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Gold: A Millennial Store-of-Value in a Modern Risk-Off Landscape

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Executive Summary

Gold's durability, scarcity, divisibility and universal acceptance have made it a **timeless store of value** and medium of exchange across civilizations. From the first Lydian coinage circa 560 BC to today's electronic ETFs, the metal has repeatedly transitioned from a **monetary anchor to a defensive asset**. A confluence of persistent inflationary pressures, a low-yield environment, heightened geopolitical uncertainty, a weakening U.S. fiscal position, a reignited central-bank buying, expanded ETF inflows and lifted physical demand in key jewelry markets, along with an accelerating de-dollarization trend continues to underpin a **bullish bias for gold** through 2026, while recognizing that short-term volatility will be amplified by real-interest-rate swings, U.S. dollar dynamics and episodic demand shocks.

Gold's unique combination of physical scarcity, universal acceptance and a multi-decade record as a crisis-insurance asset justifies a modest (5-10 %) allocation along with a blend of liquid ETFs and a small physical component in multi-asset portfolios, offering a **low-correlation hedge** that aligns with the risk-adjusted return objectives. While price volatility remains, the underlying supply-demand balance, the entrenched role of sovereign gold reserves and the expanding digital-gold ecosystem together create a floor price and a long-run upside bias.

Central Banks Globally Collectively Hold ~35,000 Tons of Gold

~35K

~6kT

Annual Global Gold Mine Output, +6% Y/Y

Demand Composition Led by Jewelry at 46%

46%

552T

Investment Demand Surged in Q1, +170% Y/Y

Ancient Legacy and the Formation of a Global Liquidity Tool

1

Gold's durability, malleability and scarcity underpin its millennial role as a reliable store of value and medium of exchange. We note that the first standardized gold coins were minted by the Lydians circa 560 BC, fixing weight and purity and thereby facilitating trade across early economies. Ancient civilizations—including Egypt, Mesopotamia, Greece and Rome—used gold for currency, tribute and to finance military campaigns, embedding it in fiscal systems and establishing early global liquidity networks. The Roman expansion drove large-scale mining across Europe and North Africa, creating a long-run supply base that would later feed the 19th-century gold standard.

The 16th-century influx of New World gold triggered global inflation, spurred the rise of European financial hubs such as Antwerp and Amsterdam, and accelerated the shift toward modern capitalism. The 19th-century gold standard linked sovereign currencies to a fixed gold price, providing monetary stability, reducing currency risk and driving unprecedented trade expansion between 1820 and 1930. However, the rigidity of the gold standard also constrained policy flexibility during the Great Depression and World War II, prompting a post-war abandonment of convertibility and a transition to fiat money. The 1971 "Nixon Shock" decoupled gold from direct currency convertibility, converting it into a pure commodity while preserving its safe-haven perception.

THE MODERN SAFE-HAVEN FRAMEWORK

In the contemporary era, gold functions as a safe-haven asset, inflation hedge and portfolio diversifier. We believe that demand is driven by three inter-related pillars: geopolitical risk, central-bank buying and real-interest-rate dynamics. Historical price spikes align with crises—1980 (inflation and geopolitical tension), the 2008 financial crisis, the COVID-19 pandemic and the 2024 post-pandemic uncertainty—highlighting gold's role as a crisis-insurance asset. Physical markets (bullion, coins, jewelry) and financial instruments (ETFs, futures, digital tokens) offer investors multiple exposure channels, while the long-term price support is underpinned by historical supply shocks (discoveries, mining constraints) and limited incremental production.

We note that central banks collectively hold more than 35,000 tons of gold, reinforcing its status as a global reserve asset and signaling continued institutional demand. The metal's universal acceptance and zero counter-party risk make it a core "safe-haven" in periods of equity and sovereign-bond stress, with low or negative correlation (-0.2 to -0.4) observed during crises. Real-interest-rate differentials remain

the primary driver: positive real rates increase the opportunity cost of holding a non-yielding asset, while negative real rates boost gold's appeal. The U.S. dollar's strength adds a secondary layer; a stronger dollar makes gold more expensive for non-USD investors, dampening demand, whereas dollar weakness lifts price.

