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Divisions of Market Oversight, Clearing and Risk, and Market Participants
Commodity Futures Trading Commission
Three Lafayette Centre
1155 21st Street, NW
Washington, DC 20581
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Subject: COMMENTS ON THE TRADING AND CLEARING OF "PERPETUAL"-STYLE DERIVATIVES

Dear Directors and Staff of the Commodity Futures Trading Commission (CFTC):

I write as an Associate Professor of Finance at the University of British Columbia to comment on the Commission's approach to perpetual futures. My scholarship centers on innovation and financial-contract design, themes developed in my current paper *Perpetual Futures and Basis Risk: Evidence from Cryptocurrency* (Gornall, Xiao, and Rinaldi, 2025), henceforth Gornall et al. (2025).[1] That study analyzes how perpetual futures and funding-rate mechanics impact price convergence and market stability–insights that motivate my comments.

The project was funded in part by the Social Sciences and Humanities Research Council of Canada, Mitacs, and cryptocurrency infrastructure provider Aquanow; all views expressed are my own.

My research shows that perpetual futures track spot prices more tightly due to continuous funding payments, reduce risk for arbitrageurs, and exhibit superior liquidity during stress. My comments here develop three propositions, with Commission questions (e.g., *Q1*) referenced at the end of each section:

1) **Tighter price linkage.** Funding-rate mechanisms keep perpetual futures prices near their spot underlyings, which reduces the fragility of the spot-futures-basis trades common in both cryptocurrency and traditional financial markets.

2) **Selective applicability.** Many physical commodity markets (e.g., agricultural commodities) gain less from perpetual futures and may even be disadvantaged by them.

3) **Better market quality.** Across multiple cryptocurrency exchanges, perpetual futures display narrower spreads and heavier volumes than standard futures.

Although the data underpinning my study come from cryptocurrency, the perpetual futures con-

[1] See https://papers.ssrn.com/sol3/papers.cfm?abstract_id=5036933.

tract design–not necessarily the asset class–may hold promise for traditional markets. Perpetual futures evolved in an environment that routinely features the stressors that afflicted conventional markets in 2008, including constrained intermediary balance-sheets, counter-party risk, illiquidity, and extreme volatility. Allowing regulated institutions to pilot this new contractual form could enhance the resilience of traditional futures markets.

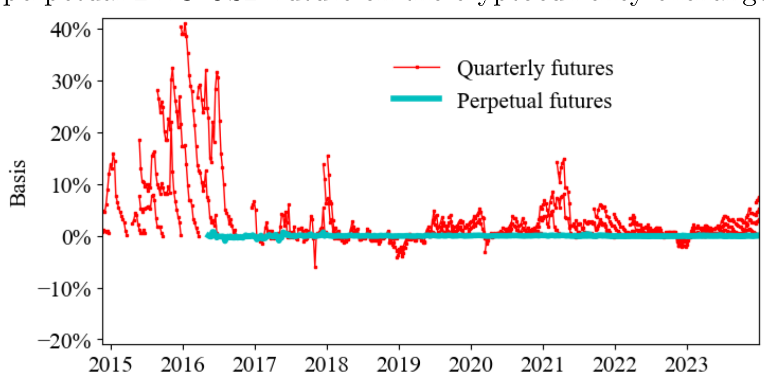
I believe the perpetual future contractual form may be superior to standard futures if we hold market features such as the underlying and leverage constant. Cryptocurrency itself, 24/7 trading, high-leverage retail speculation, or other features of cryptocurrency venues are outside the scope of this letter.

I use standard futures to denote contracts with a fixed delivery or cash-settlement date and no interim funding transfers. I use perpetual futures to mean contracts that i) lack a maturity, ii) reference a liquid spot index, and iii) use frequent funding-rate payments to strongly pull the contract price toward that index.

Q13: Perpetual futures perform the same functions as standard futures: they enable hedging, contribute to price discovery, and converge to the underlying through a rule-based mechanism (funding rather than an expiry). That functional parity argues for keeping them within the futures framework; the lack of a stated maturity alone does not justify reclassification as swaps.

