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Mid-Year – Chart Pack & Outlook Summary

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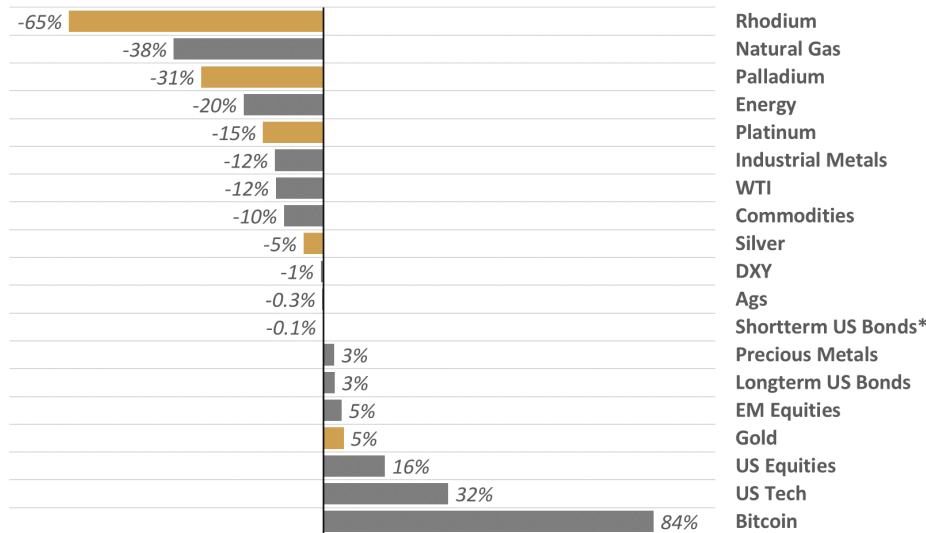
New York, NY – July 2023

MKS PAMP 2023 Forecast Summary & Update

		MKS PAMP forecasts			
	Actual 1H'23 YTD average	Original forecast (Jan '23)	Banking Crisis forecast revisions (March '23)	Mid-Year Update (average forecast)	Mid-Year Update (high – low range)
Gold	\$1933.50/oz	\$1880/oz	\$1930/oz	\$1930/oz (unchanged)	\$1850 - \$2100/oz
Silver	\$23.40/oz	\$22.50/oz	\$24/oz	\$24/oz (unchanged)	\$21.50 - \$27/oz
Platinum	\$1011.50/oz	\$1100/oz	\$1100/oz	\$1050/oz (downgrade)	\$900 - \$1150/oz
Palladium	\$1508.30/oz	\$1800/oz	\$1600/oz	\$1400/oz (downgrade)	\$1200 - \$1600/oz
Rhodium	\$9000/oz	\$13,000/oz	\$11,500/oz	\$8000/oz (downgrade)	\$3000 - \$12,000/oz
Source: MKS PAMP					

US Tech, Bitcoin & US Equities Outperform As Commodities Flounder In 1H'23

1H 2023 Performances



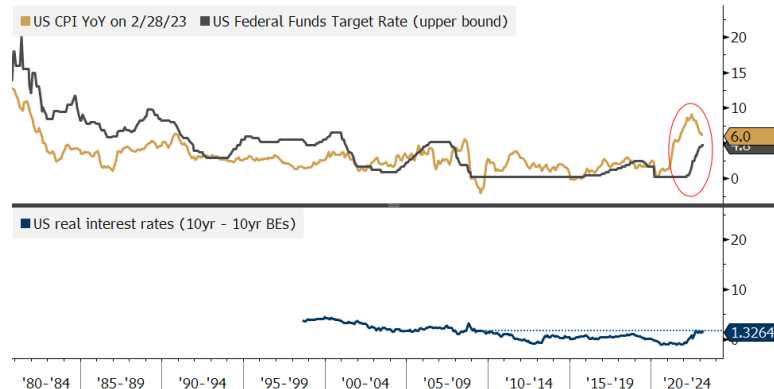
YTD Performances as of June 30 2023

MKS PAMP, Bloomberg

- The market overreached for classic safehavens following the banking crisis in March 2023.
- But US & Global policy bailouts and liquidity injections, staved off fear allowing for a relentless Tech-driven US stock market rally to close out 1H'23.
- Still, we expect a bumpy 2H'23 as monetary policy begins to bite.

Nearing The End Of An Aggressive Fed Tightening Cycle

US CPI outrunning main target rates US real rates has stopped rising so strongly



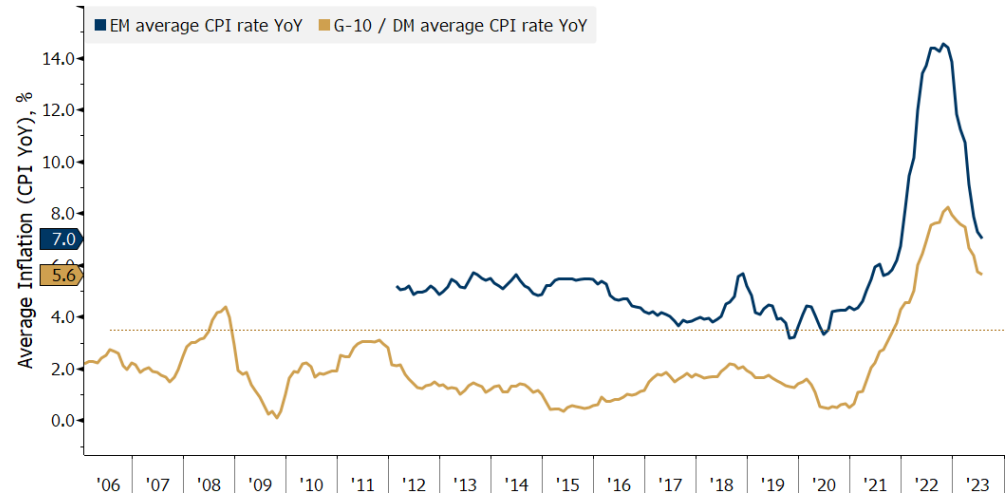
- The list of ‘broken markets’ or casualties to an aggressive Fed hiking cycle the past year include 1) US Banks’ Silvergate Bank, SVB & Signature Bank, 2) Credit Suisse, 3) the UK gilt market, 4) Crypto Exchanges & Crypto, 10) the 60/40 Portfolio.
- Overall US data is resilient but vacancies, bankruptcies & delinquencies are on the rise, there are cracks in CRE, availability of credit is a concern & data remains volatile.
- The US job market remains strong and until the Fed “breaks” the labor market (rising probability), or inflation comes down to target, the *threat* of future Fed hikes is a concern for bullish precious outlook.

Shifting from a Low-Inflation Regime To A Higher-Inflation Regime

- Its supply dynamics; Ukraine war, ESG, deglobalization, energy policy.
- The Fed will have to choose between higher inflation OR a recession/financial instability.
- Gold is a bet on the Fed's ability to control (global) inflation or avoid a recession.

EM vs DM inflation

developed world is seeing emerging world style inflation



Source: MKS PAMP Group, Bloomberg

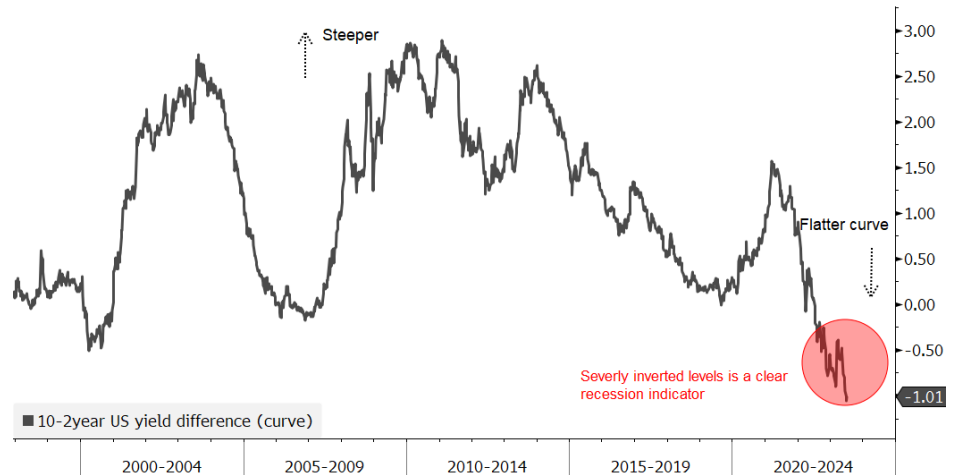
.EMINFLAT U Index (aver CPI YoY for MEm countries) G10 EM ave infla rate Monthly 20DEC2005-06JUL2023 Copyright© 2023 Bloomberg Finance L.P. 05-Jul-2023 19:48:47

Higher Inflation Floors OR A Recession & Financial Instability

- The Fed will have to choose between higher inflation OR a recession (job losses) & financial instability; either outcome is bullish for gold.
- However, a US softer landing is more realistic *despite* recessionary indicators – a severely inverted yield curve – at extreme levels.

