FINANCIAL SECTOR ASSESSMENT PROGRAM

UNITED STATES OF AMERICA

CRISIS MANAGEMENT ARRANGEMENTS

TECHNICAL NOTE

MAY 2010

INTERNATIONAL MONETARY FUND
MONETARY AND CAPITAL MARKETS DEPARTMENT

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GLOSSARY

AIG	American International Group
AFS	Agency for Financial Stability
BHC	Banking Holding Company
BIS	Bank for International Settlements
CEO	Chief Executive Officer
CFTC	Commodity Futures Trading Commission
CPC	Central Point of Contact
DGS	Deposit Guarantee Scheme
DIF	Deposit Insurance Fund
ECB	European Central Bank
EESA	Emergency Economic Stabilization Act of 2008
EIC	Examiners In Charge
EME	Emerging Market Economy
FBA	Federal Banking Agency
FBIIC	Financial and Banking Information Infrastructure Committee
FDIC	Federal Deposit Insurance Corporation
FDIRA	Federal Deposit Insurance Reform Act 2005
Fed	Board of Governors of the Federal Reserve System
FFIEC	Federal Financial Institutions Examination Council
FHC	Financial Holding Company
FHFA	Federal Housing Finance Agency
FDICIA	Federal Deposit Insurance Corporation Improvement Act of 1991
FINMA	Swiss Financial Market Supervisory Authority
FIRA	Financial Institutions Regulatory Administration
FRB	Board of Governors of the Federal Reserve System
FRBNY	Federal Reserve Bank of New York
FSAP	Financial Sector Assessment Program
FSB	Financial Stability Board
FSF	Financial Stability Forum
FSOC	Financial Services Oversight Committee
GLBA	Gramm–Leach–Bliley Act also known as the Financial Services Modernization Act of 1999
GSE	Government Sponsored Enterprise
IPC	Individual, Partnership, or Corporation
IOSCO	International Organization of Securities Commissions
LBHI	Lehman Brothers Holdings Inc
LBIE	Lehman Brothers International Europe
LCFIs	Large Complex Financial Institutions
LLP	Limited Liability Partnership

LTCM	Long-Term Capital Management
MBS	Mortgage-Backed Security
NAIC	National Association of Insurance Commissioners
NCUA	National Credit Union Administration
OCC	Office of the Comptroller of the Currency
OTC	Over-the-Counter
OTS	Office of Thrift Supervision
PDCF	Primary Dealer Credit Facility
PWG	President's Working Group
SCAP	Supervisory Capital Assessment Program
SEC	Securities and Exchange Commission
SIPC	Securities Investor Protection Corporation
SNB	Swiss National Bank
SPV	Special Purpose Vehicle
SSG	Senior Supervisors Group
SSIs	Standard Settlement Instructions
TALF	Term Asset-Backed Securities Loan Facility
TLGP	Temporary Liquidity Guarantee Program

EXECUTIVE SUMMARY[1]

Events since August 2007 have tested arrangements for crisis management and financial stability in the U.S. In a framework of multiple, statutorily independent agencies, these arrangements were largely informal. Once the crisis broke, the agencies managed to coordinate effectively to improvise solutions to the problems they faced and were able to contain the crisis. However, the crisis also revealed shortcomings in arrangements ahead of the crisis, both in the framework for identification of systemic threats and in the limitations of the tools at the disposal of the U.S agencies to deal with failing institutions. These shortcomings, which should be judged in the context of a crisis of unprecedented scope and size, contributed to a situation that proved to be enormously costly in terms of economic and financial disruption and the scale of public intervention.

Specifically, the main shortcomings in the U.S. crisis management arrangements highlighted by the crisis are:

- The absence of formal responsibility for financial stability, individually or collectively, or a systematic interagency approach to monitoring and addressing potential systemic risks;
- Legal hurdles to information collection and obstacles to information-sharing among the agencies which hampers assessment of systemic risks;
- Absence of authority to require functional regulators to change their rules to address an identified and emerging systemic risk; and
- Crisis management tools that have lagged behind the complexities of the U.S. financial system that the agencies have to manage.

These deficiencies are recognized and addressed in the regulatory reforms under discussion in Congress. The recommendations in this paper push in the same direction but differ on some specifics. It is recommended that the U.S. agencies should:

- Clarify the responsibilities of the agencies that are expected to contribute to the delivery of financial stability and establish a formal council of the regulatory agencies, the Fed, and the Treasury to serve as the systemic risk regulator (SRR) with a mandate for financial stability. This body or should meet regularly (at least quarterly) to discuss potential risks to financial stability. Risk assessment should be comprehensive and cross-sectoral with periodic stress tests[2] to check the capacity of financial institutions to withstand severe shocks. Where

[1] Drafted by Andrew Gracie, IMF consultant.

[2] cf the Supervisory Capital Assessment Program (SCAP) undertaken by the U.S. authorities in early 2009.

significant potential risks are identified, the body should also consider whether, and if so how, these should be mitigated by regulatory or other changes (e.g., development of market infrastructure). The council should also oversee a continuous program of work on crisis preparation including ensuring that effective coordination and information-sharing arrangements are in place and that crisis management tools remain up-to-date and are tested to meet any potential risks to financial stability identified.

- Clarify how responsibility for systemic risk oversight will be discharged, both for monitoring systemic risks and, where necessary, introducing regulatory changes to address these. Providing the council with the power to demand information and require regulatory and/or supervisory action, after consultation with the appropriate prudential regulator, as well as assigning one agency as its agent and lead executor would avoid the dissipation of responsibility within a committee structure. The lead executor would most naturally be the Fed considering the close relationship between monetary stability and financial stability, the Fed's daily interaction with key market participants in carrying out monetary policy and its role as operator and overseer of key payment systems and as liquidity provider to the banking system, as well as its current role as the consolidated supervisor of bank holding companies.

- Define principles for future access to emergency liquidity assistance for banks and non-banks in light of the wider access to central bank liquidity support provided during the crisis. Ensure capacity to provide liquidity support in crisis situations is not so circumscribed as to be ineffective. Review prudential liquidity requirements for any institutions with potential access to liquidity support.

- Review the funding arrangements for the deposit insurance fund by removing the ceiling on the size of the fund or increasing its size, to address the procyclicality in the current arrangements and to target premiums that take account of systemic risk.

- Adopt a comprehensive resolution regime for dealing with the failure of large financial firms in an orderly manner and one that appropriately incentivizes shareholders and debt-holders through a sharing of losses. Resolution arrangements need to be credible with management, shareholders and the market and provide for adequate access to funding to allow both an orderly resolution and the mitigation of systemic risk. Ex ante resolution plans ("living wills") are one device to help promote this credibility. If the agencies conclude that a group's plan is not credible, higher prudential requirements should be imposed or the group should be required to change the plan or its size and/or structure.

- Ensure that all financial groups that are potentially systemic are subject to effective consolidated supervision and to prudential requirements (larger capital or liquidity buffers) that reflect the risk they bring to the system.

- As part of resolution planning, arrangements for the resolution of cross-border groups and the compatibility of resolution arrangements in different countries should be reviewed in conjunction with the authorities from those countries. If, as a result of the review, the

credibility of the resolution arrangements is doubtful then the U.S. agencies should consider requiring revisions in resolution plans, increased prudential requirements, or changes in group structures.

