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### Summary

- In Series I of the Crypto Derivatives research between Presto Research and Laevitas, we explore the world of futures, both term and perpetual.
- Futures allow traders to trade both sides of the market, long and short, with leverage.
- The introduction of futures into crypto was transformative for the overall market, and in particular, perpetual futures introduced by BitMEX in 2016, have taken over volumes, averaging over \$90B/day across all exchanges since mid-2021.
- In 2024, despite BTC's all-time-highs and excitement over the spot ETF, volumes on a price adjusted basis have not returned to what they once were.
- The CME on the other hand, which only offers term futures in BTC and ETH, have benefited from the recent narratives, becoming the #1 exchange in both term futures volumes and open interest, as well as a top 5 exchange in total derivatives volume.

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# Crypto Derivatives Series I: Futures

## Overview

The derivatives market in cryptocurrency has evolved significantly, offering sophisticated financial instruments that cater to diverse trading strategies. In Series I of the Crypto Derivatives research co-authored by Presto Research and Laevitas, we explore the world of futures, both term and perpetual. Series II, which will be released over the summer, will explore the growing options market.

Ever since its introduction into the crypto markets, futures have gained in popularity, often being the more liquid asset over the underlying spot coins, due to the ability to short the market and obtain leverage. Term futures, akin to traditional futures contracts, obligate the buyer to purchase and the seller to sell a specific amount of cryptocurrency at a predetermined price on a set future date. This allows traders to hedge against price volatility or speculate on future market movements with a clear expiration timeline. Perpetual futures, on the other hand, are a unique innovation within the crypto space, characterised by their lack of an expiry date.

These contracts enable continuous trading and position maintenance, closely mimicking the spot market through mechanisms like funding rates, which allow the perpetual future to track its underlying market using market positioning. Together, term and perpetual futures provide crypto traders with robust avenues for risk management, leverage, and speculation, driving liquidity and market efficiency in the rapidly growing digital asset ecosystem.

## History of Crypto Futures

The history of term futures in cryptocurrency traces back to the early days of the market's maturation. The first centralised exchange (CEX) to offer crypto futures was OKEx, which launched Bitcoin futures trading in 2014. This pioneering move provided a structured environment for traders to hedge and speculate on the volatile digital asset. Following OKEx's lead, other major exchanges, in particular, CME Group and CBOE, introduced Bitcoin futures in December 2017, marking a significant milestone as they brought institutional credibility and regulatory oversight to the crypto futures market. These

platforms attracted a diverse array of players, including retail investors, institutional traders, and hedge funds, all seeking to leverage futures for risk management and speculative purposes.

Perpetual futures, or perpetual swaps, also emerged as a significant innovation within the crypto derivatives market. BitMEX, a leading cryptocurrency exchange, was the first to introduce perpetual contracts in 2016. Unlike traditional futures, perpetual contracts have no expiry date, allowing traders to maintain positions indefinitely. This innovation quickly gained popularity due to its flexibility and the use of funding rates to keep contract prices in line with the underlying asset. Following BitMEX, other major exchanges like Binance, Bybit, and FTX adopted perpetual contracts, further popularised this instrument and enhancing market liquidity.

On decentralised exchanges (DEXs), the concept of futures trading took longer to materialise due to the complexities of creating trustless and secure trading environments. One of the first DEXs to offer futures was dYdX, which launched perpetual contracts in 2020, soon followed by term futures. This innovation democratised access to futures trading, allowing users to trade directly from their wallets without intermediaries. Other notable decentralised platforms, such as Synthetix and Injective Protocol, have since emerged, further expanding the landscape. Together, these centralised and decentralised exchanges have shaped the dynamic and rapidly evolving crypto futures market, fostering greater participation and liquidity.

### How does the funding rate work in perpetual futures?

In crypto futures trading, participants can either go long (buy) or short (sell) on contracts. The funding rate is a critical mechanism designed to maintain balance between these opposing positions and ensure fair trading conditions. It involves regular payments between long and short traders, promoting market stability and mitigating potential price manipulation.

For instance, if the funding rate is positive, long traders are required to pay short traders. This payment acts as an incentive for long traders to either close their positions or pay a fee, thus helping to balance the market. Conversely, if the funding rate is negative, short traders pay the long traders.

Given the higher liquidity in perpetual markets due to the ability to leverage on the long and short sides, the funding rate tends to positively correlate with sentiment and market positioning.

