Written Testimony of Chairman J. Christopher Giancarlo Before the U.S. Senate Agriculture, Nutrition, And Forestry Committee, Washington, D.C.

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INTRODUCTION

Thank you, Chairman Roberts, Ranking Member Stabenow, and distinguished members of the Committee for this opportunity to discuss the work of the Commodity Futures Trading Commission (CFTC).

When I appeared before this Committee last summer, we discussed the importance of derivatives for the American farmer, rancher, and manufacturer. I outlined for you my priorities for the CFTC: to carry out the CFTC's mission to foster open, transparent, competitive and financially sound markets, free from fraud and manipulation, in a way that best fosters broad-based economic growth and prosperity while respecting the American taxpayer through careful management of our agency resources. I pledged that, if confirmed, I would focus on these priorities, avoid partisanship at the agency and work with each of you, with candor and promptness, in our common purpose of serving the American people and the agricultural producers upon which we all rely.

Summer has gone. We are now amidst a world changing in front of us. There have been regulatory developments in Europe and elsewhere that demand our attention. And there is much work and activity at the Commission on which to report, including the new phenomenon of virtual currencies. I, therefore, thank you again for this opportunity to testify.

CROSS BORDER AGREEMENTS

I am grateful to you, Chairman Roberts and Ranking Member Stabenow, for your recent letter expressing strong support of the CFTC, both in its approach to the cross-border supervision of major clearinghouses and its current discussions with regulatory counterparts in the European Union (EU). Your letter confirms the critical importance of keeping in place the 2016 equivalence agreement for derivatives clearinghouse supervision by the CFTC and the EU authorities. Regulatory and supervisory deference needs to remain the key principle underpinning cross border supervision of Central Counterparties (CCPs). Deference continues to be the right approach to ensure that oversight over these global markets is effective and robust without fragmenting markets and trading activity.

CFTC-regulated CCPs are among the most robust and resilient in the world. Even in the face of extreme volatility, as we saw both recently and following the 2017 Brexit decision, CFTC-regulated CCPs have been able to successfully take on and manage risk, enabling valuable price risk transfer to support and stabilize the broader financial market. On the CFTC's watch not a single CFTC-regulated CCP has ever defaulted or even come close to using its mutualized default resources to cover market losses. This is a testament to the strength of the CFTC's existing regulatory and supervisory framework. In fact, since the financial crisis of 2008, the total initial margin for cleared futures and swaps held by CFTC-regulated CCPs has more than tripled to over $300 billion.

Of course, today's markets are global. As 21st Century market regulators, we must work cooperatively across jurisdictions in order to promote growth and innovation while supporting the financial stability of our global markets. It was in this spirit that the CFTC carefully negotiated a cross border agreement in 2016 with the European Union to defer to each other on CCP oversight.

The 2016 equivalence agreement was no small accomplishment. Former Chairman Tim Massad deserves considerable credit for his fortitude and determination. The agreement was hard negotiated and took three years to accomplish. The CFTC made considerable concessions. The final agreement was approved by the European Commission and reviewed by all 28 EU member states.

The 2016 equivalence agreement is built upon the principle of regulatory and supervisory deference. It is straightforward: on one hand, through substituted compliance, the CFTC allows European CCPs to follow most of the EU CCP regime to demonstrate compliance with U.S. law; and, on the other hand, through equivalence and recognition, European authorities allow U.S. CCPs to follow most of the CFTC CCP regime to demonstrate compliance with EU law.

I supported the 2016 equivalence agreement then,[1] and I support it today. It is an important signal to the markets and the international regulatory community that the United States and Europe can work together to successfully resolve critical cross-border issues. The agreement has contributed to stronger and more productive relations between the CFTC and its European and other overseas regulatory counterparts. Today, the CFTC and the European Securities and Markets Authority (ESMA) are developing a close relationship based on the

understanding that we must cooperate in order to tackle regulatory and supervisory challenges that may lie ahead.

Right now, the EU bodies are debating new legislation proposed by the European Commission that would create a new European framework to regulate and supervise CCPs. It goes without saying that, as a sovereign political entity, the European Union has every right to revisit, without foreign interference, how it regulates and supervises CCPs that operate in its jurisdiction. We understand that there is an ongoing political debate in the EU right now about shifting additional power away from member states to pan-European institutions. We take no sides in that debate. Moreover, we welcome any and all efforts in the EU to enhance the regulation and supervision of its domestic CCPs.

The CFTC is committed to honoring its obligations under the 2016 equivalence agreement. Yet, there are some indications that the European Commission views the UK's decision to exit the EU as a basis to vitiate the agreement. It appears that some EU policymakers want to go back to the negotiating table. There appears to be an expectation that the CFTC should be prepared to renegotiate many of the same issues covered by the existing agreement, but with new people and new authorities.

The United States will not be put into this position. We honor our commitments and expect others to do the same. The CFTC negotiated the 2016 equivalence agreement in good faith. A deal is a deal.

While we appreciate the EU's need to address the ramifications of Brexit, the U.S. and its markets must not be its collateral damage. Other than Brexit, little has changed to justify changing the current approach to cross border CCP supervision. It remains true today, as it did two years ago, that with respect to our systemically important clearinghouses, the majority of their members are U.S. domiciled and the majority of their business comes from the U.S. In fact, for one of these clearinghouses, their European-based clearing business accounts for less than fifteen percent of their overall business. This has been true since 2016. There has been no significant change in the European risk profile of U.S. CCPs to justify increasing their regulatory and supervisory burdens.

When it comes to U.S. CCPs, we insist that the parties stay true to the terms of the 2016 equivalence agreement, give proper assurances that U.S. CCPs will not be treated differently than they are now, and pledge support for deference as the governing principle for how we regulate and supervise each other's CCPs today and in the future. In fact, deference is the cornerstone for how the CFTC approaches the cross-border supervision of *European* CCPs. It is deference that supports strong cross-border markets, recognizes our commonalities, and builds upon the strengths of our respective jurisdictions.

To this end, I continue to press upon my European counterparts that the proposed legislation must preserve the tenants of our 2016 equivalence agreement. Since its execution, the agreement has been effective in allowing market participants in both jurisdictions – the U.S. and the EU – to hedge their risks in efficient and resilient markets. The agreement is very much in accord with the mutual pledges of the U.S. and Europe in the G-20 accords to cooperate actively to avoid market fragmentation, regulatory arbitrage, and market protection in these global derivatives markets.

Cross-border supervision of systemically important CCPs is far too important for piecemeal and contradictory rule-making. The proposed new EU approach would subject U.S. CCPs to new regulation and duplicative supervision. It would require the wholesale adoption by U.S. CCPs of many new and unproven European regulations. These burdens will increase the cost of clearing for American businesses that depend on well-regulated futures markets to manage risk in their business operations. This is not acceptable. American markets must continue to be regulated under American law by U.S. regulators overseen by the U.S. Congress.

