OFR
OFFICE OF FINANCIAL RESEARCH

# VIEWPOINT

# An Approach to Financial Instrument Reference Data

17-03 | March 27, 2017

Data describing financial instruments are often complex, incomplete, and incompatible. These weaknesses impede companies and investors in managing their risks and regulators in overseeing financial firms, markets, and the financial system as a whole. Regulators and industry do not have either a comprehensive financial instrument data dictionary (documenting terms and definitions) or widely adopted data standards (documenting formats).

The Office of Financial Research (OFR) has a mandate to address these problems by preparing and publishing a financial instrument reference database — a set of standards for creating and describing financial instrument reference data. This viewpoint describes the OFR's approach to that mandate: a private-sector solution with public-sector involvement. It specifies the foundational components needed to standardize financial instrument reference data. Among them are a common data dictionary and associated data standards. Finally, it outlines how we will develop those components, and allow for the addition of a taxonomy or ontology to establish how instruments relate to one another.

As with the OFR's linchpin Legal Entity Identifier project, the success of the OFR's financial instrument reference database initiative will depend on the adoption and implementation of data standards and stakeholder use of reference data conforming to those standards.

**The Dodd-Frank Wall Street Reform and Consumer Protection Act of 2010**

Mandates the OFR Data Center to "prepare and publish, in a manner easily accessible to the public … a financial instrument reference database."

# Introduction

**Financial instrument**
A financial contract in which the terms and conditions are publicly available, and the roles of one or more of the counterparties are assignable without the consent of any of the other counterparties.

**Reference data**
Description of the terms and conditions of these contracts.

Financial instruments are diverse, complex, and continuously evolving. Every financial instrument represents a contract that governs the relationship between two or more parties. Financial instrument reference data describe the terms and conditions of these contracts. The data vary in quality. Improving the quality poses unique challenges.

Some financial instrument reference data are not complex and not controversial. For example, a stock is widely understood to represent an ownership stake in a company. Reference data include unique identifiers for the stock, legal entities issuing the stock, dividend rates, and ticker symbols. The lack of complexity means investors can trade and track their investments in stocks. Market participants and regulators can also evaluate a company's exposures in the stock market with relative ease.

Although mature financial products such as stocks and bonds often have standard terms, definitions, and formats, newer innovative financial instruments and specialized over-the-counter instruments, such as credit default swaps, have prompted the development of proprietary or firm-specific data descriptions. These descriptions are temporary and often inconsistent responses to the lack of robust standards in these emerging areas.

Challenges can arise when market participants and regulators do not agree on the terms, definitions, and formats of a financial instrument. Companies may not be able to evaluate their exposures to risks because they are not able to determine the characteristics of the financial instruments they own.

This paper in the OFR Viewpoint Series describes the OFR's plan to establish a common language for financial instruments. The goal is to create and make available financial instrument reference data standards that can capture the diverse, complex, and evolving nature of financial instruments based on common terminology, formats, and structures. To accomplish this goal, the OFR will collaborate with regulators, financial market participants, standards development organizations, and providers of financial instrument reference data.

Although the financial services industry needs such standards, consensus does not exist on the terms, definitions, and formats of financial instruments. This inconsistency prevents interoperability — the ability to exchange and use reference data among financial firms and their service providers.

The government sometimes takes the role of solving collective action problems in such cases. In this case, the solution lies in the OFR's mandate to publish a financial instrument reference database. That mandate is just one of the OFR's mandates to promote U.S. financial stability by measuring,

analyzing, and monitoring threats to financial stability; performing essential research; and improving the quality, scope, and accessibility of financial data.

Establishing and implementing a common language for financial instruments will result in unambiguous meaning, structure, and formatting of any financial instrument, or a set of financial instruments. This foundation for interoperability between data producers and users is essential for risk modeling and management.

As the following discussion makes clear, many standards already exist. The OFR does not seek to replace existing standards with a new set. Rather, the common language will map to these standards and flag, and ultimately iron out, inconsistencies among them. That mapping will enable the user of any existing standard to reference financial instruments unambiguously, regardless of the metadata currently associated with them.

