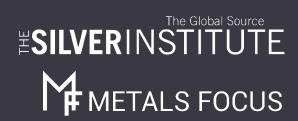


2024 INTERIM SILVER MARKET REVIEW

Philip Newman and Sarah Tomlinson, Metals Focus

November 12th, 2024





Silver has outperformed other PMs this year

This year-to-date (to November 11th):

• Silver: +29%

• Gold: +27%

■ Platinum: -2%

Palladium: -9%

Precious Metal Prices, Indexed



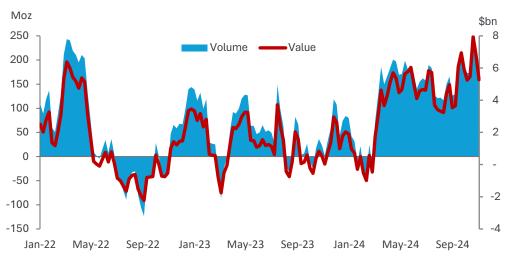
Source: Bloomberg



The value of CFTC net positions, their highest since 2017

- Net managed money silver positions, in volume terms, their highest since May 2022
- Net silver positioning has doubled intra-year
- Gold positioning up 70% ytd

Improvement in net-managed money positions



Gold & silver net managed volumes, Indexed, to Jan-2023



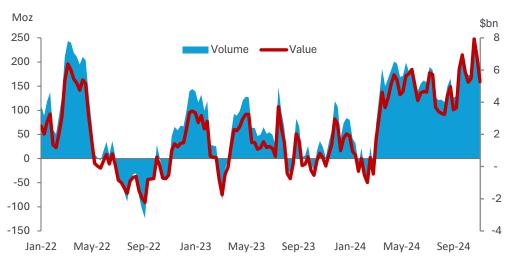
Source: CFTC



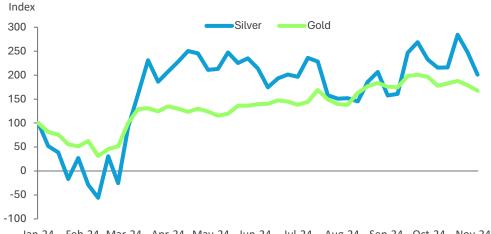
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Improvement in net-managed money positions



Gold & silver net managed volumes, Indexed, to Jan-2024



Jan-24 Feb-24 Mar-24 Apr-24 May-24 Jun-24 Jul-24 Aug-24 Sep-24 Oct-24 Nov-24

Source: CFTC 4



Renewed upside, in \$ terms, a record high for silver ETPs

- At \$36bn, holdings a record high
- In ounces, only 13% below all-time high of 1,208Moz (in February-2021).
- Gold ETP holdings remain ~20% below-all-time peak.
- ETP gains this year led by iShares (+39Moz) and India (+21Moz).
- Interesting contrast with silver ETPs and coin & bar demand.

ETPs rise 8% or 80Moz this ytd, strongest gains since 2020



While gold is ~2% lower ytd



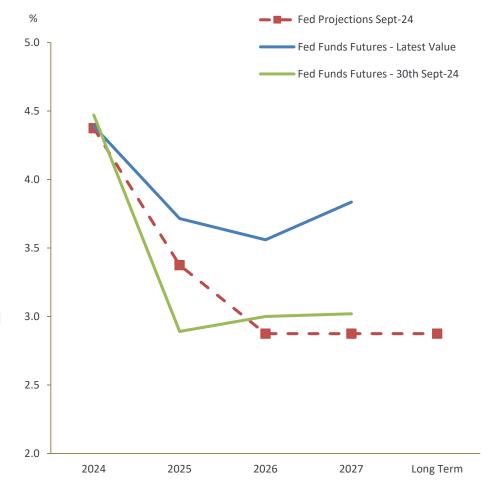
Source: Bloomberg



Market reacting to more hawkish rate expectations

- After the 50bps cut in September, markets factored in aggressive easing for 2024 and 2025
- By end-September, market-based measures implied a cumulative
 200bps rate cuts to end-2025
- This has changed significantly in recent weeks as odds of Republican victory grew and after the US election.
- After factoring in the 25bps cut in November, Fed Fund futures now imply just 100bps of additional cuts to end-2025.
- This suggests that markets now expect 3 less rate cuts compared to end-September.
- These expectations are more hawkish compared to the Fed's September projection for interest rates in 2025. This last occurred in March this year when sticky inflation led to markets factoring in a higher for longer scenario

