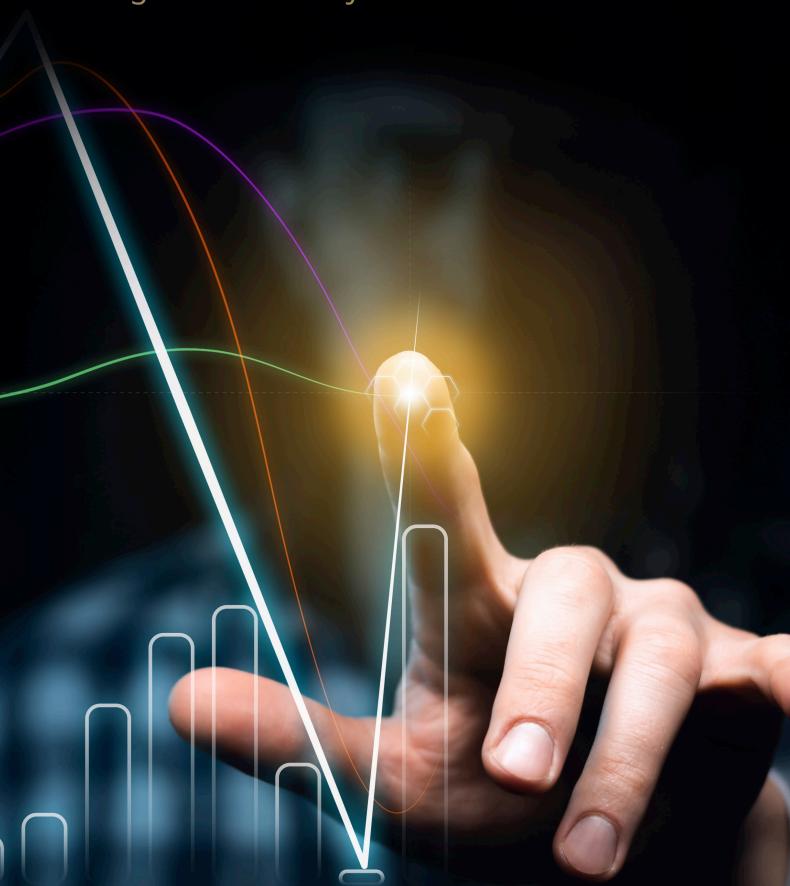


Gold Outlook 2023

The global economy at a crossroads



About the World Gold Council

We're the global experts on gold.

Leveraging our broad knowledge and experience, we work to improve understanding of the gold market and underscore gold's value to individuals, investors, and the world at large.

Collaboration is the cornerstone of our approach. We're an association whose members are the world's most forward-thinking gold mining companies. Combining the insights of our members and other industry partners, we seek to unlock gold's evolving role as a catalyst for advancements that meet societal needs.

We develop standards, expand access to gold, and tackle barriers to adoption to stimulate demand and support a vibrant and sustainable future for the gold market. From our offices in Beijing, London, Mumbai, New York, Shanghai, and Singapore, we deliver positive impact worldwide.

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Contents

Gold Outlook 2023: The global economy at a crossroads	2
Bumpy road ahead	3
Economic growth: short sharp pain	3
Policy and inflation: higher for longer	3
Macroeconomic implications for gold	4
Recession: portfolio ballast	4
Inflation: disinflation ahead	4
US dollar: trending down	4
Geopolitics: tightrope	5
China: a cautious rebound	5
Europe: a tale of two winters	5
Cross-asset implications for gold	6
Bonds: holding on	6
Equities: Ever the optimists	6
Commodities: Caught in the crossfire	6
Risks to economic consensus	7
Severe recession/stagflation	7
Soft landing	7

Gold Outlook 2023: The global economy at a crossroads

The global economy is at an inflection point after being hit by various shocks over the past year. The biggest was induced by central banks as they stepped up their aggressive fight against inflation.

Going forward, this interplay between inflation and central-bank intervention will be key in determining the outlook for 2023 and gold's performance.

