



OFFICE OF FINANCIAL RESEARCH

**FINANCIAL RESEARCH
ADVISORY COMMITTEE**

**Summary Minutes of the
Department of the Treasury
Office of Financial Research (OFR) FINANCIAL RESEARCH ADVISORY
COMMITTEE
Public Meeting
July 24, 2014**

Committee Members Present

Lewis Alexander, Chair
David Allen
Michael Atkin
Peter Cherasia
John Campbell
Lou Crandall
Suzanne Christensen
Stephen Daffron
Jean Pierre-Fouque
Charles Goodhart
Stacey Goodman
Ben Golub
Beth Hammack
Trevor Harris
Maurine Haver
Simon Johnson
Don Kohn

Anil Kashyap
Darryll Hendricks
Ron Jordan
Andy Kuritzkes
Andrew Lo
Andrew Metrick
David Puth
Peter Serenita
Prakash Shimpi
Damon Silvers
Chester Spatt
Lynn Stout
Ken Traub
Kay Vicino
Nancy Wallace
Tom Whipf

Committee Members Absent:

Rob Engle
Anna Ewing
Clinton Lively
Steve Galbraith

Jim Northey
Robert Merton
Maureen O'Hara

Date and Time: July 24, 2014 – 9:45 a.m. to 12:15 p.m. & 1:15 p.m. to 3:00 p.m.
(EST)

Location: Federal Reserve Bank of New York – 33 Liberty Street NY, NY 10045

Purpose: Public Meeting



**Summary Minutes of the
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OFR Staff:

Richard Berner, Director
Andrea Ianniello, Designated Federal Officer
Trish Mosser, Deputy Director, Research & Analysis
Linda Powell, Chief Data Officer, Data & Analytics
Richard Bookstaber, Senior Researcher

Morning Session

Welcome and Opening Remarks:

The Office of Financial Research's (OFR) Designated Federal Officer (DFO), Andrea Ianniello, began the fourth bi-annual Financial Research Advisory Committee (FRAC) meeting by greeting all the attendees and welcoming the eleven new Committee members.

The President of the Federal Reserve Bank of New York, William Dudley, welcomed the OFR and FRAC members and introduced the Director of the OFR, Dick Berner.

Dick Berner gave his opening remarks by thanking event participants, which included current members, the eleven new members, and the ten members finishing their service. Additionally, the Director listed a number of the OFR's accomplishments, which included: Legal Entity Identifier (LEI), the project with the U.S. Commodity Futures Trading Commission (CFTC) surrounding Swap Data Repositories (SDRs), four published OFR working papers, OFR staff discussion papers, and the co-sponsorship of a conference on Financial Stability at the Massachusetts Institute of Technology (MIT).

The members that were present introduced themselves and Andrea Ianniello then presented the day's agenda.

OFR Report on past FRAC Recommendations:

OFR Deputy Director for Research and Analysis, Trish Mosser, briefed the FRAC on OFR progress on the three Research recommendations put forth in February 2014: Accounting Expertise, Forensic Investigation Capability, and Insurance recommendations.



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Director Berner briefed the FRAC on the progress the OFR has made on the three past Financial Services and Risk Management (FSRM) recommendations put forth in February 2014: the Liquidity and Funding Map, Macro-Prudential Stress Testing, and Business Models and Corporate Governance recommendations.

Linda Powell, Chief Data Officer of the OFR's Data and Analytics Division, provided an update to FRAC members on the three recommendations put forth in the February 2014 meeting by the Data and Technology Subcommittee (DTS). The first recommendation pertained to the progress on the Global Legal Entity Identifier. The second recommendation she addressed was the Instrument Reference Database that the OFR is mandated to fulfill. The third recommendation pertained to SDRs and how the OFR can help standardize these data.

Subcommittee Recommendations and Committee Discussion:

The chair of the Research Subcommittee, Anil Kashyap, addressed the full FRAC on the group's recommendations and its future agenda. Kashyap spoke about OFR's grant program and how it is incumbent on subcommittee members to promote the program to graduate students and faculty. Secondly, Kashyap detailed how the Research Subcommittee will contribute in the future by providing expertise on specific issues identified by the OFR. He used the cross Subcommittee working group on capital incentives, between Research and Financial Services Risk Management (FSRM), as an example of this endeavor.

