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Re: Public Comment on FTX Request for Amended Derivatives Clearing Organization
Registration Order

INTRODUCTION

I write to provide public comment on the application of LedgerX LLC (d/b/a FTX US Derivatives) for an amended order of registration from the CFTC. The application requests permission to clear margined customer trades in derivatives directly—that is, without the need for additional layers of intermediation by distinct entities that have traditionally been interposed between buyers and sellers in derivatives markets.¹ Given the importance of trading on margin in derivatives markets, CFTC approval of the application would thus allow FTX US Derivatives to more fully deploy its digital-asset-ecosystem-based trading platform in derivatives markets—including those for both digital-asset derivatives as well as more traditional derivatives. As I explain below, the end result would be more competition that would likely improve liquidity, price discovery, and more in these markets, thereby resulting in the markets generating more value for society.

More generally, FTX’s application and larger business plan make clear that we stand at a notable point in time for financial-instrument trading markets and their regulation. Over centuries, these markets have developed a finance-based market structure geared at doing what finance has traditionally done best: bringing buyers and sellers of financial instruments together in a way that limits transaction costs. In particular, this type of market structure has addressed trust problems, thereby enabling, for example, farmers and bakers to reduce risk by more efficiently contracting to, respectively, buy and sell wheat with settlement to occur after the uncertain fall harvest. But for all the good this traditional finance-based market structure has done for society on this front over the years, and for all the technological advancement this market structure has absorbed along the way, there can be little doubt that there will come a time when its role in intermediating financial-instrument trades will be disrupted by more efficient market structures for doing the same. FTX US Derivatives’s application, when viewed in light of the operation of FTX’s existing direct-trading (1) U.S. spot exchanges and (2) foreign spot and derivatives exchanges (where margined trades are already cleared directly), suggests that that time is now.

¹ See Letter from Brian G. Mulherin, General Counsel, FTX US Derivatives, to Mr. Clark Hutchison, Director, Division of Clearing & Risk, CFTC, re Permissibility and Benefits of Direct Clearing Model under the Commodity Exchange Act and CFTC Regulations 2 (Feb. 8, 2022). (“With this application to amend its DCO registration, FTX seeks to build on its years of experience of offering direct access by offering margin directly to its customers, without clearing FCMs.”); Understanding FTX’s Guaranty Fund Sizing, <https://www.ftxpolicy.com/ftx-guaranty-fund> (“Currently, [FTX US Derivatives] is only permitted to list and clear fully collateralized derivatives products; however, [FTX US Derivatives] has requested that the CFTC amend [FTX US Derivatives’s] derivatives clearing organization registration to permit [FTX US Derivatives] to list and clear leveraged / margined futures contracts.”).

In this letter, I explain why the CFTC should follow the model of Congress in 1975 and the SEC thereafter in responding to this type of market-structure juncture (there, relating to the stock market) by embracing competition among trading centers.² In the stock market, the result to date has been a transition to electronic trading across a large number of competing trading platforms that has greatly increased liquidity, thereby resulting in the market generating more value for society. Indeed, this transition to electronic trading across this now fragmented-yet-electronically-linked market was so successful that it bled over to help further advances along these same lines in other financial-instrument markets, including derivatives ones. By embracing competition in this way now, the CFTC would be facilitating the further evolution of the market structure for derivatives (and financial-instrument markets more generally) by better allowing tools from the digital-asset ecosystem to iron out market-structure wrinkles that remain even after the significant improvements from the transition to electronic trading.

* * *

Before turning to these points below, two considerations that are relevant to my interest in taking the time to review the application in this level of detail and write this letter are important to note at the outset.

First, West Realm Shires, Inc., which is affiliated with FTX US Derivatives, is compensating me for the time associated with the research and writing necessary for me to complete this letter. My conclusions and reasoning are my own, and are consistent with my scholarly publications as well as with my larger thinking on the optimal market structure for financial-instrument trading markets. But this conflict should be made clear at the outset of this letter.

Second, my interest in this application also arises out of my scholarly work. Over the past ten-plus years, my primary focus as a legal scholar has been on the regulation of financial-instrument trading markets. I have published a number of scholarly articles centered on the law governing stock trading. And building on a class on Capital Markets Regulation I helped develop at Columbia Law School and Columbia Business School over a decade ago, I have more recently created a unique law school class on Broker-Dealer & Exchange Regulation. More generally, my professional background and relevant scholarly area of expertise relates to the mechanics and economics of financial-instrument trading markets, the law governing the stock market, and securities litigation and enforcement. I have served as an expert witness for the SEC and have provided a series of lectures on the mechanics, economics, and optimal regulation of financial-instrument trading markets for the Brazilian unified version of the SEC and CFTC. Lastly, I am a fellow with the William & Mary Center for the Study of Law and Markets as well as a Program Fellow with the Columbia Law School Program in the Law and Economics of Capital Markets.

² While this letter is centered on why this path should be followed, and therefore provides a generally answer to questions presented by the CFTC in the Commission's Public Comment Request dated Mar. 10, 2022, the letter also provides more precise answers to those questions. In particular, this letter is most relevant to the following questions presented by the CFTC: (1) Question #14: "By reducing the number of people/entities involved in a transaction, does a non-intermediated model have an effect, positive or negative, on price discovery and efficiency?" and (2) Question #15: "By potentially expanding the number of people able to participate in derivatives markets, does a non-intermediated model have an effect, positive or negative, on price discovery and efficiency?" CFTC Request for Comment on FTX Request for Amended DCO Registration Order at 6.

