

Daniel K Tarullo: Equipping financial regulators with the tools necessary to monitor systemic risk

Testimony by Mr Daniel K Tarullo, Member of the Board of Governors of the Federal Reserve System, before the Subcommittee on Security and International Trade and Finance, Committee on Banking, Housing, and Urban Affairs, US Senate, Washington DC, 12 February 2010.

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Chairman Bayh, Ranking Member Corker, and other members of the Committee, thank you for inviting me to testify today. I also want to thank all of you for taking the time to explore a subject that is easily overlooked in the public debate around financial reform, but that will be central to ensuring a more stable financial system in the future.

The recent financial crisis revealed important gaps in data collection and systematic analysis of institutions and markets. Remedies to fill those gaps are critical for monitoring systemic risk and for enhanced supervision of systemically important financial institutions, which are in turn necessary to decrease the chances of such a serious crisis occurring in the future. The Federal Reserve believes that the goals of agency action and legislative change should be (1) to ensure that supervisory agencies have access to high-quality and timely data that are organized and standardized so as to enhance their regulatory missions, and (2) to make such data available in appropriately usable form to other government agencies and private analysts so that they can conduct their own analyses and raise their own concerns about financial trends and developments.

In my testimony this morning I will first review the data collection and analysis activities of the Federal Reserve that are relevant to systemic risk monitoring and explain why we believe additional data should be collected by regulatory authorities with responsibility for financial stability. Next I will set forth some principles that we believe should guide efforts to achieve the two goals I have just noted. Finally, I will describe current impediments to these goals and suggest some factors for the Congress to consider as it evaluates potential legislation to improve the monitoring and containment of systemic risk.

The Federal Reserve and macro-prudential supervision

The Federal Reserve has considerable experience in data collection and reporting in connection with its regulation and supervision of financial institutions, monetary policy deliberations, and lender-of-last-resort responsibilities. The Federal Reserve has made large investments in quantitative and qualitative analysis of the U.S. economy, financial markets, and financial institutions. The Federal Reserve also has recently initiated some new data collection and analytical efforts as it has responded to the crisis and in anticipation of new financial and economic developments.

For supervision of the largest institutions, new quantitative efforts have been started to better measure counterparty credit risk and interconnectedness, market risk sensitivities, and funding and liquidity. The focus of these efforts is not only on risks to individual firms, but also on concentrations of risk that may arise through common exposures or sensitivity to common shocks. For example, additional loan-level data on bank exposures to syndicated corporate loans are now being collected in a systematic manner that will allow for more timely and consistent measurement of individual bank and systemic exposures to these sectors. In addition, detailed data obtained from firms' risk-management systems allow supervisors to examine concentration risk and interconnectedness. Specifically, supervisors

are aggregating, where possible, the banks' largest exposures to other banks, nonbank financial institutions, and corporate borrowers, which could be used to reveal large exposures to individual borrowers that the banks have in common or to assess the credit impact of a failure of a large bank on other large banks. Additional time and experience with these data will allow us to assess the approach's ability to signal adverse events, and together they will be a critical input to designing a more robust and consistent reporting system.

Furthermore, we are collecting data on banks' trading and securitization risk exposures as part of an ongoing, internationally coordinated effort to improve regulatory capital standards in these areas. Moreover, analysis of liquidity risk now incorporates more explicitly the possibility of marketwide shocks to liquidity. This effort also is an example of the importance of context and the need to understand the firms' internal risk models and risk-management systems in designing data collection requirements. Data that only capture a set of positions would not be sufficient since positions would not incorporate behavioral assumptions about firms, based on information about firms' business models and practices.

The Federal Reserve's responsibilities for monetary policy are also relevant for systemic risk monitoring. Systemic risk involves the potential for financial crises to result in substantial adverse effects on economic activity. As the nation's central bank, the Federal Reserve assesses and forecasts the U.S. and global economies using a wide variety of data and analytical tools, some based on specific sectors and others on large-scale models. In the wake of the crisis, research has been expanded to better understand the channels from the financial sector to the real economy. For example, building on lessons from the recent crisis, the Federal Reserve added questions to the Survey of Professional Forecasters to elicit from private-sector forecasters their subjective probabilities of forecasts of key macroeconomic variables, which provides to us, and to the public, better assessments of the likelihood of severe macroeconomic outcomes.

