



# Crypto Commentary

## October 2023

[www.gsr.io](http://www.gsr.io)

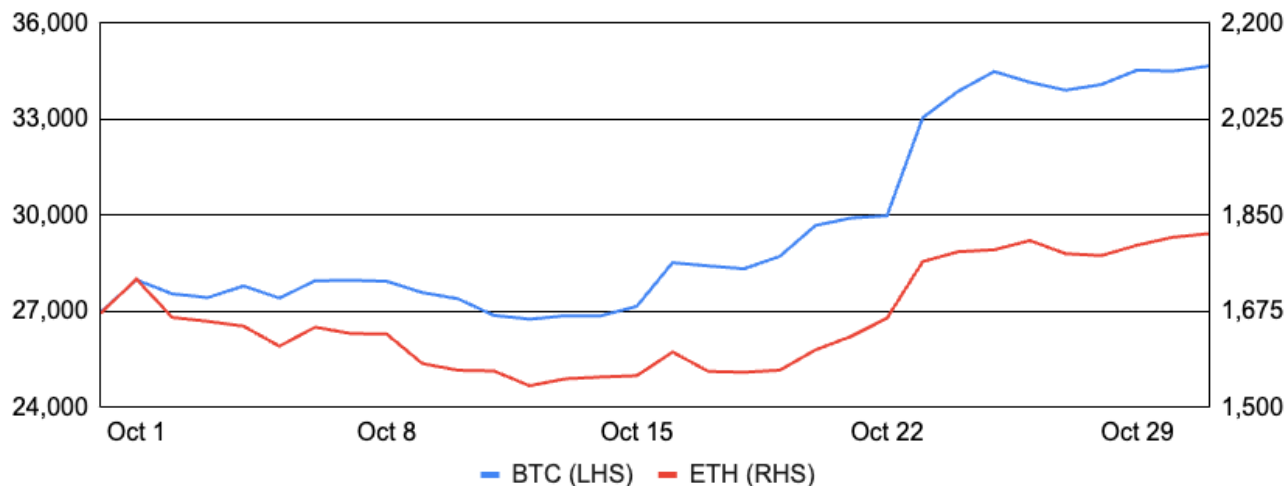
Matt Kunke, Research Analyst  
Brian Rudick, Senior Strategist

## **Bitcoin and Ethereum**

Bitcoin gained ~29% during October after entering the month around \$27,000 and finishing at ~\$34,700. Performance trended sideways until mid-month when speculative euphoria around a spot Bitcoin ETF approval gained steam and prices rallied sharply despite little material news, discussed more below. Bitcoin's performance decoupled positively from other cryptocurrencies during the month, outperforming the field with the exception of a few alts like Solana, and bitcoin dominance rose to its highest level in ~2.5 years as it temporarily breached 54%. In addition, bitcoin's correlation to ETH fell to its lowest level since the regional banking crisis earlier this year where bitcoin similarly outperformed. In development news, Nomic's bitcoin bridge went live and its bitcoin-backed nBTC token is now transferable in the Cosmos' ecosystem via IBC, with native bitcoin deposits/withdrawals collectively managed by Nomic validators. Lightning Labs unveiled the mainnet alpha release of Taproot Assets, a protocol designed to facilitate asset tokenization on Bitcoin that's interoperable with the broader Lightning Network. Lastly, BitVM was proposed for arbitrary computation on Bitcoin, covered more below. In other Bitcoin news, MicroStrategy acquired 155 bitcoin during the month, Tesla maintained its bitcoin through Q3, and the Bitcoin whitepaper turned 15 years old.

Ethereum failed to keep pace with bitcoin and many other alts, though it did gain ~9% during the month after entering October around \$1,670 and finishing at ~\$1,820. ETH's supply increased for the second consecutive month, as net supply grew by ~30.7k ETH despite net issuance flatlining in the final third of the month as gas prices picked up. Ethereum has now absorbed the massive influx of staking demand that materialized after the introduction of [withdrawals](#) in April, and queues to enter or exit Ethereum's validator set are now empty. Turning to protocol development, progress continues to be made testing the Dencun upgrade that will include [proto-danksharding](#) and will expand Ethereum's data throughput, but the upgrade is expected to come later than initially anticipated, [likely towards the end of Q1](#). There was also an interesting [pull request](#) merged into Ethereum's consensus spec allowing clients and node operators to [optionally ignore late blocks under certain conditions](#) to incentivize timely block dissemination.<sup>1</sup> Another major theme during the month was L2 development, with Scroll launching its zkEVM, Base open-sourcing its code base, Optimism adding fault proofs to testnet, and Manta announcing plans to shift from the OP Stack to the Polygon CDK. In addition, [L2Beat penned a critique of TPS](#) as a faulty measure of throughput that is worsening as account abstraction proliferates, and Vitalik authored a [blog post on L2s](#). [Liquid staking and Lido's dominance](#) was another topic of fierce debate, and the [Arbitrum](#) and [Aave](#) communities each took small stands against its growing dominance during the month.