Economic consensus calls for weaker global growth akin to a short, possibly localised recession; falling – yet elevated – inflation; and the end of rate hikes in most developed markets. In this environment which carries both headwinds and tailwinds for gold, our key take-aways are:

- A mild recession and weaker earnings have historically been gold-positive (pp. 4 and 6)
- Further weakening of the dollar as inflation recedes could provide support for gold (p.4)
- Geopolitical flare-ups should continue to make gold a valuable tail risk hedge (p. 5)
- Chinese economic growth should improve next year, boosting consumer gold demand (p.5)

- Long-term bond yields are likely to remain high but at levels that have not hampered gold historically (p. 6)
- Pressure on commodities due to a slowing economy is likely to provide headwinds to gold in H1 (p.6)

On balance, this mixed set of influences implies a stable but positive performance for gold (**Figure 1**).²

That said, there is an unusually high level of uncertainty surrounding consensus expectations for 2023. For example, central banks tightening more than is necessary could result in a more severe and widespread downturn. Equally, central banks abruptly reversing course – halting or reversing hikes before inflation is controlled – could leave the global economy teetering close to stagflation. Gold has historically responded positively to these environments (p.7).

On the flipside, a less likely 'soft landing' that avoids recession could be detrimental to gold and benefit risk assets (p.7).

Figure 1: Consensus scenario of a mild recession, with greater upside potential for gold than downside risk*

	Severe downturn	Mild recession	Soft landing
	FF max:4.5%,year-end:2.5%	Fed funds max:5%,year-end:4.6%	FF max:5.5%,year-end:5%
Opportunity Cost	Lower bond yields	Slightly higher bond yields	Higher bond yields
	Dollar sees safe-haven bid	Weaker US dollar	Flat US dollar, cash attractive
Economic Expansion	Severe downturn, stagflation	Mild recession	Soft landing
Risk	Inflation eventually drops below 2%	Inflation halves	Inflation stays problematic
	Equities big de-rating (08/09)	Pressured equities	Equities fare well
Momentum	China opens with stimulus	China opens in H1	China opens in H1
	Commodities sell off	Commodities, down then up	Commodities rebound, CBs worry
	Geopolitical risk remains	Geopolitical risk remains	Geopolitical risk remains
Implications for gold	Significant upside	Stable with upside	Downside pressure
Colour key:	Positive Neutral	Negative	

^{*}Economic consensus based on median Bloomberg Economists' forecasts as of 2 December 2022. Fed Funds rate consensus based on Fed Funds 30-day futures curve as of 2 December 2022. Implications for gold based on our Gold Valuation Framework.

Source: Bloomberg, World Gold Council

¹ Based on Bloomberg consensus expectations as of 2 December 2022.

² Analysis based on our <u>Gold Valuation Framework</u> and inputs from Bloomberg consensus expectations as of 2 December 2022.

Bumpy road ahead

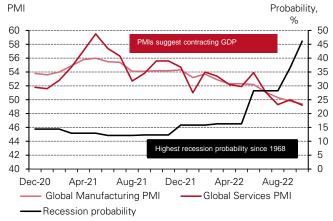
Economic growth: short sharp pain

There are now many signs of weakening output due to the speed and aggressiveness of hiking moves by central banks. Global purchasing manager indices (PMI), now in contraction territory, 3 indicate a deepening downturn across geographies, and economists are warning of a material recession risk (**Chart 1**).

Consensus forecasts now expect global GDP to rise by just 2.1% next year. Excluding the global financial crisis and COVID, this would mark the slowest pace of global growth in four decades and meet the IMF's previous definition of a global recession – i.e. growth below 2.5%.

Chart 1: Global contraction appears all but guaranteed

Global manufacturing and services PMIs and year-ahead probability of recession*



*Global PMIs below 50 are associated with an economic contraction. 4Q average recession probability. Data as of December 2022.

Source: Bloomberg, Survey of Professional Forecasters, World Gold Council

Policy and inflation: higher for longer

It is almost inevitable that inflation will drop next year as further declines in commodity prices and base effects drag down energy and food inflation. Furthermore, leading indicators of inflation tell a consistent story of a moderation (**Chart 2**).

