[REPORT]

State of Tokenized BTC: A $1T Opportunity

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Executive Summary

The tokenized Bitcoin (BTC) market has **the potential to unlock $950bn in BTC liquidity**, which currently remains unproductive.

Significant untapped opportunities exist among users seeking better mitigation of counterparty risks, including those comfortable with centralized solutions and those preferring a decentralized, trust-minimized approach.

The tokenized BTC Market Cap currently stands at approximately $16.9bn, representing a mere 1.23% of the BTC Market Cap. This highlights the immense untapped potential for solutions offering a programmable version of BTC.

The leading asset today, **wBTC, dominates the market with a 60.4% share**, which increases to a **staggering 87.2% when Binance's BTCB is included**.

Currently, we estimate **there are 21 market participants** and rising, of which **40% are live or expected to launch in 2024**.

We predict that centralized solutions will be fueled by centralized exchanges (CEX) users and institutional adoption, while decentralized solutions will be driven by a $648bn TAM. We expect both approaches to evolve in parallel.
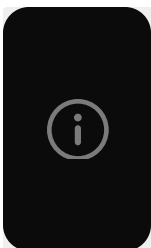
Historical Context and Evolution

Despite having liquidity of more than $950bn[1], the possibilities to leverage BTC's liquidity are extremely limited. This is due to Bitcoin's technical constraints in terms of functionality and programmability. However, developers have built solutions to unlock BTC's potential through tokenization, which we will call throughout the report 'tokenized BTC solutions.'

Those tokenized solutions are bridges, where BTC will move from the Bitcoin L1 blockchain to another blockchain that supports smart contracts. This is accomplished using the minting and burning process, which involves locking BTC on Bitcoin L1 and issuing a tokenized version on another blockchain. This approach maintains a 1:1 peg ratio across all tokenized BTC solutions discussed in the report. When reversing the process, the tokenized asset is burned, triggering the bridge to release an equivalent amount of the original BTC on the Bitcoin L1.

These tokenized BTC solutions typically involve several actors:

- Those responsible for securing BTC on the Bitcoin L1. This process is done by a Bitcoin wallet, generally a multi-sig, with the private key divided into several shares, often distributed among different actors.
- Those conducting the minting and burning process of tokenized BTC.
- Those adding/removing liquidity by depositing/withdrawing their BTC into/from these solutions.

In this report, we will focus on three types of bridges:

1. **Centralized**: These are considered centralized when a single entity has majority control over the security of the Bitcoin wallet on the Bitcoin L1.
2. **Federated Bridges**: These involve a permissioned group of trustees who collectively handle the security of the Bitcoin wallet on the Bitcoin L1.
3. **Decentralized/Trust-minimized Bridges**: These define a permissionless and decentralized network that manages the security of the Bitcoin wallet on the Bitcoin L1.

While different tokenized BTC solutions may have their own features, they generally adhere to this shared definition.

These solutions began emerging in 2018, with pioneers like Rootstock's rBTC and Liquid's L-BTC. In January 2019, BitGo, a leading institutional-grade custodian, introduced wBTC (Wrapped Bitcoin). Unlike its predecessors, who launched on their own networks, wBTC differentiated itself by launching on Ethereum, the leading programmable blockchain.

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[1] Free Float Supply - November 1, 2024 - It's a measure of the actual BTC supply available to markets, not subject to vesting, other lockups, dormancy, or loss - https://docs.coinmetrics.io/network-data/network-data-overview/supply/free-float-supply

The Rise of Tokenized BTC

As tokenized BTC started to gain traction in early 2020, the true breakthrough came from wBTC during the "DeFi Summer" of 2020. This period, kick-started by Compound's liquidity mining program in May, saw wBTC's popularity soar. The demand was so enormous that wBTC's supply skyrocketed by 70 times in just five months, growing from 1,297.37 wBTC in May 2020 to 92,016.63 wBTC by September 2020[2].
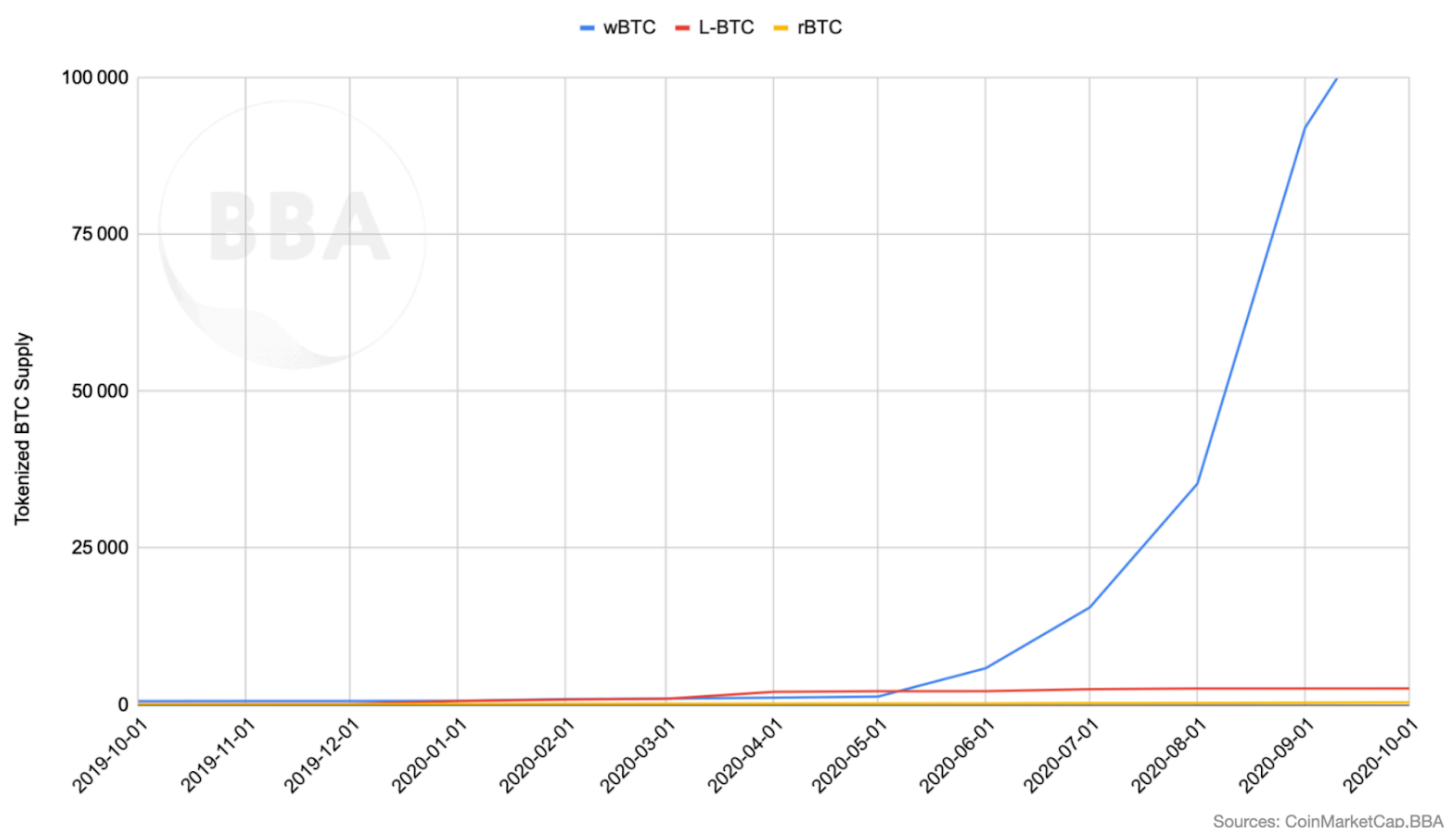
wBTC's supply skyrocketed[3]

wBTC became the leading solution by providing BTC's store-of-value aspect and liquidity to Ethereum dApps, such as lending/borrowing platforms and decentralized exchanges (DEX).

During the DeFi Summer, wBTC achieved a product-market fit for tokenized BTC, becoming the most trusted tokenized solution, and new entrants like renBTC emerged. However, each solution will highlight the inherent risks of tokenized BTC.

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[2] Wrapped Bitcoin's wBTC 2020 Growth - https://coinmarketcap.com/currencies/wrapped-bitcoin/

[3] wBTC's supply skyrocketed - BBA, CoinMarketCap

The Inherent Risks of Tokenized BTC

Ren Network, a significant player in the tokenized BTC space, which at its peak in November 2021 had issued ~$1.17bn worth of renBTC[4], shut down following the collapse of its parent company, Alameda Research[5]. The BTC was supposedly held in a multi-signature wallet controlled by a decentralized network of nodes[6]. However, it was later revealed that the Ren team was behind these nodes. This crisis put the remaining BTC in custody at risk and forever reshaped the tokenized BTC landscape, exposing the risks of centralized custody solutions.