Notwithstanding these concerns, there is also hope. Since becoming Chairman of the CFTC, I have made it one of my top priorities to strengthen the CFTC's relations with our European counterparts. I have had numerous meetings with key regulatory counterparts and policymakers from the European Union, France, Germany, and the United Kingdom to discuss how to ensure effective regulatory cooperation and coordination between the CFTC and Europe. I have extended my hand in friendship and respect to each and every one of them. I will continue that approach.

I am proud of the fact that the CFTC has successfully negotiated with EU authorities in the past four months: (i) EU equivalence and CFTC exemptions for certain CFTC – and EU – authorized derivative trading venues; (ii) and, equivalence and substituted compliance decisions on margin requirements. Just like the CCP equivalence agreement of 2016, these decisions should be enduring achievements, as they are essential to ensuring a strong and stable trans-Atlantic derivatives market that supports economic growth both in the European Union and the United States.

Following this hearing, I have scheduled more meetings next week with European regulatory counterparts in London, Brussels, Frankfurt and Madrid. I will make clear that regulatory and supervisory deference is the right

course for supervision of CCPs by U.S. and EU regulators. It has the support of the Administration. Thank you for making clear that it also has the bipartisan support of this Committee.

We must construct a stronger and more successful trans-Atlantic relationship to ensure that our markets can continue to flourish. Together with our European colleagues, we must strive for a comprehensive and universal approach that supports strong cross-border markets, recognizes and builds upon the strengths of our respective supervisory programs, and preserves the basic tenets of the 2016 equivalence agreement. I trust my European colleagues will do the right thing, preserve our good work of 2016 and embrace, not reject regulatory and supervisory deference.

VIRTUAL CURRENCIES

Let's turn to virtual currencies. Emerging financial technologies are taking us into a new chapter of economic history. They are impacting trading, markets and the entire financial landscape with far ranging implications for capital formation and risk transfer. These emerging technologies include machine learning and artificial intelligence, algorithm-based trading, data analytics, "smart" contracts, and distributed ledger technologies. Over time, these technologies may come to challenge traditional market infrastructure. They are transforming the world around us, and it is no surprise that these technologies are having an equally transformative impact on U.S. capital and derivatives markets.

Supporters of virtual currencies see a technological solution to the age-old "double spend" problem – that has always driven the need for a trusted, central authority to ensure that an entity is capable of, and does, engage in a valid transaction. Traditionally, there has been a need for a trusted intermediary – for example a bank or other financial institution – to serve as a gatekeeper for transactions and many economic activities. Virtual currencies seek to replace the need for a central authority or intermediary with a decentralized, rules-based and open consensus mechanism.2 An array of thoughtful business, technology, academic, and policy leaders have extrapolated some of the possible impacts that derive from such an innovation, including how market participants conduct transactions, transfer ownership, and power peer-to-peer applications and economic systems.3

Others, however, argue that this is all hype or technological alchemy and that the current interest in virtual currencies is overblown and resembles wishful thinking, a fever, even a mania. They have declared the 2017 heightened valuation of Bitcoin to be a bubble similar to the famous "Tulip Bubble" of the seventeenth century. They say that virtual currencies perform no socially useful function and, worse, can be used to evade laws or support illicit activity.4 Indeed, history has demonstrated to us time-and-again that bad actors will try to invoke the concept of innovation in order to perpetrate age-old fraudulent schemes on the public. Accordingly, some assert that virtual currencies should be banned, as some nations have done.5

There is clearly no shortage of opinions on virtual currencies such as Bitcoin. In fact, virtual currencies may be all things to all people: for some, potential riches, the next big thing, a technological revolution, and an exorable value proposition; for others, a fraud, a new form of temptation and allure, and a way to separate the unsuspecting from their money.

Perspective is critically important. As of the morning of February 12, the total value of all outstanding Bitcoin was about $149 billion based on a Bitcoin price of $8,800. The Bitcoin "market capitalization" is less than the stock market capitalization of a single "large cap" business, such as Disney around $156 billion. The total value of all outstanding virtual currencies was about $430 billion. Because virtual currencies like Bitcoin are sometimes considered to be comparable to gold as an investment vehicle, it is important to recognize that the total value of all the gold in the world is estimated by the World Gold Council to be about $8 trillion, which continues to dwarf the virtual currency market size. Clearly, the column inches of press attention to virtual currency far surpass its size and magnitude in today's global economy.

Yet, despite being a relatively small asset class, virtual currency presents complex challenges for regulators. Chairman Jay Clayton of the U.S. Securities and Exchange Commission (SEC) and I recently wrote:

> ***The CFTC and SEC, along with other federal and state regulators and criminal authorities, will continue to work together to bring transparency and integrity to these markets and, importantly, to deter and prosecute fraud and abuse. These markets are new, evolving and international. As such they require us to be nimble and forward-looking; coordinated with our state, federal and international colleagues; and engaged with important stakeholders, including Congress***6***.***

It is this perspective that has guided our work at the CFTC on virtual currencies. Our work has six broad elements: (1) staff competency; (2) consumer education; (3) interagency cooperation; (4) exercise of authority; (5) strong enforcement; and, (6) heightened review of virtual currency product self-certifications.

Staff Competency: LabCFTC

Last year, our agency was pleased to announce the launch of LabCFTC. In creating LabCFTC, we outlined an agenda designed to ensure that the CFTC would have the tools and understanding to keep pace with technological innovation in the algorithmic, digital world of the 21st century.

LabCFTC is the focal point of the CFTC's efforts to engage with innovators, facilitate market-enhancing technology and fair competition, and manage the interface between technological innovation, regulatory modernization, and existing rules and regulations.

LabCFTC accomplishes its mission in three ways: (1) meeting with innovators, whether they are a startup or an established entity; (2) supporting or incorporating new technologies with the potential to improve our markets or enable the Commission to carry out its mission more effectively and efficiently; and (3) collaborating with external organizations, including domestic and international regulators, focused on sharing information and best practices related to FinTech innovation.

Since its launch, LabCFTC has met with over 150 firms and organizations, including through 'office hour' sessions in New York, Chicago, Washington D.C., and earlier this year, the San Francisco Bay Area. Late last year, LabCFTC published a FinTech primer on the topic of virtual currencies, and will soon be releasing a request for public feedback regarding a series of planned innovation competitions beginning in 2018. LabCFTC continues to work closely with domestic and international regulators on FinTech engagement models, and is building out internal educational resources to help inform our staff and policy.

Finally, through its engagement with – and study of – innovative technologies, LabCFTC was recently able to recommend new virtual currency surveillance tools to our Enforcement division. I am pleased to report that our Enforcement team has in fact been able to avail itself of this new technology, and is now able to enhance certain surveillance and enforcement activities. This important development helps underscore the value of LabCFTC, and its effort to ensure that we are prepared to be a 21st century digital regulator.

Customer Education

The CFTC believes that the responsible regulatory response to virtual currencies must start with consumer education. Amidst the wild assertions, bold headlines, and shocking hyperbole about virtual currencies, there is a need for much greater understanding and clarity.