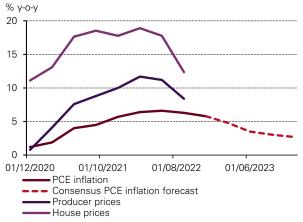
This brings us to the implications for monetary policy. The policy trade-off for nearly every central bank is now particularly challenging as the prospect of slower growth collides with elevated, albeit declining inflation.

No central bank will want to lose its grip on inflationary expectations resulting in a strong bias towards inflation fighting over growth preservation. As a result, we expect monetary policy to remain tight until at least mid-year.

In the US, markets expect the Fed to start cutting rates in the second half of 2023 (**Chart 3**). Elsewhere, markets expect policy rates to come down more slowly than in the US, but by 2024 most major central banks are expected to be in easing mode.⁵

Chart 2: Inflation has peaked

PCE inflation and Bloomberg median forecast, US producer and house prices*

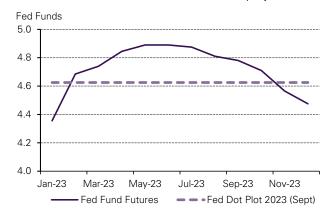


*Consensus PCE inflation forecast provided by Bloomberg median economists' forecasts. As of December 2022.

Source: Bloomberg, World Gold Council

Chart 3: Market pricing in cuts during H2 2023

Fed Funds futures curve and Fed median projection 2023*



*Fed dot plot provided by the Federal Reserve. Fed data as of September 2022. Fed Funds Futures (data as of 2 December) reflect one market view of the future Fed Funds rate.

Source: Bloomberg, World Gold Council

- 3 A figure below 50 is typically associated with an economic contraction.
- 4 Bloomberg median real y-o-y GDP forecast as of December 2022.
- 5 Exceptions include Japan, where rates remain very accommodative, China, Switzerland and New Zealand.

Macroeconomic implications for gold

Gold is both a consumer good and an investible asset. As such, our analysis shows that its performance is driven by four key factors and their interactions:

- Economic expansion positive for consumption
- Risk and uncertainty positive for investment
- Opportunity cost negative for investment
- Momentum contingent on price and positioning.

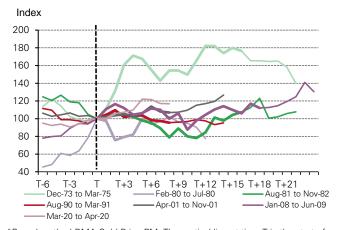
These factors, in turn, are influenced by key economic variables such as GDP, inflation, interest rates, the US dollar, and the behaviour of competing financial assets.

Recession: portfolio ballast

A challenging combination of reduced but still elevated inflation and softening growth demands vigilance from investors. The likelihood of recession in major markets threatens to extend the poor performance of equities and corporate bonds seen in 2022.

Chart 4: Gold does well in recessions

Performance of gold before, during and after NBERdesignated recessions*



^{*}Based on the LBMA Gold Price PM. The vertical line at time T is the start of an NBER-designated recession. The thick portion of each respective line denotes the recession period.

Source: ICE Benchmark Administration, The National Bureau of Economic Research (NBER), Bloomberg, World Gold Council

Gold, on the other hand, could provide protection as it typically fares well during recessions, delivering positive returns in five out of the last seven recessions (**Chart 4**). Furthermore, a recession is not a prerequisite for gold to perform. A sharp retrenchment in growth is sufficient for gold to do well, particularly if inflation is also high or rising.

Inflation: disinflation ahead

While inflation may indeed come down next year, there are several important considerations that impact the gold market.

First, central bankers have inflation targets and while a lower inflation rate is necessary, it is insufficient for central bankers to withdraw their hawkish policies. Inflation needs to get to target or below for that to happen. This raises the risk of an overshoot, in our opinion.

Second, our analysis suggests that the retail investor segment appears to care more about inflation than institutional investors, given a lower level of access to inflation hedges (**Figure 2**). They also care about the level of prices. Even with zero inflation in 2023, prices will remain high and are likely to impact decision-making at the household level.