I. CONGRESS AND THE SEC'S EMBRACE OF TRADING-PLATFORM COMPETITION IN THE STOCK MARKET

Traditionally, the vast majority of all stock buying and selling interest for a stock was brought together at a single trading center—most prominently, at the NYSE for NYSE-listed stocks. Such a centralized market structure that draws buyers and sellers to a single place where they can find each other and enter into trades has obvious appeal.³ But that type of market structure of course limits the forces of competition for the provision of trading-platform services and more. The traditional structure was thus prone to inefficiencies,⁴ with average bid-ask spread sizes by NYSE specialists and commissions from NYSE brokers that look egregious from today's perspective.

By the 1970s, that traditional structure faced increased pressure from competition. But during that time and beyond, Congress and the SEC allowed—and even enabled—that structure to continue to reign.⁵ One could attempt to justify this on a principled level given the downsides of moving to a market structure that allowed for a single stock to trade across many trading platforms rather than in the above-described centralized fashion. After all, such fragmentation of buying and selling interest might significantly increase the costs associated with stock buyers or sellers finding each other and agreeing to terms efficiently, all while having the confidence that their trades (i.e., executory contracts in even the non-futures setting) would close.⁶ Many in Congress and at the SEC—whether acting on principle or under the influence of the NYSE's clear preferences on the matter—thus continued to favor the status quo. Indeed, some even called for a public-utility approach where *all* trading of publicly traded stock would be completed on a single centralized limit order book.

Enter the mid-1970s and then-current and predicted advances in communications technology. At that time, enough members of Congress had the farsightedness to realize that those advances could help avail society of the competition-based benefits of a fragmented market

³ See, e.g., James Angel, Lawrence Harris, & Chester S. Spatt, *Equity Trading in the 21st Century* 27 (2010), available at https://papers.ssrn.com/sol3/papers.cfm?abstract_id=1584026 (“Trades result only when willing buyers and sellers can meet and negotiate terms. Traditionally, traders came to exchanges where they or their brokers could locate one another and arrange trades. By providing a common meeting place and time, exchanges greatly decreased the cost of searching for liquidity.”).

⁴ E.g., Craig Pirrong, *The Thirty Years War*, 28 REG. 54 (2005-2006) at 4 “[F]undamental economic considerations can create inefficiencies in securities markets. Network effects arising from the rational choices of traders tend to cause trading to consolidate on a single exchange that can then exercise market power by rationing access either explicitly (through membership limits) or through price.”).

⁵ For example, the NYSE had an SEC-approved rule that preventing its members from trading NYSE-listed stocks away from the NYSE. See *In the Midst of Revolution: The SEC, 1973–1981*, SECURITIES AND EXCHANGE HISTORICAL SOCIETY, <http://www.sechistorical.org/museum/galleries/rev/rev03g.php>. Many securities professionals would have faced serious impediments to conducting a successful business if they had been barred from trading on the dominant exchange. For that reason, they chose membership at the NYSE and did not trade elsewhere—and the NYSE maintained its dominance throughout the 20th century. See *id.* By 2002, mounting SEC pressure resulted in the NYSE repealing this member-limitation rule, thereby allowing more competition from off-exchange trading platforms.

⁶ See, e.g., MERRITT B. FOX, LAWRENCE R. GLOSTEN, & GABRIEL V. RAUTERBERG, *THE NEW STOCK MARKET* 14 (2019) (noting that competition among trading venues has “the possible downside that orders from potential traders may be fragmented among multiple venues, which makes it less likely that willing buyers and sellers can easily find each other and transact.”)

structure⁷ without bringing along with them the above-mentioned downsides of the same.⁸ In particular, Congress recognized that this technology could link together fragmented trading across competing trading platforms into a single “national market system” where buyers and sellers could find each other with minimal frictions.⁹ Congress therefore adopted the “National Market System” framework in the Securities Act Amendments of 1975. These amendments, now found in Section 11A of the Exchange Act, became known as the National Market System amendments because of their focus on facilitating the formation of this market.¹⁰

Congress’s findings and goals for the National Market System essentially spell out the desirability of, and communications-technology-based path toward, fragmented electronic trading across a single market rather than the continued dominance of the NYSE’s floor-trading through humans and NASDAQ telephone trading through the same:

(1) The Congress finds that—“(A) The securities markets are an important national asset which must be preserved and strengthened,” “(B) New data processing and communications techniques create the opportunity for more efficient and effective market operations,” “(C) It is in the public interest and appropriate for the protection of investors and the maintenance of fair and orderly markets to assure—(i) economically efficient execution of securities transactions; (ii) fair competition among brokers and dealers, among exchange markets, and between exchange markets and markets other than exchange markets; (iii) the availability to brokers, dealers, and investors of information with respect to quotations for transactions in securities; (iv) the practicability of brokers executing investors’ orders in the best market; and (v) an opportunity, consistent with the provisions of clauses (i) and (iv) of this subparagraph, for investors’ orders to be executed without the participation of a dealer,” and “(D) The linking of all markets for qualified securities through communication and data processing facilities will foster efficiency, enhance competition, increase the information available to brokers, dealers, and investors, facilitate the offsetting of investors’ orders, and contribute to best execution of such orders.”¹¹

Notably, the National Market System amendments did not envision Congress acting alone and did not lead to seismic market-structure change overnight. Instead, Congress used the amendments to delegate a large amount of power to the SEC to make rules to bring about and

⁷ See, e.g., Pirrong, *supra* note 4, at 7 (noting that a more fragmented “approach encourages competition on other dimensions, including trading fees, execution speed and quality, and technology, thereby reducing (and perhaps eliminating) the need for any regulation of fees, access, or standards.”); FOX ET AL., THE NEW STOCK MARKET, *supra* note 6, at 14 (“Multiple competing trading venues have the upside of the greater efficiency and higher rate of innovation that are likely to arise from competition.”).