1) Tighter price linkage

Figure 1: Futures basis over time
Reproduced from Figure B2 in Gornall et al. (2025). This figure shows the average futures basis (ratio of futures price to spot price) for the nearest two expiring quarterly BTC-USD futures and the perpetual BTC-USD future on the cryptocurrency exchange BitMEX.



Perpetual futures prices follow spot prices extremely closely, far more so than standard futures contracts. That tight linkage may make arbitrage trades less risky and mute destabilizing feedback loops, improving risk management and price discovery.

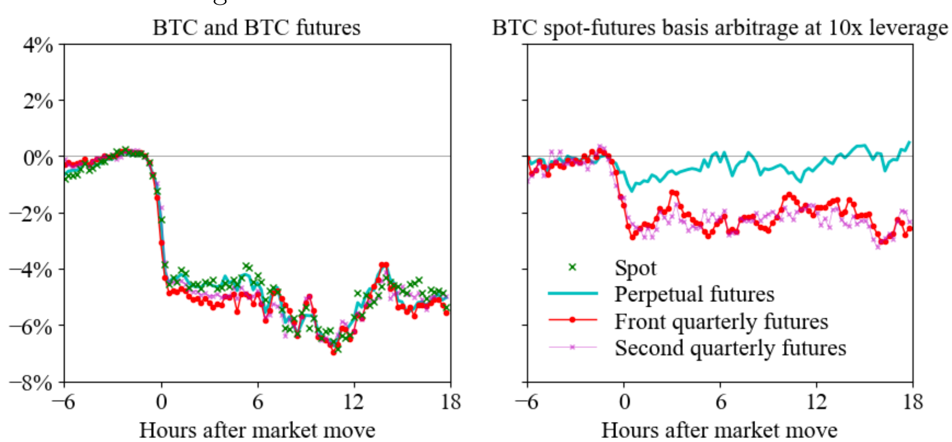
Figure 1 plots the BTC–USD basis–defined as the ratio of the futures price to the spot price–for BitMEX's BTC perpetual contract and its nearest-maturing quarterly futures.[2] The quarterly BTC futures prices (red) often stray far from spot prices (0%), whereas the perpetual futures

[2]When spot Bitcoin trades at $100,000, a basis of 2% means the future trades at $102,000; -2% means $98,000.

prices (teal) stay closely linked to spot prices. The quarterly future's poor tracking is driven by market stress, with quarterly futures falling significantly below spot during the 2018 sell-off and spiking above spot prices in the early-2021 boom. Across those events, the perpetual futures prices are indistinguishable from the spot prices.

Figure 2 focuses on stress events, specifically, hourly spot moves of 5% or more in either direction. It reports the average returns on the losing side of each trade (short when BTC rises, long when it falls). During these events, spot (green) and perpetual futures (teal) prices both fall by 5.2%, whereas quarterly futures prices (red and pink) fall by 5.4-5.5%, a 4-6% amplification of the spot price movement. Because funding payments tether perpetual futures prices to spot prices, they blunt that overreaction and reduce the severity of losses.

Figure 2: Futures returns in crises
Reproduced Gornall et al. (2025) Figure 5. The cumulative returns of the losing sides of futures strategies around 5% or greater absolute hourly price movements for 2015-2023. The left plot is the returns of strategies holding spot BTC and BitMEX BTC-USD futures. The right plot is the returns of 10-times leveraged arbitrage trades that pair a spot BTC position with an offsetting future.



The right plot of Figure 2 shows the payoffs of spot-futures basis arbitrage portfolios. These portfolios hold both futures and offsetting spot positions and are extremely common on both traditional and cryptocurrency markets. We consider 10-times leveraged arbitrage portfolios, reflecting arbitrageurs' use of leverage, and report the returns of the losing side of each trade. As the figure shows, the arbitrage portfolio using standard quarterly futures suffers far greater losses than the arbitrage portfolios using perpetual futures. By preventing the futures price from moving too far from the spot price, perpetual futures reduce the losses that arbitrageurs face in market stress.

