



Secretary of the Commission  
Commodity Futures Trading Commission (“CFTC”, “Commission”)  
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Notice of Proposed Rulemaking: Certain Swap Data Repository and Data Reporting Requirements (“NPRM”)<sup>1</sup>  
17 CFR Parts 23, 43, 45 and 49  
RIN Number 3038-AE32

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*Submitted electronically to <http://comments.cftc.gov>*

### *Introduction*

The Institute for Agriculture and Trade Policy (IATP)<sup>2</sup> is pleased to have the opportunity to comment on this NPRM. IATP began to comment on CFTC swaps work in October 2010 concerning a request for information about agricultural swaps.<sup>3</sup> IATP’s most recent comment on swaps market rulemaking is on the proposed rule for Swaps Execution Facilities and Trade Execution Requirement.<sup>4</sup>

In October 2015, the Commission discontinued the reporting of the estimated notional value outstanding of non-financial commodity swaps, including agricultural swaps and index swaps that include agricultural contracts, in its Weekly Swaps Report<sup>5,6</sup>. It is regrettable that the Commission has not yet been able to propose and finalize swaps transaction data elements and other reporting requirements to enable real-time reporting of non-financial commodity swaps.

However, the estimate of notional value relies on data reporting definitions, practices and infrastructure whose complexity and interconnectedness, as outlined in the NPRM, affects a Commission-estimated 1,732 U.S. entities that would respond to the NPRM’s swaps reporting and recordkeeping requirements (Federal Register (FR) Vol. 84, No. 92; Monday, May 13, 2019: p. 20176). Given the difficulty of developing reporting and record keeping requirements for these entities to confirm the accuracy and completeness of swaps data, as required by the Dodd Frank Wall Street Reform and Consumer Financial Protection Act (DFA), the Commission was wise to discontinue its estimates for non-financial commodity swaps until such time as a swaps reporting and record keeping rule could be finalized and implemented. We fully recognize the difficulty of harmonizing CFTC

swaps reporting and record keeping requirements with those of international regulatory bodies, as noted in the “Roadmap to Achieve High Quality Swaps Data,” (“Roadmap”) (Slide 9)<sup>7</sup> and the need to consider the Securities Exchange Commission’s requirements for securities-based swaps (FR 21046).

The Commission will propose two more swaps data rulemakings, in addition to the present NPRM, and then will offer the opportunity to “comment on the three rulemakings together because the proposals address interconnected issues” (FR 21046). The tri-partite rulemaking follows the plan of the CFTC’s “Roadmap” which “aim[s] to complete the process with full industry implementation by the end of 2019,”<sup>8</sup> i.e., a decade after the Pittsburgh Summit of the G-20 set the objectives for the international trading of Over the Counter contracts. IATP has some sympathy for Commissioner Dawn Stumpf’s view, supported by market participants that she cites in her concurrence to release the NPRM, that it would have been preferable to release all three rulemakings together for comment. However, we do not share her view that there was a “rush to publication” for this NPRM (FR 21120), nor her view that “inaccurate data . . . is the subject of this Proposal,” (FR 21118, footnote 6) from which her argument against the necessity of the NPRM derives. Rather, the core of the NPRM are procedures proposed for Swaps Data Repositories (SDRs) to verify the completeness and accuracy of swaps data from Reporting Counterparties (RCPs). If the SDR aggregate data reported to the Commission is inaccurate and/or incomplete for any asset class, the Commission will not be able to implement effectively the pertinent oversight duties stipulated in the DFA and the Commodity Exchange Act.