Lastly, institutional investors often assess their level of inflation protection through the lens of real yields. These rose over the course of 2022 creating headwinds for gold.

In 2023 we could see some reversal of the dynamics at play in 2022 which were high retail investment demand but weak institutional demand. Indeed, any sign of yields moving down could encourage more institutional interest in gold. On balance however lower inflation should mean potentially diminished interest in gold from an inflation hedging perspective.

Figure 2: Retail investors care about inflation, institutions care about rates*

Bar & Coin	ETFs	
Gold price, % y-o-y (-1)	constant	
World inflation rate, y-o-y	Gold price, % y-o-y (-1)	
US gov't debt to GDP growth, y-o-y	US 10y gov't bond yield, y-o-y	
Eurozone M1 money supply, y-o-y (-1)	2021 dummy	
Bar & coin trend variable	German 3m negative yield	
Implied OTC long	Implied OTC short	
Gold price, % y-o-y	Gold price, % y-o-y	
Gold price, % y-o-y (-1)	Gold price, % y-o-y (-1)	
OTC long proxy, % y-o-y (-1)	US 10y gov't bond yield, y-o-y	

*Four of the regression equations that comprise our <u>Qaurum model on GoldHub</u>. Inflation variables are significant for Bar & Coin (retail) investors in green, but not for institutional investors, in red.

OTC short proxy, % y-o-y (-1)

Source: World Gold Council

US dollar: trending down

US 10y gov't bond yield, y-o-y

After strengthening for nearly two years straight, the US dollar index (DXY) has recently seen a steep drop, despite continued widening of – both actual and expected – rate differentials. It seems that reduced demand for dollar cash was the likely culprit.

Next year, we see a more complex dynamic driving the US dollar. First the shoring up of energy needs in Europe will, in the immediate future, continue to reduce pressure on the euro. Second, as central banks in Europe, the UK and

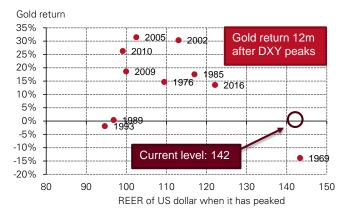
Japan continue to take a more hands-on approach to their respective currency and bond markets, some of the pressure on domestic exchange rates could ease. All things considered, the dollar is likely to be pressured, particularly as falling inflation and slower growth take hold.

And a dollar peak has historically been good for gold, yielding positive gold returns 80% of the time (+14% on average, +16% median) 12 months after the peak.

Although currently very high in REER terms and likely one of the catalysts for the recent turn, the starting valuation for the DXY has been less important in determining the magnitude of gold returns (**Chart 5**).

Chart 5: If the DXY has peaked, that should bode well for gold

Gold return 12m after DXY has peaked, US dollar REER at time of peak*



*Gold returns using the LBMA Gold Price PM 12 months following a peak in the DXY index compared to the BIS narrow Real Effective Exchange Rate (REER) value for the DXY at the peak. Peaks calculated since 1969 on monthly data of the DXY index. Latest data as of 2 December 2022.

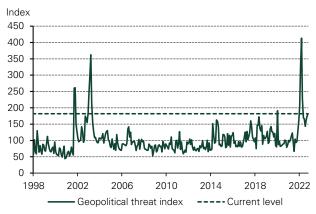
Source: ICE Benchmark Administration, Bloomberg, World Gold Council

Geopolitics: tightrope

If the past five years has taught us anything it is that shocks – trade war, COVID, war in Ukraine, and so on – can appear from left field to upturn even the most considered economic forecasts. The latest conflict further undermines the existing model of global trade and capital integration emphasising that geo-politics has returned as a source of economic and financial risk (**Chart 6**).

And while macro factors form the basis for much of the impact on gold, geo-political flare-ups could lend support to gold investment, as we saw in Q1'22, as investors look to shield themselves from any further turbulence. Moreover, as we have discussed <u>previously</u>, we attribute a large proportion of gold's resilience in 2022 to a geopolitical risk premium, with gold's return not fully explained by its historically important drivers.