The Federal Reserve has made substantial investments in data and analytical staff for financial market monitoring. Each day, the Trading Desk at the Federal Reserve Bank of New York analyzes and internally distributes reports on market developments, focusing on those markets where prices and volumes are changing rapidly, where news or policy is having a major effect, or where there are special policy concerns. Those analyses begin with quantitative data, supplemented with information obtained through conversations with market participants and reviews of other analyses available in the market. Over the past few years, the Desk has worked closely with our research staff in developing new quantitative tools and new data sources.

This ongoing monitoring requires continual evaluation of new data sources and analytical tools to develop new data as new markets and practices develop. For example, information on market volumes and prices can be collected from new trading platforms and brokers, data on instruments such as credit default swaps, or CDS, are provided by vendors or market participants, and fresh insights are gained from new methods of extracting information from options data. In some cases, publication of data by the private sector may be mandated by legislation (such as, potentially, trade data from over-the-counter derivatives trade repositories); in other cases, the Federal Reserve or other government agencies or regulators require or encourage the gathering and publication of data.

Our experiences with supervision, monetary policy, and financial market monitoring suggest that market data gathering and market oversight responsibilities must continuously inform one another. In addition, efforts to identify stresses in the system are not a matter of running a single model or focusing on a single risk. Rather, it is the assembly of many types of analysis in a systematic fashion. The Supervisory Capital Assessment Program (SCAP) for large financial institutions – popularly known as the “stress test” when it was conducted early last year – illustrates the importance of combining analysis by credit experts, forecasts and

scenario design by macroeconomists, and hands-on judgments by supervisors in assessing the financial condition and potential vulnerabilities of large financial institutions.

While considerable steps have been made in the wake of the financial crisis, the Federal Reserve intends to do a good deal more. The Federal Reserve also will continue to strengthen and expand its supervisory capabilities with a macro-prudential approach by drawing on its considerable data reporting, gathering, and analytical capabilities across many disciplines. In the areas in which we are collecting data through the supervisory process on measures of interlinkages and common exposures among the largest financial firms we supervise, we are developing new analytical tools that may lead us to change our information requests from supervised firms. The Federal Reserve is exploring how to develop analytically sophisticated measures of leverage and better measures of maturity transformation from information that we can collect from the supervised firms in the supervisory process and from other available data and analysis. We envision developing a robust set of key indicators of emerging risk concentrations and market stresses that would both supplement existing supervisory techniques and assist in the early identification of early trends that may have systemic significance and bear further inquiry. This kind of approach will require data that are produced more frequently than the often quarterly data gathered in regulatory reports, although not necessarily real-time or intraday, and reported soon after the fact, without the current, often long, reporting lags. These efforts will need to actively seek international cooperation as financial firms increasingly operate globally.

The potential benefits of additional data

Improved data are essential for monitoring systemic risk and for implementing a macro-prudential approach to supervision. The financial crisis highlighted the existence of interlinkages across financial institutions and between financial institutions and markets. Credit risks were amplified by leverage and the high degree of maturity transformation, especially outside of traditional commercial banking institutions. Moreover, supervision traditionally has tended to focus on the validity of regulated firms' private risk-management systems, which did not easily allow comparisons and aggregation across firms.

One key feature of the recent crisis was the heavy reliance on short-term sources of funds to purchase long-term assets, which led to a poor match between the maturity structure of the firms' assets and liabilities. Such maturity transformation is inherently fragile and leaves institutions and entire markets susceptible to runs. Indeed, a regulatory, supervisory, and insurance framework was created during the Great Depression to counter this problem at depository institutions. However, in recent years a significant amount of maturity transformation took place outside the traditional banking system – in the so-called shadow banking system – through the use of commercial paper, repurchase agreements, and other instruments. Our ability to monitor the size and extent of maturity transformation has been hampered by the lack of high-quality and consistent data on these activities. Better data on the sources and uses of maturity transformation outside of supervised banking organizations would greatly aid macro-prudential supervision and systemic risk regulation.