- Within the proposed council on financial stability (SRR), responsibilities should be established among the agencies for coordinating with authorities overseas, building on existing practices and responsibilities among the agencies. The council should also ensure that the Financial Stability Forum (FSF) Principles for Cross-Border Coordination in Crisis Management are implemented by the U.S. agencies.

I. Introduction and Main Findings

1. **As part of the U.S. Financial Sector Assessment Program (FSAP), a series of meetings was held between October 16 and November 4, 2009 with relevant agencies in Washington and New York to discuss the U.S. crisis management arrangements.** The discussion included both how interagency coordination had worked in preparation for a crisis and how it had worked during the crisis itself, any lessons that had been drawn and prospects for changes going forward.

2. **This note was subsequently prepared on the basis of these meetings and a review of material published by the agencies and provided during the meetings.** It assesses not only the framework for interagency crisis coordination but also the design and readiness of crisis management tools, together constituting the financial stability safety net.

3. **In principle an effective crisis management framework would be one that contained the systemic impact of a shock to, or problem in, the financial system, at minimum possible cost in terms of moral hazard and fiscal support.** The crisis over the last two years has seen widespread systemic instability, large-scale fiscal support and an increase in moral hazard. Judged against this outcome, U.S. crisis management arrangements were found wanting, although some allowance should be made for the unprecedented size and scope of the crisis that overwhelmed arrangements in many other countries (see Table 1 below). The U.S. agencies should be credited too for using the tools at their disposal, and with some improvisation, to contain the systemic and potentially greater global impact of the crisis. But significant weaknesses have been identified in U.S. crisis management arrangements in the last two years, which have been recognized in the current discussions in Congress around regulatory reform.

4. **The assessment in this note focuses primarily on current arrangements with some assessment, where relevant, of how far observed weaknesses will be addressed by proposed reforms.** It starts by looking at the crisis management process and the framework for interagency coordination, looks then at policy design in three areas─emergency liquidity assistance, deposit insurance and resolution─before reviewing cross-border arrangements. The assessment in each section is followed by recommendations. In many cases these are already being addressed in the regulatory reforms under discussion in Congress.

II. Crisis Management Process

A. Desirable Properties

5. **In principle, a crisis management framework should ensure that there is effective coordination during a crisis among the financial authorities (finance ministries, central banks, regulators and resolution authorities) that contribute to delivering financial stability.** The more complex the financial system and the greater the number of authorities, the more important effective coordination becomes. The need for coordination is heightened during

a crisis when decisions need to be made quickly, often on the basis of changing and imperfect information. A crisis management framework typically provides a set of procedures and coordination arrangements among relevant authorities to support timely and best possible decision-making.

Table 1 - Cross-country comparison of intervention costs[1]

Country	Capital Injection	Debt Guarantees	Asset Purchases	Assets Guarantees	Total	% Banking System	% GDP
Australia	0	62	0	0	62	5	10
France	28	72	0	0	100	1	5
Germany	22	129	0	0	151	2	6
Italy	10	0	0	0	10	0	1
Japan	3	0	0	0	3	0	0
Netherlands	31	40	0	28	99	4	17
Spain	0	31	0	0	31	1	3
Switzerland	4	0	27	0	31	2	9
United Kingdom	54	113	0	523	690	9	44
United States	237	271	36	281	825	8	7
Total	389	718	63	832	2002	8	19

Source: BIS Papers "An assessment of financial sector rescue programs" (July 2009)

1. Numbers are in EUR billions and correspond to accumulated outlays as of June 2009.

6. **The design of the crisis management framework and procedures varies from country to country,** depending on the specificities of the institutional framework and how responsibilities for managing the stability of the financial system are allocated. Nonetheless a robust crisis management framework might include the following elements:

- ***Information-sharing***: mechanisms are needed to ensure that information is shared among the relevant authorities. This would include not only information flows during a crisis but also sharing information on emerging risks and potential systemic threats in advance of a crisis;

- ***Systemic assessment***: some common approach is needed among the authorities to evaluating emerging risks to determine the systemic impact of a shock and its potential to transmit through the financial system from one institution, market or sector to another. Clearly the ready availability of information and arrangements for information-sharing are necessary to support effective systemic assessment;

- ***Decision-making***: arrangements are needed to ensure that, in light of the assessment of systemic impact, decisions on the best policy response and the use of particular measures are coordinated. Legal responsibility for specific measures usually rests with a single authority but often in a crisis some combination of measures is needed, requiring close coordination among the responsible authorities. Proactive information-sharing and assessment help to support proactive decision-making, providing more time for contingency planning to weigh up the costs and benefits of different courses of action in the event of a crisis and to plan for the implementation of measures;

- ***External communication***: given the critical importance of maintaining confidence during a crisis, crisis management frameworks usually set out how external communication with the market, the public, overseas investors and any other relevant constituencies will be coordinated. In-crisis communication will depend in part on the approach adopted by the authorities in normal times to communicate with the public about financial stability risks and their crisis management arrangements.

- ***Review and Testing:*** a crisis management framework is usually subject to regular review and testing to ensure that as the financial system evolves, the arrangements remain current and effective, and that the authorities are ready to deal with any emerging risks.

B. U.S. Crisis Coordination Arrangements

7. **Compared to this list, a striking feature of U.S. crisis management arrangements is their informality.** In the micro-prudential supervision of individual institutions, there was ongoing bilateral contact between agencies and there were mechanisms for coordination across agencies (for example, among banking supervisors, rule-making, approaches to supervision and regulatory reporting were coordinated via the Federal Financial Institutions Examination Council (FFIEC)). But when it came to monitoring risks in the system as a whole, and overseeing crisis management arrangements, the only body bringing together agencies across sectors was the President's Working Group (PWG).

8. **In the years preceding the crisis processes were developed in some of the agencies for monitoring financial stability risks.** For example, at the Federal Reserve Board (FRB) and Federal Reserve Bank of New York (FRBNY), umbrella groups had been set up to bring together banking supervision, monetary affairs, international, research, operations and payment systems staff to coordinate work and share information on financial stability issues across divisions, and to report periodically at Board level on their work.[3] Under these arrangements, every six months a report was submitted to the Board of Governors, providing a conjunctural overview and a deeper analysis of two or three issues identified as priorities in their work or as requested by the Governors.[4] In the Office of the Comptroller of the Currency (OCC), internal policy groups were set up on capital markets and credit issues to gather market intelligence and to supplement the identification of risks across the banking sector coming out of the supervisory process (for example the Examiners In Charge (EIC) of the fifteen largest banks met quarterly offsite to review the risks in their institutions). Within the Federal Deposit Insurance Corporation (FDIC), there were similar mechanisms to focus on horizontal risks, thematic concerns, and overall risks to the industry, as supplements to institution-specific risk analysis and monitoring. However, there was no equivalent systematic process for the review of risks to financial stability at the

[3] From 2006, FRBNY produced a Financial Sector Overview report that went to FRB staff quarterly.