US yield curve

red flags that the US is entering a recession now



Source: MKS PAMP Group, Bloomberg

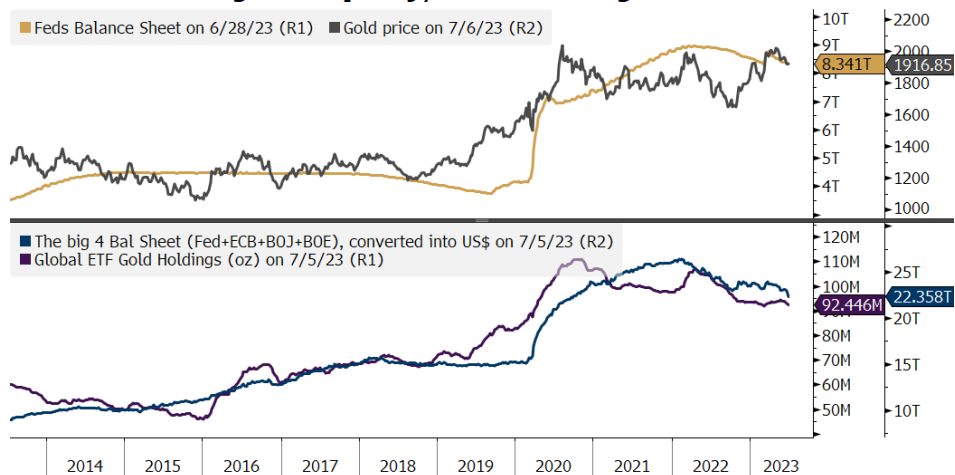
.10-2YR U Index (10-2yr yield curve) 10-2yr yieldcurve Weekly 15DEC1998-06JUL2023

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The Feds Balance Sheet Is Back To Contracting

The Feds & Global CB Bal Sheets (in US\$), vs Gold the drawdown of global liquidity, now continuing



Source: MKS PAMP, Bloomberg

FARBAST Index (US Condition of All Federal Reserve Banks Total Assets) Fed BS (\$) vs Gold Weekly 07JUL2013-05JUL2023

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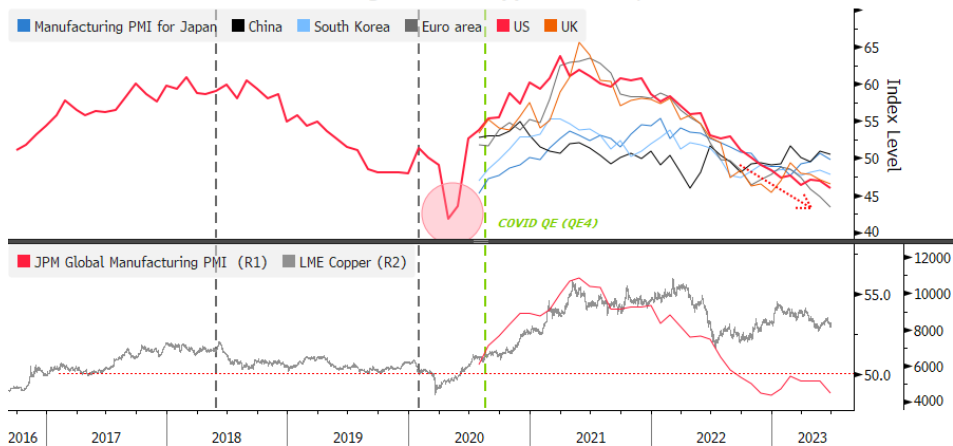
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- The expansion of the Feds Balance Sheet was short-lived following the Banking Crisis.
- Quantitative Tightening & 2 more Fed hikes in 2023 is restrictive.
- Liquidity-on hedges from Gold to Silver should continue to under perform during ongoing QT, *if* macro fear remains contained.
- Gold EFT holdings proxy very well with global liquidity gauges.

Global Soft PMIs Explain Some, Not All Price Weakness in Silver & PGMs

Global Manufacturing: strong recovery continues to slow

Global contractions & recoveries aligned with Copper & PGMs, less so Gold



Source: MKS PAMP Group, ISM, Bloomberg, IHS Markit, JP Morgan

MPMI/JPIA Index (Jibun Bank Japan Manufacturing PMI SA) Global Manufacturer PMI 2 Daily 07SEP2016-04JUL2023

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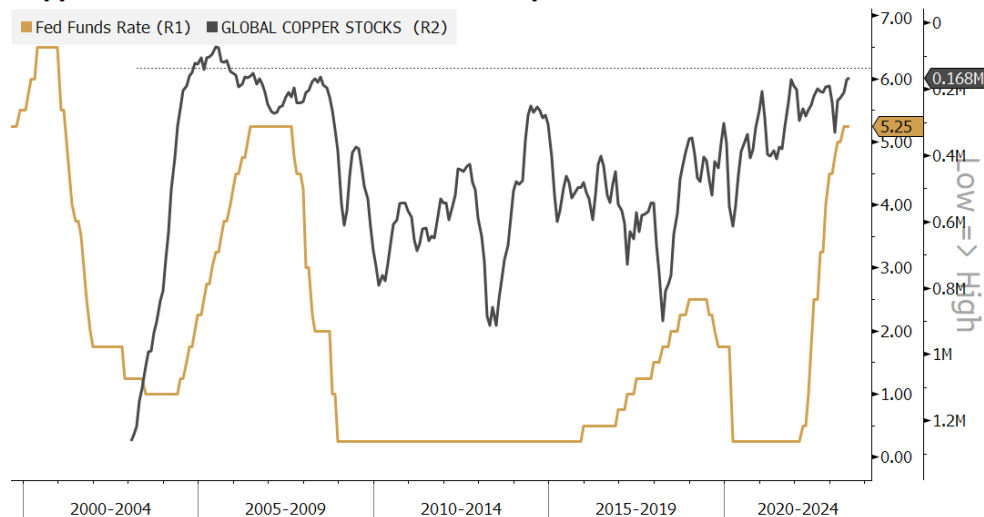
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- The Global Manufacturing PMI Index has remained in contractionary territory since Q3 2022.
- Gold & Silver require weaker US data (weaker jobs or CPI to solidify a Fed pause) to rally, while PGMs require stronger China data (a recovery in manufacturing & industrial activity) to reprice higher.

Interest Rates At Highest In 15 Years Continues To Drive Destocking Of Physical

- **Higher for longer rates Developed Market** interest rates will continue driving the global physical destocking cycle across most industrial commodities, although this is nearer the end.
- **It'll also reignite increased macro volatility** which has been uncharacteristically tame recently.