Another feature of the recent crisis was the extensive use of leverage, often in conjunction with maturity transformation. The consequences of this combination were dramatic. When doubts arose about the quality of the assets on shadow banking system balance sheets, a classic adverse feedback loop ensued in which lenders were increasingly unwilling to roll over the short-term debt that was used as funding. Liquidity-constrained institutions were forced to sell assets at increasingly distressed prices, which accelerated margin calls for leveraged actors and amplified mark-to-market losses for all holders of the assets, including regulated firms. Here, too, government regulators and supervisors had insufficient data to determine the degree and location of leverage in the financial system.

More generally, the crisis revealed that regulators, supervisors, and market participants could not fully measure the extent to which financial institutions and markets were linked. A critical

lesson from this crisis is that supervisors and investors need to be able to more quickly evaluate the potential effects, for example, of the possible failure of a specific institution on other large firms through counterparty credit channels; financial markets; payment, clearing, and settlement arrangements; and reliance on common sources of short-term funding.

A better system of data collection and aggregation would have manifold benefits, particularly if the data are shared appropriately among financial regulators and with a systemic risk council if one is created. It would enable regulators and a council to assess and compare risks across firms, markets, and products. It would improve risk management by firms themselves by requiring standardized and efficient collection of relevant financial information. It also would enhance the ability of the government to wind down systemically important firms in a prompt and orderly fashion by providing policymakers a clearer view of the potential impacts of different resolution options on the broader financial system.

Additional benefits would result from making data public to the degree consistent with protecting firm-specific proprietary and supervisory information. Investors and analysts would have a more complete picture of individual firms' strengths and vulnerabilities, thereby contributing to better market discipline. Other government agencies, academics, and additional interested parties would be able to conduct their own analyses of financial system developments and identify possible emerging stresses and risks in financial markets.

One area in which better information is particularly important is the web of connections among financial institutions through channels such as interbank lending, securities lending, repurchase agreements, and derivatives contracts. Regulators also need more and better data on the links among institutions through third-party sponsors, liquidity providers, credit-support providers, and market makers. Knowledge of such network linkages is a necessary first step to improve analysis of how shocks to institutions and markets can propagate through the financial system.

Principles for developing a system of effective data and analytical tools

Moving from the recognition of the need for more data to an efficient data system is not an easy task. Data collection entails costs in collection, organization, and utilization for government agencies, reporting market participants, and other interested parties. Tradeoffs may need to be faced where, for example, a particular type of information would be very costly to collect and would have only limited benefits. The Internet and other applications of information technologies have made us all too aware of the potential for information overload, a circumstance in which relevant information is theoretically available, but the time and expense of retrieving it or transforming it into a usable form make it unhelpful in practical terms. Collection of more data just for its own sake also can raise systemic costs associated with moral hazard if investors view data collection from certain firms, products, and markets as suggesting implicit support. It is thus particularly worth emphasizing the importance of having data available readily and in a form that is appropriate for the uses to which it will be put. With these considerations in mind, we have derived a number of guiding principles for a system of new data and analytical tools for effectively supervising large institutions and monitoring systemic risk.

First, the priorities for new data efforts should be determined by the nature of regulatory and supervisory missions. In particular, the data need to be sufficiently timely and to cover a sufficient range of financial institutions, markets, instruments, and transactions to support effective systemic risk monitoring and macro-prudential supervision, as well as traditional safety-and-soundness regulation. The events of the past few years have painfully demonstrated that regulators, financial institutions, and investors lacked ready access to data that would have allowed them to fully assess the value of complex securities, understand counterparty risks, or identify concentrations of exposures.