The NPRM concisely summarizes the impact of inaccurate and incomplete swaps data on the public’s understanding of the swaps market: “As with the swap data reported for use by regulators, the Commission believes that inaccurate and incomplete swap transaction and pricing data hinders the public’s use of the data, which harms transparency and price discovery. The Commission is aware of at least three publicly available studies that support this point” (FR, 22096). The Commission identified study on agricultural swaps eliminates from analysis swap contracts bundled into commodity index trader instruments<sup>9</sup>, presumably to facilitate a more direct comparison of exchange traded agricultural futures and options contracts with off-exchange agricultural swaps trading. Paul E. Peterson’s review of 39,622 swaps transactions reported by government agencies to the Bank for International Settlements notes, “Some reported swap transactions did not include the underlying quantity. Similarly, some reported swap transactions did not include the notional price, either as a reference price in a futures-like swap or a strike price in an options-like swap. Missing prices occurred with or without missing quantities, but in any case the notional value for a swap can be calculated only when both the price and quantity are provided.”<sup>10</sup> Because Peterson’s swap data study criteria focused on just 4.8 percent of the more than 800,000 commodity swaps reported to the BIS, some market participants might consider the missing data to be quantitatively insignificant.

However, the absence of data in such fundamental data fields as quantity and price in swaps is of great operational significance. The SDRs to which these transactions were reported apparently did not attempt to verify the accuracy and completeness of the RCP reporting of these data deficient swaps. The regulators who relied on the completeness of the SDR reported swaps data thus transmitted to the BIS an incomplete and possibly skewed swaps data universe. Peterson further writes, “Of greater concern, from a data integrity standpoint” than the differences among SDRs’ swap categorizations “are the transactions that were eliminated [from his analysis] because the underlying commodities could not be identified or because the reported data contained various errors.”<sup>11</sup> Again, because agricultural swaps are such a small part of the swaps data universe<sup>12</sup>, it is tempting to dismiss as anecdotal the absence of the underlying commodity in the swaps data reporting field and the failure of the SDR to require the RCP to supply the missing information.

IATP believes it is operationally significant that an SDR lacks or fails to apply verification procedures to ensure the accuracy and completeness of swaps data in the smallest asset class. If that failure is operationally replicated with a more complex underlying commodity, e.g., foreign exchange (FX) rates and volumes bundled into a multi-leg FX swaps, and incomplete or inaccurate swaps data is reported to the Commission, then SDR compliance deficiencies become a prudential oversight problem of great significance. Consider how the swaps reporting universe can become incomplete, leading to the public, market participant and Commission misunderstanding of the scale and structure of risk among SDRs and RCPs. For example, Swap Dealers (SDs) design swaps to convert debt into tradeable assets that transfer debt off the balance sheet. If such swaps are reported incompletely and/or inaccurately, the public’s, market participants’ and regulator’s understanding of the composition and extent of systemic financial risk is occulted and/or distorted. A recent article in the *Bank for International Settlements Quarterly Review* states:

Every day, trillions of dollars are borrowed and lent in various currencies. Many deals take place in the cash market, through loans and securities. But foreign exchange (FX) derivatives, mainly FX swaps, currency swaps and the closely related forwards, also create debt-like obligations. For the U.S. dollar alone, contracts worth tens of trillions of dollars stand open and trillions change hands daily. And yet one cannot find these amounts on balance sheets. This debt is, in effect, missing.<sup>13</sup>

The swaps data reporting requirements and data completeness and accuracy verification procedures proposed in the NPRM cannot, of course, put the debt back on the balancing sheets of the RCPs that are using FX swaps and other swaps to move that debt off the balance sheets. However, by enabling the SDRs to verify the RCP swaps reporting, the NPRM measures can prevent a RCP misrepresentation of the swaps price, value and other terms that would, in turn, misrepresent to the public, to investors and to regulators the

amount, quality, duration and other debt factors affecting financial stability of the RCPs, the SDs and the broader financial system. The Commission's role as a prudential regulator for the derivatives market requires a systemic swaps reporting verification system.