Over the past five months, the CFTC has produced an unprecedented amount of public educational materials on virtual currencies, all of which are located on the Commission's dedicated "Bitcoin" web page. Launched on December 15, 2017, www.cftc.gov/bitcoin features both consumer and industry-facing materials which include a backgrounder on the CFTC's oversight and approach to virtual currency markets, a "primer" on virtual currencies, several customer advisories on risks associated with speculating or investing in Bitcoin and other virtual currencies, a fact sheet outlining the self-certification process, and a *CFTC Talks* podcast on Bitcoin. The CFTC will be publishing two print brochures on Bitcoin and virtual currencies that will be available soon for widespread dissemination.

Along with the resources available on www.cftc.gov/bitcoin, the CFTC has produced several other podcasts on blockchain and virtual currencies, all of which are available on the Commission's website or from various streaming services. For market participants, the CFTC also issues a weekly publication of Bitcoin futures "Commitment of Traders" data and an analysis of Bitcoin spot market data.

The CFTC's **Office of Customer Education and Outreach (OCEO)**, which was established in 2011 to administer the CFTC's consumer education initiatives, has played an integral role in both authoring educational materials for consumers and working with partners to spread the word about the CFTC's Bitcoin and virtual currency resources.

OCEO is conducting outreach to various audiences such as retail investors, industry professionals, seniors, and vulnerable populations who may be targeted by unscrupulous individuals with the intent to defraud them of their savings. Some examples of outreach include coordinating with national non-profits, federal regulators and state agencies to conduct webinars, educational campaigns and in-person events. OCEO also provides partners with content to use for their constituent outreach and communications, in order to amplify the CFTC's customer education efforts. OCEO is also reaching intermediaries through trainings which educate participants on the CFTC's fraud prevention resources to protect and assist their constituencies.

Interagency Coordination

The CFTC's enforcement jurisdiction over virtual currencies is not exclusive. As a result, the U.S. approach to oversight of virtual currencies has evolved into a multifaceted, multi-regulatory approach that includes:

- The SEC's increasingly strong action against unregistered securities offerings, whether they are called a virtual currency or initial coin offering in name;

- State Banking regulators overseeing certain U.S. and foreign virtual currency spot exchanges largely through state money transfer laws;
- The Internal Revenue Service treating virtual currencies as property subject to capital gains tax;
- The Treasury's Financial Crimes Enforcement Network (FinCEN) monitoring Bitcoin and other virtual currency transfers for anti-money laundering purposes.

The CFTC actively communicates its approach to virtual currencies with other Federal regulators, including the **Federal Bureau of Investigation (FBI)** and the **Department of Justice (DOJ)** and through the **Financial Stability Oversight Council (FSOC),** chaired by the Treasury Department. The CFTC has also been in close communication with the SEC with respect to policy and jurisdictional considerations, especially in connection with recent virtual currency enforcement cases. In addition, we have been in communication with overseas regulatory counterparts through bilateral discussions and in meetings of the **Financial Stability Board (FSB)** and the **International Organization of Securities Commissions (IOSCO)**.

CFTC Authority and Oversight

In 2015, the CFTC determined that virtual currencies, such as Bitcoin, met the definition of "commodity" under the CEA. Nevertheless, to be clear, the CFTC does ***not*** have regulatory jurisdiction over markets or platforms conducting cash or "spot" transactions in virtual currencies or other commodities or over participants on such platforms. More specifically, the CFTC does not have authority to conduct regulatory oversight over spot virtual currency platforms or other cash commodities, including imposing registration requirements, surveillance and monitoring, transaction reporting, compliance with personnel conduct standards, customer education, capital adequacy, trading system safeguards, cyber security examinations or other requirements. In fact, current law does not provide any U.S. Federal regulator with such regulatory oversight authority over spot virtual currency platforms operating in the United States or abroad. However, the CFTC does have enforcement jurisdiction to investigate through subpoena and other investigative powers and, as appropriate, conduct civil enforcement action against fraud and manipulation in virtual currency derivatives markets and in underlying virtual currency spot markets just like other commodities.

In contrast to its lack of regulatory authority over virtual currency spot markets, the CFTC does have both regulatory and enforcement jurisdiction under the CEA over derivatives on virtual currencies traded in the United States. This means that for derivatives on virtual currencies traded in U.S. markets, the CFTC conducts comprehensive regulatory oversight, including imposing registration requirements and compliance with a full range of requirements for trade practice and market surveillance, reporting and monitoring and standards for conduct, capital requirements and platform and system safeguards.

The CFTC has been straightforward in asserting its area of statutory jurisdiction concerning virtual currency derivatives. As early as 2014, former CFTC Chairman Timothy Massad discussed virtual currencies and potential CFTC oversight under the Commodity Exchange Act (CEA).7 And as noted above, in 2015, the CFTC found virtual currencies to be a commodity.8 In that year, the agency took enforcement action to prohibit wash trading and prearranged trades on a virtual currency derivatives platform.9 In 2016, the CFTC took action against a Bitcoin futures exchange operating in the U.S. that failed to register with the agency.10 Last year, the CFTC issued proposed guidance on what is a derivative market and what is a spot market in the virtual currency context.11 The agency also issued warnings about valuations and volatility in spot virtual currency markets12 and launched an unprecedented consumer education effort described earlier herein.

Enforcement

The CFTC Division of Enforcement is a premier Federal civil enforcement agency dedicated to deterring and preventing manipulation and other disruptions of market integrity, ensuring the financial integrity of all transactions subject to the CEA, and protecting market participants from fraudulent or other abusive sales practices and misuse of customer assets.

The CFTC has been particularly assertive of its enforcement jurisdiction over virtual currencies. It has formed an internal virtual currency enforcement task force to garner and deploy relevant expertise in this evolving asset class. The task force shares information and works cooperatively with counterparts at the SEC with similar virtual currency expertise.

Over the past several months, the CFTC filed a series of civil enforcement actions against perpetrators of fraud, market manipulation and disruptive trading involving virtual currency. These include:

- Gelfman Blueprint, Inc., which charged defendants with operating a Bitcoin Ponzi scheme that fraudulently solicited approximately 80 persons supposedly for algorithmic trading in virtual currency that

was fake, the purported performance reports of which were false, and – as in all Ponzi schemes – payouts of supposed profits to customers actuality consisted of other customers' misappropriated funds.

- My Big Coin Pay Inc., which charged the defendants with commodity fraud and misappropriation related to the ongoing solicitation of customers for a virtual currency known as My Big Coin;
- The Entrepreneurs Headquarters Limited, which charged the defendants with a fraudulent scheme to solicit Bitcoin from members of the public, misrepresenting that customers' funds would be pooled and invested in products including binary options, and instead misappropriated the funds and failed to register as a Commodity Pool Operator; and
- Coin Drop Markets, which charged the defendants with fraud and misappropriation in connection with purchases and trading of Bitcoin and Litecoin.

These recent enforcement actions confirm that the CFTC, working closely with the SEC and other fellow financial enforcement agencies, will aggressively prosecute bad actors that engage in fraud and manipulation regarding virtual currencies.

