

Testimony

Before the Subcommittee on Oversight & Investigations in the
House Financial Services Committee
United States House of Representatives

For Release on Delivery
Expected at
9:30 a.m. EST
Wednesday
July 13, 2011

Oversight of the Office of Financial Research & Financial Stability Oversight Council

Statement of

John Liechty
Professor of Marketing and Statistics,
Director of the Center for the Study of Global Financial Stability,
Smeal College of Business, Penn State University

Mr. Chairman and Members of the Subcommittee:

I would like to thank you for the opportunity to appear before you to discuss the importance of ensuring that our financial regulators and more importantly our financial market participants are given the ability to understand, monitor and ultimately reduce system-wide risks to our financial system.

There are three main points that I would like to make in my testimony:

Financial stability requires transparency – the ability for regulators to both see through the counterparty network and the ability to see through asset backed, financial products to the underlying assets is an important fundamental component that is needed in order to be able to monitor the stability of the financial system. Transparency will require universally accepted identifiers and reporting standards – in essence it will require banks to get their back-offices in order. The investments required to improve transparency will not only result in improved macro-prudential regulation; they will result in improved risk management and substantial operational savings for the industry.

We face a significant scientific task - not only do we not have the data in place, we have not done the science needed to understand system-wide risks to the financial system. In many ways, financial regulators are like the weather services, before the National Oceanic and Atmospheric Administration (NOAA) was established. NOAA was given the mandate to i) collect new data, ii) develop new models for identifying extreme events and improving weather forecasts and iii) conduct the science necessary to understand the weather systems and build these next generation models. The Financial Services Oversight Council (FSOC) and the Office of Financial Research (OFR) face similar challenges and have been given a similar mandate.

We cannot afford to fail – we live in a leveraged economy where the resilience and growth potential of the economy depends on having both an innovative and stable financial system. Innovation often leads to instability, unless the appropriate infrastructure is in place to provide stability. The FSOC and OFR offer a way forward to build this infrastructure. The risk that we live with, if we fail to have the proper oversight to provide a stable system, is not just the devastating economic impact that would come from another financial crisis of the magnitude of the 2008 crisis, but more importantly the political reality that will follow. If we can't get this right and there is another crisis, then there is a very real risk that the political response may result in a response that adversely affects the financial market's ability to innovate.

Origins of the Office of Financial Research

Before providing details on these three points, I would like to give a brief narrative about the origins of the Office of Financial Research. The idea for an OFR was born at a February 2009 workshop, which was sponsored jointly by the Office of the Comptroller of the Currency and the National Institute of Statistical Sciences. As a participant at this workshop, I was part of a small group of academics and regulators who came up with the idea of creating a National Institute of Finance.

The workshop was focused on financial risk and statistics and while the title sounded promising and the workshop was held shortly after the crisis of 2008, the discussions were all about understanding risks to individual institutions and ignored the broader system-wide risks. As a participant, I asked

about the availability of data on the entire financial system, in order to begin to model and understand the potential threats to financial stability. I was told that no one had data on the entire system and that it was unlikely that this type of data could be collected, without new legislative authority and additional resources. I joined a small group of workshop participants on the second day of the workshop and we sketched an outline for a National Institute of Finance, which would have the authority to collect system wide data, the capability to analyze this data and responsibility and resources to engage in the science needed to be able to credibly model the financial system during times of stress.

This group evolved into the Committed to Establish the National Institute of Finance (see www.cenif.org), which eventually included over 130 academics, practitioners and financial regulators from the US. This was a volunteer group of concerned citizens who saw a compelling national need and helped organize a legislative response. The group never formally organized and never raised any money. It actively engaged the main regulators, policy makers and legislators and eventually succeeded in having the Office of Financial Research (which is very similar to the proposed National Institute of Finance - see S.3005: The National Institute of Finance Act of 2010), included in the Dodd Frank Act of 2010; for more details, a short description of this effort was detailed in the Sep. 15, 2010 Wall Street Journal article, "How a Street Watchdog Got its Bite".)

We have been flying blind

In his opening, verbal remarks to the Senate Banking committee on June 18, 2009, while introducing the legislative framework, which eventually became the Dodd-Frank Act of 2010, Secretary Geithner made the following admission.

" If this crisis has taught us anything, it has taught us that risk to our system can come from almost any quarter. We must be able to look in every corner and across the horizon for dangers *and our system was not able to do that.*" (emphasis added)

This remark is especially relevant as Secretary Geithner had previously served as the President of the Federal Reserve Bank of New York and was intimately involved in the efforts to avert and then minimize the impact of the 2008 financial crisis. Our regulators and senior policy makers did not have any real idea of the impact of letting Lehman Brother fail and, potentially even more troubling, they did not even have an awareness of the large concentration of credit default swap position that AIG Financial Products held until the very weekend that Lehmann Brother's was failing. They were in essence flying blind.

