

# Collective Action: Toward Solving a Vexing Problem to Build a Global Infrastructure for Financial Information

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After the financial crisis of 2007-09, world leaders called for a new global system to solve a basic but important problem vexing all aspects of our complex financial markets: understanding with precision who is who, who owns whom, and who owns what.

The problem revealed itself during the failure of Continental Illinois National Bank and Trust Co. in 1984<sup>1</sup> and surfaced most recently during the failure of Lehman Brothers in 2008.

Without a basic ability to identify financial market participants and their corporate families, firms and the regulators supervising them would continue to struggle to understand the links and exposures throughout the global financial infrastructure. This deficiency would continue to weaken market discipline and risk management, and threaten orderly resolution of failing firms.

In the last few years, the decades-old “collective action” problem of mobilizing broad support for creating a worldwide, single identification system has been solved for derivatives transactions. This Legal Entity Identifier (LEI) system is now being implemented for other asset classes, such as private funds and insurance holdings and the entities making up complex bank holding companies.

Such a system would provide a valuable 'building block' to contribute to and facilitate many financial stability objectives, including improved risk management in firms; better assessment of micro and macroprudential risks; facilitation of orderly resolution, containing market abuse and curbing financial fraud; and enabling higher quality and accuracy of financial data overall. It would reduce operational risks within firms by mitigating the need for tailored systems to reconcile the identification of entities and support aggregation of risk positions and financial data, which impose substantial deadweight costs across the economy. It would also facilitate straight-through processing. But despite numerous past attempts, the financial industry has not been successful in establishing a common global entity identifier.<sup>2</sup>

– Financial Stability Board’s 2012 report to the G-20

### Key Elements of LEI Project's Success

- 1 | Top level support in government and industry.
- 2 | Close collaboration between public and private sectors.
- 3 | Mix of legal tools; i.e. "soft law" and moral suasion, local regimes, domestic regulation, and private contracts

The success of the project — but also some of its challenges — reveal important lessons for future efforts to forge consensus and take collective action in finance on a global scale. First, top-level support in government and industry are critical, both to break through entrenched private interests and to maintain momentum over a period of years. This support must be sustained, or attention will erode at the ground level.

Second, close collaboration between the public and private sectors helps to make the standard fit for multiple purposes and attractive for adoption and use.

Finally, a mix of legal tools including “soft law” (cooperation and agreements) and moral suasion, local legal regimes, domestic regulatory action, and “private law,” that is, contracts that can aid in the process of aligning public and private interests, particularly on a global scale.

The authors became involved in this project at the start, and later led the formal oversight body that built and oversaw early development of the LEI system. As the inaugural chair and vice chairs of the Regulatory Oversight Committee from the United States, France, and Japan, we reflected the global nature of the project and enjoyed an inside view of developing the system.

This paper gives a brief history of this foundational project and discusses its central lessons.

First, we describe the problem, the failed efforts of the past to solve it, and the solution. We then articulate the important role of high-level support for the project. We review the legal framework chosen to ensure the system could serve public and private needs for years to come. In concluding, we make observations about the future of the system and the potential for applying what we learned.

## Standards in Finance Behind Other Industries

The financial services industry has lagged behind other industries in cooperating to develop and adopt comprehensive interoperable standards for storing and exchanging information.

In many industries, standards facilitate the exchange of information or materials; the development of common inputs, fasteners, and tools; and the establishment of norms for monitoring, stress testing, and performance. In manufacturing, for example, standards improve efficiencies, removing commonly borne costs that prohibit access to supplies or distribution channels. The financial services industry has not taken the lead in adopting common standards in these areas, which is striking because information is vital in this industry.

But there are reasons why the financial industry is behind. Patents are largely unavailable for new financial products, so they can be reverse engineered and pirated. These circumstances encourage protective opacity and other defensive measures, particularly for complex products. Unlike manufacturing, the financial industry does not require physical parts such as nuts and bolts to be shipped from far away ports, so it does not always place a priority on cooperating on supply and distribution channels or standardizing inputs.

In the financial industry, a product can be invented and manufactured with little more than access to data and the money to finance the access. High profit margins allow inventors to absorb the costs of nonstandard, proprietary data to build new products for the market. The result is custom-built data solutions that lack transparency and lead to higher prices, encouraging the adoption of still more custom-built, proprietary standards.

Despite the challenges, some efforts have succeeded in standardizing parts of finance, mostly in response to crisis. For example, settlement of securities transactions sometimes took days in the 1960s because laws required that paper stocks memorializing the trades physically change hands. As a result, cars and couriers moved paper stock certificates around lower Manhattan, slowing new transactions. With prodding from regulators, big Wall Street players negotiated a

settlement to this “Paperwork Crisis,” resulting in a common identification system.

This system — CUSIP — derived its name from the committee that designed it, the Committee on Uniform Securities Identification Procedures.<sup>3</sup> Today, CUSIP is the backbone of equity trading in the United States, while a bank-owned utility, the Depository Trust & Clearing Corporation, settles most of these trades. Similar regimes exist in other jurisdictions, relying on the International Securities Identification Number, managed by the Association of National Numbering Agencies.<sup>4</sup>

Despite these advances, the financial services industry overall lacks the common data infrastructure standards that are invaluable to so many other industries, and that’s a problem. Even the basic technology and nomenclature for simple financial reports vary across regulators and jurisdictions, imposing compliance costs on firms and elevating risk management costs. Some estimates put the costs to industry of managing data without common standards in the billions. Some observers suggest multinational financial firms could collectively save about \$10 billion annually by establishing an entity identifier in wholesale financial markets.<sup>5</sup>

Regulators in the public sector, which oversee financial institutions and markets to protect investors, depositors, taxpayers, and others from failures that can affect broader economies, lack the ability to see risks as they build or find systemic vulnerabilities. This problem became so obvious during the financial crisis that the U.S. Congress later enacted legislation creating the Office of Financial Research, a new organization with a mandate to improve financial data.<sup>6</sup>

## The Nature of the Problem

If the crisis and the Lehman episode in particular revealed a basic data failure in our financial infrastructure — the ability to know who was connected to Lehman and might go down with the firm — why did the industry fail to correct the problem, as it did in creating the CUSIP?