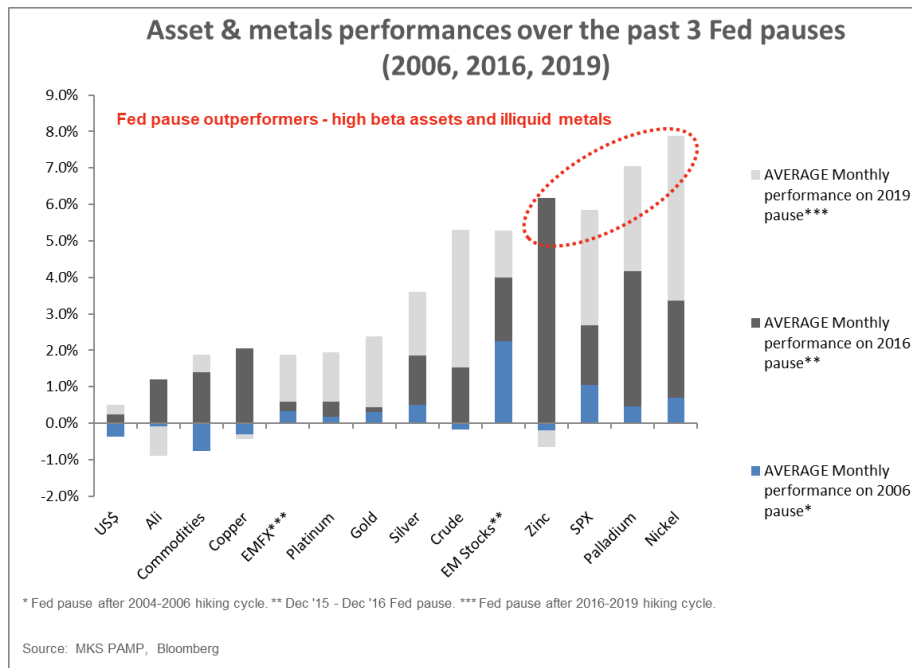
(Copper) Stocks vs Fed Funds Copper stocks bottom when Fed funds top



Source: Bloomberg, Scotiabank Commodities Strategy

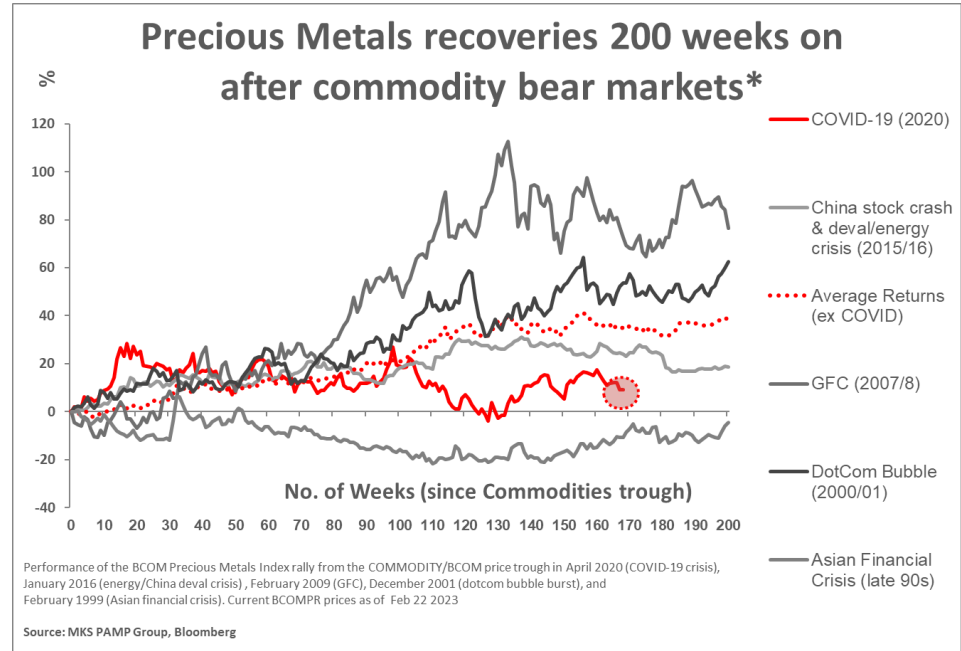
FDTR Index (Federal Funds Target Rate - Upper Bound) Copper stocks fed funds Monthly 30AUG1999-06JUL2023 Copyright© 2023 Bloomberg Finance L.P. 05-Jul-2023 19:57:52

Past Fed Pauses: A Greenlight For Higher Beta Assets



Precious Metals to Remain In Vogue Into The Next Decade & Is Still Underperforming Past Bear Market Recoveries

- **Currently, this Precious Metals (BCOM PM Index) upcycle is only +9% above its COVID-19 trough.**
- **That is still well beneath the historical average of +35% (typically seen 170 weeks in past bear market commodity recoveries).**



The Big Regime Shift: Trends & Themes Then (2010s) vs Now (2020s)

The Big Regime Shift: 2010s vs 2020s

2010s

Lower Rates
Growth
Deflation
Higher coordinated growth
Monetary Excess
Globalization
Democracies
Peace
Tech
Fiat Currencies
Buybacks
Invisible Hand
Climate Change
ESG
Tax cuts



2020s

Higher rates
Value
Inflation
Lower uncoordinated growth
Fiscal Excess
Isolationism
Dictatorships
War
Commodities
Gold/Bitcoin
Dividends
Visible (Policy) hand
Net Zero
Anti-ESG
Bailouts

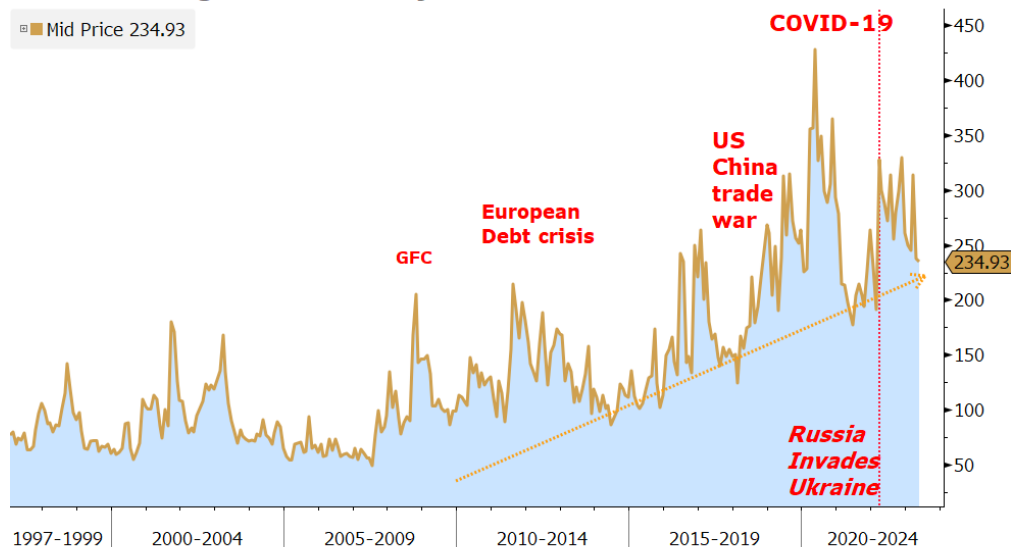
- **With embedded, supply-driven inflation & more uncoordinated but slower global growth trajectories, Precious Metals should remain structurally in favor this decade.**

Source: BofA Global Investment Strategy, TDD

Macro Uncertainties To Monitor In 2023 – What Else Does The Fed Break??

- **Another bank failure**
- Inflation suddenly accelerates from their higher bases
- US labor market cracks
- Global growth or inflation falls faster than expected
- Government policy failure (e.g.: energy)
- **A Central Bank policy mistake** (e.g.: global hard landing)
- A commodities crisis given weaponization
- A spate of debt crises / Fiscal spiral
- **A liquidity crisis or credit event**
- China (slowdown, regulatory reform, debt issues)
- **Another major spike in interest rates and/or US\$**
- Escalating geopolitical, trade tensions or terrorist attack
- **Accelerated deglobalization**
- Significant corporate tax policy change
- Social upheaval / protests
- Official currency intervention
- Cybersecurity failure / hack
- Extreme weather event
- **Asset bubbles burst**

Global Economic Policy Uncertainty Index a series of higher uncertainty 'floors' since 2008



Source: Bloomberg, Baker Bloom & Davis

EPUGLCP Index (Global Economic Policy Uncertainty Index With Current Price GDP Weights) global uncertainty index Monthly 25SEP1991-05JUL2023

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2.