Expectations about US interest rates have changed notably since the election

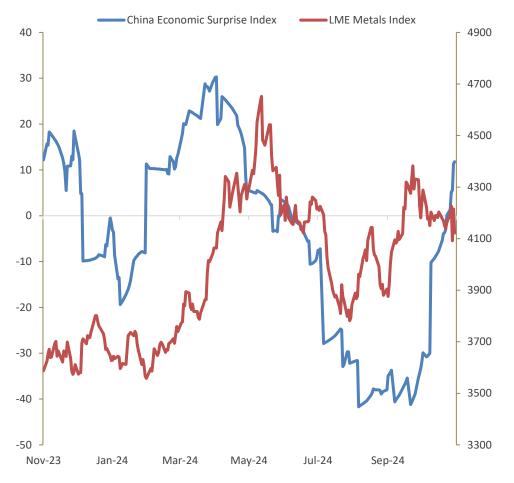




Silver has also still been affected by events in China

- Silver's dual role has meant that it has been correlated with industrial metals at times
- This relationship has not been linear with the metal's correlation to gold also rising during certain periods
- China's stimulus announcement in September however led to the relationship with industrial metals reviving again with the gold:silver ratio dipping below 80, albeit briefly

Industrial metals and in turn silver have been closely linked to Chinese economic prospects





And so the gold:silver ratio remains stubbornly high

This year-to-date (to November 11th):

■ Silver: +29%

■ Gold: +27%

■ Platinum: -2%

■ Palladium: -9%

Precious Metal Prices, Indexed



Gold:Silver Ratio: Short-term



Source: Bloomberg



Market fundamentals offering mixed support

Silver supply remains broadly stable

2010-2019: -0.3%

2020-2024: +0.6%

Break-out for demand from 2021 onwards

2010-2019: +0.5%

2020-2024: +4.3%

Global Silver Supply & Demand





Even though 2024 sees another massive deficit

Silver supply remains broadly stable

2010-2019: **-0.3**%

2020-2024: +0.6%

Break-out for demand from 2021 onwards

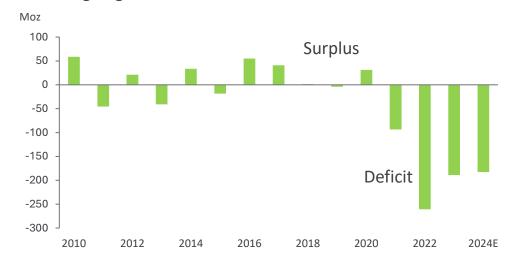
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Global Silver Supply & Demand