The answer lies in the creation of proprietary, conflicting data standards over time and the industry investment

in incompatible proprietary systems that locked in resistance to change.

For decades, different identification systems were built in our financial markets. Vendors provided proprietary partial solutions, such as the CUSIP, the Dunn and Bradstreet DUNS number, and the Markit Red Code to identify reference entities in credit default swaps. These costly solutions, each different and covering a portion of the world’s financial market participants, have limited use outside of internal systems because of intellectual property limitations. To cover their costs and generate income, vendors adopted a “user pays” model for data, requiring that customers limit access to the data products. Although this approach is appropriate and common for funding data businesses, it leads to balkanization of data.

As these vendor solutions developed, no dominant product emerged to set the market standard for entity identification, and financial incentives prevailed in keeping proprietary standards proprietary.

Although conforming to a common standard might benefit most market participants, individual players examining the benefits of a cooperative system could not justify the costs of creating a global system. A global system would be a natural monopoly with enormous network effects, so private players were unlikely to cooperate without external compulsion. As a result, competitive interests fostered an inefficient system of proprietary standards, impeding the ability to match datasets and reducing the quality and reliability of financial data without costly solutions.

Help from the public sector had been limited. Over the years, different supervisors assigned different codes to the entities they supervised. In the United States alone, a single firm could have one identification number from the Federal Reserve and other banking supervisors, another ID number from a securities regulator, and still another if that firm was an investment advisory firm. Firms may also have tax identification codes and locally issued codes from state business registries. In other countries, codes could also be available at the national, state, and local levels.

These partial coding systems work well for individual supervisory needs, but exacerbate the problem of interoperability.

The costs of migrating to a new system of identification outweighed the benefits, especially when authorities continued to impose reporting requirements with still different identification standards, making the benefits diffuse and the costs of change additive.

The result was a classic collective action problem. A few early movers would bear the costs at the expense of proprietary interests in the vendor community, and those pioneers would be unlikely to recoup their expenses.

The failure to settle on a common identifier was not for lack of effort. In 2001, the International Organization for Standardization (ISO) received a request to form a working group to explore an International Business Entity Identifier. The request sat idle in ISO for several years, purportedly because of a failure to identify a suitable agent to manage the system.

This problem was predictable given the competitive nature of proprietary data providers. The firms chosen to manage such a global system would receive a valuable franchise, perhaps giving them an edge on their competitors.

Ideas for a common identifier finally gained interest in 2009.<sup>7</sup> Out of the Lehman episode and the financial crisis grew a greater agreement that infrastructure needed attention. ISO work groups formed, and the idea of an entity identifier was explored again, including using existing identifiers such as the BIC, or Business Identifier Code, formerly the Bank Identifier Code.<sup>8</sup> That effort stalled when signs appeared that the public sector might force collective action.

## Efforts to Force Collective Action

Around the same time, staff members at U.S. financial regulatory authorities began discussing the possibility of creating a globally accepted identification code system for legal entities that would satisfy a few core requirements. It would be persistent (the code would never change despite changes in company structure); it would be unique (only one code could be used for one company, everywhere in the world); it would be ubiquitous (used everywhere in the world); and it would be freely available.<sup>9</sup>

A U.S. interagency staff paper discussed these requirements and others. So did a policy statement issued by the nascent Office of Financial Research, which called on industry to marshal its resources to support a solution to this longstanding collective action problem.<sup>10</sup> Similar discussions about a broad, publicly available database of financial companies and their instruments took place in Europe.<sup>11</sup> These efforts all called for essentially the same core requirements.

Freely available data was an important attribute because all other identifiers would be pegged to the common one and uniqueness was obviously a core requirement. But two attributes stood above all others: persistence and ubiquity. Persistence was essential to track entities over time and ensure that information about an entity recorded in one dataset at one point in time was the same information captured in another place and another time. Not achieving persistence would be ending up where we started, with multiple ways to identify the same company.

Not achieving global ubiquity would leave market participants again piecing together disparate information. The need for ubiquity drove authorities in the United States and Europe to conclude that no single regulator or jurisdiction could force a solution without purchasing and making publicly available a massive global database of millions of records of entities.

Such a database would be extremely costly to maintain and could present daunting legal and reputational risks to the host jurisdiction. In addition, one sovereign state might not want to rely on a solution developed by another sovereign state. A solution had to come from a trusted, neutral third party, collective action, or both. Reaching any of these outcomes would require collective action by the public sector.

## Breaking Down Barriers and Ensuring Global Ubiquity

Collective action problems are solved either by changing incentives for early adopters and “free riders” or exerting external pressure to force cooperation.<sup>12</sup> The external pressure can come from government action or the threat of it. For example, in establishing common standards for shipping containers that hold goods moved by truck, train, and cargo ship, the threat

of Congressional action prompted industry groups to align.<sup>13</sup> For global standards, a single government cannot solve the problem alone. Another approach is necessary.

What is the best way to bring about government action across the globe? International organizations such as the International Monetary Fund, the Organisation for Economic Development and Co-Operation, and the International Organisation of Securities Commissions — some established by treaty and others formed through the soft law of international cooperation — exist to convene governments and organize global action.