Chart 6: Geopolitical threat level remains high*



*Data as of October 2022. Geopolitical threats reflect automated text-search results of electronic newspaper archives. See here for methodology. Source: Matteo lacoviello, World Gold Council

China: a cautious rebound

Following a challenging 2022, we expect consumer gold demand in China to return to 2021 levels thanks to fewer COVID disruptions, a cautious economic rebound and a gradual pick-up in consumer confidence.

China's economic growth is likely to improve next year. Signs that COVID-related restrictions are easing after the local authority optimised its zero-COVID policy in November, should improve consumer confidence and boost economic activity.

Meanwhile, Chinese regulators announced measures to support the local property market, including credit extension to developers and loosening of home-buyer restrictions. These stimuli may help stabilise real estate investment and housing demand and encourage an upturn in consumer demand.

Europe: a tale of two winters

European gold bar and coin investment is likely to remain robust in 2023 as retail investors – especially in Germanic markets – look to protect their wealth. Even a decline in inflation is unlikely to encourage lower demand, given underlying risks.

Europe (and the UK) is facing a severe energy crisis, driven by a reduction in natural gas from Russia. While gas storage levels have been raised to almost 90% capacity, some question whether this will be sufficient for winter 2022. There are also concerns about energy supplies to the region ahead of next winter if the supply of Russian natural gas remains limited and recovery in China intensifies the global demand for energy.

Cross-asset implications for gold

Bonds: holding on

Consensus forecasts suggest a bull-steepening of the US yield curve. With the yield curve (10-year less 2-year US Treasury yield) already more inverted than at any time since 1981, the long end already appears to have factored in a recession and further inversion seems unlikely.

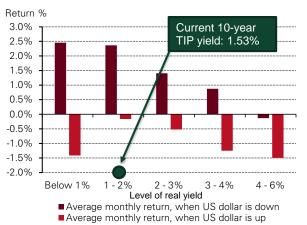
We therefore see a stickier long end of the curve, even if the short end drops significantly. Adding to this, both risk and term premia are likely to be higher, putting pressure on long term yields to stay put. The former from an elevated bond-equity correlation and the latter from higher supply through both issuance and quantitative tightening.

As gold has a stronger correlation to 10-year than shorterterm yields, we see less of a rates-driven benefit to gold in 2023.

Although higher bonds yields are associated with lower gold returns and might now be deemed attractive by some investors, current yield levels are historically not a hindrance to gold doing well, particularly when accounting for a weaker US dollar (**Chart 7**).

Chart 7: Current rate levels not a threat to gold

Average gold returns in different rate level regimes*



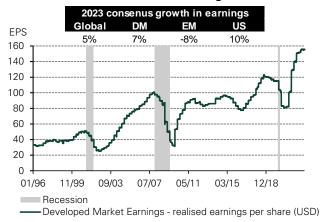
*Average monthly return is calculated as the average of gold returns (LBMA Gold Price PM) during a range of historical real yield levels for the US 10-year TIP yield, US 12m Treasury yield less 1-year expected inflation (Michigan) and US 5-year Treasury yield less 5-year expected inflation (Michigan).

Source: ICE Benchmark Administration, Bloomberg, World Gold Council

Equities: Ever the optimists

If 2023 is to bring us a mild recession, equities are headed for continued volatility. Moreover, current consensus EPS estimates seem conspicuously robust against the deteriorating macroeconomic backdrop and what earnings typically do during periods of recessions (**Chart 8**).

Chart 8: Recessions hammer earnings



Source: Bloomberg IBES, World Gold Council

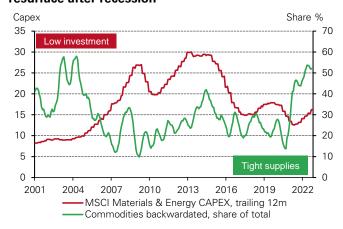
The S&P 500 price-to-earnings ratio is currently 18.8. Since 1969, the average during recessions has been 13.6, with the level of inflation playing its part. The expected inflation rate for H1 is 5.5%, associated with a P/E of c.16. While falling earnings could lead stocks lower, gold has typically done well in this environment.

Part of this performance boils down to gold's equity hedging credentials, correlating negatively as equities fall meaningfully.