These risks resurfaced on August 9, 2024, when BitGo shifted to multi-jurisdictional custody for wBTC[7] through a joint venture with BiT Global involving TRON Founder, Justin Sun. This move prompted trust concerns in the crypto community, given Sun's controversial practices, including the management of TUSD, TrustToken's stablecoin natively minted on several networks, including TRON. In response, MakerDAO, a top DeFi protocol, halted new borrowing against wBTC[8] despite its importance to their DAI stablecoin collateral and revenue streams.

In the wake of these developments, innovative solutions have begun to reshape the tokenized BTC landscape. Let's explore the key factors behind this transformation and assess the current state of the market.

Tokenized BTC Landscape

Key Drivers Behind Tokenized BTC Solutions

An increasing number of solutions are emerging, and it's reasonable to question what's driving them. Two key drivers stand out: the use cases that stem from tokenization and the different untapped audiences.

Let's start with the tokenization, which unlocks BTC's potential for new use cases such as:

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[4] RenBTC - https://www.coingecko.com/en/coins/renbtc

[5] Alameda-backed Ren Warns Crypto Could Be Lost as Platform Shuts Down - https://blockworks.co/news/alameda-backed...

[6] A Massive Honeypot: Ren Holds $100M in Bitcoin in Centralized Wallet - https://decrypt.co/40110/massive-honeypot-ren...

[7] BitGo to Move WBTC to Multi-Jurisdictional Custody to Accelerate Global Expansion Plan - https://blog.bitgo.com/bitgo-to...

[8] MakerDAO stops new WBTC-backed loans following its BitGo concerns - https://www.theblock.co/post/311480/maker...

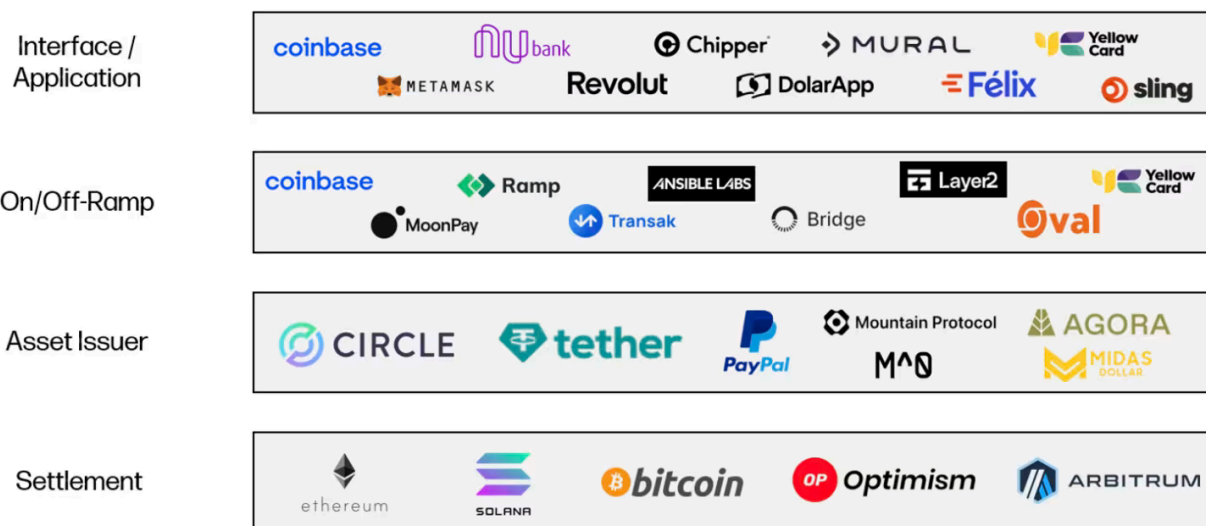# 1. Turning BTC into a Yield-Generating Store of Value

a) wBTC has demonstrated that BTC can serve as top-notch collateral in DeFi:

- Approximately 40% of wBTC issued on Ethereum[9] is utilized in lending and borrowing dApps. Notably, Aave V3, a prominent DeFi platform, has 15% of its capital in wBTC[10].
- Crypto-backed stablecoins like crvUSD and DAI are collateralized by wBTC. crvUSD is 35% collateralized by wBTC[11], and DAI is 9% collateralized by wBTC[12].

b) BTC can secure PoS networks through innovative solutions such as Babylon and Mezo.

2. Bringing BTC closer to Satoshi's vision of 'electronic cash' by integrating it with scaling networks.

Tokenized BTC can leverage the same Crypto Payment Stack built for widespread stablecoin adoption, including the most popular interfaces, on/off ramp solutions, and settlement layers enabling fast and cheap microtransactions.

Source: Galaxy Digital[13]

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[9] wBTC holders, as of October 1, 2024 - https://etherscan.io/token/0x2260fac5e5542a773aa44fbcfedf7c193bc2c599#balances

[10] Chaos Labs - wBTC BitGo Custody Update, as of August 12, 2024 - https://governance.aave.com/t/chaos-labs-wbtc-bitgo...

[11] CRVUSD Collateral Value, as of October 1, 2024 - https://crvusd.curve.fi/#/ethereum/markets

[12] Maker DAO Tokens Breakdown, as of October 1, 2024 - https://defillama.com/protocol/makerdao#tvl-charts

[13] The Future of Payments - https://www.galaxy.com/insights/perspectives/the-future-of-payments/

Although use cases stemming from tokenization drive the adoption of Tokenized BTC solutions, they inherently carry default risks, also known as counterparty risks. In the aftermath of the renBTC and wBTC events, distinct audiences have emerged, each with varying expectations regarding the degree of risk mitigation of those bridges. These distinct audiences can be broken down as follows:

- Users comfortable with centralized bridges and their approach to mitigating counterparty risks.
- Users who prefer federated bridges and their level of counterparty risk mitigation.
- Users who seek the highest level of counterparty risk mitigation, currently provided by decentralized or trust-minimized bridges.

Those audiences can be further divided into subgroups:

