

Data Standardization

A Call To Action

May 2018

Consistent application of financial data and reporting standards within and across jurisdictions remains an important unresolved legacy issue with risk management and financial stability implications. There is a need for the financial services industry, global regulators and other stakeholders to collaboratively build on their progress toward achieving a data standardization framework that addresses current deficiencies and allows innovative new technologies to be adopted. Establishing and implementing a common global language for financial instruments and transactions will create efficiency, reduce costs and result in the improved usability of financial data to create valuable information and manage systemic risk.

To support this effort:

- The Financial Stability Board (FSB) should continue to promote the consistent application of global data and reporting standards across jurisdictions and monitor the progress of adoption
- Individual jurisdictions should evaluate their individual regulatory frameworks to promote common data standards and best practices
- International standard setters such as the FSB and Bank for International Settlements (BIS) should regularly assess, in cooperation with other stakeholders, what additional new global data standards are needed
- The private sector should continue to explore opportunities to drive data standardization in market process and practices both related and unrelated to regulatory requirements

Introduction

The financial crisis of 2008 powerfully exposed operational and regulatory deficiencies across the global financial system. It made it abundantly clear that neither regulators nor financial firms had the tools necessary to quickly and accurately identify and assess the outstanding exposures of and to failing financial institutions as well as specific legal entities within these institutions. Teams of people were needed to identify the parties to transactions with troubled firms, quantify the exposures involved, and unravel a complicated web of financial structures and products. The lack of transparency and time it took to compile usable information hindered the ability of regulators and firms to respond quickly to the crisis. For example, at the time there was approximately \$6.5 trillion of daily turnover in the global foreign exchange (FX) and over-the-counter (OTC) derivatives markets alone, making this no small task.¹

International and national regulators knew this information gap needed to be closed, and the industry agreed. Regulators and the financial services industry had been exploring improvements to data standardization for decades, but it took the crisis to create the imperative and regulatory will to actually make progress. At the G20's 2009 Pittsburgh Summit², the charter of the FSB was strengthened to address the root causes of the crisis and transform the system of global financial regulation. The need for improved data and information was specifically recognized in the FSB and International Monetary Fund (IMF) report on *The Financial Crisis and Information Gaps* (October 29, 2009) where it was noted, "Indeed, the recent crisis has reaffirmed an old lesson—good data and good analysis are the lifeblood of effective surveillance and policy responses at both the national and international levels."

Since the crisis, and notably more recently, progress has been made towards the creation and required use of global data standards to serve the financial markets, particularly in derivatives markets. These data standard initiatives range from creating single elements of reference data such as the Legal Entity Identifier (LEI) to sets of data element definitions for OTC derivatives such as the Committee on Payments and Market Infrastructures (CPMI), International Organization of Securities Commissions (IOSCO) and Critical Data Elements (CDE), to full blown reporting standards such as the FSB's Common Data Templates.

It has been critical for the industry to be part of the standard setting and regulatory processes to ensure regulatory requirements and market practices are well aligned and useable by all participants. There has been a unique collaboration among industry, regulators, and other standard-setting bodies to develop data and reporting standards and to create global systems to manage and maintain the standards.

However, considerable work remains that will require continued cooperation between regulators and the industry as well as regulatory mandates to achieve success. Global financial market participants – public and private side alike – must strengthen their commitment to these initiatives putting aside concerns about short term costs

¹ Daily turnover in foreign exchange markets averaged \$4.3 trillion in April 2007 and daily turnover in OTC interest rate derivatives averaged \$2.2 trillion in April 2007. 2016 Triennial Central Bank Survey – OTC Derivatives and Foreign Exchange; BIS Monetary and Economic Department, September 2016.

² The 2009 G-20 Pittsburgh Summit was the third meeting of the G-20 Leaders to discuss financial markets and the world economy. The G20 officially became "the premier forum for international economic co-operation".

A Case for LEI

Consider a dealer that engages in multiple transactions with a client, ABC Bank. The dealer does not use a consistent naming standard or identifier in its recordkeeping, rather referring to its client three ways: “ABC”, “ABC Bank”, and “ABC Bank NA”. While the dealer has transacted with the same client, this is not evident from the dealer’s records due to the lack of a standardized identification approach, resulting in inefficient operations and potential identification errors.