## BTC and ETH



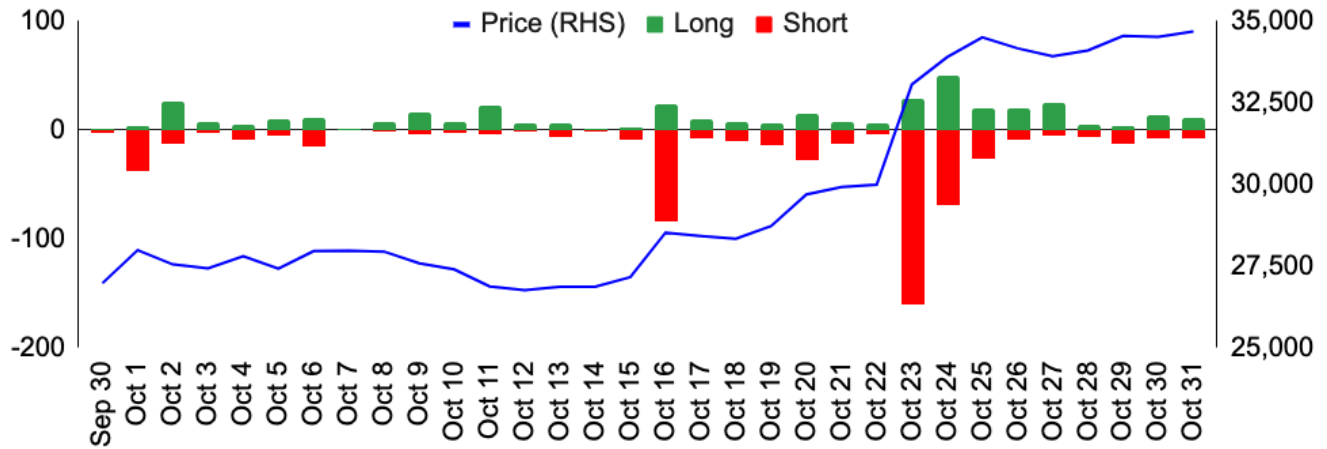
Source: Santiment, GSR.

## Perceived ETF Progress and Market Dynamics

On October 16th, Cointelegraph falsely tweeted that BlackRock's iShares Bitcoin Trust had been approved by the SEC, and BTC quickly gapped 6% higher. While the news was soon proven untrue, it demonstrated the positive impact an approval may have on BTC's price, and the market spent the rest of the month bidding up perceived ETF progress. For example, a tweet pointing out that BlackRock's ETF was listed by the DTCC, a key piece of US market infrastructure, made the rounds on October 23rd, and while the listing had actually been there since August and the DTCC stated it was part of normal procedure and not indicative of approval, BTC still increased 10% on the day. To be sure, there was some modest procedural progress towards a spot ETF, such as BlackRock amending its filing to say it would likely [seed its ETF](#) in October and the DC Circuit Court of Appeals formally closed the [Grayscale case](#) to kickstart the SEC's reconsideration of Grayscale's bid to convert GBTC to an ETF. However, the move to us was more about exuberance around an approval and [what it may do for bitcoin's price](#) rather than demonstrated progress towards an approval or increased odds thereof.

In addition to the excitement, much of the move was also likely due to market positioning and hedging activities. Short dealer [gamma positioning](#), which requires dealers to buy (sell) the underlying when prices move up (down) to maintain delta neutrality, was said to [exacerbate the move](#). And many were caught offside, with over \$300m of total liquidations during a 24 hour period spanning October 23rd and 24th.

## BTC Liquidations vs. Price



Source: Coinglass, Santiment, GSR.

## Sam Bankman-Fried Guilty of Fraud

October also featured the highly anticipated trial of Sam Bankman-Fried, where the former FTX founder was accused of fraud and conspiracy. The trial started out with senior leaders from FTX and its sister company Alameda Research testifying against SBF. Former CTO Gary Wang admitted that Alameda used customer funds for its own purposes, former director of engineering Nishad Singh stated that he knew \$8b of FTX customer money had gone missing, and ex-Alameda Research CEO Caroline Ellison stated that SBF directed her to commit crimes. Ellison also made several salacious allegations, claiming that SBF paid a \$150m bribe to Chinese government officials to access \$1b in frozen funds, and that she and SBF conspired to keep BTC below \$20,000. Perhaps the highlight of the trial was SBF himself testifying in his own defense, where he attempted to place the blame on his colleagues, but frequently was unable to remember any details.