- **For federated bridges**
  1. Users of established smart contract networks like Ethereum, Solana, Base, and Arbitrum who value the scalability, large ecosystem, and liquidity of those networks.
  2. Users who are sensitive to Bitcoin ecosystem. This group prioritizes bridges that include Bitcoin ecosystem stakeholders, like miners or infrastructures.
- **For decentralized/trust-minimized bridges**
  1. Users of established smart contract networks like Ethereum, Solana, Base, and Arbitrum who value the scalability, large ecosystem, and liquidity of those networks.
  2. Users who are sensitive to Bitcoin ethos. This group prioritizes bridges with a high degree of decentralization and the least additional trust assumptions beyond those of Bitcoin.
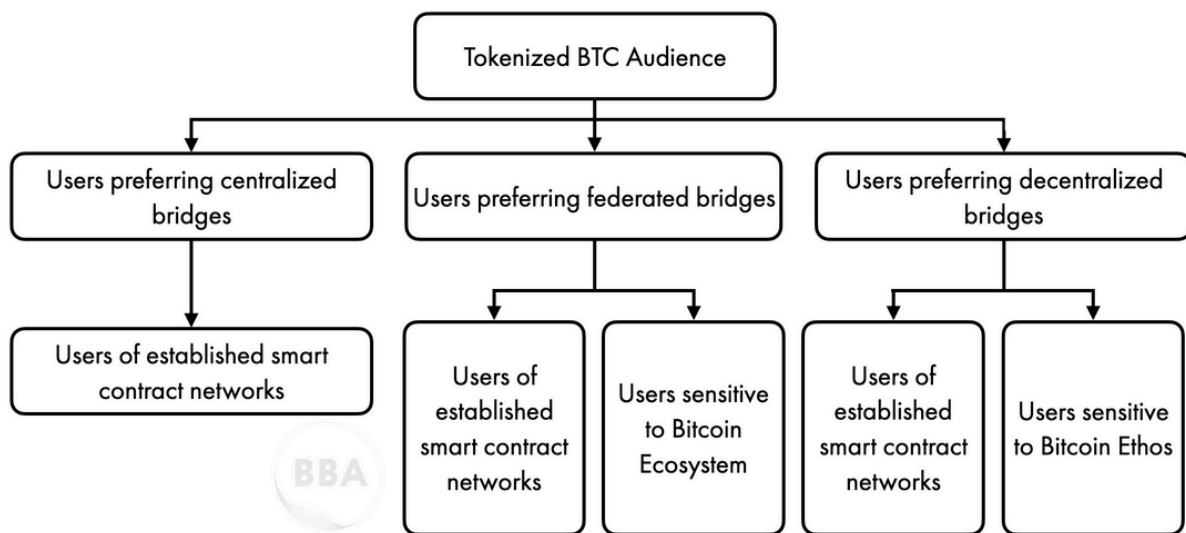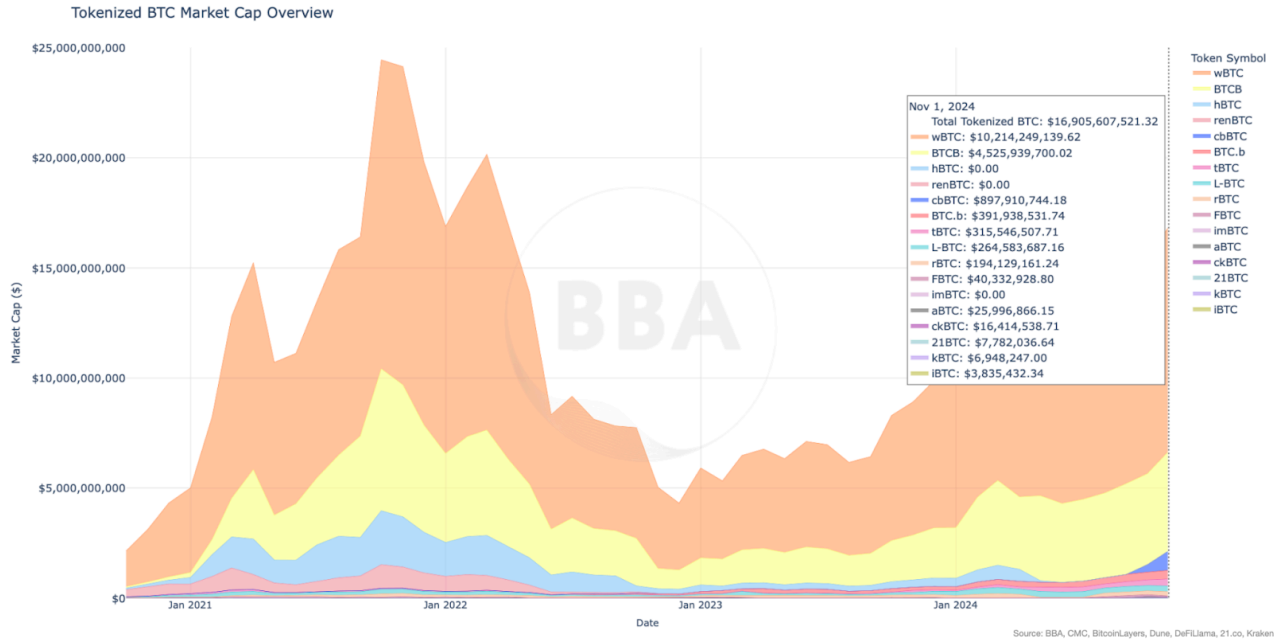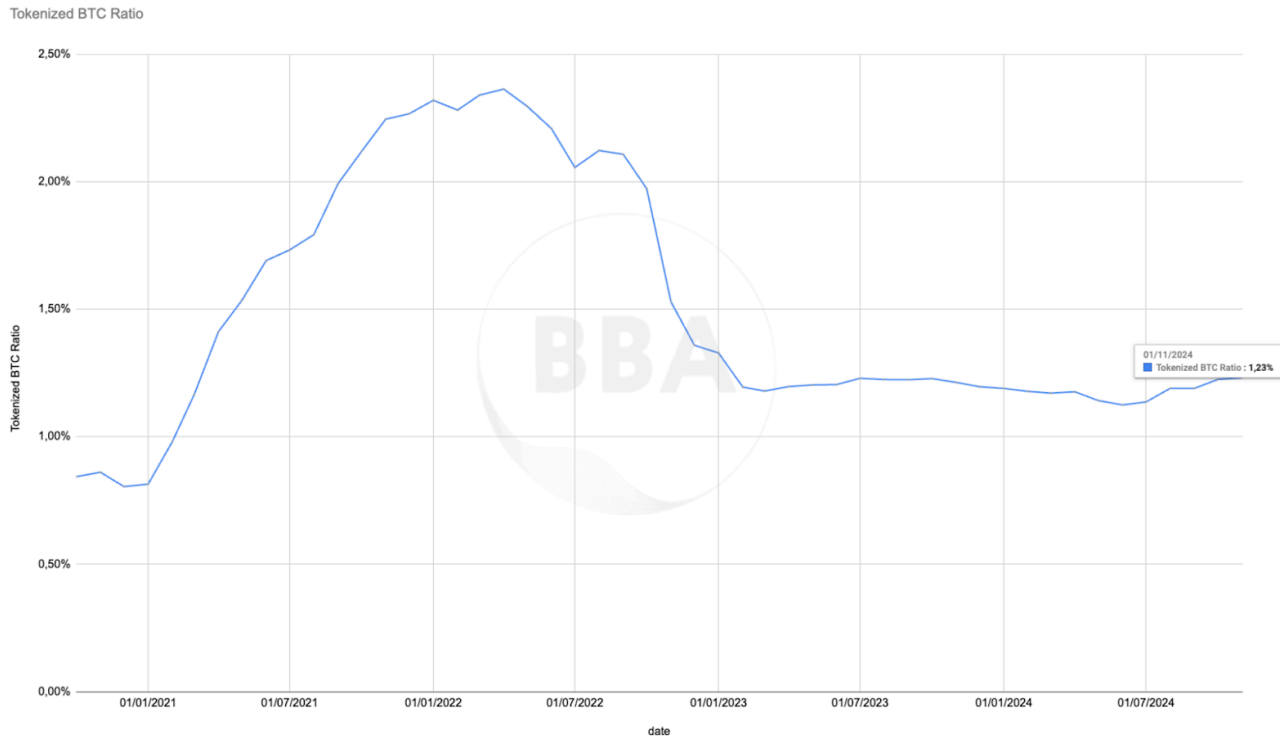

Tokenized BTC Audience[14]

Solutions addressing these audiences continue to emerge, with different levels of counterparty risk mitigation. This is creating a new landscape that we will analyze.

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[14] Tokenized BTC Audience - BBA

Landscape Overview

Tokenized BTC Market Cap Overview

Nov 1, 2024
Total Tokenized BTC: $16,905,607,521.32

- wBTC: $10,214,249,139.62
- BTCB: $4,525,939,700.02
- hBTC: $0.00
- renBTC: $0.00
- cbBTC: $897,910,744.18
- BTC.b: $391,938,531.74
- tBTC: $315,546,507.71
- L-BTC: $264,583,687.16
- rBTC: $194,129,161.24
- FBTC: $40,332,928.80
- imBTC: $0.00
- aBTC: $25,996,866.15
- ckBTC: $16,414,538.71
- 21BTC: $7,782,036.64
- kBTC: $6,948,247.00
- iBTC: $3,835,432.34

Token Symbol
- wBTC
- BTCB
- hBTC
- renBTC
- cbBTC
- BTC.b
- tBTC
- L-BTC
- rBTC
- FBTC
- imBTC
- aBTC
- ckBTC
- 21BTC
- kBTC
- iBTC

Source: BBA, CMC, BitcoinLayers, Dune, DeFiLlama, 21.co, Kraken

Tokenized BTC Market Cap Overview[15]

Tokenized BTC Ratio

01/11/2024
Tokenized BTC Ratio : **1,23%**

Tokenized BTC Ratio[16]

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[15] Source: BBA

[16] Source: BBA

The tokenized BTC market cap, including only active solutions, is valued at approximately $16.9 billion, representing 1.23% of Bitcoin's market cap. Since October 2020, the market has grown significantly from $2.15 billion to its current value, with its share of Bitcoin's market cap increasing slightly from 0.84% to 1.23%. The market peaked in October 2021 at $24.4 billion, accounting for 2.12% of Bitcoin's market cap at that time.
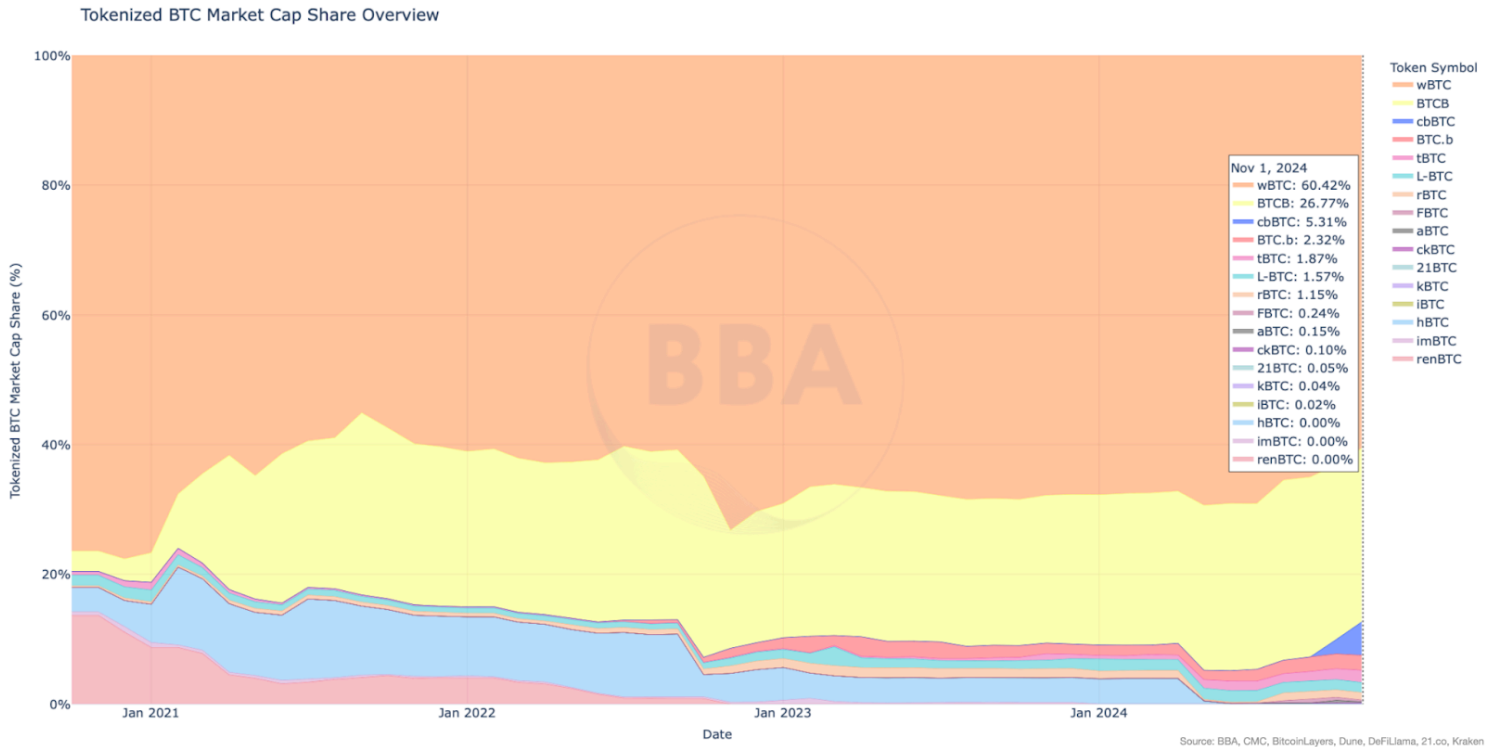
Tokenized BTC Market Cap Share Overview[17]