Real-time, transparent, standardized and comprehensive reporting of swaps transaction data is integral to implementing Title VII of the DFA. In February 2011, Better Markets responded to the Commission's NPRM for "Real Time Reporting of Swaps Transaction Data" with a challenge that is very relevant to the present NPRM:

Above all, the Commission **must** [bold in the original] set a uniform standard for data collection and dissemination. If it does not set a standard and insist on it, then a critical component of the entire [reporting] infrastructure will be outsourced, and, much worse, left to chance. Only a clear, specific and uniform regulatory mandate will avoid likely information anarchy, one that could result in a Tower of Babel: lots of quantity but very little quality in terms of usability in today's marketplace.<sup>14</sup>

Much of the outsourcing takes the form of the "trusted sources" exception to the verification by SDRs of RCP swaps reporting (FR 21120). To the extent that each trusted source does not report accurately and completely using a common data element template defined by the Commission, the increasing volume and complexity of swaps data transacted by automated trading systems — including those of machine learning<sup>15</sup>— the potential for a Tower of Babel data universe is very high. If market participants can afford the burden of introducing and customizing machine learning and ATS algorithms to fulfill their trading and profit objectives, they must be able to afford the costs of reporting and record keeping compliance infrastructure of the requirements proposed in the NPRM.

The remainder of this comment letter is divided into the following topics: definitions; proposed data verification procedures and requirements; record keeping requirements; SDR monitoring, screening and analyzing swap data upon Commission request; duties of the Chief Compliance Officer; conclusion.

#### *Definitions*

IATP supports the Commission's proposed definitions in the NPRM save for the definition "as soon as technologically practicable." IATP agrees with the need to include the definition as explained by the Commission: "The term as soon as technologically practicable would mean as soon as possible, taking into consideration the prevalence, implementation, and use of technology by comparable market participants" (FR 21101). However, we believe more specificity of criteria is required to define comparability in "comparable market participants." Such specificity will not be exhaustive, but illustrative,

for example, as is the proposed definition of “position” (FR 21101). A criteria illustrative definition would make clear that an SDR or RCP employing technology for “commercial use” would be expected to have compatible and comparable technology for regulatory use. The scale of technology adoption and compliance infrastructure for reporting and verifying the accuracy and completeness of swap data should correspond with the market participant’s volume and value of open swaps and intra-day traded swaps. Since “the term [‘as soon as technologically practicable’] is intended to be identical to the use of the term in parts 43 and 45 of the Commission’s regulations”, (FR, 21046) further specificity regarding “comparable market participants” could be given in the form of staff guidance, to avoid having to revise the term in parts 43 and 45.

#### *Proposed data verification procedures and requirements*

The verification problem for swaps data reporting in the context of more complex and completely automated swaps trading is indicated in the NPRM’s current description of swap data reporting verification procedures: “Reported swap data is presumed accurate and confirmed if a counterparty does not inform the SDR of errors or omissions or otherwise make modifications to a trade record for a certain period of time” (FR 21052). The Commission proposes that the SDRs confirm that accuracy and completeness of the swap data with the RCPs. The NPRM summarizes comments on the Roadmap: “In general, the SDRs commented that they cannot meet their obligation to confirm data with both counterparties because nonreporting counterparties are not required to confirm data reported to the SDR under current regulations. The SDRs also stated that they often have no way to contact non-reporting counterparties because non-reporting counterparties are not obligated to connect to the SDRs’ services” (FR 21052.) This contention does not provide a persuasive rationale for the SDRs not to confirm the accuracy and completeness of RCP’s swaps reporting.

The Commission effectively rebuts the SDRs’ plea by noting that part 45 rules alleviate the non-reporting counterparties from the obligations that the SDRs claim prevents them from verifying the completeness and accuracy of the RCP swaps data: “The Commission notes that under current and proposed § 45.14(b), a non-reporting counterparty’s correction responsibilities are limited to notifying the reporting counterparty of the errors and omissions, as opposed to notifying the SDR. See 17 CFR 45.14(b); section III.B below. Requiring nonreporting counterparties to verify swap data would be the only instance where a non-reporting counterparty has swap data responsibilities with SDRs outside of corrections” (FR 21052-21053, footnote 85). It is disingenuous for the SDRs to claim that they are unable to verify the RCP swaps data because the SDRs cannot verify the non-reporting counterparties’ swaps. Under part 45, the non-reporting counterparties to a swap are obligated to report data errors and omissions only to the RCPs who in turn, under the terms of the NPRM, would verify the accuracy and completeness of the chain of non-reporting counterparty and RCP swaps data. These verification processes enable

SDRs to be stewards of swaps data and to provide both the RCPs and the Commission with accurate and complete open swaps data reports.

