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Tokenizing Precious Metals

An overview of the tokenized precious metals sector, including a deep-dive analysis of live products issued by Tether, Paxos, WisdomTree Prime, and HSBC.

View the metrics behind the report at <https://app.rwa.xyz>

This report is sponsored by the WisdomTree Digital Trust Company.

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Introduction

For centuries, precious metals have been utilized to conduct trade and store value. Most notably, gold and gold-backed monies have been pivotal in establishing transcontinental markets and overcoming the inefficiencies of barter-based economies. Over time, gold has become a symbol of enduring value, resilient to the inflationary pressures of fiat currencies, cultural shifts in consumer preferences, and even the political instability of rising and falling empires.

The evolution of gold as an asset is frequently referenced and reflected upon within the cryptocurrency industry. Gold inspired early crypto pundits to create an entirely new, digital asset class, that was valuable, scarce, and resilient. Gold's influence can be found within the mechanism design of Nick Szabo's 1998 "[Bit Gold](#)." It is also evident in the [2008 Bitcoin Whitepaper](#), in which Satoshi makes direct analogies to "gold miners" and the decentralized supply of gold.

More than 15 years after the Bitcoin whitepaper was published, crypto market participants continue to tout Bitcoin as "digital gold." This metaphor is perpetuated not only by venture capital firms, like [Framework Ventures](#) but also by traditional financial institutions, like [Deutsche Bank](#).

In some sense, the supply-side value drivers of gold appear to be present within Bitcoin:

Figure 1: Similar Fundamental Value Drivers of Gold & Bitcoin

Similarities	Gold	Bitcoin
Limited Supply	<p>The total amount of gold on Earth is limited by the quantity that was incorporated during the planet's formation.</p> <p>All the gold on Earth originated from the remnants of dead stars, dispersed through supernovas. According to a 2016 estimate by the United States Geological Survey (USGS), approximately 244,000 tons of gold have been discovered since the dawn of civilization. Additionally, about 1 million tons of gold is estimated to lie within the top kilometer of the Earth's surface.</p>	<p>The maximum total supply of Bitcoin is capped at an upper bound of 21M BTC.</p> <p>This cap is enforced by Bitcoin's consensus rules, which are upheld by every node on the network. Specifically, these rules dictate how new Bitcoins are issued to mining nodes through block rewards. The block reward is halved approximately every four years or every 210,000 blocks. In the long run, due to this halving mechanism, the total supply of BTC will asymptotically approach 21M.</p>
Predictable, Decentralized, Supply Dynamics	<p>No legal or natural entity can inflate the supply of natural gold.</p> <p>Gold is naturally occurring. The physical gold market may be affected by new gold discoveries. However, over the past two decades, discoveries of large deposits are becoming increasingly rare. The increasing prevalence of synthetic, or faux gold, may also affect the market. For this reason, there exist systematic and largely implemented processes to help gold dealers distinguish faux gold from naturally occurring gold (e.g. LBMA Good Delivery Accreditation).</p>	<p>Bitcoin's monetary policy and the maximum supply of BTC cannot be altered without majority consensus.</p> <p>The Bitcoin protocol employs a predictable, transparent, and programmed emission schedule enforced by a decentralized set of nodes. The only way that Bitcoin's monetary policy can be altered is if a majority of the nodes on the network agree to alter its monetary policy.¹</p>

¹ One can imagine a scenario where a singular entity attempts to alter the protocol's monetary policy by gaining control of the majority of the network (specifically the [hashrate](#)). According to [CoinMetrics](#), "51% attack" on Bitcoin would require an actor to purchase a staggering 7M ASIC mining rigs, which would cost somewhere around the \$20B mark. Further, for this attack to be successful in the long run, it would also require end-users to support and perceive the now-altered ("forked") chain as viable.

<p>Scarcity</p>	<p>The geological limits of naturally occurring gold contribute to a market perception of scarcity.</p> <p>Gold is difficult to mine, requiring significant effort and costs. Further, gold's availability is finite and declining as discoveries are made.</p>	<p>The algorithmic limit of BTC leads to a market perception that it is scarce.</p> <p>Successful Bitcoin mining requires hardware investments and operational expertise. Further, the total supply of \$BTC is capped and declining based on its programmed emission schedule.</p>
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Source: RWA.xyz

However, beyond similarities in supply-side dynamics, it's important to recognize that gold and Bitcoin are distinct in both their use cases and market behavior.

Figure 2: Use Case Distinctions Between Gold & Bitcoin

Distinctions	Gold	Bitcoin
<p>Portability and Transfer Velocity</p>	<p>The portability and velocity of gold is limited by its physical nature.</p> <p>Gold is heavy to transport, especially in large quantities. Certain financial products or contracts such as gold ETFs or futures remove the friction that comes with gold transport and custody. However, as highlighted below, accessibility to these financial contracts is not always feasible.</p>	<p>Bitcoin is significantly more portable and can be transferred with relatively lower cost and operational barriers.</p> <p>Bitcoin is digital and can be easily transferred anywhere in the world within minutes, requiring only an internet connection. Scaling solutions, such as the <u>Lightning Network</u>, serve to further enhance the speed and lower the costs with BTC transfers.</p>
<p>Divisibility</p>	<p>Gold is physically divisible, but the process is often costly and impractical for small denominations.</p> <p>One-gram gold bars are typically the smallest sized bars (.032 troy oz) that an investor can purchase.</p>	<p>Bitcoin is highly and arbitrarily divisible.</p> <p>The smallest standard denomination of BTC is the satoshi (1 satoshi = 0.00000001 BTC). However, BTC can be divided into even smaller, arbitrary amounts on the Lightning Network. Bitcoin's divisibility makes it feasible to handle small and precise transactions.</p>

<p>Accessibility</p>	<p>Purchasing gold is comparatively restrictive and can present difficulties for investors who lack delivery or brokerage capabilities.</p> <p>Purchasing physical gold entails significant delivery and operational overhead. Investors must plan how to store the asset, how to deliver and custody the asset, and how to ensure the secure delivery of the asset. Alternatively, purchasing gold-based financial contracts requires access to brokers, dealers, or banks. This assumes the investor has access to viable investment infrastructure, has undergone KYC processes, and can pay intermediary fees (e.g. custody, margin). Further, most gold-based financial markets are restricted to specific times and days in which the market is open for trading.</p>	<p>Bitcoin can be purchased and stored with fewer restrictions.</p> <p>Bitcoin exposure can be purchased off of a centralized or decentralized exchange. Decentralized exchanges are disintermediated, and thus entail lower barriers to entry. Bitcoin can be purchased at any time, considering that markets for Bitcoin are 24/7. Once the Bitcoin is purchased, it can be self-custodied or by a custodian (e.g. cryptocurrency exchange). Self-custodial wallets allow investors to store their assets in a digital wallet. Self-custodial Bitcoin wallets typically do not require any fees or KYC processes.</p>
<p>Fungibility</p>	<p>Gold fungibility can be more obviously distorted by impurities, physical markings, and composition.</p> <p>In the gold market, most bars need to meet a certain threshold of fineness to be considered interchangeable.² This implies that there is imperfect fungibility of gold.</p>	<p>Bitcoins are perceived by market participants as perfectly fungible.</p> <p>Market participants typically exchange Bitcoins for one another without any regard for their fungibility.³</p>
<p>Physicality</p>	<p>Gold maintains a unique value proposition as a physical asset.</p> <p>For centuries, gold has acted as a social symbol, incorporated into jewelry and other physical items. Gold is also utilized to a lesser extent in the electronics industry (as a conductor), the aerospace industry (as radiation reflected), and within dentistry (for fillings).</p>	<p>Bitcoin's value proposition is completely digital.</p> <p>Bitcoin cannot be incorporated into tangible goods, making it easier to transfer compared to physical items containing gold.</p>

Source: [RWA.xyz](https://www.rwa.xyz)

² For example, the minimum acceptable fineness by [London Bullion Market Association \(LBMA\)](https://www.lbma.org.uk) is 995.0 parts per thousand fine gold.

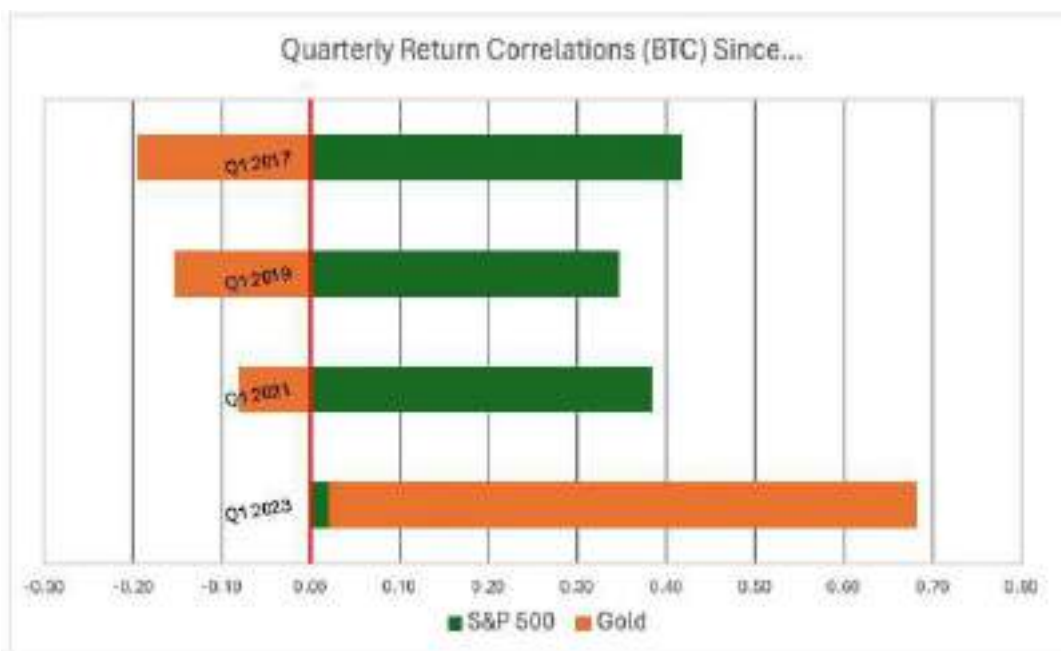
³ Theoretically, a Bitcoin may be considered non-fungible based on that Bitcoin's transaction history (which can be traced on a block explorer). However, practically, this is typically non-impactful.

These distinctions in usage become increasingly evident when comparing the market behaviors of each asset.

For instance, historical data shows that while gold has served as a reliable inflation hedge⁴, Bitcoin has not. Since 2006, gold has maintained a 23.93% correlation with year-over-year (YoY) CPI⁵, which implies some level of counterbalancing exposure during periods of inflation. In contrast, since 2015, Bitcoin has maintained only a 7.77% positive correlation with YoY CPI, implying a more-neutral response during periods of inflation.

Further, when analyzing quarterly correlations, Bitcoin has been historically more correlated with speculative, inflation-sensitive assets like the S&P 500 than with gold itself.