Commodities: Caught in the crossfire

Despite a severely constrained supply outlook for many commodities (**Chart 9**), an economic slowdown is likely to dominate price action, at least in H1 as they get caught in the crossfire of housing and manufacturing weakness. As a result, gold - which is a sizeable component of the two main indices BCOM and S&P GSCI - could suffer due to its meaningful average correlation of 0.44 over the last 20 years.

Chart 9: Commodities supply constraints likely to resurface after recession*



*12m trailing Capital Expenditure (CAPEX) and the number of commodities (in BCOM Index) in backwardation (4th future less 1st future) as a share of total. Source: Bloomberg, World Gold Council

Risks to economic consensus

On balance, gold's return in the environment that consensus expects in 2023 is likely to be stable but positive, as it faces competing crosswinds from its drivers. But there are plenty of signals that the economy may not follow a well-telegraphed path.

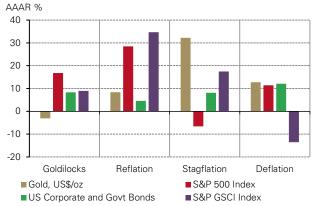
With the impact of the monetary shock still rippling through the global economy, any forecasts for 2023 are subject to more uncertainty than usual.

Severe recession/stagflation

In this scenario, inflationary pressures remain as geopolitical tensions spike. Hypervigilant central banks risk overtightening, given the lag of policy transmission in the economy. This results in a more severe economic fallout and <u>stagflationary conditions</u>, a theme we covered last year (**Chart 10**). The hit to both business confidence and profitability would lead to layoffs, driving unemployment materially higher (**Chart 11**). This would be a considerably tough scenario for equities with earnings hit hard and greater safe-haven demand for gold and the dollar.

Chart 10: Stagflation favours gold

Gold returns in four combinations of growth and inflation*



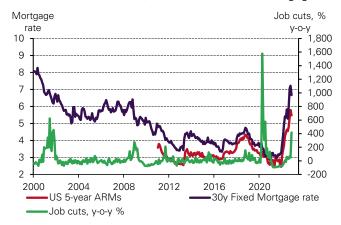
* As of Q2 2021. AAAR % - annualised average (stagflation) adjusted returns. Please see <u>Appendix A.2 for AAAR definition in the report.</u>
Source: Bloomberg, World Gold Council

Soft landing

Downside risks also exist for gold via a soft-landing scenario, where business confidence is restored and spending rebounds. Risk assets would likely benefit and bond yields remain high – a challenging environment for gold.

Chart 11: Employment and housing showing strains

Job cut announcements, US Fixed and ARM mortgages*



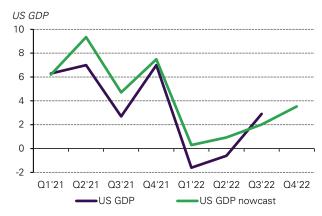
*Challenger job cut announcements, y-o-y %, US 30-year fixed mortgage rate and US 5-year adjustable-rate mortgage (ARM).

Source: Bloomberg, World Gold Council

Strength in income-driven consumer demand would be offset by weaker institutional investment. Some retail investment could abate on higher confidence, but lingering inflation would unlikely result in a material drop. The case for a soft landing hinges largely on hard economic data not yet confirming the case presented by soft economic data. In the US, non-farm payrolls growth has remained firm and there was a GDP uptick in Q3.6 The Atlanta Fed GDPnow indicator points to an even stronger Q4 2022 (Chart 12). While a soft-landing won't be great for gold, it is unlikely to be synonymous with a 'Goldilocks' environment until at least H2 (Chart 10), which we see as a remote risk.

Chart 12: GDP not confirming soft data malaise

US GPD QoQ SAAR and Atlanta Fed GDPnow forecast



Source: Bloomberg, World Gold Council

discrepancy between non-farm payrolls, data reported by companies and employment figures as reported by households, which is noticeably weaker.

⁶ Latest non-farm payrolls of 263k jobs added (2 December 2022) does not tally with a recession in Q1 and Q2 of 2023. However, there is also a

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