New Product Self-Certification

Under CEA and Commission regulations and related guidance, futures exchanges may self-certify new products on twenty-four hour notice prior to trading. In the past decade and a half, over 12,000 new futures products have been self-certified.13 It is clear that Congress and prior Commissions deliberately designed the product self-certification framework to give futures exchanges, in their role as self-regulatory organizations, the ability to quickly bring new products to the marketplace. The CFTC's current product self-certification framework has long been considered to function well and be consistent with public policy that encourages market-driven innovation that has made America's listed futures markets the envy of the world.

Practically, both the CME Group (CME) and CBOE Futures Exchange (CBOE) had numerous discussions and exchanged numerous draft product terms and conditions with CFTC staff over a course of months prior to their certifying and launching Bitcoin futures in December 2017. CME launched a Bitcoin Reference Rate in November 2016. CBOE first proposed to CFTC staff a Bitcoin futures product in July 2017. This type of lengthy engagement is not unusual during the self-certification process for products that may raise more complex issues.

The CFTC staff undertook its review of CME's and CBOE's Bitcoin futures products with considered attention. Given the emerging nature and heightened attention of these products, staff conducted a "heightened review" of CME's and CBOE's responsibilities under the CEA and Commission regulations to ensure that their Bitcoin futures products and their cash-settlement processes were not readily susceptible to manipulation,14 and the risk management of the associated Derivatives Clearing Organizations (DCOs) to ensure that the products were sufficiently margined.15

Over the course of its review, CFTC staff obtained the voluntary cooperation of CME and CBOE with a set of enhanced monitoring and risk management steps.

Designated contract markets (DCMs) setting exchange large trader reporting thresholds at five bitcoins or less;

1. DCMs entering direct or indirect information sharing agreements with spot market platforms to allow access to trade and trader data making up the underlying index that the futures contracts settle to;

2. DCMs agreeing to engage in monitoring of underlying index data from cash markets and identifying anomalies and disproportionate moves;

3. DCMs agreeing to conduct inquiries, as appropriate, including at the trade settlement and trader level when anomalies or disproportionate moves are identified;

4. DCMs agreeing to regular communication with CFTC surveillance staff on trade activities, including providing trade settlement and trader data upon request;

5. DCMs agreeing to coordinate product launches to enable the CFTC's market surveillance branch to monitor developments; and

6. DCOs setting substantially high initial16 and maintenance margin.

The first six of these elements were used to ensure that the new product offerings complied with the DCM's obligations under the CEA core principles and CFTC regulations and related guidance. The seventh element,

setting high initial and maintenance margins, was designed to ensure adequate collateral coverage in reaction to the underlying volatility of Bitcoin.

In crafting its process of "heightened review" for compliance, CFTC staff prioritized visibility, data, and monitoring of markets for Bitcoin derivatives and underlying settlement reference rates. CFTC staff felt that in gaining such visibility, the CFTC could best look out for Bitcoin market participants and consumers, as well as the public interest in Federal surveillance and enforcement. This visibility greatly enhances the agency's ability to prosecute fraud and manipulation in both the new Bitcoin futures markets and in its related underlying cash markets.

As for the interests of clearing members, the CFTC recognized that large global banks and brokerages that are DCO clearing members are able to look after their own commercial interests by choosing not to trade Bitcoin futures, as some have done, requiring substantially higher initial margins from their customers, as many have done, and through their active participation in DCO risk committees.

After the launch of Bitcoin futures, some criticism was directed at the self-certification process from a few market participants. Some questioned why the Commission did not hold public hearings prior to launch. However, under the CEA and CFTC regulations, it is the function of the exchanges and clearinghouses - and not CFTC staff[17] - to solicit and address stakeholder concerns in deciding to list or clear new products. The CFTC staff's focus is on how the futures contracts and cash settlement indices are designed to reduce threats of manipulation and the appropriate level of contract margining to meet CEA and Commission regulations.

I feel strongly that interested parties, especially clearing members, should *indeed* have an opportunity to raise appropriate concerns for consideration by regulated platforms proposing virtual currency derivatives as well as by DCOs considering clearing new virtual currency products. That is why I have asked CFTC staff to add an additional element to the Review and Compliance Checklist for virtual currency product self-certifications. That is, requesting DCMs and Swap Execution Facilities (SEFs) to disclose to CFTC staff what affirmative steps they have taken in their capacity as self-regulatory organizations to gather and accommodate appropriate input from concerned parties, including trading firms and FCMs. Further, CFTC staff will take a close look at DCO governance around the clearing of new products and formulate recommendations for possible further action.

Although there is ready legal support in statute and CFTC regulation for many of the elements of the virtual currency review checklist, the staff will continue to work with exchanges on a voluntary basis at present. Nevertheless, it is worth considering if specific rule changes are appropriate to accommodate the virtual currency review checklist in its own right. I have asked the CFTC's General Counsel to discuss with my fellow Commissioners the statutory basis for the various elements of the review checklist. I have also asked him to propose for Commission consideration possible regulatory and/or statutory steps to underpin the staff's review process for virtual currency products. Commissioner Behnam has asked some important questions on the self-certification process that merit thoughtful consideration as we go forward.[18]

I believe that the CFTC's response to the self-certification of Bitcoin futures has been a balanced one. It has resulted in the world's first federally regulated Bitcoin futures market. Had it even been possible, blocking self-certification would not have stopped the rise of Bitcoin or other virtual currencies. Instead, it would have ensured that virtual currency spot markets continue to operate without effective and data-enabled federal regulatory surveillance for fraud and manipulation.

Potential Benefits

I have spoken publicly about the potential benefits of the technology underlying Bitcoin, namely Blockchain or distributed ledger technology (DLT).[19] Distributed ledgers – in various open system or private network applications – have the potential to enhance economic efficiency, mitigate centralized systemic risk, defend against fraudulent activity and improve data quality and governance.[20]

DLT is likely to have a broad and lasting impact on global financial markets in payments, banking, securities settlement, title recording, cyber security and trade reporting and analysis.[21] When tied to virtual currencies, this technology aims to serve as a new store of value, facilitate secure payments, enable asset transfers, and power new applications.

Additionally, DLT will likely develop hand-in-hand with new "smart" contracts that can value themselves in real-time, report themselves to data repositories, automatically calculate and perform margin payments and even terminate themselves in the event of counterparty default.[22]

DLT may enable financial market participants to manage the significant operational, transactional and capital complexities brought about by the many mandates, regulations and capital requirements promulgated by regulators here and abroad in the wake of the financial crisis.[23] In fact, one study estimates that DLT could eventually allow financial institutions to save as much as $20 billion in infrastructure and operational costs each year.[24] Another study reportedly estimates that blockchain could cut trading settlement costs by a third, or $16 billion a year, and cut capital requirements by $120 billion.[25] Moving from systems-of-record at the level of a firm

to an authoritative system-of-record at the level of a market is an enormous opportunity to improve existing market infrastructure.26

Outside of the financial services industry, many use cases for DLT are being posited from international trade to charitable endeavors and social services. BNSF Railway Co, a unit of Berkshire Hathaway Inc. recently announced that it became the first major U.S. railroad to join the Blockchain in Transport Alliance, a group of more than 200 companies considering transportation and logistics applications of digital ledger technology. 27 Other DLT use cases include: legal records management, inventory control and logistics; charitable donation tracking and confirmation; voting security and human refugee identification and relocation.28

Yet, while DLT promises enormous benefits to commercial firms and charities, it also promises assistance to financial market regulators in meeting their mission to oversee healthy markets and mitigate financial risk. What a difference it would have made on the eve of the financial crisis in 2008 if regulators had access to the real-time trading ledgers of large Wall Street banks, rather than trying to assemble piecemeal data to recreate complex, individual trading portfolios. I have previously speculated29 that, if regulators in 2008 could have viewed a real-time distributed ledger (or a series of aggregated ledgers across asset classes) and, perhaps, been able to utilize modern cognitive computing capabilities, they may have been able to recognize anomalies in market-wide trading activity and diverging counterparty exposures indicating heightened risk of bank failure. Such transparency may not, by itself, have saved Lehman Brothers from bankruptcy, but it certainly would have allowed for far prompter, better informed, and more calibrated regulatory intervention instead of the disorganized response that unfortunately ensued.