Each of these important organizations serves a purpose and constituency, but none is particularly suited to promote a global infrastructure project to develop a narrow, highly technical solution that would benefit all aspects of the financial services industry. The challenge was to identify a highly influential coordinating body with a broad mandate and the capacity for expansive global participation by technical experts.

The Group of 20 (G-20) became a natural choice for breaking the longstanding collective action problems confronting what became the LEI initiative. Founded in 1999, the G-20 is an international forum of 19 countries and the European Union that promotes high-level policy discussions about international financial stability and coordinates international efforts to aid the functioning of global markets.

The G-20 was able to break the barriers to collective action for three reasons:

1. It is the premier global body of the major advanced and emerging economies and includes senior leaders of central banks and finance ministries for these countries, giving it significant moral suasion.
2. It has broad reach with membership covering the major developed and emerging economies in the world, a critical precondition to responding to the financial crisis of 2007-09 roiling world economies. (For example, in response to the onset of the financial crisis, the G-20 held an inaugural leaders' summit meeting to start addressing the various international challenges.<sup>14</sup>) With buy-in from the

broad G-20 membership, a global LEI system could cover much of the global financial marketplace.

3. It is able to draw on the support of the Financial Stability Board (FSB), another international forum of central banks and finance ministries and regulators. Unlike the G-20, the FSB has a dedicated secretariat (based in Basel, Switzerland) with a skilled staff that could guide initial work.

The G-20 asked the FSB to take the lead by promoting coordination of international regulatory work and delivering concrete recommendations on the LEI system by June 2012. This development 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.

The FSB set up a temporary “Expert Group” of key stakeholders in the global regulatory community.

Figure 1. Milestones of LEI Development

<b>December 2010</b>	U.S. regulators issue discussion paper about Legal Entity Identifier (LEI) as a linchpin for financial data.
<b>September 2011</b>	G-20's Financial Stability Board holds public-private sector workshop to begin developing LEI.
<b>June 2012</b>	G-20 leaders endorse plan for global LEI system.
<b>January 2013</b>	Regulatory Oversight Committee (ROC) created to govern LEI system.
<b>October November 2013</b>	ROC formally approves five pre-local operating units. Codes issued by them will be globally recognized for regulatory reporting.
<b>June 2014</b>	Global LEI foundation is established.
<b>January 2016</b>	ROC issues guidance on ownership of LEIs: "who owns whom."

Source: OFR analysis

The decision to expand the Expert Group beyond the membership of the G-20 and FSB to include emerging market representatives, commodities regulators, and other nontraditional FSB participants was critical. It opened initial ownership of the concept and design of what would become a global system to all reaches of the world. Without such global reach, the goal of ubiquitous adoption of the LEI system may not have been achievable.

The FSB also designed the activities of the Expert Group to foster global collective action. Different regions hosted working meetings so they could be more deeply invested in the outcome. Decisions were made through consensus, giving minority views serious attention and promoting compromise. All of this careful and inclusive design built support for the governance structure and system infrastructure.

## Principles of the New Global System

After the Expert Group's intensive deliberations, the FSB published a report making 35 recommendations for developing and implementing the global LEI system.<sup>15</sup> The report called for a system of freely available data of LEI codes. The system would be funded not by user fees but by modest fees paid by customers seeking and maintaining a code; they would benefit most from a stable financial system and improved internal risk management capabilities.

Codes had to be available at a reasonable price and on a nondiscriminatory basis. Codes also had to meet basic data quality criteria by being persistent and unique. The associated framework had to be flexible to accommodate changes in identifying information and extensible to accommodate millions of entities for generations. The system had to be administered by the private sector to allow for adaptability and speed, and overseen by a dedicated public coalition. An open-data approach, consistent with the LEI as a public good, was at the heart of the initiative. The LEI would be global, transparent, and serve multiple objectives, even some not yet conceived.

The G-20 Summit endorsed the report in June 2012, setting into motion concrete plans and steps for further development and implementation of the LEI system.

The G-20 endorsement signaled the intention of member jurisdictions to conduct the work and it set their staffs on a path to implement the proposed design. The endorsement also sent a strong signal to the private sector that a new infrastructure for identifying entities would be used — perhaps required — in member jurisdictions.

After so many years, the barriers to collective action to achieve this financial services infrastructure had fallen.

## Strong Framework and Agility

The FSB called for a public-sector governing body that would be fit for this particular purpose and no other. The logic was simple. A limited purpose board would conduct oversight of the technical infrastructure separate from policy discussions in other international coordinating bodies so it could function more swiftly and effectively.

To serve the public interest, the governance mechanism for the global LEI system would need a flexible and adaptable operational framework. The FSB Expert Group recommended a federated system that would rely on a central coordinating entity linking to a series of widely dispersed utilities that competed on price to provide LEI data services to registrants.

The central coordinating entity would ensure consistency worldwide for the global LEI system but would draw on local arrangements and infrastructures, including local validation of reference data of the entities, and local legal and regulatory frameworks. This arrangement encouraged wider adoption because, at least initially, local authorities could be expected to trust local utilities more than utilities abroad. The arrangement also would foster higher data quality because local utilities could better validate the accuracy of the identifier information, particularly given potential language barriers.

Governments — the public sector — relied on the more agile private infrastructure to handle the actual work of the system itself. This system would be flexible and adaptable to respond to relevant changes in financial markets and new potential uses.

A complex but comprehensive framework had to be built from scratch. To make this happen, authorities

used a combination of soft law<sup>16</sup> to bind the public and private sectors, statutory “hard law” to support development of an organization to coordinate the system and hold its intellectual property in the public interest, and private law (that is, contracts) to coordinate the nodes of the system.