## Value of Standardizing Reference Data

**Standardized reference data must be developed and adopted through consensus to:**

- Enhance the ability to promptly identify and mitigate gaps in financial instrument reference data as new innovative instruments are created and deployed in the markets.
- Drive collaboration between the financial industry, vendor community, standards organizations, and regulators.
- Help companies and investors manage their risks and help regulators monitor risks in the financial system.

**A definitive standard will be built on a common data dictionary, documented by a technical specification, to:**

- Eliminate incompatibility and ambiguity of reference data among reference data vendors that conform to the standard.
- Increase quality of reference data by conforming to a common data dictionary and to standards for data structure and format.
- Provide the minimum set of open data necessary to differentiate financial instruments. (Open data are freely usable and redistributable without concerns about trademarks or registered protections.)

**Benefits would be extensive:**

- Reducing time and cost of supporting multiple sources of reference data, either to gain more comprehensive financial instrument coverage, or integrate reference data from multiple vendors.
- Reducing reliance on proprietary or internally defined reference data.
- Improving decision making and monitoring by financial market participants.
- Improving the ability to share, compare, and aggregate market data using the same definitions across financial markets.

# Current State

Regulators and financial institutions are the users of the data available from reference data vendors. These data products often center on particular niches of financial instruments that vary in terms, definitions, formats, content, and meaning.

Multiple standards exist and financial instruments constantly change. Regulators and industry do not have a comprehensive financial instrument data dictionary to document terms and definitions, or widely adopted data standards to document data formats. To establish an environment of interoperable financial instrument reference data distributed by multiple reference data vendors, the industry and public sector need to overcome these challenges.

## Challenges for Financial Markets Participants and Authorities

Financial market participants need to be able to describe financial instruments uniquely and precisely for their business processing and risk monitoring. Specific challenges involving financial instrument reference data in financial markets include:

- The development of disparate proprietary or internally defined terminology and formats in response to the evolution of instruments;
- The difficulty of integrating reference data across a firm's divisions, or during mergers and acquisitions;
- Multiple U.S. and global regulators whose shortcomings with interoperable data mirror those of the institutions they regulate; and
- The resulting need to support multiple varieties of reference data, each providing descriptive data for different types of financial instruments, with different terminology and formats.

**Reference Data Challenges**

- proprietary terms and formats
- lack of data interoperability within firms
- differences among multiple regulators
- multiple varieties of reference data

The transition from proprietary and internally developed standards to a common system that all market participants and regulators can use requires consensus on standards and continued participation in the work of standards-setting organizations.

One prevalent form of proprietary financial instrument reference data — a security master file or database — is the backbone of the trade life cycle. Security masters have unique instrument identifiers, terms, and conditions, and often include information about pricing and corporate actions. Security masters tend to proliferate in a large financial institution, obscuring the firm's view of the universe of financial instruments traded or processed there.

Financial firms and regulators both often house multiple financial instrument reference databases with multiple sources of reference data

developed internally or obtained from a diverse set of vendors. The reference data reflect a combination of proprietary vendor "standards" and institution-specific "standards" that often conflict with other internal systems and with the systems of external business partners.

Variations in reference data terminology also hamper attempts to consolidate financial instrument data across the financial sector. In addition, mergers and acquisitions impede some financial institutions from integrating financial instrument reference databases.

Because of these problems, financial firms spend considerable time and resources to collect, consolidate, harmonize, clean, resolve, and integrate reference data. The alternative — poor quality reference data — can lead to adjustments in the balance of trading positions and operational risks from valuation errors.

The public sector faces many of the same challenges. Multiple standards contained in multiple repositories, whether procured by vendors, held by regulators, or strictly managed within a firm, hinder monitoring and analysis. This problem is particularly notable regarding global firms and integrated markets. The public sector has increasingly come to recognize the importance of common standards.

In light of this growing recognition, private companies and industry groups often reach consensus on standards without government involvement, when benefits are clear. However, consensus is difficult to achieve when costly up-front work is required or when proprietary interests exist. The public sector must work with industry groups on voluntary standards that build on existing industry practices and reflect industry input.

