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August 4, 2014

Melissa Jurgens, Esq.
Secretary
Commodity Futures Trading Commission
Three Lafayette Centre
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Submitted via www.cftc.gov

Dear Ms. Jurgens,

We welcome the Commodity Futures Trading Commission ("CFTC" or "Commission") Technology Advisory Committee's ("TAC") solicitation of comments regarding its development of a 21st Century surveillance system. We commend the TAC on initiating a dialogue with the industry on how the Commission should develop a new surveillance system designed to meet the Commission's vastly expanded responsibilities and appreciate the opportunity to provide our recommendations.

Markit is a provider of financial information services to the global financial markets, offering independent data, valuations, risk analytics for internal capital models, and related services across regions, asset classes and financial instruments. Our products and services are used by numerous market participants to reduce risk, increase transparency, and improve the operational efficiency in their financial markets activities.[1]

Markit has been actively and constructively engaged in the debate about regulatory reform in financial markets, including topics such as the implementation of the Pittsburgh G20 commitments for OTC derivatives and the design of a new regulatory regime for benchmarks and indices. Over the past years, we have submitted more than 100 comment letters to regulatory authorities around the world and have participated in numerous roundtables. We also regularly provide the relevant authorities with our insights on current market practice, for example, in relation to valuation methodologies, the provision of scenario analysis, or the use of reliable and secure means to provide daily mid-market marks. We have also advised regulatory authorities on appropriate approaches to enabling a timely and cost-effective implementation of newly established requirements through the use of multi-layered phase-in or by providing participants with a choice of means for satisfying regulatory requirements.

Most relevant for the purpose of this letter, Markit has advised and developed products for financial regulators. Markit's data and other services are widely used by regulatory authorities around the globe for numerous purposes, including market surveillance, data management, and systemic risk analysis. In the CFTC's case, the

[1] Please see www.markit.com for further information.

scope of its surveillance duties presents unique challenges. We hope that the Commission finds these comments of use as it plans its strategy for creating a 21st Century surveillance system.

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We understand that the CFTC's "market surveillance program's primary mission is to identify situations that could pose a threat of manipulation and to initiate appropriate preventive actions."[2] The CFTC's risk surveillance program mission is "to identify large traders whose positions may pose financial risk to the industry or a clearing firm, analyze an owner's holdings and project the effect of market moves on these holdings, perform 'what if' stress testing and risk scenarios to determine the effect of market movement on margin, and evaluate overall portfolio risk under different market conditions."[3]

We have three general recommendations relating to how the Commission should adapt its market and risk surveillance mission to the post-Dodd-Frank derivatives markets it now oversees, as discussed in further detail below:

- First, the Commission develop a risk surveillance system that can monitor and visualize systemic risk across the over-the-counter ("OTC") swaps market based on rigorous stress tests and the interconnection of risk across the derivatives market.

- Second, the Commission's surveillance system should consider the profit and loss performance of firms or desks or particular trader(s) in order to better understand novel trading techniques that are unusually successful, e.g., certain high-frequency trading ("HFT") trading strategies, or to identify potential market abuse.

- Finally, the Commission should adopt up to date enterprise data management ("EDM") solutions in order to be capable of managing disparate sources and forms of raw data and information and using it to produce useful, actionable, and reliable market and risk surveillance information.

1. Systemic Risk Surveillance

We recommend that the Commission develop a risk surveillance system that can monitor and visualize systemic risk across the swaps market based on rigorous stress tests and the interconnection of risk across the derivatives market. The CFTC has a considerable challenge: utilizing the currently non-standardized raw swap data it receives in order to perform risk surveillance. As it considers how to perform this risk surveillance, it should be cognizant of the fact that risk surveillance in the OTC swaps markets present considerable challenges that are not present in the futures market. Below, we provide three key characteristics of the swap markets that we recommend that the Commission consider as it develops a new risk surveillance system.

First, representing risk in swap markets is complex. In order to encourage competition for execution and clearing services, Congress prescribed that clearinghouses were to provide open access for swap clearing.[4] This means numerous execution venues submit trades to numerous clearinghouses, in contrast to the vertically integrated swaps market. Moreover, many swaps are transacted bilaterally or OTC and are not cleared. The CFTC therefore receives data from counterparties directly, swap execution facilities ("SEFs"), and clearinghouses. This

[2] CFTC Market Surveillance Program, http://www.cftc.gov/IndustryOversight/MarketSurveillance/CFTCMarketSurveillanceProgram/index.htm (last visited July 30, 2014).

