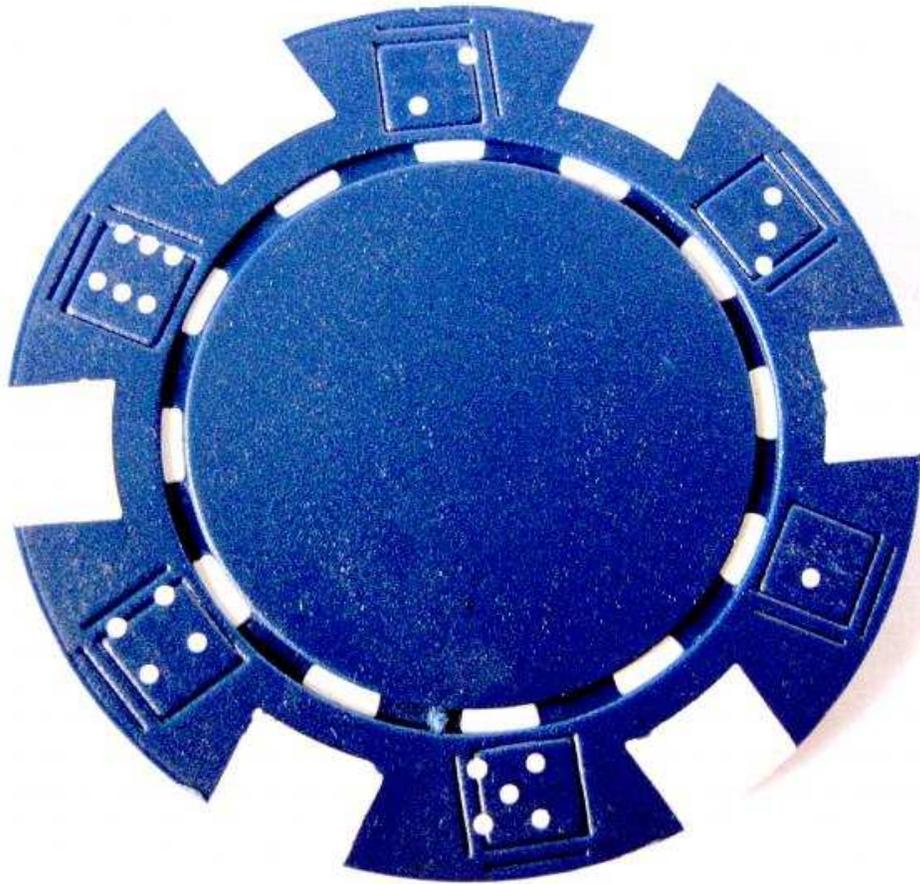




# Finding the Trigger of the Next Collapse

*By Allan D. Grody | September 17, 2013*



Time to count total risks inside a financial enterprise.

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The credit crisis of 2008 is now over. But, it's time to reengineer the world's financial data system to be able to detect the next potential collapse, before it arrives.

What will such a reengineered system look like?

Identification codes for all players and products trading in the world's financial markets. A 'big data' framework that provides both regulators and participants themselves with real-time information of financial exposures as they build up between parties in particular contracts and instruments. And clear thresholds that trigger alerts when they still matter.

### **The Global Legal Entity Identifier System (GLEIS)**

The Global Legal Entity Identifier System (GLEIS) initiative was accepted in 2011 by the leaders of a Financial Stability Board whose mandate to monitor financial system risk worldwide comes from the G20 industrial nations. The GLEIS is currently being developed and implemented under the Regulatory Oversight Committee, a group comprised of 51 global regulators.

This system helps identify systemic risk by aggregating related groups of counterparties in financial transactions.

Every legal entity is identified in a way that can be matched to a counterparty ... and rolled up so that it is clear what the overall exposure of the company that ultimately controls the business is.

The key: Being able to connect the dots between parties, products and, inside complex organizations, between all the subsidiaries and affiliates to be able to detect the contagion before it spreads across the global financial system.

### **Semantics of Risk Analysis**

It's not enough to aggregate the identifier codes; the data associated with them has to be aggregated as well. It has to be tagged, using the eXtensible Markup Language, so that the data flowing through the financial system is understandable by computers and organized into useable form.