The first step that regulators need to take to ensure that they are able to monitor financial system is to make sure that they can measure the system. The back offices of most financial institutions are in disarray. While many financial institutions are highly sophisticated and employ exceptionally talented individuals, their efforts have largely been on making money and not on improving their operations. To illustrate, there are very few financial institutions that can routinely capture all of their transactions in an electronic format. As a result comprehensive risk reports (reports which reflect all of a firms positions) are time-consuming to produce and intermittently available to senior managers.

There are obvious concerns about the level of reporting that will be required from industry by the members of the FSOC and the OFR and there is a clear desire by everyone to ensure that these reporting burdens are kept at a minimum. There are essentially three different types of data that can be requested by regulators. The first level is accounting data – essentially balance sheet information that summarizes cash flows. It is important to note that when financial products (e.g. derivative products) are represented in accounting summaries, their reported value reflects the firm's valuations (based on market data and internal models). While this is often reasonable, particularly with respect to assets that are traded in liquid markets, there are clear limitations to this type of data. For example, accounting summaries do not reflect how cash flows might change in the future, under different market conditions (they simply take a weighted average over possible events). For example, bank liquidity backstops or contracts to provide short-term liquidity to Structure Investment Vehicles (SIVs) were routinely valued at near zero. This was clearly a gross understatement of their value once Lehman Brothers collapsed. Accounting summaries, on their own, are not likely to be sufficient for understanding systemic risk.

The other types of data that could be required by regulators and the OFR would include internal risk reports and transaction and position data. The only risk system outputs that are currently being reported are the stress-test reports that are required from the Systemically Important Financial Institutions (SIFIs). Currently, there are no regulators that routinely require detailed transaction and position data. The OFR is required to collect transaction and position data, in addition to other data that either the FSOC or the Director of the OFR deems necessary to be able to assess the stability of the financial system. To the extent that the OFR needs accounting data to fulfill its mandate, it will need to work closely with each financial institution's primary regulator to avoid dual reporting. With regards to detailed transaction and position data, the OFR will be collecting data that has never been collected in a systematic manner by regulators; hence these data collection efforts will not represent a dual reporting burden. In fact, if the OFR effectively uses its authorities, it will not only be able to provide the FSOC with this detailed data, which is essential to monitoring the financial system, it will facilitate changes throughout the financial system that will result in dramatic improvements in risk management and deliver substantial operational savings to market participants.

Creating a single, consistent source of identifiers (unique IDs) for legal entities and financial products is an important step to improving data management in the financial markets. A second important step would be the creation of a universal set of data models or reporting standards for legal entities and transactions and positions. Once these identifiers and reporting standards are established, the OFR has the authority to require a wide range of financial firms to adopt them. This adoption would have the effect of requiring firms to, in essence, clean up their back offices and would result in a number of important benefits. First, firms would have an electronic copy of all of their transactions reflected in their central IT systems, at the time that they are settled and they would be able to routinely produce risk reports that reflected all of their firm's exposures. Second, it would be relatively straightforward for firms to provide an electronic copy to the OFR when transactions settle – allowing the OFR to build a comprehensive view of the financial system and then share this data with the members of the FSOC. Third, it would result in dramatic operational savings for the industry. The universal identifiers are needed in order to allow the OFR to build a consistent counterparty network; they are also essential for helping market participants reduce order matching errors. One major market participant, who was involved with the effort to create the OFR legislation, indicated that the adoption of universal identifiers and reporting standards would result in somewhere between a 20 to 30% savings in their annual operating expenses. Multiplied across the entire industry this would result in billions of dollars of operational savings.

The Science of the Financial System is Not Complete

On November 3, 2009 the National Academy held a workshop titled Technical Capacities Necessary for Systemic Risk Regulation – participants included two Nobel Laureates and a range of academic, practitioners and regulators. (The complete list of participants can be found in the workshop proceedings – see www.nap.edu/catalog.php?record_id=12841). Following are extracts from the workshop proceedings:

"It was widely acknowledged at the workshop that the United States currently lacks the technical tools to monitor and manage systemic financial risk with sufficient comprehensiveness and precision."

"Market efficiency will be enhanced by improved intelligence about what is going on in the system as a whole."

"Existing capabilities to value individual instruments and manage firm-specific risks and capture system-wide exposures are not a sufficient foundation for systemic risk management."

As a participant at the workshop, I was struck by the recurring theme that while we have some good starting points for how to model the broader financial system and identify systemic risk, we do not have a mature scientific framework and an accompanying set of tools that will allow us to understand the financial system, especially when it is under stress. The prevalent view at this workshop, was that we need to engage in a concerted scientific effort that involves collecting data, developing theory and models which will result in new insights and then lead to a refined data collection effort and a subsequent refinement of theory and models.