In the end, 12 jurors took less than five hours to unanimously find SBF guilty on all seven counts of fraud. He now faces up to 110 years in prison, with sentencing scheduled for March, though the timing could change as federal prosecutors also plan to hold a second trial regarding alleged bribery, bank fraud, and campaign finance violations.

---

## *SBF Testimony in United States of America v. Samuel Bankman-Fried*

**Sassoon:** In April 2022, you invited the Bahamian prime minister to a private dinner hosted by FTX, right?

**Bankman-Fried:** When was that? Sorry?

**Sassoon:** Around April of 2022.

**Bankman-Fried:** It's possible. I don't remember what that's referring to.

**Sassoon:** Well, do you recall inviting him to a private dinner in 2022 with former president Bill Clinton and former U.K. prime minister Tony Blair?

**Bankman-Fried:** No, but it doesn't surprise me.

**Sassoon:** Did you in fact attend a dinner with the Bahamian prime minister, Bill Clinton, and Tony Blair?

**Bankman-Fried:** During the conference, the FTX conference, there was a—something like a dinner with them, yeah.

**Sassoon:** When you say “something like a dinner,” was it a dinner?

**Bankman-Fried:** It may—I don't remember whether there was food. It may have been.

**Sassoon:** And you were there, right?

**Bankman-Fried:** Yup.

---

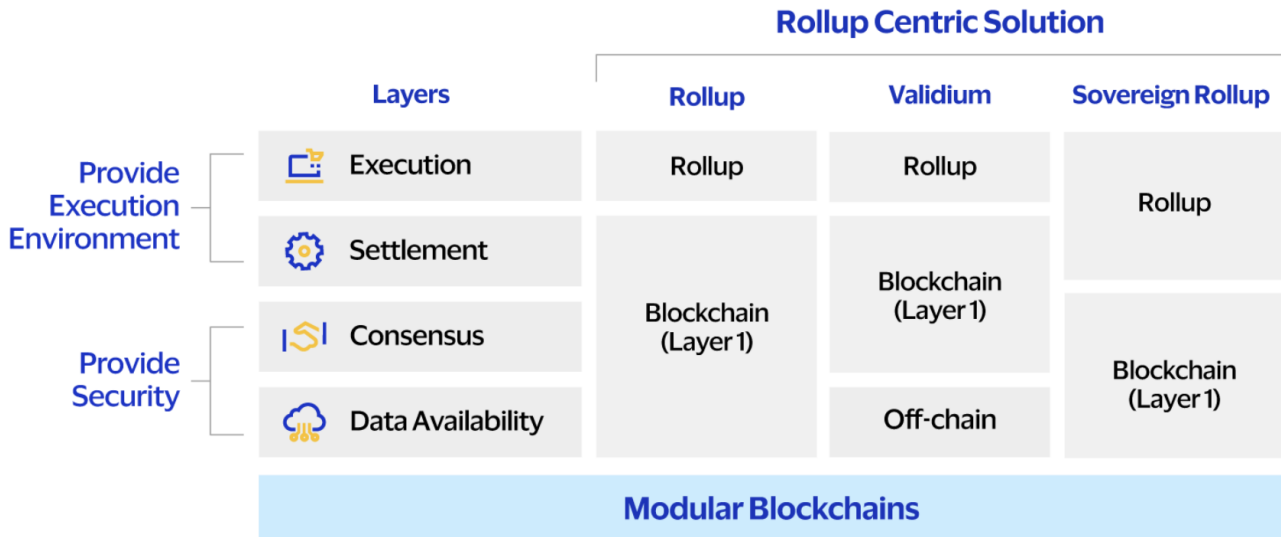
Source: BitMEX Research, GSR.

## ***Celestia's Mainnet Launch***

Nearly five years after the [LazyLedger \(now Celestia\) white paper](#) described a blockchain optimized strictly for transaction ordering and data availability, the modular era kicked off in earnest with Celestia's mainnet launch and the airdrop of its TIA token.<sup>2</sup> Unlike most familiar layer 1 blockchains like Bitcoin and Solana, which are monoliths and facilitate consensus, data availability, execution, and settlement directly on mainnet, Celestia has pioneered a less encompassing [modular architecture](#) optimized specifically for enhanced data throughput without providing settlement or execution functionality directly. Celestia's modular design enables other chains to leverage its best-in-class data throughput while maintaining autonomy to choose amongst other optimized execution and settlement layers.