Most crypto futures platforms calculate the funding rate every eight hours. This rate is derived from the disparity between the futures contract price and the underlying asset's market price, along with factors such as interest rates and market sentiment. This system ensures that futures prices remain aligned with the spot market, fostering a fair and stable trading environment.

Take a look at Figure 1 (next page) from Laevitas' website, which shows the most popular BTC perpetual swaps across exchanges, with relevant statistics.

**Figure 1: BTC perpetual futures across exchanges, top 10 by 24hr volume on 20th June 2024.**

Source: Laevidas

BTC Perpetual Swaps    Market Cap : \$1.29T    Sector : DIGITAL ASSET

Exchange	Ticker	Margin	Index Price	Price	Chg%	Basis	Chg%	Funding 8h (1h)	APR	1W Avg. APR	Open Interest
BINANCE	BTCUSDT	USD	\$65.47K	\$65.44K	-0.17%	-0.04	-0.01%	0.0039%	4.31%	9.93%	\$4.97B
BITGET	BTCUSDT	USD	\$65.47K	\$65.41K	-0.21%	-0.095	-0.04%	0.013%	14.13%	4.15%	\$6.21B
OKX	BTC-USDT	USD	\$65.47K	\$65.48K	-0.17%	0.01	+0.01%	0.009%	9.49%	2.53%	\$1.5B
BYBIT	BTCUSDT	USD	\$65.47K	\$65.45K	-0.19%	-0.038	-0.01%	0.01%	10.95%	3.44%	\$4.26B
BINANCE	BTCUSD_PERP	COIN	\$65.43K	\$65.42K	-0.21%	-0.018	-0.01%	-0.00045%	-0.49%	7.75%	\$1.62B
HUOBI	BTC-USDT	USD	\$65.47K	\$65.46K	-0.18%	-0.011	(-)	0.01%	10.95%	10.95%	\$621.43M
OKX	BTC-USD	COIN	\$65.44K	\$65.46K	-0.18%	0.03	+0.02%	0.006%	6.73%	-0.20%	\$818.78M
BITGET	BTCUSD	COIN	\$65.44K	\$65.42K	-0.18%	-0.019	+0.03%	0.012%	13.36%	8.54%	\$807.51M
BYBIT	BTCUSD	COIN	\$65.45K	\$65.45K	-0.16%	0.004	-0.04%	0.01%	10.95%	9.90%	\$1.15B
KRAKEN	pf_xbtusd	USD	\$65.44K	\$65.45K	-0.19%	0.025	-0.01%	0.0079% (0.00099)	8.70%	4.40%	\$143.13M