The FSB recommendations, endorsed by the G-20, also contained a foundational piece of the new infrastructure

— a data standard developed by ISO. ISO standard 17442:2012 specifies a computer-readable, 20-character alphanumeric code connected to nine pieces of reference data that constitute the minimum information necessary to distinguish one entity from another. This simple “dumb number” carrying no embedded meaning was chosen after much discussion because of its simplicity and flexibility.

## System Governance

A three-tiered governance structure based on FSB recommendations:

### Regulatory Oversight Committee

The Regulatory Oversight Committee (ROC) is the permanent governing body for the global LEI system, with membership open to all public authorities and international organizations from around the globe that sign on to the system charter.

The choice of an open, unlimited membership, in contrast to many other national or international organizations, reflects inclusiveness and consensus building as driving forces.

It also reflects the desire to avoid having any particular geographic area with a large number of representatives dominate the group. This danger was particularly acute because an array of state institutions, rather than member states themselves, would join the ROC. For example, in the United States, seven regulators are members of the ROC. France has three regulators on the ROC and has additional representation through the

European Central Bank, the European Union, and the European securities regulator.

Because of these circumstances and its open membership, the ROC has features that assure regional balance. An Executive Committee, which performs much of the work of the ROC, is composed of five authorities each from four global regions — Asia, Europe, North America, and the rest of the world. The ROC has a chairman and two vice chairs, each drawn from different regions.

The ROC is an informal body that can neither bind its member governments, nor facilitate the development of an infrastructure for a technical data standard, such as signing contracts or maintaining a staff. Consequently, a strong entity was needed to coordinate with the vendors, the local operating units (LOUs), and the financial industry.

### Global LEI Foundation

The Global LEI Foundation is the key coordinating arm of the global LEI system, responsible for delivering high-quality operations. The foundation’s principal role is to apply universal standards and protocols to ensure the global uniqueness of the LEI, open access to the LEI and high-quality

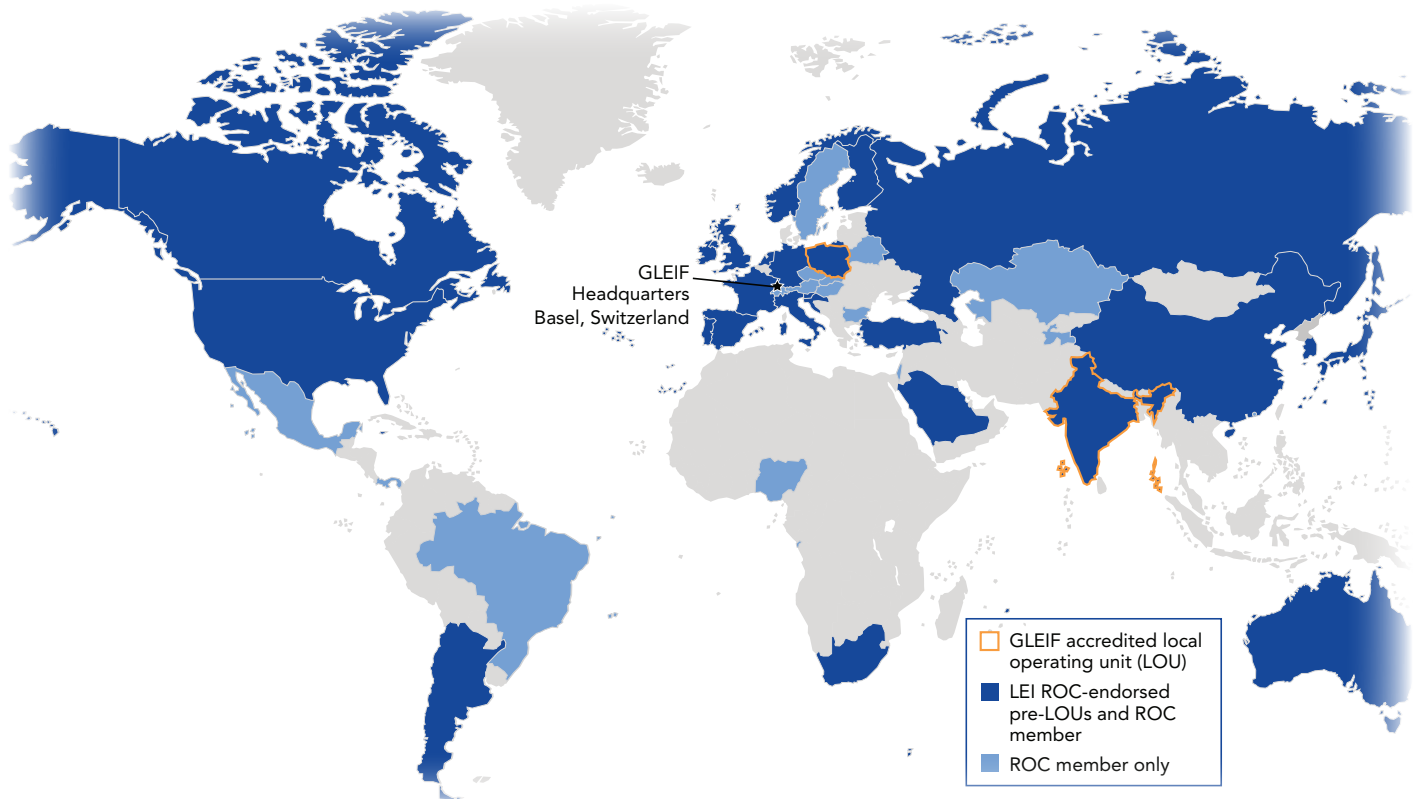
reference data, and effective methods of connecting local systems with the foundation. Its constitutional documents formalize the foundation’s fiduciary responsibility to uphold the public-sector objectives of the LEI being a freely available public good.