In simplified terms, Celestia can be viewed as a large, public bulletin board that provides consensus on transaction ordering and guarantees that data was made publicly available, but it has no ability to interpret the data posted to it and relies on other blockchains to interpret the data and execute transactions accordingly. Forgoing execution in this regard enables meaningful scalability improvements as block verification (validity) reduces down to verification of data availability, which can be achieved probabilistically via sampling techniques. In short, Celestia leverages data availability sampling (DAS) to allow light clients to ensure all the data was made available while only sampling some of it<sup>3</sup>; a key distinction from legacy blockchain designs built on the premise of every participant downloading all historical data. Indeed, DAS has been described as the feature that could invert the blockchain scalability trilemma as a highly decentralized set of light clients allows for larger blocks to be sampled while statistically preserving data availability guarantees, improving scalability without sacrificing security.

## Modular Blockchains



Source: [Visa](#), GSR. Note: As more modular components come to fruition, more hybrid solutions, like Eclipse, may emerge.

## Arbitrary Computation on Bitcoin with BitVM

Robin Linus released the [BitVM whitepaper](#) on October 10, describing a method enabling arbitrary computation and the ability to solve any problem on Bitcoin (i.e., making Bitcoin Turing complete). BitVM is highly complex and uses logic gates and the universal gate NAND to function similarly to an optimistic rollup - computation occurs offchain, avoiding congestion on the network, and Bitcoin can verify that the computation was done correctly. And perhaps most importantly, BitVM is available now and does not require a soft fork to work.

BitVM received widespread praise and enthusiasm, though there are a number of current limitations that many believe to be temporary. First, BitVM is restricted to two parties, so multiparty smart contracts are not currently possible. In addition, every smart contract interaction between two parties requires a new Bitcoin transaction, making smart contracts one-time use. Lastly, BitVM is highly complex with high data requirements, leading to high costs, especially in the event of a dispute. Despite these limitations, however, many believe they will ultimately be overcome with time and allow BitVM to one day bring step-change functionality to the world's largest cryptocurrency network.

# BitVM: Compute Anything on Bitcoin

Robin Linus

robin@zerosync.org

October 9, 2023

## Abstract

BitVM is a computing paradigm to express Turing-complete Bitcoin contracts. This requires no changes to the network's consensus rules. Rather than executing computations on Bitcoin, they are merely verified, similarly to optimistic rollups. A prover makes a claim that a given function evaluates for some particular inputs to some specific output. If that claim is false, then the verifier can perform a succinct fraud proof and punish the prover. Using this mechanism, any computable function can be verified on Bitcoin.

Committing to a large program in a Taproot address requires significant amounts of off-chain computation and communication, however the resulting on-chain footprint is minimal. As long as both parties collaborate, they can perform arbitrarily complex, stateful off-chain computation, without leaving any trace in the chain. On-chain execution is required only in case of a dispute.

---

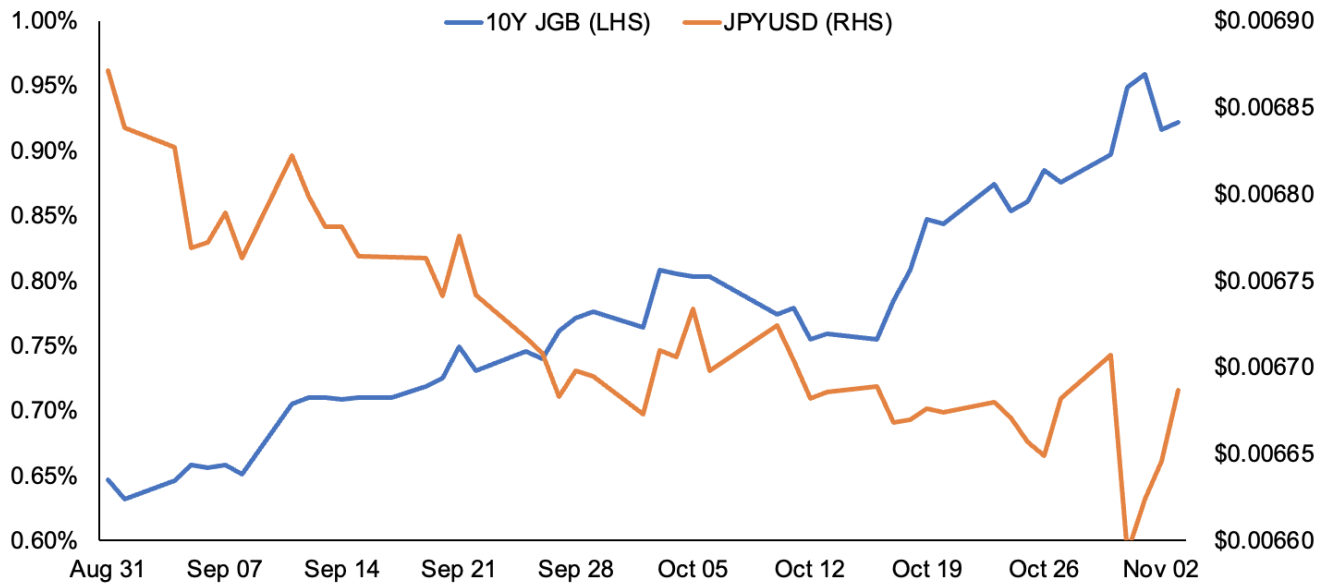
Source: [BitVM.org](https://bitvm.org), GSR.