Figure 01: Global Gold Reserves in Q2 2025 (Tons)

Country	Economic grouping	FX Reserves ($M)	Gold Reserves (Tons)	Gold Reserves ($M)	Holdings %
U.S.A.	High income	244,638.09	8,133.46	859,664.65	77.85
Germany	High income	102,813.34	3,350.25	354,104.39	77.5
Italy	High income	89,951.24	2,451.84	259,146.40	74.23
France	High income	86,041.69	2,437.00	257,578.28	74.96
China	Upper middle income	3,384,637.82	2,298.53	242,942.56	6.7
India	Lower middle income	618,280.00	879.98	93,009.31	13.08
Japan	High income	1,224,366.53	845.97	89,414.96	6.81
Turkey	Upper middle income	66,799.74	634.76	67,090.34	50.11
Netherlands	High income	30,364.99	612.45	64,733.18	68.07
Poland	High income	193,222.47	515.47	54,482.83	22

Source: Gold Reserves by Country, World Gold Council. Accessed on 10/31.

SUPPLY-SIDE ARCHETYPES AND CONSTRAINTS

Gold's scarcity is quantified by an annual new-mine output of roughly 3,000 t (≈ 6 kt in 2024, a 6 % YoY increase) against an above-ground stock of approximately 212 kt (≈ $13 tn). We note that mining accounts for 70-75 % of annual supply, recycling contributes 20-25 % and central-bank sales 5-10 %. Extraction costs (All-in Sustaining Cost) have risen as ore grades decline, rendering primary mine output relatively inelastic in the short term. Geopolitical and regulatory risk in key jurisdictions (South Africa, Peru, Ghana, Australia) can cause production disruptions, adding a supply-side upside to price outlook.

Technological advances—automation, AI-driven ore-grade prediction, bioleaching and electrolytic refining—aim to lower AISC, yet diminishing easy-to-access ore and stricter ESG standards limit upside in supply growth. No new U.S. mines have opened since 2002, and greenfield capex cycles remain muted despite profitable miners de-bottlenecking existing assets. Consequently, major new discoveries are rare and mining expansion is capital-intensive, suggesting limited upside to supply shocks.

Recycling has become an increasingly price-elastic buffer. In 2024, recycled gold held steady at 344 t (+6 % YoY) while mine output rose 2 % YoY to 977 t. The global scrap gold recycling market, valued at several hundred billion dollars, is projected to expand at a compound annual growth rate of roughly 6-8 % through 2029, driven by rising gold prices, ESG pressure on primary mining and expanding

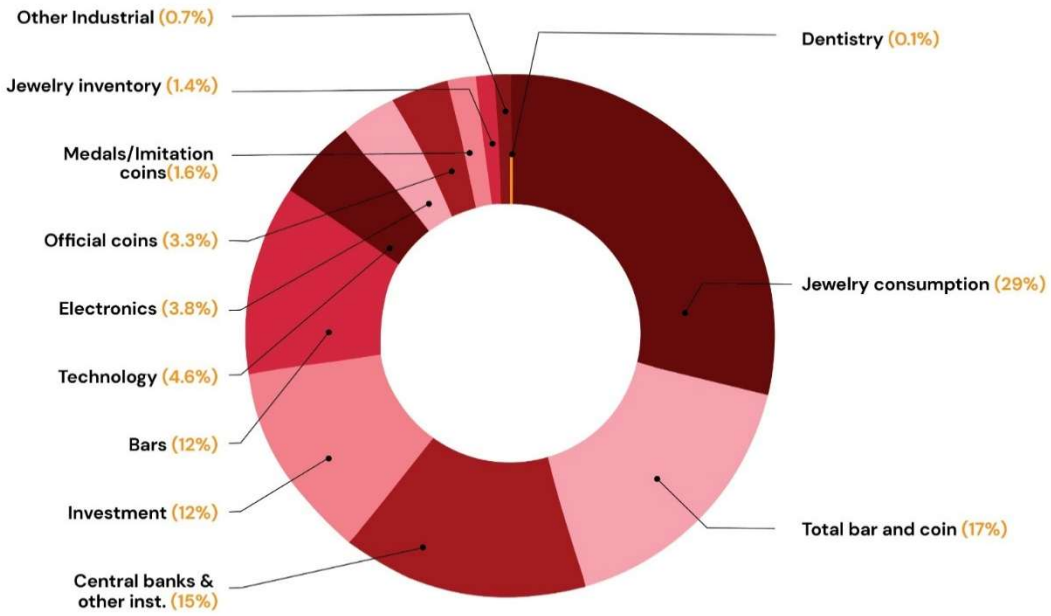
electronic-waste volumes. Asia-Pacific dominates with ~55 % of 2024 volume, led by China (≈ 30 % share) and India (≈ 12 %). Emerging opportunities include battery-grade gold recovery from EV batteries and catalyst recycling from automotive exhaust systems.