Lessons learned from the creation of the Legal Entity Identifier underscored the need for top-level support and close collaboration between the public and private sectors. The Committee on Payments and Market Infrastructures (CPMI) and International Organization of Securities Commissions (IOSCO) have applied these lessons in harmonization activities to introduce data standards — unique product identifier and unique transaction identifier — for over-the-counter derivatives. While the public-sector regulators in CPMI-IOSCO are directly participating in the definition, format, and use of these identifiers, their consultative reports and industry working sessions have enabled the collaboration necessary to produce technical guidance that is fit for its intended purpose, adoption, and use.

## Proprietary Reference Data

Reference data vendors sell financial instrument reference data products to financial market participants. These products vary in terminology, format, number of data elements, and scope of coverage. Some proprietary and disparate reference data are supplied by the government, industry groups, and private firms. Although these data may be free to

### Examples of Reference Data Products

- Bloomberg's Instrument Reference Data
- CUSIP Global Services' CUSIP (Committee on Uniform Security Identification Procedures)
- Depository Trust & Clearing Corporation's Security Master File
- International Swaps and Derivatives Association's Financial products Markup Language
- IHS Markit's Reference Data
- North American Industry Classification System
- SmartStream's Reference Data Utility
- Standard Industrial Classification
- Thomson Reuters' DataScope
- U.S. Federal Information Processing Codes (for countries, states and counties)

use, their proprietary nature runs counter to a publicly oriented consensus approach (see **Examples of Reference Data Products**).

## Standards Development Efforts

Financial market participants and vendors have led efforts to develop standards for financial identifiers and the underlying reference data describing financial instruments.

These standards are not universally applied, are often plagued by gaps and overlaps, and are inconsistent for terms, definitions, and formats. Some standards involve fees and restrictions on use, while others are open standards that can be freely used, reused, and redistributed without concerns about trademarks or registered protections (see **Common Financial Identifiers**).

### Common Financial Identifiers

- **Instrument identifiers** identify specific financial instruments.
- **Market identifiers** identify regulated and non-regulated exchanges for securities trading.
- **Product identifiers** identify the types or classifications of financial instruments.
- **Transaction identifiers** identify specific agreements associated with financial instruments.
- **Entity identifiers** identify legal entities such as parent companies, subsidiaries, and off-balance-sheet vehicles.

Examples of identifier standards applicable to financial instruments include several from the International Organization for Standardization (ISO): ISO 10962 (Classification of Financial Instruments), ISO 6166 (International Securities Identification Number), ISO 17442 (Legal Entity Identifier), and ISO 10383 (Market Identification Codes). Other examples are the CUSIP (Committee on Uniform Securities Identification Procedures) number and FIGI (Financial Instrument Global Identifier).

Descriptive reference data related to one or more of these identifiers define the characteristics of a financial instrument. For example, the Legal Entity Identifier, a unique global standard for identifying parties to financial transactions, links to reference data that describe the legal entity's legal name, legal address, entity status, and other attributes.

Some descriptive reference data standards that support the markets center on unique business applications, while others overlap. Each standard plays a critical role in describing complex financial instruments. Examples of descriptive reference data standards include:

- ISO 20022 is used by the financial industry to create consistent messaging standards and data objects for business processes, including payments, derivatives and other securities, trade services, foreign exchange, and credit cards and other retail financial services.
- The Financial Information eXchange Protocol defines the structure and format of trade communications, including for securities and financial instruments. The FIX protocol is a de facto standard.
- The FIGI Code and Open Symbology is an open data standard issued by the Object Management Group to identify financial instruments consistently regardless of asset class or function being performed.

- Financial products Markup Language is an information exchange standard for electronic dealing and processing of financial derivatives instruments. FpML is a de facto standard.

In other areas, standardization is maturing:

- The Algorithmic Contract Types Unified Standards project was initiated to define a global data standard and analytic algorithms for representing financial instruments and their associated cash flows to support financial analysis.
- The Financial Industry Business Ontology describes the structure and obligations of financial instruments, legal entities, and financial processes, providing a common language for analysis and process automation.

Despite progress in harmonizing terminology and formats through this diverse set of financial industry standards, financial markets and vendors have not yet broadly defined or adopted a definitive single reference data standard for describing the universe of financial instruments.