### Local Operating Units

LOUs are the primary interfaces for any entity interested in registering an LEI. These private-sector firms, exchanges, and similar entities are responsible for local implementation of the global system, offering local registration, validation, and

maintenance of reference data. LOUs can be part of large networks or independent entities. They might not have a local presence, but globally, they make sure every eligible entity that needs or wants an LEI may acquire one.

Figure 2. LEI ROC Members and Pre-Local Operating Units by Country



Note: LEI stands for Legal Entity Identifier. GLEIF stands for Global LEI Foundation.  
Sources: LEI Regulatory Oversight Committee, LEI local operating units

## Breakthrough at the Mexican Coffee Break

Building the infrastructure for the global LEI system presented significant challenges. The sovereign rules of authorities from around the world needed to be aligned to a common identification standard, supported by a network of providers, coordinated by a fiduciary responsible for upholding public objectives, and overseen by a group of interested nations. No single legal tool existed to create this alignment.

Speed, a narrow focus, and expertise in technical data standards were important for the development of the LEI system and its governance. Relying on the international hard law of treaties would be impractical; treaties tend to be inflexible and time-consuming to negotiate and ratify because of their legally binding nature. The choice was to rely on a charter<sup>17</sup> — a vehicle that lacks the force of law but demonstrates a commitment

to cooperate and uphold underlying principles and obligations.

However, relying on a soft law charter, rather than something harder, created concerns about how to overcome private-sector barriers to collective action.

Markets like certainty. A charter would be a nonbinding statement of intent, as opposed to a legally binding set of treaty commitments. ROC members were concerned about assuring market participants that the LEI system would be a permanent feature of the international financial regulatory landscape and that they could safely invest capital, time, and resources in it.

To reassure market participants, ROC members agreed to embedding the LEI standard into their own nations' laws and regulations when needed. They hoped that embedding the LEI in national regulation would create a degree of "stickiness," particularly for jurisdictions that would commit resources to adopting derivatives regulations. The use of soft law was not ideal, but it



was fast, and the addition of local regulations helped to improve the efficacy of the soft-law approach.

The ROC held its inaugural meeting on a cold winter's day in Toronto, Canada, in January 2013 after 50 authorities worldwide had agreed to the ROC charter. The committee was busy in its first few months, appointing the FSB as secretariat, electing chairs and an executive committee, writing bylaws, building a website to communicate with the public, writing an initial work plan, and setting up an interim system to serve pressing needs.

The harder work of building the system lay ahead. Setting up a foundation and a private infrastructure to run the system would take time, but some needs could not wait. An immediate interim solution was needed so the swap data repositories being set up in Europe and the United States (and later in Asia) would not double-count identical swap transactions reported by different counterparties.

As the U.S. Commodity Futures Trading Commission prepared to implement its rules in the fall of 2013 on swap data repositories, it sought assurances that LEI codes issued by a U.S. local operating unit would be honored by European authorities who were set to implement rules just a few months later.

Industry participants encouraged ROC members to reach agreement on a solution. In June 2013, the ROC made a breakthrough agreement during its meeting in Mexico City after discussions and what was dubbed “the Mexican coffee break.” Formal ROC discussions had reached a stalemate after heated exchanges; the chair called for a coffee break so that private discussion could be held and cooler heads could prevail. It worked, and when the formal meeting reconvened, an agreement was forged.

The ROC, the Commodity Futures Trading Commission, and the European Securities and Markets Authority agreed to endorse several utilities and recognize for reporting purposes the LEI codes they generated.

Beginning in October 2013, three LOUs from different countries — one American (CICI Utility), one French (INSEE), and one German (WM Datenservice) — were endorsed, becoming the first bricks in the global

framework of LOUs. These first mutual recognitions of foreign LOUs — relying on the agreements in the charter — embedded requirements in local regulations to use LEIs for derivatives transactions.

This milestone demonstrated the wisdom of creating a regulatory body to oversee the system and reach decisions, while avoiding ancillary policy matters. The glue to bind the global LEI system had been set.

During the past three-and-a-half years, the budding system has benefited from cooperation and collaboration among authorities from different sectors and countries, industry experts, and other stakeholders. Without this support, a global project of this importance and magnitude would not have been possible.

## A Home for the Global LEI Foundation

To serve as the central operating unit for the LEI system and operate in service to the global public sector, the Global LEI Foundation needed an appropriate home.

After relying on soft law of a charter and cooperation to organize the public sector in support of the LEI system — placing limits on the enforceability of the agreements — the ROC took a different approach to protecting the system's concrete, longstanding objectives.

The ROC chose national law to safeguard the principles reflected in the FSB's 2012 report to the G-20, such as holding all intellectual property for the public and ensuring fair treatment of users and participants. Such a suitable legal system would also limit the purposes for which foundation money could be spent, another precaution to make sure the foundation and its directors met public-good objectives.

The host jurisdiction for the foundation needed the right legal and physical infrastructure but had to be limited from exerting outsized influence that might usurp the objectives of the G-20 and the ROC. These considerations narrowed the list of potential locations.

The public sector had to avoid exposure to the liabilities of the system while exerting enough control to ensure the public's needs were satisfied.

Foundation operations required a mature and reliable statutory code that could enforce agreements,

adjudicate disputes, and protect the intellectual property generated by the system for the public good. The jurisdiction also needed human and capital resources to support the system, though this concern later faded after some operations were located elsewhere.

The FSB researched jurisdictions that might satisfy the requirements and shared the results with the ROC.<sup>18</sup> Switzerland was the best choice because it satisfied the basic requirements for legal and physical infrastructure and enjoyed a history of successful support for multinational public and private ventures.

