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Securities and Exchange Commission
Division of Trading and Markets
100 F Street, N.E.
Washington, DC 20549

Attention: Vanessa Countryman, Acting Director, Office of the Secretary
Eduardo A. Aleman, Deputy Secretary

Re: Order Instituting Proceedings to Determine Whether to Approve or Disapprove a Proposed Rule Change to List and Trade Shares of the VanEck SolidX Bitcoin Trust
SEC Release No.34-85896
Filed May 20, 2019
File Number SR-CboeBZX-2019-004

Ladies and Gentlemen:

I am submitting this letter in response to the Securities and Exchange Commission's (the "***Commission***") May 20, 2019 order to institute proceedings under Section 19(b)(2)(B) of the Securities Exchange Act of 1933 ("Act") to determine whether to approve or disapprove of Cboe BZX Exchange, Inc.'s ("BZX"or "Exchange") proposed rule change to list and trade shares of SolidX Bitcoin Shares ("Shares") issued by the VanEck SolidX Bitcoin Trust ("Trust") under BZX Rule 14.11(e)(4), Commodity-Based Trust Shares. I encourage the Commission to disapprove the proposed rule change.

The Shares constitute a commodity-based exchange-traded product ("Commodity ETP") and would track the price of bitcoin. The Shares are unusual in that unlike other Commodity ETPs, where it is unfeasible or undesirable for an investor to acquire the underlying – most investors don't want to hold on to corn, gold, wheat, oil and so on – it is easy for investors to acquire and store bitcoin because bitcoin is a digital asset. There are dozens of online exchanges where investors can acquire bitcoin in exchange for fiat currency and many of these exchanges will also custody investors' bitcoin as well. Investors can also store their bitcoin in a digital wallet or chose to keep their bitcoin private key offline. Given this critical difference between bitcoin and other commodities that underlie ETPs, it is fair to wonder why a bitcoin ETP is even needed. The truth, is that the Shares serve no economic purpose other than to provide a means to speculate on the price of bitcoin without having to acquire actual bitcoin. While the Commission

is not required to assess the economic purpose of new products being listed through exchange rule changes, I strongly encourage the Commission to consider the implications of authorizing a liquid instrument that will be used to speculate on a market that is ripe with fraud and manipulation.

The bitcoin market remains essentially unchanged since the Commission first rejected an attempt to list a bitcoin exchange-traded product (ETP) in 2017, when it disapproved[1] the Bats BZX Exchange Incorporated's proposed rule change to list and trade shares of the Winklevoss Bitcoin Trust ("Winklevoss Trust"). The Winklevoss Trust would hold bitcoins as an asset, and the bitcoins would be in the custody of, and secured by, the Winklevoss Trust's custodian, Gemini Trust Company LLC. The Winklevoss Trust would issue and redeem shares that would track the price of bitcoin on the Gemini Exchange.

BZX filed a petition[2] to have the ruling reviewed by the Commission, which the Commission granted and then sought public comments in support of, or in opposition to, the original order. Many market observers believed the review would result in a favorable outcome for BZX due to further maturation in the bitcoin market since their original filing, as well as the introduction of bitcoin futures contracts. However, the Commission once again disapproved[3] the proposed rule change due to its finding that the proposal did not comply with the Securities Exchange Act's Section 6(b)(5), which, among other requirements, stipulates that the rules of a national securities exchange be designed "to prevent fraudulent and manipulative acts and practices" and "to protect investors and the public interest."[4]

In their amended proposal, BZX highlighted multiple features of the bitcoin market and the Trust that make manipulation unlikely, all of which the Commission found unpersuasive. BZX argued that the large number of bitcoin trading venues, and continuous trading on these venues, make it difficult to manipulate bitcoin because "there is no single market-close for investors to attempt to manipulate."[5] The SEC disagreed, and also found the argument irrelevant because the value of the Trust's shares would be based off a single market-close event, the 4 PM EST Gemini auction—the same auction used to determine the settlement value of CFE bitcoin futures contracts.[6] Acknowledging that Trust investors would have an incentive to manipulate the Gemini auction, the SEC expressed doubts that the Gemini auction would facilitate price discovery because:

> "(a) there is no comprehensive and accurate regulatory data source reflecting bitcoin pricing or trading; (b) there is no basis to conclude that the Trust's IIV [(Intraday Indicative Value)] [7]

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[1] *See* Order Disapproving a Proposed Rule Change to BZX Rule 14.11(e)(4), Exchange Act Release No. 34-80206, 116 S.E.C. Dockets 2746 (Mar. 10, 2017), https://www.sec.gov/rules/sro/batsbzx/2017/34-80206.pdf, [hereinafter SEC Disapproval Order].
[2] Petition for Review, SR-BatsBZX-2016-30, Exchange Act Release No. 80206 (Mar. 25, 2017), https://www.sec.gov/rules/sro/batsbzx/2017/petition-for-review-sr-batsbzx-2016-30.pdf.
[3] Self-Regulatory Organizations, Exchange Act Release No. 34-83723 20 (July 26, 2018) https://www.sec.gov/rules/other/2018/34-83723.pdf [hereinafter SEC Release No. 34-83723].
[4] 15 U.S.C. § 78f(b)(5) (2009).
[5] Self-Regulatory Organizations, Exchange Act Release No. 34-83723 20 (July 26, 2018) https://www.sec.gov/rules/other/2018/34-83723.pdf [hereinafter SEC Release No. 34-83723], at 20.
[6] *Id.*
[7] The Intraday Indicative Value (IIV) of the Trust would be calculated and disseminated by the Sponsor, every 15 seconds during BZX's regular trading session, based on the most recent Gemini Auction price. The Net Asset Value (NAV) of the Trust would

> would be considered an authoritative price when several other spot prices for bitcoin are already disseminated and often differ from one another; and (c) the Trust's NAV [Net Asset Value] would differ from the Gemini Auction price only if the auction price, which is publicly disseminated itself, is determined not to reflect a fair price for bitcoin."[8]

The concerns expressed by the Commission in their 2017 disapproval order are still valid and applicable to the SolidX Bitcoin Shares ("Shares"). The Shares are similar to the Winklevoss Trust shares, with the one major difference being how the Trust values their assets (bitcoin). Whereas the Winklevoss Trust determined NAV based upon the 4pm Gemini auction, the Trust would calculate NAV using a proprietary and non-public index called the MVIS Bitcoin OTC Index ("MVBTCO"). The MVBTCO is calculated from executable bids and asks derived from constituent bitcoin OTC platforms, which the Exchange believes makes the index less susceptible to manipulation, especially compared to indices based upon exchange trading. As I argue below, relying on OTC desks to calculate the index raises an additional set of concerns and does not eliminate the potential for manipulation in the Shares.