## ***Monetary and Fiscal Policy***

It was another prominent month for monetary and fiscal policy developments, particularly during the final week of October and into early November. Notably, the [Bank of Japan \(BoJ\)](https://www.boj.go.jp) took another step towards slowly dismantling its unconventional stimulus and yield curve control policy. While the BoJ kept its short-term and long-term target rates unchanged as expected, it backtracked on its rigid plan to defend the 1% yield level on the 10Y JGB, rephrasing the 1% cap “as a reference” upper bound and softening its hardline defense [established just three months earlier](#). The BoJ also revised higher its 2024 and 2025 inflation forecasts, further foreshadowing a likely end to stimulative policy in the months ahead.

Other central banks, including the Fed, ECB, and BoE kept policy rates unchanged, but treasuries rallied sharply in response to Powell's commentary that many observers called a dovish pivot despite Powell's warning that rate cuts are not yet being considered at all. Still, Powell noted that higher long-term interest rates may weigh on economic activity, and inflation appears to be moderating while the labor market is showing early signs of softening from very tight levels. Treasury yields fell across the curve, especially on the longer-end as the Treasury's newly-revealed Q4 financing plans included more short-term bills to reduce the supply pressure on the longer-dated bond market.

## 10Y Japanese Government Bond Yields Rise and JPY Depreciates vs USD



Source: Marketwatch, GSR.

### Footnotes:

1. The high-frequency MEV arena is one motivation for this upgrade as [proposers are incentivized to delay block publication as long as possible to extract the most MEV](#). This change to the spec should help provide a balancing force here.
2. Prior to the launch of Celestia, modular blockchains were commonly viewed through the lens of Ethereum rollups, which are modular execution environments that rely on Ethereum for consensus, data availability, and settlement. Celestia's modular data layer expands the scope of the modular ecosystem as it previously existed. Indeed, with [data throughput](#) being the primary constraint on scaling via L2 rollups today, Celestia's role as the first modular data layer leveraging data availability sampling is a big win for blockchain scaling endeavors generally.
3. Ethereum's scaling roadmap will similarly introduce DAS in its danksharding upgrade to increase its own data availability throughput and decrease the data posting costs for rollups. We describe data availability sampling and erasure coding in greater detail in our [Ethereum Roadmap report](#). The primary distinction is that Ethereum will use KZG commitments to ensure that data was encoded correctly, whereas Celestia relies on fraud proofs. Danksharding is also years away, so Celestia will enable greater data throughput than Ethereum for several years, at a minimum.

## GSR in the News

- Business Wire - [GSR Receives In-Principle Approval from the Monetary Authority of Singapore](#)
- Cointelegraph - [Crypto liquidity provider GSR receives regulatory approval in Singapore](#)
- CryptoNews - [Crypto Trading Platform GSR Receives In-Principal MPI License in Singapore](#)
- Blockchain.news - [GSR Secures Major Payment Institution Licence from Singapore's MAS](#)
- Forbes India - [GSR Secures Regulatory Approval As Crypto Liquidity Provider In Singapore](#)
- Investing.com - [GSR Secures Regulatory Approval As Crypto Liquidity Provider In Singapore](#)
- CoinDesk - [Crypto Prime Broker Membrane Labs Raises \\$20M From Brevan Howard, Point72 Ventures and Jane Street](#)
- CoinDesk - [First Mover Americas: Bitcoin Extends Decline for a Fifth Day, Touches \\$26.6K](#)



- CoinDesk TV - [GSR Markets President on Bitcoin's Role in Geopolitical Conflicts](#)
- CoinDesk - [Crypto for Advisors: What Will Trigger Crypto Mass Adoption?](#)
- Blockchain News - [GSR Secures Major Payment Institution Licence from Singapore's MAS](#)
- Bloomberg - [A Year After FTX, Crypto Market Makers Adapt to Survive](#)
- Bloomberg - [Bitcoin's ETF Momentum is Spurring the Biggest Monthly Gains Since January](#)
- CMC - [GSR: Lido DAO's Staking Dominance](#)
- Blockworks - [Bitcoin faces 'upside catalysts' in the next few months](#)