Figure 3: Quarterly Return Correlation Between Bitcoin & Gold vs. Bitcoin & S&P 500



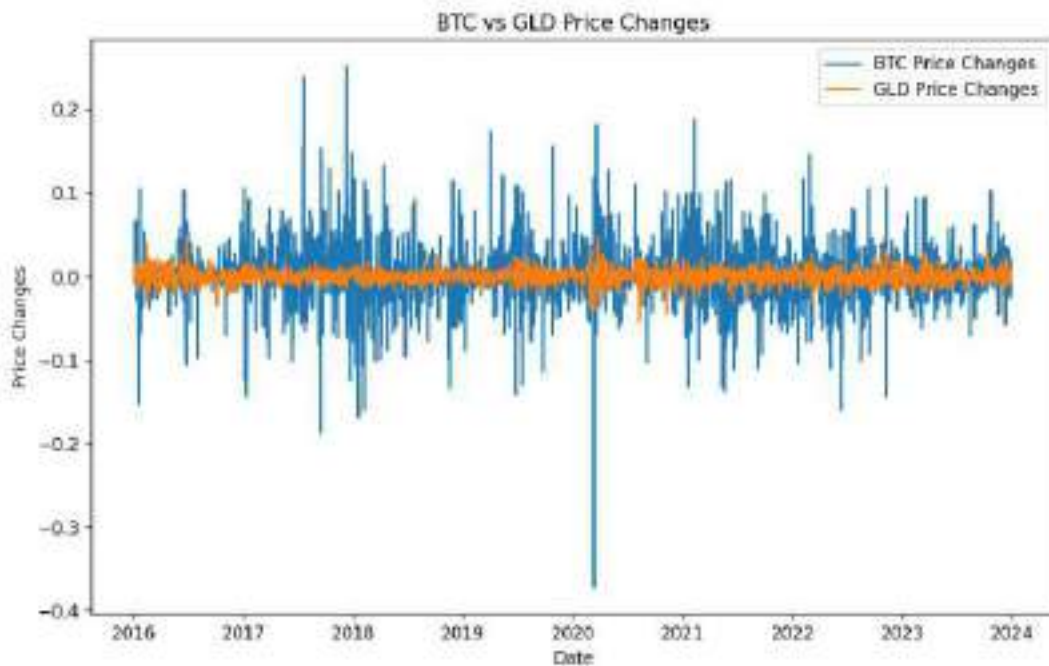
Source: Grayson Alto

⁴ Many consider gold to be ultimate “inflationary hedge,” primarily due to the reasons highlighted in Figure 1. An inflation hedge is an investment expected to maintain or increase its value over time, thereby protecting the investor's purchasing power against eroding effects of inflation.

⁵ Measured by the YoY, all Urban Consumers, all items, consumer price index (CPI) reported by the U.S. Bureau of Labor Statistics.

Historical data also shows that Bitcoin is significantly more volatile than gold. This is likely a reflection of (1) the lower relative liquidity within the Bitcoin market⁶ and (2) the relative immaturity of cryptocurrency as an asset class.

Figure 4: Daily Price Changes of Bitcoin vs. GLD



Source: RWA.xyz, Yahoo Finance

We juxtapose the market behaviors of gold and Bitcoin, not to make a normative statement on which asset is better or worse, but rather, to highlight how the two assets are fundamentally different. Prevailing narratives that call Bitcoin “digital gold” overlook the unique qualities of each asset. Investing into gold is exposure to gold’s longstanding use case as a status symbol, inflation-hedge, and store of value. Investing into Bitcoin is exposure to a new technology, characterized by decentralized consensus, near-instant settlement, and arbitrary, programmable transactions.⁷

⁶ Gold markets are among the most liquid in the world. The average daily volume for gold-based financial contracts is around \$160B per day, whereas the average daily volume for the Bitcoin market is around \$50B per day.

⁷ The idiosyncratic exposure that each asset provides is valuable and can be combined to create a more diversified, balanced portfolio. In this way, Bitcoin is not “digital gold,” Bitcoin is Bitcoin.

In the remainder of this report, we break down the tokenized precious metals market. We begin by demonstrating how tokenization introduces new efficiencies for precious metals. Then, we examine the current market size and highlight notable products. Finally, we provide insights into the potential future developments of the market.

Why Tokenize Precious Metals?

#1 Tokenization of precious metals enables a return to hard money

Over the course of centuries, gold rose and fell as a form of money.⁸

Ancient civilizations, such as the Mesopotamians, initially traded gold in the form of ingots, jewelry, and ornaments. Although these items held intrinsic value, their unique and non-fungible required a double coincidence of wants for trade to occur.

Gold coins (or "commodity money") served to overcome this inefficiency. Gold coins were standardized, more fungible, and acted as a more efficient medium of exchange than ingots, jewelry, or ornaments. The earliest record of gold coins dates back to 600 BC in Lydia (modern-day Turkey).

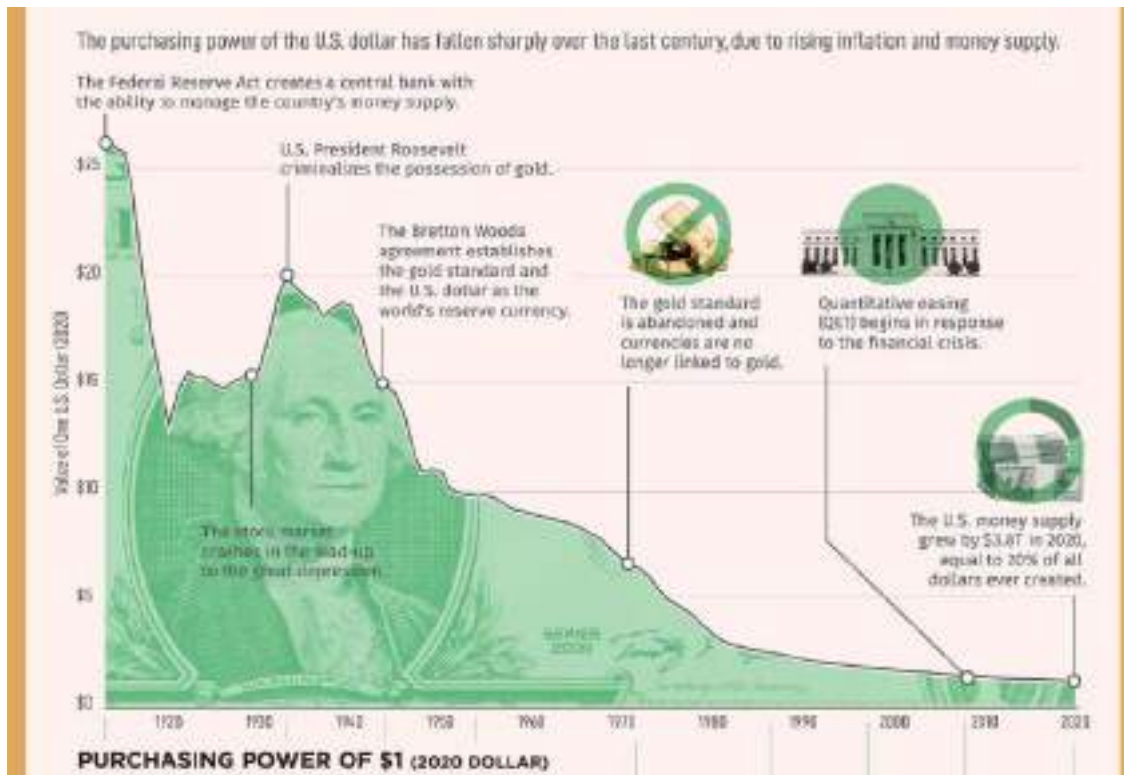
By the 19th century, gold coins were replaced by paper receipts, which offered a claim on physical gold stored by a custodian. This so-called "representative money" addressed the practical difficulties of carrying and transacting with large amounts of gold coins. Moreover, unlike gold coins, which could vary in purity weight, representative money was standardized by the custodian, who ensured consistent value between gold receipts and gold stored in the vault.

It should be recognized that there is one major caveat to representative money: it relies on the custodian's ability to properly manage the gold. Consequently, holders of representative money are always exposed to some degree of counterparty risk.

⁸ Money is an asset defined by three functions – medium-of-exchange, store-of-value, and unit-of-account.

The suspension of Bretton Woods in 1971 is perhaps the most notable example of such risk. Before 1971, most major nations relied on money backed by U.S. gold reserves. In 1971, facing rising inflation, currency devaluation, and a subsequent run on U.S. gold reserves, President Nixon decided to suspend the Bretton Woods system, essentially prohibiting foreign nations from exchanging their U.S. dollar holdings for gold reserves. Consequently, the U.S. dollar faced significant devaluation relative to other currencies, such as the British pound, and even more so relative to gold. Foreign nations who held U.S. dollar reserves were left "holding the bag" of a rapidly devalued U.S. dollar.

Figure 5: Gold Convertibility and Its Role in Influencing the Purchasing Power of Representative Money



Source: Visual Capitalist, Bureau of Labor Statistics, CPI Data

Post Bretton Woods, major economies have transitioned away from hard money to fiat money. Fiat money, unlike representative money, does not incorporate a claim against real assets (such as gold). Instead, the supply of fiat currency is arbitrarily manipulated based on the monetary goals of the central bank.

Figure 6: History of Gold As Money



Source: RWA.xyz

Within the recent past, there has been a plethora of cases (e.g. Turkey, Venezuela, Argentina, Zimbabwe) that have demonstrated how miscalculated monetary policy can lead to hyperinflation and currency devaluation. In many major economies, small amounts of inflation over time, exacerbated by recent spikes, have compounded and eroded the purchasing power of many major currencies. This reality has driven people across the globe to seek alternative stores of value beyond the fiat system.

Until this point, Bitcoin has been touted as a potential answer to these desires. However, as shown in the previous section, it does not necessarily embody the same exposure and characteristics as traditional stores of value.

Tokenized precious metals can alternatively fill this gap, and allow investors to return to hard money.

Tokenized precious metals are simply a modern form of representative money. Similar to their historical counterparts, they provide a practical way to store value backed by real assets. Tokenized precious metals also similarly entail counterparty risk and are exposed to the operational/custodial practices of the token issuer.

In contrast to historical forms of representative money, tokenized precious metals can uniquely benefit from idiosyncratic efficiencies unlocked by blockchain technology. These efficiencies are discussed next.

#2 Tokenization of precious metals unlocks efficiencies that are absent from traditional gold markets

The emergence of Bitcoin and blockchain technology has unlocked new efficiencies that were previously unattainable, not just for gold, but for money in general.

From a technical perspective, a single, distributed, transparent, and programmable ledger enables more seamless data transmission as compared to traditional systems, which tend to be siloed, analog, and reliant on intermediaries. In practice, blockchain networks offer greater accessibility, lower costs/investment thresholds, and quicker settlement times.

Figure 7: Tether’s Pitch on the Unique Transactional Utility/ Efficiencies of Blockchain-Enabled Gold

Figure 6: Tether’s Pitch on the Unique Transactional Utility/Efficiencies of Blockchain-Enabled Gold

The Evolution of Money: An Unbundling of Monetary Principles

"Money"	Monetary Principles			Interrelated, yet fundamentally distinct
	Scarcity Basis ('Store-of-value')	Price Stability ('Unit-of-account')	Transactional Utility ('Medium-of-exchange')	
Physical Gold	Geophysical Scarcity	Very High	Very Low: Low portability for high values, low divisibility for small values; expensive to store	
Gold-backed Paper	Geophysical Scarcity + Trust in Issuer	High	Low: Better portability & divisibility, physical transportation still required.	
Fiat Paper	Trust in Monetary Authorities	Moderate	Moderate: Digital transport possible; domestic efficiency; slow & expensive global payments.	
Bitcoin	Programmatically Inevitable Scarcity	Extremely Low	Very High Revolutionary global payments infrastructure	
Fiat-Backed 'Stablecoins'	Trust in Monetary Authorities & Issuer	Moderate	Very High	
Gold-Backed 'Stablecoins'	Geophysical Scarcity + Trust in Issuer	High	Very High	

Source: Tether Gold Whitepaper

Greater Accessibility

Compared to physical precious metals, tokenized precious metals eliminate the need for delivery and custodial requirements. Like other forms of representative money, tokenized gold is more divisible and fungible than physical gold, resulting in lower trade barriers (i.e. no double coincidence of wants) and reduced investment thresholds.

Compared to gold-backed financial contracts, tokenized gold exposure has the potential to be uniquely non-reliant on intermediaries or a centralized marketplace, and thus can reach a broader investor base.⁹

Even if investors have access to gold-backed financial markets, they are restricted by the conventions of traditional financial markets, particularly limited trading hours or accessibility. In contrast, tokenized gold can be traded permissionlessly on crypto exchanges (decentralized or centralized) 24/7/365.¹⁰ This continuous trading capability has proven extremely valuable during instances when a market catalyst occurs but traditional gold financial markets are closed.