The tokenized BTC market is heavily dominated by two major players. wBTC continues to lead, commanding an impressive 60.4% share of the tokenized BTC market cap, down from its October 2020 level of 76.41%. BTCB follows closely with a 26.8% share. Together, these two solutions dominate the market, accounting for a substantial 87.2% of the tokenized BTC market cap.

BitGo's announcement to move WBTC to multi-jurisdictional custody has stirred the industry, with top DeFi protocols having conversations regarding the offboarding of wBTC. However, this hasn't significantly impacted wBTC's dominance, which has slightly decreased from 65.47% to 60.4%.

Interestingly, this dominance hasn't hindered innovation, as 40% of all tokenized BTC solutions have launched or are about to launch in 2024. This trend could be explained by several factors:

- Most wBTC and BTCB are available on only two blockchains. Notably, ~87% of wBTC is available on Ethereum (after deducting bridged wBTC), while <u>100% of BTCB resides on the BNB Smart Chain</u>[18].

  This concentration leaves significant opportunities for growth as other networks remain untapped.

As of Oct 2, 2024	Supply of wBTC	% of WBTC supply
wBTC minted natively on Ethereum	152380	99,83%
wBTC minted natively on Osmosis	86	0,06%
wBTC minted natively on Kava	76	0,05%
wBTC minted natively on Base	0	0,00%
wBTC minted natively on Tron	100	0,07%
Total	**152643**	

As of Oct 2, 2024	Supply of Bridged wBTC minted on Ethereum
Arbitrum One: L1 ERC20 Gateway	10326
Polygon (Matic): ERC20 Bridge	4078
Wormhole: Portal Token Bridge	2552
Optimism: Gateway	1314
Avalanche: Bridge	652
Across Protocol: Hub Pool V2	470
Axelar: Gateway	323
Mantle: L1 Standard Bridge Proxy	255
Scroll: L1 Standard ERC20 Gateway Proxy	176
Starknet: StarkGate WBTC Bridge	101
Bridged wBTC minted on Ethereum	**20247**
wBTC available on Ethereum	**132133**
% of wBTC available on Ethereum	**87%**

- By targeting an audience comfortable with centralized approaches, these dominant solutions have left ample room for decentralized alternatives to flourish.
- The tokenized BTC market itself has significant room for growth, considering the potential to unlock $950bn in BTC liquidity.

Now that we have a better understanding of the landscape overview, let's take a closer look at each solution and those that are yet to come.

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[18] BSC Scan - https://bscscan.com/token/0x7130d2a12b9bcbfae4f2634d864a1ee1ce3ead9c

The Tokenized BTC Landscape

Q4 2024 TOKENIZED BTC LANDSCAPE

	WBTC	BTCB	cbBTC	BTC.b	tBTC	L-BTC	rBTC	FBTC	aBTC	ckBTC	21BTC	kBTC	iBTC	m-BTC	sBTC	zBTC	cBTC	hBTC	renBTC	xBTC	imBTC
Type of Bridge	Centralized Bridge	Centralized Bridge	Centralized Bridge	Federated Bridge	Transitioning to Trust-minimized Bridge	Federated Bridge	Transitioning to Trust-minimized Bridge	Federated Bridge	Federated Bridge	Federated Bridge	Centralized Bridge	Centralized Bridge	Federated Bridge	Centralized Bridge	Transitioning to Trust-minimized Bridge	Federated Bridge	Federated Bridge	Centralized Bridge	Centralized Bridge	Centralized Bridge	Centralized Bridge
Bridge Launched	Jan 2019	June 2019	Sept 2024	June 2022	May 2020	Oct 2018	Jan 2018	July 2024	Nov 2023	Feb 2023	Sept 2024	Oct 2024	April 2024	April 2024	Expected to be live in Q4 2024	Expected to be live in Q4 2024	Expected to be live in Q4 2024	Feb 2020 - Considered discontinued	May 2020 - Considered discontinued	Jan 2021 - Considered discontinued	Oct 2019 - Officially discontinued in Jan 2024
Circulating Supply	147,005 WBTC	65,138 BTCB	12,923 cbBTC	5,641 BTC.b	4,541 tBTC	3,808 L-BTC	2,794 rBTC	580 FBTC	374 aBTC	236 ckBTC	112 21BTC	100 kBTC	55 dlcBTC	-	-	-	-	-	-	-	-
Blockchain Natively Minted	Ethereum, Base, Kava, Osmosis, and Tron	BNB Smart Chain	Ethereum, Base, Solana	Avalanche C-chain	Ethereum, Arbitrum	Liquid	Rootstock	Ethereum, Mantle, BNB Chain, BOB	Stacks	ICP	Ethereum, Solana	Ethereum, OP Mainnet	Arbitrum, Base	Merlin	Stacks	Solana	Coordinate	Ethereum	Ethereum	Stacks	Ethereum
Deposit/Withdrawal of BTC	Permissioned	Permissioned	Permissioned	Permissionless	Permissionless	Permissionless	Permissionless	Permissioned	Permissionless	Permissionless	Permissioned	Permissioned	Permissioned	Permissionless	Permissionless	Permissionless	Permissionless	Permissioned	Permissionless	-	Permissionless

Source: BBA, Snapshot as of Nov 1, 2024

BTC Tokenized Landscape (November 1, 2024)[19]

There are 21 market participants in this space. Among these, 14 are currently active, three are expected to launch in Q4 2024, and four are discontinued. To better understand their approaches, let's examine how they proceed to secure BTC on the Bitcoin blockchain, manage the minting and burning process, and whether the deposit and withdrawal of BTC on these solutions is permissioned or not.

wBTC was launched in January 2019 and is considered the leading tokenized BTC. Until recently, BTC was held in a Bitcoin multi-sig wallet secured solely by BitGo. Now, two of the three multi-sig keys are held by BitGo, while one is held by BiT Global[20], involving TRON founder, Justin Sun. The same applies to the management of minting and burning, and the deposit and withdrawal of BTC is a permissioned process[21]. wBTC is natively minted on Ethereum, Base, Kava, Osmosis, and TRON

BTCB, Binance's tokenized BTC, launched in June 2019. Binance handles the custody and management of the minting and burning process[22], and only Binance users can deposit and withdraw BTC[23]. BTCB is natively minted on the BNB Smart Chain.

cbBTC is Coinbase's tokenized BTC, launched in September 2024. Coinbase holds BTC in custody[24] and seems to manage the minting and burning process[25]. Only Coinbase users can deposit and withdraw BTC. cbBTC is natively minted on Ethereum, Base, and Solana.