The data needed for systemic risk monitoring and supervision are not necessarily “real-time” market data – information about trades and transactions that can be reported at high frequency when the events occur – but certainly data would need to be “timely”. What is considered to be “timely” will depend on its purpose, and decisions about how timely the data should be should not ignore the costs of collecting and making the data usable. For many supervisory needs, real-time data would be impractical to collect and analyze in a meaningful way and unnecessary. For example, while supervisors may indeed need to be able to quickly value the balance sheets of systemically important financial institutions, very frequent updates as transactions occur and market prices change could lead to more volatility in values than fundamental conditions would indicate and would be extraordinarily expensive to provide and maintain. Certainly, real-time data could be needed for regulators responsible for monitoring market functioning, and daily data would be helpful to measure end-of-day payment settlements and risk positions among the largest firms. But for supervising market participants, real-time market data could require enormous investments by regulators, institutions, and investors in order to be usable while yielding little net benefit. As policymakers consider redesign of a system of data collection, the goal should be data that are timely and best suited to the mission at hand.

A second principle is that data collection be user-driven. That is, data on particular markets and institutions should be collected whenever possible by the regulators who ultimately are responsible for the safety and soundness of the institutions or for the functioning of those markets. Regulators with supervisory responsibilities for particular financial firms and markets are more likely to understand the relevance of particular forms of standardized data for risk management and supervisory oversight. For example, supervisors regularly evaluate the ability of individual firms’ own risk measures, such as internal ratings for loans, and of liquidity and counterparty credit risks, to signal potential problems. As a result, these supervisors have the expertise needed to develop new reporting requirements that would be standardized across firms and could be aggregated.

Third, greater standardization of data than exists today is required. Standardized reporting to regulators in a way that allows aggregation for effective monitoring and analysis is imperative. In addition, the data collection effort itself should encourage the use of common reporting systems across institutions, markets, and investors, which would generally enhance efficiency and transparency. Even seemingly simple changes, such as requiring the use of a standardized unique identifier for institutions (or instruments), would make surveillance and reporting substantially more efficient.

Fourth, the data collected and the associated reporting standards and protocols should enable better risk management by the institutions themselves and foster greater market discipline by investors. Currently, because the underlying data in firms’ risk-management systems are incomplete or are maintained in nonstandardized proprietary formats, compiling industry-wide data on counterparty credit risk or common exposures is a challenge for both firms and supervisors. Further, institutions and investors cannot easily construct fairly basic measures of common risks across firms because they may not disclose sufficient information. In some cases, such as disclosure of characteristics of underlying mortgages in a securitized pool, more complete and interoperable data collection systems could enhance market discipline by allowing investors to better assess the risks of the securities without compromising proprietary information of the lending institution.

Fifth, data collection must be nimble, flexible, and statistically coherent. With the rapid pace of financial innovation, a risky new asset class can grow from a minor issue to a significant threat faster than government agencies have traditionally been able to revise reporting requirements. For example, collateralized debt obligations based on asset-backed securities grew from a specialized niche product to the largest source of funding for asset-backed securities in just a few years. Regulators, then, should have the authority to collect information promptly when needed, even when such collections would require responses from a broad range of institutions or markets, some of which may not be regulated or

supervised. In addition, processes for information collection must meet high standards for reliability, coherence, and representativeness.

Sixth, data collection and aggregation by regulatory agencies must be accompanied by a process for making the data available to as great a degree as possible to fellow regulators, other government entities, and the public. There will, of course, be a need to protect proprietary and supervisory information, particularly where specific firm-based data are at issue. But the presumption should be in favor of making information widely available.

Finally, any data collection and analysis effort must be attentive to its international dimensions and must seek appropriate participation from regulators in other nations, especially those with major financial centers. Financial activities and risk exposures are increasingly globalized. A system without a common detailed taxonomy for securities and counterparties and comparable requirements for reporting across countries would make assembling a meaningful picture of the exposures of global institutions very difficult. Efforts to improve data collection are already under way in the European Union, by the Bank of England and the Financial Services Authority, and the European Central Bank, which has expressed support for developing a unified international system of taxonomy and reporting. The Financial Stability Board, at the request of the G-20, is initiating an international effort to develop a common reporting template and a process to share information on common exposures and linkages between systemically important global financial institutions.