When comparing the price of Tether Gold (XAUT) to gold-backed contracts trading on traditional financial markets, you'll notice that they typically trade in lockstep.¹¹ This is expected because XAUT tokens are backed by physical gold, which can be redeemed and then sold on the gold market.¹² This convertibility ensures that the prices of tokenized gold, physical gold, and traditional gold contracts remain close to 1:1.

⁹ This issue is most prevalent for investors in third world countries. India, for example, is one of the world's largest physical gold markets, but didn't have access to gold-backed ETFs until 2007. Since then, there are now 16 gold ETFs with an estimated 5-6m active gold accounts. Tokenized gold can meet demand more quickly for countries that continue to lack such financial infrastructure.

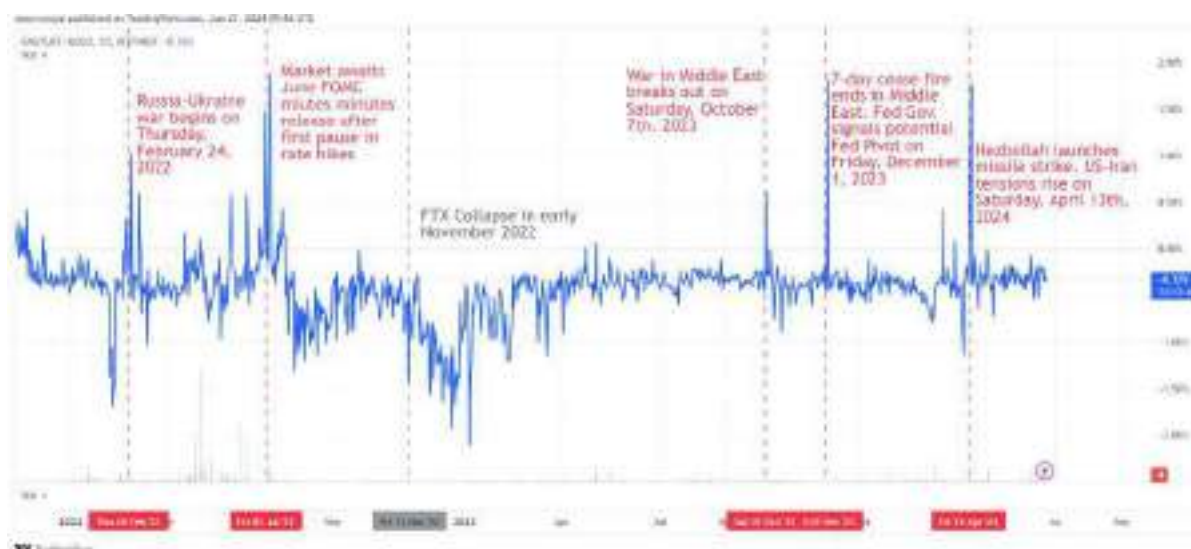
¹⁰ Most trading activity for tokenized gold appears to occur on centralized exchanges as opposed to decentralized exchanges. For example, on June 17, 2024, only 2% of XAUT's total trading volume occurred on decentralized exchanges.

¹¹ A caveat to this trend is in early November 2022, when FTX collapsed.

¹² See the Overview section for more info on different product's convertibility.

However, on several occasions over the past 3 years, XAUT has traded at a significant premium to gold-backed financial contracts. As shown by Figure 8, each time a significant market catalyst has occurred over the weekend (when traditional markets were closed), XAUT has diverged from the Friday close price of gold-backed financial contracts. Because XAUT can be traded on crypto exchanges 24/7/365, it offers unique liquidity compared to gold-backed contracts.¹³ Traders during unexpected market catalysts are willing to pay a premium for this liquidity to gain gold exposure during weekend events.

Figure 8: XAUT / Gold-Backed Financial Contracts

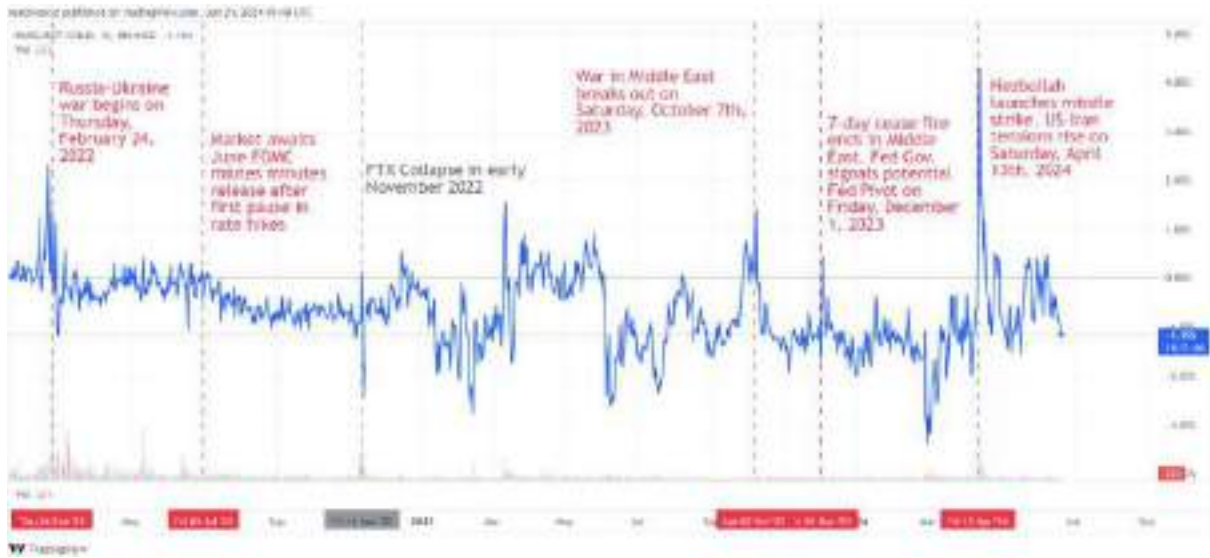


Source: RWA.xyz, TradingView

Interestingly, this divergence is also observed in other tokenized gold products. The same events that caused XAUT to trade at a premium to traditional gold contracts also led Pax Gold (PAXG) to trade at a premium.

¹³ The average 7d volume for XAUT across all crypto exchanges is around ~\$40M. The highest volume day occurred on May 2, 2022 with a 1d volume of \$77M.

Figure 9: PAXG / Gold-Backed Financial Contracts



Source: RWA.xyz, TradingView

It should be recognized that the premium for XAUT and PAXG almost always retreats once traditional markets reopen after the weekend. By analyzing the volume data for tokenized gold products across crypto exchanges, we can see that volumes tend to spike throughout weekend market catalysts. This implies that traders are utilizing tokenized gold markets as a way to gain short-term gold exposure when traditional markets are closed. When traditional markets reopen, some traders return to traditional gold markets, the premium is arbitrated away, and volumes in tokenized gold markets tend to revert to normal.

Figure 10: Tokenized Gold Trading at a Premium to Gold-Backed Contracts During Weekend Market Catalysts

Date	Catalyst	XAUT/GOLD Price	XAUT/GOLD Volume	PAXG/GOLD Price	PAXG/GOLD Volume
Average 1d		0%	\$90,059.71	0%	\$398,763.78
Thursday, February 24, 2022	Russia-Ukraine war begins	+1.25%	\$15,599,808	+2.25%	\$315,521,921
Friday, July 1, 2022	Market awaits June FOMC minutes release after first pause in rate hikes	+2.10%	\$6,045,511	+0.10%	\$31,234,855
Saturday, October 7th, 2023	War in Middle East breaks out	+0.85%	\$2,320,769	+1.50%	\$3,604,026
Friday, December 1, 2023	7-day ceasefire ends in the Middle East. Fed Governor Christopher Waller signals potential Fed pivot	+2.00%	\$4,050,117	+0.50%	\$11,068,483
Saturday, April 13, 2024	Hezbollah launches a missile strike. US-Iran tensions rise.	+2.00%	\$13,250,853	+4.25%	\$127,262,590

Source: RWA.xyz, Coinmarketcap

Lower Fees

Investing in tokenized gold can be more cost-effective compared to traditional methods of acquiring physical gold.

When purchasing physical gold, investors have two options: taking delivery of the gold or storing it with a custodian. Taking delivery often involves higher costs, including a premium from private dealers (typically 1-5% above the spot price) and storage expenses (which can range from hundreds to thousands of dollars for a home safe). Alternatively, investors who store their physical gold with a custodian typically incur a sourcing fee of around 0.50% and an annual storage fee ranging from 0.5% to 1%.

In contrast, tokenized gold products generally come with lower costs than taking physical delivery. Some tokenized gold products can even be slightly cheaper than purchasing and storing gold in a vault.

Take WisdomTree Digital's recently launched Gold Token for example. Gold purchases through WisdomTree Digital, entail a 0.50% fee in the form of a bid/ask spread.¹⁴ However, unlike traditional physical gold vault purchases, WisdomTree does not charge any asset-based fee to holders of the Gold Token. WisdomTree is responsible for paying the fees and expenses charged by the Custodian.¹⁵ Paxos Gold's model overlaps slightly, where users are charged transaction fees (0.02%) and creation / destruction fees (0.1250% to 1%), but does not impose any custody fees.^{16/17}

¹⁴ These fees are updated periodically and can be found in WisdomTree Prime, as applicable, up to a maximum of 2.00% for each purchase or sale order).

¹⁵ WisdomTree Digital or its affiliate, however, does retain the ability to charge certain reasonable account-maintenance fees, such as if the above fees do not provide sufficient revenue to cover the ongoing expenses of maintaining the Gold Token (such as paying the fees to the Custodian).

¹⁶ Paxos does, however, charge creation and destruction fees, which are detailed in the Notable Products section.

¹⁷ As these are new products, it should be recognized that their fee structures may change in the future.

Investing in financial physical gold contracts can separately be a cost-effective way to gain gold exposure. These positions typically involve a brokerage fee, a management fee (if investing in an ETF, such as SPDR's GLD ETF), and margin costs (if entering into a derivatives contract, such as CME Gold Futures).

Instant Settlement & Composability

Settlement of gold derivative contracts is achieved through physical delivery, which can take days or weeks, or fiat cash settlement, which typically requires T+2 days.

In contrast, tokenized gold transactions are settled on the blockchain, providing near-instantaneous settlement times. Further, tokenized gold can potentially be settled with almost any form of digital asset. For example, Uniswap, a permissionless web application, allows users to spin up tokenized gold markets against any type of ERC-20 token, such as stablecoins, cryptocurrencies, or even other tokenized assets. WisdomTree Prime, through a mobile-first experience, allows whitelisted users to transact in specific cryptocurrency pairs such as bitcoin and ether as well as dollar tokens. Paxos, allows institutional users to trade their tokenized gold product against cryptocurrencies and stablecoins on their proprietary secondary market, itBit.

Figure 11: Gold Investment Vehicles Compared

	Physical Bars and Coins	Vaulted Physical Gold	Standard Gold Financial Contracts	Tokenized Gold Products
Threshold to Participation	KYC is a standard practice.	KYC is a standard practice.	Physical address, KYC, knowledge test required to open a brokerage account with derivatives trading abilities.	Most primary markets are permissioned. Most secondary markets are permissionless.
Trading Restrictions	Constrained access. Private markets require connections, knowledge.	Constrained access. Private markets require connections, knowledge.	Constrained market hours.	24/7/365 Trading on Centralized and Decentralized exchanges.
Investment Thresholds	Typically traded wholesale. Lack of divisibility, and thus fixed investment threshold.	Typically traded wholesale. Lack of divisibility, and thus fixed investment threshold.	ETFs can represent 1/10th of a troy ounce of gold. Gold Futures typically represent 100 troy ounces.	Low investment threshold due to fractionalization. Can be arbitrarily small, but tends to be one troy ounce.
Market Liquidity	Individual owners tend to lack of visibility and market access.	If vault provider is connected to an OTC market such as Loco London, can have access to liquidity.	One of most liquid markets in the world. The average daily volume for gold-based financial contracts is around \$160B per day.	Top products average hundreds of thousands of liquidity per day.
Sourcing Fees	Private dealers charge high sourcing costs.	OTC markets relatively competitive rates as compared to private dealers.	Typically very low fees. Socialized amongst market participants.	Relatively low and in line with OTC markets.
Storage Fees	Expensive. Costs include a safe, and insurance costs.	Vaulted gold is typically cheaper than custodial gold oneself.	Typically very low fees. Socialized amongst market participants.	Many products do not charge investors storage fees.
Transfer Fees	Expensive, requires delivery costs and insurance costs.	Expensive, requires delivery costs and insurance costs.	Transfer fees for financial contracts can be unique compared to other vehicles (e.g. exchange fee, margin, brokerage fees).	Extremely low. Benefits from low-cost transactions of blockchains.
Settlement	Days-weeks for physical delivery.	Days-weeks for physical delivery.	T+2 for cash. Days-weeks for physical.	Instant. Can settle across fiat and digital currencies.
Fungibility	Purity, weight, fineness can be varied.	Purity, weight, fineness is typically standardized.	Purity, weight, fineness is typically standardized.	Purity, weight, fineness is typically standardized.