In the Commission's most recent order (Release No. 34-85896) instituting proceedings to determine whether to approve or disapprove of the Exchanges' proposed rule change to list the Shares, the Commission listed fourteen questions they were seeking comment on. In the below, I repeat some of these questions (the question number corresponds to the question number in the notice) and offer my answers. I believe these answers constitute a persuasive argument for why the Commission should disapprove the proposed rule change, and I encourage the Commission to do so.

1. *What are commenters' views on whether the Exchange has entered into a surveillance-sharing agreement with a regulated market of significant size related to bitcoin? What are commenters' views of the Exchange's assertion that the trading volume in bitcoin futures makes the market for bitcoin futures a regulated market of significant size related to bitcoin? What are commenters' views on whether there is a reasonable likelihood that a person attempting to manipulate the Shares would also have to trade in the bitcoin futures market to manipulate the Shares? What are commenters' views on whether it is likely that trading in the Shares would be the predominant influence on prices in the bitcoin futures market?*

The Exchange asserts that because the bitcoin futures market is a regulated market of significant size, the Shares are less likely to be manipulated. This argument may have relevance if the Shares were tracking the price of bitcoin futures and not the actual price of bitcoin. As I highlight in response to question 2 below, the relationship between bitcoin futures and the

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be calculated each business day, based on the clearing price of that day's 4:00p.m. Eastern Time (ET) Gemini Exchange bitcoin auction. *See* SEC Disapproval Order, *supra* note 1, at 4.

[8] SEC Release No. 34-83723, *supra* note 3, at 21.

bitcoin spot market is nebulous. Therefore, the relationship between the Shares and bitcoin futures is tenuous.

If a person wished to manipulate the Shares, the most efficient way to do so would be to manipulate the spot market, not the futures market. Therefore, the question should be not whether bitcoin futures represent a regulated market of significant size, but whether the bitcoin spot market is a regulated market of significant size. Because bitcoin is classified as a commodity by the CFTC, and commodity spot markets are unregulated at the federal level,[9] the bitcoin market is clearly not regulated. Furthermore, the creation and redemption of Shares would require trading in the OTC bitcoin market which, like all OTC markets, are subject to even less regulatory oversight than trading on exchanges.

I would even question the "regulated" status of bitcoin futures. Bitcoin futures were introduced through the self-certification process, which allows designated contract markets ("DCMs") to list new derivative products one day after submitting in writing to the CFTC that the product complies with the Commodity Exchange Act ("CEA") and CFTC regulations.[10] While exchanges listing bitcoin futures contracts must comply with CFTC regulations, the contracts themselves are subject to minimal ongoing supervision.

Finally, the bitcoin futures market is not of "significant size." If it were, the CBOE Futures Exchange ("CFE") would not have discontinued their futures contract. Current open interest for all CME bitcoin futures contracts is 4,691.[11] For comparison, open interest for E-mini S&P 500 contracts is over 2.8 million.[12] While "significant size" is a subjective determination, there is almost no definition that would lead you to conclude that bitcoin futures represent a market of significant size.

2. *What are commenters' views on the relationship between the bitcoin futures market and the bitcoin spot market? For example, what is the relative size of these markets, and where does bitcoin price formation occur? Does the market, spot or futures, in which price formation occurs affect commenters' analysis of whether it is reasonably likely that someone attempting to manipulate the Shares would have to trade in the bitcoin futures market, or that trading in the Shares would be the predominant influence on prices in the bitcoin futures market? To what extent, if at all, do recent developments in the bitcoin futures market—namely, the cessation of new bitcoin futures contract trading on the Chicago Futures Exchange—affect commenters' analysis of these questions?*

The relationship between bitcoin futures and the bitcoin spot market is unstable and unknown. The first couple of days after CFE launched the first ever cash-settled bitcoin futures

[9] The CFTC has jurisdiction over commodity derivatives, but they do not oversee commodity "spot" or cash markets, except in instances of fraud or manipulation . CFTC jurisdiction is also implicated when a commodity is offered for trading on a margined, leveraged, or financed basis. *See* LABCFTC, A CFTC PRIMER ON VIRTUAL CURRENCIES 11 (Oct. 17, 2017), https://www.cftc.gov/sites/default/files/idc/groups/public/documents/file/labcftc_primercurrencies100417.pdf.

[10] 17 C.F.R. § 40.2 (2018).

[11] https://www.cmegroup.com/trading/equity-index/us-index/bitcoin_quotes_volume_voi.html#tradeDate=20190613

[12] https://www.cmegroup.com/trading/equity-index/us-index/e-mini-sandp500_quotes_volume_voi.html#tradeDate=20190613

contract, the one-month contract traded for approximately $1,000 more than bitcoin's spot price.[13] This meant a risk-free profit could be had by borrowing to buy one bitcoin while simultaneously selling a future; then in one month, you would sell the bitcoin and deliver the cash to settle the future.[14] Whenever the futures price trades above the spot price for any asset, it typically indicates that there are costs associated with holding the underlying asset, but bitcoin is a digital asset that is theoretically costless to hold.[15] But in practice, there are costs associated with holding on to bitcoin that make investors willing to pay a premium to gain exposure to bitcoin investment vehicles (like futures contracts or an ETP) that don't require them to hold actual bitcoin. Running a node on the bitcoin network requires a fairly high level of technological sophistication and the ability to keep your private key—a string of alphanumeric characters unique to each user—secure. Lacking such sophistication, many bitcoin holders chose to store their bitcoin in digital wallets or online exchanges, which are frequently hacked, resulting in the irrecoverable theft of customer bitcoins. Given this permanent feature of the bitcoin market, it is understandable why investors would be willing to pay a premium for bitcoin futures contracts or a bitcoin ETP, should one be made available.