Andy Kuritzkes, the chairman of the FSRM, presented an update on the Subcommittee's current work agenda. Kuritzkes first noted that the FSRM remains engaged in its previous recommendations and encouraged work to continue on the Governance and Risk Management recommendation, while also highlighting the current model of collaboration between FSRM members and the OFR in completing the FRAC recommended funding and collateral maps. Looking forward, the current book of work for the FSRM consists of three separate work-streams:

1. The capital incentives project, collaboration with the Research subcommittee, aims to track differential impacts and incentives that arise from overlapping capital requirements such as Basel III and CCAR.



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2. An operational risk project that is considering how to narrow the scope of the topic to a tractable problem statement. At present the FSRM considers operational risk to consist of execution risks, legal /fiduciary risks, and technology/cybersecurity risks; the latter of which has been identified as the most systemically relevant. The project is still in a formative stage and no recommendation is pending.
3. A discussion on the impacts of distressed markets on funding and liquidity. The topic was adopted for structured discussion later in the meeting, and so comments were reserved for that later period.

Michael Atkin, chairman of the Data and Technology Subcommittee, updated FRAC on the current focus of DTS. He opened by stating that the group's main effort is on the underlying infrastructure needed for financial data management. For instrument identification, he stated that the terms of the contract define the means of identification. In addition, DTS is focusing on unraveling mortgage and asset backed securities to gain further insight into securitization problems. Secondly, Atkin discussed the DTS interest in entity identification. The description of a contract, or common financial language, is the third area that Atkin discussed. The focus on this initiative is the adoption of an ontology to help the OFR fulfill its Instrument Database obligation. Lastly, he described how DTS is assisting the OFR with all the infrastructure standards and its application in the real world by developing a business case.

Peter Cherasia introduced the group's recommendation:

Proposal for an Ontology Viability Project Recommendation

The DTS recommended that the FRAC consider a recommendation for the OFR to launch a proof of concept to evaluate how an ontology for interest rate swaps and corporate entities can contribute to the data quality work with CFTC on SDRs. A copy of the recommendation forwarded by the subcommittee is included as Attachment A. Cherasia stated that if the project proves to be successful, it would be a good indication to the OFR that using an ontology will help in their mission of making financial data more coherent and in publishing an instrument database. Cherasia stated that DTS recommendation suggests that the OFR focus on interest rates swap because it will help the OFR develop a viable approach for solving existing data challenges associated with an important asset class of derivative transactions Cherasia stressed



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that the subcommittee feels that the OFR should work with real world data and a credible third party for additional resources in order to conduct the viability project.

Committee Recommendations Vote:

Chairman of the FRAC, Lewis Alexander, called for a vote on the recommendation. The Proposal for an Ontology Viability Project recommendation was unanimously adopted and put forth to the OFR.

Afternoon Session

OFR and Committee Discussion – Metrics Needed to Measure the Swaps Market:

Linda Powell began the discussion by describing the large amounts of data collected by swap data repositories and the importance of assessing the data needs of both regulatory and market participants. Powell explained that better reports and metrics need to be in place to look for systemic risk in swaps data market. Currently, the data collected in SDRs is not consistent and very fragmented. Thus, issues arise when trying to aggregate and compare these data. Powell then welcomed open dialog from committee members on the topic of the swaps market. FRAC members felt that one of the biggest issues with standardization is the failure in identifying use cases of data in SDRs. With respect to transparency and risk measures, there was agreement across the FRAC that there is a need for identifying netted exposures and ultimate counterparties of transactions. FRAC members also suggested that identifying the interconnectedness of entities would produce both qualitative and quantitative measures to measure the financial stability of the swaps market. In addition, there was agreement amongst the group that the data attributes within the SDRs needed to measure systemic risk must be identified and agreed upon by both regulators and industry.

OFR and Committee Discussion – Liquidity and Market Impact during Stress Events:

OFR Senior Researcher Rick Bookstaber opened the discussion of liquidity supply during periods of crisis by describing the potential for a liquidity trap initiated and reinforced by negative price actions. The hypothesis presented was that a coupled pricing and illiquidity spiral may be triggered in a time of crisis: leveraged actors may be forced to liquidate while timely and



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sufficient liquidity may not be forthcoming from the market, causing prices to drop further, leading in turn to further margin calls and yet further liquidation requirements. In effect, insufficient initial liquidity may invert the classically anticipated result of lower prices bringing more buyers to the market and attenuating selling, to instead lead to even further selling as participants must meet margin calls. The net result is an unstable system susceptible to a positive feedback loop that causes violent price actions and turmoil.