DEMAND DYNAMICS: JEWELRY, INDUSTRY, AND INVESTMENTS

Gold demand composition is roughly 46 % jewelry (India and China dominate), 23 % central-bank reserves, 16 % bars, 9 % coins and 5 % industrial applications. We note that cultural demand from India and China provides a robust, demand-elastic component, while industrial demand—electronics, dentistry, aerospace and emerging renewable-energy technologies—adds a non-speculative floor. In 2024, technology demand slipped slightly YoY (-2 % to 82 t) as AI-driven demand was offset by tariff pressures, whereas jewelry consumption fell double-digit YoY for the sixth consecutive quarter, yet value rose 13 % YoY due to record prices.

Investment demand has surged: global gold ETF assets under management reached ≈ 3,445 t, with SPDR Gold Shares alone holding 933.1 t. In Q3 2024, investor holdings (bars, coins, ETFs, non-commercial futures) rose 3 % YoY to 49,400 t, with notional value up 31 % YoY to $4.2 tn, reaching $5 tn by Q4 2024. ETFs added 222 t in Q3 2024, and inflows surged 134 % YoY to 221.7 t, highlighting a shift toward passive exposure. Younger investors now allocate ≈ 20 % of their portfolios to gold via fractional ownership platforms, expanding the retail demand base.

Figure 02: Who Buys Gold?



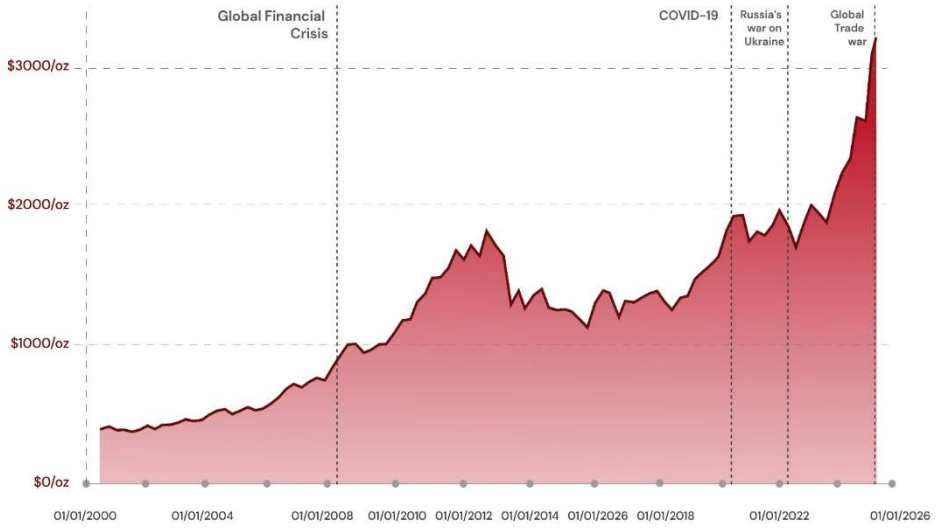
Source: Investopedia/Peter Gratton. Data is collated from the quarterly reports by the World Gold Council for the period 2023-24. ETFs are not included.