Policy Considerations

Virtual currencies require attentive regulatory oversight in key areas, especially to the extent that retail investors are attracted to this space. SEC Chairman Clayton and I stated in our joint op-ed, that:

> **"*Our task, as market regulators, is to set and enforce rules that foster innovation while promoting market integrity and confidence. In recent months, we have seen a wide range of market participants, including retail investors, seeking to invest in DLT initiatives, including through cryptocurrencies and so-called ICOs—initial coin offerings. Experience tells us that while some market participants may make fortunes, the risks to all investors are high. Caution is merited.***

> ***"A key issue before market regulators is whether our historic approach to the regulation of currency transactions is appropriate for the cryptocurrency markets. Check-cashing and money-transmission services that operate in the U.S. are primarily state-regulated. Many of the internet-based cryptocurrency trading platforms have registered as payment services and are not subject to direct oversight by the SEC or the CFTC. We would support policy efforts to revisit these frameworks and ensure they are effective and efficient for the digital era."***30

As the Senate Agriculture Committee and other Congressional policy makers consider the current state of regulatory oversight of cash or "spot" transactions in virtual currencies and trading platforms, consideration should be given to shortcomings of the current approach of state-by-state money transmitter licensure that leaves gaps in protection for virtual currency traders and investors. Any proposed Federal regulation of virtual currency platforms should be carefully tailored to the risks posed by relevant trading activity and enhancing efforts to prosecute fraud and manipulation. Appropriate Federal oversight may include: data reporting, capital requirements, cyber security standards, measures to prevent fraud and price manipulation and anti-money laundering and "know your customer" protections. Overall, a rationalized federal framework may be more effective and efficient in ensuring the integrity of the underlying market.

CFTC ENFORCEMENT ACTIVITY

The day after the White House announced its intention to nominate me as CFTC Chairman, I spoke to hundreds of industry executives at the annual Futures Industry Conference.31 I issued a warning to those who may seek to cheat or manipulate America's derivatives markets. I said, "There will be no pause, no let up and no reduction in our duty to enforce the law and punish wrongdoing in our derivatives markets. The American people are counting on us." I am committed to punishing bad actors in the marketplace and to do so with swift justice to stop their bad actions. Through robust enforcement of our laws and regulation, we will continue to send a clear signal to the marketplace about our seriousness in punishing bad behavior and compensating victims. The following is a summary of recent CFTC enforcement activity.

Overview of FY 2017

In the fiscal year that ended September 30, 2017, the CFTC brought 49 enforcement-related actions, which included significant actions to root out manipulation and spoofing and to protect retail investors from fraud. The CFTC also pursued significant and complex litigation, including cases charging manipulation, spoofing, and unlawful use of customer funds. The CFTC obtained orders totaling $412,726,307 in restitution, disgorgement and penalties. Specifically, in the fiscal year, the CFTC obtained $333,830,145 in civil monetary penalties and $78,896,162 in restitution and disgorgement orders. Of the civil monetary penalties imposed, the CFTC collected and deposited at the U.S. Treasury more than $265 million.

Retail Fraud

The CFTC brought a significant number of retail fraud actions in FY 2017 (20 out of the 49). For example, in February 2017, the CFTC filed and settled charges against Forex Capital Markets LLC for $7 million for defrauding retail foreign exchange customers over a five year time period by concealing its relationship with its most important market maker and misrepresenting that its platform had no conflicts of interests with its customers. That month the CFTC also brought an action charging Carlos Javier Ramirez, Gold Chasers, Inc., and Royal Leisure International, Inc. with misappropriating millions in customer funds and engaging in fraudulent sales solicitations in connection with a Ponzi scheme involving the purported purchase of physical gold.

In May 2017, the CFTC filed charges against an individual and his company with defrauding 40 investors out of at least $13 million in connection with a commodity pool they operated; investors included family members and members of his church. In June 2017, the CFTC filed charges against two individuals and their company with fraudulently soliciting customers, including at a church gathering, and defrauding them out of more than $11 million. The pair was also arrested by the FBI on related criminal charges.

In September 2017, the CFTC filed one of the largest precious metals fraud cases in the history of the Commission. As alleged, the Defendants defrauded thousands of retail customers—many of whom are elderly—out of hundreds of millions of dollars as part of a multi-year scheme in connection with illegal, off-exchange leveraged precious metal transactions.

Market Manipulation

In February 2017, the CFTC settled with RBS for $85 million for attempted manipulation of ISDAFIX, a leading global benchmark for interest rate swaps and related derivatives. The CFTC also brought actions against The Royal Bank of Scotland plc and Goldman Sachs Group, Inc. and Goldman, Sachs & Co. for attempted manipulation of the ISDAFIX, resulting in $85 million and $120 million in penalties, respectively. In February 2018, the CFTC settled with Deutsche Bank Securities Inc. for $70 million for attempted manipulation of ISDAFIX. Since 2012, the CFTC has imposed over $5 billion in penalties against banks and brokers with respect to benchmark manipulation settlements.

Disruptive Trading

In November 2016, the CFTC entered into a consent order with Navinder Singh Sarao and Nav Sarao Futures Limited PLC to settle allegations related to the 2010 flash crash for $25.7 million in monetary sanctions, $12.9 million in disgorgement, and a permanent trading and registration ban. In December 2016, the CFTC settled with trading company 3Red and trader Igor Oystacher imposing a $2.5 million penalty, a monitor for three years, and requiring the use of certain trading compliance tools for intentionally and repeatedly engaging in a manipulative and deceptive spoofing scheme while placing orders for and trading futures contracts on multiple registered entities.

In January 2018, the CFTC fined Citigroup $25 million for failing to diligently supervise the activities of its employees and agents in conjunction with spoofing orders in the U.S. Treasury futures markets. Later that year, in July 2017, the CFTC entered into its first non-prosecution agreements (NPA) with three former Citigroup traders who admitted to spoofing in the U.S. Treasury futures markets in 2011 and 2012. The NPAs emphasize the traders' timely and substantial cooperation, immediate willingness to accept responsibility for their misconduct, material assistance provided to the CFTC's investigation of Citigroup, and the absence of a history of prior misconduct.