Understanding our financial system is one of the great scientific challenges of our generation. This is a challenge that is extremely important and that will take an ongoing concerted effort – an effort that the OFR is mandated to help lead.

Existing modeling approaches include network models, statistical models of asset returns (which drive Value at Risk type calculations), derivative pricing models, and dynamic equilibrium models. While all of these models have varying degrees of utility, they all have serious deficiencies – especially when the system experiences times of stress.

The next generation of models needs to account for a richer conceptual framework such as the following shock propagation framework. Fundamentally, any systemic risk model needs to not only include a model of how the financial system becomes stressed, it needs to provide an understanding of how these stresses could result in a substantial disruption to the intermediation markets that are essential to the functioning of the broader economy and that would potentially require an intervention by the government. For example the freezing of the commercial paper market, the breakdown in the market for mortgage backed securities or the sudden and sustained collapse of equity prices on electronic exchanges.

There are at least three important elements of a systemic crisis that must be incorporated into next generation models of the financial system and ultimately into an effective systemic-risk monitoring system:

1. *The origin of a shock.* There must be a clear idea of the potential buildup and origin of stress or shocks that could potentially trigger a systemic event. These *primary shocks* could come from endogenous events arising from herd behaviors by market participants, such as *Aggregation Risks* where market participants have similar exposures (e.g. pervasive holdings of mortgage backed assets, heavy reliance on short-term funding) or *Crowded Trading Risks* where market participants use similar trading strategies (e.g. high frequency stat-arb trading or portfolio insurance), both of which can lead to asset bubbles – especially in the presence of leverage; These primary shocks could also come from exogenous events such as *Environmental* or *Geopolitical Risks* (e.g. BP's oil spill, changes in government policy, terrorist attacks, wars) and more traditional *Economic Risks* (e.g. interest rate risks, disruption due to new technologies, resource constraints or sudden shifts in demand).

These risks are predominantly market risks, where the sudden loss in the value of assets can cause market participants to become distressed. They could also contain credit risks, where a group of market participants suddenly reveal that they are insolvent or when the credit rating of market participants are downgraded by a rating agency (which could trigger margin calls), but these events could be viewed as a delayed revelation of market risk.

Currently we have very little understanding of how firms group together based on their exposure to exogenous events or traditional risks. In addition we have a poor understanding of how herd behavior can lead to a sudden collapse in the value of assets (e.g. the build up and especially the bursting of an asset bubble). Mapping the market with respect to traditional risks and understanding and measuring how and when endogenous shocks might arise should be two key priorities for the OFR.

2. *The propagation of shocks.* There must be a clear idea of how shocks propagate through the system. This understanding is based on knowing the interconnections between market participants and how a set of distressed firms can subsequently cause other firms to become distressed. For example firms can be connected through *Interbank Lending* in terms of a break down in short-term funding (especially for Broker Dealers), through the *Derivatives Counterparty Network* both in terms of margin or collateral calls and in terms of hedges disappearing because of insolvent counterparties and through *Book Correlations*, in terms of firms holding assets similar to the assets that distressed firms are selling.

Understanding shock propagation includes understanding *Domino Risks*, how the insolvency or illiquidity of one institution could cause the insolvency or illiquidity of counterparties and counterparties of counterparties and so on. It can include *Roll-Over Risks*, where distressed firms won't provide or can't find short-term funding, potentially causing new firms to become distressed or causing fire-sales respectively. It also includes *Cascading Fire Sale Risks*, where the supply of assets exceeds the demand, resulting in liquidity failures for a particular market. These liquidity failures can cause a cycle of continued fire sales, where existing and newly distressed firms continue to sell in order to meet margin calls, redemptions or regulatory requirements. Ultimately, the propagation of shocks through the network is a complicated interaction between market risks, liquidity risks and credit risks.

The problem that is most likely the hardest scientific problem that will be faced by the Office is the problem of modeling the *reaction function* or the sequence of actions that firms will take in response to a primary shock and then subsequent actions taken by all of the firms in the network in response to the shock propagating through the system. Mapping the *Domino Risk* - or how the insolvency and/or illiquidity of a group of firms can cause a cascade of insolvencies and/or liquidities through the system is interesting, but it is a static problem that ignores the fact that firms will react to the failure of counterparties and market stress. Once a primary shock occurs, the problem of understanding how the shock will propagate essentially turns into a game-theoretic problem. If the shock is substantial enough, it is likely that vast numbers of the market participants will be forced into similar behaviors, which could substantially reduce the complexity of the game being modeled. Gaining a better understanding of the network, which will require the collection of new data and gaining a deep understanding of the reaction function should be key parts of the OFR's effort, if the OFR is going to be able to develop a realistic understanding of how shocks propagate through the financial system.