Barriers to effective data collection for analysis

Legislation will be needed to improve the ability of regulatory agencies to collect the necessary data to support effective supervision and systemic risk monitoring. Restrictions designed to balance the costs and benefits of data collection and analysis have not kept pace with rapid changes in the financial system. The financial system is likely to continue to change rapidly, and both regulators and market participants need the capacity to keep pace.

Regulators have been hampered by a lack of authority to collect and analyze information from unregulated entities. But the recent financial crisis illustrated that substantial risks from leverage and maturity transformation were outside of regulated financial firms. In addition, much of the Federal Reserve's collection of data is based on voluntary participation. For example, survey data on lending terms and standards at commercial banks, lending by finance companies, and transactions in the commercial paper market rely on the cooperation of the surveyed entities. Moreover, as we have suggested, the data collection authority of financial regulators over the firms they supervise should be expanded to encompass macro-prudential considerations. The ability of regulators to collect information should similarly be expanded to include the ability to gather market data necessary for monitoring systemic risks. Doing so would better enable regulators to monitor and assess potential systemic risks arising directly from the firms or markets under their supervision or from the interaction of these firms or markets with other components of the financial system.

The Paperwork Reduction Act also can at times impede timely and robust data collection. The act generally requires that public notice be provided, and approval of the Office of Management and Budget (OMB) be obtained, before any information requirement is applied to more than nine entities. Over the years, the act's requirement for OMB approval for information collection activity involving more than nine entities has discouraged agencies from undertaking many initiatives and can delay the collection of important information in a financial crisis. For example, even a series of informal meetings with more than nine entities designed to learn about emerging developments in markets may be subject to the requirements of the act. While the principle of minimizing the burdens imposed on private parties is an important one, the Congress should consider amending the act to allow the financial supervisory agencies to obtain the data necessary for financial stability in a timely manner when needed. One proposed action would be to increase the number of entities from which information can be collected without triggering the act; another would be to permit

special data requests of the systemically important institutions could be conducted more quickly and flexibly.

The global nature of capital markets seriously limits the extent to which one country acting alone can organize information on financial markets. Many large institutions have foreign subsidiaries that take financial positions in coordination with the parent. Accordingly, strong cooperative arrangements among domestic and foreign authorities, supported by an appropriate statutory framework, are needed to enable appropriate sharing of information among relevant authorities. Strong cooperation will not be a panacea, however, as legal and other restrictions on data sharing differ from one jurisdiction to the next, and it is unlikely that all such restrictions can be overcome. But cooperation and legislation to facilitate sharing with foreign authorities appears to be the best available strategy.

Significant practical barriers also exist that can, at times, limit the quality of data collection and analysis available to support effective supervision and regulation, which include barriers to sharing data that arise from policies designed to protect privacy. For example, some private-sector databases and bank's loan books include firms' tax identification (ID) numbers as identifiers. Mapping those ID numbers into various characteristics, such as broad geographic location or taxable income measures, can be important for effective analysis and can be done in a way that does not threaten privacy. However, as a practical matter, a firm may have multiple ID numbers or they may have changed, but the Internal Revenue Service usually cannot share the information needed to validate a match between the firm and the ID number, even under arrangements designed to protect the confidentiality of the taxpayer information obtained.

In addition, a significant amount of financial information is collected by private-sector vendors seeking to profit from the sale of data. These vendors have invested in expertise and in the quality of data in order to meet the needs of their customers, and the Federal Reserve is a purchaser of some of these data. However, vendors often place strong limitations on the sharing of such data with anyone, including among federal agencies, and on the manner in which such data may be used. They also create systems with private identifiers for securities and firms or proprietary formats that do not make it easy to link with other systems. Surely it is important that voluntary contributors of data be able to protect their interests, and that the investments and intellectual property of firms be protected. But the net effect has been a noncompatible web of data that is much less useful, and much more expensive, to both the private and the public sector, than it might otherwise be.

Protecting privacy and private-sector property rights clearly are important policy objectives; they are important considerations in the Federal Reserve's current data collection and safeguarding. Protecting the economy from systemic risk and promoting the safety and soundness of financial institutions also are important public objectives. The key issue is whether the current set of rules appropriately balances these interests. In light of the importance of the various interests involved, the Congress should consider initiating a process through which the parties of interest may exchange views and develop potential policy options for the Congress's consideration.