[4] Issues addressed included leveraged corporate lending, hedge funds and commercial real estate. Sub-prime lending exposures of banks (but not of non-banks) were also addressed. See further below.

interagency level beyond a tour de table at the start of each PWG meeting in which each agency briefly outlined the biggest current or upcoming issues they were dealing with at the time. [5]

Box 1. President's Working Group on Financial Markets

1. The PWG was established in 1988 by Executive Order of President Ronald Reagan to identify issues related to and recommendations to address the 1987 stock market crash.[6] Its membership comprised the Secretary of the Treasury (designated as chair) and the chairs of the Federal Reserve Board (FRB), Securities and Exchange Commission (SEC) and Commodity Futures Trading Commission (CFTC).

2. After completing its report in 1988, the PWG was used intermittently to coordinate cross-agency work on specific issues related to the original mandate of enhancing the integrity, efficiency, orderliness, and competitiveness of financial markets. Examples include producing reports on over-the-counter (OTC) derivatives in 1998 and on hedge funds in 1999 in the aftermath of the failure of Long-Term Capital Management (LTCM). As and when required, other agencies were included in these discussions on an informal basis including FRBNY, OCC, Office of Thrift Supervision (OTS), and FDIC.

3. The PWG was later used to coordinate preparation in the financial sector for Y2K and then played a role in dealing with broader business continuity issues in the immediate aftermath of September 11, and in subsequent work to enhance financial sector resilience in the face of such threats. For example, the Financial and Banking Information Infrastructure Committee (FBIIC) was set up by the PWG with the mandate to improve the reliability and security of financial information infrastructure, identifying critical infrastructure and establishing protocols for communication among financial regulators during an emergency.

4. In 2006, the PWG assumed a more prominent role in inter-agency coordination. Meetings at principals' and staff levels were regularized and held more frequently and the PWG assumed a crisis coordination role. Participation at meetings was expanded to include FRBNY, OCC, OTS, FDIC, and Federal Housing Finance Agency (FHFA). In 2008 the PWG produced reports on the financial market turmoil and OTC derivatives.

9. **Financial stability was not an explicit mandate of the PWG under its Executive Order. Rather its role evolved over time,** driven by particular issues or events where coordination was felt to be useful or necessary.

10. **After the appointment of Henry Paulson as Treasury Secretary in July 2006, the PWG took on a more active role in developing U.S. crisis management arrangements.** Building on pre-existing communication protocols (listing telephone numbers for key staff in the different agencies, financial authorities overseas and private sector organizations) developed after September 11, 2001; and drawing on lessons from the handling of the failures of Refco and Amaranth Advisers, work was done to enhance information-sharing arrangements, to draw up

[5] Sub-prime mortgage lending and commercial real estate were both discussed at PWG principals' meetings. The tour de table was supplemented from time to time with more detailed discussions on particular issues.

[6] The statement accompanying the Executive Order that established the Working Group included 29 issues that the Working Group was asked to address. The issues were divided among (1) investor confidence, (2) the credit system, (3) market mechanisms and (4) the regulatory structure.

plans for how certain specific scenarios would be handled (e.g., the failure of a major financial firm) and to review available tools for use in a crisis.

11. **From August 2007 onwards, interagency coordination intensified.** As the crisis developed, coordination evolved to a combination of the communication protocols established for the PWG[7] and contacts among subsets of principals as required. At the core were regular conference calls (several times a day at the height of the crisis), between Treasury, FRB, FRBNY, and other Reserve Banks and bringing in SEC, OCC, and FDIC as required.

12. **The agencies capitalized on their ongoing close contact with the institutions and the market.** For example, the OCC's on-site examination staff obtained market and bank data for real-time analysis. The Fed relationship managers[8] for each of the large Bank Holding Companies (BHCs) were in contact with group treasurers several times a day and held frequent discussions with Chief Risk Officers and Chief Financial Officers (though as the crisis intensified principals would often talk directly to the bank Chief Executive Officers (CEOs)). The FRBNY's Markets and Payments areas drew on their expertise in the functioning of markets and infrastructure, developed in part through their extensive network of market contacts. The investment ahead of the crisis in developing this network paid off with the market intelligence it generated, including from market segments that were otherwise unregulated, such as hedge funds and private equity. Effort was made too to step up information-sharing. From 2007 onwards there was much closer contact between FRBNY and SEC on the condition of the investment banks, reflected in the agreement of a new information-sharing MOU between FRB and SEC in July 2008.[9]

13. **As a result of this close cooperation, at the height of the crisis the agencies were able to respond rapidly to the problems presented.** Between September 14 and November 30, 2008, exceptional powers under Section 13(3) of the Federal Reserve Act in the case of the Fed[10] and the systemic risk exception in the Federal Deposit Insurance Act[11] in the

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[7] The PWG protocols originally were built around the concept of a Duty Officer in each agency acting as an initial and central point of contact for interagency coordination. The need for contact at many levels between the agencies quickly overtook these arrangements.

[8] Central Points of Contact (CPCs).

[9] The FRBNY-SEC relationship became more intensive after the creation of the Primary Dealer Credit Facility (PDCF). During the weekend of the Bear Stearns failure, supervisory staff from SEC and FRBNY collocated at FRBNY.

[10] According to Section 13(3) of the Federal Reserve Act, in unusual and exigent circumstances, the Fed may lend to any individual, partnership, or corporation (IPC) provided the lending is adequately secured and the Fed is satisfied that the IPC cannot secure credit elsewhere.

[11] According to Section 13 of Federal Deposit Insurance Act, as amended in 1993, the FDIC can proceed notwithstanding the requirements in the Act for least cost resolution if the least cost resolution would have severe adverse effects on economic conditions or financial stability. Authorization under the systemic risk exception,

(continued)

case of the FDIC were used on thirteen separate occasions alongside the commitment of US$315 billion made by the Treasury of funds available under Emergency Economic Stabilization Act of 2008 (EESA).[12] The design of these interventions is discussed further below (paragraph 31ff) but the agencies displayed an impressive flexibility in improvising solutions to the problems that emerged after the fall of Lehman.

14. **The basis for action was a shared belief in the risk to the financial system, in the context of discussions within PWG; but decisions to act were based on the specific legal authorities of each agency rather than any collective determination of systemic risk.** The Treasury Secretary, often together with the Fed Chairman, led in communicating the overall direction of and coordinated response to the crisis, with each agency detailing its respective actions.

C. Evaluation of U.S. Crisis Management Arrangements

15. **The crisis revealed a number of gaps in the U.S. crisis framework and preparations. Most importantly, there was no clear responsibility for financial stability, either collectively or in individual agencies.** Perhaps as a result, risk monitoring in an inter-agency forum and in individual agencies did not manage to recognize fully the build-up of risks within the U.S. system. Potential risks were missed or mis-calibrated, and correlations and interconnections between risks were not clearly identified. Examples include the true extent of U.S. housing market exposures, the scale of investment bank leverage and leverage in other non-bank entities, and the general dependency on wholesale funding flows.[13] There was also a lack of a formal systematic approach in the PWG towards assessment of risks in the system as a whole. Individual agencies may have reported on risks within the sectors they were responsible for but if so, risks outside the regulated sector or in regulated sectors not represented in PWG were overlooked or underestimated.