There is no sound legal or substantive reason why the SDRs should continue the practice of assuming the accuracy and completeness of RCP swaps data reporting without verification. As the NPRM states, “The Commission believes that SD [Swaps Dealers]s, MSPs [Major Swaps Participants], and DCO (Designated Contract Organizations)s, as large, sophisticated Commission-registered entities that are accustomed to swap data regulatory compliance, and as the most likely entities to serve as reporting counterparties, can efficiently verify swap data on a weekly basis” (FR 21054). These RCPs are already well-equipped to verify the swaps data of non-reporting counterparties and to use that data and capacity to report to the SDRs so that they can issue open swaps data reports to all RCPs on a weekly basis, per the terms of the NPRM. The Commission would protect the SDRs from liability regarding compliance failure to report accurate and comprehensive swaps data, provided that the SDRs adequately document their “full good faith effort” to verify the accuracy and completeness of RCP swaps reporting (FR 21054).

The NPRM asks: “(3) Should the Commission be more prescriptive in how the SDRs must distribute the open swaps reports to reporting counterparties pursuant to proposed § 49.11(b)? If so, what should be the requirements included in the prescribed approach? Please be specific” (FR 21055). In a trading environment in which a milli-second is an eternity to an automated trading system, IATP advocates that all SDR open swaps reports should contain data fields in common and be delivered to all RCPs simultaneously. If the open swaps reports are not so delivered, a machine learning ATS will arbitrage variations from simultaneity and common data elements. (This response also applies to question 4.)

The NPRM further asks: “(6) Should the Commission require the verification of all swap data messages, as opposed to open swaps reports? Please explain why or why not. If so, what would be the costs and benefits associated with requiring the verification of all swap data messages? Please be specific” (FR 20155). The proposed SDR Record Keeping Requirements obviate the need for SDR verification of all swaps’ messages. The NPRM would oblige SDRs to retain swap data messages “throughout the existence of the swap that is the subject of the SDR data and for five years following final termination of the swap, during which time the records would be readily accessible by the SDR and available to the Commission via real-time electronic access, and for a period of at least ten additional years in archival storage from which such records are retrievable by the SDR within three business days” (FR 21055). The major regulatory purpose of maintaining the swap data messages is to enable the Commission to investigate data anomalies in SDR and RCP reporting of both open and terminated swaps. SDRs must “bundle” the swaps data messages that correspond to the time periods of open swaps reports, to enable CFTC staff to analyze possible causes of data reporting anomalies, particularly those that appear to be related to liquidity crises, extreme price volatility and other market events. Given the volume of swap data messages that apply to each swap transaction, it would

be costly and impractical for SDRs to verify swaps data messages and for CFTC staff to monitor verified messages unless there are data anomalies and/or market events that would justify the verification costs and provide benefits to market participants and the public.

The NPRM asks: "(7) Should the Commission require verification of open swaps reports more or less frequently than weekly for reporting counterparties that are SDs, MSPs, or DCOs? If so, please explain why and suggest a more appropriate verification frequency" (FR 20155). The volume, value, trading technologies and swap market disruptions requiring Commission analysis and possible investigation will provide the basis for determining whether open swaps reporting with verified RCP data should be published with greater frequency than weekly, both for commercial and regulatory uses. IATP cannot suggest any other basis than the experience of market participant use and Commission monitoring of verified weekly open swap data reports to determine whether a more appropriate verification frequency would be beneficial.

#### *Proposed SDR Record Keeping Requirements*

The proposed SDR Record Keeping Requirements both consolidate current requirements into one regulation and harmonize those requirements with that of the Securities Exchange Commission record keeping regulations for securities-based swaps. This consolidation should facilitate more efficient swaps data reporting administration for SDRs and RCPs and for RCPs that trade securities-based swaps. IATP believes that the proposed duration and format of record retention access of Department of Justice and Commission officials to swaps reporting data will enable both the interest of market participants and the public to be served.