Arbitrage usually contributes to effective market function, but arbitrageur losses can exacerbate market instability, for example, the instability in the U.S. Treasury futures market documented by the CFTC's Market Structure Subcommittee.[3] Similar patterns have been observed in (tradi-

[3]See Market Structure Subcommittee, Market Risk Advisory Committee of the U.S. Commodity Futures Trading Commission. (2024). *The Treasury cash-futures basis trade and effective risk management practices*. U.S.

tional) currency, equity-index, and corporate-credit markets.[4]

Perpetual futures track the spot price more closely because of funding-rate payments that continuously rewards the cheap side and penalizes the rich side. When perpetual futures trade below spot, shorts pay longs; when they trade above spot, longs pay shorts. These hourly or daily micro-settlements reward arbitrageurs immediately for making trades that push the futures price to the spot price. These immediate rewards increase arbitrage pressure, causing the futures price to closely track the spot price.

Funding payments transfer arbitrageur financing risk from arbitrageurs to hedgers and speculators. That transfer is also more efficient. As Figure 2 shows, hedgers and speculators (left panel) are only slightly affected by contract type, whereas highly leveraged arbitrageurs (right panel) are acutely sensitive. Because arbitrageurs are systemically important yet fragile, shifting basis risk onto better-capitalized market participants may improve overall financial stability.

Q2, Q3, Q15: Because a perpetual future is tethered to spot by its funding-rate mechanism, it gives market participants a hedge with less basis risk than existing contracts. Arbitrage desks, bank dealers that carry inventory on overnight funding, and corporations hedging short-term cash flows may gain a direct risk-management benefit. Competitive markets will pass along these benefits to other market participants in the form of better prices and liquidity. Those price-tracking and liquidity features are not spanned by traditional contracts.

I do not see evidence that perpetual futures are inherently risky. The high default rates seen on offshore cryptocurrency venues reflect extreme leverage, volatile underlyings, and inexperienced retail traders–not the contract form itself. In fact, Figure 2 shows that perpetual prices have less extreme price movements than traditional futures.

With that said, any reduction in risk can lead to an offsetting increase in leverage and risk-taking. The treasury futures basis is risky precisely because the safety of treasuries has allowed market participants to take high leverage. It is possible that by making arbitrage trades safer and futures more liquid, perpetual futures have allowed exchanges to offer higher leverage, which has in turn led to more defaults. Perpetual futures may also be more attractive to short-term investors, who are more likely to take highly leveraged positions.

Q11: Perpetual futures make arbitrage lower risk and more profitable, which causes their prices to follow spot prices extremely closely. This removes some of the noise in prices. For example, the prevalence of the JPY-USD carry trade means that the prices of those futures are partially driven by intermediary frictions. For that type of market, funding rates lead the futures price to be a less biased signal of the state of the underlying spot market.

Futures prices also convey information about market stress. For perpetual futures, the funding rate serves as a barometer of intermediary stress, whereas fixed-tenor futures price combine information on expected prices with information on the aggregate financing strain over their entire horizon.

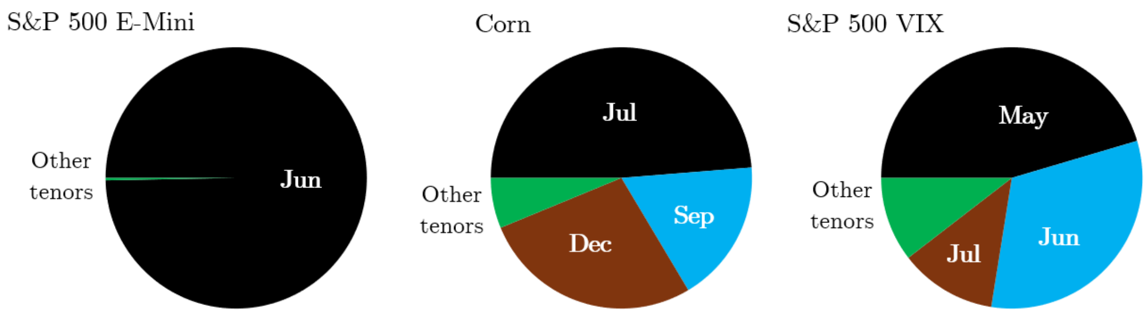
[4]See, for example, Siriwardane, E., Sunderam, A., and Wallen, J. L. (2022). *Segmented arbitrage.*

2) Selective applicability

Perpetual futures are less well suited for underlyings where different tenors are fundamentally different assets (e.g., the VIX) or where storage is challenging (e.g., natural gas and some agricultural commodities). For example, a natural gas producer does not want exposure to current natural gas prices, they want exposure to the future natural gas price at a particular date: a chilly spring might send the April price soaring, while the June future price stays flat. Perpetual futures erase the futures basis and mean participants cannot hedge that risk. Although they protect cash-and-carry arbitrageurs, the nature of the natural gas market means that type of arbitrage trade is less important.