16. **Blind-spots in the information available not only in terms of financial activity beyond the regulatory reach of the agencies but also in terms of the restrictions on sharing information among PWG members are likely to have played some part in the gaps.** The various agencies are subject to different statutes that govern the information they can share and the agencies they can share it with. To try and overcome these restrictions and maximize the information that can be shared, PWG members agreed to a web of bilateral information-sharing

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requires the Treasury Secretary to make the decision, in consultation with the President, to invoke the exception after written recommendations from the FDIC Board (on a 2/3 vote) and FRB Board (on a 2/3 vote).

[12] Comprising: Capital Purchase Program—US$250 billon; investment in senior preferred stock of AIG─US$40 billion; credit protection for Term Asset-Backed Securities Loan Facility (TALF) purchases by the Fed─US$20 billion; and a guarantee on the US$306 billion Citigroup asset pool─US$5 billion.

[13] On the other hand, some other risks (hedge funds, leveraged loans) were identified and addressed, and may as a result have figured less in the current crisis.

arrangements. But, whatever the limitations on sharing information, there were gaps too in the information collected in particular sectors for the assessment of risks.[14]

17. **The lack of a formal systematic process for the assessment of risks may have contributed to a slow response to identified risks but the additional complexity of coordinating interagency actions in response to identified risks did not help. Power to act remained with the individual agencies and coordinating a response to identified risks could take time.** For example, interagency agreement on supervisory guidance on non-traditional and subprime mortgages[15] took more than a year to achieve and then did not apply to all nonbanks engaged in origination activity such as mortgage brokers, real estate agents and others who were either unregulated or state-regulated.

18. **Experience in other countries suggests it is inherently difficult to forecast financial crises and to move to head them off.** Many other countries went into the crisis with a more formal systematic approach in place across authorities for financial stability analysis but still failed to identify, or identified but failed to address, the scale of the systemic risks they were running.[16] But this underlines the importance of ensuring that the tools needed to deal with problems after a crisis has broken are in place and have been tested in advance.

19. **The design of U.S crisis management tools going into the crisis is discussed in more detail below.** But only limited steps were taken by the agencies ahead of the crisis to identify and address gaps in the toolkit, and testing arrangements for managing a financial crisis were not prioritized. An extensive program of testing had been set in train on business continuity arrangements via FBIIC with exercises covering a wide variety of different scenarios (including system outages, pandemic flu and cyber-attack)[17] and involving not only the agencies but also on occasion private sector institutions, infrastructure providers and authorities overseas. These exercises proved useful in establishing channels of contact and building a network of relationships, which could be called on when the crisis hit.

20. **By contrast, little, if anything, had been done at the PWG level to test arrangements for a financial crisis.** There were initiatives by individual agencies. For example FDIC had involved the Fed and OCC in simulation exercises stressing contingency planning for large and complex financial institution insolvencies, to explore systemic risk determinations, bank resolution issues in relation to foreign banks, and the handling of derivative portfolios; and the

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[14] See SEC Office of Inspector General's Report on the SEC's Broker-Dealer Risk Assessment Program, September 25, 2008.

[15] Interagency Guidance on Nontraditional Mortgage Product Risks (2006) and Statement on Subprime Mortgage Lending (2007) issued by the Fed, OCC, FDIC, OTS, and National Credit Union Administration (NCUA).

[16] All but two of the countries listed in Table 1 on page 9 published regular financial stability reports.

[17] For example a pandemic flu exercise was run in conjunction with industry via the Financial Services Sector Coordinating Council in 2007.

other agencies had their own table-top crisis management exercises. But, prior to the crisis, no comprehensive and specific tests had been conducted involving all the agencies in the PWG of the key scenarios identified in crisis plans (the failure of an investment bank was one of the scenarios that the PWG had considered in its planning).

21. **Prior to the crisis, external communication around crisis management and financial stability issues had been left to individual agencies to manage, usually via speeches or testimony to Congress.** As a result, this tended to be on specific issues, rather than a comprehensive overview of the risks within the financial system.

D. Proposed Regulatory Reforms

22. **Both sets of regulatory reform proposals currently before Congress—the law passed in December 2009 by the House of Representatives[18] and the draft law published by Chairman Dodd of the Senate Banking Committee[19]—set out to address a number of the issues identified here.**

23. **The proposals (summarized in Appendix I) have many features in common:** allocating explicit responsibility for financial stability and putting in place mechanisms to ensure interagency coordination; removing obstacles to obtaining and sharing information for monitoring risks to financial stability; establishing authorities for systemic risk regulation to designate non-bank financial holding companies as potentially systemic, to subject systemic firms to higher prudential risk requirements in proportion to the risk they bring to the rest of the system, and to introduce regulations to address emerging financial stability risks, even within subsidiaries subject to primary regulation by another agency.

24. **The proposals differ on the institutional framework and how responsibilities are allocated among agencies.** The House Act puts overall responsibility for financial stability in a Financial Services Oversight Council (FSOC) chaired by the Treasury and including the Fed, OCC, SEC, CFTC, FDIC, NCUA, and FHFA, while giving the Fed the authority to supervise, and set prudential requirements for, systemic Financial Holding Companies (FHCs), regardless of whether they own a bank. The Senate Banking Committee Bill proposes a similar structure but with the difference that FSOC[20] itself would be the systemic risk regulator with day-to-day supervision of FHCs carried out by the Fed under its direction.

25. **A challenge in implementing the models will be ensuring that responsibility for financial stability is not dissipated in a committee structure (especially in the context of an institutional framework that will otherwise remain relatively complicated and fragmented).**

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[18] The Wall Street Reform and Consumer Protection Act (H.R. 4173).

[19] Restoring American Financial Stability Act (March, 2010).

[20] In the Senate Bill, FSOC stands for Financial Stability Oversight Council.

A strength of both models in this regard is the central role envisaged for the Fed as consolidated supervisor of systemic FHCs.[21] This would be a natural extension of its existing role in bank holding company supervision and the efforts it has already made to set up machinery internally for financial stability monitoring. Given the Fed's role in markets and payment systems, and combined with the ongoing monitoring of aggregate credit conditions for monetary policy purposes, it is well placed to identify potential systemic risks.

26. **Either model would be an improvement on the current PWG structure that lacks a clear mandate and authority.** The establishment of an interagency council with explicit responsibility for financial stability and monitoring systemic risks and the power, where necessary, to require regulatory changes to address these, after consultation with the appropriate prudential regulator, in conjunction with the assignment of an agency as its executor should significantly strengthen coordination of management of financial stability .

27. **Whatever framework is finally adopted for interagency coordination for financial stability and crisis management, more investment will need to be made in communicating potential risks to financial stability and how, if risks crystallized, they would be managed.**[22] Both sets of proposals contain provisions for periodic reports on financial stability to Congress. In particular, the agencies will need to convey to the market that they are ready and able to wind up institutions, regardless of size, with a minimum of systemic impact and public cost (see paragraph 60 below). Communication of a coordinated interagency approach for systemic risk monitoring will be part of this but investment in the detailed preparation of measures for handling a crisis (including arrangements for external communication during a crisis) will be as important.[23]

28. **Recommendations**

- Clarify the responsibilities of the agencies that are expected to contribute to the delivery of financial stability and establish a formal body or council for coordinating work in this area**.** The council should meet regularly (at least quarterly) to discuss potential risks to financial stability. Risk assessment should be comprehensive and cross-sectoral with periodic stress

[21] An earlier version of the Senate Bill proposed removing all supervisory responsibility from the Fed on the basis that this would allow the Fed to focus on monetary policy. In the light of the crisis, it is perhaps questionable how far responsibility for monetary policy and financial stability are in fact separable or should be separated. For example, in dealing with asset price bubbles, the crisis suggests central banks need macro-prudential tools besides short-term interest rates.