Gold Chart Pack



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The Strong ~\$200+ Gold Rally in Q1'23 On Fed Cut Bets Quickly Unwound

Gold Quarterly Chart

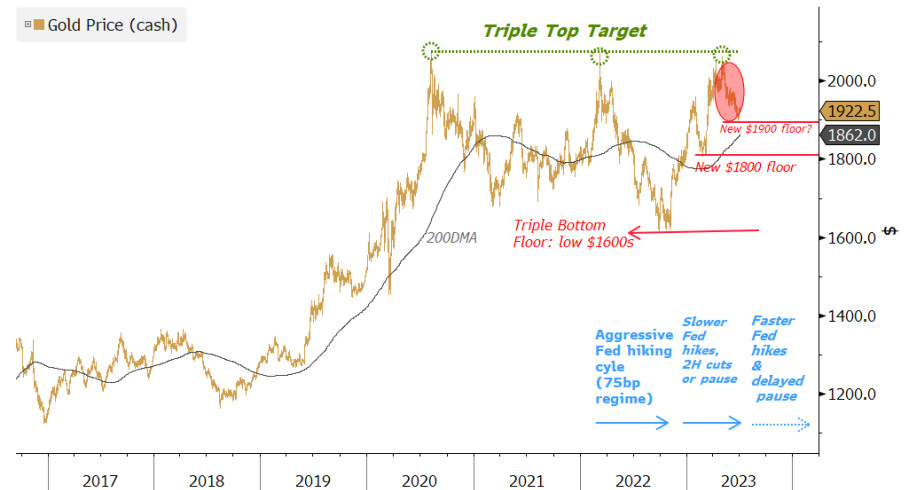
Q2'23 quarterly close below uptrend but still higher lows



Source: MKS PAMP, Bloomberg
XAU Curncy (Gold Spot \$/Oz) gold quarterly tech Quarterly 02APR2000-30JUN2023 Copyright© 2023 Bloomberg Finance L.P. 05-Jul-2023 12:16:53

Gold: establishing a new bulltrend

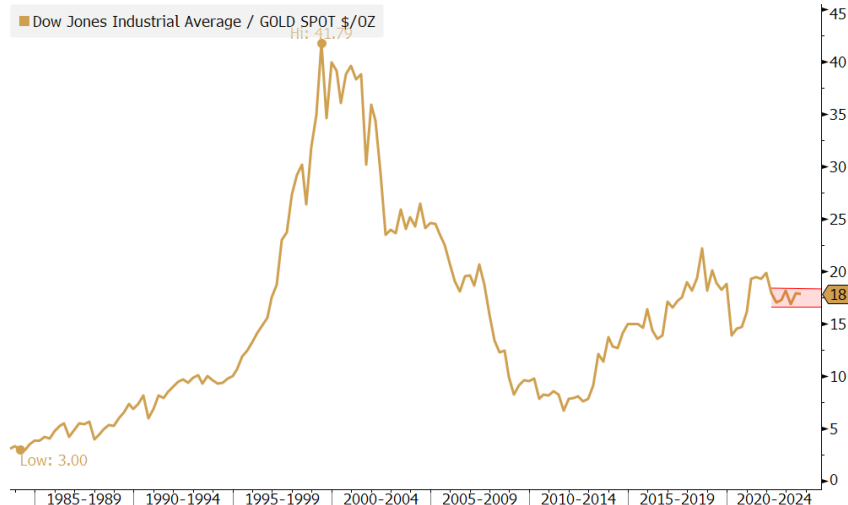
the steep bullish trend from \$1800 moderating in the short-term



Source: MKS PAMP, Bloomberg
GOLDS Comdty (GOLD SPOT \$/OZ) goldtechnicals 6m cash3 Daily 23FEB2016-05JUL2023 Copyright© 2023 Bloomberg Finance L.P. 05-Jul-2023 12:17:15

Gold Held In Vs US Equities But Continues To Underperform Bitcoin in 2023

Dow / Gold ratio



Source: MKS PAMP Group, Bloomberg
INDU Index (Dow Jones Industrial Average) Dow to Gold Ratio Quarterly 15JUL1983-05JUL2023 Copyright© 2023 Bloomberg Finance L.P. 05-Jul-2023 12:23:14

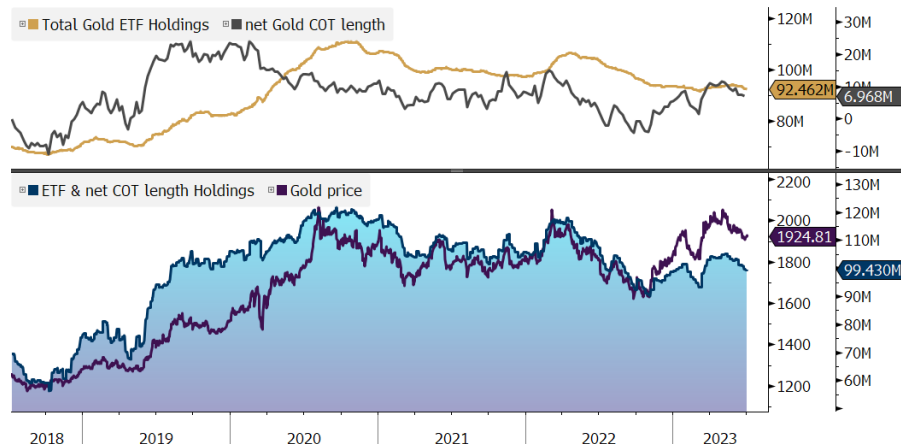
Bitcoin / Gold ratio



Source: MKS PAMP Group, Bloomberg
XBTUSD Curncy (XBT-USD Cross Rate) Bitcoin Gold Ratio Weekly 14APR2017-05JUL2023 Copyright© 2023 Bloomberg Finance L.P. 05-Jul-2023 12:25:35

Gold Investors Remains Sidelined Or Net Sellers on Price Rallies

Known Gold investor flows: ETF & COT ETFs & COT continue to bleed



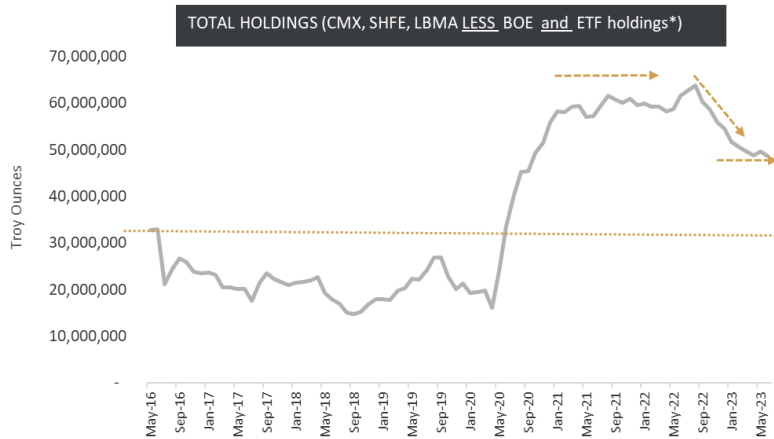
Source: MKS PAMP, Bloomberg

ETFGTOL Index (Total Known Gold ETF Holdings) Gold ETF COTR CHANG 2 Daily 06JUL2018-05JUL2023 Copyright© 2023 Bloomberg Finance L.P. 05-Jul-2023 12:35:39

- Gold investors only bought 565K oz in 1H'23.
- That's the 6th slowest half year accumulation of Gold seen the past 10years.
- Most of the Banking Crisis induced ETF + COT inflows have now been unwound.
- Total (ETF + COT) Positioning remains rather neutral at 100mn oz (92mn oz ETF + 7mn oz COT) vs post-COVID ranges of 90-120mn oz.

Large Known Gold Stocks Drew Quickly In '22 But The Pace Has Decelerated in '23

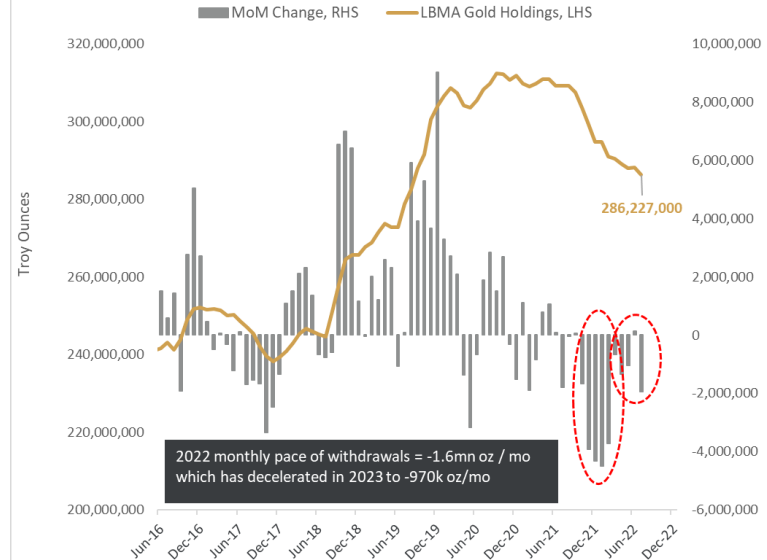
Global Physical Gold Liquidity -- still well supplied even though it
drawed quickly in 2022