In January 2018, in conjunction with the DOJ and FBI, the CFTC announced criminal and civil enforcement actions against three banks and six individuals involved in commodities fraud and spoofing schemes. The banks were fined $46.6 million in penalties. Appendix A summarizes CFTC enforcement activities in the areas of manipulation, attempted manipulation, false reporting, spoofing, and/or manipulative or deceptive device since FY 2011.

CURRENT AGENDA

Swaps Data Reporting

As part of the Commission's Roadmap to Achieve High Quality Swaps Data issued on July 10, 2017 and the CPMI-IOSCO harmonization process, we will be proposing several changes to swap data reporting rules. These efforts seek to eliminate redundancy, streamline reporting, and harmonize internationally.

At the heart of the 2008 financial crisis was the inability of regulators to assess and quantify the counterparty credit risk of large banks and swap dealers. The legislative solution was to establish swap data repositories (SDRs) under the Dodd-Frank Act. Although much hard work and effort has gone into establishing SDRs and supplying them with swaps data, nine years after the financial crisis the SDRs still cannot provide regulators with a complete and accurate picture of bank counterparty credit risk in global markets. In part, that is because international regulators have not yet harmonized global reporting protocols and data fields across international jurisdictions.

Of all the many mandates to emerge from the financial crisis, visibility into counterparty credit risk of major financial institutions was perhaps the most pressing. The failure to accomplish it is certainly the most disappointing.

The CFTC is committed to success in the global reform efforts towards swaps data reporting. That is why we are actively engaged in global swaps data harmonization efforts while simultaneously looking to improve upon the current processes for swaps reporting that were put in place back in 2012 and 2013.

On the international front, the CFTC is co-leading several global initiatives to harmonize derivatives reporting along with fellow overseas regulators via Committee on Payments and Market Infrastructures-International Organization of Securities Commission (CPMI-IOSCO) and the Financial Stability Board (FSB):

- Unique transaction identifiers (or UTIs) to track the lifecycle of a derivative transaction from creation until final termination;
- Unique product identifiers (or UPIs) to identify the instrument type and elements of the product referenced in a derivative; and
- Critical data elements (or CDEs) to provide basic information about the terms of the transaction, such as notional amount, price, and collateral movements.

CPMI-IOSCO published final technical guidance on UTIs in early 2017 and final guidance on UPIs is expected soon. We expect that guidance on CDE fields to be published by Q1 of 2018.

An FSB sponsored group, the Group on UPI and UTI Governance, continues to work on governance issues for these identifiers, such as implementation. This important international work is ongoing with the CFTC's full support and involvement.

Meanwhile, here at home, the CFTC issued for comment in July a swaps data reporting "Roadmap." The CFTC received 22 comment letters on the Roadmap that were overwhelmingly well informed and supportive. Division of Market Oversight (DMO) staff carefully considered them and is working to implement many of the recommendations.

A major focus of implementing the Roadmap will be incorporating harmonized UTI, UPI, and CDE guidance into our reporting regime. Wherever possible, we want to harmonize CFTC reporting elements with international CDE guidance. Still, it is possible that the CFTC will require some additional fields for CFTC specific use cases that are not addressed at the international level.

The Roadmap has carefully calibrated the release of CFTC rules to follow the release of international technical guidance on CDEs in order to avoid conflict. Furthermore, the Roadmap attempts to incorporate a realistic implementation timeline to allow for the appropriate building and testing by all relevant parties. We are sensitive to the complexity of changes to rules with multiple interconnected parts like swaps reporting. We will work with market participants to set realistic compliance dates.

To be clear, the international CPMI-IOSCO process is aimed at harmonizing what must be reported on a derivative, not when and how to report. We need to make sure that the *when* and *how* are also covered. In the end, CFTC *when* and *how* rules for swaps reporting may be different than those adopted by overseas regulators. In some areas, where we believe we have the better approach, such as single-sided reporting, we intend to pursue the CFTC's current approach. Yet, in other areas where, in light of experience, it appears that overseas regulators have adopted a better way, such as T+1 regulatory reporting, we will consider making changes.

Swaps data reporting is new for all of us. No regulator has yet found the optimal approach to success. Yet, we are all determined to get there. None are more determined than the CFTC. That is why we published the swaps data Roadmap.

There is an old saying, “If you don’t know where you’re going, you’ll never get there.” The Roadmap shows where the CFTC is going. We are determined to get there.

Entity Netted Notionals

The CFTC recently proposed a more accurate measurement of the size of the interest rate swap (IRS) markets, specifically focused on its risk transfer function. Under the methodology proposed in a paper by CFTC Chief Economist Bruce Tuckman the size of the IRS markets would be determined by the calculation of "Entity-Netted Notionals" (ENNs) instead of the current gross notional measure used today that broadly overstates risk transfer in the markets.32

ENNs are calculated by: (1) converting the long and short notional amounts of each counterparty to five-year risk equivalents; (2) netting longs against shorts in a given currency within pairs of legal entities; and (3) summing the resulting net longs or shorts across counterparties.

Under the ENNs calculation, the value of the current IRS markets would be approximately $15 trillion, which represents roughly 8% of the current $179 trillion market valuation using the conventional notional calculation methodology. Measured with ENNs, the $15 trillion size of the interest rate swap market is of the same order of magnitude as other fixed income markets, such as: the US Treasury market at $16 trillion, the corporate bond market at $12 trillion, the mortgage market at $15 trillion, and the municipal securities market at $4 trillion. At $15 trillion, the IRS market is more normalized and intelligible as part of the US economy.

However, ENNs are not intended to measure counterparty or operational risk. I have not asked the CFTC staff to use the calculation to rethink regulatory thresholds, such as the swap dealer *de minimis* registration threshold.

De Minimis and Position Limits

The CFTC has been ahead of most of the world’s market regulators in implementing G-20 market reforms. It has also completed most mandates set out in the Dodd-Frank Act. Nevertheless, there are still some Dodd-Frank rulemakings that remain incomplete or still have outstanding questions that need addressing: calculation of the *de minimis* exception to the swap dealer registration requirement and position limits on derivative transactions. The CFTC will continue to move forward on these in 2018.

Swap Dealer *De Minimis*. The level of the *de minimis* threshold is a critically important issue. It must be addressed with sound data and thorough analysis. It must be addressed this year.

Last October, I called for a one-year delay in implementation of the threshold. I noted that the Commission had recently sworn in two new commissioners and appointed a new Director of the Division of Swap Dealer and Intermediary Oversight (DSIO). I felt the delay was necessary for them and the staff to understand and analyze complete and current trade data. I said, that, “It is hard to get something as complicated as this right when we are under a time crunch.”

I am pleased to say that DSIO has now compiled and analyzed swap dealer trading data through the end of 2017. DSIO staff is in the process of scheduling meetings over the next few weeks to present this data and analysis to my staff and that of my fellow Commissioners. That data and analysis will provide the basis for thorough consideration of the *de minimis* threshold by the full Commission in the months to come. I have previously pledged to complete this rulemaking in 2018. I intend to keep that pledge.