## Statutes Under Swiss Foundation Law

A deep discussion of Swiss foundation law is beyond the scope of this paper — many treatises exist describing the tenets of Swiss foundation law<sup>19</sup> — but a brief discussion of a few core features helps explain the rationale behind structural components of the Global LEI Foundation.

Under Swiss law, a foundation can be set up only to serve an express purpose, and that purpose must be in the public interest. The purpose and other features of a foundation's organization and activities are set out in organizational "statutes," which are essentially the mission and bylaws of the foundation.

A Swiss "supervisory authority" must determine the adequacy of the statutes and purposes and whether they deserve nontaxable status. The supervisory authority would receive any complaints of a frustration of purpose or violation of the statutes.

Swiss law allows amendment of the statutes only infrequently and for narrow reasons, so the foundation documents for the Global LEI Foundation had to be carefully drafted to make sure the foundation could succeed for a long time. The documents also had to be crafted to make sure the public sector could always exert enough influence for the foundation to serve public interests.

Swiss law requires that only the directors make decisions for a foundation to ensure it meets its purposes and responsibilities.

These features of local law protect the interests of the public sector by binding directors to fiduciary duties that are difficult to alter and subject to scrutiny by an authority.

Switzerland also offered a mature legal system that would allow the foundation to protect intellectual property, enter into contracts, and defend them. Foundation contracts would be subject to Swiss law, as would the intellectual property.

The statutes the ROC drafted empower the foundation to negotiate agreements with service providers, implement standards, hold intellectual property rights in the public interest, procure services, enter into contracts, hire employees, and communicate with the public.<sup>20</sup>

One notable power of the foundation is the ability to contract with LOUs, so LOU officials can assign LEIs, collect registration fees, and collect and publish data. The ROC made clear to the global foundation and LOUs that the growth of fees would be under scrutiny.

The Global LEI Foundation is also constrained in some respects. It may not engage in lobbying. It must treat all suitable applicants to become LOUs equally and establish transparent and equitable processes for bringing new LOUs into the system. In addition, materials the foundation generates must be made public. Board members must be unpaid and reflect regional and vocational balance.

The foundation must also allow the ROC certain insights and opportunities for input. The ROC now has oversight of an independent foundation that serves the interest of about 90 public bodies.

These powers and limitations, baked into the organizing materials of the Global LEI Foundation, are enforceable through Swiss foundation law.

## Reliance on Moral Suasion

From a legal perspective, the ROC's guidance is discretionary. Under Swiss law, the foundation could in theory ignore the ROC's input and go a different way in frustration of public purposes (though not in a way that would violate provisions of the statutes).

To prevent such an occurrence, the ROC inserted in the foundation's statutes a provision requiring the

foundation to make public any instance of not following ROC recommendations.

This disclosure provision is an important tool. The Global LEI Foundation has credibility because it and the network of LOUs are considered the “golden source” for regulatory-compliant LEIs. The foundation has a strong interest in avoiding an appearance of operating in contravention of public sector wishes. Such an outcome could cast doubt on the legitimacy of the foundation’s interactions with the LOUs and the marketplace. Its ability to drive coordination among the LOUs hinges on their expectation that the public sector will require registrants to obtain and maintain valid LEIs.

These provisions alone may have been enough to ensure that the system would serve the needs of the public, the industry, and its participants. But because so many domestic rules rely on the system — rules that might take years to revise — and so many public and private interests would come to rely on the system, the ROC wanted further assurances that the system would serve the public for years to come.

The ROC inserted a final provision into the foundation statutes: the ability of the FSB as founder to appoint and remove foundation directors.<sup>21</sup> In this way, the public sector could redirect the foundation if necessary or, in a drastic circumstance, replace the entire board.

After establishing the Global LEI Foundation structure under Swiss law, the ROC took the next step of determining how to hand over management of the LOUs, which at that point were supervised by individual ROC “sponsors” in a cooperative way.

The ROC set milestones for the global foundation: establishing an infrastructure to manage the system, launching a website, and creating a master agreement to govern the relationship between the global foundation and the LOUs. Once the foundation reached these milestones, the ROC would recognize it as the central operating unit of the system and hand over management. Expressed in the form of a nonbinding memorandum of understanding, the agreement set a series of expectations for how the two organizations would work together, identified materials requiring ROC review, and established timeframes for the reviews.

Perhaps the most important feature of the agreement is a description of how disputes can be escalated. This process could culminate in the global foundation turning over all infrastructure and intellectual property to a successor organization if the ROC “derecognizes” it.

Sometimes called the “nuclear option” in internal discussions, such an outcome would be terribly disruptive to the system. For that reason, the memorandum of understanding envisioned a series of increasing seriousness steps before such a final drastic step. The last step before the nuclear option would be receivership, but even that would be doubtful given the need for a symbiotic relationship.<sup>22</sup>

Without the ROC’s support, the Global LEI Foundation would be just another utility. Without the foundation’s management, the LEI system would be in shambles. Powerful tools to enhance communication and cooperation make derecognition even more unlikely. These tools include the presence of ROC observers (the ROC chairs) at decision-making meetings of the foundation board, regular meetings between the ROC executive committee and the board, and a biweekly call between the ROC chairs and top foundation managers.

## Private Law Binds the Global LEI Foundation to Utilities Around the Globe

The final piece of the LEI system is the workhorse — the LOUs that issue the LEIs. They are the points of contact for registrants, make the first quality checks on the registration data, and maintain reference data.