*physical liquidity is proxied only by known above ground OTC stocks in Precious hubs -> London (LBMA), NY (CME), Asia (SHFE) & BOE. Clearly there are other exchange stocks (SGE, Tocom) which we have not included. Assuming all ETFs are held in LBMA / London or NY vaults, ETF holdings are thus deducted from LBMA, CME & SHFE to avoid double counting

Source: Bloomberg, MKS PAMP Group, LBMA

LBMA Gold Vault Holdings with monthly changes

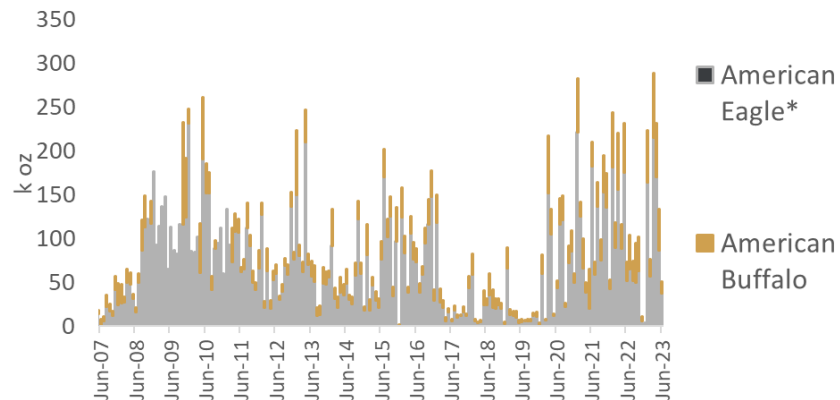


Source: LBMA, MKS PAMP Group

Gold Retail Demand At High End of Historical Trends

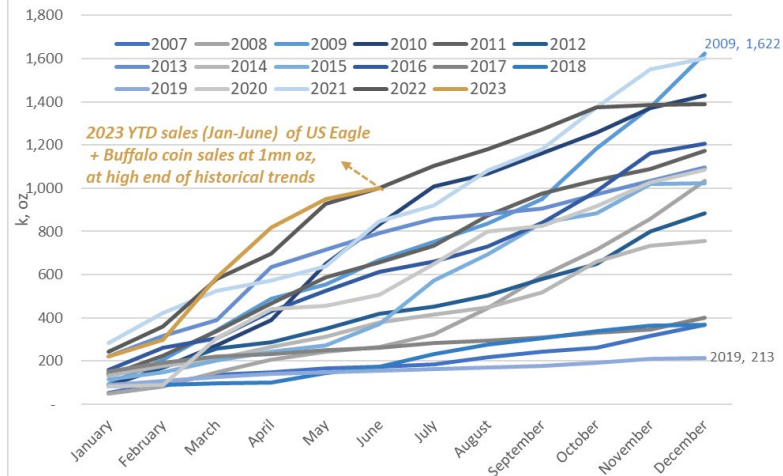
US Mint Gold Coin sales

2007-2022 monthly average US Gold coin sales = 82K oz/mo
2023 average monthly sales = 167Koz/mo, 85% above historical trend



Source: Bloomberg, MKS PAMP Group, US Mint

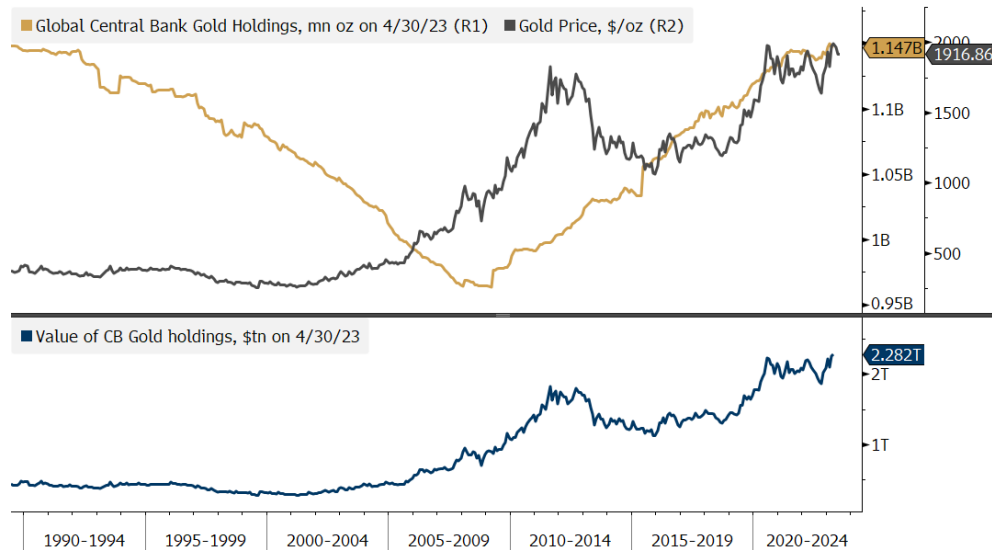
US Mint: Cumulative Gold Bullion/coin* sales - 1H'23 sales of 1mn oz is strong



*US Eagle totals include the 1oz, Half oz, Quarter oz and 1/10th oz Gold coins

Central Bank Gold: Still Aggressively Adding On Price Dips

Central Bank Gold Holdings



Source: Bloomberg, IMF, MKS PAMP Group

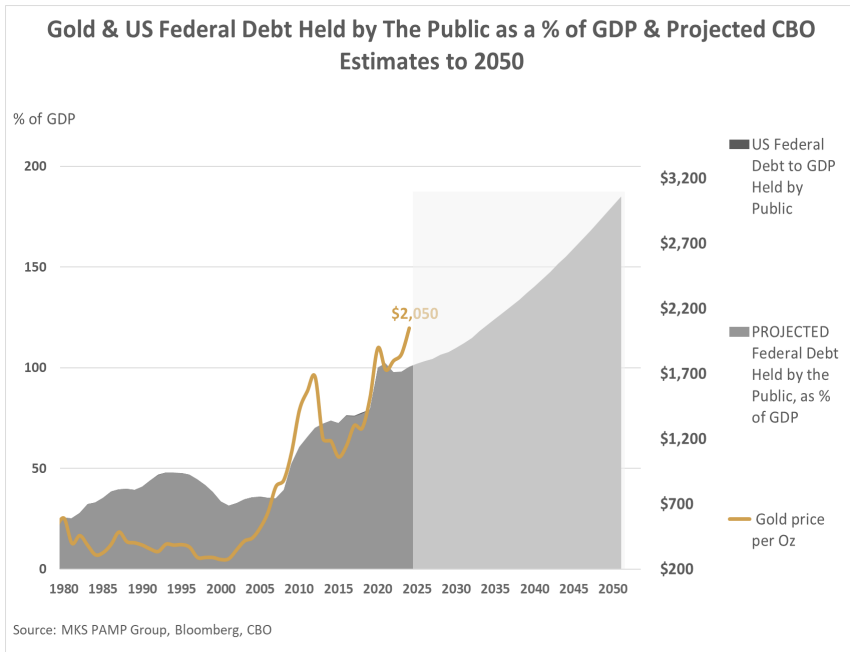
001.046 Index (IMF World Reserve Gold Holdings) CB Gold FX hold ETF3 Monthly 30JUN1989-06JUL2023

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- **Central Banks, especially Emerging Markets, continue their dedollarization & sanction risk policies with Gold-accumulation plans in 1H'23.**
- **Still, the pace is expected to remain robust but not near the record-breaking pace seen in 2022.**
- **The value of ALL CB Gold holdings now stand at \$2.3tn, near record, & basically the size of AAPL's Market Cap.**

Dedollarization & Global Debt Interplay Driving A Reconsideration of The Global Monetary System



- **Western sanctions drove a reallocation of CB FX reserves away from US\$.**
- **The rise of global & US debt, Western World inflation & the role of fiat currencies in the monetary system continues to being reconsidered.**
- **Dedollarization – a bigger tailwind for smaller asset Classes vs a US\$ headwind.**
- **Model implied Gold price is \$3500 if/when US gov debt hits 200% of GDP by 2050.**