CENTRAL-BANK BEHAVIOR AND DE-DOLLARISATION

Central banks hold ~20 % of all gold ever mined, reinforcing their role as a demand driver. The United States, Germany, Italy, France and China together account for roughly half of total central-bank gold (≈ 16,400 kt). Since April 2025, foreign central banks have sold roughly $183 bn of U.S. Treasuries, reallocating proceeds into gold. Global central-bank gold holdings have risen to ~ $4.5 tn, overtaking Treasury holdings for the first time in three decades. The shift reflects heightened concerns over the U.S. fiscal deficit (> $2.1 tn), total debt (> $35 tn, debt-to-GDP > 120 %), and the growing use of financial sanctions as a geopolitical tool.

Emerging-market central banks have accelerated gold buying, with net purchases averaging ~900 kt in 2025 and projected to stay near 1,000 kt annually for three consecutive years. The World Gold Council reports that 95 % of central banks anticipate higher gold holdings in the next 12 months, and 43 % plan to raise their own holdings—the strongest intent since 2018. These trends are consistent with a broader de-dollarization narrative: the dollar's share of global foreign-exchange reserves has slipped to roughly 46 % (its lowest level in > 30 years), while gold's share of official reserves has risen.

Figure 03: Gold Prices Spike During Geopolitical Uncertainty



Source: Bloomberg LLP. Atlantic Council. Prices shown are quarterly gold spot prices.

GEOPOLITICAL RISK PREMIUM AND SANCTIONS

Geopolitical shocks—conflicts, sanctions, trade wars—drive a measurable "geopolitical risk premium" that lifts gold above macro-fundamental levels. Empirical regressions show a statistically significant positive beta of gold returns to geopolitical-risk indexes, delivering risk-adjusted alphas of 1-3 % annually over the

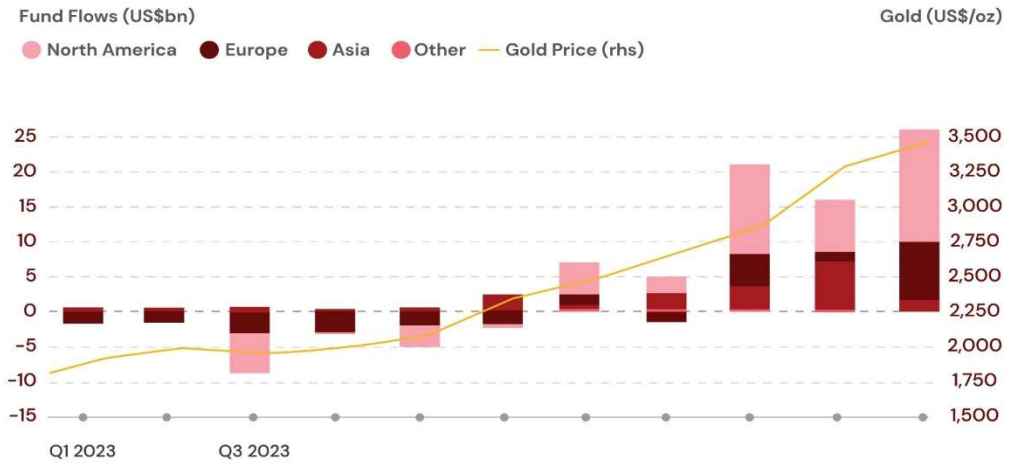
past decade. Historical spikes include +25 % during the 2008 GFC, +15 % in the 2014 Ukraine crisis, +30 % at the COVID-19 onset and a +10-20 % uplift projected for 2025 linked to ongoing trade tensions and localized conflicts.

Sanctions amplify this premium by generating dual-sided price pressure: they depress supply through disrupted mining, refining and export logistics in targeted jurisdictions, while simultaneously fueling demand as sanctioned states turn to gold as a hard-currency hedge. Case studies—Venezuela's gold-for-imports, Iran's gold-for-oil swaps, and Russia's continued gold-backed financing—demonstrate how gold serves as a "financial lifeline" that bypasses conventional banking channels.

