that balances gold's conductivity and transparency. An "ink" that contains nanoparticles of gold could be thin enough to make capacitive grids, which are highly conductive and almost invisible, and don't interfere with the displayed image.<sup>18</sup>

Gold also continues to prove its suitability for use in medical applications: it has been discovered that gold nanodisks are highly efficient in killing bacteria. After absorbing light, gold nanoparticles could reach temperatures hot enough to destroy bacterial cells.<sup>19</sup> This procedure could be easier to implement in hospitals than current methods.

#### **Decorative demand recovered; dentistry extended decline**

Other industrial and decorative demand gained 1% year-on-year to 12.4t. In Europe, production of high-end costume jewellery performed well, outweighing the erosion of lower-end, mass market costume jewellery which has lost out to product manufactured in Asian markets. The higher-quality, better-designed jewellery tends to have thicker platings and therefore absorb greater quantities of gold. The gold-plated accessories space is also seen as an area of growth.

Gold used in dentistry retreated further to 4.5t (-4%), the lowest quarter on record. Despite its greater durability and superior qualities compared with alternatives, gold continues to give ground to ceramics for cosmetic reasons.

17 FPS: fingerprint sensors used in smartphones to access systems. This technology has effectively become the standard for every medium/high-end smartphone. ECUs: As vehicles incorporate ever more electrical systems, these call for more electronic control units to manage functionality. For example, ECUs can control the air/fuel ratio, idle speed and valve timing for different power outputs.

18 <http://www.sciencealert.com/this-new-golden-nano-grid-could-lead-to-clearer-more-sensitive-touchscreens>

19 [http://www.osa.org/en-us/about\\_osa/newsroom/news\\_releases/2016/new\\_technique\\_for\\_rapidly\\_killing\\_bacteria\\_using\\_t/](http://www.osa.org/en-us/about_osa/newsroom/news_releases/2016/new_technique_for_rapidly_killing_bacteria_using_t/)