Broad agreement with the model was evidenced by the FRAC with numerous comments from members supporting the general form of the feedback loop, and its potential repercussions.

FRAC members did offer commentary on a few specifics of the model. As a starting point for considering the model a foundational discussion was held on the precise definition of liquidity. With this definition in hand the problem characterization moved predominantly to establishing what might cause contingent liquidity to evaporate during periods of stress and trigger a spiral. Ultimately, many types of market behaviors that may exacerbate liquidity issues during times of stress were offered.

Public Adjournment:

Andrea Ianniello, DFO, thanked the Committee members for their time, effort, and participation.

Dick Berner, Director of the OFR, gave his final remarks by thanking outgoing Committee members for their service and encouraging them to remain involved in FRAC.

Andrea Ianniello adjourned the meeting at 3 p.m.

Attachment A
Proposal for an
Ontology Viability Project
July, 2014

The OFR has statutory mandates to improve the quality and scope of financial data and to “prepare and publish” a financial instrument database. Developing and implementing data standards and the conceptual framework to organize financial data will promote achieving those related mandates.

Two OFR initiatives will further those efforts. First, the OFR is working with the Commodity Futures Trading Commission (CFTC) to improve the quality of data on derivatives transactions that are being provided through swap data repositories (SDRs), as mandated by the Dodd-Frank Act. In addition, the OFR is exploring ways to evaluate the recommendation of the Financial Research Advisory Committee (FRAC) to consider a comprehensive ontology for financial instruments as part of the overall financial instrument database effort.

These two efforts are related. The challenges facing SDRs are, in critical ways, a particular version of the the broader problem the OFR faces regarding its obligation to publish an instrument database. Strategies that are helpful in improving the data provided through the SDRs should help inform the OFR’s choices regarding its instrument database mandate.

Over the last several years private sector groups have been working to develop an operational ontology for financial instruments, business entities and associated analytic tools. An ontology is just a set of agreed upon definitions of the key characteristics of financial contracts—the organizing framework that incorporates the data standards into a coherent whole, and helps relate instruments to each other. That work is already well advanced for interest rate swaps and business entities (counterparties). This represents an important opportunity for the OFR. We believe that the existing ontology for interest rate swaps and counterparties can contribute to improving the data provided through SDRs and tell us a lot about what ontologies can, and can not, contribute to the OFR’s broader data standards mandate.

The Financial Research Advisory Committee recommends that the OFR launch a “proof-of-concept” project to evaluate how this standard ontology for interest rate swaps and business entities can contribute to the work that the OFR is doing with the CFTC to improve the data provided through the SDRs. If this ontology project proves useful in this context, this should be a good indication of the practicality of using ontologies for the OFR’s wider objective of making financial data more coherent, including its mandate to publish an Instrument Database.

Market participants are providing a tremendous amount of information to the SDRs. The first order problem is to get the most out of that information. The first step in the proposed project would be to align the information that is already being provided to SDRs to an existing ontology. That is, to associate a validated set of precise definitions to the data fields that are already being provided to the SDRs.

If that can be done it will be possible to better assess what sorts of aggregate information can, and can not, be efficiently and accurately generated from the data that is already being provided

Attachment A

to the SDRs. Note that flexible analytic techniques can be applied to data that is structured in a standard ontology language and that should make it easier and far more efficient to generate aggregate statistics and to perform flexible queries on the data.

In order to meet the need for consistent, meaningful, and high-quality data on derivative positions it is likely that greater degree of harmonization in the data collected by different SDRs will be needed. One of the primary objectives of the project should be to assess whether or not existing ontologies can be the basis for consistent and adaptable standards for the data collected by SDRs. This project can contribute not only to the OFR's work with the CFTC but also international initiatives in this area such as the Financial Stability Board's Aggregation Feasibility Study Group's work on indentifying strategies for aggregating data OTC derivatives from trade repositories.

It is also worth noting that attaching precise definitions to the data that is being provided SDRs will also make it easier to carry out data quality checks to help identify inconsistencies and errors in the data that is being provided by market participants to the SDRs.