Further contributing to the unstable relationship between bitcoin futures and the bitcoin spot market, is the fact that bitcoin violates the "law of one price" —an economic principle wherein the price of an identical security or commodity should have the same price regardless of where it is traded. If you were to look up the price of bitcoin on five different exchanges, you would likely see five different prices. According to this law, price discrepancies should be eliminated by arbitrageurs buying bitcoin on the lowest priced exchange and selling it on the highest. In 2016, researchers from the Federal Reserve Bank of New York looked into why bitcoin violates the law of one price and came up with several answers.[16] One partial explanation is that bitcoin exchanges charge high trading fees, and sometimes fees for depositing or withdrawing fiat currency, and these fees eat into arbitrage profits. The researchers also found that on certain exchanges, it took five to ten days to deposit U.S. dollars into a user's account; should a trader seek to exploit an arbitrage opportunity by trading on an online exchange, they may not be able to execute their trade before the price of bitcoin moves against them.[17] To avoid this risk, traders can pre-fund their bitcoin exchange accounts, but this exposes them to the risk that the exchanges may be hacked and their funds stolen. The introduction of bitcoin futures has done nothing to eliminate these frictions and the law of one price continues to be violated in bitcoin spot markets.

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[13] *See, e.g.*, Matt Levine, *Bitcoin Arbitrage and Tax Math*, BLOOMBERG (Dec. 12, 2017), https://www.bloomberg.com/opinion/articles/2017-12-12/bitcoin-arbitrage-and-tax-math (discussing the arbitrage opportunities in the early days of bitcoin futures trading).

[14] Your risk-free profit would be the price at which you sold the future minus the price you paid for the bitcoin plus any borrowing costs. *See, e.g.*, Matt Levine, *Bitcoin Futures and Banky Thoughts*, BLOOMBERG (Dec. 11, 2017), https://www.bloomberg.com/opinion/articles/2017-12-11/bitcoin-futures-and-banky-thoughts (discussing how you would profit off the difference between bitcoin's spot price and the future's price).

[15] For instance, oil futures often trade above the spot price for oil because it is costly to store oil. Because bitcoin is a digital asset that is theoretically costless to hold, the arbitrage opportunity must be due to other factors. The primary explanation is that investors want exposure to bitcoin without having to acquire it and they are willing to pay a premium to own the futures contract (another contributing factor is that there are significant frictions in the market which prevent arbitrageurs from capturing the risk-free profit). Running a node on the bitcoin network requires a fairly high level of technological sophistication and the ability to keep your private key—a string of alphanumeric characters unique to each user—secure. Lacking such sophistication, many bitcoin holders chose to store their bitcoin in digital wallets or online exchanges, which are frequently hacked, resulting in the irrecoverable theft of customer bitcoins. *See* Levine, *supra* note 13.

[16] Alexander Kroeger & Asani Sarkar, *Is Bitcoin Really Frictionless?*, LIBERTY ST. ECON. (March 23, 2016), http://libertystreeteconomics.newyorkfed.org/2016/03/is-bitcoin-really-frictionless.html.

[17] The researchers also found delays in the time it took to move bitcoin between various exchanges. *Id.*

The introduction of CFE's futures contract coincided with the largest one-week price increase (in dollar value) in bitcoin's history, with the price rising from $15,168 on December 10, 2017, to an all-time high of $20,089 on December 17, 2017[18]—the day the Chicago Mercantile Exchange Inc. ("CME") CME launched their futures contract. Bitcoin euphoria came to an abrupt end post-CME contract launch, and by year-end 2017, bitcoin was trading at $14,156.[19] Researchers at the Federal Reserve Bank of San Francisco have attributed this rapid decline in bitcoin's price to the presence of speculators utilizing bitcoin futures to bet against bitcoin.[20] Prior to bitcoin futures, these pessimists "had no mechanism available to put money behind their belief that the bitcoin price would collapse."[21] However, this analysis is based upon correlation; to date, there has been no causal analysis that attributes bitcoin's decline beginning in late 2017 to the introduction of bitcoin futures. Indeed, the limited open interest in the contracts, strict position limits, and the fact that the contacts are cash settled, would suggest that the decline in bitcoin's price is attributed to factors beyond the introduction of bitcoin futures contracts.[22]

For all the above reasons, it is extraordinarily difficult to measure the impact bitcoin futures have had on bitcoin's price. While the premium between futures contracts and the spot price has significantly shrunk since the first days of futures trading, it persists, suggesting an ongoing preference for exposure to bitcoin that doesn't involve acquiring actual bitcoin. Because exchange-traded products are more liquid and more accessible to average investors than futures, the Shares would likely trade at a high premium to bitcoin – despite the Exchange's claim that this premium would be arbitraged away.

3. *What are commenters' views on whether the trading relationship between the market for bitcoin futures contracts and the proposed Trust, which would hold physical bitcoins, would be similar to, or different from, the relationship between the market for freight futures contracts and the Breakwave Dry Bulk Shipping ETF (cited by the Exchange in the Notice), which directly holds futures contracts traded on that market? What are commenters' views on how these similarities or differences might affect an analysis of whether it is reasonably likely that someone attempting to manipulate the Shares would have to trade in the bitcoin futures market, or that trading in the Shares would be the predominant influence on prices in the bitcoin futures market?*

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[18] All bitcoin price data in this Article comes from CoinMarkepCap. COINMARKETCAP, https://coinmarketcap.com/currencies/bitcoin/historical-data/ (last visited Jan. 22, 2019).

[19] Bitcoin would continue to decline throughout 2018, and ended the year trading at $3,742. *Id.*

[20] Galina Hale et al., *How Futures Trading Changed Bitcoin Prices*, FED. RES. BANK OF SAN FRANCISCO ECON. LETTER (May 7, 2018), https://www.frbsf.org/economic-research/publications/economic-letter/2018/may/how-futures-trading-changed-bitcoin-prices/.