## Crypto Leaderboard

Rank	Name	Ticker	Price	MC, \$b	1M	One Month Performance					
1	Bitcoin	BTC	34,668	677	29%		BTC	ETH	USDT	BNB	XRP
2	Ethereum	ETH	1,816	218	9%						
3	Tether	USDT	1.00	85	0%						
4	BNB	BNB	226	34	5%						
5	Ripple	XRP	0.60	32	16%						
6	USD Coin	USDC	1.00	25	0%						
7	Lido	STETH	1,806	16	8%						
8	Solana	SOL	38.52	16	80%						
9	Cardano	ADA	0.29	10	15%						
10	Dogecoin	DOGE	0.07	10	10%						

## One-Month Performance

By Token		By Category		By Ecosystem		Traditional Finance	
SOL	90%	Meme	34%	Cosmos	23%	Gas	22.6%
INJ	87%	Other DeFi	33%	Polygon	21%	Gold	7.5%
RLB	79%	Smart Contract	21%	Solana	19%	USD/JPY	1.6%
MINA	57%	Currency	17%	BSC	17%	EUR/USD	0.1%
BSV	56%	IoT/Data/Comp	17%	Gnosis Chain	13%	SPX	-2.2%
RNDR	54%	DEX	16%	Polkadot	13%	Nasdaq	-2.8%
CHEEL	-5%	Gaming/Entertainment	16%	Tron	12%	NIKKEI	-3.1%
MKR	-6%	Lending	13%	Avalanche	11%	DAX	-3.7%
UNI	-6%	Privacy	12%			FTSE	-3.8%
CRV	-8%	Scaling	11%			HSI	-4.0%
XRD	-26%	CEXs	7%			WTI	-10.5%

BTC Dominance

## Defi

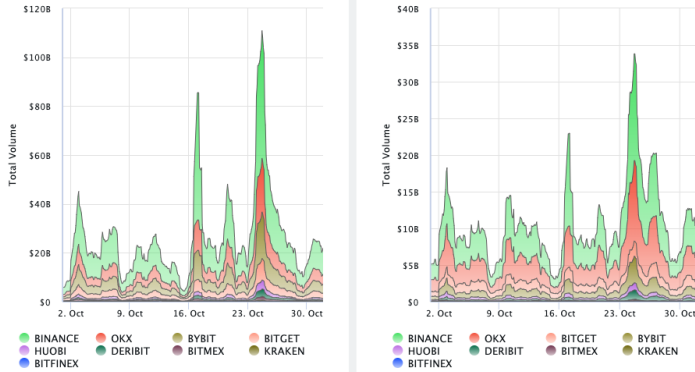
Total Value Locked, 1M, \$b	Top TVL By Protocol, \$b	DefiPulse Index, 1M

## One-Month Trading Volumes

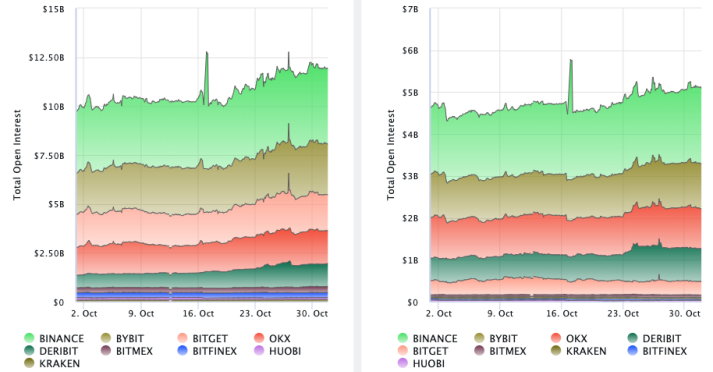
Top 100, Spot, \$b	Top Spot by Token, \$b	Top Spot Exchanges, \$b	Aggregate Derivs Vols, \$b																																														
	<table border="1"> <tr><td>USDT</td><td>849</td></tr> <tr><td>BTC</td><td>476</td></tr> <tr><td>ETH</td><td>193</td></tr> <tr><td>USDC</td><td>97</td></tr> <tr><td>FDUSD</td><td>53</td></tr> <tr><td>XRP</td><td>31</td></tr> <tr><td>SOL</td><td>20</td></tr> </table>	USDT	849	BTC	476	ETH	193	USDC	97	FDUSD	53	XRP	31	SOL	20	<table border="1"> <tr><td>Binance</td><td>193</td></tr> <tr><td>Upbit</td><td>57</td></tr> <tr><td>Bybit</td><td>34</td></tr> <tr><td>Coinbase</td><td>30</td></tr> <tr><td>OKX</td><td>30</td></tr> <tr><td>Huobi</td><td>29</td></tr> <tr><td>Gate.io</td><td>23</td></tr> </table>	Binance	193	Upbit	57	Bybit	34	Coinbase	30	OKX	30	Huobi	29	Gate.io	23	<table border="1"> <tr> <th></th> <th>1M</th> <th>O/I</th> </tr> <tr> <td>Spot</td> <td>602</td> <td>na</td> </tr> <tr> <td>Perpetuals</td> <td>5,280</td> <td>128</td> </tr> <tr> <td>Futures</td> <td>12</td> <td>1</td> </tr> <tr> <td>Options</td> <td>45</td> <td>na</td> </tr> <tr> <td><b>Total</b></td> <td><b>5,939</b></td> <td><b>129</b></td> </tr> </table>		1M	O/I	Spot	602	na	Perpetuals	5,280	128	Futures	12	1	Options	45	na	<b>Total</b>	<b>5,939</b>	<b>129</b>
USDT	849																																																
BTC	476																																																
ETH	193																																																
USDC	97																																																
FDUSD	53																																																
XRP	31																																																
SOL	20																																																
Binance	193																																																
Upbit	57																																																
Bybit	34																																																
Coinbase	30																																																
OKX	30																																																
Huobi	29																																																
Gate.io	23																																																
	1M	O/I																																															
Spot	602	na																																															
Perpetuals	5,280	128																																															
Futures	12	1																																															
Options	45	na																																															
<b>Total</b>	<b>5,939</b>	<b>129</b>																																															