[3] FY 2014 President's Budget and Performance Plan, Mission Activities: Surveillance, Including Data Acquisition and Analytics, http://www.cftc.gov/reports/presbudget/2014/2014presidentsbudget020203.html.

[4] Commodity Exchange Act section 2(h)(1)(B)(ii)(B)'s (as amended by Dodd–Frank Wall Street Reform and Consumer Protection Act ("Dodd-Frank Act") section 723) open access requirement states that DCOs must "provide for non-discriminatory clearing of a swap (but not a contract of sale of a commodity for future delivery or option on such contract) executed bilaterally or on or through the rules of an unaffiliated designated contract market or swap execution facility."

also means that risk is shared among market participants directly and between market participants and clearinghouses. This complexity has presented the Commission with challenges in data standardization that the Commission is currently dealing with in a separate workstream.[5]

The complexity of the swaps market also makes data visualization an important consideration in determining how swap data should be represented to CFTC risk surveillance analysts. This data visualization should allow surveillance analysts to easily and intuitively identify potential sources of risk contagion and the impact of such risk contagion across the OTC market. Swap data should be presented reflecting both static data (e.g., reflecting reporting entity-provided valuations) and should also be presented after performing stress tests.

Risk surveillance stress tests should be able to simulate the effect of a default on cash flows. We recommend that a risk surveillance analyst should be able to visualize all swap-related cash flows for a given stress scenario and be able to quickly pinpoint the entities that have positions that significant that they could trigger systemic implications. The Commission's risk surveillance system should then allow the Commission to drill down into those entities' related positions and transactions.

Second, the Commission should develop stress tests and stress functionality appropriate for swap portfolios. Stress testing in an OTC swaps context involves a considerable degree of complexity and requires access to reliable pricing data. Stress test programming should take into account the interplay of prices. For example, a stress test of an OTC portfolio that involves the default of a sovereign should take into account not just the cash flows that such a sovereign default credit event would have on credit default swaps ("CDS") that are referencing such sovereign, but should also consider the likely (i.e. correlated or simulated) knock on effects on swaps that do not directly reference this sovereign, including, as appropriate, CDS spreads of corporates or financials based in or having significant exposure to this country, interest rates, foreign exchange rates, and even commodity position values and therefore cash flows. In addition, CFTC risk surveillance analysts should be able to easily create stress test scenarios through an intuitive stress test customization module.

Third, the Commission's risk surveillance system should be capable of generating a flexible combination of risk measures for OTC derivatives portfolios including:

- Market Risk Measures including VaR (Value at Risk) and ES (Expected Shortfall)

- Credit Risk Measures including regulatory calculations as required in the Basel III framework and xVA calculations including CVA, DVA, FVA and KVA to capture the bilateral risk of OTC exposures. It is important that the solution also offers flexibility to add new measures in the future and that they reporting of these measures are flexible and tied to the EDM system for maximum flexibility in result aggregation dynamically based on different data tags.

These figures should be calculated using objective pricing data (i.e. not just the prices that were generated by the reporting entities). Threshold levels for a portfolio based on these measures or high day-over-day volatility of them would give risk surveillance analysts an indication of a potentially problematic positions in a swaps portfolio, e.g., of the sort most recently highlighted by the Senate Permanent Sub-Committee on Investigations' 2013 report on "JPMorgan Chase Whale Trades: A Case History of Derivatives Risks and Abuses."[6] It is important

[5] Review of Swap Data Recordkeeping and Reporting Requirements, 79 Fed. Reg. 16,689 (Mar. 26, 2014), available at http://www.cftc.gov/ucm/groups/public/@lrfederalregister/documents/file/2014-06426a.pdf.

[6] Automated risk surveillance triggers based on either high VaR levels or day end volatility could have alerted the CFTC to scenarios like the "London Whale," based on the Senate Permanent Sub-Committee on Investigations' 2013 report. See JPMorgan Chase Whale Trades: A Case History of Derivatives Risks and Abuses, March 15, 2013, http://www.hsgac.senate.gov/download/report-jpmorgan-chase-whale-trades-a-case-history-of-derivatives-risks-and-abuses-march-15-2013. "Beginning in January [2012] and continuing through April, [JP Morgan's Chief Investment Office's Synthetic Credit Portfolio's] high risk acquisitions triggered multiple breaches of [JP Morgan's Chief Investment Office's] risk limits, including its VaR, credit spread, stress loss, and stop loss limits." Id. at 9.

that thresholds can be set to enable exception reporting on an automatically basis to aid the enforcement process.