This is the objective of the Financial Industry Ontologies for Risk and Regulation Data (FIORD) project in Europe, which includes participants ranging from storage giant EMC to top academic institutions such as Durham University (UK), University College London,

University of Cork (Ireland) to financial institutions such as the Nomura Group to leading edge modeling and financial technology software companies, Beinformed and Peracton, to my own firm's UK arm, Financial InterGroup- UK.

The object is to develop or source novel algorithms, software infrastructures and methodologies for real-time interaction, visualization, analytics and decision support applications over extremely large volumes of this data (tagged, structured and unstructured) that comprise the global financial system.

The project will have to span multiple types of data that matter to effective regulation and spotting of financial risks, including: prices, valuations and cash flows, order and trade execution data, market data for bids and offers, last sales and volume information, order book information, news and economic data, post-trade data such as trade allocation information and payment and settlement instructions, corporate event notifications, creation and continuation data for derivatives, and data on financial instruments and contracts, counterparties and other financial market participants.

This is "big data": billions of market-related messages, industry-related economic information, and data on individual company and contract markets distributed globally in real time. As example, just the market data feeds expressing bids and offers distributed on U.S. equity and options exchanges in the U.S. on April 25, 2013, peaked at 5.51 million transactions a second.

Analyzing all the data will be done in two parts.

## **1. Stream Computing**

The streams of data can be:

- Feeds of order and trading data from exchange providers.
- Internal feeds of data from the individual industry members. This would include risk reporting data such as pricing, valuation and cash flows; order books, executed trades, fail trades and other market data; and,
- Other data such as Legal Entity Identifier (LEI) data, Unique Product Identifier (UPI) data, and more, as it become available.

The data would be processed by an inference engine designed to find patterns and trip pre-identified triggers.

FIORD would be able to uncover patterns of trading, leverage and asset crowding that will give regulators insight into triggers of systemic risk exposures. A suggested early focus for the FIORD project is systemic risk that might be generated by high-frequency trading (HFT).

## **2. Intelligent network**

The FIORD platform leverages the registries of the Financial Stability Board's Global Legal Entity Identifier System to perform systemic risk aggregation. It requires each LEI register to conform to specifications for a "network architecture" and "plug-in card" envisioned by the FSB that will make sure each "node" of the world's financial system is reporting activity around the clock, in real time.

This is not unlike how the architecture of the Internet interoperates.

This will be the global financial industry's computing "cloud," assembled under regulatory guidance.

### **Finding the Black Swan**

Global risk regimes are based on logical frameworks.

But every sovereign nation will implement the framework somewhat differently.

This means that such determinants of risk as bank capital requirements and net capital rules for futures and stock brokers need to be pulled together across all entities and all products and "normalized" to a single format. Then, and only then, can regulators and market participants start to see risks as they mount.

If tagged properly, risks can be tracked by industry, by region or country and by regulatory domain i.e. bank, bank holding company, trust company, broker-dealer, futures commission merchant, exchange, clearing organization, central counterparty.

Fund families even can be watched by investment style, to see if they're losing liquidity or collateral. Weightings of cash flows and valuations of positions can be done by economic, book and regulatory capital to determine stress of capital depletion.

This aggregation of data through an intelligent network will allow triggers to be set, maintained and responded to when exposures pass designated thresholds, such as VaR

(Value at Risk) thresholds, leverage ratios, variation margin limits, lending concentration limits, trading limits, credit limits, et al.

But, most importantly, new patterns can be observed, traced and watch. For instance, new Swaps Execution Facilities are being created to respond to legislation that organizes credit default swaps and other previously highly structured and directly negotiated financial instruments onto regulated exchange-traded markets. New order, price discovery and distribution data will now come online, to be watched over by FIORD's intelligent pattern matching algorithms. That will provide warning of the next "Black Swan" event for financial experts, just like national security experts follow the chatter of terrorists.

The Black Swan event will be discovered through the novelty of the pattern that emerges. The pattern will not fit known triggers of systemic bloodshed.

But that pattern can be put through stress tests and risk scenarios. And, when one of those new patterns is identified as potentially creating unusual harm to the world's financial ecosystem, informed humans will have to recognize the potential destructive force and act on it.

Before the Black Swan arrives.