Doing the analysis to understand what can, and can not, be done with the existing information that is being provided to the SDRs should also help to identify what financial participants need to do to align their internal repositories to common meaning in the data that is reported to the the SDRs. Data standards are an essential element of successful data management systems maintained by individual financial firms. This principle has been recognized by international supervisors and codified in the Basel Committee's "Principles for effective risk data aggregation and risk reporting."¹ A number of financial firms are already aligning their internal data to industry-standard ontologies.

Of course ontologies are not a panacea for all the challenges relating to the data collected by the SDRs. In particular, the development and adoption of robust identifiers for individual transactions will also be critical.

We suggest that the proposed project focus on interest rate (IR) swaps. The focus on IR swaps should help the OFR to develop a viable approach for solving existing data challenges associated with an important set of derivative transactions. We believe that the project should seek to test the value of ontology in addressing the SDR data challenges in the following specific ways:

- Aggregation of data from multiple repositories within and across a broad spectrum of financial institutions
- Classification of the full spectrum of IR swaps into product categories based on the facts about the instrument and align them with existing reporting regimes and taxonomies such as FpML, FIXML and ISO 20022
- Validation that the data being reported about various IR swap types are both complete and structurally accurate across the complete reporting lifecycle (i.e. from internal

¹ See Basel Committee on Banking and Supervision, "Principles for effective risk data aggregation and risk reporting," January 2013.

Attachment A

participant repository → transaction → SDR → reporting to regulatory agency)

- Performing flexible risk queries about such areas as: business entity ownership/control structure; transitive relationships among multiple business entities; concentration and exposure based on role, cash flow, instrument type, asset class, position or country; and the measurement of centrality
- Ease and cost-effectiveness of integrating ontology into existing technology environments
- The generation of reports and visual diagrams to support complex analysis

In order to demonstrate the viability of ontology and related analytic tools in a “real world” environment we strongly suggest the use of “credible” (real) data from an SDR such as DTCC.

We recommend that the OFR work with a credible third party to carry out the project. This is a way to bring additional resources to bear and to get independent judgment on what’s desirable and practical. One option would be to engage MITRE Corporation to carry out the project.² We further recommend that the OFR work with the independent third party to establish objective evaluation criteria based on the above test goals in advance of the third party carrying out the demonstration.

We believe that the proposed project can be completed in a timely way because most of the components of the proposed project are already in an advanced state. The project could utilize:

1. **A business conceptual ontology.** One option would be to use the Financial Industry Business Ontology (FIBO) – an open standard created by the EDM Council under the technical governance of the Object Management Group. The business conceptual ontology for both IR swaps and business entities already exists. The project could ensure the completeness of the BCO for IR swaps by evaluating FIBO against the contractual structure of FpML and other relevant data taxonomies.
2. **Mapping of source(s) to the operational ontology.** FIBO has already been mapped to FpML, one of the primary frameworks in which data is already being reported to SDRs. It would probably make sense to verify the FIBO-FpML mapping and extend the mapping process to include sample sets of data from FIXML, ISO 20022, relational databases or CSV files.

² The MITRE Corporation is a not-for-profit company that operates multiple federally funded research and development centers (FFRDC). FFRDCs work on projects sponsored by government agencies. What sets FFRDCs apart is their freedom from conflicts of interest—they don't profit from the government's decisions – and they are not allowed to manufacture products, compete with industry, or work for commercial companies. These restrictions mean government and industry can provide FFRDCs with sensitive or proprietary information without fear of improper use or disclosure. This allows FFRDCs to help their government sponsors acquire the right technology, objectively assess business processes, and integrate complex systems.

Attachment A

3. **Credible (real) data at scale.** We believe that some credible sources will be willing to participate in the project. One issue that will have to be addressed is access to the data. This could be solved by having the CFTC provide authorization to DTCC (or other SDR) to provide data for this purpose, specifying what data the SDR should provide and to whom.

In conclusion, we recommend that the OFR engage a trusted third party to carry out a project to assess the utility of existing ontologies. This project should serve the dual purpose of: (1) helping the OFR demonstrate viable solutions to existing data challenges associated with derivative reporting; and (2) evaluating the potential of ontology to be part of the answer to OFR's instrument database mandate.



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Dick Berner, Director of the OFR, gave his final remarks by thanking outgoing Committee members for their service and encouraging them to remain involved in FRAC.

Andrea Ianniello adjourned the meeting at 3 p.m.

A handwritten signature in black ink, appearing to read 'A. B. Ianniello'.

A handwritten signature in black ink, appearing to read 'Dick Berner'.