⁸ See FOX ET AL., THE NEW STOCK MARKET, *supra* note 6, at 14 (“Congress, in its adoption of the NMS amendments, foresaw that improving information technology could significantly reduce this downside [of fragmented trading] by making it easier for traders to see what is going on in each of these venues.”).

⁹ See *id.*

¹⁰ See FOX ET AL., THE NEW STOCK MARKET, *supra* note 6, at 29 (“In 1975, Congress passed a series of amendments to the Exchange Act, known as the ‘NMS Amendments,’ because they directed the SEC to establish a ‘national market system’ for equities.”).

¹¹ Exchange Act, Section 11A(a)(1), 15 U.S.C. § 78k-1(a)(1).

further shape this market over time.¹² The SEC then helped further these goals by promulgating the major pieces of regulation that provided the key linkages envisioned by Congress.¹³ The most recent iteration of these rules are collected in Regulation National Market System (often referred to as simply “Reg NMS”).¹⁴ Promulgated in 2005, Reg NMS aimed to finally bring about the interconnected, single electronic national market system and benefits of increased competition envisioned along with it.¹⁵ Reg NMS includes the following notable rules furthering this end:

- Rule 601 (requiring trading centers to publicly report transactions that take place through them immediately after they take place);
- Rule 602 (requiring trading centers to disseminate their best displayed quotes to the public);
- Rule 606 (requiring broker-dealers to disclose information on where they route customer orders);
- Rule 610 (limiting the amount of fees trading centers can charge traders in return for access to their quotes);
- Rule 611 (restricting trading centers from “trading through” the best prices displayed in the National Market System); and
- Rule 612 (requiring displayed quotes for the vast majority of stocks to be entered on a uniform “tick” of a penny across the market).¹⁶

The full effects of these—and other—Reg NMS rules is beyond the scope of this letter. But suffice it to say that these types of rules fostered competition among trading platforms (new and old alike) in a way that allowed for the electronic, competitive stock market we have today.¹⁷ For example, by protecting only the best displayed quotes in the national market that could be accessed electronically from being “traded through” at other trading platforms, Rule 611 pressured

¹² Exchange Act, Section 11A(a)(2), 15 U.S.C. 78k-1(a)(2) (“The commission is directed, therefore, having due regard for the public interest, the protection of investors, and the maintenance of fair and orderly markets, to use its authority under this chapter to facilitate the establishment of a national market system for securities . . .”).

¹³ See FOX ET AL., THE NEW STOCK MARKET, *supra* note 6, at 29 (“The NMS amendments pushed the system to develop in this direction, a push that has been consistently supported by the SEC.”).

¹⁴ Reg NMS is codified at 17 C.F.R. § 240.600 et seq.

¹⁵ *E.g.*, See, *e.g.*, Pirrong, *supra* note 4, at 2 (noting in 2005 that “the new rules [being promulgated in Reg NMS in 2005] may help to mitigate the market power in the trading of securities that results from network effects inherent in trading.”); *id.* at 4 (“Improving information about prices and enforcing market linkages can also loosen a dominant exchange’s stranglehold on order flow and thereby encourage more competition.”).

¹⁶ There is much history to this minimum-tick-size regulation even before Reg NMS Rule 612. See Pirrong, *supra* note 4, at 5 (“For the NYSE’s first 200 or so years, stocks were traded in increments of \$0.125 (‘an eighth’); you could buy a stock at \$15.125, but not at \$15.10. In 1997, the increment was reduced to \$0.0625 (‘a teeny’), and in 2000 the increment was reduced further, to \$0.01 in a move referred to as ‘decimalization.’”).

¹⁷ See Angel et al. (2010), *supra* note 3, at 4 (“Regulation NMS cleared regulatory impediments to electronic trading and thereby led to increased competition between market centers. Dozens of new trading platforms emerged, including some with very different models from the old exchanges.”); Pirrong, *supra* note 4, at 3 (“[W]hen investors can see the prices that are being quoted at the various exchanges, they can choose to go to the one offering the best price, even if that is not the biggest exchange.”); Pirrong, *supra* note 4, at 3 (noting that “improved information on price quotes can make it easier for small exchanges to compete with a large one.”).

the NYSE to move from floor-trader quotes outside of this system to electronically accessible quotes inside the system.¹⁸ The end result of Rule 611, when taken together with the larger set of rules at issue, is an electronic stock market where trading centers route orders to transact at the trading center with the best displayed price in the entire nationwide market even when brokers do not.¹⁹

Even after Congress acted in 1975, it thus took decades for the traditional centralized structure of the stock market to be replaced by a robust fragmented one that better facilitated trading-platform competition.²⁰ Delay aside, the result to date of this embrace of trading-platform competition is one that has transformed the stock market into the much improved competitive electronic one we have today.