[22] In the years prior to the crisis, references to financial stability by U.S. agencies were rare in testimony and speeches and tended to be incidental to discussion of other topics (consumer protection and macro-economic developments). Some risks were highlighted publicly such as GSEs, commercial real estate lending and hedge funds but others were not (investment bank leverage and their reliance on wholesale funding).

[23] A point picked up in the SIGTARP Audit "Emergency Capital Injections Provided To Support The Viability Of Bank Of America, Other Major Banks, And The U.S. Financial System" (2009). See in particular the Fed's response to the Audit in Appendix H.

tests[24] to check the capacity of financial institutions to withstand severe shocks. Where significant potential risks are identified, the body should also consider whether and, if so how, these should be mitigated by regulatory or other changes (e.g., development of market infrastructure). The body should also oversee a continuous program of work on crisis preparation including ensuring that effective coordination and information-sharing arrangements are in place and that crisis management tools remain up-to-date and are tested to meet any potential risks to financial stability identified. The body should be accountable to Congress, publishing a regular (six-monthly) assessment of risks to financial stability.

- Clarify how responsibility for systemic risk oversight will be discharged, both for monitoring systemic risks and, where necessary, introducing regulatory changes to address these. Providing the council with the power to demand information and require regulatory and/or supervisory action, after consultation with the appropriate prudential regulator, as well as assigning one agency as its agent and lead executor would avoid the dissipation of responsibility within a committee structure. The latter would most naturally be the Fed considering the close relationship between monetary stability and financial stability and the Fed's daily interaction with key market participants in carrying out monetary policy and its role as operator and overseer of key payment systems and as liquidity provider to the banking system, as well as its current role as the consolidated supervisor of bank holding companies.

III. Crisis Management Policy Design

29. **However good the design of regulation for financial stability and the ongoing supervision of the financial system, crises are unpredictable and may still occur. It is essential then to have well-designed tools for managing crises.** From a public policy perspective, it is desirable that, once a crisis has broken, the tools can contain the impact of the shock on the rest of the system and the broader economy at a minimum public cost, whether that comes in the form of fiscal cost and/or moral hazard.

30. **The design of U.S. crisis management policies in three key areas was reviewed as part of the FSAP: emergency liquidity assistance, deposit insurance and resolution arrangements for financial institutions.** It was not the intention of the review to second-guess the judgments that were made in the use of the tools during the crisis but rather to draw out lessons for future policy design.

[24] Comparable to the SCAP undertaken by the U.S. authorities in early 2009.

A. Emergency Liquidity Assistance

31. **Going into the crisis, access to discount window lending at the Fed was restricted to depository institutions.** Discount window lending was usually at very short-maturities, fully collateralised and at a rate above the Fed Funds rate.[25] During the crisis, not only did the Fed extend via the Term Auction Facility the maturity at which it would provide liquidity to depository institutions, it introduced, under Section 13(3) of the Federal Reserve Act, an array of facilities for lending to non-banks and operations to lend to individual non-banks (see Appendix II). In addition, invoking for the first time the systemic risk exception for least cost resolution, FDIC provided guarantees on senior debt issued by banks and bank holding companies under the Temporary Liquidity Guarantee Program (TLGP) and participated in programs to support certain individual institutions.

32. **Some facilities were designed to be inclusive to combat the problem of stigma faced by individual banks being seen to draw on central bank liquidity support or public guarantees.**[26] But the resulting scale of exceptional liquidity support has been enormous (US$3.5 trillion in facilities provided, US$1.4 trillion in liquidity drawn at the peak for each facility and US$0.9 trillion of debt guarantees) reflecting the severity of the crisis.

33. **Whatever the financial risks and potential fiscal costs of this support, it represented a large expansion for non-banks (investment banks and money-market funds) in access to the safety net of central bank liquidity support.** The expectation that the Fed will act again in future to counter market dislocation may have weakened incentives for market participants to manage liquidity prudently. From a policy design perspective, it will be important to find ways to combat this moral hazard. In the light of liquidity support actions taken during the crisis, continuing with a policy in which only depository institutions have direct access to central bank emergency liquidity support would lack credibility.

34. **Therefore, to lean against any impression in the light of the crisis that liquidity insurance would always be available from the Fed for all market participants,** a new design will be needed that signals in what restrictive circumstances and on what terms access to the Fed might be available to non-banks on a market-wide basis. This will mean articulating a policy for future use of section 13(3): what the test is for "unusual and exigent circumstances" and how it will be evidenced. This would clarify the role the Fed would play in principle as liquidity

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[25] Primary credit is available to sound depository institutions usually overnight at the discount rate. Secondary credit is available to depository institutions that are not eligible for primary credit on a short-term basis at a rate above the primary credit rate. Secondary credit is available to meet backup liquidity needs when its use is consistent with a return to reliance on market sources of funding or the orderly resolution of a troubled institution.

[26] Under TLGP, all banks were included in the program unless they actively opted out and once in the program they could not issue unguaranteed debt until they had used up the amount available for guarantee under TLGP.

provider in maintaining financial stability when markets, other than those they normally operate in, are dislocated.[27]

35. **As well as clarifying circumstances when section13(3) might be used, the Fed might also clarify how facilities under section13(3) would be structured.** It was operationally challenging during the crisis for FRBNYand their counterparties to put in place the unusual lending facilities at short notice. The resulting arrangements were sometimes complicated.[28] There may be merit in drawing on the experience of the last two years where possible to indicate how facilities under section 13(3) might be designed and employed.[29]

36. **Clarification by the Fed of what section 13(3) was for and how it might be used should help to protect its reputation.** The repeated use of section 13(3) through 2008 for individual firms and sectors, in different ways and on different terms, and in transactions that were often hard to understand (for example the various Maiden Lane structures due to the strictures of section 13(3)), was difficult to communicate publicly and led to misgivings that the Fed was exceeding its responsibilities.

37. **The regulatory reform proposals attempt to address this concern by explicitly ruling out the use of section13(3) to lend to individual firms.** The introduction of enhanced resolution authority to handle the resolution of individual institutions should obviate the need to rely on section 13 (3) to lend to individual failing firms. While it may desirable to relieve the Fed of the responsibility to lend to individual firms and to transfer it to the resolution authority instead, it should be recognised that only by use of section 13(3) did the U.S. Government have the flexibility to be able to respond effectively to the crisis. Given crises are inherently unpredictable, it would seem unwise to lose this flexibility entirely.

38. **Both sets of reform proposals also increase accountability for any use of the Fed's authority under section 13(3).** The House requires the written approval of the Secretary of the Treasury for any use of the authority. At one level, this reflects the reality of coordination between the Fed and the Treasury during the crisis but it also acknowledges the contingent fiscal support that lies behind any large increase in the provision of liquidity by the Fed. The Senate proposal goes further and requires the Fed to report to Congress within seven days on any use of section 13(3) including the justification for use of the authority, the identity of the borrowers and

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[27] Crises are by their nature unpredictable: it is impossible therefore ex ante to define precisely when the provision of liquidity assistance might be required on systemic grounds and it is important to retain some flexibility.