We also note that a well-designed risk surveillance system can also be used to detect potentially problematic trading activity that would be of interest in a market surveillance context. For example, a large VaR exposure to a given index settlement date price could be indicative of an attempt to manipulate a market. As such it could serve as the basis for a Commission regulation 18.05 special call or, depending **on** the existence of additional information indicating the existence of a possible manipulative scheme (e.g., concentrated trading in a related price discovery instrument), a Commission enforcement investigation.

Finally, we recommend that the Commission should begin deploying its systemic risk surveillance system in asset classes, such as credit, where data standardization is relatively more advanced. The use of EDM solutions, discussed below in section 3 of this comment letter, would enable the Commission to extend the same systemic risk surveillance model to other asset classes as it will make the data in those other asset classes more useable.

2. Detecting Market Abuse and Understanding Particular Trading Practices

We recommend that the Commission's surveillance system should consider the profit and loss (P&L) performance of firms or desks or particular trader(s) ("traders" collectively) in order to identify potential market abuse or to understand trading techniques that are unusually successful. Unnaturally consistent or large profits generally indicate the presence of phenomena which should be of interest to the Commission's market surveillance program. First, unnaturally consistent or large profits could be indicative of manipulation, front running, disruptive trade practices, or other forms of market abuse. Second, consistent or large profits could indicate a certain form of trading with a systematic advantage, e.g., certain HFT strategies. By identifying traders that engage in such permitted but advantaged trading activities, the Commission can gain a better understanding of the markets, enabling it to formulate more appropriate policy.

Unusually successful traders are likely to be lucky, skilful, or engaging in some kind of manipulative activity. By focusing on performance, the CFTC can identify potentially problematic trading or evaluate claims that a trader is hedging a derivatives portfolio (additional data not available to the Commission would be needed to evaluate whether a trader may be hedging a cash portfolio in an economically appropriate way).

P&L-based metrics have been successfully used to identify instances of problematic or advantaged trading. Markit has created a suite of trader profiling metrics which, among other things, quantitatively identified a trader's edge over the market and the likelihood that their performance could be achieved simply by chance. One of these metrics, called "Skill" measures a trader's edge over the market. Another metric, "P&L Asymmetry," may be defined as the relative size of winning trades to losing trades on a risk adjusted basis that is more than two standard deviations away from the expected mean. These metrics have been used by banks, hedge funds, asset managers and energy majors to identify possible rogue trading or legally permitted trading strategies that enjoy a systematic advantage that can then be replicated by the firm elsewhere. We note finally that Markit has also utilized these metrics with certain U.S. and foreign regulators to successfully identify cases of market abuse including front running and insider trading that are currently in the process of investigation and enforcement.

3. Enterprise Data Management

We recommend that the Commission adopt an EDM solution in order to manage the numerous disparate sources of raw data and information it acquires in order to produce useful, actionable, and reliable surveillance information. EDM may be defined as an organization's ability to effectively acquire, integrate, disseminate, create and manage data for all enterprise-level purposes. The main purpose of EDM is the prevention of enterprise-level inefficiencies that result from the mismanagement of data through structured input data acquisition and output delivery - from disparate sources of data through to the data consumer (i.e. Commission

surveillance staff). Below we describe (a) our understanding of the Commission's considerable data management challenge and (b) the use of EDM as a means to address these challenges.

a. The Commission's Data Management Challenge

The CFTC's post-Dodd-Frank surveillance duties are vast in scope and the challenges of meeting the Commission's oversight goals are considerable. Prior to the Dodd–Frank Wall Street Reform and Consumer Protection Act ("Dodd-Frank"),[7] the CFTC's market and risk surveillance programs utilized transactional and position futures and significant price discovery swap data and related information obtained under parts 15, 16, 17, 18, 19, and 21 of the CFTC's regulations from exchanges, clearing members, futures commission merchants (FCMs), foreign brokers, and traders. Before Dodd-Frank the CFTC also utilized commodity index data received pursuant to a Commission regulation 18.05 special call, as well as data from other sources, including other regulators and data and other information obtained voluntarily. In addition to these surveillance data inputs, the Commission now also obtains additional data, including swap-related data pursuant to parts 20, 43, 45, and 46.