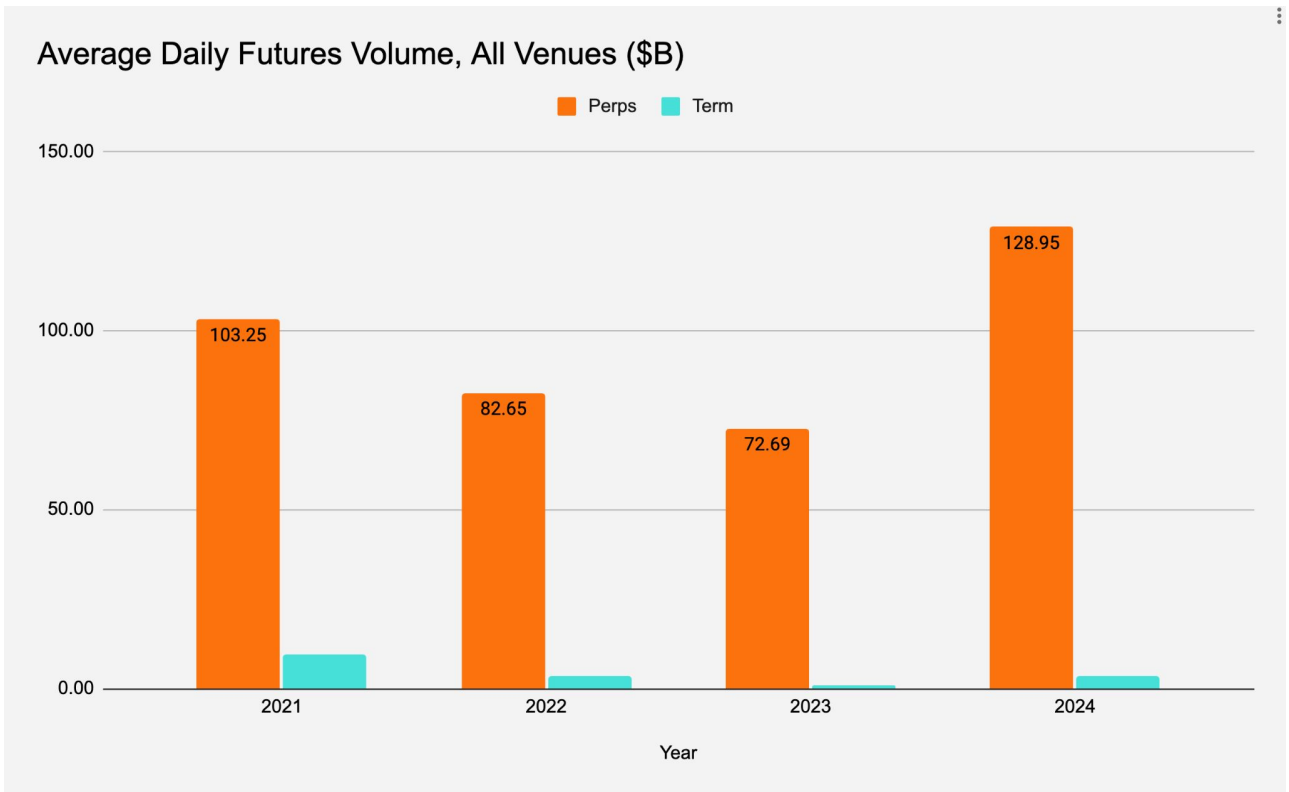
- Yellow:** This is the margin traders need to provide to the exchange. Coin-margin means traders need to put up non-stablecoin cryptocurrency as the base for all transaction and settlement purposes, meaning their margin will decrease in value if the coin they put up sells off.
- Red:** This is the index price, or the reference underlying price, often some average of the underlying spot price across various venues.
- Blue:** This is the price of the perpetual future.
- Orange:** The basis is the difference between the perpetual future and the index price (blue - red).
- Purple:** This is the per period funding rate i.e. the payment rate for the 8-hour period.
- Green:** This is the APR of the per period funding rate i.e. purple x 3 x 365.

## Current Landscape

Given BTC’s spot ETF approval and subsequent all-time-highs in 2024, crypto activity seems to have returned from the bear market lows. When we look at average daily volume in crypto futures across the years, 2024 is the first year since 2021 (the previous all-time-highs) where futures are averaging over \$100B/day (Figure 2).