[28] Lending to unusual counterparties against unusual collateral and purchasing unusual assets during the crisis were not straightforward operationally. For example, for the Mortgage-Backed Security (MBS) purchase program, FRBNY retained three investment managers: Wellington Management Company, Limited Liability Partnership (LLP) for trading and settlement, BlackRock Inc. as primary provider of risk and analytical support, and J.P. Morgan as program custodian.

[29] Facilities introduced under the authority of 13(3) are due to expire in 2010 and could only be reintroduced with a fresh determination of "unusual and exigent circumstances" under 13(3).

the terms of the lending (duration, collateral and rate). Greater accountability and transparency around use of section13(3) is desirable so long as that does not unduly restrict the Fed's capacity to respond to a major market dislocation─stigma was a very real problem during the crisis (elsewhere, if not in the U.S.).

39. **The reform proposals underline the need to articulate a clearer policy for future use of section 13(3)[30].** But this articulation may do no more than set ground rules ex post for what was done in the crisis. Looking forward, if the moral hazard of potential access to the Fed as lender of last resort is to be managed, then functional regulators and the new systemic risk regulator are going to have to find a way to increase prudential requirements on non-bank financial institutions whose liquidity positions proved fragile and which were judged to be systemic individually or in aggregate.[31],[32]

B. Deposit Insurance

40. **U.S. deposit insurance arrangements have performed well through the crisis. Prior to February 2007, no insured deposit-taking institutions had failed since June 2004.** From February 2007 through to end-June 2009, FDIC was named receiver for 73 failed institutions with US$411 billion in assets. Despite this, confidence has been maintained among retail depositors and there has not been a run on deposits of the kind seen in some other countries or the need for an impromptu radical reform of the insurance arrangements mid-crisis. As part of EESA, Congress increased coverage for insured deposits from US$100,000 to US$250,000. While this brought the ceiling into line with the limit that had already been set for IRA accounts, it had only a marginal effect on the proportion of insured deposits by volume or value[33] and was not a change FDIC had requested. Subsequently, as part of the TLGP, the FDIC also extended unlimited insurance to demand deposits.

41. **Where there were runs, these mainly related to uninsured deposits, usually in cases where underlying solvency problems meant that the institutions would probably have failed anyway.[34]** No doubt the steps taken by the Fed and FDIC (in TLGP) to address the threat

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[30] The Senate Bill (Section 1151) includes a requirement for the Fed, in consultation with Treasury, to publish a regulation setting out policies and procedures for use of section 13(3).

[31] The major U.S. securities dealers are now subject to supervision by the Federal Reserve under the Bank Holding Company Act but the question of appropriate prudential requirements for money-market funds remains.

[32] Steps have already been taken by Federal Banking Agencies (FBAs) to address these concerns in relation to depositories and BHCs that received backing from FDIC under TLGP during the crisis. FBAs are developing enhanced guidance addressing liquidity risk management, and have improved liquidity risk monitoring and measurement at large financial institutions.

[33] As of March 2009, FDIC insured approximately US$4.8 trillion or 55 percent of total deposits.

[34] The seventy nine banks failing in the two years to March 2009 had an average of brokered deposits four times the national average. An exception was IndyMac Bank that was taken into receivership by FDIC on July 11, 2008. Between June 27 and July 11 it suffered US$1.55 billion (7.5 percent of deposits) in deposit outflows, mainly of

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to banks' wholesale liquidity and by the agencies to underpin the solvency and liquidity of the largest retail banks contributed to heading off the possibility of any more generalised run on retail deposits. Yet the FDIC's capacity to resolve banks quickly, typically transferring insured deposits over a weekend from a failing institution to another institution in a process that is seamless from the depositors' perspective, is also likely to have bolstered confidence.[35]

42. **The deposit insurance framework has remained credible despite the erosion of resources in the Deposit Insurance Fund (DIF).** At the end of 2007, there was US$52 billion in DIF and the reserve ratio stood at 1.22 percent. The FDIC, using the powers that it had gained under the Federal Deposit Insurance Reform Act (2005) (FDIRA), had introduced more risk-sensitive risk-based premiums and assessed banks in the best-rated category that prior to the Reform Act had not been required to contribute to the fund. By September 2009, the DIF funding level was negative at─US$8.2 billion.

43. **As the level of the fund has fallen, FDIC put in place a restoration plan to replenish the fund[36] and increased amounts assessed on the industry.** But it has successively had to extend the planned restoration period (from five years in October 2008, to seven years in February 2009 and then to eight years in June 2009[37]) and not further increase the level of immediate assessments[38] in favour of prepayment of US$45 billion of assessments for the next three years.

44. **Despite the fall in funding, confidence in deposit insurance has been maintained because ultimately the FDIC insurance is backed by the full faith and credit of United States Government.** This is made clear on the FDIC website but was underlined by the increase in May 2009 in FDIC's borrowing rights from Treasury from US$30 billion to US$100 billion permanently and to US$500 billion temporarily (until December 2010).[39]

45. **The drain on the fund and the undesirability of making immediate assessments on a weakened industry to restore the fund demonstrate the systematic nature of the insurance and the procyclicality of the current funding arrangements.** The insurance is systematic in

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core deposits as uninformed retail depositors did not understand what would happen to their deposits if the institution failed and so moved to withdraw their deposits instead.

[35] Of the 125 failures, only six involved deposit payouts. These were cases where the proportion of insured deposits was small and uninsured depositors could be paid out from the receivership proceeds.

[36] Under the 2005 Reform Act, FDIC is obliged to prepare a restoration plan when the reserve ratio falls below 1.15 percent.

[37] Helping Families Save Their Homes Act of May 2009 amended the Reform Act to allow the FDIC to extend the restoration period from five to eight years.

[38] A special assessment of 20bps was proposed by FDIC in February 2009, reduced in May and then withdrawn in September in favor of prepayment of assessments (with a special assessment of 3bp for 2011 and 2012).

[39] Helping Families Save Their Homes Act of May 2009.

the sense that bank failures are not independent but driven by general economic conditions so that the fund is likely to accumulate premiums over a number of years but then decline when conditions deteriorate.

46. **Despite this characteristic, under current DIF rules, banks only pay premiums up to a certain level of funding after which all premiums are rebated.**[40] Because the reserve ratio is capped, banks do not pay the true cost of the insurance they enjoy (from 1997 until 2006 95 percent of banks paid no premiums), providing an incentive to increase leverage to maximise the subsidy provided by the insurance. The procyclicality of the arrangements becomes clear in a downturn when it is difficult from a systemic perspective, when the banking system is weakened, to increase assessments to force banks to restore the fund.