## Key Components

Standardizing financial instrument reference data requires three key components:

1. **Data Dictionary –** A common financial instrument data dictionary must be populated with consistent terms and definitions. Starting with agreement on these basic properties, the foundation must evolve to include documenting the relationships between the terms that define a financial instrument. Progressing toward an ontology is a mechanism to do that.

   Existing applicable standards should be used for the data dictionary when possible. For example, ISO/IEC (International Electrotechnical Commission) 11179-4 provides guidance for developing unambiguous data definitions. ISO/IEC 11179-5 provides guidance for naming or identifying a data construct.

2. **Data Standards –** Data standards define the structure and format of the reference data and relate to the terms and definitions defined by the data dictionary. When possible, the standards should rely on existing financial standards adopted through consensus, aligning to the key criteria described in the next section. Data standards must also be extensible to cover gaps that form when financial instruments evolve and to accommodate future analysis and development.

The technical specifications for data standards document the terms, definitions, relationships, formats, and structures for each type of financial instrument.

3. **Reference Data –** The data dictionary and data standards provide the guiderails for the financial instrument reference data. These data include the minimum number of data elements necessary to uniquely describe an instrument. The reference data include a unique identifier and comprehensive descriptive data for each financial instrument. Reference data can also include yield curves, index values, and exchange rates.

## Key Criteria

Best practices of industry and government should guide the process of developing the components and gaining consensus on them.

**Best practices include the Office of Management and Budget Memorandum M-13-13 Open Data Policy — Managing Information as an Asset.**

The Office of Management and Budget (OMB) Memorandum M-13-13 Open Data Policy — Managing Information as an Asset defines a framework for managing information at each stage of its lifecycle to promote interoperability and openness. The framework "includes using machine-readable and open formats, data standards, and common core and extensible metadata for all new information creation and collection efforts."

The key criteria for standardizing reference data include:

1. **Public availability –** Open data refers to "…publicly available data structured in a way that enables the data to be fully discoverable and usable by end users," according to the OMB policy. The policy specifies that open data "are made available under an open license that places no restrictions on their use." Aligning with the policy's intent, the components and criteria must be free of contractual restrictions and trademarks, copyrights, patents, and industrial design rights (that is, intellectual property rights). In addition, the components must not define or rely upon proprietary data elements.

2. **Alignment with Consensus-based Standards –** Existing non-proprietary standards developed and adopted by consensus should inform the development of the key components. Duplication should be avoided. Reference data provided by industry should conform to consensus standards when available. As gaps in the reference data are identified, collaboration with standards organizations will be necessary to propose the creation of new data standards, or extend existing ones.

3. **Assessment of conformity –** ISO/IEC Guide 2:1996 (Standardization and Related Activities — General Vocabulary) defines conformity assessment as "any activity concerned with determining directly or indirectly that relevant requirements are fulfilled."

Conformity assessment facilitates validation, the process of ensuring that reference data conform to the common data dictionary and associated data standards. The validation process supports consistent understanding among reference data vendors and helps in aligning their reference data. For users of reference data, the process confirms interoperability.