PART II. THE IMPROVED MARKET THAT RESULTED FROM THIS EMBRACE OF TRADING-PLATFORM COMPETITION

The end result of the fostering of this competition within this regulatory framework has been nothing less than remarkable. Instead of a single stock trading for the most part on its listing venue, stocks today instead trade across roughly a dozen registered national securities exchanges, several dozen alternative trading systems (such as dark pools), and a variety of broker-dealer trading systems (namely, internalizing ones)—all linked into a single electronic market per Congress’s vision. Whereas over 80% of trading for NYSE-listed stocks still took place through the NYSE as late as 2004, in the years after Reg NMS was promulgated that number dropped to around just 25%.²¹ Today, almost 40% of all reported stock trading takes place away from national securities exchanges more generally.²²

¹⁸ Angel et al. (2010), *supra* note 3, 38-39 (“[Reg NMS] removed the [former] trade-through rule and substituted a rule that prohibited trade-throughs of electronically accessible quotes. As a result, floor-based trading systems lost their primacy to electronic systems. The listed exchanges (NYSE and AMEX) started to offer electronic trading, but their systems were too slow and too expensive, and they quickly loss market share to faster electronic competitors.”).

¹⁹ See, e.g., Pirrong, *supra* note 4, at 3 (“One approach—adopted by the SEC in the 1970s and that underlies the revised Reg NMS today—is to improve the information investors have about trading opportunities available in different trading centers/exchanges and to require those handling investors’ orders to direct the orders to the exchange/market center offering the best price. That is, this approach attempts to create a virtual central market by linking multiple markets through information and the imposition of duties on those handling orders.”); *id.* at 1 (referring to Rule 611’s trade-through restrictions as “[t]he centerpiece of [Reg NMS]” and noting the effect it will have on order-handling decisions by trading centers—that is, resulting in trading centers “rout[ing] orders to any market center currently showing a better price on an automated trading system or else match that better price.”).

²⁰ See FOX ET AL., THE NEW STOCK MARKET, *supra* note 6, at 13 (“As recently as the early 1990s, trading in the stock of each publicly traded company of any significance was still largely confined to a single venue, either NASDAQ or the NYSE.”); Pirrong, *supra* note 4, at 4 (noting *in 2005* that linkages between different trading centers before Reg NMS “have not overcome the advantages of the major exchange in the United States—the NYSE still dominates trading in the equities it lists.”).

²¹ James J. Angel, Lawrence E. Harris, and Chester S. Spatt, *Equity Trading in the 21st Century: An Update*, 5 QJ FIN. 1, 14 (2015) (“The market share of the NYSE in NYSE-listed stocks fell dramatically in the last decade subsequent to the adoption of Regulation NMS in 2005.”); Angel et al. (2010), *supra* note 3, at 24 (“Regulation NMS (2005) freed electronic trading platforms to compete with the NYSE. Subsequently, new entrants gained significant market share. The NYSE market share of volume in its listed stocks fell from 80% at the beginning of 2003 to 25% by the end of 2009.”).

²² https://www.cboe.com/us/equities/market_statistics/

The creation of some losers aside,²³ with this increased competition across trading-platforms came innovation that improved the quality of stock trading.²⁴ Most importantly, liquidity has been improved.²⁵ In contrast to the days of old, liquidity can be added to exchanges and ATSS by a wide variety of market makers, and not just approved NYSE specialists or NASDAQ dealers.²⁶ Moreover, directional traders can generally trade via making liquidity to other traders by adding quotes to electronic limit order books themselves, as opposed to merely trading via taking liquidity opposite market makers. This means that the market now hosts “natural liquidity” in a way that is consistent with one of Congress’s main goals in 1975.²⁷

Empirical findings evidence the scope of these improvements.²⁸ The size of inside spreads, the most prominent traditional measure of market quality for at least smaller traders,²⁹ are down to an average of a penny per share for the stocks that dominate the U.S. stock market (i.e., large-capitalization stocks).³⁰ The significance of this point is underscored by recognizing that (1)

²³ See Angel et al. (2010), *supra* note 3, 2 (“The big losers have been those intermediaries who did not innovate as successfully, and, as a consequence, became less competitive, and ultimately less relevant.”); see also *id.* at 38-39 (noting that after Reg NMS, “the listed exchanges (NYSE and AMEX) started to offer electronic trading, but their systems were too slow and too expensive, and they quickly loss market share to faster electronic competitors.”).

²⁴ See Angel et al. (2010), *supra* note 3, at 2 (“The introduction of computerized trading systems and high-speed communications networks allowed exchanges, brokers, and dealers to better serve and attract clients. With these innovations, transaction costs dropped substantially over the years, and the market structure changed dramatically.”); *id.* at 2 (“The winners first and foremost have been the investors who now obtain better service at a lower cost from financial intermediaries than previously. Secondary winners have been the exchanges, brokers, and dealers who embraced electronic trading technologies and whose skills allowed them to profitably implement them.”); *id.* at 32 (“New communications and computing technologies have allowed exchanges, brokers, dealers, and alternative trading systems to create innovative solutions to . . . traditional trading problems . . .”).

²⁵ On the central role of liquidity in the stock market’s performance of its main social functions, see generally Merritt B. Fox & Kevin S. Haeberle, *Evaluating Stock Trading Practice and Their Regulation*, 42 J. CORP. L. 887 (2017).

²⁶ See Angel et al. (2010), *supra* note 3, at 52 (“The U.S. equity market is now an open architecture market in which entrants with innovative technology can compete effectively. . . . The character of trading has also changed. We have moved from a market in which humans manually traded to one in which computers execute the bulk of trades without human intermediation.”); Angel et al. (2010), *supra* note 3, at 52 (“Electronic traders now provide most liquidity in U.S. equity markets. Their greater efficiencies allowed them to largely displace traditional dealers.”).