## Crypto Futures

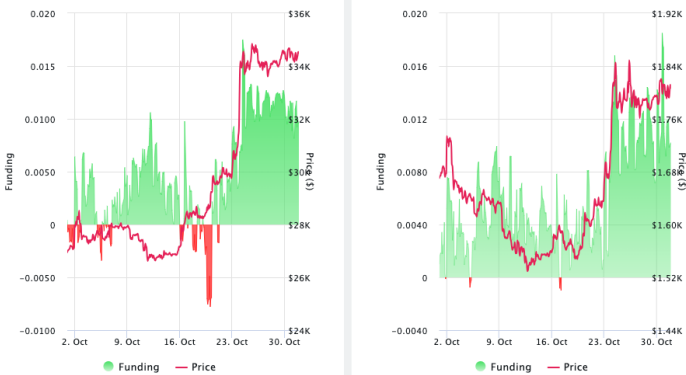
### Futures Volume (BTC LHS ; ETH RHS), 1d



### Futures Open Interest (BTC LHS ; ETH RHS)



### Volume Weighted Funding Rate (BTC LHS ; ETH RHS), 1d

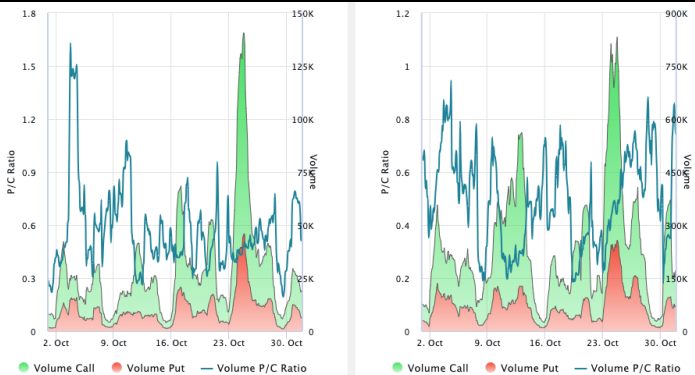


### Liquidations (BTC LHS ; ETH RHS), 1d

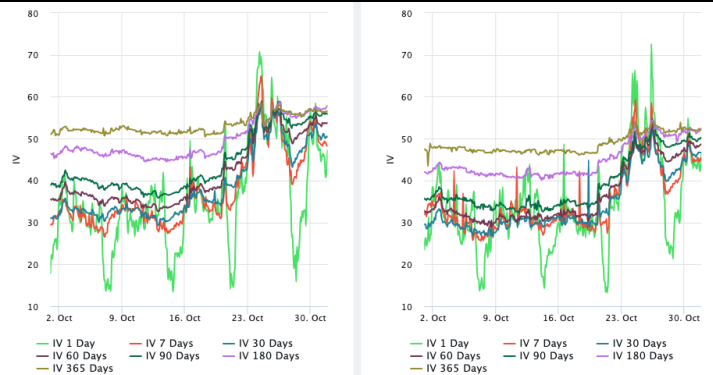


## Crypto Options

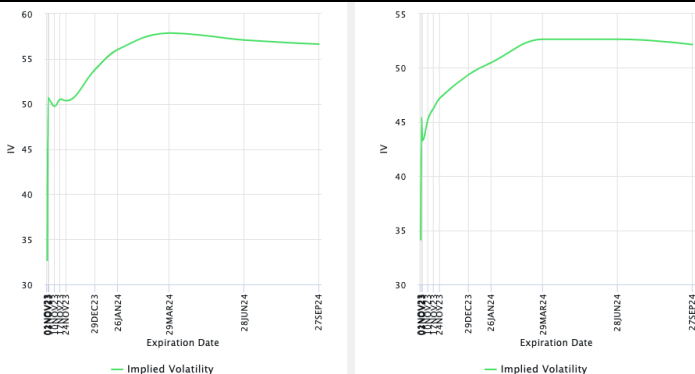
### Options Volume & Put/Call Ratio (BTC LHS ; ETH RHS), 1d



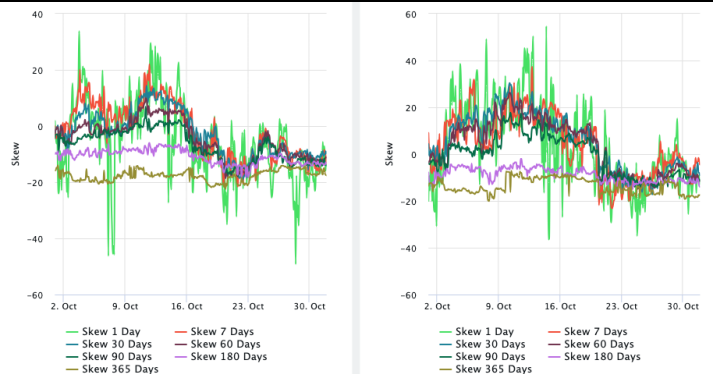
### ATM Implied Volatility (BTC LHS ; ETH RHS)



### ATM Implied Vol Term Structure (BTC LHS ; ETH RHS)



### 25 Delta Skew (BTC LHS ; ETH RHS)





# October Market Update

## About GSR

GSR is a global leader in digital asset trading, market making, OTC derivatives, and investments. We operate in a culture of excellence and leverage our first-rate reputation, deep relationships and proprietary trading technology to move swiftly and capitalize on market opportunities.

GSR's experienced team brings together decades of institutional trading expertise, while our industry-leading proprietary technology stack anchors everything we do.

Our main service areas are: market making; proprietary and algorithmic trading; client execution; structured products; risk management solutions; and portfolio investments.

For more information or if we can help with anything, please see [gsr.io](https://gsr.io) or contact us at [gsr@gsr.io](mailto:gsr@gsr.io).

Follow GSR for more content: [Twitter](#) [Telegram](#) [LinkedIn](#)

## Authors

Brian Rudick, Senior Strategist [Twitter](#) [Telegram](#) [LinkedIn](#)  
Matt Kunke, Research Analyst [Twitter](#) [Telegram](#) [LinkedIn](#)