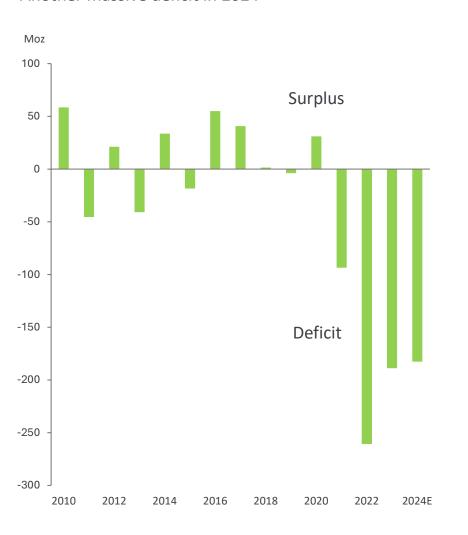


An ongoing and sizeable deficit

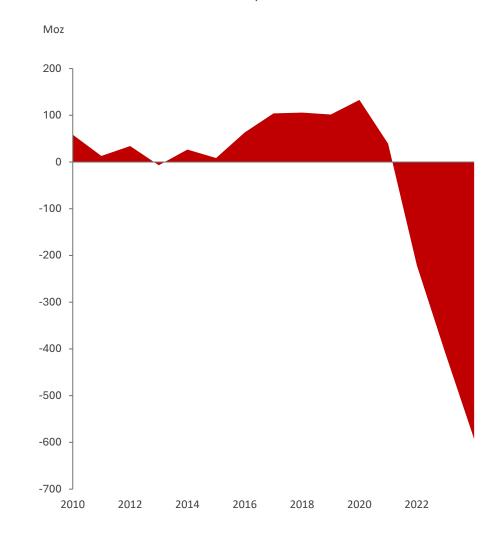


And so a further stock drawdown

Another massive deficit in 2024



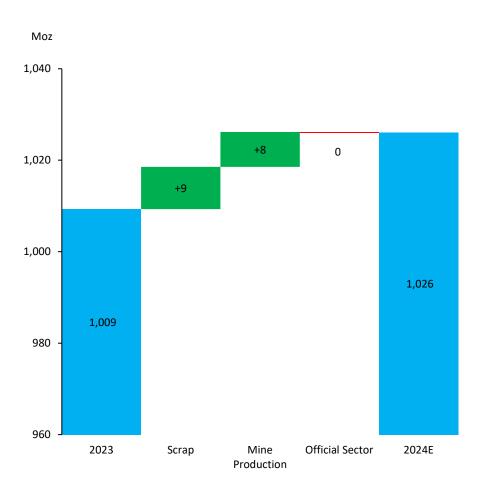
Stock drawdown continues, 726Moz over 2021-2024E



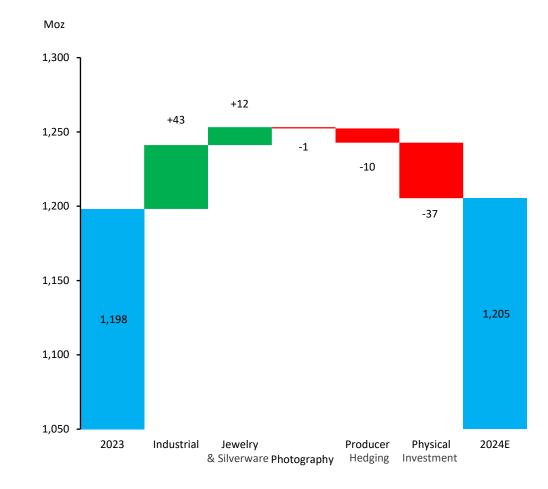


2024 Supply/Demand Estimates

Global Supply: 2024 recovers by 2% to 8-year high



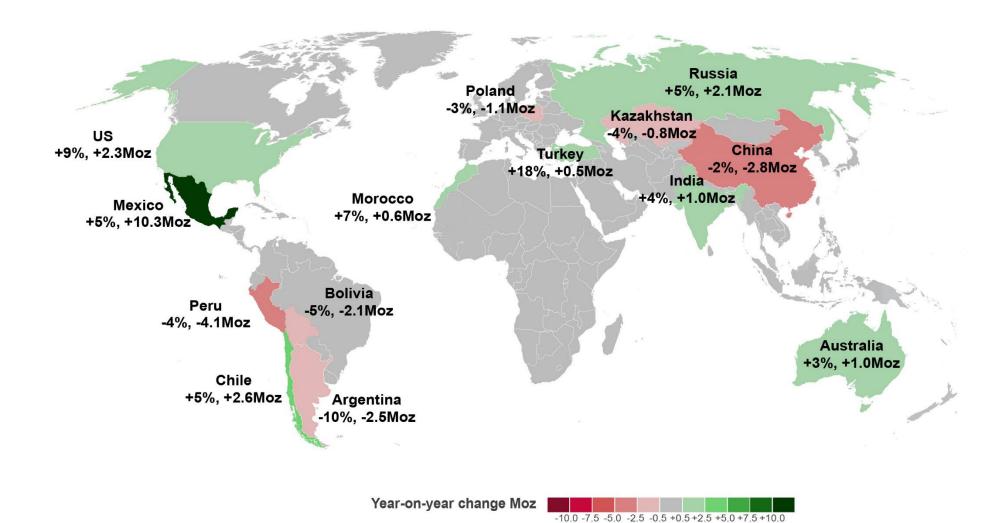
Global Demand: 2024 edged up by 1%, not far off 2022's record high