Source: RWA.xyz

Market Overview

The current size of the tokenized precious metals market is \$839M as of July, 2024. This represents a mere 0.014% of the \$6T gold market.¹⁸

Figure 12: Market Capitalization of Tokenized Gold Market Overtime



Source: RWA.xyz

The total value in the tokenized gold market reached its peak in mid-2022. Since then, growth in the tokenized gold market has largely leveled off.

Tokenized gold transfer activity has followed a similar trend. In 2022, transfers of tokenized gold products exceeded 7.5M transactions. In 2023, transfers were only around 1.9M. So far, in 2024, the total transfer volume is around 460K for the year.

¹⁸ As estimated by the World Gold Council. Inclusive of physical-backed contracts and derivatives.

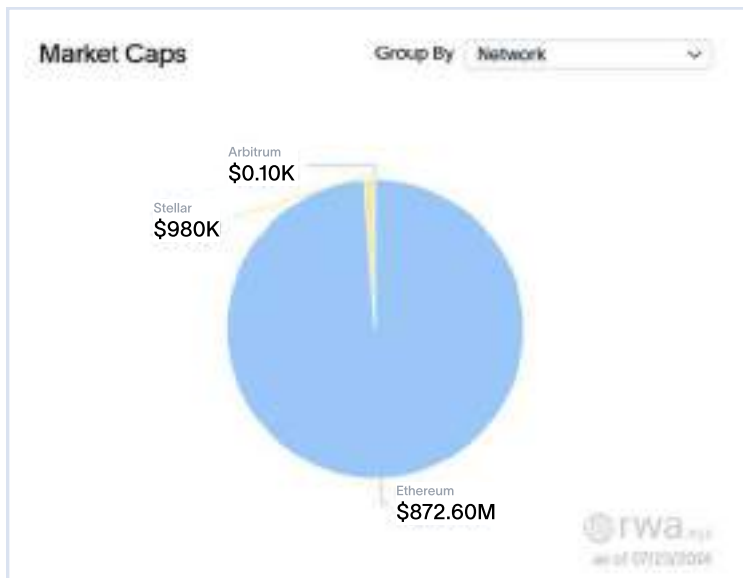
Figure 13: Total Transfer Volume (Monthly)



Source: RWA.xyz

There are currently 54.56K accounts that hold tokenized gold products in their wallets. Around 2K of those wallets have actively transferred their tokenized precious metals tokens within the last 30 days. Most of the value in the tokenized precious metals space lives on the Ethereum blockchain (\$830M). Only a small fraction (\$9.5M) of the value lives on the Stellar blockchain.

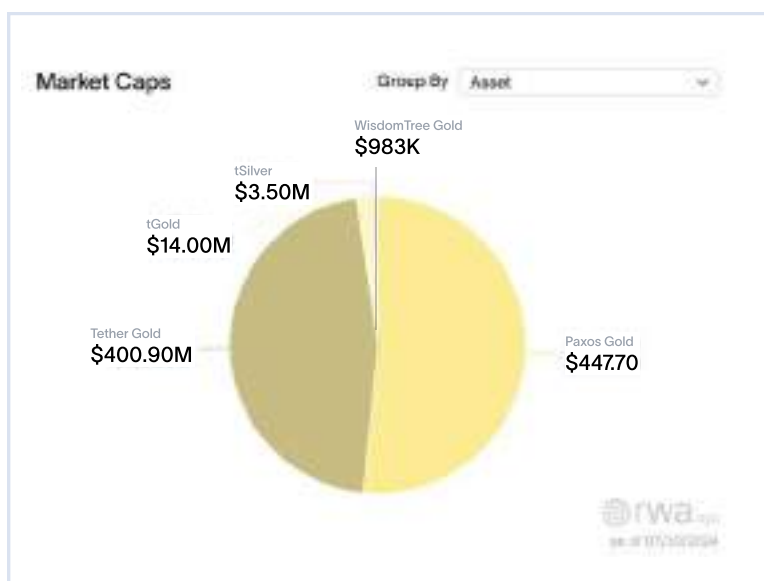
Figure 14: Market Capitalization of Tokenized Precious Metals Market by Network



Source: RWA.xyz

The tokenized precious metals market is predominantly dominated by gold-based products. Non-gold products, such as Aurus' tSilver and tPlatinum, constitute a mere ~0.24% of the total market. Paxos Gold and Tether Gold are the market leaders, commanding approximately 52% and 45% of the market share, respectively.

Figure 15: Market Capitalization of Tokenized Precious Metals Market by Asset



Source: RWA.xyz

However, several new products in the gold market seem poised to reinvigorate tokenized gold market. One such entrant is WisdomTree's Gold Token (GOLD), which was introduced to investors in May 2024 through the WisdomTree Prime app. Since its launch, WTGOLD has become the fourth-largest tokenized gold product with a current market cap of \$0.98M. Another recent entrant to the tokenized precious metals market has been HSBC. In March, HSBC's Hong Kong branch began offering tokenized gold to all of its private wealth clients. Lastly, in June, Tether launched a new synthetic dollar backed by XAUT.

Notable Products

Paxos Gold



Asset Information

Name: Paxos Gold

Ticker: \$PAXG

Pegged commodity: Gold, one-troy ounce portion

- **Quality Benchmark:** LBMA gold bar
- **What's Tokenized:** Digital token represents an electronic document of title to physical gold.

Inception Date: August 2019

Asset Permissions: Primary market access and physical redemptions for PAXG is permissioned and requires an account with Paxos. Secondary market access for PAXG is permissioned on most centralized exchanges and permissionless on decentralized exchanges.

Website: <https://paxos.com/paxgold/>

Whitepaper: <https://paxos.com/wp-content/uploads/2019/09/PAX-Gold-Whitepaper.pdf>

On-Chain Analytics

Networks: Ethereum

- **Contract Addresses:** Ethereum: <https://etherscan.com/token/0x45804880de22913d4fe09f4980848ece6ecbaf78>

Market Cap: \$433,602,927 as of 6/18/2024

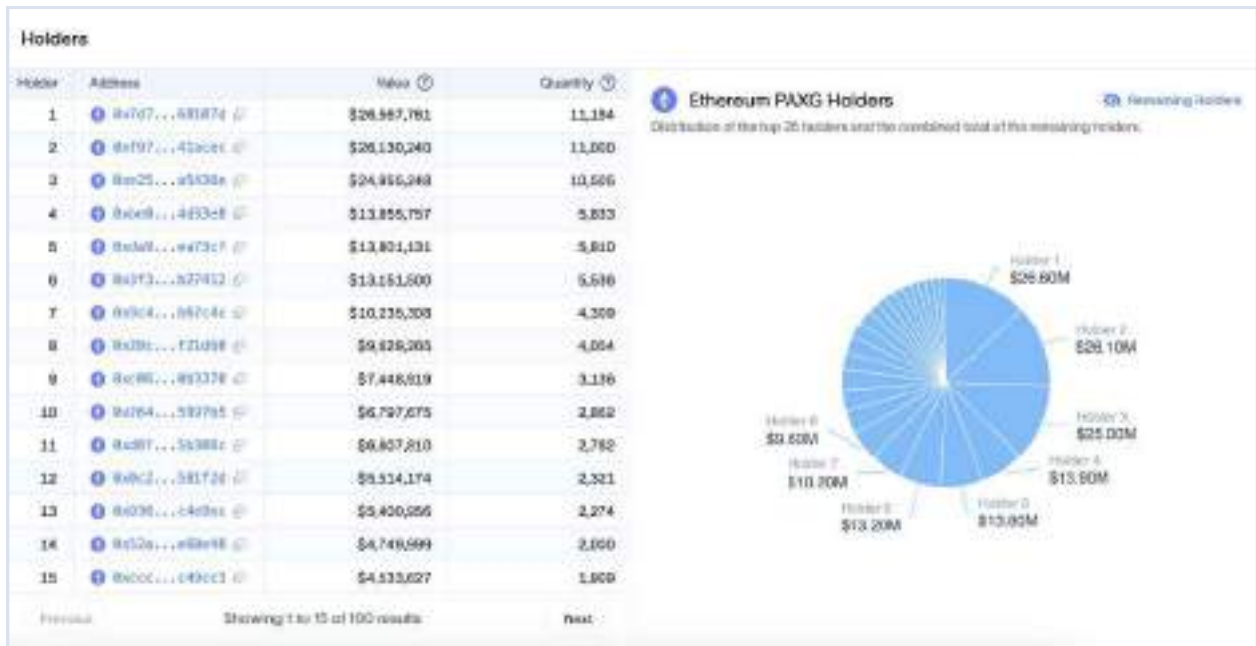


Rank: 1st largest tokenized precious metal product with 51.46% market share as of 6/18/2024

Total Token Supply: 185,852.565

Holders:

- **Current Holders:** 51,517



Transfers:

- Monthly Transfer Volume: \$112,047,148
- Monthly Transfer Count: 10,995
- Monthly Active Addresses: 1,694



Risk & Structure Metrics

Issuer + Legal Identifier: Paxos Trust Company, LLC

- LEI Number: 549300EQW4J4RXDLD359
- Entity Type: New York, U.S. Limited Purpose Trust Company

Incorporation Country: United States of America

Custodian: ICBC Standard Bank, Brink's Global Services Ltd.

- Custodian Location: London, United Kingdom

Account Segregation: Yes

- Paxos has opened accounts with Brink's bullion vaults in London, one of the six bullion vaults for London gold, which will maintain the vault or vaults for storage of allocated gold corresponding to PAX Gold tokens. As a fiduciary and qualified custodian, Paxos custodies gold for PAX Gold token holders in a segregated account at the vault.

Bankruptcy Remoteness: Yes

- Since PAX Gold is issued by a state-chartered trust company, customer assets are kept separately from the company's assets. All gold bars represented by PAX Gold tokens are custodied by Paxos for PAX Gold holders and do not become a part of the company's estate in the event of the company's insolvency.

Deposit Insurance: Yes

- Paxos' vault provider maintains insurance against loss of the gold held in custody by Paxos for the benefit of PAX Gold token holders. As such, allocated gold-backed PAX Gold tokens are protected both in the vault facilities and in transit.

Primary Market Purchases and Sales:

- **Instructions:** PAXG can be bought with USD or unallocated gold from the Paxos UI. PAXG can additionally be sold for USD at spot price through Paxos UI. Separately, PAXG can be minted by transferring previous entitlements from Loco London to Paxos.