²⁷ Exchange Act Section 11A(1)(a)(1), 15 U.S.C. § 78k-1(a)(1) (noting the desirability of allowing “an opportunity . . . for investors’ orders to be executed without the participation of a dealer”).

²⁸ See Angel et al. (2015), *supra* note 21, at 16-17 (“[I]ndirect measures of market quality such as total trading volumes, average spreads, and average quoted sizes have improved over time. These measures indicate that transaction costs have dropped for small orders for which execution costs are easily predicted from bid/ask spreads and quotation sizes.”); Angel et al. (2010), *supra* note 3, at 5 (“These changes [to the current electronic stock market after Reg NMS] substantially improved market quality. Virtually every dimension of U.S. equity market quality is now better than ever. Execution speeds have fallen, which greatly facilitates monitoring execution quality by retail investors. Retail commissions have fallen substantially and continue to fall. Bid-ask spreads have fallen substantially and remain low, although they spiked upward during the financial crisis as volatility increased. Market depth has marched steadily upward. Studies of institutional transactions costs continue to find U.S. costs among the lowest in the world.”).

²⁹ See Angel et al. (2015), *supra* note 21, at (noting that the size of the spread “is a trading measure of market quality”).

³⁰ See *id.* at 4 (“The quoted spreads for the largest stocks remain at one cent.”).

around 87% of fully diversified domestic public-company stock portfolios is invested in large-capitalization stocks³¹ and (2) a penny spread is generally the legal minimum quoted spread that SEC rules allow.³² Moreover, the average “depth” of those best bids and asks represented about \$1,000,000 in liquidity by 2015,³³ representing major improvements from even just the market structure that prevailed before Reg NMS was promulgated in 2005.³⁴

Likewise, the size of brokerage commissions has dropped dramatically. Average retail-level brokerage commission went from around \$35 per trade in the years just prior to Reg NMS to about \$13 per trade in the years just after it.³⁵ And today, many retail-level traders trade through zero-commission brokers.

Importantly, this market better serves not just smaller traders, but also large institutional ones (and thus all those whose money they invest).³⁶ For those larger traders, both spread costs and brokerage-commission costs have been substantially reduced.³⁷

In sum, the approach centered on embracing trading-platform competition described in Part I above has led to the improved stock market we have today described in this Part. The transition to electronic trading and improved market quality that this competition has fostered of course spilled over to other markets, including derivatives ones. But as discussed in the final Part next, there is still much room for improvement in all of these markets—and for embracing competition to achieve that improvement.

PART III. EMBRACING TRADING-PLATFORM COMPETITION TODAY TO IMPROVE THE STRUCTURE OF THE U.S. DERIVATIVES MARKET

Today, the CFTC and other regulators of financial-instrument market structure face a similar juncture to the above-described one faced by Congress and the SEC in the past. The current juncture is one where those regulators must choose between, on the one hand, continued support

³¹ <https://www.etf.com/VTI#fit> (showing the percentage of funds in Vanguard’s total domestic stock market index fund that are invested in large-capitalization stocks).

³² Reg NMS Rule 612, 240 CFR § 242.612; *supra* note 16.

³³ Angel et al. (2015), *supra* note 21, at 7, n.73.

³⁴ *Id.* at 7 (“The dollar depth displayed to market participants for large stocks is also roughly twice what it was a decade ago.”).

³⁵ *Id.* at 9-10 (noting that “[r]etail commissions fell dramatically in the early part of the century as electronic trading took hold”).

³⁶ *Id.* at 34 (“Improvements in market quality have benefited small traders and new evidence presented in this report indicates that it also has benefited the institutional trader executing very large orders over many days.”).

³⁷ *Id.* at 18-19 (“These results show that the average costs of executing large institutional orders have fallen substantially over time as electronic trading has grown. Although large institutional trades may still suffer from front-running, these results suggest that on net, the effects of electronic trading on large order executions have been quite positive. We believe that the reduction in large order transaction costs are mainly due to the development of electronic algorithms for executing large orders, to the development of dark pool order matching systems that protect large traders from front-running while they search for liquidity, and to a general increase in market liquidity due to the growth of electronic trading which has greatly reduced the physical and administrative costs of trading.”); *id.* at p. 19 (“[W]e also note that institutional brokerage commissions have also dropped substantially over this period. They once ranged between 3 and 5 cents per share, depending on whether they included soft-dollar benefits. They now range between 1 and 3 cents per share.”).

for the status quo and the current iteration of its financed-based market structure versus, on the other, embracing trading-platform competition that would result in the current market structure incorporating improvements from the digital-asset ecosystem. Those regulators should follow the aforementioned model of Congress and the SEC and thus choose the later approach.

This model and better approach are especially important for the U.S. derivatives market today for two main reasons. First, that market trails the stock market in the transition from centralized trading to more fragmented liquid trading across competitive trading platforms. This is especially true with respect to the market for digital-asset futures.³⁸ Second, that market has a market structure that, despite the above-described gains from the stock market that have bled over to some degree to the derivatives market, is still far from perfect.³⁹ In this market (and indeed in the stock market itself), there remain much-debated issues such as those relating to collocation arrangements, latencies between the public transaction data and quote data feeds and private versions of the same, the scope of the information shared in the public transaction and quote data feeds versus that which can be purchased by well-funded private subscribers, the HFT arms race, maker-taker fees, market “segmentation, payment for order flow, fair access to trading platforms, and more. All of these remaining issues (some of which are of course interrelated) matter for the extent to which the market generates social value.