MACRO-FUNDAMENTAL DRIVERS: INFLATION, REAL YIELDS, AND THE DOLLAR

Real-interest-rate dynamics remain the primary lever for gold pricing. Positive real rates increase the opportunity cost of holding a non-yielding asset, exerting downward pressure, while negative real rates boost gold's appeal as a wealth-preservation tool. We note that the metal's inflation-hedge narrative is strongest over long horizons and during cost-push or stagflationary episodes. The metal's price correlation with macro-risk spikes is pronounced: during periods of rising inflation expectations, gold typically outperforms cash and fixed-income assets.

Figure 04: Quarterly Gold ETF Flows by Region – Dollar Basis



Source: World Gold Council. Data as of 10/24. Accessed 10/31.

U.S. fiscal trajectory—deficits surpassing $2.1 tn, debt exceeding $35 tn, and annual interest outlays > $1 tn—raises the risk of a sovereign-default scenario that would erode confidence in Treasury securities. A weakening dollar, driven by relative interest-rate differentials and sustained fiscal strain, further supports gold demand as a non-currency store of value. Conversely, a rapid dollar appreciation or a decisive shift to alternative safe-haven assets (e.g., crypto) could dampen demand.

Market Structure, Instruments, and Liquidity

2

Physical gold (bars, coins, jewelry) offers the lowest counter-party risk but entails storage, insurance and liquidity costs. Gold-backed ETFs (e.g., iShares Gold Trust, SPDR Gold Shares) provide liquid exposure with low expense ratios and have become the dominant vehicle for institutional and retail investors. Futures and options on COMEX add depth for speculative positioning; non-commercial long positions reached record highs in 2024, indicating strong bullish sentiment. Digital gold platforms and tokenized reserves have lowered entry barriers, allowing fractional ownership and seamless integration with 401(k) and IRA structures.

We note that the "gold-silver ratio" and cross-commodity arbitrage remain important technical signals for short-term positioning, while the gold-to-silver premium reflects relative scarcity (≈ 244 kt of gold vs. 1.74 M kt of silver). Compared with platinum, gold benefits from a broader investor base, central-bank demand and a stronger store-of-value narrative, whereas platinum's price has underperformed over the past five years and lacks reserve-asset status.

RECENT RALLY, YTD PERFORMANCE AND VOLATILITY (2024-2025)

Gold rallied ≈ 30 % YTD in 2024, peaking at $3,500/oz in April, outpacing JP Morgan's prior forecasts. The rally was driven by heightened recession odds, persistent trade-tension risk, and a broader geopolitical uncertainty premium. In 2025, the metal reached a new all-time high of > $4,000/oz on Oct 10 before retreating 6 % on Oct 21—the largest single-day loss in 12 years—leaving YTD gains of ≈ 50 % and positioning gold as one of the year's top-performing assets.

ETF inflows accelerated: $26 bn entered gold ETFs in Q3 2025, pushing assets under management to $472 bn, a record level. Central-bank net purchases added 244 t in Q1 2025, while investor holdings rose 3 % YoY to 49,400 t. Jewelry demand weakened (-19 % YoY in Q2 2025, the weakest since Q3 2020), yet value rose 13 % YoY as record prices compressed volumes. Technology demand slipped marginally, while recycling remained stable, providing a modest supply-side buffer.