[21] *Id.*

[22] This position was summed by Chris Concannon, president and chief operating officer at Cboe Global Markets, Inc. when he said: "While we are excited about our recently launched Bitcoin futures, the notion that they have materially affected the bitcoin price overstates their influence and ignores other critical facts. Our strict position limits and the limited open interest in our May and June settlements, suggest that the fall of Bitcoin can be more easily explained by other factors such as the recent regulatory scrutiny around the globe, steps by government tax collectors, the rise of other cryptocurrencies, and declining media interest in the asset." Oscar Williams-Grut, *Bitcoin Futures Could be Hurting Bitcoin's Price*, BUS. INSIDER AUSTL. (June 18, 2018), https://www.businessinsider.com.au/bitcoin-price-could-be-hit-by-bitcoin-futures-contracts-says-tom-lee-2018-6.

The Exchange's emphasis on the Commission's approval order for the Breakwave Dry Bulk Shipping ETF (the "Shipping Futures ETF") as evidence that the bitcoin market is regulated and of significant size is laughable. These are fundamentally different markets and products. First, the Shipping Futures ETF tracks the price of dry bulk futures, not dry bulk freight rates. As mentioned above, the Shares would track the underlying price of bitcoin, not bitcoin futures. Furthermore, dry bulk are tangible commodities that are essential to economic activity. Because many businesses rely on dry bulk in their production process and are therefore exposed to risks associated with dry bulk price fluctuations, dry bulk futures and the Shipping Futures ETF serve an economic purpose.

The Exchange's argument that the price of dry bulk shipping is more volatile than bitcoin's price also carries little weight. Because dry bulk plays such an essential role in the economy, it is understandable why the price of dry bulk shipping would be sensitive to changes in economic activity. Bitcoin's volatility is less easily explained. There is no agreed upon valuation methodology for bitcoin, largely reflecting the fact that it is an intangible item that serves little purpose – thus far – beyond speculation. Thus, bitcoin's volatility is largely the result of large mismatches between buy and sell orders that are hard to explain.

Demand for bitcoin derivatives and exchange-traded products is coming not from merchants that transact in bitcoin[23], but from speculators that want bitcoin exposure without having to own actual bitcoin. In their proposed rule change to list and trade shares of the Winklevoss Bitcoin Trust, BZX acknowledged the obvious: "The Shares are designed for investors seeking a cost-effective and convenient means of gaining investment exposure to bitcoin similar to a direct investment in bitcoin."[24]

Given that activity in the bitcoin spot market is primarily speculative, it follows that any kind of bitcoin derivative or exchange-traded product would appeal principally to speculators. Many scholars have equated speculating in financial markets to gambling,[25] whose social ills have long been understood.[26] Speculation in financial markets is made possible when two or more parties have different views about future economic events. Eric Posner and Glen Weyl argue that when parties act on this difference through financial speculation (gambling), it is welfare-reducing and contributes to systemic risk by increasing the overall level of risk in the financial system.[27]

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[23] While some merchants that accept bitcoin as a payment method may desire bitcoin futures for genuine hedging purposes, their numbers are far too small to warrant the development of a new futures contract. Furthermore, the public record shows scant evidence of commercial entities advocating for the creation of bitcoin derivatives products for risk management purposes.

[24] Sec. and Exch. Comm'n, Release No. 34-79183 at 44 (Oct. 28, 2016), https://www.sec.gov/rules/sro/batsbzx/2016/34-79183.pdf.

[25] *See, e.g.*, Eric A. Posner & E. Glen Weyl, *An FDA for Financial Innovation: Applying the Insurable Interest Doctrine to Twenty-First-Century Financial Markets*, 107 NW. U. L. REV. 1307 (2015) (insert parenthetical); Timothy E. Lynch, *Gambling by Another Name; The Challenge of Purely Speculative Derivatives*, 17 STAN. J. L., BUS., & FIN. 67 (2012).

[26] GEOFFREY CLARK, BETTING ON LIVES: THE CULTURE OF LIFE INSURANCE IN ENGLAND, 1695−1775 (1999) (for a general critique of using life insurance contracts as a vehicle for gambling).

[27] This argument is premised on the assumption that market participants are risk averse. *See* Posner & Weyl, *supra* note 25, at 1309 ("[G]ambling may have some ancillary benefits in improving the information in market prices. However, it is overwhelmingly a negative-sum activity, which, in the aggregate, harms the people who engage in it, and which can also produce negative third-party effects by increasing systemic risk in the economy.").

4. *What are commenters' views on the Trust's proposal to value its bitcoin holdings based on an index—the MVBTCO—that is calculated through a proprietary, non-public methodology that uses the privately reported bid/ask spreads of an unidentified set of U.S.-based market-makers in the OTC marketplace, which, the Exchange says, has no formal structure and no open-outcry meeting place? Is the use of a non-public, proprietary index to value holdings based on OTC activity an appropriate means to calculate the NAV of an exchange-traded product ("ETP")? What are commenters' views on whether determining NAV based on the index value at 4:00 p.m. E.T. might, or might not, create an opportunity for manipulation of the NAV or of the Shares? What are commenters' views on the assertion in the Notice that, according to the Sponsor, the MVBTCO's methodology reduces the possibility of an attempt to manipulate the price of bitcoin as reflected by the MVBTCO? What are commenters' views on the Sponsor's assertion, as described by the Exchange in the Notice, that "the OTC desks have a better measure of the market than any exchange-specific reference price, whether individually or indexed across multiple exchanges"?*

Establishing the reference rate for most cash-settled futures contracts or index funds is relatively straightforward; the value of an S&P 500 futures contract is simply determined by the level of the S&P 500 index. However, determining the reference rate for bitcoin futures or index funds is challenging because bitcoin violates the law of one price, as mentioned above. In these instances, the construction of the reference rate is of critical importance because if the reference rate can be manipulated, so can the futures contract or index fund. For instance, a trader seeking to profit off a long position in a bitcoin futures contract could place a large trade in the bitcoin spot market on the contract's settlement date, thereby pushing up the price of bitcoin and earning a tidy profit on the futures position.[28] This tactic, known as "banging the close," has a long history in futures markets[29] and has played a central role in several recent high-profile market manipulation scandals.[30]