Crucially, welcoming trading-platform competition in financial-instrument markets—in particular competition from platforms born in the digital-asset ecosystem with offerings like that provided by FTX—has much potential to help on these fronts. Most prominently, on its own accord, FTX’s direct-trading platform offers the below-described improvements over the status quo. *However, if FTX US Derivatives is unable to clear margined derivatives trades directly, these improvements will be far from fully realized in the U.S. derivatives market.* Without the regulatory permission for which FTX US Derivatives has applied, a trader purchasing futures contracts on FTX US Derivatives must provide 100% collateral in order to enter into a futures contract. Trading in this way is of course inefficient for capital-constrained traders and they will generally instead opt to trade with significant leverage elsewhere in the market by posting performance bonds of a

³⁸ *E.g.*, Key Points on the CFTC Comment Period for FTX US Application, <https://www.ftxpolicy.com/ftx-clearinghouse-application-before-cftc> (“Particularly as it relates to BTC and ETH futures, most U.S. volume trades on one exchange. Other platforms have tried to list BTC and ETH futures, but have had limited success because of the overall market and network advantages that incumbent exchanges enjoy.”). For more precise volume numbers showing, among other things, the extent to which the CME dominates cryptocurrency derivatives trading among U.S. trading centers, see FTX Global Volume Monitor, <https://ftx.com/volume-monitor>. Moreover, world-wide trading in digital-asset markets more generally (across both spot and derivatives markets) is dominated by non-U.S. trading platforms. See FTX Global Volume Monitor, <https://ftx.com/volume-monitor>; see also Sam Bankman-Fried Written Submission to the Senate Agriculture Committee (“[T]he vast majority of trading volumes in digital-assets markets (which FTX estimates to be roughly 95% of global volume) takes place on non-U.S. trading platforms, even though much of the human and intellectual capital driving the industry comes from U.S. persons – many of whom have left the U.S. to build and grow their businesses.”); Key Points on the CFTC Comment Period for FTX US Application, <https://www.ftxpolicy.com/ftx-clearinghouse-application-before-cftc> (“[M]ore than 90 percent of trading volumes for derivatives on BTC and ETH trade outside the U.S.”).

³⁹ It is worth noting that in at least the stock market context, some of the imperfections appear to be heavily influenced by special-interest politics traceable to those who benefit from the former centralized, less competitive market structure. See, e.g., Pirrong, *supra* note 4, at 1 (“Unfortunately, in the face of an intense lobbying effort led by the New York Stock Exchange, the commission adopted a version of [Reg NMS Rule 611] that will likely have a far smaller favorable impact on competition in securities markets than would have resulted if the SEC had approved another alternative, the ‘depth of book’ proposal, that it had advanced [in the previous year.]”).

relatively small percentage of the overall value of the position.⁴⁰ The same lack of capital efficiency applies in the options market to the extent selling, for example, a bitcoin call requires (as it does today through FTX US Derivatives) collateralizing the trade with an entire bitcoin. Indeed, one might conclude that to embrace FTX US Derivatives's innovations in derivatives markets without embracing the platform's requested ability to clear margined trades directly is to not embrace those innovations at all.

It follows that, should the CFTC not permit FTX US Derivatives to clear margined trades in derivatives directly, social value that would otherwise be generated by the U.S. derivatives markets will be lost. This can be seen by thinking about just what FTX's direct-trading platform, when fully able to compete, brings to financial-instrument markets.

For starters, FTX's direct-trading platform facilitates the generation of more liquidity in these markets in three main ways. First, the platform does so by lowering the costs necessary to provide market-making services. In today's financial-instrument markets, providing market-making services generally requires enormous investments in private data feeds, co-location arrangements, communication systems, order-entry arrangements, and more. But FTX's trading platform takes the approach of the digital-asset ecosystem when it comes to imposing these types of costs on market participants. All quote and transaction data is open and free to anyone with an internet connection.⁴¹ This includes the full limit order book, and not just the "top of the book." In contrast, to see the full order book of an exchange today, a trader might have to pay tens of thousands of dollars per month—with some exchanges charging subscribers per derivative asset class. Moreover, via FTX's trading platform, any registered user with an internet connection who wants to provide liquidity services can enter non-marketable limit orders with the aid of this information without incurring any order-entry fee, in contrast to the situation on more traditional trading platforms where the exchanges may charge tens of thousands of dollars per order-entry line to the exchange and market makers might need to buy hundreds or even thousands of order-entry lines. Further, unlike with traditional exchanges, market makers do not have to rent server space at the exchange in order to have equal to the best access to the trading center. This is because FTX's trading platform follows the digital-asset-ecosystem approach of placing its data on the cloud, meaning that anyone can buy the basic nodes necessary to connect to them in order to have the equal to the best access to the exchange. Taken together, these innovations mean not just a lower cost for the existing HFTs that dominate the market-making business across financial-instrument markets today⁴² but also more room for additional competition from others in this professional-liquidity-provision space. Moreover, the ability to trade directly on FTX's trading platform without the need for trading through a licensed broker or obtaining a brokerage license further helps on this front. In the end, the lower costs associated with providing market making

⁴⁰ See, e.g., HARRIS, TRADING & EXCHANGES: MARKET MICROSTRUCTURE FOR PRACTITIONERS 575 (2003) ("Large margins decrease position sizes by increasing carrying costs and by preventing capital-constrained traders from acquiring large positions.").

⁴¹ See *id.*; <https://www.ftxpolicy.com/> ("With respect to market reporting, a hallmark of the crypto-asset industry . . . is the provisioning of market data to users free of charge.").