Conversely, perpetual futures are well suited for financial assets that are easy to store and finance, such as equities, Treasuries, and, of course, cryptocurrencies. A firm hedging yen receipts wants exposure to the yen, not exposure to the yen plus 90-days of compounded arbitrageur financing costs. By erasing the futures basis, perpetual futures transfer arbitrageur financing cost risk to the hedger instead of the arbitrageur. But that may be an optimal arrangement as forcing highly levered arbitrageurs to bear that risk might decrease financial stability and increase the cost to hedgers.

Figure 3: Futures volume by tenor
This figure shows the division of May 2nd volume between tenors (expiration months) for select futures markets. Author's calculations.



Markets where standard future trading is clustered on a single expiry are likely better fits for perpetual futures. Figure 3 illustrates this using the split of May 2nd volume between different tenors of the CME S&P 500 E-Mini, CME corn, and CBOE VIX futures. Almost all S&P 500 E-Mini volume is on a single tenor, suggesting traders care about broad market exposure and that perpetual futures would be well suited to this market. Perpetual futures are likely a worse fit for corn futures, as users' hedging needs lead to several popular tenors: promises of future corn cannot be fed to hungry swine. Multiple tenors are similarly needed for S&P 500 VIX futures, as each tenor corresponds to a distinct implied volatility snapshot.

A practical caveat to perpetual futures is their vulnerability to a novel form of manipulation aimed at extracting funding payments. In this scheme, a trader takes a position in the perpetual future and then manipulates the spot market to create a divergence: pushing the futures price below (or above) the spot to trigger funding payments. This type of manipulation is most feasible in illiquid markets, especially physical commodities that are hard to borrow or transport, reinforcing the idea that perpetual contracts are better suited to financial assets with deep and transparent spot markets.

Cryptocurrency exchanges exacerbate this risk by using very aggressive funding formula, which force futures prices to track spot prices even in very volatile markets.[5] Less aggressive funding payments would reduce the profitability of this form of price manipulation, and I believe less aggressive funding could still maintain price alignment in traditional financial markets given their deeper arbitrage capital and more orderly price dynamics.

Q4, Q6a, Q7: Perpetual futures are most resilient when the underlying spot market is deep, transparent, and supported by active lending markets. Where these pre-conditions are absent, the funding-rate mechanism can facilitate manipulation. For that reason, perpetual contracts are better suited to highly liquid financial assets such as major currencies, equity indices, and Treasuries.

To further dampen manipulation incentives, venues should calibrate a markedly gentler funding schedule than the eight-hour, dollar-for-dollar formula common on cryptocurrency exchanges; I believe weekly or even bi-weekly settlements would align prices without inviting predatory behavior.

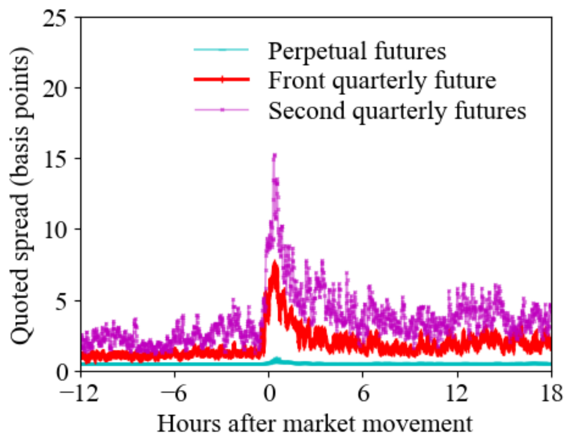
Q5, Q9, Q10, Q11: The primary users of perpetual futures are likely to mirror those of front-month standard futures, including speculators, hedgers, and arbitrageurs focused on financial underlyings. A perpetual futures contract on U.S. treasuries would track price movements similarly to a quarterly Treasury future, but with lower tail risk for arbitrageurs, potentially enhancing market stability.