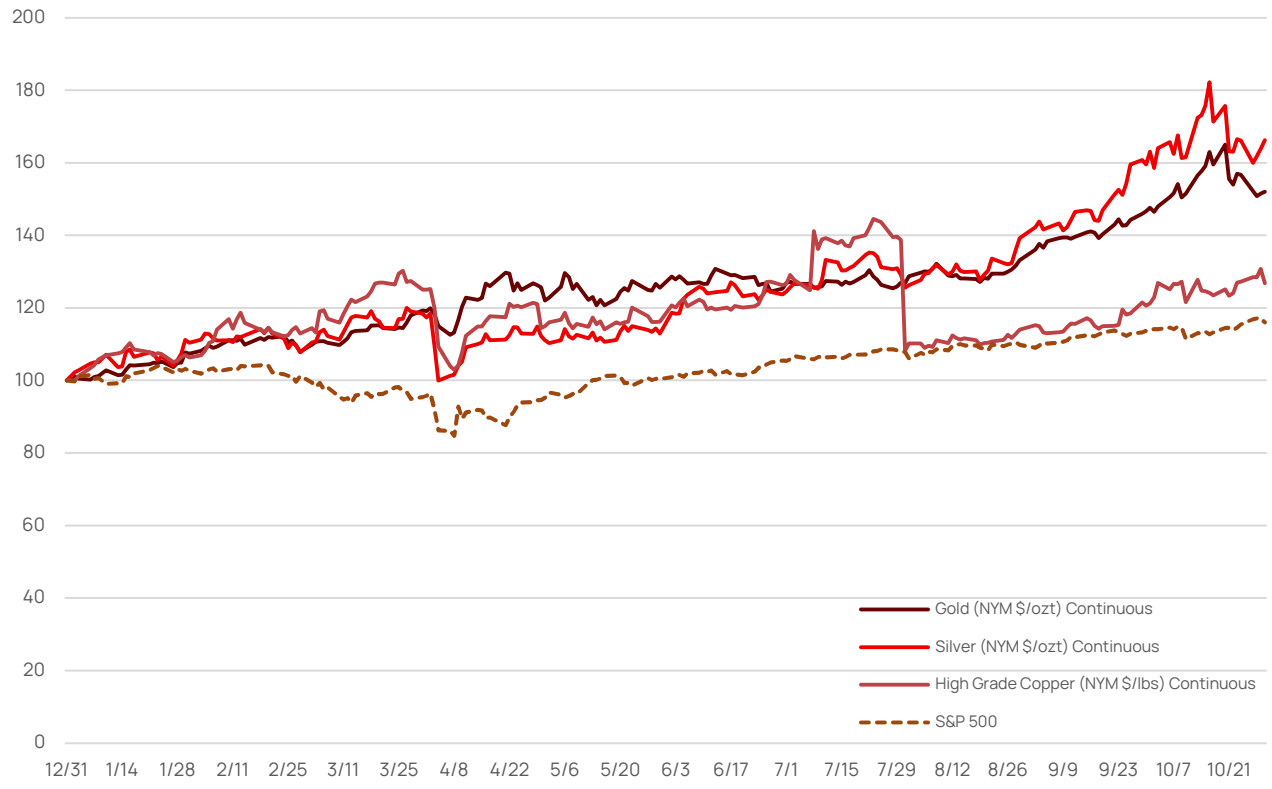
We believe that the recent dip reflects a short-term correction driven by a temporary dollar strength and profit-taking after the rally, rather than a fundamental shift in the underlying macro thesis. The metal's low-correlation hedge, combined with continued central-bank accumulation and a still-elevated geopolitical risk premium, suggests that downside risk is limited.

REGULATORY, TRADE AND POLICY CONTEXT

Tariff escalations have repeatedly injected short-term price spikes. Historical case studies—U.S. tariffs on Japanese luxury cars (1995), steel (2002), Chinese solar panels (2012) and EU steel/aluminum (2018)—show gold's price rising $20-$100/oz in the immediate aftermath, though long-term trajectories revert toward pre-tariff levels. In 2025, the U.S. imposed a 10 % blanket tariff on all imports, pushing gold prices to a record $3,000/oz, while India raised import duties from 10 % to 15 % in early 2024 to curb a 95 % import surge. These policy moves underscore the metal's sensitivity to trade-policy uncertainty.