As authorities designed the system and looked at the need for global reach, we recognized that firms needed the ability to look to local utilities for localized services. Some LOUs are public bodies — instrumentalities of states. Others are private service providers operating not-for-profit activities in sequestered subsidiaries. Still others are market infrastructures such as exchanges, and others are bank-owned utilities. This variety of corporate form excludes no comers, as long as they agree to the terms of the Global LEI Foundation’s master agreement and serve the G-20 principles.

The ROC uses private law — contractual arrangements — to bind these disparate and dispersed organizations toward a common approach and purpose. These contracts assure funding for the foundation and the system as a whole and institute common processes and quality among the LOUs (see **Figure 3**). The contracts also give LOUs the right to issue LEIs and collect fees.

LOUs generally operate according to common standards of conduct, risk management, cost recovery, and so forth, established by the global foundation under direction of the ROC. No antitrust bundling of LEIs is permitted and LOUs are required to operate without profit.

The contracts protect the cooperative spirit of the initiative, while preventing the development of a cartel of issuers. The system offers the LEI data free to the public, so the costs of the system are not borne by end

users but by registrants who benefit by gaining compliance with regulations, efficiency, or improved risk management.

## Conclusion

The experience in developing the global LEI system has not been perfect by any means. How could it be, with so many disparate stakeholders and so many challenges? The technical standards of persistence, uniqueness, and openness were achieved. Ubiquity, though not achieved, continues to increase.

Despite some flaws, we hope this example shows a way to coordinate and undergird our global financial system for the future. We hope we can all learn from this example and possibly replicate it. The LEI experience is not a solution for every problem, but it demonstrates the need for collective action and the need to focus on the often-ignored infrastructure of financial markets — markets that will only become increasingly integrated.

This large-scale solution required three basic ingredients:

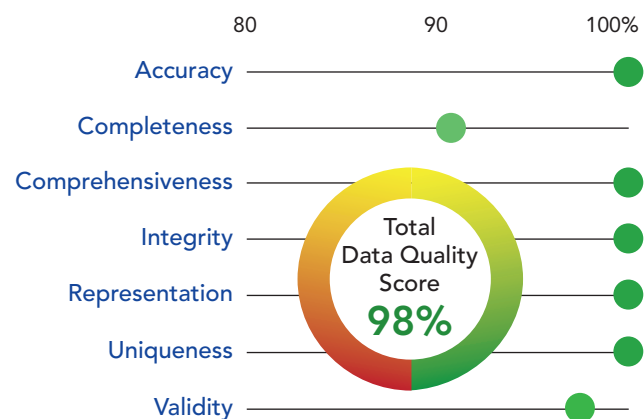
1. High-level public support that encouraged collective action and discouraged barriers to collective action, such as free ridership. That support also enabled ongoing public-sector oversight of the system.
2. Private sector engagement to join with the public sector and foster useful design and durable production of the system.
3. Creative integration of legal tools to meet the needs of the public and private sectors. These tools facilitated swift action by avoiding heavy treaty-based agreements, cooperation by embedding system requirements into local regulations, and common action by local utilities all over the world through private contracts.

Not all of these pieces will always be necessary in future endeavors, but all were critical in this seminal project.

To date, almost 500,000 LEIs have been issued. All the major financial institutions in the world have an LEI (though many of their subsidiaries do not).

Although the system is now fully operational and the LEI has been incorporated in many legal frameworks, this is not the end of the story. To fully reap the benefits of this huge effort by the public sector,

**Figure 3. LEI 2016 Data Quality Scores and Criteria**



Note: The LEI Total Data Quality Score is calculated as the equal weighted average of the seven data quality criteria listed.

Data Quality Criteria	Oct	Nov	Dec
Accuracy	100.0	100.0	100.0
Completeness	91.3	91.3	91.4
Comprehensiveness	100.0	100.0	100.0
Integrity	99.9	99.9	99.9
Representation	99.9	99.9	99.9
Uniqueness	100.0	100.0	100.0
Validity	98.1	98.1	98.1

Note: The data quality assessment of December 31, 2016, shows the majority of LEI issuers now ensure required and expected data quality for the second consecutive month. During the past year, advances were seen in both the rigor of the Global LEI Foundations's data quality rule setting, as well as the ability of LEI issuers to conform to these new standards.

Source: Global Legal Entity Identifier Foundation

financial institutions, academics and others, we must continue to explore whether to extend the LEI outside of the financial world to other fields, such as business registration, statistics, economic surveys, counterparty identification in cyberspace, and myriad others.

Other challenges remain. Although regulatory compulsion has led to rapid adoption and largely solved counterparty identification for our global swaps markets, the pace of adoption has slowed. Also, fewer firms than expected are renewing their codes — important both for quality control and the funding mechanism. In addition, some expected regulations that would mandate LEI adoption have not materialized. We must overcome these challenges to improve

the likelihood of a network effect taking hold to make the LEI truly ubiquitous.

We must also fully implement “Level 2,” the program that will capture information in our markets about “who owns whom.” That work is underway in the ROC and the Global LEI Foundation, but greater adoption of the codes must occur for Level 2 to yield anticipated benefits for authorities and markets.

The governance system and the standard are built for this kind of extensibility and utility. We hope the lessons we have learned may help others seeking to harness the tools of international cooperation for collective action, such as for identification of products or transactions.