[19–25] See page 14 for references

BTC.b went live in June 2022. It's an ERC-20-wrapped version of BTC on Avalanche. The bridge leverages Intel SGX enclaves to secure the Bitcoin wallet and manage the minting and burning process[26]. Intel SGX stands for Intel Software Guard Extensions. It provides a secure and isolated execution environment to ensure that no single party has access to the Bitcoin wallet's secret keys. The SGX enclave is secured by 8 Wardens (bridge nodes), including Ava Labs, Ankr, Halborn, Blockdaemon, Chainstack, BwareLabs, Avascan, and Protofire. The minting and burning process requires approval from at least six of eight Wardens through the SGX enclave. Anyone can deposit and withdraw BTC through the Core Wallet extension. BTC.b is natively minted on Avalanche C-chain.

tBTC is a tokenized BTC launched in May 2020 by Thesis. BTC is currently held and secured by a permissioned set of 35 Beta Staker Nodes from the Threshold Network[27]. Seven DeFi protocols including Aave and Synthetix manage the minting and burning process[28], with Guardians monitoring to veto suspicious behavior. Anyone can deposit and withdraw BTC through the Threshold Network Dashboard[29]. tBTC is natively minted on Ethereum and Arbitrum.

L-BTC is the tokenized BTC of the Liquid Network, a Bitcoin sidechain launched by Blockstream in October 2018. The sidechain is secured by the Liquid Federation, a group of approximately 60 crypto-native organizations. A subset of 15 members of the Liquid Federation is securing BTC with an 11-of-15 multi-signature wallet and manages the minting and burning process[30]. Anyone can deposit or withdraw BTC[31]. L-BTC is natively minted on Liquid.

rBTC was launched in January 2018 as wrapped BTC natively minted on Rootstock, an EVM-compatible Bitcoin sidechain. BTC is secured by a 5-of-9 multi-sig Bitcoin wallet controlled by the Powpeg Federation[32], a group of nine crypto-native organizations, including BlockVenture, Collider, Constata, Luxor, MyCointainer, pNetwork, Rootstock Labs, Sovryn, and Xapo[33]. The Federation manages the minting and burning process[34]. Anyone can deposit or withdraw BTC via PowPeg[35]. Rootstock is working on a trust minimized bridge based on BitVMX technology that will replace the PowPeg in late Q1 2025.[36]

FBTC was launched in July 2024. It's an omnichain (ERC-20 and more) tokenized BTC built by Ignition. The Security Council consists of Mantle, Antalpha Prime, and Cobo, who control the Bitcoin multi-sig wallet through the integration of Multi-Party Computation (MPC) technology[37]. They are also responsible for managing the minting and burning process[38]. The deposit and withdrawal of BTC is a permissioned process. FBTC is natively minted on Ethereum, Mantle, BNB Chain, and BOB.

aBTC was built by Alex Protocol and launched in November 2023. The BTC reserves backing aBTC are stored in institutional-grade MPC wallets provided by Cobo and Fireblocks. These wallets are under the control of a DAO. The DAO consists of the XLink core team, select investors in XLink, and network validators securing XLink. The DAO also oversees the minting and burning processes for aBTC. Anyone can deposit and withdraw BTC. aBTC is natively minted on Stacks.

ckBTC (Chain-Key Bitcoin) is the tokenized BTC of the Internet Computer Protocol (ICP) network, released in February 2023. 34 operators, elected via ICP governance[39], secure BTC held in custody and manage the minting and burning process. Anyone can deposit and withdraw BTC through icRouter[40], ICPSwap[41] or NNS[42]. ckBTC is natively minted on ICP.

21BTC was built by 21.co and launched in September 2024. BTC is held in custody by institutional-grade third-party custodians[43], and 21.co's Onyx asset management operation protocol[44] manages the minting and burning process. The deposit and withdrawal of BTC is a permissioned process. 21BTC is natively minted on Ethereum and Solana.

kBTC is Kraken's tokenized BTC, launched in October 2024. Kraken Financial holds BTC in custody[45], though details about the minting and burning process remain unclear. Only Kraken users can deposit and withdraw BTC. kBTC is natively minted on Ethereum and OP Mainnet. Kraken plans to extend kBTC to additional networks in the future.

iBTC (fka dlcBTC) went live in April 2024, developed by DLC.Link using Discreet Log Contracts (DLCs)[46] on Bitcoin. The protocol uses a 2-of-2 multisig wallet system between KYC'd merchants and 15 attestors. When a merchant transfers BTC to the multisig wallet, attestors verify it, mint iBTC tokens, and reverse the process for withdrawals. DLC technology ensures locked BTC returns only to the original merchant[47]. Attestors, including Hashkey Cloud, DeSpread, Stakin, P2P, Everstake, Chorus One, Validation Cloud, and Kiln, manage the minting and burning of iBTC and locked BTC releases. The deposit and withdrawal of BTC is a permissioned process. iBTC is natively minted on Arbitrum and Base.

m-BTC is Merlin's tokenized BTC, launched in April 2024. BTC is secured by an MPC wallet managed by Cobo[48]. Information about who conducts the minting and burning process remains unclear. Anyone can deposit and withdraw BTC via Merlin's official bridge[49]. m-BTC is natively minted on Merlin.

sBTC is Stacks' tokenized BTC, expected to begin rollout in Q4 2024. BTC will be secured by permissionless Stacks validators, who will also manage the minting and burning process[50]. Anyone will be able to deposit and withdraw BTC, and sBTC will be natively minted on Stacks.

[39–50] See page 14 for references

zBTC is Zeus Network's iteration of pegged BTC, expected to be launched in Q4 2024. The security of this tokenized BTC solution involves two key actors: ZeusNode and ZeusNode Guardians[51].

- The ZeusNode is responsible for collecting BTC deposits/withdrawal requests from users and proposing to lock/unlock them. They are also responsible for managing the minting and burning process.
- The ZeusNode Guardians are multiple reputable institutions that approve and sign the locking and unlocking proposals. The approved and locked BTC will be held in the Cold Reserve, which is an MPC Wallet.

Any user will be able to deposit and withdraw BTC. Additionally, zBTC will be natively minted on Solana.

cBTC was developed by Anduro and incubated by Marathon Digital, the largest listed Bitcoin mining company, and it should be launched in Q4 2024. The BTC wallet is secured through a 13/15 multi-signature setup controlled by 15 functionaries of the Anduro Collective[52]. Those functionaries will have a Marathon-level track record but will remain private. Their responsibilities will also include managing the minting and burning process alongside permissionless PoW Miners. Any user will be able to deposit and withdraw BTC, and cBTC will be natively minted on Coordinate, a Bitcoin sidechain built by Anduro.

hBTC is an ERC-20 wrapped BTC launched in February 2020 by Huobi Global, involving Justin Sun[53]. Huobi Global managed the BTC custody[54], though details about the minting and burning process governance remained unclear. Only Huobi users could deposit and withdraw BTC. hBTC was natively minted on Ethereum. It's important to note that for reasons that remain unclear, the hBTC price significantly depegged[55], and its supply has experienced drastic decreases:

1. In April 2023, the circulating supply of hBTC decreased by approximately 77%, dropping from 38,969.497 hBTC to 8,969.497 hBTC.

2. In May 2024, a second significant reduction occurred, with the supply falling by about 89%, from 8,969.487 hBTC to 969.487 hBTC.

renBTC was developed by Ren Protocol and introduced in May 2020 as an ERC-20 tokenized BTC. It used nodes to secure the underlying BTC and manage the minting and burning process. In February 2021, Alameda Research acquired renBTC. Ren later announced plans to transition from the original renBTC 1.0 to a new, community-controlled version called renBTC 2.0. However, this plan was derailed when Alameda Research collapsed. In the aftermath, it was revealed that the Ren team had been operating all of the nodes[56], contrary to the decentralized ethos that had been promoted. The team tried to return with renBTC 2.0, but it was too late; renBTC's reputation was tarnished.

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xBTC was Wrapped.com's tokenized BTC, introduced in January 2021. It was acquired by ALEX and converted to aBTC in July 2024[57]. xBTC was secured by Anchorage[58], though information about who conducted the minting and burning process remained unclear. Information about the deposit and withdrawal of BTC also remained unclear. xBTC was natively minted on Stacks.

imBTC, Tokenlon's tokenized BTC, was launched in October 2019. Tokenlon managed both the BTC custody and the minting and burning process[59]. Users could deposit and withdraw BTC through a permissionless process. Natively minted on Ethereum, imBTC was officially discontinued on January 31, 2024[60].

wBTC's recent event has reshuffled the deck. Among all the solutions mentioned, four have recently captured industry attention: wBTC, cbBTC, tBTC, and sBTC. Let's delve into them.

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[19] *Snapshot as of November 1, 2024. The market map represents a snapshot of Tokenized BTC. New experiments, projects, tokenized assets, etc., are being created daily. If your project is not listed but would like to be included in future versions, please reach out!*

[20] BitGo X's post - https://x.com/BitGo/status/1823751918575095854

[21] wBTC Whitepaper - https://wbtc.network/assets/wrapped-tokens...

[22] BNB Chain Blog Post - https://www.bnbchain.org/fr-FR/blog...

[23] BouceBit Docs - https://docs.bouncebit.io/user-guides...

[24] Coinbase Blog Post - https://www.coinbase.com/en-gb/blog...

[25] Coinbase User Agreement - https://www.coinbase.com/legal...

[26] Avalanche Blog Post - https://support.avax.network/en/articles...