The Trust's proposal to value its bitcoin holdings based upon a proprietary, non-public methodology that uses the privately reported bid/ask spreads in the OTC bitcoin market is troubling for several reasons. First, the fact that the MVBTCO's methodology is not publicly disclosed amounts to the Exchange and the Sponsor saying "trust us" without providing any basis for why the Commission and the public should do so. This approach lies in stark contrast to the reference rates utilized by CME and CFE in their bitcoin futures contracts. CME and CFE recognized that the key hurdle they needed to clear in listing their respective bitcoin futures contracts was the CFTC's Core Principle 3: "[t]he board of trade shall list on the contract market only contracts that are not readily susceptible to manipulation."[31] In their publicly available self-certifications, both exchanges spent a considerable amount of time explaining the construction and features of their reference rate and why they believe it cannot be manipulated.[32] The CME bitcoin

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[28] *See, e.g.*, Alexander Osipovich, *Bitcoin Futures Manipulation 101: How 'Banging the Close' Works*, WALL ST. J. (Dec. 16, 2017), https://www.wsj.com/articles/bitcoin-futures-manipulation-101-how-banging-the-close-works-1513425600.
[29] *See, e.g.*, Craig Pirrong, *Manipulation of Cash-Settled Futures Contracts*, 74 J. BUS. 221 (2001).
[30] This includes the foreign exchange market and LIBOR.
[31] 17 C.F.R. § 38.200.
[32] *See* Certification Letter from Christopher Bowen, Managing Director & Chief Reg. Couns., Chicago Exchange, Inc., to Christopher J. Kirkpatrick, CFTC Secretary, 5 (Dec. 1, 2017), https://www.cftc.gov/sites/default/files/filings/ptc/17/12/ptc120117cmedcm001.pdf; Product Certification Letter from Cboe to

futures contract utilizes the Bitcoin Reference Rate ("BRR") as the unit of trade. The BRR is administered by Crypto Facilities Ltd. ("CF") [33] and is governed by an oversight committee (the "Committee"). The BRR is calculated based upon bitcoin transactions in U.S. dollars on four different exchanges: Bitstamp, GDAX, Itbit and Kraken (the "Constituent Exchanges") and the Committee maintains a list of seven criteria that must be met for an exchange to become a BRR Constituent Exchange.[34] The BRR is calculated daily and is based upon all bitcoin trades in U.S. dollars from 3:00 PM to 4:00 PM London time, across the four Constituent Exchanges.[35] The calculation methodology for the BRR is as follows:

(1) All Relevant Transactions are added to a joint list, recording the trade price and size for each transaction;
(2) The list is partitioned into twelve equally-sized time intervals of five minutes each;
(3) For each partition separately, the volume-weighted median trade price is calculated from trades submitted by each exchange; and
(4) The BRR is then calculated as the equally-weighted average of the volume weighted medians of all partitions.[36]

The CFE Bitcoin Futures Contract ("XBT") is based on the auction price of Bitcoin in U.S. dollars on the 4 PM EST Gemini Exchange. The Gemini auction price is determined by "finding the price at which the greatest aggregate buy demand and sell demand from all eligible orders can be fulfilled; all continuous trading orders and auction-only orders are considered. The auction price then applies to all fills, allocated based on price-time priority."[37]

The need for such secrecy around the MVBTCO is puzzling considering the level of detail provided by CME and CFE in their self-certifications for bitcoin futures. There is nothing unique about ETP's, compared to futures contracts, that necessitates this secrecy, and the lack of transparency may erode investors' trust in the Shares should they be made available. Furthermore, the Trust could have selected the BRR or the Gemini auction to determine NAV given that these methodologies were already in place, have been reviewed by the CFTC, and have not suffered from any reported incidences of manipulation. In fact, the reliance on OTC trades to calculate the MVBTCO is an explicit acknowledgement that bitcoin exchanges lack sufficient liquidity to support index funds and derivatives. The Exchange's initial rule change proposal acknowledges this fact: "OTC trades help avoid factors such as potential price slippage (causing the price of bitcoin to move as the order is filled on the exchange), while offering speed in trade execution and settlement (an OTC trade can be executed immediately upon agreement of terms between counterparties) and privacy (to avoid other market participants entering trades in advance of a large block order)."[38]

Christopher J. Kirkpatrick, CFTC Secretary 2 (Dec. 1, 2017), https://www.cftc.gov/sites/default/files/filings/ptc/17/12/ptc120117cfedcm001.pdf.

[33] Crypto Facilities was purchased by virtual currency exchange Kraken on February 4, 2019. Crypto Facilities will remain London-based and be subject to oversight by the United Kingdom's Financial Conduct Authority. Press Release from Crypto Facilities, *Kraken Acquires Crypto Derivatives Trading Platform and Index Provider, Crypto Facilities, in Nine-figure deal,* (Feb. 4, 2019), https://www.cryptofacilities.com/cryptocurrency-news/crypto-facilities-acquired-by-kraken.

[34] Bowen, *supra* note 32.

[35] The trades are reported through each constituent exchange's API to Crypto Facilities. *See* Bowen, *supra* note 74, at 5.

[36] Bowen, *supra* note 32, at 5.

[37] Product Certification Letter from Cboe, *supra* note 32, at 2.

[38] *See* Securities Exchange Act Release No. 85119 (Feb. 13, 2019), 84 FR 5140 (Feb. 20, 2019) ("Notice"), at 19.

The Exchange's assertion that the MVBTCO's methodology reduces the possibility of manipulation is pure speculation. This assertion is premised on the idea that OTC trading is done on a principal to principal basis at large trade sizes. Conceivably, the parties to an OTC trade are familiar with one another and therefore wouldn't engage in manipulative trading behavior; if they did, other OTC counterparties would cease trading with them. In addition, the sponsor claims each OTC trading desk that contributes to the MVBTCO's calculation must maintain constant, "executable bids and offers of at least $250,000 worth of bitcoin and offers near real-time quotes for tens of millions of dollars of bitcoin."

The bitcoin OTC market is opaque; and given the Exchange's and the Sponsor's reluctance to provide any information regarding the construction of the MVBTCO, it is impossible to know if there are OTC counterparties that are offering the claimed level of liquidity. However, given what we know about bitcoin exchange trading, I am skeptical that OTC markets maintain anywhere close to the volume that is claimed by the Sponsor. In a March, 2019 presentation to the SEC, Bitwise Asset Management credibly argues that approximately 95% of the reported volume on bitcoin exchanges is fake and/or non-economic in nature.[39] Furthermore, the largest US based exchange, Coinbase, does approximately $27 million in daily bitcoin volume, which makes it difficult to believe that there are OTC desks that "offer near real-time quotes for tens of millions of dollars of bitcoin."