#### *Monitoring, Screening and Analyzing Data*

In response to comment letters from both public interest groups and market participants for more detailed descriptions of what the Commission expects SDRs to do to assist the Commission's oversight of the swaps market (FR 21057, footnote 121), the NPRM provides an illustrative but not exhaustive list of SDR tasks for monitoring, screening and analyzing swaps data, as requested and "within the time frame specified by the Commission for the particular request" (FR 21058). Since SDRs will have automated systems for swaps reporting and record keeping, they should be able to carry out routine monitoring, screening and analyzing of RCP data, as well as respond to specific Commission requests efficiently and effectively with little added infrastructure and personnel costs, provided that SDRs have been complying with Commission reporting and record keeping requirements. Market monitoring and data surveillance is necessarily a cooperative task as the NPRM acknowledges: "The Commission also expects that SDRs and Commission staff would work together to design each [monitoring] task before a task is prescribed, as is current practice" (FR 21058-21059). Notwithstanding complaints about

undue burdens placed on swaps market participants, SDRs should regard compliance as a cooperative, rather than adversarial, endeavor.

The NPRM asks: "(11) Should the Commission require SDRs to calculate positions for market participants? Are there technological and/or regulatory limitations that would make such tasks difficult to perform and unlikely to achieve the desired results? Please be specific" (FR 21059). The Commission currently relies on exchanges to administer position accountability in Designated Contract Markets for legacy agricultural futures and options contracts in the absence of the DFA authorized position limit and position aggregation regime for an enumerated list of non-financial commodities. Without such a modernized position limit rule, it is premature to require SDRs to calculate positions for market participants in futures and options equivalent swaps. The Commission may wish to consider asking the SDRs to pilot test non-mandatory calculations of swaps for non-financial commodities that are anticipated to be included in an eventual position limit and position aggregation rule. For the financial commodity swaps already included in the CFTC's Weekly Swaps Report, the technological basis exists for calculating the positions of RCPs in interest rate, FX and credit default swaps, at least for positions held by the 117 SDs, MSPs, and DCOs who are RCPs (FR 21076). IATP has no basis for advising the Commission as to whether such a technological basis exists among the 1,585 other RCPs that the Commission estimates to be affected by this NPRM (FR 21076).

The NPRM further asks: "(12) Should the SDRs create a process whereby the counterparties whose positions have been calculated based on data contained in the SDR have the opportunity to review and subsequently challenge and/or correct the results? Please explain why or why not." As a matter of due process, such a process should be created for those cases of SDR miscalculation, presumably due to automated system malfunction. But practically speaking, if the non-reporting (to the SDR) counter party reports its swaps data accurately and completely to the RCP, which in turn reports accurately and completely to the SDR, there will likely be few cases in which a counterparty will need to challenge the accuracy or completeness of SDR calculated positions. Nevertheless, especially following extreme market events, such a process will be needed if automated herd behaviors result in price and trading volume and patterns that SDR systems are not able to process in near real time, even with the aid of Swaps Execution Facility circuit breakers.

The NPRM asks: "(14) Are there specific reports or sets of data that the Commission should consider obtaining from SDRs to evaluate systemic risk or that could be used for prudential supervision? Are there any other reports or sets of data that the Commission should consider obtaining from SDRs that would not be included in the categories listed in proposed § 49.13(a)(1)? Please be specific" (FR 21059). While central banks have begun to study damages results from the increasing frequency and intensity of extreme weather events as a major source of systemic financial risk,<sup>16</sup> more than one third of the world's largest banks, most of them with large swaps portfolios, have not disclosed even a general

description of their climate related financial risks.<sup>17</sup> Unlike non-financial corporations that are subject to investor pressure for failing to disclose the climate related financial risks and their risk reduction plans along their supply chains<sup>18</sup>, central bank backed major financial institutions are under less pressure to become more climate resilient in their operations, portfolio investments and the activities of their foreign subsidiaries.