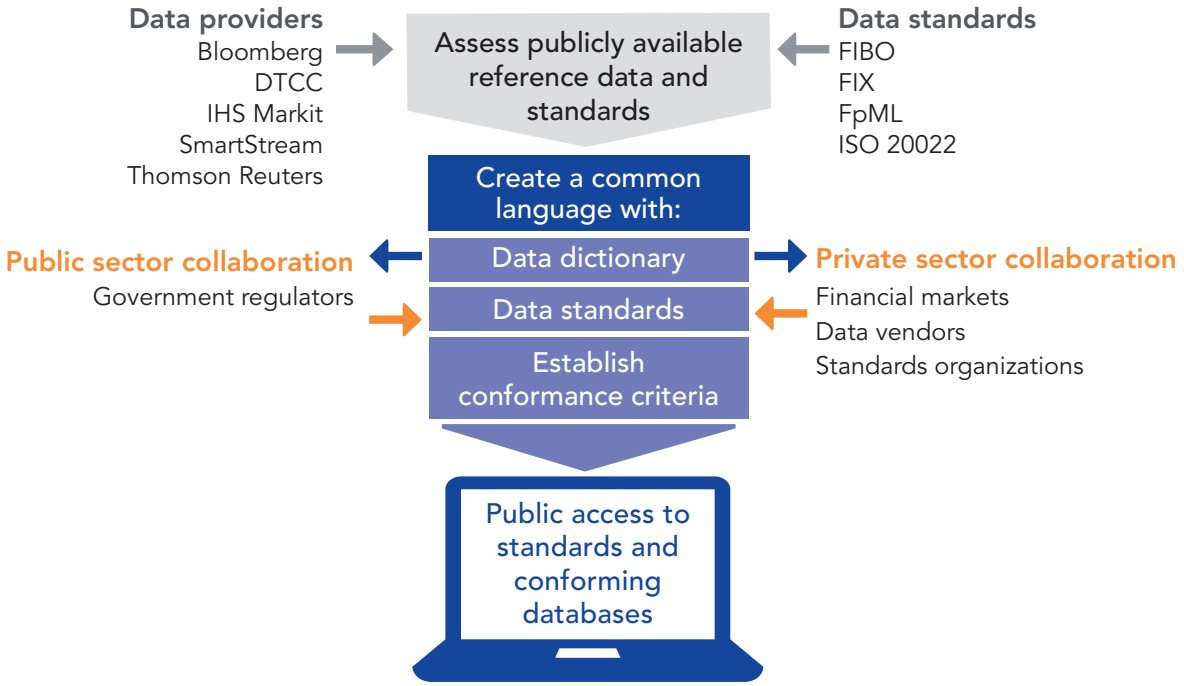
As defined by the National Institute of Standards and Technology in an online overview, "conformity assessment enables buyers, sellers, consumers, and regulators to have confidence that the products sourced in [the] global market meet specific requirements. It is the demonstration that specified requirements relating to a product, process, system, person or body are fulfilled…"

A conformity assessment should evaluate adherence to:

- public availability of the minimum set of data elements necessary to differentiate financial instruments,
- a common data dictionary of financial terms and definitions, and
- voluntary consensus data standards that codify the data elements necessary to differentiate a financial instrument.

Conformity assessment of the reference data should clearly define procedures for validating the data provided by vendors. The process includes approaches to conformity, such as adoption, mapping, and automated data transformation.

## Figure 1: Construction of a Financial Instrument Reference Database




Source: OFR analysis

# Implementation Options

**The OFR will collaborate to develop a private-sector solution with public-sector involvement.**

To implement this initiative, the OFR will collaborate to develop a private-sector solution with public-sector involvement. Applying best practices and appropriate governance will be important to produce a scalable and expedient solution to this industrywide challenge.

This approach will combine public-sector support and guidance, business-process expertise from financial markets, and subject-matter expertise from financial data standards organizations. The approach is consistent with federal guidance in OMB Circular No. A-119, which encourages public-private collaboration.

An example of such a collaboration was the Legal Entity Identifier, a large-scale solution that required three basic ingredients:

1. High-level public support that encouraged collective action and discouraged barriers to collective action, such as free ridership. That support also enabled ongoing public-sector oversight of the system.
2. Private-sector engagement to join with the public sector to produce a useful design and durable operation of the system.
3. Creative use of tools to meet the needs of the public and private sectors. These tools facilitated swift action by avoiding binding and inflexible agreements, fostering cooperation by embedding system requirements into local regulations, and coordinating common action by local identifier providers across the world through private contracts.

For standardizing financial instrument reference data, the OFR evaluated two alternate approaches and the preferred approach.

## Private-sector Solution

Many vendors include financial instrument identifiers and reference data solutions among their product offerings. These products lack definition and alignment to a common data dictionary and voluntary consensus data standards. In addition, some of the products are proprietary, which adds cost for accessing and using the reference data.

To successfully establish and use a financial instrument reference database, financial market participants and reference data vendors would have to collaborate to:

1. Develop and align to a common data dictionary and associated standards representing the terms, definitions, and formats of financial instrument reference data.
2. Adopt best practices for open data, allowing anyone to freely use, reuse, and redistribute these elements.

3. Offer a minimum subset of nonproprietary reference data elements to differentiate financial instruments.
4. Perform continuous analysis to identify, prioritize, and address reference data gaps in financial instruments, including instruments that are unique or used minimally.
5. Define and apply requirements for conforming to the data dictionary and data standards.
6. Agree to comply.
7. Assess compliance with the conformity requirements or use a reliable third-party assessment.