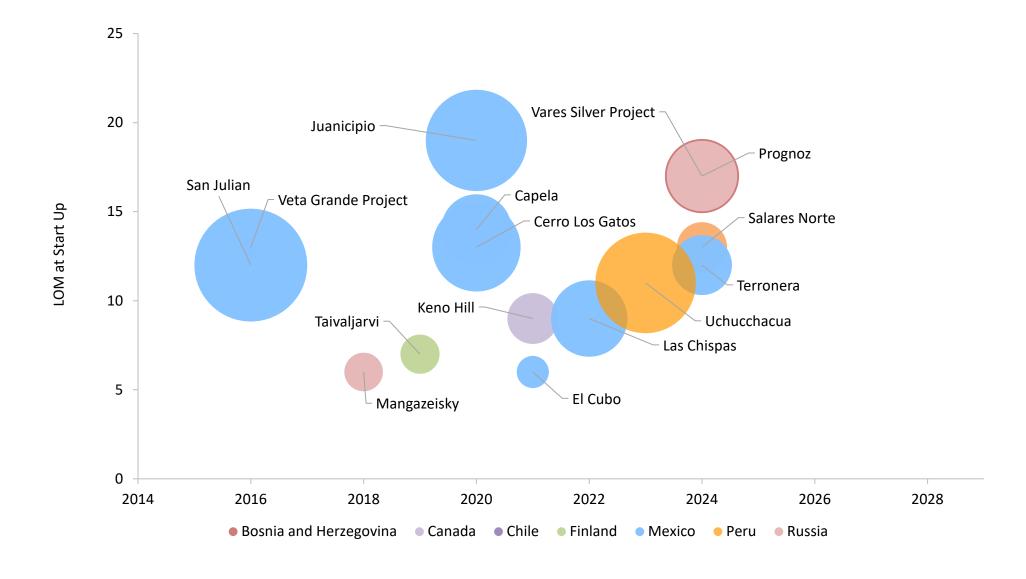
Mined silver production to rise by 8Moz y/y in 2024

Global mine supply is expected to increase by 1% y/y to 837Moz in 2024, underpinned by growth in Mexico, Russia and the United States.





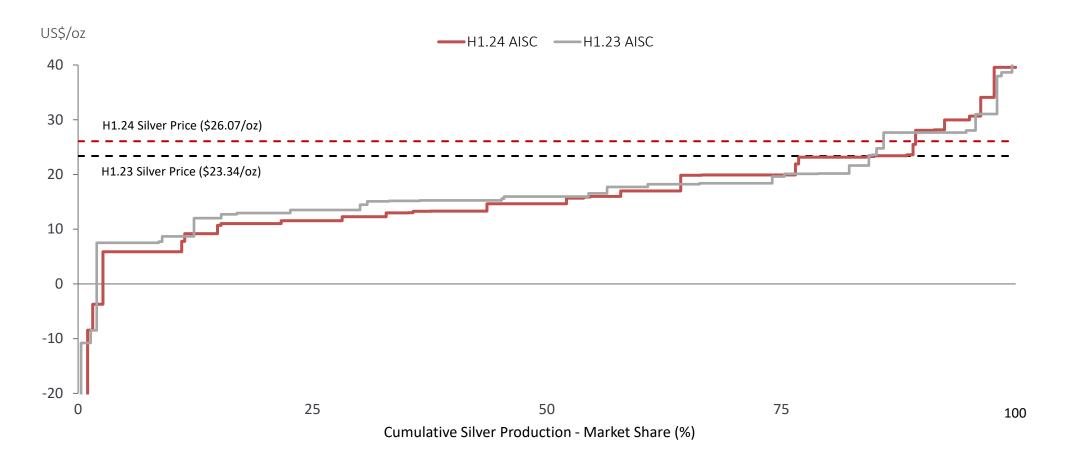
Notable new projects coming on stream





Primary silver miners' AISC almost flat year-on-year in H1.24

Average AISC for primary silver miners in H1.24 rose minimally, up 1% y/y, to \$16.2/oz as higher by-product credits offset increased royalties, corporate overheads and sustaining capex.



Source: Metals Focus – Silver Mine Cost Service



Climbing metal prices provide some cost relief in H1.24

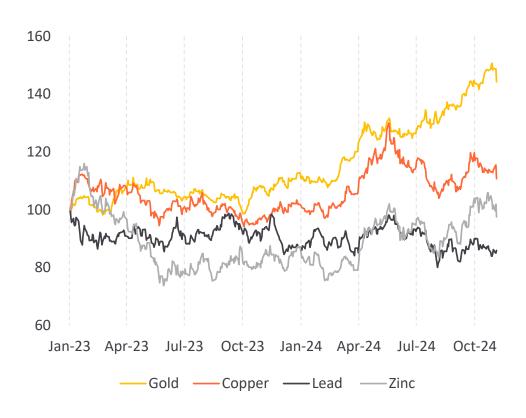
Oil prices were more stable but still trading above

\$80/barrel during H1.24.