To address these issues, the G20 asked the FSB to develop an LEI to uniquely identify legal entities that engage in financial transactions. It was clear that the benefits of a common language for legal entity identification would be significant:

- Speed and accuracy in aggregating exposures in a crisis situation
- Operational efficiency in terms of streamlined regulatory and internal reporting
- Improved client service through clearer communication
- More efficient compliance with business protocols like AML and KYC

Since 2014, over 1.1 million LEIs have been issued.

The Global LEI Foundation website has a wealth of information on the global LEI system at GLEIF.org

and effort and agree to adopt global standards for the greater good of the long term benefits to the market and to financial stability that would be achieved.

This article will examine the global imperative for data standardization, highlight the progress made to date, and take a forward look at the opportunities that can be uncovered through more robust data standardization.

Standardization And Harmonization: Is It Necessary?



A lack of data standardization and imprecise regulatory requirements result in inconsistencies in reported regulatory data across jurisdictions and business lines. Other sources of data, such as data provided by vendors, also lack standardization adding to the complexity of data management. All these factors have a significant impact on financial markets and include consequences for both risk management and efficient operational processes. For example, standardized product and contract identification, coupled with a comprehensive set of key data elements and classification in machine-readable form has not yet been adopted in reporting regulations across

the globe adding enormous costs for end-users especially in their portfolio and risk management. Specifically, without standardization of data:

- Identification of parties involved in financial transactions cannot be quickly and accurately accomplished
- Aggregation of exposures by counterparty, product and region is more challenging
- Analysis of financial information is time consuming and inaccurate
- Management of operational risk is more demanding as manual processes are needed to collect, clean, reconcile, and consolidate data to produce useable information³
- Assessment and management of global systemic risk in a timely manner may be unachievable

Further complicating the problem, regulatory reporting requirements have been developed inconsistently across jurisdictions, making it difficult to build a truly global picture of the market and to traverse the various reporting regimes. Well intentioned initiatives like swaps reporting have been less than effective, and have increased rather than decreased operational burdens due to the inconsistent reporting rules adopted by national authorities.

Regulatory reporting requirements are often disconnected from the way firms and institutions define transactions and reference data in their systems, making it necessary to explain why seemingly identical exposures differ between management and regulatory information. Creating consistency between market and regulatory nomenclature is a key area that needs continued collaboration between the industry and regulators.⁴

The significant growth in new regulatory reporting requirements over the past few years has compounded to these issues, especially for entities that operate across jurisdictions and with multiple business lines. According to the U.S. Department of the Treasury's Office of Financial Research (OFR), the estimated cost to the global industry from the lack of data uniformity and common standards runs into the billions of dollars.⁵

Key Benefits Of Data Standardization

While the downside of inconsistent data standards is significant, the good news is that there is tremendous upside when standardization is achieved. Establishing and implementing a common global language for financial instruments and transactions, one that is universal from institution to institution, will result in unambiguous meaning, consistent formats, and improved usability of the data to create valuable information. Consistent use of such standards in regulatory reporting requirements across the globe would significantly improve the ability of the public sector to understand and identify the buildup of risk across multiple jurisdictions and across complex global financial processes. Global data standards also lead to efficiency saving time and reducing costs that firms and regulators would otherwise expend manually collecting, reconciling, and consolidating data, and will lay the groundwork for the future use of evolving technologies and innovative approaches to data management.

³ Office of Financial Research: Collective Action: [Toward Solving a Vexing Problem to Build a Global Infrastructure for Financial Information](#). (February, 2017) pg. 1

⁴ International Swaps and Derivatives Association: [The Future of Derivatives Processing and Market Infrastructure](#) (September, 2016)

⁵ Office of Financial Research: [Breaking Through Barriers Impeding Financial Data Standards](#) (February, 2017)

Improved Risk Management and Financial Stability

The stability of the financial system is dependent on robust systemic risk management and analysis, both of which are dependent on high quality information and data. For example:

- Better quality data supports improved risk management and decision making through the unambiguous identification of counterparties, products, instruments, and transactions
- Good quality data facilitates processes such as payments flows, mergers and acquisitions, orderly resolution and client onboarding for small and large firms alike
- For the public sector, good data is an imperative to support supervisory activities, which benefits both the public sector and the industry⁶
- High quality standardized data will allow the public sector to consider new approaches for collecting information rather than continuing to use old-fashioned and inconsistent reporting formats
- Finally, with standardized data, collected effectively, technology could be better leveraged to improve identification of growing risks, and in the event of a future financial crisis, provide for speed and accuracy in gathering data and mitigating damages

The importance of the financial community having strong systemic risk management capabilities cannot be emphasized enough. We have lived through times without these capabilities, and understand the consequences well. Improvements must continue to prepare us for the future.