[27] tBTC X's post - https://x.com/tBTC_project/status...

[28] PRNewswire article - https://www.prnewswire.com/news-releases...

[29] Threshold Network Dashboard - https://dashboard.threshold.network...

[30] Bitcoin Layers Article - https://www.bitcoinlayers.org/layers/liquid

[31] Trust Machines Blog Post - https://trustmachines.co/learn...

[32] Bitcoin Layers Article - https://www.bitcoinlayers.org/layers/rootstock

[33] Rootstock Website - https://rootstock.io/powpeg/

[34] Rootstock Blog Post - https://blog.rootstock.io/noticia/wrapped-tokens...

[35] PowPeg - https://powpeg.rootstock.io

[36] Rootstock Roadmap - https://rootstock.io/roadmap/

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wBTC

wBTC was launched in January 2019 by a consortium that included BitGo, Kyber Network, and Ren. The leading tokenized BTC adopts a centralized approach. Indeed, the keys of the 2-of-3 Bitcoin multi-signature wallet are currently distributed among three entities: BiT Global, BitGo Inc., and BitGo Singapore Ltd., each holding one key[61].

When users want to convert BTC to wBTC, they must go through one of 46 merchants, including exchanges, DeFi protocols, and institutions. After passing a compliance check, the user can deposit and withdraw their BTC into the multi-sig wallet through the merchant.

The minting and burning process for converting BTC into wBTC is handled by BitGo and is issued on the following chains: Ethereum, Base, Kava, Osmosis, and TRON.

Finally, there is a set of 13 signers (including Kyber, BitGo, Chainlink, and more), which we call the WBTC DAO, who, through a multi-sig contract, are responsible for the addition/removal of merchants and custodians for WBTC on Ethereum, as well as approving updates or revisions to the wBTC smart contracts.

Pros

- **Liquidity**: wBTC stands out as the most liquid tokenized BTC, boasting significant market depth on its wBTC/USDC trading pair on Ethereum as of October 18, 2024. Within a +/-2% price range on DEXes, wBTC offers a buy-side depth of $30.5m and a sell-side depth of $40.6m. This robust liquidity means it would take approximately $30.5m in buy orders or $40.6m in sell orders to shift wBTC's price by 2% in either direction. Additionally, wBTC is available on all the top centralized exchanges, including Binance, Bybit, OKX, and Coinbase.

Pair	2% Depth	-2% Depth	Chain	Source (2024/10/18)
wBTC/USDC	$30.5m	$40.6m	Ethereum	Odos
cbBTC/USDC	$11.8m	$16.6m	Base	Odos
tBTC/USDC	$19.2m	$8.4m	Ethereum	Odos
BTCB/USDC	$4.5m	$5.4m	BSC	Odos
cbBTC/USDC	$3.2m	$5.4m	Ethereum	Odos
BTC.b/USDC	$3.6m	$2.8m	Avalanche	Odos

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[61] BitGo Abruptly Pivots on Holders of WBTC Multi-Sig Keys Following Community Outcry - https://unchainedcrypto.com/bitgo-abruptly-pivots...

- **Multi-chain integration**: wBTC is well integrated across top chains, including Ethereum, Solana, Base, Arbitrum, Optimism, Polygon, Zk Sync, and more, through native issuance or third-party bridges.
- **DeFi Integration**: wBTC is implemented among all the best DeFi protocols.
- **Stress-Tested**: wBTC has been stress-tested for over five years, during which BitGo was the only custodian.

Cons

- **Trust Concern**: BitGo changed how wBTC operates without consulting wBTC stakeholders regarding the joint venture with BiT Global. This prompted MakerDAO to halt new borrowing against WBTC.
- **Single Point of Failure**: Despite BitGo's reputation in the industry, their impending control over 2/3 of the multi-signature keys for wBTC (split between BitGo Inc. and BitGo Singapore Ltd.) introduces a significant centralization risk.
- **Counterparty risk:** Bit Global's acquisition of 1/3 of the multi-signature keys introduces additional counterparty risk, especially considering the involvement of Justin Sun, known for controversial practices in the crypto space.
- **Regulatory Risks:** Custody becomes multi-jurisdictional, adding Hong Kong and Singapore to the US, potentially introducing regulatory complications.

While wBTC remains the market leader with superior liquidity and DeFi integration, BitGo's shift to multi-jurisdictional custody has sparked trust concerns, creating opportunities for alternative solutions.

cbBTC

Coinbase launched cbBTC in September 2024, a centralized solution with the potential to reduce the dominance of wBTC by leveraging its proven distribution model, which propelled USDC to widespread adoption. As mentioned previously, Coinbase holds BTC in custody and seems to manage the minting and burning process. The deposit and withdrawal of BTC are currently limited to retail and institutional clients with a Coinbase account.

Pros

- **Best User Experience:** Coinbase offers the best user experience for adopting tokenized BTC. Beyond the ability to mint cbBTC by withdrawing BTC from the Coinbase exchange, Coinbase provides a suite of products that facilitates on-chain onboarding, especially on Base.
- **Trust Assumption:** Coinbase is a major player in the crypto ecosystem with over a decade of experience. The company's reputation is further solidified by the adoption of its solutions by well-respected institutions. For instance, Coinbase Custody secures BlackRock's Bitcoin spot ETF, worth $29.95bn in BTC[62].
- **DeFi integration:** According to Coinbase, cbBTC is on its way to being integrated into many DeFi protocols, including Aave, SparkLend from Sky (formerly MakerDAO), and Compound.

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[62] SoSoValue IBIT NetAssets, as of November 1, 2024 - https://sosovalue.com/assets/etf/us-btc-spot

- **Regulatory Compliant:** Coinbase is based in the US and has an established track record in asset custody, which makes it well-positioned to facilitate institutional adoption.
- **Liquidity:** Despite being a relative newcomer, cbBTC has demonstrated remarkable liquidity growth since its launch just a month ago. As of October 18, 2024, the cbBTC/USDC trading pair on Base exhibits a market depth of $11.8m on the buy-side and $16.6m on the sell-side, available within a +/-2% price range on DEXes. We agree with BA Labs[63] that cbBTC benefits significantly from Coinbase's deep BTC/USD liquidity, which could suggest better liquidity over the coming months, gradually narrowing the liquidity gap with wBTC.

Pair	2% Depth	-2% Depth	Chain	Source (2024/10/18)
wBTC/USDC	$30.5m	$40.6m	Ethereum	Odos
cbBTC/USDC	$11.8m	$16.6m	Base	Odos
tBTC/USDC	$19.2m	$8.4m	Ethereum	Odos
BTCB/USDC	$4.5m	$5.4m	BSC	Odos
cbBTC/USDC	$3.2m	$5.4m	Ethereum	Odos
BTC.b/USDC	$3.6m	$2.8m	Avalanche	Odos

- **Multi-chain integration:** cbBTC is currently available on Ethereum, Base, and Solana and plans to expand to more chains in the future.

Cons

- **Single Point of Failure:** Coinbase is the sole custodian and manages the minting and burning process, which introduces significant centralization risks.
- **No Proof of Reserve:** While all other tokenized BTC solutions provide Proof of Reserve to ensure that the issued BTC is backed, cbBTC still needs to provide it as of October 3, 2024. However, implementing Proof of Reserve is part of their roadmap and is expected to be added in the future.
- **Counterparty Risk:** The counterparty risk remains present, but Coinbase mitigates it in case of insolvency or bankruptcy. According to risk management firm Llama Risk[64]: "Regarding Coinbase's potential insolvency or bankruptcy, our investigation confirmed that cbBTC holders can assert ownership over custodied BTC. These assets are protected from Coinbase's bankruptcy estate and third-party claims, as they don't become Coinbase property and are legally insulated from Coinbase's creditors."
- **Not stress-tested:** cbBTC has only been live for a month as of writing.

cbBTC is emerging as a compelling alternative to wBTC. It addresses key concerns such as trust concerns and regulatory risks while offering better mitigation of counterparty risks. However, it's important to note that cbBTC remains a centralized solution, which means the risk of a single point of failure persists.

Alternatives like tBTC can offer a more suitable approach for users from established smart contract networks who prefer decentralized/trust-minimized solutions.

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[63] Proposed Changes to Spark for Upcoming Spell - https://forum.sky.money/t/sep-12-2024-proposed-changes-to-spark-for-upcoming-spell/25076

[64] Onboard cbBTC to Aave v3 - https://governance.aave.com/t/arfc-onboard-cbbtc-to-aave-v3-on-base-and-mainnet/18988

tBTC

tBTC launched in May 2020 as an alternative to wBTC that leans towards trust minimization. Developed by Thesis, a company with over ten years of Bitcoin-building experience, tBTC emerged alongside other Thesis projects such as Fold, Mezo, and Acre.