⁴² A relatively small number of trading firms are thought to dominate the business of market making in today's electronic financial-instrument trading markets. See Jonathan A. Brogaard et al., *High Frequency Trading and Price Discovery*, 27 REV. FIN. STUD. 2267, 2271-78 (2013) (using a NASDAQ data set to show that high-frequency traders supply liquidity for over half of all trades); Albert J. Menkveld, *High-Frequency Trading and the New Market Makers*, 16 J. FIN. MARKETS 712, 714 (2013).

services and increased room for competition in this space are likely to combine to lead to more liquidity in the market. After all, in a competitive market, lower market-maker costs mean lower spreads.⁴³ And increased competition puts downward pressure on spreads as well.⁴⁴

The second main way in which FTX’s digital-asset-ecosystem-based trading platform facilitates the generation of more liquidity in financial-instrument markets is by lowering costs along the above lines for directional traders as well. By so doing for these non-market-making traders, the trading platform facilitates the interaction of “natural liquidity” in the market—that is, the interaction of directional traders’ orders without the need for a dealer/market maker intermediating the trade. Recall that increasing such natural liquidity was one of the core goals of Congress back in 1975 when setting up the basic legal framework for the National Market System we now have in the equities market.⁴⁵ So instead of directional traders having to take liquidity from professional suppliers of liquidity services at a bid-ask spread, those traders can instead trade by making liquidity of their own for others in the market. The end result is, for example, a farmer’s sell order for a futures contract for wheat trading opposite not a market maker’s bid quote, but instead against a baker’s buy order for the same contract. The trade thus involves one less layer of intermediation and, in turn, one less layer of fees—thereby increasing liquidity in the market.

The third main way in which FTX’s innovative trading platform facilitates the generation of more liquidity in the market is by bringing in more retail-level investors to the market. These investors are disproportionately uninformed, and as such are disproportionately trading for some other reason than based their knowledge of a more accurate price for the financial-instrument at issue.⁴⁶ The presence of these investors thus increases the ratio of uninformed to informed trade, meaning that it increases liquidity in the market.⁴⁷ By providing a market structure that is perhaps more attractive to retail investors, more liquidity is thus added to the system for a diverse set of traders pooled on the FTX exchange.⁴⁸

Importantly, all of this improved liquidity generates not just benefits for traders seeking to engage in, for example, mutually beneficial risk-mitigating trades (and thus generates value for society on that front), but also better price discovery (and thus value for society due to prices that serve as a stronger informational signal beyond the market). This is because of the connection between increased liquidity and the level of informed trading in the market. The more liquid the market, the more informed traders can earn in trading profits based on their superior information about the more accurate value of a financial instrument. With more potential for such trading

⁴³ E.g., Angel et al. (2010), *supra* note 3, at 52 (“The ability to trade at low cost allows high-speed traders to provide greater liquidity to the markets. Their willingness to devote capital to buy when others desire to sell and vice versa smoothes out the price effects of order imbalances and further reduces transaction costs for end investors.”).

⁴⁴ E.g., FOX ET AL., *THE NEW STOCK MARKET*, *supra* note 6 at 74.

⁴⁵ See *supra* note 27 and accompanying text (discussing natural liquidity and Congress’s interest in facilitating it in the stock market).

⁴⁶ Christine A. Parlour & Uday Rajan, *Payment for Order Flow*, 68 J. FIN. ECON. 379, 381 (2003) (“Retail order flow is widely believed to be uninformed.”).

⁴⁷ For seminal models focused on this ratio and its effect on liquidity, see Lawrence R. Glosten & Paul R. Milgrom, *Bid, Ask and Transaction Prices in a Specialist Market with Heterogeneously Informed Traders*, 14 J. FIN. ECON. 71 (1985); Albert S. Kyle, *Informed Speculation with Imperfect Competition*, 56 REV. ECON. STUDIES 317 (1989).

⁴⁸ See Mulherin Letter, *supra* note 1 (“FTX anticipates that its participants will be diverse, encompassing traders and investors with varying investment objectives, risk tolerances, and portfolio sizes.”)

profits, the incentive to generate such valuable information is increased, leading to more such information being generated and impounded into financial-instrument market prices.⁴⁹ It follows that the improved liquidity that is likely to flow from FTX's innovative trading platform is likely to lead to improved price discovery and the benefits that flow from more informative financial-instrument prices.

Financial-instrument trading market practices and their regulation also affect additional considerations (beyond liquidity and price discovery) that matter. For one thing, those practices and their regulation affect the amount of resources consumed by the market. For another, they affect the rate of innovation in the market. FTX's innovative trading platform's likely effects on the market bear mention along each one of these dimensions.

On the resource-use point, there is much reason to believe that FTX US Derivatives, if permitted to clear trades on margin directly and thus able to fully deploy FTX's trading platform in U.S. derivatives markets, will lead to a reduction in the amount of resources consumed by these markets. This follows from the attributes of that trading in focus above. For example, with co-location arrangements no longer providing speed advantages to the HFTs that make markets today, fewer resources would be consumed by those traders' operations. Real estate would literally be freed up for other use. HFT investment capital would be too. These resources, which are currently allocated toward an arms race, could thus be allocated to a more productive use in society.

On the rate-of-innovation point, the increased competition of course does more than improve efficiency at one point in time.