In India, the gold-refining sector expanded rapidly from 300 t in 2013 to 1,800 t in 2021, driven by a custom-duty differential that favored doré imports. GST implementation in 2017 eliminated the extra advantage, slowing capacity additions and prompting consolidation. The Gold Monetization Scheme and IGDS standards now enable domestic banks to lend against and settle with 99.5 % purity bars, reducing reliance on imported doré and improving price discovery. Organized scrap collection remains limited (~20 % of total scrap), but policy levers—including doré import licensing, duty refunds on exported bullion and joint-venture incentives—could further stabilize the domestic refining hub.

Figure 05: Gold's YTD Rally vs. Markets, Silver Slightly Outshined Gold



Source: World Gold Council. Data as of 10/24. Accessed 10/31.

Long-term Price Outlook & Valuation Framework

3

Consensus forecasts anticipate gold to dip modestly from the current ≈ $3,300/oz level but remain near $3,000/oz through 2029, supported by geopolitical risk, Asian jewelry demand and sustained central-bank buying. Scenario analysis highlights four interaction regimes:

1. **Stagflation (high inflation, weak growth, negative real rates)** – Historically the most bullish environment; we expect price appreciation toward $4,000-$4,400/oz by 2026.
2. **High inflation + rapid rate hikes (positive real rates)** – Real-rate uplift may offset inflationary support, tempering upside.
3. **Deflation with ultra-low rates** – Safe-haven demand may dominate, but limited inflation-hedge need could cap gains.
4. **Stable growth, moderate inflation, normalized positive real rates** – Headwinds for gold as investors shift to risk assets; price could retreat toward $2,700-$2,800/oz.

We note that the metal's intrinsic scarcity (≈ 3,000 t/yr new output, total above-ground stock fitting in a 21 m^3 cube) and cultural cachet create a floor price resilience. Supply-side constraints—limited new discoveries, high extraction costs, ESG-driven permitting bottlenecks—support a secular upward bias. However, price volatility will continue to be driven by real-interest-rate movements, USD strength, and episodic demand shocks from geopolitical events or tariff announcements.

INVESTMENT RECOMMENDATION AND IMPLEMENTATION

Given the macro backdrop—persistent inflation expectations, low-yield environments, heightened geopolitical uncertainty, and accelerating central-bank gold accumulation—we recommend maintaining a modest, flexible allocation of 5-10 % of total assets to gold. We believe a core position in highly liquid ETFs (e.g., SPDR Gold Shares, iShares Gold Trust) provides efficient exposure with minimal storage costs, while a small physical bullion component (≈ 1-2 % of the allocation) adds balance-sheet resilience and satisfies clients seeking "hard-asset" protection.

Investors should monitor the following leading indicators to time incremental exposure:

- Real-interest-rate spread (U.S. Treasury yields minus inflation expectations) – negative spreads favor gold.
- Geopolitical-risk indexes (Bloomberg GPR, ICR) – upward trends signal premium expansion.
- Central-bank net purchases – quarterly net additions > 70 kt indicate strong institutional demand.
- U.S. Dollar Index – sustained depreciation supports price.
- U.S. Treasury yield curve – steepening spreads may increase the opportunity cost of holding gold.

Risk considerations include potential rapid USD appreciation, a decisive shift to alternative safe-haven assets, or a sharp rally in real yields that could compress the gold premium. Portfolio managers should retain flexibility to scale exposure down in the event of a sustained dollar rally or a decisive Fed rate-cut cycle that restores positive real yields.

CONCLUSION – GOLD'S ENDURING ROLE IN A MULTIPOLAR WORLD

Gold's durability, scarcity and universal acceptance have enabled it to survive and adapt across millennia—from Lydian coinage to modern digital tokens. The metal's unique combination of a non-correlated return profile, a crisis-insurance narrative and a central-bank reserve function positions it as a cornerstone of diversified portfolios in an era of fiscal strain, de-dollarization and geopolitical fragmentation. While short-term volatility will persist—driven by real-rate swings, dollar dynamics and episodic demand shocks—the long-run supply-demand fundamentals, coupled with expanding institutional demand, support a bullish outlook through 2026 and beyond.

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