Instead of becoming more client resilient, U.S. banks are taking a business as usual approach — offloading their climate vulnerable mortgage loan risks on to the U.S. government and taxpayers.<sup>19</sup> The Commission should issue a special call to SDRs to report the quantity and quality of mortgage swaps risks of RCPs for both residential and commercial property. The CFTC's Market Risk Advisory Committee subcommittee on climate related financial risk could, among the actionable materials it produces, provide recommendations for the Commission staff on how to analyze the special call data. IATP has advocated that the MRAC subcommittee make recommendations for a 360-degree Commission staff review of the climate related financial risk in both the underlying and the derivatives of all Commission regulated asset classes.<sup>20</sup> A staff study on climate related financial risks in mortgage derivatives, drawing on SDR data, would help the Commission evaluate systemic risk in that asset class. The study could serve as a template for other studies covering climate related financial risk in other asset classes. The Commission could use these studies as a basis for new rulemakings regarding climate related financial risk in the derivatives market.

#### *Chief Compliance Officer*

Commissioner Rostin Behnam's Statement of Concurrence draws attention to a few instances where the NPRM differs from the Commodity Exchange Act, Section 21 description of the duties of the Chief Compliance Officer (CCO) (FR 21117, Appendix 3). For example, the NPRM would change the language of the statute requiring the CCO to resolve "any conflicts of interest that may arise" to "any material conflicts of interest" to "reduce burdens" presumably administrative and legal (FR 21088). The conflicts of interest that CCOs are required to resolve concern compliance matters which may or may not have a material impact on the SDR. Indeed, the determination of materiality is a function for the senior officer and/or the board. Because there is no statutory basis for the proposed variance from statute, IATP recommends that it be deleted.

Similarly, the NPRM would change the statutory language of the conflict of interest provision:

By changing the requirement from "resolving any conflicts of interest that may arise" to "taking reasonable steps . . . to resolve any material conflicts of interest that may arise," an SDR's CCO would not need to spend resources to address every conceivable conflict of interest and can instead concentrate resources on resolving conflicts of interest that have a material effect on an SDR's operations.

The Commission does not expect the SDRs to incur any significant costs as a result of these proposed changes (FR 21088).

The statutory language does not indicate or imply that the range of conflicts of interest that a CCO might have to resolve would be reduced to conflicts that have a major financial impact on the SDR. Adding “taking reasonable steps” weakens the statutory language for no discernable purpose except to allow the SDR to “not spend resources on every conceivable conflict.” Who determines what are “reasonable steps”? The senior officer? The board? IATP urges the Commission to eliminate from the NPRM any language that would reduce the authority and obligations of the CCO with the justification of saving the SDR money and staff time.

### *Conclusion*

Verification of the accuracy and completeness of swaps data, reported in a standardized format and with record keeping standards and infrastructure to enable analysis of market trends and market events, is the bedrock a well-functioning and well-regulated swaps market. It is mission critical for the Commission to work with SRDs and market participants to ensure that there never be a repetition of the major financial institution crisis of 2007-2008, during which much of the swaps market was dark to regulators, to market participants and the public. IATP looks forward to commenting on the next two proposed rules governing SDRs and hopes that the comments above will assist the Commission in finalizing these rulemakings.

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<sup>1</sup> <https://www.cftc.gov/sites/default/files/2019/05/2019-08788a.pdf>

<sup>2</sup> IATP is a nonprofit, 501(c)(3) nongovernmental organization, headquartered in Minneapolis, Minn., with offices in Washington, D.C. and Berlin, Germany. IATP has participated in the Commodity Markets Oversight Coalition (CMOC) since 2009, and the Derivatives Task Force of Americans for Financial Reform since 2010. IATP has submitted several comments on CFTC rulemaking, and on consultation papers of the International Organization of Securities Commissions, the European Securities and Markets Authority, and the European Commission’s Directorate General for Internal Markets.