Index, Jan 23 = 100 120 100 80 60 40 20 Jan-23 Apr-23 Oct-23 Jan-24 Apr-24 Jul-24 Oct-24 Brent (ICE) ----NYMEX Gas

Rising metal prices led to higher by-product revenues for primary silver miners in H1.24.

Index, Jan 23 = 100

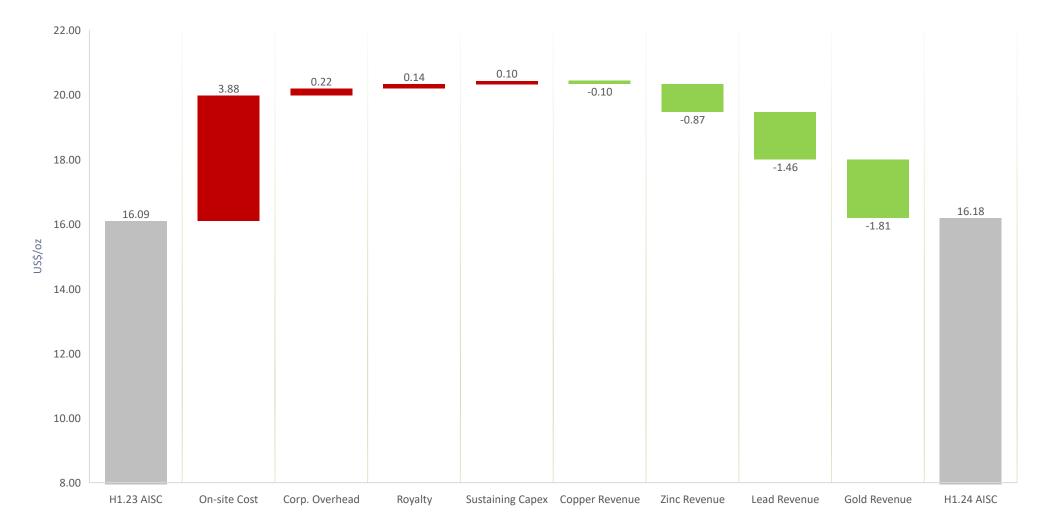


16 Source: Metals Focus, Bloomberg



Higher by-product revenues help stabilize AISC

On-site costs rose by 15% y/y as inflationary pressures persisted. This increase was mitigated by higher by-product revenues, helping to stabilize AISC.



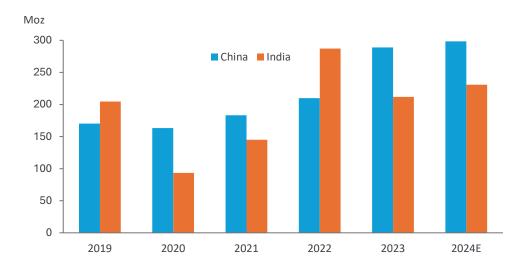
Source: Metals Focus – Silver Mine Cost Service



Where are the demand gains concentrated?

- Gains less pronounced than in 2023, but still led by China & India.
- Chinese +3% (+10Moz) to a new high
- India up 9% (+19Moz), to a 2-year peak
- Japan just behind at +9Moz
- US down 8Moz in 2024

Key countries: changes concentrated in China & India



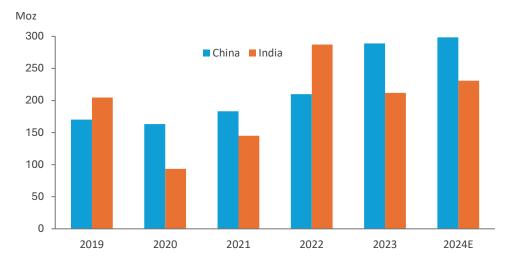


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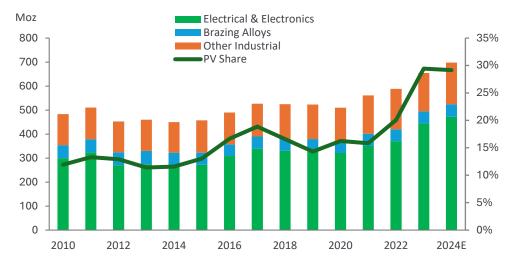
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- A new high for E&E
- Adding over 120Moz in just 3 years
- Underpinned by continued strength in photovoltaics