47. **There is in addition a systemic risk element to the insurance that, to achieve an actuarially fair value for premiums, should be included but is not currently.** The FDIC has taken steps to incorporate risk-based elements into its deposit pricing system with respect to the premiums charged to the largest institutions. But in the event of a systemic problem resulting in multiple bank failures, it is harder for DIF to make full recovery on assets as receiver. Where premiums have been based on expected losses from individual bank failures, this implies a larger subsidy is passed from DIF to multiple banks that fail together and again provides some incentive collectively to increase leverage. The design of premiums needs to take account of this systemic risk and reflect in some way the probability of joint bank failures.[41]

48. **In light of experience in the crisis, DIF funding arrangements should be reviewed, revisiting premiums and the size of the fund.**

49. **To date, to minimise the need for taxpayer support, the size of the fund has been set in relation to some assumption about potential future claims on the fund.** Up until 2006, the reserve ratio was set under Federal Deposit Insurance Corporation Improvement Act of 1991 (FDICIA) at 1.25 percent, a level that corresponded to the long-run average ratio in the fund prior to 1980 but that was sufficient also to withstand actual losses observed in the banking system in the early eighties.[42] By comparison with other countries this level of ex ante funding is high. The average designated reserve ratio in EU funds with ex ante funding was 0.84 percent.[43]

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[40] Previously a reserve ratio of 1.25 percent but amended in FDIRA to 1.50 percent (a proportion of premiums are rebated when the reserve ratio exceeds 1.35 percent).

[41] Pennacchi, "Deposit Insurance, Bank Regulation, and Financial System Risks," Journal of Monetary Economics (2006); Acharya, Santos, and Yorulmazer, "Systemic Risk and Deposit Insurance Premiums," FRBNY Economic Review (forthcoming).

[42] FDIC Symposium "Confidence for the future," (1998). Congressional Budget Office "Modifying Federal Deposit Insurance" (2005). Under FDIRA, FDIC obtained discretion to target a ratio between 1.1 percent and 1.5 percent (see footnote 36).

[43] European Commission "Report on Deposit Guarantee Scheme (DGS) Efficiency," (2008). The average includes deposit guarantee schemes in 19 out of 27 Member States.

The difference may relate to the relative structures of the banking systems in the U.S. and EU countries, with a greater reliance on ex post funding and borrowing authority in deposit insurance schemes in more concentrated EU systems. But it reflects too a U.S. policy choice that may provide greater financial stability in times of stress.

50. **Even so the level of pre-funding in DIF has proved insufficient in the current crisis.** One response would be to increase the targeted reserve ratio. This would reduce the risk to taxpayers but it would not eliminate it[44] and the deadweight cost of the fund would increase. An alternative would be to remove the fund altogether and to let premiums accrue directly to Treasury as the ultimate provider of the insurance. In the event of the need for resources to handle bank failures, FDIC would borrow from Treasury. Rather than the level of the fund, FDIC would be free in such a system without a cap on fund size to target setting premiums that were actuarially fair.[45] However the system would need to be set up in such a way as to retain the current benefits of an ex ante industry-established fund so that funds were readily available in the event of bank failure and thus separated from general revenues, and to ensure that the payout process was not unduly politicised by connection with Treasury.

C. Resolution

51. **In the United States, special resolution arrangements exist within each regulated sector for managing the failure of financial institutions.** Insolvent insurance companies are resolved at state-level by the relevant insurance commissioner to ensure policyholders' claims are met.[46] Similarly, the Securities Investor Protection Corporation (SIPC) has the power to appoint a trustee to ensure that, in the liquidation of a broker dealer, assets (securities and cash) are returned to customers.[47] FDIC acts as receiver for insured depositories with a range of tools and powers at its disposal to resolve the institutions at least cost to DIF.[48]

52. **Other financial institutions are subject to the Bankruptcy Code, effectively narrowing down the resolution options to achieving the sale of an institution to a third party prior to its failure or liquidation.** The lack of options is ostensibly desirable from a

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[44] Nor arguably should it. See the discussion of the government's role as ultimate backstop for the deposit insurance in Blinder and Westcott "Reform of deposit insurance: a report to FDIC" (2001).

[45] Feldman "An illustrative example of a federal deposit insurance system without reserves" (Federal Reserve of Minneapolis, 1998), Pennacchi "Deposit insurance" (2009).

[46] Each state has adopted a version of the National Association of Insurance Commissioners' (NAIC) Insurers Receivership Model Act (Model #555) providing specific requirements for the conservatorship, rehabilitation and liquidation of insurers. Policyholders' claims are typically backed in each state by industry-funded guaranty associations.

[47] Where there is a shortfall in assets, customers are compensated (up to $500,000) from the SIPC Fund, funded by assessments on broker-dealers.

[48] There is a separate OCC regime outside of bankruptcy for the resolution of uninsured national banks.

moral hazard perspective, holding out that all costs associated with the resolution of a non-bank would be borne by the private sector. But it has not proved credible in practice when it has come to large complex financial institutions and the systemic risk that these groups presented due to the scale of their counterparty exposures in markets, their role in payment and settlement systems, and their cross-border activity.

53. **As a result, the U.S. agencies found repeatedly that they had to intervene with some form of public support to stave off the failure of large institutions during the crisis (see Appendix II).** In the case of Lehman where this was not done, the systemic impact was large and led to a need within weeks to provide support to a number of other institutions. The agencies found too that while FDIC had the tools and the means to resolve smaller banks and thrifts, when it came to the largest banking groups, their tools were inadequate, applying only to the banking entities within the groups.

54. **If the agencies lacked tools to close failing systemic institutions safely, they also had a limited choice of tools to keep them open until they could be closed in an orderly manner or transferred to new owners.** Hence the repeated use of section13(3) to fund first the transfer of Bear Stearns to JP Morgan and then the support for American International Group (AIG).

55. **The need to improvise solutions without adequate tools resulted in a case-by-case approach (until EESA was passed, giving the Treasury the resources to permit a more comprehensive approach) with outcomes in the case of large firms that were opaque[49] or inconsistent.[50]** Whatever the immediate systemic benefit of preventing the failure of a large institution, at a deeper level the uncertainty as to how firms would be resolved may have contributed to the loss of confidence in markets.

56. **The amount of public money put at risk has been enormous (see Appendix II), and the macroeconomic and other effects of the crisis have had an extremely damaging effect on the government's public debt position.** However, the direct fiscal cost is hard to estimate[51] but may in the end not be large.[52]

57. **Whatever the fiscal costs of the operations, there is also likely to have been some increase in moral hazard.** Whereas the U.S. arrangements were built on the premise that only insured depositors would be protected (and then up to a limit), in practice, Lehman apart, liability

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[49] For example, the SPV structures used to fund the Bear Stearns and AIG transactions.

[50] In most cases senior debt holders were made good, in the case of WaMu they bore losses.

[51] The agencies have entered support transactions for individual institutions where the timing and cost of the ultimate exit is unclear (for example from the capital support provided to AIG). In February 2010, the Federal Reserve closed many of its special liquidity facilities without any loss on these facilities.

[52] By September 2009, of the US$205 billion disbursed under the Capital Purchase Program, US$71 billion had been repaid along with dividend payments of US$7 billion and warrant proceeds of US$3 billion.

holders (other than shareholders) in large banks and non-banks were made good (for example the Bear Stearns bondholders on US$75 billion of bonds outstanding in March 2008 and AIG commercial paper holders and derivative counterparties).