Data from different sources (e.g., large trader position data, transaction-level data, Form 40 information), while not in the same format, could be relatively easily compiled and analyzed on an ad hoc basis (e.g., through SAS programming) because fundamentally, the underlying data was standardized and relatively simple. For example, a futures position data record contains 14 different data fields and could easily be aggregated to generate positions for a large trader in one contract or across different contracts or analysed after certain triggers, e.g., suspicious transaction-level futures data, were identified.[8]

Swaps data is generally more complex. A part 20 large swap position record contains 23 different data fields and a part 45 swap reporting transaction record can contain over a hundred data fields. Adding to this complexity, is the fact that the Commission's swap reporting rules have been interpreted differently by market participants and other reporting entities (e.g., swap execution facilities, derivatives clearing organizations, swap dealers, etc.). The variation in reporting formats aside, the sheer volume of these data is daunting. For example, the CFTC obtains over 16 million futures and swap position records on a daily basis, 240 million time and sales futures records (top of the order book), and 10 million intraday futures trades and swap event records.[9]

b. Addressing the Commission's Data Management Challenge

Based on our experience in helping clients manage multiple data sources we recommend that the Commission should avoid implementing a data management solution dependent on rigid data models and heavy reliance on ad hoc adjustments to new data sources, processes, workflows, validation and interfaces. We believe that the Commission's surveillance duties require a flexible data architecture that can quickly and effectively process new sources of data regardless of data type in order to generate outputs useful to CFTC surveillance staff. The Commission should therefore implement a flexible, component-based EDM architecture allowing the Commission to configure the technology to fit its needs. This is discussed in further detail below:

- Embrace a modern system architecture by utilizing a component approach. Such components are designed to perform a specific function or address a specific problem. They allow complex problems to be solved by breaking them down into their "component" parts and addressing each individually.

- Components are designed with integration in mind - integration with each other and with existing client systems. Each component embodies the specialist business knowledge required to resolve a specific business issue.

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[7] Pub.L. 111–203, H.R. 4173 (July 21, 2010).

[8] Large Trader Record Format, http://www.cftc.gov/IndustryOversight/MarketSurveillance/LargeTraderReportingProgram/ltrformat.

[9] CFTC Data Landscape and Update on Joint Efforts on Data Quality, http://www.cftc.gov/ucm/groups/public/@newsroom/documents/file/tac060314_dataoverview.pdf (June 3, 2014).

- Components allow for data lineage and transparency, eliminating the usual data stewards concerns about knowing the source of data, what transformations may have occurred and who has touched the data.

- Components for a data management platform would cover key areas such as Data Sourcing, Data Matching, Data Inspections, User Interface, Workflows and Data Delivery

i. Data Validation, Enrichment and Cleansing, Rules Definition and Golden Records

One challenge the Commission is facing with data it receives relates to its reliability. The Commission could minimize the downstream negative impact of unreliable data by introducing effective data validation processes. The Commission's EDM solution should develop validation procedures based on technical and business rules (e.g., comparisons with previous day's data, range and value checking, compare data from multiple sources), exception processing by surveillance analysts with support for user overrides on suspect data. Specific features in the data validation area include:

- Performing rules-driven processes

- Reformatting imported data to a common format

- Translating values

- Performing table lookups to obtain valid data range/values for fields

- Routing exceptions to exception queues

- Providing pre-configured validation rules for key sources and validate values against previous day's data, a benchmark's values, or against other data.

- Treating rows in the data differently based on underlying data, for example, treating a part 20 swap record differently than a part 45 swap record

The Commission's solution should provide the ability to create one or more golden records based on the outcome of data validation procedures that is separate from the raw input data acquired.

In order to control and manage data imports and exports, the Commission should define behavior for data mapping and transformation, validation checks, exception processing, and export. The solution must be simple and easy to use to facilitate on-going changes. The tools should allow:

- A web-based User interface for setting up rules with an intuitive user interface

- A facility to validate a rule or rules after they have been applied to data sets

- A mechanism to test a new rule and promoting rules to production

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Markit appreciates the opportunity to comment on the Commission's request for comment. We would be happy to elaborate or further discuss any of the points addressed above. In the event you may have any questions, please do not hesitate to contact the undersigned or Salman Banaei at salman.banaei@markit.com.

Yours sincerely,

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CC:

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