The final argument against the Exchange's claim that relying on OTC trades makes the index less susceptible to manipulation, is that it ignores the relationship between the exchange price and the OTC price. The quotes offered by any OTC desk will be informed by the price and volume on spot exchanges. There is ample evidence that bitcoin exchange trading is ripe with fraud and manipulation, and it is naïve to expect that this will not influence OTC quotes.

5. *What are commenters' views on the Exchange's representation that it will have in place a comprehensive surveillance sharing agreement with each of the OTC platforms that constitute the MVBTCO prior to the Shares listing on the Exchange? What are commenters' views on the Exchange's assertion that the regulated nature of each of the OTC platforms that make up the MVBTCO, the notional volume of trading and liquidity available on these platforms, the principal-to-principal nature of these platforms, and comprehensive surveillance sharing agreements with each of the OTC platforms (in addition to the Exchange's standard surveillance procedures) are sufficient to prevent fraudulent and manipulative acts and practices in the Shares? What are commenters' views on the extent to which each of these OTC platforms is regulated? What are commenters' views on the extent to which each of these OTC platforms can, or does, conduct surveillance of bitcoin trading activity?*

In September 2018, the New York State Office of the Attorney General (the "OAG") released the "Virtual Markets Integrity Report" (the "Report") which looked into the transparency,

[39] *See* Bitwise Asset Management presentation to the U.S. Securities and Exchange Commission, available at: https://www.sec.gov/comments/sr-nysearca-2019-01/srnysearca201901-5164833-183434.pdf, at 23.

fairness, and security of virtual asset trading platforms.[40] The Report found that the virtual currency industry does not have "serious market surveillance capacities, akin to those of traditional trading venues, to detect and punish suspicious trading activity."[41] The Report also noted that few of the virtual currency exchanges that responded to the OAG's questions have formal policies in place that define "the types of conduct the platform believes to be manipulative or abusive, and outlining how such trading behavior is to be detected and penalized." Given that this is the state of play in bitcoin spot markets, why should the Commission expect unknown bitcoin OTC desks to have better surveillance capabilities? Furthermore, it is unrealistic to expect OTC desks – regulated or not – to conduct meaningful surveillance of bitcoin trading activity. There has never been a regulatory expectation that OTC trading desks, for any product, engage in comprehensive market surveillance. OTC desks have historically been profit centers for broker-dealers, expecting them to fulfill a regulatory-like function with respect to market monitoring is unrealistic.

Manipulating the Shares would most likely require manipulating the bitcoin spot market, whether it be through exchanges or OTC trading. While OTC desks may be able to spot manipulative activity in their market, the Exchange has little, to no, visibility into the bitcoin spot market. Presently, no virtual currency exchange is a member of the Intermarket Surveillance Group ("ISG") and the supposed surveillance sharing agreement the Exchange has entered into with Gemini is of limited value. When BZX first attempted to list a bitcoin ETP in 2016 (the Winklevoss Bitcoin Trust), they also had a surveillance sharing agreement in place with Gemini. However, in their disapproval order, the SEC found Gemini's bitcoin trading volume and liquidity to be insufficient and that a person who sought to manipulate the ETP could do so by trading on other exchanges, thus rendering the information sharing agreement irrelevant.[42] Gemini continues to have limited volume; according to data.bitcoinity.org, Gemini represents just 2.48% of thirty-day bitcoin trading volume across all exchanges.

9. *What are commenters' views on the assertion by the Exchange that the dissemination of information on the Trust's website, along with quotations for and last-sale prices of transactions in the Shares and the intra-day indicative value (or "IIV") and NAV of the Trust, will help to reduce the ability of market participants to manipulate the bitcoin market or the price of the Shares and that the Trust's arbitrage mechanism will facilitate the correction of price discrepancies in bitcoin and the Shares? What are commenters' views on whether the liquidity of the OTC bitcoin market is sufficient to support efficient arbitrage between the price of the Shares and the spot price of bitcoin?*

The Exchange's assertion that the arbitrage process "can be expected to operate efficiently in the case of the Shares and bitcoin" is overly optimistic. The Exchange notes that arbitrage will work through the following: "If the Shares are inexpensive compared to the bitcoin that underlies them, an arbitrageur may buy the Shares at a discount, immediately redeem them in exchange for bitcoin, and sell the bitcoin in the cash market at a profit. If the Shares are expensive compared to

[40] N.Y. ATT'Y GEN., VIRTUAL MARKETS INTEGRITY REPORT (Sept. 18, 2018), https://virtualmarkets.ag.ny.gov/.
[41] *Id.*
[42] The SEC also found that the Gemini exchange did not constitute a "regulated" exchange. *See* SEC Release No. 34-83723, *supra* note 3, at 66.

the bitcoin that underlies them, an arbitrageur may sell the Shares short, buy enough bitcoin to acquire the number of Shares sold short, acquire the Shares through the creation process, and deliver the Shares to close out the short position."

As noted in my response to question 2, there are significant frictions in the bitcoin market that permit the permanent existence of price discrepancies across bitcoin exchanges and bitcoin-related instruments. Furthermore, the creation and redemption process for the Shares adds an additional friction that will likely lead to the Shares trading at a permanent premium to their NAV. Authorized Participants will face a $1,000 fixed transaction fee on all creation and redemption transactions. This means that any arbitrage opportunity must exceed $1,000 before an Authorized Participant acts on it. Given this fee, investor preferences, and current frictions in the bitcoin market, I fully expect the Shares to trade at a permanent premium to their NAV.

