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**Title: The data dilemma**

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While institutions continue to put huge resources into creating standard repositories holding 'golden copies' of financial data, there is growing support for the view that the industry would be better off standardising the data at source, and thereby reduce systemic risk. Clive Davidson reports

Forensic examination of the financial crisis has identified a lack of information - or perhaps more pertinently, lack of a coherent framework in which to look at that information - as a leading culprit. When Lehman Brothers failed in September 2008, many banks were unable to determine a clear picture of what their overall exposures were, while regulators also struggled to piece together the bigger picture.

Yet the information issue is by no means a recent phenomenon. Paradoxically, the industry is flooded with data, but has problems converting this into useful information. The financial crisis has brought into sharp focus the dilemma of what to do with data and the urgent need for a remedy.

The sheer volume of data is just one part of the problem: a bigger issue is inconsistency. The plethora of symbols, definitions, descriptions, data models and formats makes it difficult to aggregate and analyse exposures in a consistent way, achieve market transparency or improve automation that is vital for efficiency and the reduction of operational risk.

Today, every institution, including banks, regulators and data vendors, must try to make sense of the situation in a massive data transformation exercise that is repeated endlessly and at great expense across the industry. As a result, there are growing calls for the sector to seize the opportunity presented by the crisis and begin work on industry-wide data standards that will address the information problem at its roots.

The basic elements of the financial markets business - buyers, sellers, instruments, contracts and venues - have in the past 10 years all become much more complex. Back-office operations have struggled to keep up, especially as they have been viewed as cost centres where spending must be kept in check.

However, such an approach has proved a false economy, as banks have had to translate at significant cost all their data into internal standards in a central database - a 'golden copy' ([Risk June 2009, pages 63-65](#)). But it is not only banks facing this problem. Vendors that gather and redistribute data must impose their own stamp on information, while regulators also need to translate the data into a manageable format for their market analysis.

"We have even more of a challenge than the banks," says Mike Powell, global head of enterprise information at New York-based data and technology vendor Thomson Reuters. The company gathers and aggregates data from more than 300 exchanges and thousands of sources of terms and conditions, corporate actions and other data. "We spend vast resources taking in raw content - including documents, spreadsheets

and CSV files - and putting it into a standard digital format."

Despite such efforts, no vendor's service is complete or 100% accurate, so the banks and regulators generally use several services provided by the likes of Thomson Reuters, New York-based Bloomberg, Massachusetts-based Interactive Data and London-based Markit, among others, each with its own standard digital format.

Like commercial banks, the Frankfurt-based European Central Bank (ECB) has created its own golden copy, which is critical for its statistical operations. But it feels this is not a satisfactory situation. "Fixing the quality of data that should be reliable in the first place is not rewarding - it takes scarce resources away from other tasks," explains Francis Gross, head of the external statistics division at the ECB.

More seriously, a profusion of golden copies does nothing for overall market visibility, especially when considering the commonly held view that a lack of transparency was a key contributor to the crisis. Given the risk inherent in inadequate transparency and the massive duplication of effort and costs in creating many individual golden copies, Gross believes the industry should standardise fundamental data at its source and create a utility to distribute it.

An engineer by training, Gross moved to the ECB from the car industry, which long ago standardised data on components, parts and other basic elements of the business. Bill Nichols, programme director, securities processing automation, at the Software & Information Industry Association's financial information services division (SIIA/FISD), agrees the comparison with manufacturing industries is apt. "I don't know of any other industry supply chain where there is not an agreed rationalisation of part numbers and product descriptions," he says. "You can't manufacture things in other industries without precise specifications everyone agrees on."

The problem the financial industry faces, however, is that anyone can manufacture products without standardised definitions. Indeed, the incentives are weighted to encourage this. "Because you make bigger margins by staying on the leading edge of more and more complex and esoteric deals, the incentive in the capital markets from a revenue standpoint is to crank out as many custom deals as possible," explains Nichols.