Golds Key Up & Downside Inflection Points

- **New price regime \$1800-\$2100/oz to hold but less bullish trajectory on a more restrictive Fed.**
- **Gold Triple Top / ATHs To Be Reached in 2023 as US monetary policy plays catch-up & US data misses.**
- **Bull case = \$2500 long-term target (not average).**

Key event or technical level	Gold Level
COVID emerges in China	\$ 1,560
Start of current bull trend in Nov '22 (end of 75bp Fed hikes)	\$ 1,600
"Transitory" dropped wrt inflation (Dec '21 FOMC)	\$ 1,750
If 2011, 2020 & 2022 blowoff tops repeated (-13% on ave in 8days)	\$ 1,780
New physical floor (up from \$1600) + China starts releasing Gold reserve stat:	\$ 1,800
Newmont's 1st bid for Newcrest	\$ 1,850
SVB / start of US banking crisis	\$ 1,850
200 DMA	\$ 1,860
Model-implied price with real rates at -1% (pre-hike) levels**	\$ 1,900
Russia invades Ukraine	\$ 1,900
US sanctions the Russian CB	\$ 1,920
1st Fed hike (since 2018) in March '22 , +25bp	\$ 1,930
Recent series of technical lows / new resistance	\$ 1,950
2023 high	\$ 2,063
Recent War high (March 2022)	\$ 2,070
All Time High (COVID / 2020 High)	\$ 2,075
Big No (large OI in Aug option strike)	\$ 2,100
Gold hits bull market status in 2023	\$ 2,200
Large Bullish (call) bets in GCZ3 contract (~17K contracts)	\$ 2,500
Our L/T bull case & upside target (<i>not</i> base case)	\$ 2,500
Psychological big number	\$ 3,000
If current bull run doubles (as it did post 2008)	\$ 3,200
Model-implied price with US Gov debt at 200% by 2050	\$ 3,500
If XAUUSD mimics XAUJPY breakup/out (+75% from past ceilings)	\$ 3,600
Potential Gold Trajectory in 2027 after a typical slow Fed hiking cycle	\$ 4,100

The markets' view of Golds triple top ←

Key technical levels
Source: MKS PAMP

Gold Cycles: Current Prices Holding In For the 3rd Secular Cycle



3.

Silver Chart Pack



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Oil Repricing Lower On Recession Fears Explains Why the White Metals Are Lagging

WTI Prices Collapsing to Low End Of Range

Despite Bullish Forecasts, Oil is +- \$70



Source: MKS PAMP, Bloomberg

CL1 Comdty (Generic 1st 'CL' Future) Oil tech Weekly 01SEP2020-06JUL2023 Copyright© 2023 Bloomberg Finance L.P. 06-Jul-2023 09:22:53

Oil Repricing Lower On Recession Fears Explains Why the White Metals Are Lagging

Once the panic/fear trade (higher Gold, crypto & US treasuries) subsided in 2Q'23, the liquidity trades (Silver, PGMs, Oil & Copper) still couldn't find their sea legs given lackluster China demand & recession fears.

It WAS All About Gold vs the White Metals strong uptrend GC/SI channel in 2023 reversed; PGM underperformance



Source: Bloomberg, MKS PAMP

.GCSI U Index (gold silver ratio) GC/SI vs Gc vs pl pA Daily 20MAR2022-06JUL2023

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Silver Found Strong Support at ~\$20/oz & \$22/oz; Upside Hinges on Weaker US\$

- Strong support lurks below \$22/oz stemming from a mix of industrial & retail participation, which is expected to remain resilient into 2H'23 despite growing recession risks.
- Industrial demand is set to hit another record high; that, together with supply risks will drive another fundamental deficit of over 150mn oz.

Silver Price & Technicals

below the 200DMA and \$20/oz where physical buying emerges



Source: MKS PAMP

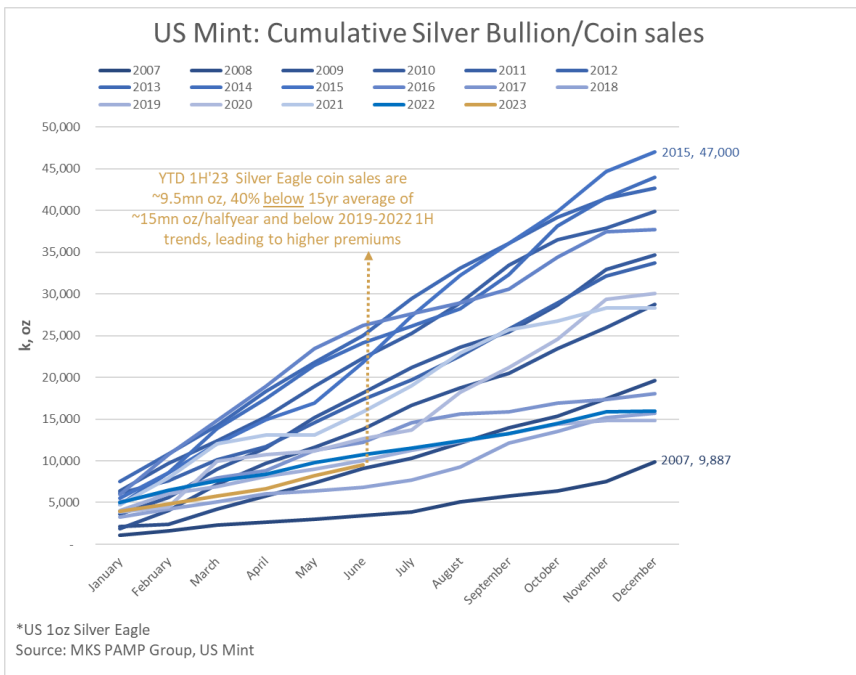
XAG Curncy (Silver Spot \$/Oz) silver technicals Daily 24FEB2020-06JUL2023

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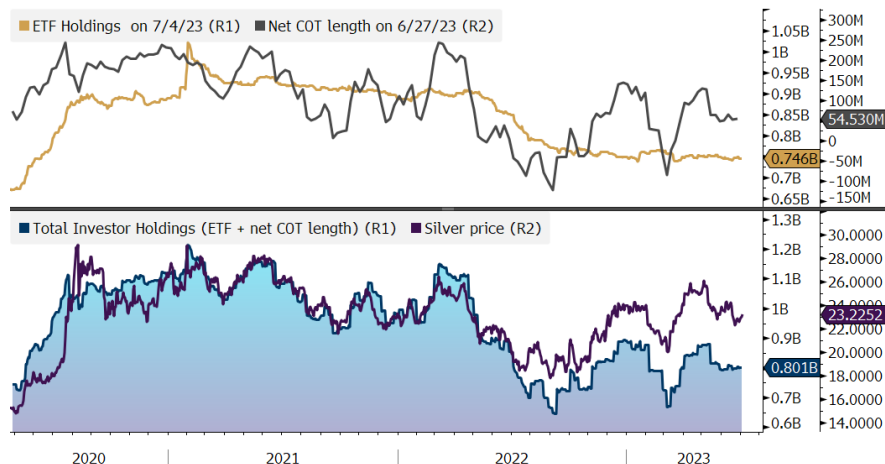
Silver Retail Demand At Low End of Historical Trends Due To Supply Constraints

- **YTD 1H'23 Silver Eagle coin sales are ~9.5mn oz, 40% below the 15yr average of ~15mn oz at the half year mark & below 2019-2022 1H trends.**
- **Supply constraints & production limitations by the US mint has also led to higher premiums.**
- **Overall retail demand for silver products remains robust and should continue into the US election cycle, albeit at slower pace vs the phenomenal year in 2022.**