**Figure 2: Average daily volume in crypto futures, measured in USD. 2021 Data is from 21st June 2021.**

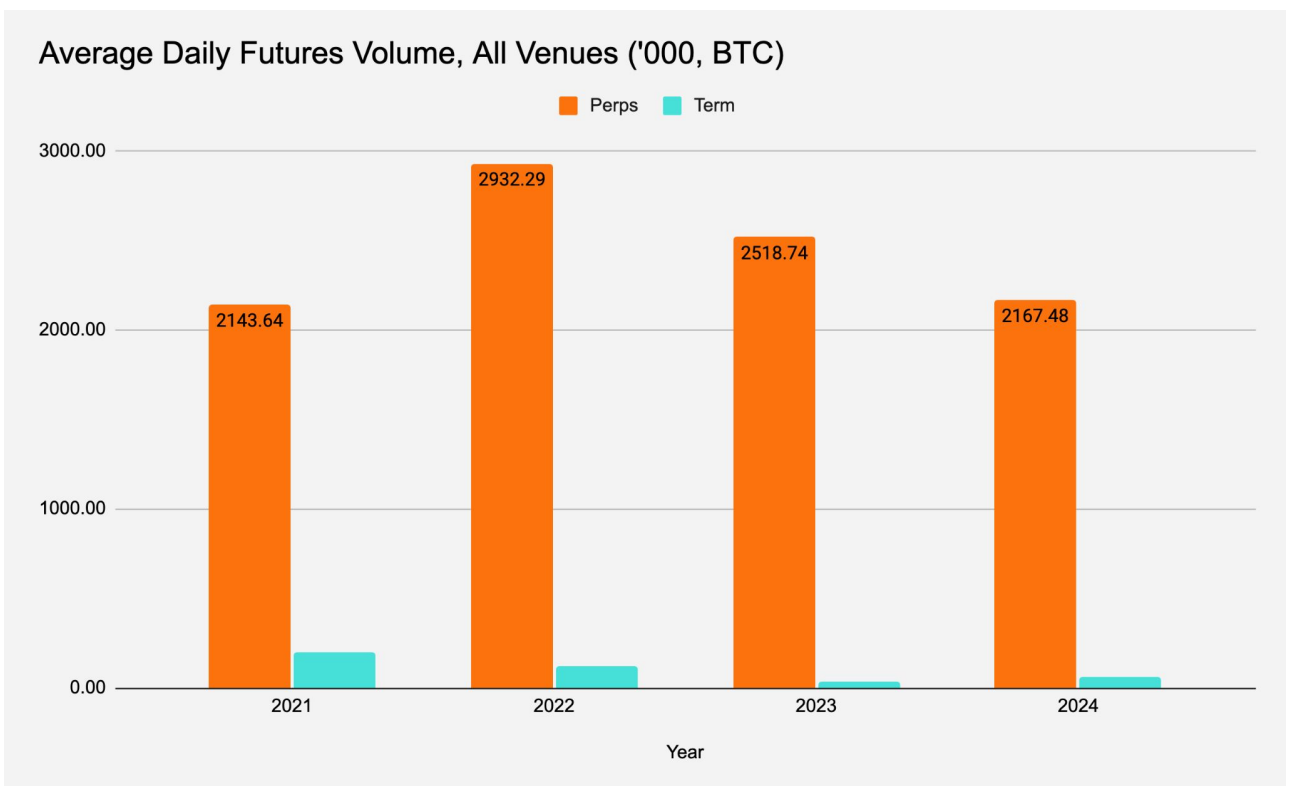
Source: Laevidas



However, when we take the price effect into consideration, the conclusion is quite different. The following chart simply divides the average \$ daily volume per year, by that year's average BTCUSD price (Figure 3).

**Figure 3: Average daily volume in crypto futures, measured in BTC. 2021 Data is from 21st June 2021.**

Source: Laevidas



We can see that once adjusted for the price effect, crypto futures volumes haven't returned to what they once were, with 2024 averaging just a little over 1% higher than in 2021.

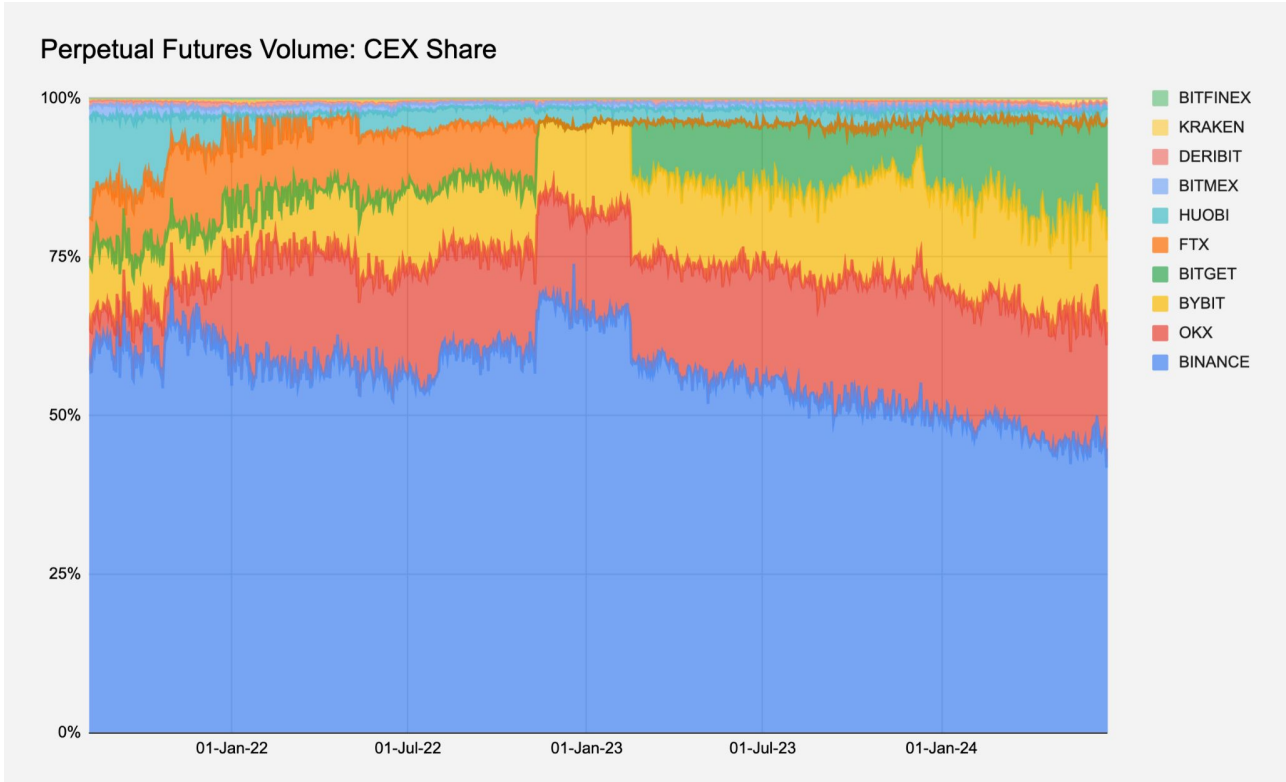
There has been a lot of talk that retail has not yet returning to crypto and the current recent bull run is merely an institutionally led one with no net new capital entering coins other than BTC or ETH. Perhaps this volume data tells a similar story.