But times have changed. When Gross floated the idea of a data utility two-and-a-half years ago, it was greeted with scepticism, so he shelved it. Now people are listening. "The crisis has sharpened people's awareness of the data issue," he says.

The ECB is focusing on one of the three main elements of financial data - instrument identification and description. (The other two are business entity identification and data attribute identification.) Gross proposes creating a global securities reference data utility to hold a full and detailed electronic record of every instrument issued or traded. All information will be held in a standard format, and the database should be a public utility open to all - in other words, a 'golden source' rather than many golden copies.

The suggestion seems simple and logical, and would appear to solve many of the industry's current data problems in one fell swoop, at least for instrument identification. But it also raises a barrage of questions. What format will the database use? Who will prepare the data in this format and input it? What will become of the data vendors? What about intellectual property issues on some of the commonly used securities identifiers? Will market participants buy into it, especially if they are making a profit under current conditions?

In terms of format, the ECB is proposing the data model it uses for its internal golden copy. The system, developed by London-based consultancy Finsoft Financial Systems, provides fundamental building blocks from which all instruments can be constructed. This is different from most other approaches to instrument identification, which are restricted to or at least start out by representing a particular category of instruments, such as bonds or derivatives, and expand from there.

"Our remit was to look at the universe of financial instruments from the outset, so we had to do things in a different way," says Soeren Kier Christensen, director of Finsoft. "We looked at the history of financial innovation and saw that over the past 20 years most developments are incarnations of existing concepts rather than something entirely new. We realised if we covered the fundamental financial concepts, we could put them together in packages that could represent even the most complex derivatives instruments or structured products."

Significantly, the fundamental financial concepts in the data model include collateral, schedules and cashflows, and notions such as forward contracts on payments or collection of payments. These are mostly missing in other data standardisation schemes, such as the Financial Products Markup Language (FpML) for derivatives. However, the building block approach means it is straightforward to convert instrument representations based on FpML or other standards into the ECB data model. The ECB has been using the data model for its golden copy since September 2008 and its database currently holds more than 5.5 million securities. So far, it has been able to represent every instrument it has come across, claims Christensen.

In terms of how it would operate, Gross proposes creating a global utility responsible for collecting the data, ensuring its quality and distributing or selling it (to data vendors that might want to repackage it in some way or other bulk users). More controversially, he proposes all those creating and issuing instruments be compelled by law to provide full data in the utility's specified format.

"What we have at the moment in terms of data is a 'tragedy of the commons'," says Gross. As he sees it, market participants act in their own self-interest with data. Because no single participants can improve the situation alone, this creates the potential for additional systemic risk that is in no-one's interest. "Everyone needs to have good reference data - but everyone needs to contribute. Data will be good for all, or it will be good for none. Submitting reference data to a utility needs to be backed by law."

That proposal is complicated by the fact laws are generally national (with a regional layer added for companies located within European Union member states) but the proposed utility will be global. To address this, Gross suggests the utility act as an independent service provider to national regulators, with countries allowed to join at their own pace. The utility could start by serving a set of countries - for example, those in the EU - and grow from there.

Nichols of SIIA/FISD agrees the commitments to data standardisation need to be backed by law, arguing that without legal compulsion, some institutions may be reluctant to participate in such an exercise. Given the current cut-throat competition between exchanges for liquidity, these entities are unlikely to concede any ground when it comes to proprietary data and formats without regulators forcing them to, adds Powell of Thomson Reuters. This view is echoed by those working on initiatives in the other main data areas - business entity identifiers and data attribute identifiers.

The Enterprise Data Management (EDM) Council, a not-for-profit industry body, is currently creating a 'semantics repository' of standardised terms and definitions for all reference data attributes. London-based business data modelling specialist Hypercube is building the repository on a wiki model, whereby users will

be able to contribute and the repository will be an open resource for the industry. The ECB aims to incorporate these standards in its securities reference data utility.