Key countries: changes concentrated in China & India

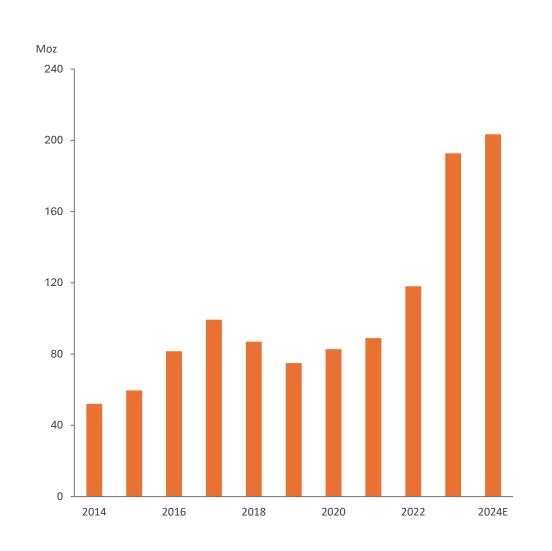


Key segments: gains dominated by electrical/electronics

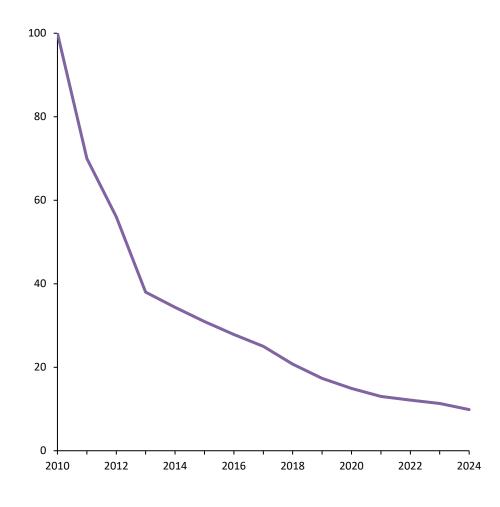




Record silver photovoltaic demand; ongoing thrifting



Silver loadings per watt, indexed

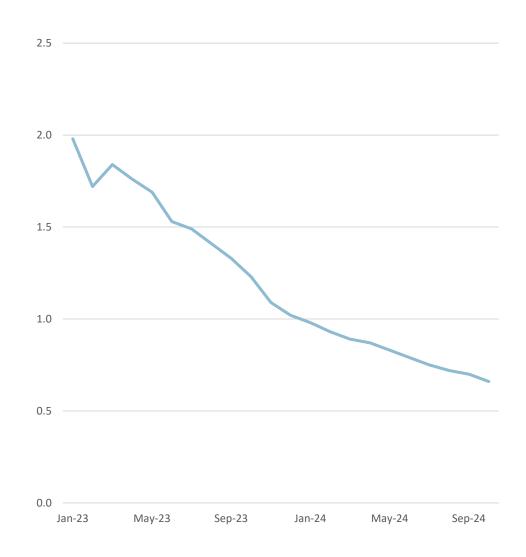




Solar prices have continued to ease in China

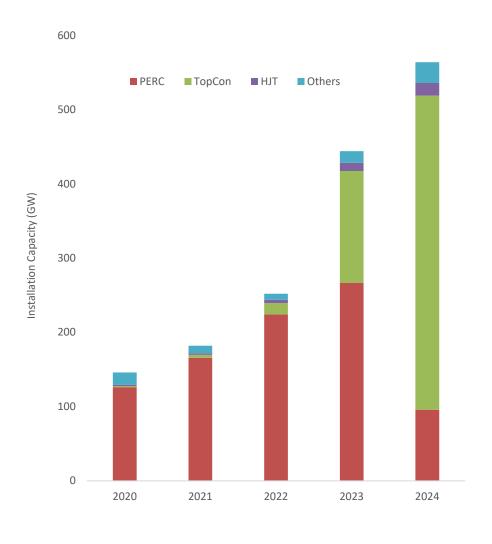
- China's solar bidding prices continued to hit new lows.
- October's price fell below the industry average cost of RMB 0.68 /W.
- As such, the China Photovoltaic Industry Association has announced self-regulatory rules in October, requiring manufacturers to refrain from competing below cost