Silver Investors Were Net Sellers in 1H'23 & Remain Rather Agnostic

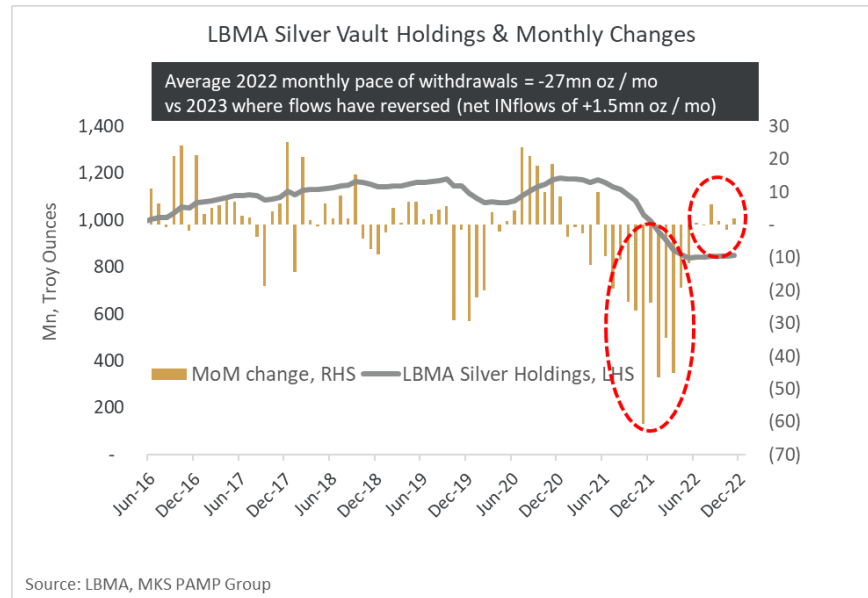
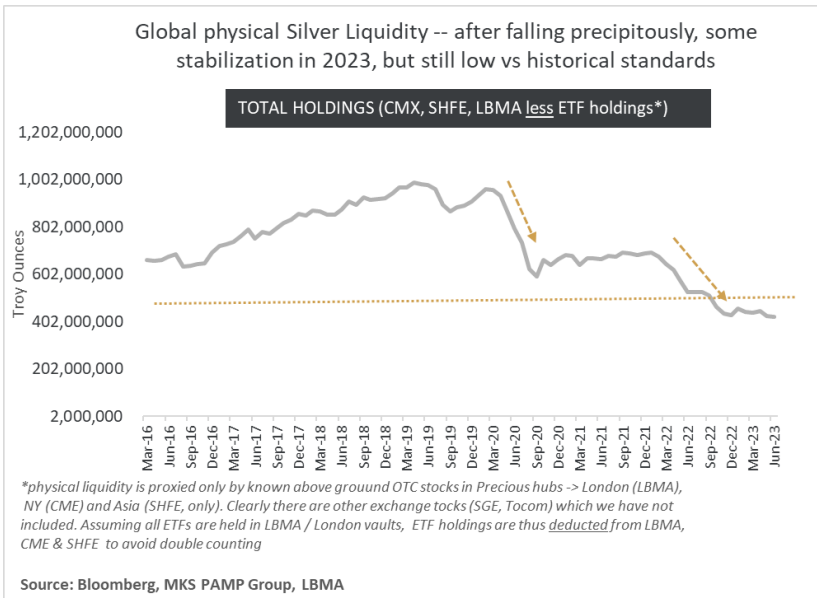
Silver Flows: ETF & COT



- Silver investors were net sellers with outflows of ~90mn oz in 1H'23.
- That's the 4th fastest half year destocking of Silver seen the past 10years.
- Fast Money (COT) at one point turned net bearish.
- Total (ETF + COT) Positioning at 800mn oz vs post-COVID ranges of 650mn - 1.2bn oz, is becoming underweight.

Large Known Silver Stocks Drew Quickly In '22 But The Pace Has Decelerated In '23

- Fundamentally, Silver has less readily available physical stocks in known exchange & LBMA vaults (vs Gold).



4.

PGM Chart Pack



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Platinum Prices Remain In Sideways Trend below \$1100/oz

Platinum prices

comfort zone formed \$850-\$1100/oz



Source: Bloomberg, MKS PAMP

PLAT Comdty (PLATINUM SPOT \$/OZ) PLAT technicals2 Daily 24AUG2005-05JUL2023

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- While market consensus centers around upcoming deficits, 1) ongoing recession fears, 2) Above Ground Stocks & physical destocking into higher rates, and 3) the lack of persistent investment inflows has kept prices from rerating strongly above \$1100/oz.

Palladium Prices Have Erased Russia/Sanction Risk & More

- Palladium has remained in a persistent (technically almost managed) downtrend channel for a year now, coincidentally or not aligned with the combination of the Fed kicking off its hiking cycle and global commodities war/fear premiums being unwound.

Palladium Prices

managed lower after the war blowoff top near \$3500/oz



Source: MKS PAMP, Bloomberg

XPD Curncy (Palladium Spot \$/Oz) Palladi Price Weekly 07JUL2013-05JUL2023

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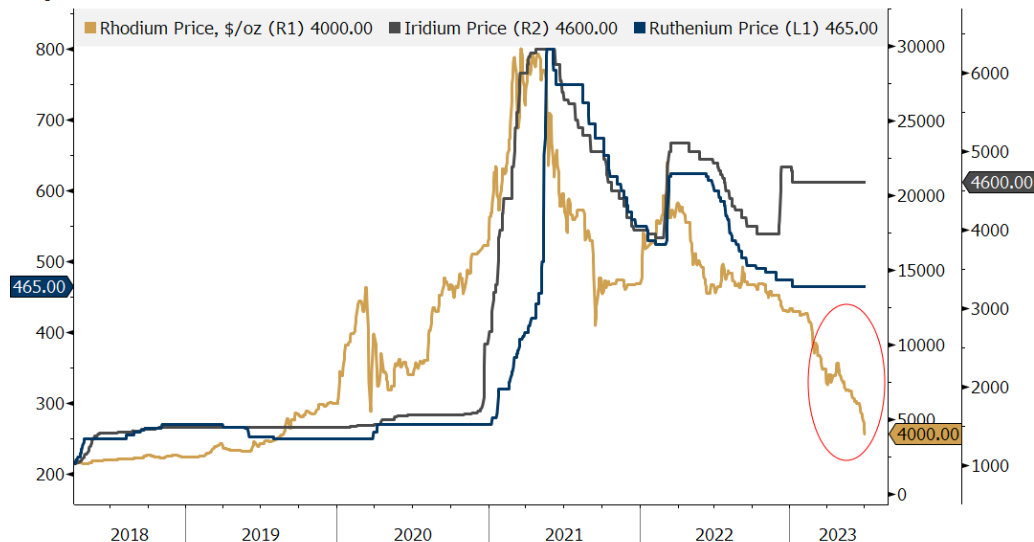
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Rhodium Falls To Pre-COVID Levels; Other Minor PGMs Hold Up

Minor PGM Prices

Capitulation in Rhodium in stark contrast to OPGMs

- Rhodium has phenomenally crashed to below \$4000/oz in Q2'23 as Chinese fiberglass related selling (and substitution), physical destocking, and a slower than expected China reopening, amidst a consumer 'strike', took hold.



Source: MKS PAMP, Bloomberg

JMATRHOD Index (Johnson Matthey Rhodium Spot Price) Rhodium & minor PGMs Daily 05APR2018-05JUL2023 Copyright© 2023 Bloomberg Finance L.P. 05-Jul-2023 18:07:51

Statement Repricing In the Producers Rand PGM Basket Has Reversed Heavily

PGM ZAR prices: heavy losses in 2023 peaked basket prices & margins



Source: Bloomberg, MKS PAMP Group

,PGMBSKT U Index (ZAR PGM basket) PGM ZAr Basket vs plpa Weekly 28JUN2012-29JUN2023

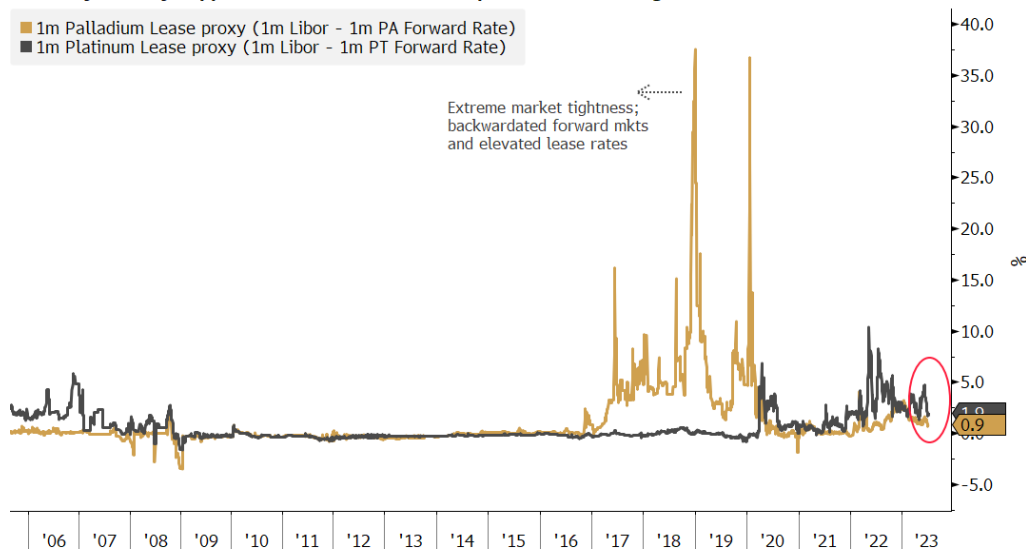
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Physical Markets → Falling Lease Rates Signal Ongoing Destocking