- **Sourcing:** For sourcing of gold, Paxos maintains an account with INTL FCStone, a well-established gold-trading and wholesale institution, that sells gold to Paxos and buys gold from Paxos as needed for token issuance and redemption.
- **Minimum Purchase Amount:** When purchasing PAXG on Paxos.com, the minimum purchase is 0.03 PAXG, due to the conversion fee of 0.02 PAXG. However note that there is no minimum amount of holdings for PAXG. PAXG is divisible out to 18 decimal places, so it is possible to own fractional amounts.
- **Fees:**
 - **Creation and Destruction Fees:** Whenever you buy or sell PAXG from your Paxos account (on either the wallet dashboard or PAX Gold pages), Paxos charges small fees to process both the creation and destruction of PAXG tokens (see fee schedule below). This includes all sales or conversions of PAX Gold to or from USD, gold bars or unallocated gold. These fees do not apply when purchasing & selling tokens through Paxos' itBit exchange order book or anywhere else outside the Paxos wallet. If you wish to purchase or sell PAXG through our exchange order book your trades may be subject to applicable trading fees.
 - **Transfer Fees:** Whenever PAXG tokens are sent on Ethereum network, Paxos charges a small 0.02% fee of the amount of PAXG sent on the blockchain. 0.02% on-chain transaction fees are covered by users.
 - **Storage Fees:** Paxos does not charge gold storage fees to its customers at this time.

Physical Redemptions: Yes

- **Instructions:** If a user decides not to sell their PAXG at spot price or via a secondary market, they may elect to either (1) redeem their PAXG for unallocated gold or (2) redeem their PAXG for physical gold.

- 1. Redeeming for unallocated requires that a user initiates a sell request through the Paxos wallet dashboard on the PAX Gold page. For redemption of PAXG into unallocated gold, you must have a saved Loco London bank account saved in your account. You can do this by visiting your account settings page clicking on the gear icon in the top right corner of your home dashboard and selecting Saved Bank Accounts.
- 2. Redeeming for physical gold requires that a user initiates a sell request through the Paxos wallet dashboard on the PAX Gold page.
- **Operations:** Paxos can have the gold bar securely delivered only to vaults in the UK.
- **Minimum Retrieval Amount:** For unallocated gold redemptions there is no minimum redemption amount. For redemption of PAXG into Gold Bars, you will need to have a minimum of 430 PAXG plus fees given that London Good Delivery gold bars range from 370-430oz.
- **Fees:** Redeeming PAXG involves the same fees as detailed in the "Creation and Destruction Fees" section.
- **Other Requirements:**
 - Paxos maintains strict rules for the redemption of physical gold. Only individuals registered with Paxos as account holders can redeem gold. Other individuals may not redeem gold on behalf of the account holder.

Utility

- Hold as an investable asset (i.e. gold) via Paxos UI or one's own wallet.
- Trade on Paxos' native itBit secondary market for institutional traders.
- Trade on decentralized exchanges, such as Uniswap; On Uniswap, PAXG can be traded against any ERC-20 token (such as stablecoins, Ether, and other digital assets). PAXG's largest pool currently listed Uniswap is the PAXG-ETH pool on Ethereum, which has over \$20M in TVL.

Transparency:

- **Account Balance Attestations:**
 - **Auditor:** WithumSmith+Brown PC
 - **Frequency:** Monthly
 - **Description:** Attestation reports are issued by WithumSmith+Brown, PC, an independent third-party accounting firm. Withum's examination is conducted in accordance with attestation standards established by the American Institute of Certified Public Accountants (AICPA). Outstanding.
 - **Where to find reports:** <https://paxos.com/paxg-transparency/>

Applicable Regulation & Regulator:

- Money Services Business as regulated by the Financial Crimes Enforcement Network (FinCEN)
- U.S. State Licensed Money Transmitter as regulated by State Financial Regulatory Authorities
- New York State, U.S. Virtual Currency Business as regulated by New York State Department of Financial Services

Tether Gold



Asset Information

Name: Tether Gold

Ticker: \$XAUT

Pegged Commodity: Gold, one-troy ounce portion

- Quality Benchmark: LBMA gold bar

What's Tokenized: Digital token represents an electronic document of title to physical gold.

Inception Date: October 2021

Asset Permissions: Primary market access and physical redemptions for XAUT is permissioned and requires an account with Tether. Secondary market access for XAUT is permissioned on most centralized exchanges and permissionless on decentralized exchanges.

Website: <https://gold.tether.to/>

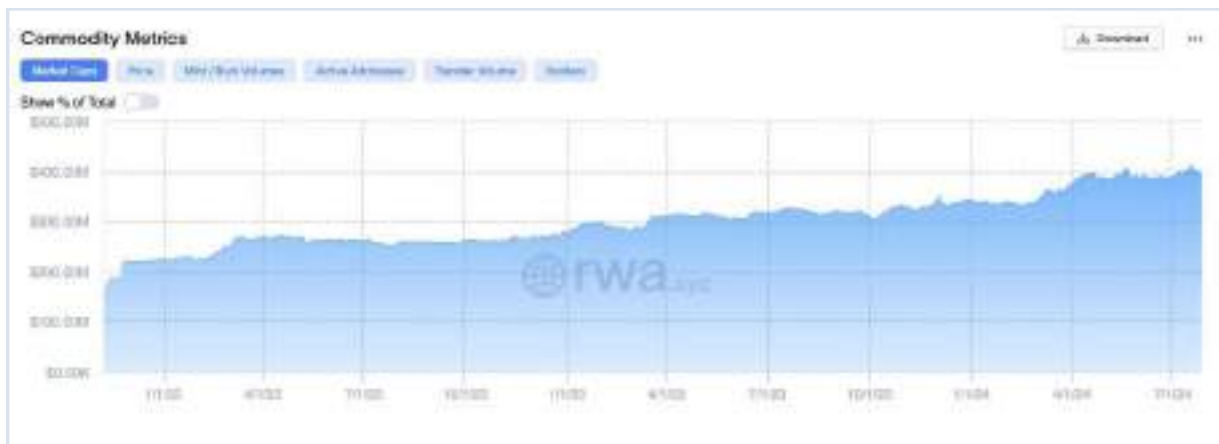
Whitepaper: <https://gold.tether.to/Tether%20Gold%20Whitepaper.pdf>

On-Chain Analytics

Networks: Ethereum

- **Contract Addresses:** Ethereum: <https://etherscan.com/token/0x68749665ff8d2d112fa859aa293f07a622782f38>

Market Cap: \$388,875,679 as of 6/18/2024

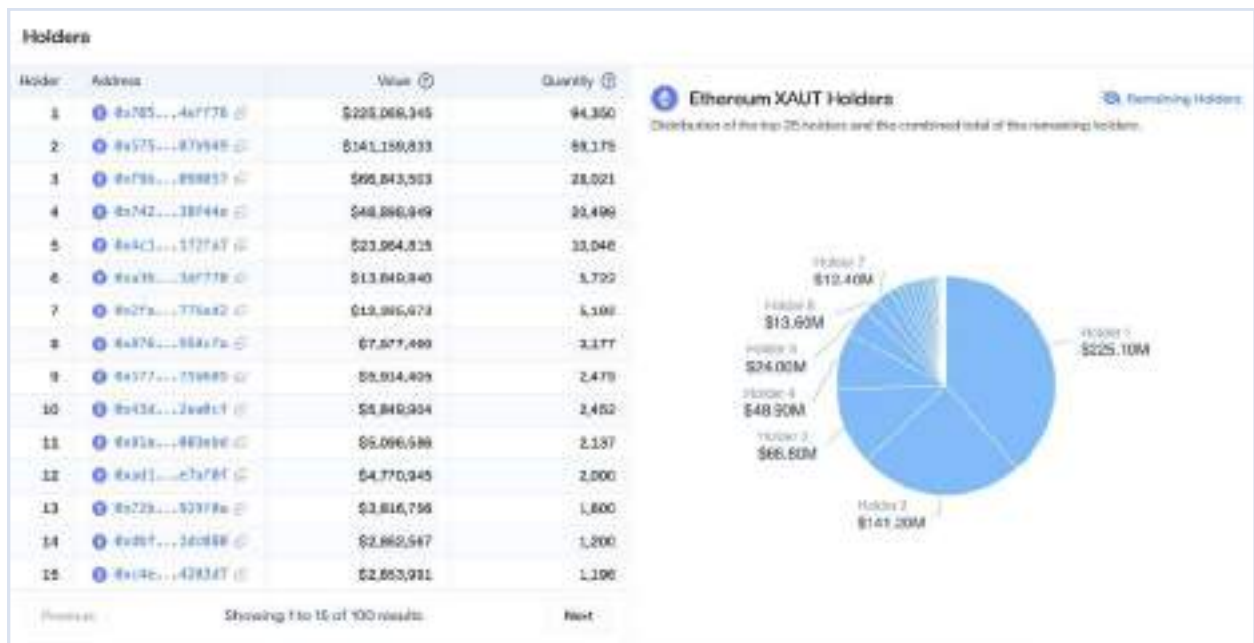


Rank: 2nd largest tokenized precious metal product with 46.30% market share as of 6/18/2024

Total Token Supply: 226,289.072

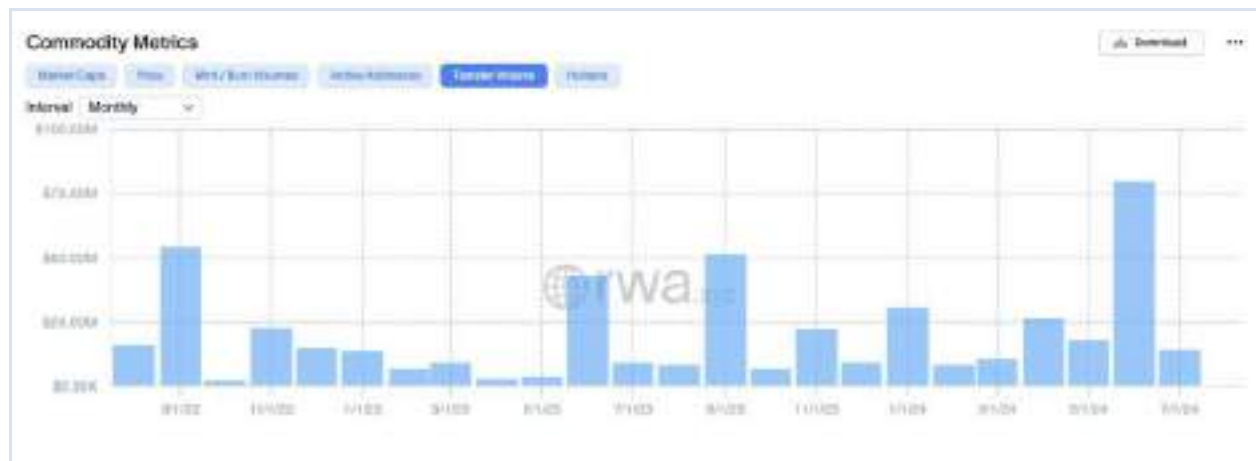
Holders:

- **Current Holders:** 1,956



Transfers:

- **Monthly Transfer Volume:** \$29,596,877
- **Monthly Transfer Count:** 1,454
- **Monthly Active Addresses:** 293



Risk & Structure Metrics

Issuer + Legal Identifier: TG Commodities Limited, a subsidiary of Tether Holdings Ltd

- **LEI Number:** 2549009GCAXB65G4OZ82
- **Entity Type:** British Virgin Islands Limited Company

Incorporation Country: British Virgin Islands

Custodian: Single, undisclosed Swiss Custodian

- **Custodian Location:** Switzerland

Account Segregation: No

- Tether explicitly warns users that Fiat, Digital Tokens or other property reflected in their Gold Token Wallet are not segregated assets held in the users' names or for their benefit but reflected only in the books and records of Tether Gold.

Bankruptcy Remoteness: Undisclosed

- Tether has not provided any information regarding if Tether Gold assets are bankruptcy remote.¹⁹

¹⁹ Bluechip has highlighted that other Tether products, such as USDT and EURT, are not bankruptcy remote.

Deposit Insurance: No

- Tether's custodian maintains insurance with regard to its business in such amount and on such terms and conditions as it considers appropriate, which is not expected to cover the full amount of Gold Reserves.