Global PV installations – N-type cells now dominate



Laser enhanced contact optimization (LECO)

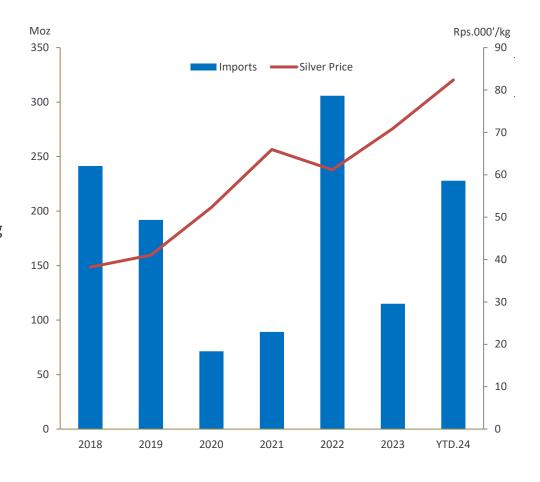
- Has replaced laser doping selective emitter as the standard since Q2.24, which has reduced silver usage by 10-15%, by narrowing finger width.
- SMBB to OBB (Zero Busbar)
 - OBB started to gain market share in Q4.24 with a projected fall of up to 10% in silver loadings.
- Silver reduction
 - Silver coated copper powder with a silver content of 30%; plans to further reduce the silver content to 10%
- ➤ Back-contact (BC) cells
 - All electrical contacts on the back of the cell
 - Manufacturing headwinds



Some signs of resilience in the Indian silver market

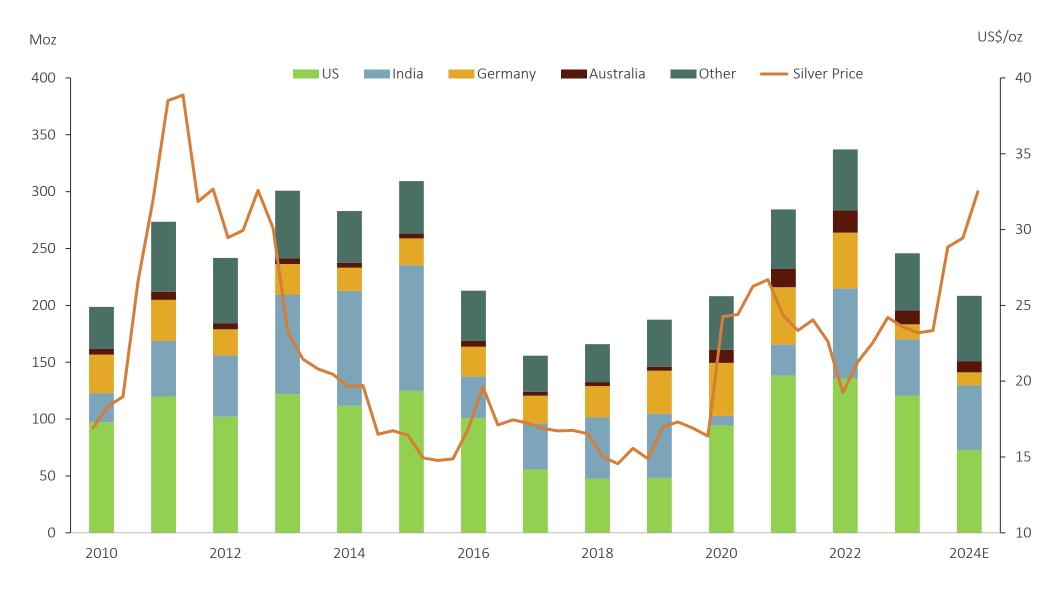
- The rupee price hits a new high of over Rs.100,000/kg.
- The duty cut in July helped demand, especially for silverware which is used for gifting and so high prices acted as a deterrent.
- With the price surpassing pre-duty cut levels in October, gifting was impacted during Diwali
- Demand for jewelry and articles for personal use has been relatively steady in value terms but 20-30% lower in volume terms given the elevated local price
- Investment has been healthy, with bar & coin sales spiking during Diwali.