Although there is widespread support for the initiative, the EDM Council is under no illusions the industry will voluntarily adopt its standards. "Our research and analysis strongly suggests the near-term mandate does not exist to change how financial institutions operate," concedes Michael Atkin, managing director of the EDM Council. "Some method of compulsion is required to overcome these organisational shortcomings and implement the essential data standards required to move the industry forward."

The sector faces similar challenges with business entity identification. Stop-start efforts have been under way to create standards in this area since 2000, when the International Organization for Standardization (Iso) initiated a project that ultimately came to nothing. Swift, the financial messaging organisation, subsequently took up the effort, but banks once again failed to support the initiative, largely because many had their own internal business identifier projects.

"In the past, firms have invested heavily in cross-referencing across their internal systems," explains John Mulholland, New York-based global head of reference data, capital markets and securities operations at RBC Financial Group. "Unfortunately, that's not going to be good enough because we need transparency on an inter-bank and inter-market relationships level, and you can't solve that internally at each firm - you have to solve it on a macro level."

Since the crisis, Iso and Swift have been working with a number of other industry bodies to try to make progress on standardisation. But while they may make technical progress, and come up with good schemes for representing business identifiers, the perception is that such schemes are doomed to failure without legal compulsion.

"Trying to build consensus from the ground up will never work," says Mulholland. "It's got to come from the top down. And that is the obstacle to achieving and establishing industry-wide standards. I think a body will have to come out of the G-20. This is no longer about persuading firms to do something. This is about making policy, putting in place the infrastructure to govern that policy and enforcing compliance."

The message from advocates of data standardisation appears to be filtering through to the upper levels of the industry. In a speech in February to the Committee of European Securities Regulators (Cesr), Jean-Claude Trichet, president of the ECB said: "Access to relevant data is essential for the assessment of risks and vulnerabilities in the financial system. This is why such access must be part and parcel of a well-functioning arrangement for macro-prudential supervision."

Trichet acknowledged the need for a higher degree of transparency from financial institutions and markets that could affect financial stability, and asserted standards are part of achieving this. "We very much welcome the current dialogue between the ECB and Cesr on the possibility of creating a standard for reference data on securities and issuers, with the aim of making such data available to policy-makers, regulators and the financial industry through an international public infrastructure. Such an infrastructure would enable interested parties to produce more timely analysis of increasingly complex financial markets, especially in times of turbulence," he remarked.

Even those supporting the creation of a common international public infrastructure for financial data acknowledge it will take considerable effort. However, many of the data vendors that at first glance might appear the most affected are open to the idea. "Standards would take away some of our costs and

complexity," says Thomson Reuters' Powell. "No-one is going to get all their data from original sources. The trend is moving in the opposite direction, towards outsourcing to vendors like us."

Even if securities reference data was standardised and made available through a public utility, vendors still have large areas of information to cover, such as prices, derived data and news. And standardisation of basic data would push vendors to focus on more sophisticated information, such as machine-readable news.

Avox, a subsidiary of Deutsche Borse, provides business entity reference data, gathering information from outside sources and its clients, and pooling the information on business entity events and developments. Ken Price, chief executive of Avox, believes this approach is inexpensive and easy to adopt. Like Powell, he does not believe industry standardisation efforts will necessarily be bad for business. "Greater standardisation means more data becomes commoditised and Avox can focus on other data elements that deliver higher incremental value to our clients," says Price.

The crisis made clear the consequences of markets rendered opaque by the lack of consistent, accurate information. Consequently, there is a growing belief all the remedies being proposed to avoid future crises, including greater market oversight and more detailed institutional reporting, will flounder without better quality data. People familiar with previous efforts to standardise data insist the old approach of self-regulation and consensus-building will not work. The crisis has created the rationale and environment for addressing the fundamental problems of financial data at the root level. "The industry has to understand that unless the data issues get resolved, everything regulators, central banks and others responsible for market oversight try to do will fall short," says Mulholland, adding the industry has a unique opportunity to fix its data. "It's now or never."

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