## Required Disclosures

*This material is provided by GSR (the "Firm") solely for informational purposes, is intended only for sophisticated, institutional investors and does not constitute an offer or commitment, a solicitation of an offer or commitment, or any advice or recommendation, to enter into or conclude any transaction (whether on the terms shown or otherwise), or to provide investment services in any state or country where such an offer or solicitation or provision would be illegal. The Firm is not and does not act as an advisor or fiduciary in providing this material.*

*This material is not a research report, and not subject to any of the independence and disclosure standards applicable to research reports prepared pursuant to FINRA or CFTC research rules. This material is not independent of the Firm's proprietary interests, which may conflict with the interests of any counterparty of the Firm. The Firm trades instruments discussed in this material for its own account, may trade contrary to the views expressed in this material, and may have positions in other related instruments.*

*Information contained herein is based on sources considered to be reliable, but is not guaranteed to be accurate or complete. Any opinions or estimates expressed herein reflect a judgment made by the author(s) as of the date of publication, and are subject to change without notice. Trading and investing in digital assets involves significant risks including price volatility and illiquidity and may not be suitable for all investors. The Firm is not liable whatsoever for any direct or consequential loss arising from the use of this material. Copyright of this material belongs to GSR. Neither this material nor any copy thereof may be taken, reproduced or redistributed, directly or indirectly, without prior written permission of GSR.*

## Sources

CoinGecko	Santiment	TradingView	Investing.com	Google Finance
CoinMarketCap	DefiLlama	WorldCoinIndex	The Block	Yahoo Finance
	Laevitas	Amberdata	CoinGlass	