## Main Exchanges

After FTX's demise, the top 3 exchanges in futures volume are Binance, ByBit, and OKX (Figure 4):

**Figure 4: Share of perpetual futures volumes among CEXs.**

Source: Laevitas

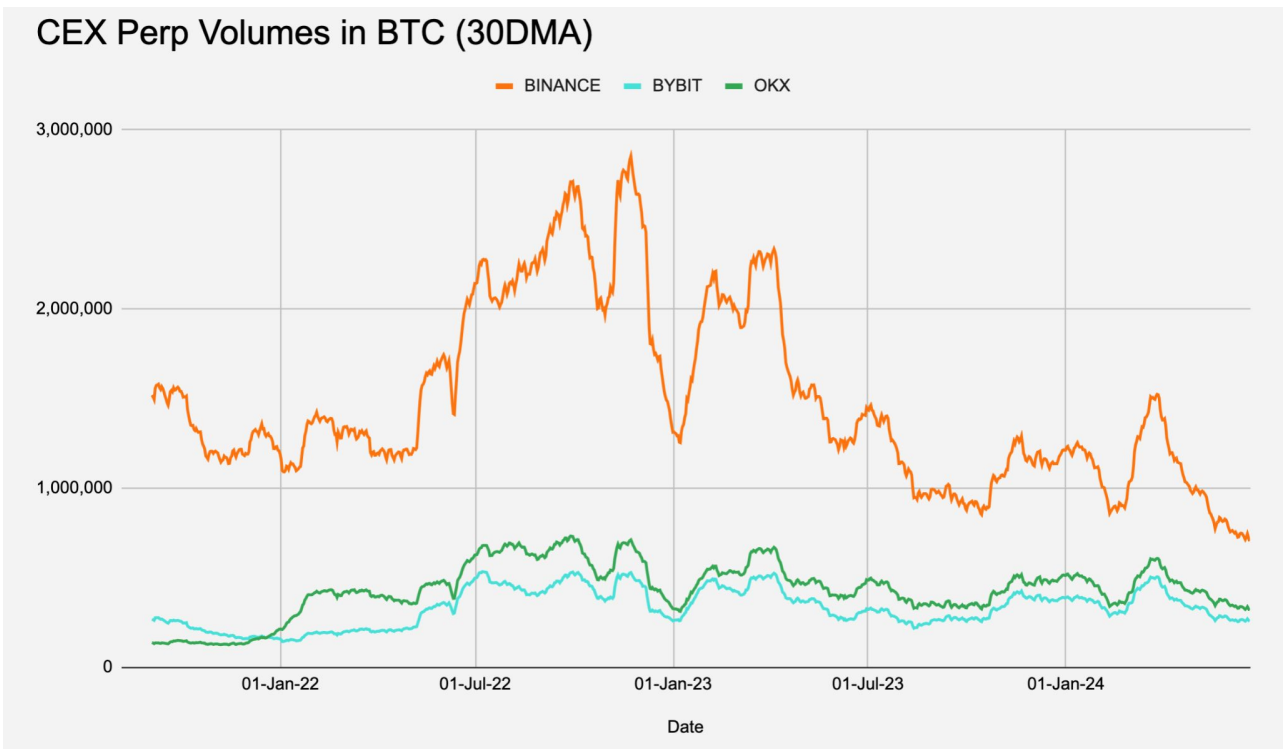


When we look at the top 3 exchange volumes, adjusted for BTC prices, we can observe just how much Binance's volumes have dropped off in BTC terms, despite their absolute dominance in the space (Figure 5).