Primary Market Purchases and Sales:

- **Instructions:** To buy Tether Gold token on the Tether Gold platform, users will first need to log in/sign up on Tether Gold and verify their identity (whether it is an Individual or a Corporate account). Then, users will need to provide the Ethereum address where they wish to receive the XAUT and type in the amount. After that, users will need to pay for the tokens via a connected bank account. The processing of the request usually takes 3-5 business days. Using the same process, a holder can redeem then subsequently request Tether Gold to arrange the sale of the gold. Subsequently, TG Commodities Limited will attempt to sell your gold in the Swiss gold market and obtain the cash proceeds. If the gold is successfully sold, TG Commodities Limited will pay the user the proceeds of the sale, less relevant fees.
- **Sourcing:** Tether Gold will purchase, or arrange for the purchase of London Good Delivery gold from a gold dealer in Switzerland, which will then be securely stored by a custodian in a vault in Switzerland.
- **Minimum Purchase Amount:** Tether Gold verified users will be required to purchase a minimum of 50 fine troy oz of gold (i.e., 50 XAUT tokens)
- **Fees:**
 - **Purchase/Sale Fee:** 0.25% of purchase amount.
 - **Verification Fee:** The verification fee is intended to ensure that only those who are serious about establishing an account apply. Also, the fee helps offset a portion of the costs Tether Gold incurs through the execution of a robust verification process. To comply with applicable laws, Tether Gold maintains the sole discretion to approve or not approve accounts. By submitting a verification request, you agree that the 150 USDT (or equivalent EURT/CNHT) deposit is non-refundable.

- **Storage Fees:** There are no custody fees on Tether Gold, which is one of the product's benefits.
- **Transfer Fees:** TG Commodities Limited does not charge any additional fees for on-chain transfers either more than the usual gas fees.

Physical Redemptions: Yes

- **Instructions:** To redeem XAUT, users first need to login and verify their account on the Tether Gold platform. Users then need to choose how much XAUT to redeem (abiding by the minimum redemption amount mentioned below).
- **Operations:** If the user requests physical delivery (rather than a sale for cash proceeds) from TG Commodities Limited, the company will arrange for its secure transit to the delivery address in Switzerland. TG Commodities Limited will charge 25 basis points on the gold price in the Swiss gold market at the time of redemption of the XAUT tokens, plus the cost of delivery.
- **Minimum Retrieval Amount:** Users can only redeem Tether Gold XAUT in increments of one full gold bar. So users need to have enough Tether Gold XAUT to receive one full gold bar in order to redeem. If a user's tokens are allocated to a whole bar of gold, that user can redeem an amount of XAUT equal to the number of fine troy ounces of gold contained in your bar of gold. Tether normally advise that you deposit 430 XAUT tokens to ensure you have enough to redeem a full bar of gold. Tether's bars of gold (like all LBMA bars of gold) vary in size and can be as big as 430 fine troy ounces.
- **Fees:** Redeeming XAUT for physical gold involves the same fees as detailed in the "Purchase/Sale Fees" section above as well as any cost relating to delivery of the gold.

Utility

- On June 18th, Tether released Alloy, a decentralized finance protocol that allows XAUT holders to lock up their tokens in exchange for aUSDT²⁰; aUSDT is designed to track the value of one U.S. Dollar, but instead of being collateralized by U.S. Dollars and other, low risk dollar equivalents (e.g. Treasury Bills, commercial paper, money market funds), aUSDT is collateralized by XAUT. In the future, Alloy may allow users to deposit XAUT in exchange for other, non-USD tethered assets. Alloy is a first of its kind protocol for the tokenized precious metals space. The implications of Alloy and the expansion of tokenized precious metals into the decentralized finance space is further discussed in the What's Next section.
- Hold as an investable asset (i.e. gold) via self-custody or through centralized custody solutions offered on the platforms listed on Tether Gold's website: <https://gold.tether.to/>.
- Trade on Bitfinix, OKX, Huobi, Gate.io and other centralized exchanges.
- Spend XAUT balances via Yellow Card.
- Trade on decentralized exchanges, such as Uniswap; On Uniswap, XAUT can be traded against any ERC-20 token (such as stablecoins, Ether, and other digital assets). XAUT's largest pool currently listed Uniswap is the XAUT-USDT pool on Ethereum, which has around \$7.7K in TVL.

Transparency:

- **Account Balance Attestations:**
 - **Auditor:** BDO Italia
 - **Frequency:** Monthly

²⁰ The new aUSDT token was developed with the help of Moon Gold NA, S.A. de C.V. and Moon Gold El Salvador, S.A. de C.V., which are members of the "Tether Group."

- **Description:** Attestations for the balances across all Tether tokens are made available by an independent auditor. Additionally, XAUT holders can look up the unique identifier number (and the portion of a unique gold bar they own) of their gold allocation on Tether's website: <https://gold.tether.to/>.
- **Where to find reports:** <https://tether.to/en/transparency/?tab=usdt>

Applicable Regulation & Regulator:

- Money Services Business as regulated by the Financial Crimes Enforcement Network (FinCEN)

WisdomTree Gold Token



Asset Information

Name: WisdomTree Gold Token

Ticker: \$GOLD

Pegged Commodity: Gold, one-troy ounce portion

- **Quality Benchmark:** LBMA gold bar
- **What's Tokenized:** Digital token represents an electronic document of title to physical gold.

Inception Date: November 2022

Asset Permissions: Permissioned. WisdomTree Digital²¹ provides hosted digital wallets to Users and has put in place measures in seeking to securely manage

²¹The WisdomTree Prime digital wallet and digital asset services are made available through WisdomTree Digital Movement, Inc., a federally registered money services business, state-licensed money transmitter and financial technology company (NMLS ID: 2372500) or WisdomTree Digital Trust Company, LLC, in select U.S. jurisdictions and may be limited where prohibited by law. WisdomTree Digital Trust Company, LLC is chartered as a limited purpose trust company by the New York State Department of Financial Services to engage in virtual currency business. Visit <https://www.wisdomtreeprime.com> or the WisdomTree Prime mobile app for more

the private keys associated with such wallets on behalf of Users. Only Users of WisdomTree Prime may access WisdomTree's Gold Token.

Website: <https://www.wisdomtreeprime.com/>

Whitepaper: <https://www.wisdomtreeprime.com/wp-content/uploads/WT-Gold-Token-Doc-5.1.2024.pdf>

On-Chain Analytics

Networks: Stellar

- **Contract Addresses:**

- **Stellar:** <https://stellar.expert/explorer/public/asset/GOLD-GCK75CK3VX5L4ZLSD7HHNVA4L3LKGAIYWLCZO2IBNGOFTBV3HJBE2MPJ>

Market Cap: \$947,066 as of 7/25/2024



Rank: 4th largest tokenized precious metal product

Total Token Supply: 410

Holders:

- **Current Holders:** 230

Risk & Structure Metrics

Issuer + Legal Identifier: WisdomTree Digital Trust Company, LLC

- **Entity Type:** New York, U.S. Limited Purpose Trust Company

Incorporation Country: United States of America

Custodian: HSBC Bank, PLC

- **Custodian Location:** London, United Kingdom

Account Segregation: Yes

- HSBC has contractually committed to maintain a continuous allocation (i.e., segregation) process whereby each gold bar associated with a Gold Token is segregated within the gold custodian's vaults with a serial number in accordance with LBMA's good delivery standards.

Deposit Insurance:

- Insurance and/or bonding is the responsibility of the Custodian and WisdomTree Digital is not responsible for ensuring that adequate insurance arrangements have been made, or for insuring or bonding the gold held at the Custodian, and will not be required to make any inquiry regarding such matters.

Primary Market Purchases and Sales:

- **Instructions:** Users must purchase, hold, sell or transfer their Gold Tokens through WisdomTree Prime. For an order to be valid, the order must: (i) specify the number of Gold Tokens or dollar amount to be transacted; (ii) provide all forms of documentation required for the purposes of any compliance and identification checks; and (iii) comply with any additional requirements specified in any notice made by WisdomTree Digital.

- **Sourcing:** WisdomTree Digital will purchase physical gold from external gold markets and issue corresponding Gold Tokens as needed to meet demand for Users' purchases via WisdomTree Prime. WisdomTree Digital will establish a digital wallet for purposes of issuing Gold Tokens that will distribute Gold Tokens to Users. Users will receive their Gold Tokens into their WisdomTree Digital hosted wallet as Stellar-network assets. WisdomTree Digital may hold Gold Tokens in inventory for sale to Users who are its customers.
- **Minimum Purchase Amount:** \$2.00
- **Fees:**
 - **Transaction Fees:** WisdomTree Digital will charge direct and/or indirect fees for transacting in Gold Tokens (e.g., at least 0.50%, or 50 basis points of each purchase order and each sale order total for Gold Tokens, which may be in the form of a bid-ask spread). Those fees are updated periodically and can be found in WisdomTree Prime, as applicable, up to a maximum of 2.00% for each purchase or sale order).
 - **Transfer Fees:** WisdomTree Digital may, in the future, also charge transaction fees for Gold Token transfers, which to the extent charged can be found in WisdomTree Prime, as applicable. Such fees are not expected to exceed 0.02% (2 basis points) of the number of Gold Tokens transferred. A Gold Token's smart contracts will automatically deduct this fee and transfer the Gold Tokens to WisdomTree Digital's wallet.
 - **Asset-Based Fees:** WisdomTree Digital is not charging any asset-based fee to holders of the Gold Token. WisdomTree Digital will be responsible for paying the fees and expenses charged by the Custodian.²²

²² WisdomTree Digital is not charging any asset-based fee to holders of the Gold Token. WisdomTree Digital will be responsible for paying the fees and expenses charged by the Custodian.

Physical Redemption: Yes²³

- **Instructions:** Since each Gold Token represents title to physical gold, such gold can be retrieved upon instruction by WisdomTree Digital from the Custodian's vault and physically delivered as directed by the Gold Token's holder. WisdomTree Digital is obligated to deliver one troy ounce of gold upon the surrender of a Gold Token. Any Gold Token holder may process an order to retrieve gold for a Gold Token through WisdomTree Prime, as applicable.
- **Operations:** WisdomTree Digital will cancel the Gold Tokens being surrendered and instruct delivery of the gold as directed by the Gold Token holder. At the time of retrieval, the physical gold would be delivered via a metal agent to a financial institution according to the Gold Token holder's arrangements for gold storage. To the extent retrieval associated with a Gold Token involves residual cash, all residual cash amounts provided to a Gold Token holder seeking retrieval will be determined based on the price for the same grade and quality of gold at the time of retrieval. Residual cash will generally be provided in WisdomTree Dollar Tokens via WisdomTree Prime. The Gold Token holder seeking gold retrieval will be responsible for all applicable fees, taxes and shipping charges in retrieving the gold.
- **Minimum Retrieval Amount:** One WisdomTree Gold Token
- **Fees:** To retrieve gold, user must pay relevant fees, which includes a minimum of one troy ounce of gold or 2% of the retrieval amount (whichever is higher)
- **Other Requirements:**
 - User must maintain an account with a financial institution that can accept delivery in the jurisdiction in which WisdomTree Digital's metal agent(s) will deliver.
 - User must satisfy relevant know-your-customer screening requirements.

²³ See [WisdomTree Prime User Agreement](#) for additional information.

Utility

- Save WisdomTree Gold tokens via WisdomTree Prime
- Hold as an investable asset (i.e. gold) via WisdomTree Prime
- Support spending via a debit card connected to WisdomTree Prime
- Exchange back into physical gold, or for US dollars, or one of many tokenized assets (e.g. Bitcoin and Ether)²⁴ that WisdomTree Digital or its affiliates make available. Leveraging the power of blockchain technology, transactions may be settled more quickly than traditional financial transactions.