Beyond the above-described positive effects on liquidity, price discovery, resource-consumption, and the pace of innovation over time, other aspects of the digital-asset-ecosystem-based market structure employed by FTX's trading platform have much potential to address yet other individual issues that have arisen out of the current electronic market structure that dominates financial-instrument trading markets. For example, the maker-taker structure that is so common today where trading platforms pay makers of liquidity a rebate (e.g., \$0.0025/share in the stock market) and then charge takers of liquidity a slightly larger fee (e.g., \$0.003/share) and earn revenue from the delta has been hotly contested due to the distorted incentives it creates for at least brokers.⁵⁰ But this issue would be greatly mitigated in any market where FTX's direct-trading platform is able to compete fully. The heart of the marker-taker issue on traditional exchanges today is that traders must go through brokers in order to access the liquidity provided on exchanges.⁵¹ Accordingly, even if FTX US Derivatives employed a maker-taker fee structure, traders would have the ability to sidestep the aforementioned distorted-incentive issue. Instead, the trader going through FTX's direct-trading platform would receive the rebate or incur the fee.

⁴⁹ HARRIS, *supra* note 40, at 6 (“[Informed] [t]raders . . . estimate fundamental values [and] cause prices to reflect their value estimates.”); FOX ET AL., THE NEW STOCK MARKET, *supra* note 6, at 157 (discussing the connection between stock-market liquidity and price accuracy).

⁵⁰ See FOX ET AL., THE NEW STOCK MARKET, *supra* note 6, at 282 (“The maker-taker and taker-maker fee structures have been subject to vigorous criticism as essentially a system of bribes. Critics argue that they create incentives for brokers to direct customer orders to the venue that pays the highest rebate, rather than the one that delivers best execution for the customer.”).

⁵¹ See *id.* at 285 (“In fact, few traders are allowed to send orders directly to trading venues; instead, they must use a broker. So, for a trader, the broker is the one who receives the rebate and pays the fee. Typically, nothing in the trader's contract with its broker provides that rebates and fees be passed through directly to the trader, nor is this required by regulation.”).

Another example of how FTX’s direct-trading platform could address current market-structure issues is specific to market “segmentation” and related payment-for-order-flow issues. Segmentation in this context relates to different types of traders occupying (whether or not by choice) different parts of the market. The stock market is enormously segmented today. Brokers appear to route nearly 100% of marketable orders from retail customers to internalizing trading platforms operated by distinct broker-dealers.⁵² This is a controversial practice both because of the aforementioned segmented market it creates and because brokers route those orders to those trading platforms in return for payments, raising obvious agency-cost concerns.⁵³ FTX US Derivatives’s direct-trading platform, if allowed to fully compete by directly clearing margined trades, could go a long way to addressing these interrelated issues. After all, retail investors would have a pretty simple way to opt out of payment-for-order-flow arrangements: trade directly without use of a broker. And if they did so on large scale, the resulting improved liquidity on FTX’s exchange would greatly mitigate deeper issues presented by market segmentation.⁵⁴

To be sure, any downsides of FTX US Derivatives’s innovative direct 24/7/365 monitoring of margin in derivatives positions should be duly considered. The precise robustness of that risk-monitoring system is outside my area of expertise and outside of my focus in this letter. But that consideration should take place along with consideration of the above-noted (and other) likely benefits FTX would bring to this market. However, upon a basic review of that monitoring innovation and its performance in non-U.S. digital-asset derivative markets to date, it appears that that monitoring system itself is yet another feature of the FTX trading platform that would bring value to the U.S. derivatives market—namely, by decreasing the amount of risk that is allowed to build up in the system and by perhaps providing risk-monitoring and related services at lower cost than it is provided today.

CONCLUSION

The CFTC (and other regulators of financial-instrument trading markets today) sit at a juncture in time when tools from the digital-asset ecosystem present the opportunity to bring forth the next steps of evolution in financial-instrument trading markets. As explained in this letter, the CFTC should look to the National Market System model provided by Congress and the SEC in embracing trading-platform competition to foster that evolution. More specifically, the CFTC should embrace competition from innovative firms that bring tools from digital-asset ecosystems to improve more traditional financial-instrument trading markets. In the end, U.S. derivatives

⁵² Concept Release on Equity Market Structure, Securities Exchange Act Release No. 34-61358, 17 C.F.R. § 242, at 21 (“A review of the order routing disclosures required by Rule 606 of Regulation [National Market System] of eight broker-dealers with significant retail customer accounts reveals that nearly 100% of their customer market orders are routed to [off-exchange trading platforms].”).

⁵³ See, e.g., Allen Ferrell, *A Proposal for Solving the “Payment for Order Flow” Problem*, 74 S. CAL. REV. 1027 (2001); see also FOX ET AL., *THE NEW STOCK MARKET*, *supra* note 6, at 289 (“For a fee, a brokerage firm may sell to another firm (an order-execution facility) its order flow of buy and sell marketable orders from a certain kind of customer—typically a retail investor—who is consider generally uninformed.”); *id.* at 290 (“Critics characterize payment for order flow as another kind of bribe. They argue that it creates an incentive for the broker to direct its customers’ orders to the venue that pays the highest rebate, rather than the one that most improves the prices sellers receive and buyers pay.”).

⁵⁴ See Kevin S. Haeberle, *Stock-Market Law and the Accuracy of Public Companies’ Stock Prices*, 2015 COLUM. BUS. L. REV. 121 (2015) (theorizing that the trading-platform access rules that result in this segmentation in the stock market reduce stock-price accuracy).

markets might provide a market structure that can stand out as the model for other regulated financial-instrument trading markets in the U.S., just as the National Market System and the great benefits it has produced in the equities area have provided a model for progress in market structure over the past almost twenty years or more.

Sincerely,



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