In contrast, contracts whose value hinges on a specific delivery window, such as corn, power, natural gas, and financial products like the VIX and SOFR, rely on basis variation to transfer seasonal or term risk among hedgers. For those markets, erasing the basis with a perpetual structure would impede market function.

3) Better market quality

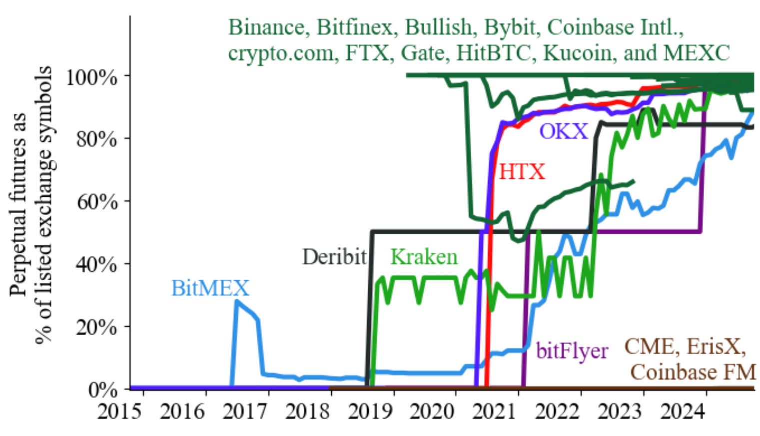
[5] For example, under a popular formula, if the spot price is $1 above the futures price, the short futures holders pay the long futures holders $1 every 8 hours.

Figure 4: Futures liquidity in crises
Reproduced from Figure 6 in Gornall et al. (2025). This figure shows the median quoted (bid-ask) spread around $< -5\%$ spot price decreases for BitMEX BTC-USD contracts and the 2015-2023 period where both perpetual futures and two quarterly futures were available.



Gornall et al. (2025) show that cryptocurrency perpetual futures consistently post tighter quoted, effective, and realized spreads and attract higher trading volume than fixed-tenor contracts. Focusing on quoted (bid–ask) spreads during stress events, Figure 4 plots the median spread for BitMEX BTC–USD contracts from 2015 to 2023, aligned on hours when the spot price falls at least 5 percent. In these drops, the standard quarterly future spreads jump to 5–15 basis points and the perpetual futures increase only slightly. Gornall et al. (2025) argue this resilience stems from perpetual futures' tighter tracking of spot lowering arbitrage risk and facilitating pricing.

Figure 5: Market share of perpetual futures
Reproduced from Figure 1 in Gornall et al. (2025). This figure shows the percentage of reported futures volume accounted for by perpetual futures on twenty cryptocurrency venues.



Market behavior echoes the liquidity data. Figure 5 reports the share of total futures volume captured by perpetual contracts across major cryptocurrency venues. Perpetuals dominate trading on both regulated platforms and less regulated ones. The main exception is the United States, where CME, ErisX, and Coinbase Financial Markets list only fixed-tenor contracts–an outcome that appears to reflect regulatory restrictions rather than lack of demand.

Q2, Q3, Q9, Q10, Q11, Q12, Q15: Perpetual futures may have better liquidity which is a benefit to all users and would facilitate risk management and price discovery.

Q8: If perpetual futures outcompete standard futures on traditional venues, liquidity may migrate away from fixed-tenor contracts. Although such a shift would reflect market demand and likely improve outcomes for most participants, it could reduce the availability of instruments needed to hedge maturity-specific exposures. As discussed in Section 2, this reinforces the view that perpetual futures are best suited to financial assets where trading is already concentrated in a single tenor.

Q9, Q10: Although there are numerous differences between traditional financial markets and cryptocurrency trading venues, the popularity of perpetual futures shows that many market participants prefer this form of contract over standard futures.

In summary, perpetual futures have the potential to improve financial stability and liquidity. I believe that regulatory frameworks should be updated to allow experimentation with these instruments.

Sincerely,

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