3. *The breakdown of intermediation markets.* There must be a clear idea of the structure of the financial system, especially of key intermediation markets that are essential to the broader economy, and a clear idea of when the propagation of a shock can cause a breakdown in one or more of these markets, where one critical mechanism that needs to be understood is the *Flight to Quality* where market wide panic results in runs on key markets as investors hoard cash and market participants stop trading, which stops firms from changing positions and adjusting hedges. The markets that need to be understood can include the formal, standardized capital markets such as exchanges and clearinghouses; they can also include informal or loosely organized markets such as interbank, repo, over the counter (OTC) and securitization markets.

In order to understand when a markets can fail and how dependent the economy is on different intermediation markets, it is essential that the OFR develops a clear understanding of the market structure – the size and capacity of different markets or connections between critical activities in the economy and financial system and then the dependence of the economy on these markets – and an understanding of the capacities of these markets. These efforts should focus on gaining an ability to understand liquidity risks that are inherent in the market structure. In what would need to be an ongoing effort, the OFR should routinely document the ‘plumbing of the market’ and understand how much stress it can take. These efforts will allow the OFR to help identify not only liquidity risk, but also potential operational risks and security threats to the financial system.

In addition, in order to understand how market wide panics can arise, the OFR needs to make efforts to help develop a deep understanding of investor behavior and successfully integrate realistic behavioral elements into the OFR models.

The Risks of Leaning on the Past

In a recent Financial Times article, Alan Greenspan said he feels financial markets are “unredeemably opaque”, see *Understand the Financial System First and then Regulate It*, FT April 1, 2011. I have been in a public meeting where Chairman Greenspan essentially threw up his hands and said that even with all of the intellectual and research capacity at the disposal of the Federal Reserve System, he does not feel that markets can be understood sufficiently to identify and preemptively respond to asset bubbles (and presumably other types of systemic risk). Instead he argues that we should be ready to apply monetary policy to help markets recover after an asset bubble has burst and rely on market discipline to ensure that participants will not engage in activities that might threaten the entire system.

With regards to market discipline, it is clear from the past crisis that we cannot rely on market discipline alone to provide stability. Waiting until after the crisis to respond is unacceptable and responding in a disorganized fashion during a crisis, which is what happens when regulators and policy makers are unprepared, is both foolish and dangerous. It is true that science and the tools have not been developed yet. But that is a call to action, not a cause for despair. In some ways, those who take Chairman Greenspan’s views are rooted firmly in the past; it is like hearing an explanation of why prediction was from a director of the National Weather Service 50 years ago, after yet another devastating hurricane had made landfall without any warning. We can do better and we must .



In order to develop the science and models that the FSOC and other macro-prudential regulators need, we need to break from the research efforts of the past and take new approaches. We need to move from small science efforts, which are dominated by a single discipline, and hence a particular conceptual framework, to large science efforts that incorporate teams of scientists from a variety of different disciplines and that bring a rich set of perspectives and frameworks for understanding our financial system. The OFR offers a vehicle to catalyze this needed change in the way that the science of financial markets is approached.

In closing, the last financial crisis cost the U.S. taxpayers trillions of dollars and led to unacceptably high levels of unemployment. Citizens from all ranges of life were incensed that financial companies, which had engaged in reckless and self-serving activities were rescued, while the rest of the economy suffered and paid the price for their excesses – a price that is still being paid today. The crisis demonstrated that our system needed reform and it provided the political focus to make legislative changes possible. In some sense we are in a race against time. We need to do all that we can to ensure that the next crisis is as far in the future as possible, because if we have another crisis in the near future it will be hard to argue to an enraged population that we have the essential structure in place, we simply didn’t have enough time to understand the system properly and build effective safeguards based on that understanding. I would conclude by respectfully calling on the Administration to nominate a Director for the OFR forthwith. Until that happens, the OFR will be limited in its ability to become established and help provide the insights that we need.

United States House of Representatives
Committee on Financial Services

“TRUTH IN TESTIMONY” DISCLOSURE FORM

Clause 2(g) of rule XI of the Rules of the House of Representatives and the Rules of the Committee on Financial Services require the disclosure of the following information. A copy of this form should be attached to your written testimony.

1. Name: John Licchij	2. Organization or organizations you are representing: Self
3. Business Address and telephone number: 	
4. Have <u>you</u> received any Federal grants or contracts (including any subgrants and subcontracts) since October 1, 2008 related to the subject on which you have been invited to testify? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	5. Have any of the <u>organizations you are representing</u> received any Federal grants or contracts (including any subgrants and subcontracts) since October 1, 2008 related to the subject on which you have been invited to testify? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
6. If you answered “yes” to either item 4 or 5, please list the source and amount of each grant or contract, and indicate whether the recipient of such grant was you or the organization(s) you are representing. You may list additional grants or contracts on additional sheets.	
7. Signature: 	

Please attach a copy of this form to your written testimony.