<sup>3</sup> <https://comments.cftc.gov/PublicComments/CommentList.aspx?id=765>

<sup>4</sup> <https://comments.cftc.gov/PublicComments/ViewComment.aspx?id=62043&SearchText=Institute%20for%20Agriculture%20and%20Trade%20Policy>

<sup>5</sup> [https://www.cftc.gov/sites/default/files/idc/groups/public/@newsroom/documents/file/specifications\\_swapdata122215.pdf](https://www.cftc.gov/sites/default/files/idc/groups/public/@newsroom/documents/file/specifications_swapdata122215.pdf)

<sup>6</sup> <https://www.cftc.gov/MarketReports/SwapsReports/Archive/index.htm>

<sup>7</sup> [https://www.cftc.gov/sites/default/files/idc/groups/public/@newsroom/documents/file/dmo\\_swapdata\\_plan071017.pdf](https://www.cftc.gov/sites/default/files/idc/groups/public/@newsroom/documents/file/dmo_swapdata_plan071017.pdf)

<sup>8</sup> Ibid. Slide 2.

<sup>9</sup> Paul E. Peterson, “How Large Is the Agricultural Swaps Market?” NCCC-134, April 2014, at 2, footnote 4. [https://legacy.farmdoc.illinois.edu/nccc134/conf\\_2014/pdf/Peterson\\_NCCC-134\\_2014.pdf](https://legacy.farmdoc.illinois.edu/nccc134/conf_2014/pdf/Peterson_NCCC-134_2014.pdf)

<sup>10</sup> Ibid. at 4.

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<sup>11</sup> Ibid. at 4.

<sup>12</sup> Steve Suppan, “Agricultural swaps: a small boat on a vast financial data sea,” Institute for Agriculture and Trade Policy, September 5, 2012. <https://www.iatp.org/blog/201209/ag-swaps-a-tiny-boat-on-the-vast-financial-data-sea>

<sup>13</sup> Claudio Borio, Robert McCauley and Patrick McGuire, “FX swaps and forwards: missing global debt? *BIS Quarterly Review*, September 2017, at 37. [https://www.bis.org/publ/qtrpdf/r\\_qt1709e.pdf](https://www.bis.org/publ/qtrpdf/r_qt1709e.pdf)

<sup>14</sup> Wallace Turbeville and Dennis Kelleher, Better Markets, February 2011, at 2-3.

<https://bettermarkets.com/sites/default/files/documents/CFTC-%20Comment%20Letter-%20Real-Time%20Data%202-7-11.pdf>

<sup>15</sup> Robin Wigglesworth, “Why hedge fund managers are happy to let the machines take over,” *Financial Times*, October 16, 2019. <https://www.ft.com/content/338962c0-eeaf-11e9-ad1e-4367d8281195>

<sup>16</sup> Gillian Tett, “Central banks tuning in to climate change,” *Financial Times*, October 17, 2019.

<https://www.ft.com/content/e99d9b56-f0d2-11e9-ad1e-4367d8281195>

<sup>17</sup> David Crow, “Third of banks fail to sign up to climate initiative,” *Financial Times*, October 14, 2019.

<https://www.ft.com/content/0eec5a1e-ee99-11e9-ad1e-4367d8281195>

<sup>18</sup> “Group of 88 investors targeting 700 companies for not reporting environmental information,” Climate Disclosure Project,

June 17, 2019. <https://www.cdp.net/en/articles/media/group-of-88-investors-target-over-700-companies-for-not-reporting-environmental-information>

<sup>19</sup> Christopher Flavelle, “Climate Risk in the Housing Market Has Echoes of Subprime Crisis, Study Finds,” *The New York Times*, September 30, 2019. <https://www.nytimes.com/2019/09/27/climate/mortgage-climate-risk.html?searchResultPosition=1>

<sup>20</sup> <https://www.iatp.org/documents/market-risk-advisory-committee-meeting-agenda-item-climate-related-financial-risk>