Improved Efficiency and Cost Savings

In 2013, Ka Kei Chan and Alistair Milne published an academic paper in coordination with the School of Business and Economics Loughborough University focusing on the benefits of the broad adoption of the LEI as a global data standard and concluded that “there are about \$10 billion per annum of measurable direct operational cost savings from the establishment of the global LEI in wholesale financial markets.”⁷

The Data Foundation and PricewaterhouseCoopers published a research paper in March 2016 demonstrating that governments have the ability to reduce cost and improve the quality of data by adopting common data standards.⁸ The report cites a program where the Australian government adopted common data standards, known as Standard Business Reporting, and reportedly saved more than a billion Australian dollars in 2015.

In October 2017, McKinsey & Company and the GLEIF published a joint white paper, titled *The Legal Entity Identifier: The Value of the Unique Counterparty ID*. The white paper highlights the LEI’s value beyond regulatory compliance and illustrates three use cases where substantial cost can be saved and efficiency is created through the use of the LEI. The report estimates savings of 10% of operational costs for client on-boarding and trading processing - \$150 million annually for the investment banking community, increasing to \$500 million annually when banks engaging in trade financing are added.⁹

⁶ Bank for International Settlements: [Data as a critical factor for central banks](#)

⁷ Chan, Milne: [The Global Legal Entity Identifier System: Will it deliver?](#) (August, 2013)

⁸ PwC & The Data Foundation: [Standard Business Reporting: Open Data to Cut Compliance Costs](#) (March, 2017)

⁹ McKinsey & Company and GLEIF: [The Legal Entity Identifier: The Value of the Unique Counterparty ID](#) (November, 2017)

It is clear from these examples that the benefits of strategically implementing standardized data elements and reporting can be significant. The example of full standardization in Australia presents an ideal outcome producing significant benefits for the country. In other areas incremental savings are being achieved where the beginnings of standardization have occurred, as with the LEI. But these incremental improvements are just a fraction of the benefits that could be achieved if standardized data were fully integrated into databases, legal documentation, and across the entire data infrastructure of market participants.

Supporting New Technologies

Looking forward, having clean, standardized data is an important stepping stone to reaping the benefits of the ongoing digitization of financial assets, electronification of markets and growing use of new, cutting edge technologies, such as artificial intelligence. Many areas of the financial industry will be impacted, in some capacity, by these innovations in the coming years. These areas may include customer service, investment advice, contracts, compliance, and fraud detection. Current applications of innovations such as artificial intelligence are already visible and include natural language processing for commercial loan agreements, automated trade execution and fraud surveillance.

These new technologies, such as machine learning, for example, have the best outcomes when the data used in their processes is good, i.e., standardized, accurate, complete and timely.¹⁰ Said simply, good data in, good data and information out. Without standardized underlying data, the applied technology could be less effective and efficient, and the insights it produces less helpful and potentially incorrect.

Data standardization and harmonization is not only a critical step towards making the current financial industry more efficient; it will also provide a foundation for the implementation of new technologies and processes in the future.

Progress

As depicted in the examples below, while data standardization has been around a long time, progress on standardization has accelerated since the financial crisis.

These recent initiatives began with a call for the creation of an LEI in 2010, driven by a Policy Statement from the OFR in the United States, stating “Precise and accurate identification of legal entities engaged in financial transactions is important to private markets and government regulation”.