Position Limits. As you know, in December 2016, the CFTC put forth a position limits proposal for public consideration and input. I voted in favor. The proposal generated dozens of detailed comments and concerns in the first half of 2017. During the course of 2017, staff of the CFTC’s Division of Market Oversight (DMO) analyzed those comments and provided written summaries for all of the Commissioners’ staffs. More recently, DMO staff began work on revisions to the proposal that are responsive to the public comments. I look forward to sitting down with the Division in the near future to discuss their suggestions.

When I testified before this Committee last June, I committed to moving forward with a final position limits rule. It is an enormously important undertaking that will impact America’s farmers, ranchers, and manufacturers and their ability to hedge legitimate production costs. This rulemaking has been underway for some time. There are thousands of comment letters on the topic and there are opinions on all sides of the issue, including by American agriculture producers. Based on public comments, it is clear that the Commission has not yet got it right.

That is why I believe that a final position limits rulemaking should be done properly by a full Commission of five commissioners. It will ensure that any final position limits rule is indeed final and stands the test of time and changes in future administrations. We must ensure regulatory barriers do not stand in the way of long standing hedging practices of American farmers and ranchers, who depend on our markets.

Fiscal Year 2019 Budget Request

If fulfilled, the CFTC's FY 2019 budget request submitted to Congress would maximize the Commission's ability to oversee our nation's swaps, futures and options markets.

The FY 2019 budget reflects the true needs of a policy setting and civil law enforcement agency that has the duty to ensure the derivatives markets operate effectively. At a time in history when the nature of our financial markets are rapidly transforming, as digital technologies are having an increasing impact on everything in the early Twenty-First Century from information transfer to retail shopping to personal communications, this budget will give the Commission the resources it needs to put in place and oversee responsible regulations that allow for innovation and enable our markets to remain competitive and safe at home and abroad.

In order for the CFTC to fulfill its duty to oversee these vital derivatives markets in FY 2019, I am requesting $281.5 million. This is an increase of $31.5 million over the enacted FY 2017 appropriation and is the same level of funding that I requested in FY 2018. I believed then and still believe that this is the level of funding necessary to fulfill our statutory mission.

The Commission will invest in its capacity to develop economic modeling and econometric capabilities aimed at boosting the CFTC's analytical expertise and monitoring of systemic risk in the derivatives markets, in particular with regard to central counterparty clearinghouses. These investments include the expansion of sophisticated econometric and quantitative analysis devoted to risk modeling, stress tests, and other stability-related evaluations necessary for market oversight. Furthermore, such analysis conducted by the CFTC will aid in rulemaking, policy development, and enhance the Commission's ability to provide high-quality cost benefit considerations for decision-making.

The Commission expects the number of designated clearing organizations (DCOs) to continue to increase in FY 2019, with many expanding their business to other jurisdictions around the world. As the number of DCOs increase, the complexity of the oversight program will increase. It is imperative that the Commission strengthen its examinations capability to enable it to keep pace with the growth in the amount and value of swaps cleared by DCOs pursuant to global regulatory reform implementation. As the size and scope of DCOs increase, so too has the complexity of the counterparty risk management oversight programs and liquidity risk management procedures of the DCOs under CFTC regulation here and abroad. In addition, the Commission will also need to enhance its financial analysis tools to aggregate and evaluate risk across all DCOs.

As part of this request, the Commission will also address market enhancing innovation through financial technology (FinTech). FinTech comprises a range of technology in the financial services sector and includes innovations in retail banking, investment and virtual currencies like bitcoin. In FY 2018, the exchanges self-certified several new contracts for futures products for virtual currencies. These innovations impact the regulatory landscape and with this budget request, the Commission will invest more in new technologies and tools that support these surveillance and enforcement efforts.

CFTC / Kansas State University Conference on Agricultural Commodities Futures Markets

The CFTC has teamed up with the Center for Risk Management Education and Research at Kansas State University to host a conference titled, "Protecting America's Agricultural Markets: An Agricultural Commodity Futures Conference," on April 5 – 6, 2018, in Overland Park, Kansas. This first-of-its-kind conference will include robust presentations and discussions on current macro-economic trends and issues affecting American agricultural futures markets and the importance of these markets for managing risk and protecting participants from manipulation, fraud, and other unlawful activities. This is our first, and hopefully not last, conference focused on derivatives-markets issues impacting the agricultural community in America's Heartland.

CONCLUSION

With the proper balance of sound policy, regulatory oversight and private sector innovation, new technologies and global trading will allow American markets to evolve in responsible ways, and continue to grow our economy and increase prosperity. This hearing is an important part of finding that balance. The CFTC remains grateful for the consistently thoughtful and bipartisan support of the Senate Committee on Agriculture, Nutrition, and Forestry. Thank you for inviting me to participate and I look forward to your questions.

Appendix A is available under Related Links.

1 *See*, Statement of Commissioner J. Christopher Giancarlo on European Union Determination of U.S. Central Counterparty Clearinghouse Equivalence, February 10, 2016 http://www.cftc.gov/PressRoom/SpeechesTestimony/giancarlostatement021016

2 *See generally*, CFTC Talks, Episode 24, Dec. 29, 2017, Interview with Coincenter.org Director of Research, Peter Van Valkenburgh, at http://www.cftc.gov/Media/Podcast/index.htm.

3 *See* Marc Andreessen, *Why Bitcoin Matters*, New York Times DealBook (Jan. 21, 2014), https://dealbook.nytimes.com/2014/01/21/why-bitcoin-matters/; Jerry Brito and Andrea O'Sullivan, *Bitcoin:*

A Primer for Policymakers, George Mason University Mercatus Center (May 3, 2016),https://www.mercatus.org/publication/bitcoin-primer-policymakers; Christian Catalini and Joshua S. Gans, *Some Simple Economics of the Blockchain*, Rotman School of Management Working Paper No. 2874598, MIT Sloan Research Paper No. 5191-16 (last updated Sept. 21, 2017),https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2874598; Arjun Kharpal, *People are 'underestimating' the 'great potential' of bitcoin, billionaire Peter Thiel says*, CNBC (Oct. 26, 2017), https://www.cnbc.com/2017/10/26/bitcoin-underestimated-peter-thiel-says.html; Hugh Son, *Bitcoin 'More Than Just a Fad,' Morgan Stanley CEO Says*, Bloomberg (Sept. 27, 2017), https://www.bloomberg.com/news/articles/2017-09-27/bitcoin-more-than-just-a-fad-morgan-stanley-ceo-gorman-says; Chris Brummer and Daniel Gorfine*, FinTech: Building a 21st-Century Regulator's Toolkit*, Milken Institute (Oct. 21, 2014), available at http://www.milkeninstitute.org/publications/view/665.

4 Virtual currencies are not unique in their utility in illicit activity. National currencies, like the US Dollar, and commodities, like gold and diamonds, have long been used to support criminal enterprises.

5 Countries that have banned Bitcoin include Bangladesh, Bolivia, Ecuador, Kyrgyzstan, Morocco, Nepal, and Vietnam. China has banned Bitcoin for banking institutions.