Solutions such as tBTC drastically reinforce the security of the multi-sig Bitcoin wallet through the Threshold Signature Scheme (TSS). TSS is a technology that distributes private key generation and signing across multiple parties, known as **signers**. With TSS technology, BTC backing tokenized BTC is held in Bitcoin wallets where no single entity has full key control. Instead, key shares are distributed, with a preset number required for valid transaction signatures.

tBTC has leveraged TSS since v1, when custody was handled by Keep Network operators serving as signers, requiring 150% over-collateralization in ETH for incoming BTC. However, capital lock-up constraints in tBTC v1 prompted a restructuring.

Thesis introduced tBTC v2 in January 2023, replacing over-collateralization with a novel dynamic signer selection system. This new version emerged after Keep Network and NuCypher merged to form the Threshold Network, tBTC v2.

In tBTC v2, signers are selected from a sortition pool of staker nodes, where the probability of being chosen as a signer for each new wallet is proportional to the number of T tokens staked by the staker nodes, with a minimum stake of 40,000 T. Signers rotate on a weekly basis and transactions now require approval from 51 out of 100 signers. Currently, only a permissioned set of 35 Beta Staker nodes can become signers[65]. Plans are in place to expand to 136 nodes[66] and transition to a permissionless system.

The minting and burning process is done on Ethereum and Arbitrum, managed by minters and guardians, enabling permissionless BTC deposits for tBTC wrapping. Indeed, seven DeFi protocols (including Aave, Synthetix, and Curve)[67] act as minters monitor for valid deposits. Upon detection, they initiate tBTC minting requests. A three-hour delay allows Guardians from the ThresholdDAO and wider DeFi community to veto suspicious mints. If unchallenged, minting proceeds, allowing users to deploy tBTC in DeFi ecosystems.

While tBTC is minted and burned on Ethereum and Arbitrum, it leverages solutions such as Wormhole for cross-chain deployment across five chains: BOB, Solana, Base, Optimism, and Polygon.

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[65] tBTC Stakers FAQ - https://docs.threshold.network/staking-and-running-a-node/tbtc-stakers-faq

[66] Threshold Network Nodes Up - https://monitoring.threshold.network/grafana/public-dashboards/1a09fa3a621c4837988b36f2d6ae6e24...

[67] Threshold's tBTC Launches Minting for Only Decentralized, Permissionless, Scalable BTC Bridge to DeFi - https://prnewswire.com/...

Pros

- **Security:** Besides TSS technology, the Threshold Network provides an extra level of security by relying on numerous nodes that must stake the T token and require approval from 51% of them to execute transactions.
- **Decentralized:** Currently limited to 35 Beta Staker nodes, it may expand to hundreds of nodes once the system becomes permissionless, making it relatively decentralized.
- **Multi-chain integration:** tBTC is live on Ethereum, Arbitrum, BOB, Solana, Base, Optimism, and Polygon.
- **DeFi integration**:
  - Top DeFi protocols such as Aave, Curve, and Morpho added tBTC to their protocols.
  - Also, tBTC is an integral part of the MEZO ecosystem, securing the Mezo chain.
- **Stress-Tested**: tBTC has been stress-tested for over four years; however, this can be nuanced since tBTCv2 has only been live since January 2023
- **Liquidity**: tBTC shows great liquidity. As of October 18, 2024, the tBTC/USDC trading pair on Ethereum displays a market depth with a buy-side depth of $19.2m and a sell-side depth of $8.4m, available within a +/-2% price range. Additionally, tBTC is available on the centralized exchange Kraken.

Pair	2% Depth	-2% Depth	Chain	Source (2024/10/18)
wBTC/USDC	$30.5m	$40.6m	Ethereum	Odos
cbBTC/USDC	$11.8m	$16.6m	Base	Odos
tBTC/USDC	$19.2m	$8.4m	Ethereum	Odos
BTCB/USDC	$4.5m	$5.4m	BSC	Odos
cbBTC/USDC	$3.2m	$5.4m	Ethereum	Odos
BTC.b/USDC	$3.6m	$2.8m	Avalanche	Odos

Cons

- **Counterparty risk**: The risk remains, but it is mitigated by a sophisticated system involving 35 signers.
- **Minters are permissioned:** Even if signers become permissionless, certain aspects of the system, such as the minters, will remain permissioned. This prevents tBTC from being fully trust-minimized.

For users from established smart contract networks seeking trust-minimized solutions, tBTC stands out as a secure, decentralized option with significant liquidity.

For users seeking decentralized tokenized BTC who are sensitive to Bitcoin's ethos, sBTC's approach is likely to be appealing.

sBTC

Announced in December 2022[68], sBTC is currently under development by Stacks Core Developers. It's expected to begin rollout in Q4 2024, progressing to a fully decentralized system in 2025.

sBTC is a solution leaning towards trust-minimization, bridging BTC to Stacks, a Layer 2 solution inheriting 100% Bitcoin finality. BTC is held in custody, leveraging TSS technology. sBTC signers (called "stackers") are selected from an open-membership group of participants who stake STX as collateral in the Proof of Transfer (PoX) consensus mechanism, with a minimum stake of more than 100,000 STX to run a Signer. sBTC transactions require approval from more than 70% of the Signers.

The minting and burning process for sBTC is managed by Signers, enabling permissionless BTC deposits for sBTC wrapping. sBTC v1 will be secured by 15 elected permissioned Signers on Stacks at the beginning, including BitGo, Copper, Luxor, and Aptos, before making the system permissionless in 2025.

Pros

- **Highly secure:** sBTC incorporates multiple layers of security. By being secured at the Stacks consensus level, sBTC inherits Bitcoin's blockchain protection. The combination of the PoX consensus algorithm and the requirement for 70% of signers to approve transactions makes sBTC one of the most secure infrastructures for tokenized BTC solutions, at least in theory.
- **Decentralized:** sBTC is one of the few solutions that plans to be fully permissionless on the custody and minting side. The Stacks architecture is suited to make the system fully decentralized.
- **Scalable:** With the recent activation of the Nakamoto upgrade, Stacks' block production time is set to decrease to approximately 5 seconds, which makes it less scalable than solutions like Base or Solana. However, comparing it to scalable solutions inheriting Bitcoin security is another story and it becomes the most scalable solution.
- **Multi-chain integration:** sBTC is planned to be available on Stacks, Aptos, and Solana.

Cons

- **DeFi integration:** Clarity has excellent qualities, including its security, but it's a novel programming language that can make DeFi integration more tricky. However, they plan to support WASM, which could enable other languages such as Rust or Solidity, reducing the friction.
- **Counterparty risk:** This risk remains, but it is mitigated through an advanced system that includes potentially 15 actors at launch for custody and minting. Additionally, it eliminates dependence on external oracles.
- **Not stress-tested:** It's not live yet.

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[68] Stacks co-founder X's post - https://x.com/muneeb/status/1603065919508709377

For users sensitive to Bitcoin's ethos, sBTC currently appears to be one of the closest solutions aligned with those principles. It inherits security from the Bitcoin network, plans to be fully permissionless, and has the architecture to make the system very decentralized after its launch phase.

While wBTC remains the leading solution, compelling alternatives have emerged among the compared options.

cbBTC, though centralized, offers a stronger trust assumption than wBTC, provides significant liquidity, and is progressing towards full DeFi integration across three chains.

tBTC has surfaced as a prominent alternative, sharing sBTC's goal of eliminating single points of failure and enhancing security through TSS technology. As of writing, tBTC provides the best liquidity after wBTC on Ethereum. Its integration into top DeFi protocols across seven chains, including Aave, further solidifies its position in the market.

sBTC is very promising on paper, as it could become the most secure and trust-minimized tokenized BTC solution.

The market is currently experiencing significant shifts in response to the wBTC event. We anticipate a strong adoption for both centralized and decentralized tokenized BTC solutions.

Future Outlook

CEX Users And Institutions Will Drive The Adoption of Centralized Solutions

The most widely adopted tokenized BTC solutions are centralized, holding 92.6% of market share[69]. We expect these solutions to continue seeing robust adoption.

Currently, there are 3 million BTC held on centralized exchanges (CEXs)[70], mostly sitting idle. Three major exchanges, Binance, Coinbase and Kraken, have introduced their own tokenized BTC versions: BTCB, cbBTC and kBTC. These exchanges can leverage their existing distribution models to onboard CEX users on-chain, incentivized by yield-generating opportunities and a better UX to use BTC for payments.

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[69] *BTC Tokenized Landscape (November 1, 2024)*

[70] Glassnode - https://studio.glassnode.com/metrics?a=BTC&m=distribution.BalanceExchanges

Additionally, institutional investors seeking regulated options and trusted partners will also contribute to it, starting with Maple Finance's integration of wBTC and recently announced cbBTC[71].

Furthermore, with several issuers, including VanEck, Fidelity, and Franklin Templeton, initially seeking to include staking capabilities in their ETH ETF proposals, we believe staking within spot ETH ETFs is a matter of when, not if, as stated by the president of the ETF Store[72]. This does not make it impossible for institutions to expect yield on their spot BTC ETFs, potentially through centralized tokenized BTC solutions like cbBTC. If custody is managed by the same entity overseeing the BTC ETF, it could possibly streamline regulatory compliance.