PGM Lease Rates

relatively steadily supplied PGM markets but susceptible to extreme tightness



Source: Bloomberg, MKS PAMP Group

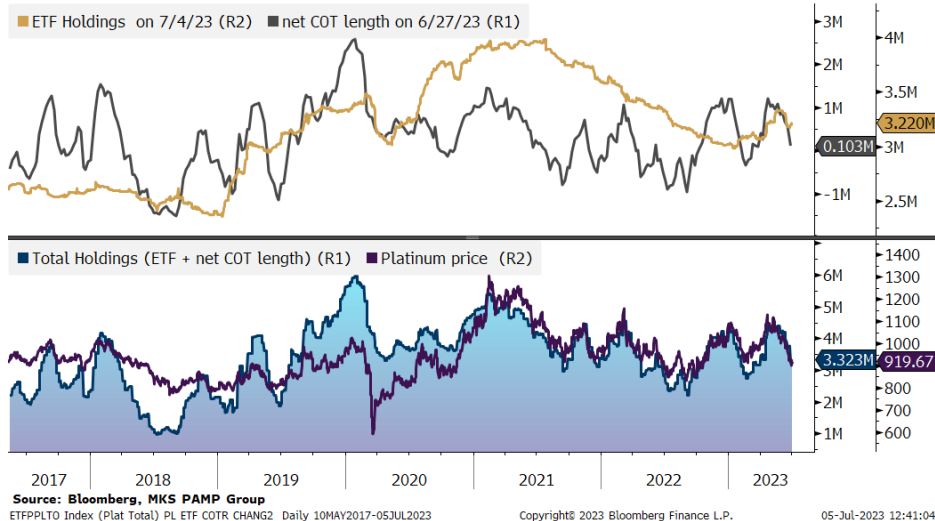
.PALEASE U Index (1m pall lease) PGM lease Daily 24AUG2005-05JUL2023

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Platinum Investor Flows Were Very Volatile In 1H'23

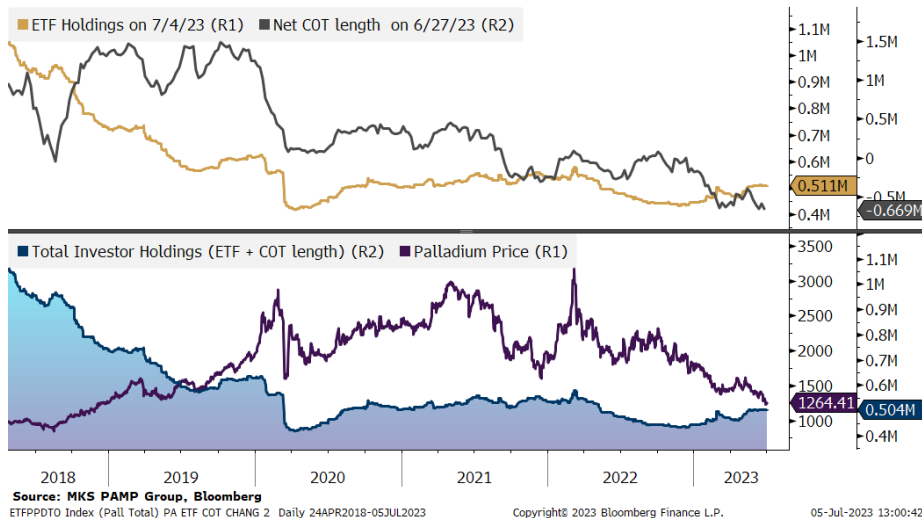
Platinum Flows - ETF + COT



- Platinum investors were net sellers in 1H'23 with outflows of a chunky 610k oz.
- ETFs saw volatile flows with in/outflows swinging ~1.5mn oz within a couple weeks.
- Fast Money (COT) began the year net bearish but have added to positioning.
- Total (ETF + COT) positioning at 3.3mn oz is moving into the low-end of the post-COVID range (2.2mn – 5.3mn oz) but isn't quite underweight yet.

Palladium COT Flows Turned Aggressively Bearish In 1H'23 vs ETF Inflows

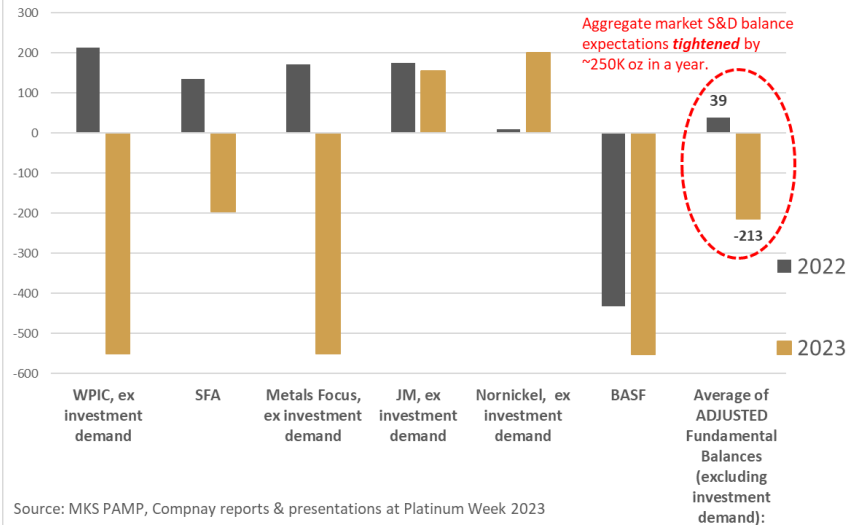
Palladium Flows: ETF + COT



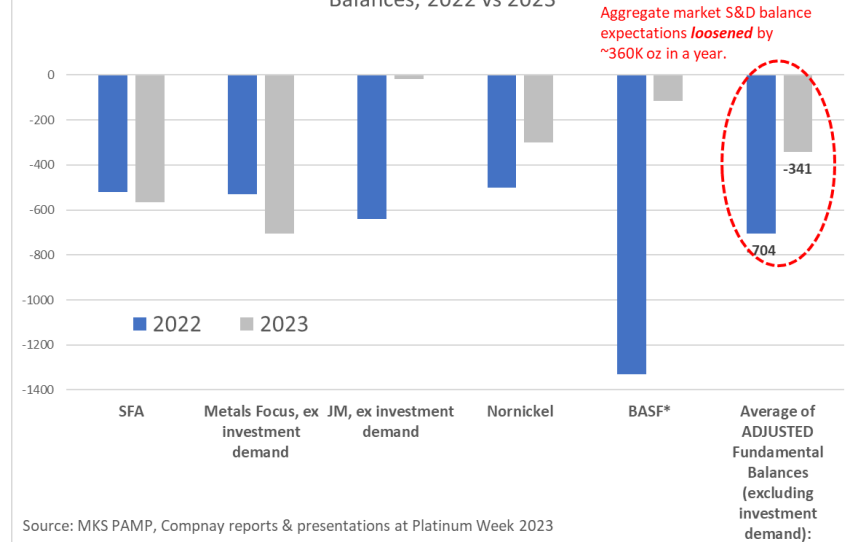
- Palladium investors were net buyers in 1H'23 of a 58k oz.
- But that hides the super bearish bets where net COT positioning fell to a record low of -670k oz, vs 64k oz of ETF inflows.
- Total (ETF + COT) positioning at 500k oz is still somewhat neutral vs post-COVID positioning range of 430-560k oz.

Platinum & Palladium 2022 vs 2023 Supply/Demand Balance Expectations

PLATINUM: Summary of Industry's Fundamental Supply/Demand Balances, 2022 vs 2023



PALLADIUM: Summary of Industry's Fundamental Supply/Demand Balances, 2022 vs 2023





MKS PAMP
GROUP

Thank you