11. *What are commenters' views of the Exchange's assertions that bitcoin is arguably less susceptible to manipulation than other commodities that underlie ETPs; that the geographically diverse and continuous nature of bitcoin trading makes it difficult and prohibitively costly to manipulate the price of bitcoin; that trading on inside information regarding bitcoin is unlikely; that the fragmentation across bitcoin markets, the relatively slow speed of transactions, and the capital necessary to maintain a significant presence on each trading platform make manipulation of bitcoin prices through continuous trading activity unlikely; that manipulation of the price on any single venue would require manipulation of the global bitcoin price to be effective; that a substantial OTC bitcoin market provides liquidity and shock absorbing capacity; that bitcoin's "24/7/365 nature"21 provides constant arbitrage opportunities across all trading venues; and that it is unlikely that any one actor could obtain a dominant market share?*

There is clear evidence that bitcoin is manipulated at a scale previously unseen in commodity markets. In June 2018, John Griffin and Amin Shams from the University of Texas-Austin analyzed data from the bitcoin and Tether blockchains and found that Tether had been used by entities associated with the bitcoin exchange Bitfinex to prop up the price of bitcoin during periods when the price was declining.[43] Griffin and Shams note that their findings provide "substantial support for the view that price manipulation may be behind substantial distortive effects in cryptocurrencies."[44] Griffin and Shams findings were given additional weight when it was reported in November 2018, that the U.S. Justice Department was investigating Tether and Bitfinex for possible market manipulation.[45]

While Bitfinex's use of Tether may account for much of the 2017 run-up in bitcoin's price, many of the more volatile days in bitcoin's short history can be attributed to hacks at virtual currency exchanges. According to the Wall Street Journal, since 2011, there have been fifty-six

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[43] *See* John M. Griffin & Amin Shams, *Is Bitcoin Really Un-Tethered?* (June 13, 2018), https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3195066.
[44] *Id*, at 33.
[45] *See* Matt Robinson & Tom Schoenberg, *Bitcoin-Rigging Criminal Probe Focused on Tie to Tether*, BLOOMBERG (Nov. 20, 2018), https://www.bloomberg.com/news/articles/2018-11-20/bitcoin-rigging-criminal-probe-is-said-to-focus-on-tie-to-tether.

virtual currency exchange cyberattacks, resulting in $1.63 billion in losses.[46] After each major hack, the price of bitcoin price dropped precipitously. There have also been several reports of manipulative trading practices in bitcoin spot markets, much of it driven by automated trading programs, or "bots",[47] and as noted previously, Bitwise Asset Management credibly argues that approximately 95% of the reported volume on bitcoin exchanges is fake and/or non-economic in nature.

Furthermore, it has become increasingly clear that much of bitcoin's value—outside of mere speculation—is derived solely from its ability to facilitate criminal activity. In July of 2018, special counsel Robert Mueller indicted twelve Russian intelligence officials for allegedly attempting to influence U.S. elections in 2016.[48] The indictment notes that the conspirators used bitcoin to fund the purchase of servers, register domains, and make other payments "in furtherance of hacking activity."[49] According to the indictment, the "use of bitcoin allowed the Conspirators to avoid direct relationships with traditional financial institutions, allowing them to evade greater scrutiny of their identities and sources of funds."[50]

12. *What are commenters' views of the Exchange's assertions that transacting in the Shares will be geared toward more sophisticated institutional investors and will be cost prohibitive for smaller retail investors? What are commenters' views regarding whether broker dealers are likely to offer fractional shares in the Trust to retail investors, permitting retail investment with a smaller financial commitment? What are commenters' views of the Exchange's assertions that the Sponsor believes that demand from new, larger investors accessing bitcoin through investment in the Shares will broaden the investor base in bitcoin, which could further reduce the possibility of collusion among market participants to manipulate the bitcoin market, in light of the possibility that broker-dealers may offer fractional shares to their customers?*

The Exchanges assertion that the Shares will be geared toward sophisticated investors should play no play role in the Commission's decision making. Even if this is true, the Shares will be freely accessible to ALL investors and thus, the Commission must assess the likelihood that retail investors are harmed by trading in the Shares. Bitcoin is extremely volatile, which means the Shares will also be extremely volatile. If the Commission approves the proposed rule change, retail investors will, for the first time, have ready access to a liquid instrument that grants them continuous exposure to bitcoin. This exposure is not appropriate for most investor portfolios and some investors are sure to suffer significant losses should they be granted access to the Shares. The Commission should take its investor protection mandate to heart and disapprove the proposed rule change.

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[46] Steven Russolillo & Eun-Young Jeong, *Cryptocurrency Exchanges are Getting Hacked Because it's Easy*, WALL ST. J. (July 16, 2018), https://www.wsj.com/articles/why-cryptocurrency-exchange-hacks-keep-happening-1531656000.
[47] Paul Vigna & Alexander Osipovich, *Bots are Manipulating Prices of Bitcoin in 'Wild West of Crypto'*, WALL ST. J. (Oct. 2, 2018), https://www.wsj.com/articles/the-bots-manipulating-bitcoins-price-1538481600.
[48] Indictment, United State v. Netyksho, No. 1:18-cr-00215-ABJ (July 13, 2018), https://www.justice.gov/file/1080281/download.
[49] *Id*. at 21.
[50] *Id*. at 22.

Conclusion

Although the Commission did not ask commenters to opine on the potential systemic risk implications of approving the Shares, I strongly urge the Commission to consider the future development of the virtual currency market should a bitcoin exchange-traded product come into being. Size is a key indicator of a market's systemic importance[51]—the bigger the market, the greater the economic cost should that market fail. Presently, the virtual currency market is not big enough to pose a systemic risk. In a March 2018 letter to G20 finance ministers and central bank governors, the Financial Stability Board acknowledged that "crypto-assets do not pose risks to global financial stability at this time."[52] The letter notes that the combined global market value of all crypto-assets was less than 1% of global GDP; "[i]n comparison, just prior to the global financial crisis, the notional value of credit default swaps was 100% of global GDP."[53]

While the crypto-asset market may currently be too small to threaten financial stability, financial markets are not static. The virtual currency market has exhibited extraordinary growth and volatility in a short period of time. Bitcoin's market capitalization is $149 billion, which stands in stark contrast to bitcoin's market capitalization on January 1, 2017, of approximately $16 billion.[54] Bitcoin futures contracts and other virtual currency investment products provide an opportunity for this market to grow further by bringing in new investor classes. Should the Commission approve a bitcoin exchange-traded product, the virtual currency market would grow even larger.