To meet these criteria and achieve interoperability for financial instrument reference data, financial institutions would have to prioritize reference data standardization, drive collaboration with the broader industry, persuade reference data vendors to conform to a common data dictionary and associated voluntary consensus standards, and themselves adopt these common standards. We do not propose this alternative because it lacks a catalyst for overcoming the barriers to collective action that have blocked change.

## Public-sector Solution

In a public-sector solution, government regulators would become the authoritative source for financial instrument reference data. In support of member agencies in the Financial Stability Oversight Council, the OFR could help identify an authoritative source or become the authoritative source, but we do not propose this alternative. Such an approach would be limiting on a global scale. Only U.S. regulatory interests would be addressed and opportunities for global data sharing and aggregation would not be possible. Development of financial instrument reference data would require coordination of stakeholder activities and development of data collection agreements. Reference data distributed through a public-sector solution would be available under an open license with no restrictions or cost for the use of the underlying data.

Under this scenario, the federal government solution would compete with private vendors of reference data and replicate their services.

The public sector would be responsible for developing a common data dictionary, data standards, conformity requirements, and assessment procedures. This option would also imply that the public sector would collect financial instrument reference data from financial institutions or purchase reference data content and redistribution rights from vendors.

Developing a comprehensive public sector financial instrument reference database would take extensive time and require significant resources. Funding would be needed for the development, implementation, and

long-term operations and maintenance of the reference database and hosting platform, which would duplicate existing functionality in the private sector.

## Private-Sector Solution with Public-Sector Involvement

Our preferred approach is collaboration between the public and private sectors, spearheaded by the OFR. In this approach, financial market participants, standards-setting organizations, and reference data vendors would represent the private sector. The private sector would provide expertise on financial markets, data standards, data management infrastructure, and channels to distribute conforming financial instrument reference data efficiently and effectively. The public sector, led by the OFR, would act as the catalyst and guide to drive change, align U.S. public efforts, and strive for global harmonization.

We believe this approach will yield a financial instrument data dictionary, data standards, conformity requirements, and assessment criteria aligned with the best practices we have described. Private-sector collaboration on the design of the solution is necessary not only for expertise, but to encourage broad adoption and implementation, including coordination with similar efforts overseas. Several models for public-private collaboration have proven successful in other business sectors as complex as the financial industry (see **Figure 2**).

## Approach

In this paper, we have identified key challenges in developing the components needed to meet our statutory mandate to prepare and publish a financial instrument reference database. We propose to overcome these challenges by approaching this task as a collaboration with the private sector.

The OFR will begin by engaging with private-sector participants to explore a variety of issues. In the spirit of federal guidance on standards development (M-12-08, Principles for Federal Engagement in Standards Activities to Address National Priorities), our work with the private sector would be broad-based and rely on open and transparent processes.

Through collaboration with the private sector to gain industry agreement on a common data dictionary, establish or refine data standards, and promote data provider conformity, the proposed initiative will produce linkages to conforming vendor reference data.

The initiative will identify the sources of distributed, standardized, non-proprietary financial instrument reference data, rather than create a central database populated with financial instrument content.