Transparency:

- **Vault Audits:**
 - **Auditor:** Bureau Veritas Commodities UK Ltd.
 - **Frequency:** Twice a year
 - **Description:** An independent metal audit firm will review the amount of physical gold held by the Custodian, which is expected to occur twice a year.
- **Daily Account Balances and Monthly Attestations:**
 - **Frequency:** Daily Gold Bar Publication with Monthly Published Attestations Examined by an Independent Accountant
 - **Description:** WisdomTree Digital makes available a publication of a daily list of gold bars held with the Custodian. The publication includes the serial number of each gold bar. In addition, WisdomTree Digital publishes a monthly attestation regarding the amount of gold in custody, with the attestation examined by an independent accountant. These transparency statements allows Gold Token holders to confirm that the amount of gold held with the Custodian is at least equal to the Gold Tokens outstanding.
 - **Where to find reports:** WisdomTree Prime app: <https://www.wisdomtreeprime.com/>

²⁴ Other tokenized assets include digital assets, which are considered to be speculative and involve a high degree of risk. Exchanges or sales of such digital assets may give rise to a taxable transaction. Please consult your tax advisor with respect to applicable tax treatment.

Applicable Regulation & Regulator:

- WisdomTree Digital Movement, Inc.
 - Money Services Business as regulated by the Financial Crimes Enforcement Network (FinCEN)
 - U.S. State Licensed Money Transmitter as regulated by State Financial Regulatory Authorities
- WisdomTree Digital Trust Company, LLC
 - New York State, Limited Purpose Trust Company with the ability to engage in regulated by New York State Department of Financial Services

**Will Peck**

Head of Digital Assets at WisdomTree

From the start, our vision with WisdomTree Prime® has been to build a personal finance app that merges saving, spending, and investing, bringing tokenization and blockchain-enabled finance to the center of a user's financial life. The WisdomTree Gold Token is an important building block asset for this vision, providing users the ability to buy and hold gold with a focus on security, transparency and convenience.

From now until 9/22/2024, you can receive a \$50 reward when you open and fund a new WisdomTree Prime account with \$500 and maintain it for 45 days.

Learn more: <https://wisdomtreeprime.com/offer/>

Terms apply: <https://wisdomtreeprime.com/terms-and-conditions/>

HSBC Gold Token



Asset Information

Name: HSBC Gold Token

Ticker: \$XGT

Pegged Commodity: Gold, 0.001-troy ounce portion

- **Quality Benchmark:** LBMA gold bar
- **What's Tokenized:** Digital token represents an electronic document of title to physical gold.

Inception Date: March 2024

Asset Permissions: Primary and secondary market access to XGT is permissioned.

Website: <https://www.hsbc.com.hk/investments/products/gold-token/>

Principle Brochure: <https://www.hsbc.com.hk/content/dam/hsbc/hk/docs/investments/gold-token/principal-brochure.pdf>

On-Chain Analytics

Networks: HSBC Gold Tokens are recorded on an HSBC Orion, an in-house private permissioned ledger operated by the Bank.

- **Contract Addresses:**
 - Given that these tokens are recorded on private permissioned ledger, we are unable to have transparency into the contract address as well as other asset metrics.

Risk & Structure Metrics

Issuer + Legal Identifier: The Hongkong and Shanghai Banking Corporation Limited

- **LEI Number:** 2HI3YI5320L3RW6NJ957
- **Entity Type:** Hong Kong Corporation

Incorporation Country: Hong Kong

Custodian: HSBC Bank, PLC

- **Custodian Location:** United Kingdom

Account Segregation: Yes

- Allocated bars are identified and segregated on behalf of investors.

Bankruptcy Remoteness: Yes

- A disposal agent will be appointed to liquidate the Gold upon the occurrence of a Liquidation Event. The intention is that the investor's fractional ownership of the Gold shall be protected from the bankruptcy of the Bank.

Deposit Insurance: Yes

- Insurance policy is maintained by HSBC Group, which covers the assets, including amongst others the Gold, held by the Bank in the Vault Premises and provides protection against losses arising from, for example, criminal activities, civil liabilities and cyber incidents. The insurance coverage is reviewed on an annual basis and the Bank considers that the current coverage is sufficient and appropriate.

Primary Market Purchases and Sales:

- **Instructions:** To buy or sell HSBC Gold Token, users must have an active HSBC Hong Kong Investment Account as well as a Hong Kong residential address registered with the bank. On the HSBC Online Banking application, users can choose “buy” or “sell” options to allocate funds / receive funds from their selected bank account. Purchase/sell instructions can take up to T+2 for settlement.
- **Sourcing:** HSBC sources Loco London gold at the best price offered from various dealers.
- **Minimum Purchase Amount:** The quotation unit and minimum transaction amount of the Product is one (1) HSBC Gold Token, and denomination of the Product is in multiples of one (1) HSBC Gold Token. One (1) HSBC Gold Token of the Product represents the Fractional Ownership* record of 0.001 troy ounce of Gold held by the Bank in the Vault Premises.
- **Fees:**
 - There are no additional fees and charges for investing in the Product, including handling charges and expenses in relation to the operation of the Ledger, other than the actual buying or selling price at the time of the transaction. Any fees and charges incurred by the Bank are contained in and subsumed into the calculation of the Bank sell price and the Bank buy price of the Gold represented by each HSBC Gold Token, and generally depend on the transaction amount and prevailing market conditions.

Physical Redemptions: No

- **Instructions:** Investment in HSBC Gold Token is not the same as acquiring a physical gold bar. Investors will not be able to take physical delivery of Gold at any time. Investors in general may only redeem their investment by selling the Tokens back to the Bank, at a price determined by the Bank, which includes Bank’s margin.

Utility

- Hold as an investable asset (i.e. gold) with the ease of use of spending from your HSBC bank account and the certainty of HSBC operations.
- There is no market for the trading of the HSBC Gold Tokens. Investors may only redeem their investment by giving a Sell Instruction to the Bank.

Transparency:

- **Transparency Statements:**
 - **Vault Audits:**
 - **Auditor:** Independent third party inspector
 - **Frequency:** Once a year
 - **Description:** A complete bar count is conducted by the Inspector at least once per year and the Inspector will visit the Vault Premises on-site for the purposes of examining and performing counts of the Gold held in the Vault Premises. As part of the audit process, the Issuer will receive an attestation from the Inspector in relation to the Issuer's account at the Vault Operator to confirm (i) and (ii) above, and specifically whether the Gold bars with respect to the Product are physically held in the Vault Premises with reconciliation of Gold inventory records of the Vault Operator and the records of the Ledger from the Issuer.

Applicable Regulation & Regulator:

- Securities and Futures Ordinance as regulated by the Hong Kong Monetary Authority

Other Tokenized Precious Metal Products

Figure 16: List of Other Tokenized Precious Metal Products

#	Name of Product	Name of Issuer	Description	Blockchain Network(s)
1	Zimbabwe Gold-Backed Digital Tokens	Reserve Bank of Zimbabwe	The digital tokens will be available for sale, through banks, in both foreign and local currency. Banks will create dedicated or specific accounts for the holding of the gold-backed digital tokens (e-gold wallets or e-gold cards). Holders of physical gold coins, at their discretion, will be able to exchange or convert, through the banking system, the physical gold coins into gold-backed digital tokens. The digital tokens held in either e-gold wallets or e-gold cards will be tradable and capable of facilitating Person-to-Person (P2P) and Person-to-Business (P2B) transactions and settlement.	In-House, Private Permissioned
2	Diamond Standard Carats, Coins, and Bars	Diamond Standard Ltd (Bermuda)	Encryption-chipped, physical diamond products trackable on blockchains.	Hedera, Ethereum
3	Aurus tGold, tSilver, tPlatinum	Aurus Technologies Ltd.	Aurus products are precious metal-backed token minted by various independent refineries and brokers that participate in the Aurus Ecosystem.	Ethereum
4	VNX Gold	VNX Commodities AG	VNX Gold is a multichain token fully backed by physical gold that is certified by the London Bullion Market Association (LBMA).	Ethereum, Polygon, Avalanche, Solana, Tezos, Stellar
5	ComTech Gold	ComTech FZCO	ComTech is a 100% Shariah-compliant tokenized 24 carat (999.9 fineness) gold product.	XDC
6	Meld Gold, Silver, Platinum, Palladium	Meld Gold Pty Ltd	One Meld Token equates to one gram of the corresponding precious metal that is fully redeemable and housed in a network of secure vaults and facilities.	Algorand
7	Lode.One Gold (AUX), Silver (AGX)	LODE (Switzerland) AG	Each Lode.One token is redeemable for physical precious metals.	Avalanche, Rollux, BNB, Ethereum
8	Kinesis Gold, Silver	Kinesis Cayman	Kinesis tokens are digital currencies backed by one gram of precious metals stored in fully insured and audited vaults, in your name	Kinesis Chain
9	Novem Gold	Novem Gold Blockchain GMBH	Fractionalized, digital gold based product based in Germany.	Ethereum
10	IPMB Gold	IPM Group	Digital gold represented uniquely by NFTs.	Polygon
11	Tiamonds	Tiamonds AG	Tokenized diamonds stored in Liechtenstein.	Ethereum
12	Tanishq Digital Gold	Digital Gold India Private Limited	Gold purchased on investor behalf, represented by digital tokens.	In-House, Private Permissioned
13	Nornickel Digital Nickel and Palladium	Nornickel	Tokenized nickel and palladium tokens.	Ethereum
14	AMINA Gold Token	AMINA Bank AG	One gram digital token regulated by FINMA with gold stored in Switzerland.	Ethereum
15	Vera One Gold	LinGOLD Ltd	Redeemable 1 gram gold tokens.	Ethereum
16	Vaultchain Gold	Wellfield Capital	Vault-custodied gold available to institutional and accredited investors.	Tradewind Platform
17	Swarm Gold NFTs	SWARM X GmbH	NFTs representing gold stored in Brink's London vault.	Planned Launch
18	Agro Digital Gold	Agro Digital Gold Ltd.	Fractionalized, digital gold product and card with bars based in a vault in Ottawa, Canada.	Planned Launch
19	Artic Digital Mining In-Ground Gold Deposits	Artic Digital	Converting Alaska in-ground gold into gold deposits via the GiG Token.	Planned Launch

Source: [RWA.xyz](https://rwa.xyz)

What's Next?

Derivatives as an Alternative Issuance Mechanism

The majority of the digital assets on the market today are tokenized products. As highlighted in previous sections, tokenizing physical precious metals requires significant effort in regards to the operational and custodial management of the token's underlying asset. To ensure that the digital tokens accurately reflect the physical underlying, issuers need to acquire the physical underlying (sell the physical underlying) every time a new token is minted (destroyed). In addition, issuers must have core processes relating to the storage, insurance, delivery, and sourcing of the precious metals to facilitate the minting/destruction processes. These operational and custodial requirements can be capital-intensive, entail high fees, and require significant time to execute properly. Figure 17 provides an example issuer workflow when receiving a buy/sell instruction.