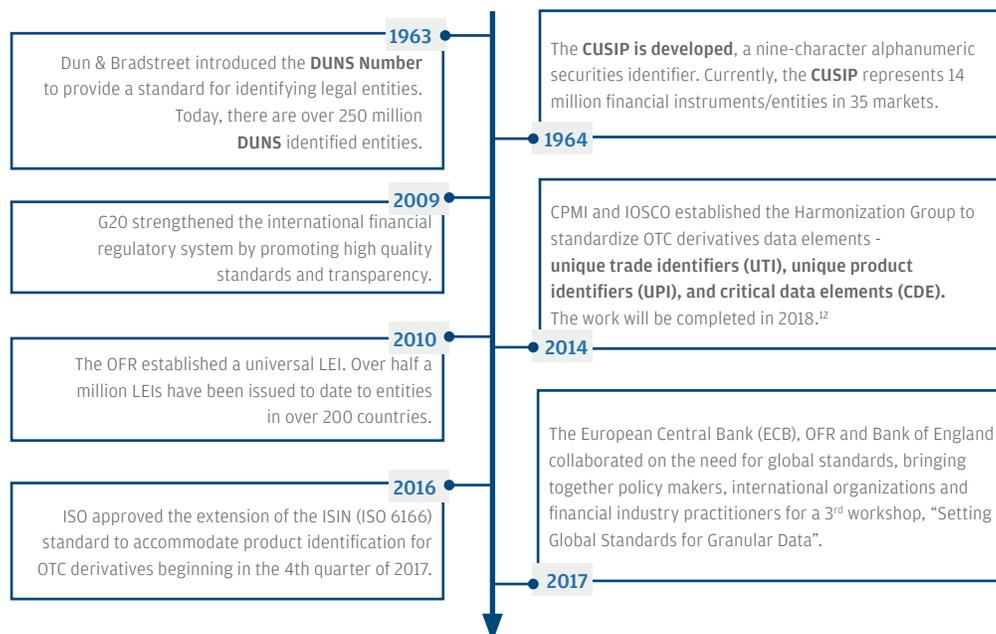
More recently, the mandate by European regulators that investment firms subject to the MIFID II regulation may not trade with parties that do not have an LEI has driven a near doubling of the population to over 1,100,000 LEIs issued globally to date.

In September 2014, the FSB published a study on the feasibility of a mechanism to produce and share global aggregated data (the Aggregation Feasibility Study)¹¹. One of the study’s conclusions was that “it is critical for any aggregation option that the work on standardization and harmonisation of important data elements be

¹⁰ SAS: [Machine Learning: What it is and why it matters](#)

¹¹ Financial Stability Board: [Feasibility study on approaches to aggregate OTC derivatives data](#) (September, 2014)

completed, including in particular through the global introduction of the Legal Entity Identifier (LEI), and the creation of a Unique Transaction Identifier (UTI) and Unique Product Identifier (UPI).”



As part of this work, the FSB asked CPMI and IOSCO to develop global guidance on the harmonization of data elements that are reported to trade repositories (entities that centrally collect and maintain the records of OTC derivatives) and are important for the aggregation of data by authorities. The FSB also said it would work with the CPMI and IOSCO to provide official sector impetus and coordination for the further development and implementation of uniform global UTIs and UPIs.¹³

New initiatives continue to emerge as well, both from the public sector and the private sector. For example: In 2017, both the CFTC Division of Market Oversight and the European Commission announced comprehensive reviews of reporting regulations to ensure that high quality data is being received and to streamline reporting.¹⁴ In October 2017, the International Swaps and Derivatives Association, Inc. (ISDA) published a conceptual version of its ISDA Common Domain Model (CDM), which sets out the required elements to achieve a single digital representation of trade events and actions – an important precursor to realize the full potential of new technologies, such as distributed ledger and smart contracts. The ISDA CDM will establish a common set

Unique Transaction Identifier (UTI)

In 2009, the G20 concluded that OTC derivatives ought to be reported to trade repositories (TRs), with the goal of improving transparency and mitigating systemic risk.

The UTI was developed primarily to allow the unambiguous, unique identification of individual OTC derivatives transactions that regulators and supervisors require to be reported to TRs.

Receiving the data in a standardized format, with a unique transaction identifier, helps authorities to aggregate and analyze OTC transactions more effectively.

See www.bis.org/cpmi/publ/d158.htm

¹² See www.BIS.org for more information on the harmonization work.

¹³ A UTI is unique to a particular OTC derivative transaction. By contrast, a UPI is unique at the product level, meaning that there is a unique UPI code for each OTC derivative product. A UTI cannot be re-used to represent more than one unique transaction, while a UPI is expected to be reused whenever a particular OTC derivative product is part of an OTC derivatives transaction.