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## Endnotes

- <sup>1</sup> Haltom, Renee, “Failure of Continental Illinois, a Detailed Essay,” May 1984, Washington, D.C. [www.federalreservehistory.org/Events/DetailView/47](http://www.federalreservehistory.org/Events/DetailView/47)
- <sup>2</sup> Financial Stability Board, “FSB Report Global Legal Entity Identifier for Financial Markets,” Switzerland: FSB, June 2012. [www.fsb.org/wp-content/uploads/r\\_120608.pdf](http://www.fsb.org/wp-content/uploads/r_120608.pdf).
- <sup>3</sup> CUSIP Global Services, “About CGS,” [www.cusip.com/cusip/about-cgs.htm](http://www.cusip.com/cusip/about-cgs.htm).
- <sup>4</sup> The ISIN (International Securities Identification Number) standard — International Organization for Standardization standard ISO 6166:2013 — is used worldwide to identify specific securities such as bonds, stocks (common and preferred), futures, warrant, rights, trusts, commercial paper and options. “About ISIN,” [www.isin.org/isin/](http://www.isin.org/isin/). ANNA, the Association of National Numbering Agencies, is the registration authority for the ISIN, “About ANNA,” [www.anna-web.org/anna/about-anna/](http://www.anna-web.org/anna/about-anna/).
- <sup>5</sup> Chan, Ka Kei and Milne, Alistair, “The Global Legal Entity Identifier System: Will It Deliver?” Loughborough University School of Business and Economics, August 2013. <https://ssrn.com/abstract=2325889> or <http://dx.doi.org/10.2139/ssrn.2325889>
- <sup>6</sup> U.S. House. *H.R.4173 — Dodd-Frank Wall Street Reform and Consumer Protection Act*. Sec 152 et seq. 111th Congress, 1st Session, Washington: Government Printing, 2009a.
- <sup>7</sup> Internal work papers of the International Organization for Standardization.
- <sup>8</sup> The BIC is managed by SWIFT, an information exchange system used by over 11,000 market participants based in Brussels and supervised by the Belgian National Bank and G-10 nations. The G-10 nations are Belgium, Canada, France, Germany, Italy, Japan, the Netherlands, Sweden, Switzerland, the United Kingdom, and the United States.
- <sup>9</sup> Bottega, John A. and Powell, Linda F., “Creating a Linchpin for Financial Data: The Need for a Legal Entity Identifier, 2010,” Washington, D.C., December 2010. [http://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=1723298&http://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=1723298](http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1723298&http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1723298). This paper also called for a number of features that have been adopted into the system including extensibility, interoperability and reliability, and important processes such as robust quality assurance and fair treatment of registrants.
- <sup>10</sup> Office of Financial Research, U.S. Department of the Treasury, *Statement on Legal Entity Identification for Financial Contracts*, Statement of policy, Washington: OFR, Federal Register 75, No. 229, Nov. 30, 2010. [www.federalregister.gov/documents/2010/11/30/2010-30018/office-of-financial-research-statement-on-legal-entity-identification-for-financial-contracts](http://www.federalregister.gov/documents/2010/11/30/2010-30018/office-of-financial-research-statement-on-legal-entity-identification-for-financial-contracts).
- <sup>11</sup> Gross, Francis, “Data Quality Management for Securities — the Case of the Centralised Securities DataBase,” Presentation, European Central Bank, May 2010. <http://unstats.un.org/unsd/accsub/2010docs-CDQIO/Ses2-ECB.ppt>
- <sup>12</sup> Harrison, Bradley D., “Standard Gauge,” August 2007. [www.strategicstandards.com/files/Metrics.pdf](http://www.strategicstandards.com/files/Metrics.pdf).
- <sup>13</sup> See generally, Levinson, Marc, *The Box: How the Shipping Container Made the World Smaller and the Economy Bigger*, Princeton University Press, 2006.
- <sup>14</sup> For example, the G-20 focused on strengthening transparency and accountability, enhancing sound regulation, promoting integrity in financial markets, reinforcing international cooperation, and reforming international financial institutions. See “Declaration Summit on Financial Markets and the World Economy,” November 2008. [www.g20.org/English/Documents/PastPresidency/201512/P020151225609230748803.pdf](http://www.g20.org/English/Documents/PastPresidency/201512/P020151225609230748803.pdf).
- <sup>15</sup> Financial Stability Board, “FSB Report Global Legal Entity Identifier for Financial Markets,” Switzerland: FSB, June 2012. [www.fsb.org/wp-content/uploads/r\\_120608.pdf](http://www.fsb.org/wp-content/uploads/r_120608.pdf).
- <sup>16</sup> See Brummer, Chris, *Soft Law and the Global Financial System*, Cambridge University Press (2015). As the author notes, particularly in chapter three, “soft law,” that is, nonbinding agreements based not on binding treaties but on formal and informal agreements and institutional understandings without a court of jurisdiction, can have the effect of “hard” or treaty-based law, particularly when coupled with domestic commitments evidenced by regulation or reputational influences.
- <sup>17</sup> A charter in this case was a description of the purposes of the ROC, including matters relating to its organization and purposes, which members would assent to by a writing by a senior official from a prospective member. By its own terms, it is nonbinding.
- <sup>18</sup> Financial Stability Board, “Legal advice on matters regarding Switzerland as the potential domicile for the GLEIF (or similar entity),” Switzerland: December 2012. [www.fsb.org/wp-content/uploads/r\\_121220.pdf](http://www.fsb.org/wp-content/uploads/r_121220.pdf).
- <sup>19</sup> Ibid.
- <sup>20</sup> Global LEI Foundation, “GLEIF Statutes,” Switzerland: June 2014. [www.gleif.org/en/about/governance/statutes](http://www.gleif.org/en/about/governance/statutes).
- <sup>21</sup> Swiss law requires a “legal person” to serve as founder of a foundation. Because the ROC lacked (and continues to lack) legal status, the ROC asked the Financial Stability Board to serve as the founder. Although initially formed like the ROC as a group of authorities without legal status, by 2012 the FSB organized to gain legal status in Switzerland.
- <sup>22</sup> Copies of all the referenced governing documents can be found at [www.gleif.org](http://www.gleif.org) or [www.leiroc.org](http://www.leiroc.org).