Organization structure for data collection and developing analytical tools

In addition to balancing the costs and benefits of enhanced data and analytical tools, the Congress must determine the appropriate organizational form for data collection and development of analytical tools. Budget costs, production efficiencies, and the costs of separating data collection and analysis from decision-making are important considerations. Any proposed form of organization should facilitate effective data sharing. It also should increase the availability of data, including aggregated supervisory data as appropriate, to market participants and experts so that they can serve the useful role of providing independent perspectives on risks in the financial system.

The current arrangement, in which different agencies collect and analyze data, cooperating in cases where a consensus exists among them, can certainly be improved. The most desirable feature of collection and analysis under the existing setup is that it satisfies the principle that data collection and analysis should serve the end users, the regulatory agencies. Each of the existing agencies collects some data from entities it regulates or supervises, using its expertise to decide what to collect under its existing authorities and how to analyze it. Moreover, the agencies seek to achieve cost efficiencies and to reduce burdens on the private sector by cooperating in some data collection. An example is the Consolidated Reports of Condition and Income, or Call Reports, collected by the bank regulatory agencies from both national and state-chartered commercial banks. The content of the reporting forms is coordinated by the Federal Financial Institutions Examination Council, which includes representatives of both state and federal bank regulatory agencies.

A standalone independent data collection and analysis agency might be more nimble than the current setup because it would not have to reach consensus with other agencies. It might also have the advantage of fostering an overall assessment of financial data needs for all governmental purposes.

However, there would also be some substantial disadvantages to running comprehensive financial data collection through a separate independent agency established for this purpose. A new agency would entail additional budget costs because the agency would likely need to replicate many of the activities of the regulatory agencies in order to determine what data are needed. More importantly, because it would not be involved directly in supervision or market monitoring, such an agency would be hampered in its ability to understand the types of information needed to effectively monitor systemic risks and conduct macro-prudential supervision. Data collection and analysis are not done in a vacuum; an agency's duties will inevitably reflect the priorities, experience, and interests of the collecting entity. Even regular arms-length consultations among agencies might not be effective, because detailed appreciation of the regulatory context within which financial activities that generate data and risks is needed. The separation of data collection and regulation could also dilute accountability if supervisors did not have authority to shape the form and scope of reporting requirements by regulated entities in accordance with supervisory needs.

An alternative organizational approach would be available if the Congress creates a council of financial regulators to monitor systemic risks and help coordinate responses to emerging threats, such as that contemplated in a number of legislative proposals. Under this approach, the supervisory and regulatory agencies would maintain most data collection and analysis, with some enhanced authority along the lines I have suggested. Coordination would be committed to the council, which could also have authority to establish information collection requirements beyond those conducted by its member agencies when necessary to monitor systemic risk.

This approach might achieve the benefits of the current arrangement and the proposed independent agency, while avoiding their drawbacks. The council would be directed to seek to resolve conflicts among the agencies in a way that would preserve nimbleness, and it could recommend that an agency develop new types of data, but it would leave the details of data collection and analysis to the agencies that are closest to the relevant firms and markets. And while this council of financial supervisors could act independently if needed to collect information necessary to monitor the potential buildup of systemic risk, it would benefit directly from the knowledge and experience of the financial supervisors and regulators represented on the council. The council could also have access to the data collected by all its agencies and, depending on the staffing decisions, could either coordinate or conduct systemic risk analyses.

Conclusion

Let me close by thanking you once again for your attention to the important topic of ensuring the availability of the information necessary to monitor emergent systemic risks and establish effective macro-prudential supervisory oversight. As you know, these tasks will not be easy. However, without a well-designed infrastructure of useful and timely data and improved analytical tools – which would be expected to continue to evolve over time – these tasks will only be more difficult. We look forward to continued discussion of these issues and to a development of a shared agenda for improving our information sources. I would be happy to answer any questions you might have.