Indian silver bullion imports





Physical investment declines led by the US

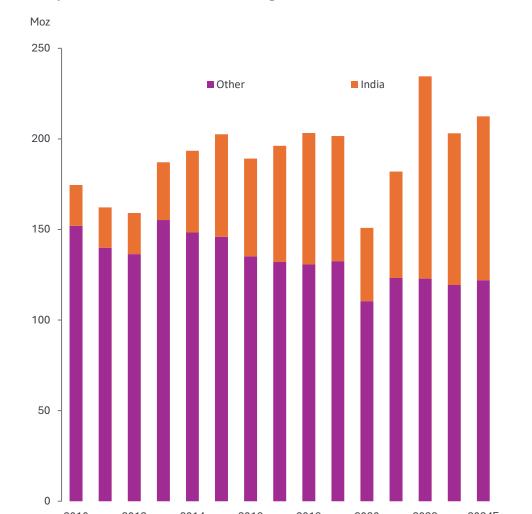


Source: Metals Focus, Bloomberg

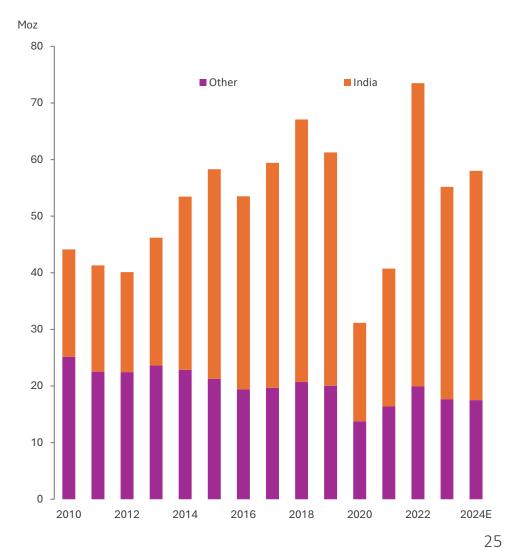


Jewelry & silverware in 2024 driven by India gains

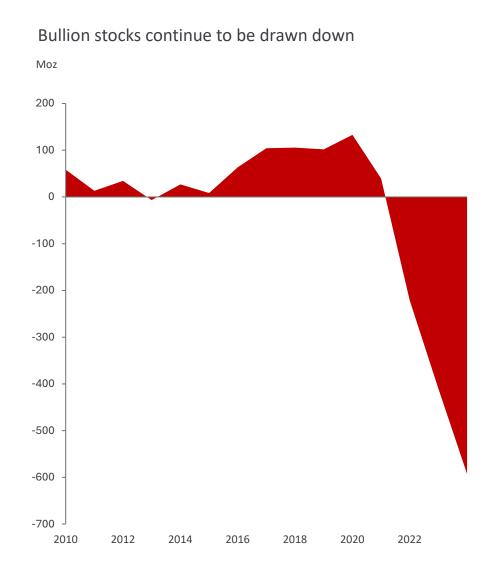


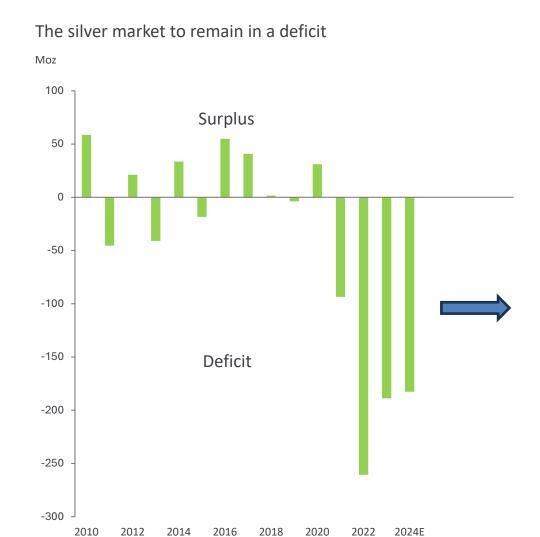


Silverware: 2024E total +5%; excluding India, -1%



The deficit remains for the foreseeable future





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