¹⁴ U.S. Commodities Futures Trading Commission: [Division of Market Oversight Announces Review of Swaps Reporting Regulations](#) (July, 2017)

of data and processing standards that all participants can access and deploy to facilitate interoperability between firms and technology platforms.¹⁵

This work is very encouraging. For these efforts to be truly successful, however, they must leverage the global standards already completed by their predecessors. For example, the CFTC and the EU, in their efforts to re-look at their reporting requirements, should leverage existing standardized data elements like the LEI, UTI, UPI, ISIN and CDE and include these elements in their revised rules. It would be a lost opportunity for improvement if duplicative, conflicting and overlapping data requirements were implemented as part of these revised rules and standards.

The Need To Work Together

Developing global standards is a unique process requiring creativity and energy. Achieving consensus among stakeholders is a critical success factor and cannot happen without the explicit, unwavering support from the broad range of parties that participate in the financial markets. Senior level support in both the public and private sectors is necessary to maintain progress over the lengthy timeframe it takes to achieve global change.

The need for this support exists today where globally agreed upon standards such as the LEI and the UTI, while complete, are still not universally adopted. There are many jurisdictions around the world that choose to use proprietary standards rather than these globally agreed standards. There are major global processes, such as payments systems, where progress towards adopting standards has been slow and not mandated.

Consider the LEI. The global LEI system has been in place and functioning since June 2014. Despite the significant improvements in systemic risk and exposure management that result from its use, as well as the hundreds of millions in estimated cost savings, approximately 30% of global regulations requiring entity identification still do not mandate the use of an LEI. This is a significant shortcoming of the global community in achieving the huge potential of a global entity identification standard. Regulators, in particular, have a key role in achieving success as regulatory mandates can easily drive global adoption of new data standards.

Following on the heels of the LEI are the important standards that have, and are soon to be, finalized by CPMI and IOSCO. Specifically, these include key over-the-counter derivatives data elements for UTI, UPI, and CDE.¹⁶ Years of work between the industry and public sector have gone into creating these standards, which are scheduled to be completed in 2018. It will now be incumbent upon regulators and supervisors in each jurisdiction to integrate these standards into their existing reporting and disclosure requirements. Without broad, global adoption, the true benefits of such standardization will never be achieved.

¹⁵ International Swaps and Derivatives Association: [Common Domain Model Version 1.0 Design Definition Document](#) (October, 2017)

¹⁶ Bank for International Settlements: [CPMI - overview](#)

In Summary - A Call To Action

Creation and adoption of global data standards would not only allow the industry and regulatory community to operate more effectively and efficiently in today's environment, but would facilitate the adoption of new and innovative technologies like artificial intelligence and digital data models going forward. Progress has clearly been made. Now, the financial community should strive to create real and lasting global change. To drive these efforts over the finish line, there needs to be a global call to action — a renewed attention to the need for global data standardization. Let's finish the work that was set in motion by the 2008 financial crisis and do our best to set a strong foundation for the future. Specifically:

- The G20, through a body like the FSB, should assess and report on the state of adoption by all jurisdictions around the world of the various global reference data and reporting standards that have been created: for example, LEI, UTI, UPI and the CDE (once finalized). Jurisdictions that have not adopted such standards should be identified and urged to make progress on implementation. The FSB has addressed levels of adoption in certain country peer reviews, however, this could be more effective if done on a comprehensive basis. The FSB, through the Standing Committee on Standards Implementation (SCSI), oversees monitoring of the implementation of agreed financial reforms and the reporting of progress to the G20. Adding monitoring of the progress of adoption of global reference data standards like those indicated above to the FSB oversight and reporting processes could be very effective in driving better global adoption.
- Similarly, national regulators should consider the state of data and reporting standardization within their countries. For example, within the United States, regulatory reporting is fragmented and often duplicated and there is a lack of coordination across agencies. Each agency is focused on collecting data in its own way, with its own definitions, leading to higher cost and poorer data quality. These issues could be addressed through the use of common data standards in all financial data reporting, and enforcing best practices in data collection. In the U.S., the Financial Stability Oversight Council could take steps within its mandate to facilitate coordination among its member agencies towards the standardization of regulatory reporting requirements across the agencies.¹⁷
- Bodies like the FSB and BIS should regularly assess, in cooperation with other stakeholders, what additional new global data standards are needed. The global financial community would greatly benefit from such ongoing and continued improvements in data standards.
- Finally, the private sector should continue to explore opportunities to drive data standardization in market processes and practices both related and unrelated to regulatory requirements.

¹⁷ Dodd-Frank Wall Street Reform and Consumer Protection Act, Sec. 112 (a)(2)(E)

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