Figure 17: Operational Workflow of a Purchase/Sell Instruction for HSBC Gold

Diagram 1 – Settlement of a Purchase Instruction

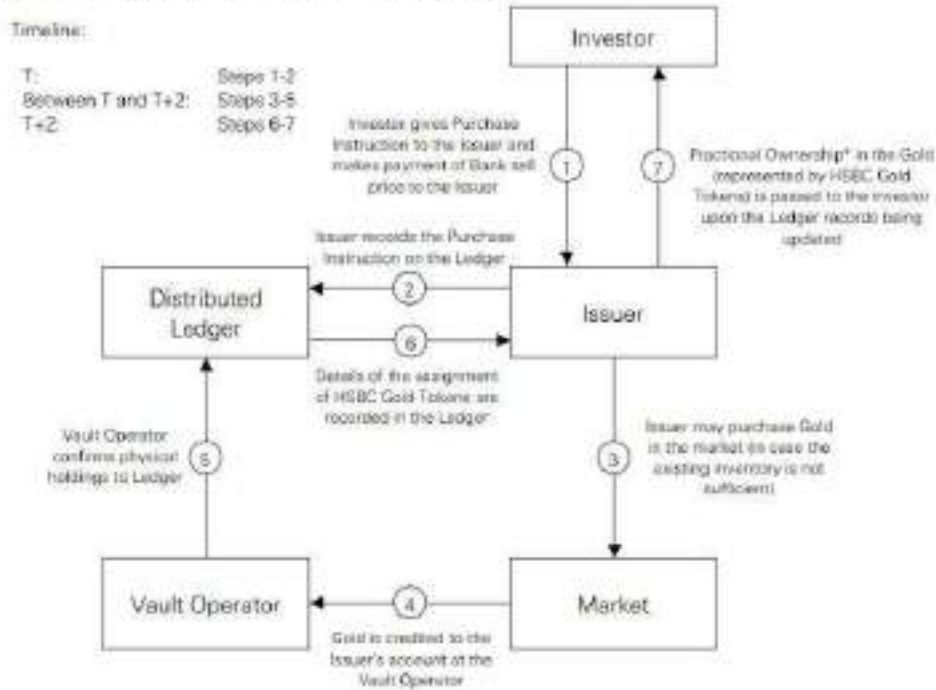
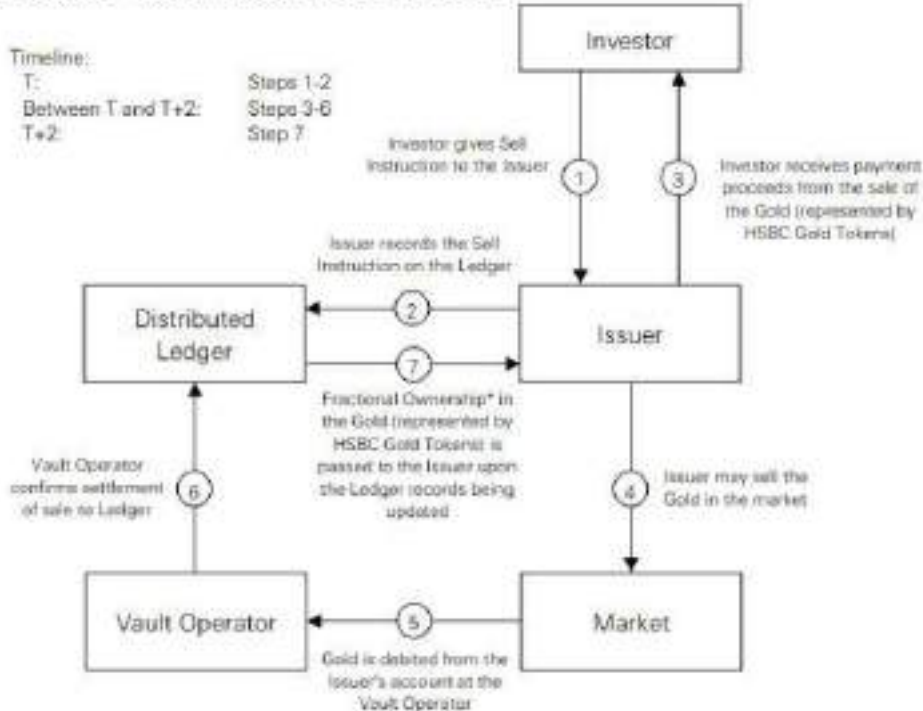


Diagram 2 – Settlement of a Sell Instruction



Source: HSBC

Within the past few months, several issuers have sought to avoid the operational and custodial requirements of tokenized asset products by issuing derivative products (Figure 18). Unlike tokenized products, derivative products are not direct representations of ownership in the underlying asset. Instead, derivative products exist only on paper and represent financial arrangements linked to the price movements of the underlying precious metal.

Figure 18: Digital Precious Metal Derivative Issuers

#	Issuer	Precious Metals Contracts Offered	Type of Contract	Status
1	Coinbase	Gold	Futures	Launched retail-sized gold derivative contracts on June 3rd, 2024.
2	Ostium Labs	Gold, Silver, Platinum, Palladium, Copper	Perpetual Futures	Public testnet on Arbitrum went live on May 16, 2024. Mainnet scheduled for release in the coming months.
3	Helix	Gold, Silver	Perpetual Futures	Launched perpetual futures pairs against \$USDT on May 29, 2024.
4	Cega DeFi	Gold	Option Structured Products	Launched gold options strategy vault collateralized by various cryptocurrencies on April 3, 2024.

Source: [RWA.xyz](#)

According to Ostium Labs' CEO, Kaledora Kiernan-Linn, issuing cash-settled derivatives product is "orders of magnitude easier than tokenizing the underlying assets." This is because in order to issue a derivatives product, "all you need is liquidity & a data feed." As long as contracts are cash-settled and do not require any delivery of physical assets, derivative contracts bypass the operational complexity that comes with trading physical assets. In the future, Kiernan-Linn believes that derivative contracts will become the "de facto listing engine for real world assets" with markets that are "liquid and deep enough [to incentivize participation] from most traders."

This prediction is provoking considering that derivative products are (1) arguably easier to issue (2) typically more liquid²⁵ (3) the instrument of choice in traditional markets.²⁶

In the future, investors will likely choose whether to use a tokenized or derivatives product based on the fees they are willing to incur and their desired exposure. Tokenized assets offer ownership in real, physical assets, but entail fixed fees relating to sourcing, delivering, and storing the physical asset. Derivatives offer exposure, but not ownership, of precious metals, alongside variable commission, margin fees, and/or funding rate fees.²⁷

²⁵ According to the [World Gold Council](#), gold futures traded \$62B per day across various global exchanges whereas physical-backed gold ETFs traded only an average of \$2B per day.

²⁶ Derivative contracts, because they do not represent ownership of the underlying assets, offer much more flexibility. For instance, they can easily involve leverage, as they are not constrained by the full-value transactions that physically-backed assets require.

²⁷ A derivative contract, such as perpetual futures, can be costly for the trader. It is essentially giving the exchange a free loan with a funding rate that the exchange can control to their advantage.

DeFi Expansion

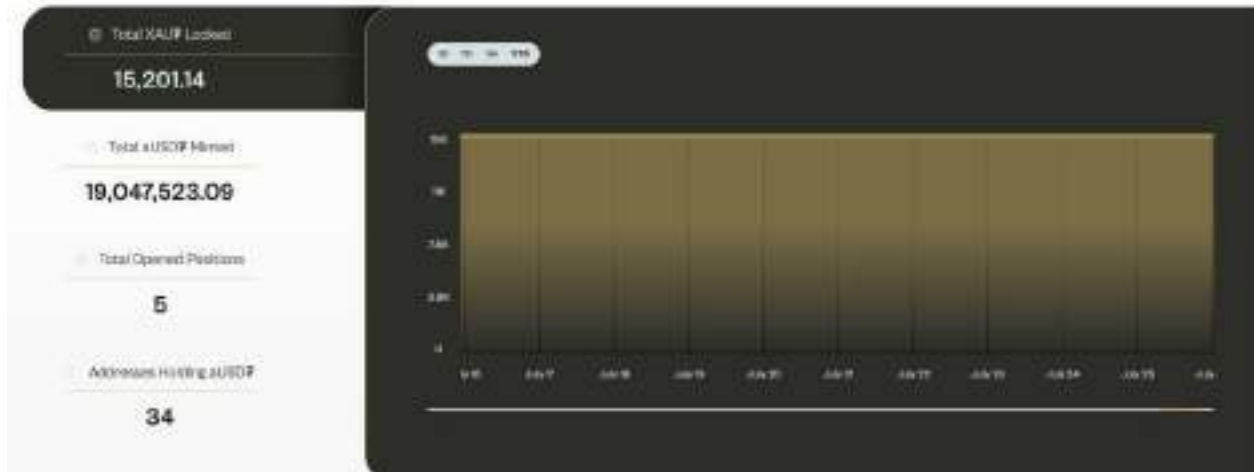
So far, the presence of precious metals products in the decentralized finance (DeFi) space has been primarily limited to trading platforms like Uniswap.

Paxos Gold has considerable liquidity on Uniswap. In fact, its PAXG-ETH pool on Ethereum, has over \$20M in total value locked (TVL) and average daily trading volumes in the hundreds of thousands. Other precious metal DeFi markets maintain much less liquidity and volume. For example, Tether Gold's most liquid DeFi pool is the XAUT-USDT pool on Ethereum with only \$6.4K of TVL and average daily trading volumes in the tens of thousands. When comparing decentralized exchange (DEX) trading volume to centralized exchange volume for precious metals products, the lack of DeFi presence for precious metals products becomes even more clear. On June 23, 2024, DEX volume made up only 2.6% and 0.7% of total trading across all trading venues for Pax Gold and Tether Gold, respectively.

When speaking with issuers, many have expressed a desire for their products to expand further into DeFi. Tether's new protocol, Alloy, is perhaps the first attempt at doing so.

Alloy, moves beyond simple DeFi trading functionality into the world of collateralized-debt positions (CDP). Alloy allows users lock up their \$XAUT tokens in exchange for a synthetic dollar \$aUSDT. \$aUSDT is designed to track the value of one U.S. Dollar, but unlike other existing stablecoins, \$aUSDT is backed by \$XAUT instead of bank deposits and dollar equivalents. As a product, \$aUSDT is uniquely intended to combine the proven unit-of-account characteristic of the U.S. dollar with the resilient store-of-value characteristic of gold.

So far, ~10K \$XAUT, or about 0.04% of the total supply of \$XAUT, have already been locked up to mint around \$13M worth of \$aUSDT.

Figure 18: Alloy Protocol Statistics

Source: Alloy, Tether

Alloy has significant implications for both Tether and the broader tokenized precious metals industry.

Alloy could make \$XAUT more appealing for those who want to use it to gain access to \$aUSDT. Additionally, Alloy could provide Tether with a new DeFi-driven revenue source, allowing Tether to generate income from fees common in other CDP protocols, such as stability fees and liquidation penalties.

More broadly, an expansion into DeFi could stimulate renewed growth in the precious metals market, which has largely been stagnant since 2022. DeFi could enhance the utility of precious metal tokens and reinvigorate interest in the sector.

Regulation

Like many other tokenized asset products, regulation for precious metals is nascent. It is still not yet clear how tokenized precious metals, and more broadly, tokenized commodities will be treated.

On the [episode 537 of On the Brink podcast](#), Edward Woodford, CEO of [ZeroHash](#) highlights this grey area:

“Paxos has Paxos gold that is a tokenized representation of gold. Then, [on traditional markets], you have electronified representations of gold. Because its a spot commodity product it isn’t regulated.²⁸ [With current crypto regulations e.g. [FIT21](#)], does it mean that just because you tokenize a gold product, that it now should be regulated? Because that is what [FIT21](#) says: a spot contract in crypto would need to be on a registered Designated Contract Market (DCM) or Derivatives Clearing Organization (DCO).”

Woodford argues that regulators should focus on regulating financial products based on their characteristics rather than their underlying technology. In other words, tokenized securities (e.g., tokenized S&P 500 contract), derivative contracts (e.g., futures gold product), and spot products (e.g., tokenized physical gold) should not be regulated uniformly just because they are tokenized. Instead, they should be regulated according to their specific risk factors.

In the future, regulation will play a crucial role in determining who can issue digital precious metals, who can invest in them, and how they should operate across various market venues.

²⁸ In the same way a security or a commodity derivative contract might be.

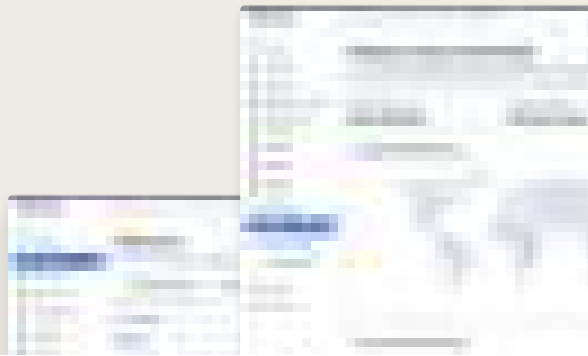
Other Tokenized Metal Markets

Currently, tokenized gold products represent only 0.46% of the total value in the tokenized precious metals market. This proportion is unexpectedly low compared to traditional markets.

In the future, we anticipate an increase in the tokenization of other precious metals, including silver, platinum, copper, and palladium.

Resources

Investors, issuers, and service providers, use the [RWA.xyz Platform](#) to understand tokenized asset markets.



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Talk to the team about tokenized asset data.

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