Although those solutions still have room to grow, the recent wBTC incident has reignited concerns about the inherent risks of centralization, paving the way for decentralized/trust-minimized approaches to gain traction.

Decentralized Solutions Target $648Bn TAM

While the wBTC event doesn't expose a novel flaw, it has reopened old wounds inflicted by previous centralized custody failures. These include trusted bridge collapses like renBTC and hBTC, as well as catastrophic centralized exchange failures such as Mt. Gox and FTX.

These wounds cause BTC holders to be unwilling to trade off their self-custody for trusted solutions.

Indeed, despite BTC's enormous liquidity, wBTC supply peaked at a mere 1.5% of BTC's circulating supply over two years ago[73]. This figure has since dwindled to 0.74% as of November 1, 2024[74], indicating a reluctance among BTC holders to embrace centralized tokenization methods. Even more telling is that centralized lending platforms like Celsius, offering attractive yields of up to 6% APY (including CEL token boosts), failed to capture more than 1% of the circulating BTC supply[75]. This demonstrates that people were unwilling to trade off self-custody for trusted solutions, even for appealing yields.

However, a middle ground now exists with trust-minimized BTC tokenized solutions, significantly mitigating counterparty risk. These include decentralized bridges on established smart contract networks (e.g., Ethereum, Solana, Base) and decentralized bridges inheriting security from Bitcoin for users who want to stay aligned with the Bitcoin ethos. These alternatives could appeal to self-custodial holders, presenting a significant opportunity for decentralized solutions.

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[71] cbBTC: Live on Maple - https://maple.finance/news/cbbtc-live-on-maple

[72] Staking in Ethereum ETFs Might Be a Question of When, Not If - https://finance.yahoo.com/news/staking-ethereum-etfs...

[73] wBTC - https://www.coingecko.com/en/coins/wrapped-bitcoin

[74] wBTC - https://www.coingecko.com/en/coins/wrapped-bitcoin

[75] With Over 150,000 Bitcoin, Celsius Holds More Than MicroStrategy, Galaxy Digital, and Coinbase - https://www.prnewswire.com/news-releases/...

BTC Circulating Supply (01/10/2024 - Blockchain.com)	19 761 072			
Category	**Amount (BTC)**	**BTC in % of the circulating supply**	**Date**	**Source**
BTC held on exchanges	3 001 124	15,2%	01/10/2024	Glassnode
Other Lost BTC	2 050 483	10,4%	Mid-2017	Chainalysis
BTC from Satoshi (Patoshi entity) - Lost	1 096 204	5,5%	01/10/2024	Glassnode
BTC from U.S. ETFs	930 914	4,7%	01/10/2024	https://treasuries.bitbo.io/
BTC held by Miners - Lost	640 831	3,2%	01/10/2024	Glassnode
BTC held by governments	529 365	2,7%	01/10/2024	https://treasuries.bitbo.io/
BTC held by public companies	363 694	1,8%	01/10/2024	https://treasuries.bitbo.io/
BTC held by private companies (Mt. Gox excluded)	325 474	1,6%	01/10/2024	https://treasuries.bitbo.io/
BTC held by funds (excl. U.S. ETFs)	175 131	0,9%	01/10/2024	https://treasuries.bitbo.io/
BTC held by wBTC	152 593	0,8%	01/10/2024	CoinMarketCap
BTC held by Miners	120 708	0,6%	01/10/2024	Glassnode and https://treasuries.bitbo.io/
BTC held by BTCB (Binance)	65 133	0,3%	01/10/2024	CoinMarketCap
BTC held by Mt Gox	32 904	0,2%	01/10/2024	Glassnode
BTC locked in CORE	6 843	0,03%	01/10/2024	bitcoinlayers.org
BTC locked in BitLayer	5 560	0,03%	01/10/2024	bitcoinlayers.org
BTC held by BTC.b (Avalanche)	5 488	0,03%	01/10/2024	CoinMarketCap
BTC held by cbBTC	5 416	0,03%	01/10/2024	CoinMarketCap
BTC locked in Lightning Network	5 193	0,03%	01/10/2024	bitcoinlayers.org
BTC held by tBTC	4 089	0,02%	01/10/2024	CoinMarketCap
BTC held by L-BTC	3 837	0,02%	01/10/2024	bitcoinlayers.org
BTC locked in Bsquared Network	3 620	0,02%	01/10/2024	bitcoinlayers.org
BTC held by rBTC	2 738	0,01%	01/10/2024	bitcoinlayers.org
Counterparty (XCP) Proof of Burn - Lost	2 130	0,01%	29/03/2024	Counterparty White Paper
BTC locked in BOB	1 251	0,01%	01/10/2024	bitcoinlayers.org
BTC held by FBTC	1 128	0,01%	01/10/2024	CoinMarketCap
BTC locked in Babylon	1 000	0,01%	01/10/2024	https://btcstaking.babylonlabs.io
BTC held by aBTC	902	0,005%	01/10/2024	https://app.xlink.network/bridge-reserve
BTC held by ckBTC	289	0,0015%	01/10/2024	bitcoinlayers.org
BTC held by 21BTC	115	0,0006%	01/10/2024	https://www.21.co/tokens
BTC held by xBTC	112	0,0006%	01/10/2024	bitcoinlayers.org
BTC locked in BEVM	72	0,0004%	01/10/2024	bitcoinlayers.org
BTC held by dlcBTC	40	0,0002%	01/10/2024	DeFiLlama
BTC held by Prime Brokers	Unknown			
BTC held by OTC Desks	Unknown			
BTC held by institutional custody providers	Unknown			
Estimated available BTC under self custody	**10 226 693**	**51,8%**		

Estimated available BTC under self custody[76]

We estimate that ~52% of BTC's circulating supply is under self-custody.

This estimate excludes holdings by prime brokers, OTC desks, and institutional custody providers. We arrived at this figure by subtracting the following from the circulating supply:

1. Exchange-held BTC
2. Lost coins
3. Satoshi's presumed holdings
4. Government-owned BTC
5. Company holdings
6. Institutional holdings
7. Mt. Gox-held assets
8. BTC locked-in protocols, including Tokenized BTC holdings

While open to refinement, this calculation provides a starting point for understanding the potential market size.

We believe that BTC under self-custody could represent Decentralized Tokenized BTC's Total Addressable Market (TAM), as these individuals will likely prefer trust-minimized solutions to unlock their BTC over trust-based alternatives.

At BTC's current price of $63.3k[77], the untapped market for decentralized tokenized solutions represents a substantial $648bn opportunity. However, this market size isn't static. As institutional investors accumulate more BTC, the proportion of self-custodied BTC may fluctuate, potentially leading to changes in the addressable market's size in terms of BTC supply.

Bitcoin miners could also embrace tokenized BTC solutions to generate yields on their BTC reserves once these solutions have been battle-tested. Miners are sensitive to Bitcoin's ethos, making it unlikely they would risk their reserves on established smart contract networks such as Ethereum or Solana. The introduction of Anduro in February 2024[78], a Bitcoin sidechain by leading US miner Marathon Digital, exemplifies this sensitivity. Miners' holdings could add another potential $7.6bn to the TAM for tokenized BTC solutions aligned with Bitcoin's ethos.

While some may draw parallels between the dominance of centralized stablecoins (such as USDT and USDC) and the potential trajectory of centralized tokenized BTC, our analysis suggests a more nuanced outlook. We anticipate the market share disparity between centralized and decentralized tokenized BTC solutions to become considerably smaller than observed in the stablecoin market.

The recent wBTC event presents an opportunity to reshape the BTC tokenized market for centralized and decentralized solutions. While it's challenging to predict what's next, especially given how recent wBTC's event is, the mid/long-term dominance of centralized tokenized BTC remains uncertain. Decentralized tokenized BTC solutions have a large TAM and now have the opportunity to tap into it.

We believe that solutions capable of mitigating counterparty risk to the greatest extent will capture the largest share of the Decentralized Tokenized BTC's TAM. The state-of-the-art currently consists of trust-minimized solutions, but the end game is trustless solutions. Trustless solutions are bridges that introduce no additional trust assumptions beyond those of Bitcoin. Those solutions could emerge through novel approaches such as OP_CAT or others yet to be discovered.

The tokenized BTC market is still relatively small compared to its potential. We believe it will continue to experience massive growth by meeting diverse demands, probably breaking its ATH of $24.4bn in 2025[79]. We expect both centralized and decentralized approaches to evolve in parallel, ultimately unlocking the full potential of Tokenized BTC.
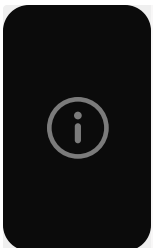
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[77] BTC price as of October 1, 2024 - https://www.blockchain.com/fr/explorer/charts/total-bitcoins
[78] MARA X's post - https://x.com/MARAHoldings/status/1762947336693535027
[79] BBA - Tokenized BTC Market Cap Overview

Acknowledgments

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