## Figure 2. Examples of Successful Public-Private Collaborations

| Who? | What? | How? |
|---|---|---|
| The Office of the National Coordinator for Health Information Technology (part of the Department of Health and Human Services) | Standards and Interoperability Framework - public and private sector input to create standards for health information technology | As the public-sector catalyst and guide, the Office of the National Coordinator developed complex processes and engagement mechanisms, and oversees execution. The framework offers an open forum for organizations to share information about common challenges and work together to create common solutions. This unique framework supports an entire standards lifecycle, from identifying the need (or requirements), to creating or harmonizing standards, and finally to testing for conformance to the standard. Each initiative addresses a distinct aspect of the health interoperability challenge. The charter specifies the purpose, goals, success metrics, and timeline of each effort.<br><br>Standards-setting organizations (for example, ISO Technical Committee 215 and Health Level 7) lend their expertise and the intellectual property needed to solve interoperability challenges. The framework functions by consensus to ensure participants consider all legitimate views and objections with the goal of resolving them through the chartered initiatives. Contributors agree to license their contributions under the Creative Commons Attribution 3.0 License for documentation and the Simplified BSD (Berkeley Software Distribution) License for software code and to disclose all known intellectual property rights. |
| The interagency Federal Geographic Data Committee (FGDC) | Executive, managerial, and advisory direction and oversight for federal geospatial decisions and initiatives | The FGDC is governed by a steering committee with work carried out by subcommittees, working groups, and collaborating partners. The FGDC Standards Working Group collaborates with intergovernmental partners and external private-sector organizations to develop and adopt geospatial standards. The working group uses standards developed by American National Standards Institute, the ISO Technical Committee 211 (Geographic Information/Geomatics), and the Open Geospatial Consortium. The FGDC Policy on Recognition of Non-Federally Authored Geographic Information Standards and Specifications describes its recognition of standards created outside the federal government. The FGDC also develops standards when gaps emerge or international standards conflict with national requirements. |
| The G-20 (Group of 20) via the Financial Stability Board | Lead in coordinating international regulatory work and delivering concrete recommendations on the Legal Entity Identifier system | This development in June 2012 was remarkable: The heads of finance ministries and central banks from the major advanced and emerging economies in the world collectively called for the creation and adoption of a data standard and market infrastructure. |

### Essential Discussion Topics

- An industry cost-benefit analysis for standardized reference data
- Gaps in current reference data and existing standards
- A common data dictionary with associated data standards
- Requirements for conformity and assessment procedures
- Governance mechanisms for key components and criteria

Our first step will be to host information gathering sessions with industry participants and develop an open, public process for examining the issues. These sessions will include detailed discussions on the topics essential for successfully building and distributing the key components for standardized reference data:

- documenting an industry cost-benefit analysis for standardized instrument reference data;
- identifying gaps in current reference data;
- analyzing gaps among existing standards;
- prioritizing and mitigating the gaps;
- establishing a common data dictionary with associated data standards;
- establishing requirements for conformity, and assessment procedures; and
- establishing governance mechanisms for the key components and criteria.

We envision an incremental approach that will be limited in scope initially and grow over time. A common data dictionary and associated data standards underlying the reference data provided by vendors would be made available in phases and limited to a subset of financial instruments that would expand.

In the beginning, we will rely on existing industry providers of reference data for financial instruments, each within its product scope.

The dictionary will initially address the minimum set of free and open data elements necessary to differentiate financial instruments. Later, dictionary coverage would expand based on prioritized use-case requirements, eventually spanning all instrument types established in ISO 10962, the standard for Classification of Financial Instruments.

Work will also focus on defining, vetting, standardizing, and implementing a common data dictionary; assessing applicable voluntary consensus standards for public-sector adoption and vendor alignment according to best practices; and collaboratively documenting requirements for reference data conformity and assessment procedures.

Reference data that conform to the standards, provided by multiple data vendors, will lead to a distributed financial instrument reference database anchored by a common data dictionary and data standards developed by consensus.

# Conclusion

Current reference data for financial instruments are complex, incomplete, and incompatible, which poses a significant obstacle for establishing interoperability across a diverse set of service providers and users.

Reference data vendors and standards-setting organizations have come forward with solutions to define financial instrument identifiers and associated reference data within their particular fields, but a common language for describing financial instruments does not exist.

Aligning to standards will facilitate data interoperability between market participants, data providers, and analytics providers. To achieve success and meet the OFR's mandate, this initiative must identify and prioritize gaps in current financial instrument reference data and accommodate specialized financial instruments that currently offer little to no data standardization.

A private-sector solution with public-sector involvement will produce a common data dictionary and associated data standards. This solution will document the unique financial terms and definitions, and provide structure to financial instrument reference data. This approach will also promote adoption and conformance.

These measures will signify success:

1. Deployment of a collaboratively developed and adopted financial instrument reference data dictionary.
2. Production of timely, effective data standards and efficient conformity assessment procedures essential for a distributed reference database.
3. Promotion and use of standards that spur and sustain innovation.

The result will be a common language employed by all U.S. public and private financial market participants, applying consensus standards and open source reference data, to establish a singular understanding of a financial instrument and its components.

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