The evolution of the mortgage-backed securities market may serve as a useful analogy when considering the potential for the virtual currency market to reach systemic proportions. The first mortgage-backed security ("MBS") was issued in 1968; it was privately issued but guaranteed by the Government National Mortgage Association ("Ginnie Mae").[55] In 1971, the Federal Home Loan Mortgage Corporation ("Freddie Mac") issued its first MBS and ten years later, the Federal National Mortgage Association ("Fannie Mae") issued its first MBS.[56] These initial issuances were simple pass-through securities, whereby investors would receive a proportional share of the monthly principal and interest payments from the underlying loans. It wasn't until 1983 that the first multiclass MBS, or Collateralized Mortgage Obligation ("CMO"), was issued by Freddie Mac.[57] The MBS market grew gradually over the next decade, to the point where in 1996, total MBS issuances were approximately

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[51] The IMF also lists substitutability and interconnectedness as the key criteria for identifying the systemic importance of markets and institutions. *See* INT'L MONETARY FUND ET AL., GUIDANCE TO ASSESS THE SYSTEMIC IMPORTANCE OF FINANCIAL INSTITUTIONS, MARKETS AND INSTRUMENTS: INITIAL CONSIDERATIONS (Report to the G-20 Finance Ministers and Central Bank Governors Oct. 28 2009), https://www.imf.org/external/np/g20/pdf/100109.pdf.

[52] FIN. STABILITY BOARD, TO G20 FINANCE MINISTERS AND CENTRAL BANK GOVERNORS (Mar. 13, 20182918), https://cdn.crowdfundinsider.com/wp-content/uploads/2018/03/Financial-Stability-Board-Letter-to-G20-March-2018.pdf.

[53] The FSB's sentiments were echoed by Federal Reserve Chairman, Jerome Powell, on July 18th, 2018, when he indicated during a House Financial Services Committee that the virtual currency market is not big enough to threaten financial stability. *See* Olga Kharif, *Powell Says Cryptocurrencies Aren't Big Enough to Pose a Threat*, BLOOMBERG QUINT (July 18, 2018), https://www.bloombergquint.com/business/2018/07/18/powell-says-cryptocurrencies-aren-t-big-enough-to-pose-a-threat#gs.QB8Df4A.

[54] COINMARKETCAP

[55] *See* John J. McConnell & Stephen A. Buser, *The Origins and Evolution of the Market for Mortgage-Backed Securities*, 3:1 ANN. REV. FIN. ECON. 173, 174 (2011), https://www.krannert.purdue.edu/faculty/mcconnell/publications/The-Origins-and-Evolution-of-the-Market.pdf.

[56] *Id.* at 177.

[57] CMOs divided the issuance into tranches, with the first tranche receiving first rights to all principal payments (plus appropriate interest) from the underlying loans. *Id.*

$550 billion.[58] But then, the market began to grow exponentially, topping over $1.2 trillion in new issuance in 1998 and hitting a peak of $3.5 trillion in new issuance in 2003.[59]

The growth in MBS paralleled, and contributed to, a growth in home prices that proved unsustainable. When the housing market collapsed beginning in 2006, it ultimately led to the near collapse of the financial system and a severe recession. The drop-in home prices revealed previously unknown connections between firms and sectors within the financial system. Many of these connections were formed by the purchase, sale, and repackaging of MBS.

It took decades for the MBS market to evolve to the point where it threatened financial stability. What began as a relatively straightforward product that was issued and guaranteed by government agencies or government-sponsored enterprises ("GSEs"), slowly morphed into a product with multiple, complex variations that involved GSEs, rating agencies, Wall Street firms, non-bank mortgage lenders, mortgage brokers and a diverse pool of investors that spanned the globe.

Ten years after bitcoin's launch, the virtual currency market has evolved in ways that even bitcoin's earliest and most ardent supporters would have had a hard time imagining. What will the market look like ten years from now? Of course, this question cannot be answered with any certainty, just as the future of the MBS market could not have been predicted with any certainty in the 1970s or 1980s. There are critical differences between the two markets that challenge an exact comparison. Most notably, the growth in the MBS market was encouraged and nurtured by the government, which viewed MBS as a tool to promote home ownership.[60] Virtual currency lacks such government support, and at present, serves no useful social function, except in limited circumstances.[61] Still, the virtual currency market will likely continue to grow—its exact pace unknown—aided in part by the creation of derivatives and exchange-traded products that will allow a greater number of investors to gain exposure to the asset class. This growth, when combined with the new connections that accompany it, will increase the systemic importance of the virtual currency market. For this reason, and those expressed above, I strongly encourage the Commission to reject the proposed rule change to list and trade shares of SolidX Bitcoin Shares.

Sincerely yours,

Lee Reiners

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[58] *US Mortgage-Related Issuance and Outstanding*, SIFMA (Nov. 5, 2018), https://www.sifma.org/resources/research/us-mortgage-related-issuance-and-outstanding/.

[59] *Id.*

[60] *See, e.g.*, Richard K. Green & Susan M. Wachter., *The American Mortgage in Historical and International Context*, 14 J. OF ECON. PERS. 93, 94–100 (2005); N. Eric Weiss & Katie Jones, Cong. Res. Serv., R42995, *An Overview of the Housing Finance System in the United States*, 7–12 (2017); Peter Wallison, *Hidden in Plain Sight* 100–237 (reprint ed. 2016); Waltraud Schelkle, *A Crisis of What? Mortgage Credit Markets and the Social Policy of Promoting Homeownership in the United States and Europe*, 40(1) POL. & SOC'Y 59, 63–64 (2012); Michael Collins, *Pursuing the American Dream: Homeownership and the Role of Federal Housing Policy,* prepared at the request of the Millennial Housing Commission, 13–24 (2002); Eisner, *supra* note 195.

[61] Citizens in countries that suffer from hyperinflation, like Venezuela, have resorted to using virtual currency as a medium of exchange. *See* Christine Armario, *Venezuelans Seeing Bitcoin Bseeing bitcoin oom as Survival, not Speculation,* AP (Dec. 13, 2017), https://apnews.com/f7ccc4ea283746f28b261cabeaf8f0c5.

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