6 Jay Clayton and J. Christopher Giancarlo, *Regulators Are Looking at Cryptocurrency: At the SEC and CFTC We Take Our Responsibility Seriously,* Wall Street Journal, Jan. 24, 2018, https://www.wsj.com/articles/regulators-are-looking-at-cryptocurrency-1516836363.

7 Testimony of CFTC Chairman Timothy Massad before the U.S. Senate Committee on Agriculture, Nutrition and Forestry (Dec. 10, 2014), http://www.cftc.gov/PressRoom/SpeechesTestimony/opamassad-6.

8 *In re* Coinflip, Inc., Dkt. No. 15-29 (CFTC Sept. 17, 2015), http://www.cftc.gov/idc/groups/public/@lrenforcementactions/documents/legalpleading/enfcoinfliprorder09172015.pdf

9 *In re* TeraExchange LLC, Dkt. No. 15-33 (CFTC Sept. 24, 2015), http://www.cftc.gov/idc/groups/public/@lrenforcementactions/documents/legalpleading/enfteraexchangeorder92415.p

10 *In re* BXFNA Inc. d/b/a Bitfinex, Dkt. No. 16-19 (CFTC June 2, 2016), http://www.cftc.gov/idc/groups/public/@lrenforcementactions/documents/legalpleading/enfbfxnaorder060216.pdf.

11 CFTC, Retail Commodity Transactions Involving Virtual Currency, 82 Fed. Reg. 60335 (Dec. 20, 2017), www.gpo.gov/fdsys/pkg/FR-2017-12-20/pdf/2017-27421.pdf.

12 CFTC, A CFTC Primer on Virtual Currencies (Oct. 17, 2017), http://www.cftc.gov/idc/groups/public/documents/file/labcftc_primercurrencies100417.pdf.

13 Prior to the changes made in the Commodity Futures Modernization Act of 2000 (CFMA) and the Commission's subsequent addition of Part 40, exchanges submitted products to the CFTC for approval. From 1922 until the CFMA was signed into law, less than 800 products were approved. Since then, exchanges have certified over 12,000 products. For financial instrument products specifically, the numbers are 494 products approved and 1,938 self-certified. *See* http://www.cftc.gov/IndustryOversight/ContractsProducts/index.htm.

14 *See* CEA Section 5(d)(3), 7 U.S.C. 7(d)(3); Section 5(d)4), 7 U.S.C. 7(d)(4); 17 C.F.R. 38.253 and 38.254(a), and Appendices B and C to Part 38 of the CFTC's regulations.

15 CEA Section 5b(c)(2)(D)(iv), 7 U.S.C. 7a-1(c)(2)(D)(iv) ("The margin from each member and participant of a derivatives clearing organization shall be sufficient to cover potential exposures in normal market conditions.").

16 In the case of CME and CBOE Bitcoin futures, the initial margins were ultimately set at 47% and 44% by the respective DCOs. By way of comparison that is more than ten times the margin required for CME corn futures products.

17 Unlike provisions in the CEA and Commission regulations that provide for public comment on ***rule*** self-certifications, there is no provision in statute or regulation for public input into CFTC staff review of ***product*** self-certifications. It is hard to believe that Congress was not deliberate in making that distinction.

18 Statement of Commissioner Behnam before the Market Risk Advisory Committee (January 21, 2018), http://www.cftc.gov/PressRoom/SpeechesTestimony/behnamstatement013118

19 J. Christopher Giancarlo, *Keynote Address of Commissioner J. Christopher Giancarlo before the Markit Group, 2016 Annual Customer Conference New York*, May 10, 2016, http://www.cftc.gov/PressRoom/SpeechesTestimony/opagiancarlo-15.

20 *Id.*

21 *See, e.g.*, Larry Greenemeier, *Can't Touch This: New Encryption Scheme Targets Transaction Tampering*, Scientific American, May 22, 2015, http://www.scientificamerican.com/article/can-t-touch-this-new-encryption-

scheme-targets-transaction-tampering/.

22 *See* Massimo Morini & Robert Sams, *Smart Derivatives Can Cure XVA Headaches*, Risk Magazine, Aug. 27, 2015, http://www.risk.net/risk-magazine/opinion/2422606/-smart-derivatives-can-cure-xva-headaches; *see also* Jeffrey Maxim, *UBS Bank Is Experimenting with "Smart-Bonds" Using the Bitcoin Blockchain*, Bitcoin Magazine, June 12, 2015, https://bitcoinmagazine.com/articles/ubs-bank-experimenting-smart-bonds-using-bitcoin-blockchain-1434140571; *see also* Pete Harris, *UBS Exploring Smart Bonds on Block Chain*, Block Chain Inside Out, June 15, 2015, http://harris-on.typepad.com/block_chain_io/2015/06/ubs-exploring-smart-bonds-on-block-chain.html; *See generally* Galen Stops, *Blockchain: Getting Beyond the Buzz*, Profit & Loss, Aug.–Sept. 2015, at 20, http://www.profit-loss.com/articles/analysis/technology-analysis/blockchain-getting-beyond-the-buzz.

23 *See, e.g.*, *Oversight of Dodd-Frank Act Implementation*, U.S. House Financial Services Committee, http://financialservices.house.gov/dodd-frank/ (last visited Mar. 2, 2016).

24 Santander InnoVentures, Oliver Wyman & Anthemis Group, The Fintech Paper 2.0: Rebooting Financial Services 15 (2015), http://santanderinnoventures.com/wp-content/uploads/2015/06/The-Fintech-2-0-Paper.pdf.

25 Telis Demos, *Bitcoin's Blockchain Technology Proves Itself in Wall Street Test*, Apr. 7, 2016, The Wall Street Journal, http://www.wsj.com/articles/bitcoins-blockchain-technology-proves-itself-in-wall-street-test-1460021421.

26 Based on conversations with R3 CEV, http://r3cev.com/.

27 Ryan Henriksen, *Buffett's BNSF railroad eyes blockchain for shipping freight,* Reuters, February 5, 2018, https://www.msn.com/en-us/finance/companies/buffetts-bnsf-railroad-eyes-blockchain-for-shipping-freight/ar-BBIJTUr.

28 Frisco d'Anconia, *IOTA Blockchain to Help Trace Families of Refugees During and After Conflicts*, Cointelegraph.com, Aug. 8, 2017, https://cointelegraph.com/news/iota-blockchain-to-help-trace-families-of-refugees-during-and-after-conflicts.

29 *See supra* note 22.

30 *See supra* note 5.

31 Remarks of Acting Chairman J. Christopher Giancarlo before the 42nd Annual International Futures Industry Conference, Mar. 15, 2017, at: http://www.cftc.gov/PressRoom/SpeechesTestimony/opagiancarlo-20

32 Richard Haynes, John Roberts, Rajiv Sharma, and Bruce Tuckman, January 2018, *Introducing ENNs: A Measure of the Size of Interest Rate Swap Markets,* http://www.cftc.gov/PressRoom/PressReleases/pr7691-18

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