**Figure 5: Top 3 perp exchange volumes, adjusted to BTC prices.**

Source: Laevidas



The introduction of BTC spot-ETFs brought with it new flow into “tradfi” crypto products such as the previously mentioned CME futures. This catapulted the CME into the dominant #1 exchange by term futures OI, and a top-5 exchange in total derivatives volume (CME only offers BTC and ETH term futures, while the other top-5 exchanges all offer perps in most cryptocurrencies and some even options), creating a challenge for crypto-native CEXs (Figure 6):

**Figure 6: Exchanges that offer crypto products, ranked by 24h derivatives volume (snapshot on 21Jun24).**

Source: Laevidas

Exchange	Total 24h Volume	Total OI	Perps 24h Volume	Perps OI	Futures 24h Volume	Futures OI
BINANCE	\$48.01B	\$19.08B	\$47.53B	\$16.86B	\$281.63M	\$985.59M
OKX	\$22.3BB	\$8.78B	\$21.69B	\$5.59B	\$248.49M	\$729.51M
BYBIT	\$18.23B	\$13.14B	\$18.1B	\$12.5B	\$3.61M	\$61.55M
BITGET	\$14.83B	\$9.77B	\$14.82B	\$9.69B	\$5.3M	\$77M
CME	\$4.35B	\$11.28B	-	-	\$4.34B	\$11.28B
DERIBIT	\$2.54B	\$26.58B	\$590.31M	\$1.16B	\$138M	\$1.48B

When we isolate the product into just BTC term futures, we can further observe the CME's absolute dominance, capturing the top 3 positions, with their #1 June contract having an OI almost 13x that of the next exchange's top term future (Figure 7):

**Figure 7: BTC term futures ranked by OI.**

Source: Laevitas

BTC Futures					
Exchange	Ticker	Margin	Expiry	APR	Open Interest ▼
CME	BTCM4	USD	28/06/24	8.22%	\$5.02B
CME	BTCN4	USD	26/07/24	11.75%	\$3.97B
CME	BTCQ4	USD	30/08/24	10.28%	\$730.19M
DERIBIT	BTC-28JUN24	COIN	28/06/24	5.72%	\$393.68M
BINANCE	BTCUSD_240927	COIN	27/09/24	11.36%	\$309.4M
DERIBIT	BTC-27DEC24	COIN	27/12/24	11.03%	\$296.93M
CME	BTCU4	USD	27/09/24	10.20%	\$249.29M
DERIBIT	BTC-27SEP24	COIN	27/09/24	10.46%	\$196.34M
BINANCE	BTCUSD_240628	COIN	28/06/24	12.23%	\$173.48M
OKX	BTC-USD-240927	COIN	27/09/24	9.85%	\$164.21M

### Conclusion

Given crypto's speculative nature, futures quickly found market fit, allowing traders to trade both sides of the market with high leverage. The introduction of perpetual futures was revolutionary, and its volumes have consistently eclipsed that of term futures as well as the underlying spot products'. However, despite BTC's new all-time-highs and seeming excitement in 2024, volumes on crypto exchanges have struggled, particularly on a price adjusted basis. Meanwhile, the SEC's approval of spot BTC ETFs have helped CME volumes and open interest, putting them in a competitive position whilst only offering BTC and ETH term futures.

## About Presto

Presto is a Singapore-based algorithmic trading and financial services firm founded in 2014. Presto focuses on delivering exceptional value for clients through rigorous research-driven approach to investment and trade execution. With more than a 100 million trade executions in a day, Presto is a leading financial services firm in both digital assets and traditional finance markets.

Find out more at <https://www.prestolabs.io>.

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## About Laevitas

Laevitas delivers actionable intelligence with high quality, multi-asset data from the crypto derivatives markets. The platform tracks historic and live data for futures and options data across both CEXs and DEXs, allowing users to create custom dashboards, export data via CSVs and their API, track market flows in real time including for block trades, and utilise various tools such as the options calculators and options strategy builder.

Find out more at <https://app.laevitas.ch/home>

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