58. **It is not easy to quantify the moral hazard in the incentives for past behaviour (e.g. how far the record leverage in investment bank balance sheets at the start of the crisis was a product of some assumption of too big to fail) or to determine the influence on future behaviour.** But studies suggest the implicit subsidy may be large. Using FDIC data, between 2000 and 2007, the spread between the cost of funding for small and large banks (the eighteen bank holding companies with assets greater than US$100 billion) averaged 29bps but widened in the fourth quarter of 2008 to 78bps on average.[53]

59. **The costs are therefore clear of not keeping the design of resolution arrangements current with changes in the structure of the U.S. financial system.** The bank-centric resolution regime operated by FDIC was incompatible with the landscape that had emerged, especially after GLBA, of large complex financial institutions that combined banking, investment banking and insurance activities within a single group. The moral hazard of not being able to resolve these large financial institutions was recognised prior to the crisis in relation to Government Sponsored Enterprise (GSEs)[54] but until Bear Stearns failed, not (publicly at least) for other institutions.

60. **This has certainly been recognised now in the proposed regulatory reforms.** The House and Senate proposals agree on the need for new resolution arrangements that enable the orderly wind-down of large financial groups at the expense of shareholders and other liabilityholders, rather than their being bailed out at the expense of taxpayers. The framework they propose is similar: when a financial group fails or is no longer viable, on the basis of a determination that the closure of the group under the Bankruptcy Code would have a large systemic impact, the resolution agency can intervene to take control of and resolve the financial firm. The resolution agency[55] would have clear objectives to maximise the net asset value of the group in the resolution while minimising costs to the Treasury and any systemic impact. The agency would have a full range of tools for managing the resolution and mitigating any systemic

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[53] Baker and McArthur, "The Value of the Too Big to Fail Big Bank Subsidy" CEPR, September 2009. In practice a number of different factors could account for the difference in funding costs (for example greater diversification in large banks) but if the gap costs were entirely attributed to too big to fail, this would be equivalent to a US$34bn subsidy in the first quarter of 2009.

[54] See, for example, Greenspan's testimony to the Senate Banking Committee on the GSEs in February 2004 and April 2005.

[55] FDIC would perform the role with the possible exception in the House proposals of groups dominated by broker-dealers in which case SEC would take the role. In the interests of credibility and concentrating skills and expertise for resolution in one place, it would seem desirable to make FDIC the resolution agency in all circumstances.

impact[56] including providing funding or guarantees or injecting capital. Various options are under consideration for the financing of a resolution but both the House and Senate proposals would require that any public financing cost be recouped from the industry.

61. **Adopting the proposals may therefore provide a cleaner, more orderly resolution process for large firms and this in itself might reduce public costs (especially if net resolution costs are recoverable from other large firms).** And in principle the proposed reforms represent a major step forward, providing a legal basis for an orderly wind-down of these financial groups.

62. **But the question remains how to implement the proposals in practice.** Without mechanisms for intervening to wind down these groups and the incurring of losses, particularly by debt holders, that are credible to the market, the assumption of too big or too difficult to fail will remain.

63. **During the crisis, many of the large groups that needed to be supported lost viability rapidly due to their reliance on wholesale funding and access to markets.** Decisions on whether and how to resolve the firms had to be made quickly given their importance to markets and payment and settlement systems.[57] It is hard to imagine this being done over a weekend in an orderly manner given the size and complexity of the groups in question if in the process uninsured liabilityholders are to be written down or portfolios of outstanding deals are to be stayed or unwound. The FDIC is typically only able to achieve this in resolving smaller banks because it has been working on specific resolution options months in advance (the FDIC generally starts work preparing for the resolution of a problem bank ninety days in advance and, after forty five days, starts to market the bank to potential acquirers if the problem bank's situation does not improve). It is unlikely for a large institution that there would be the same luxury of time or that it would be as easy to organise a sale without drawing attention in the market. Making the objective of ensuring that liability holders incur losses compatible with containing the broader systemic impact of the failure of a large firm may prove hard to attain in practice.[58]

64. **Ex ante preparation is therefore important to ensure resolution arrangements are credible and will meet their objectives.** This need for preparation applies both to the agencies (that they have a complete set of powers and well honed procedures that instil confidence in the market as to how a resolution would be handled) and to firms (that they have a group structure

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[56] The range of tools envisaged is similar to the powers and techniques available to FDIC now in relation to banks including purchase and assumption and bridge bank arrangements.

[57] In March 2008, Bear Stearns had CDS of US$2.5 trillion outstanding. It was also a significant participant in the US$2.8 trillion triparty repo market. In September, besides life insurance policies of US$1.9 trillion that it had written, AIG had derivative positions with a notional principal of US$1.6 trillion outstanding.

[58] Bridge bank arrangements, as currently exist within FDIC tools, may provide the flexibility to transfer, and ensure continuity of, the functions of a firm that are deemed to be systemically important.

that is resolvable without systemic impact or public cost and they can furnish agencies with all the information that would be needed in the event of failure to achieve an orderly wind-down).

65. **Both sets of reform proposals contain requirements for firms to draw up resolution plans ("living wills") for discussion with their regulators to demonstrate that in the event of financial distress they can be wound up smoothly.** The plans would include ensuring all the information needed for an orderly resolution was readily available (for example, exposures across the group by legal entity to other firms and from other firms). Firms should also be obliged to maintain in a state of readiness the information that is likely to be needed in a resolution by counterparties and customers (for example location and availability of client assets, contracts outstanding under netting agreements by counterparty, etc).

66. **The process of resolution planning should enable a discussion as to whether the group structure is resolvable at all without significant cost.**[59] If not, regulators will need to consider what further actions to take, from requiring firms to revise their resolution plans to make them more robust to increasing prudential requirements or else more drastically forcing groups to simplify their structures or divest assets.[60]

67. **The risk that firms represent to the system should also be reflected in the regulatory requirements they are subject to and their ex ante supervision.** Again both sets of proposals provide for this. In the Senate proposals, the Agency for Financial Stability (AFS) as the systemic risk regulator would have the power to designate specified FHCs on systemic grounds (if not already bank holding companies, specified nonbank FHCs would have to register with the Financial Institutions Regulatory Administration (FIRA) for supervision) and to define enhanced prudential requirements for these groups. In the House proposals, while the designation of an FHC as systemic rests with FSOC, the Fed defines increased prudential requirements for, and supervises, designated groups.

68. **Designing prudential requirements to ensure the large financial groups internalise the risk they bring to the system is a laudable objective in principle but challenging in practice.** A particular issue will be how broad or narrow the list of designated FHCs should be. If the list is narrow, then it will underline that these specific groups are systemic and thus might add to the moral hazard unless resolution arrangements for those groups are credible, and regulatory requirements are tough enough both to deter groups from being designated and to incentivise them to restructure their activity to have the designation withdrawn. With a narrow list, there would be a risk that there would be large non-bank groups that were somewhat systemic, that fell short of the criteria for designation but still needed to be monitored from a financial stability perspective.

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[59] Estimating costs is not straightforward given that systemic impact will to some extent be state contingent, dependent on market conditions at the time.

[60] Section 165 of the Senate Proposal describes a similar process for systemically significant financial institutions.

69. **With a broad list, using a graduated set of criteria, publication of a list of designated groups would be less problematic:** a larger number of firms would be systemic to some degree. Regulatory requirements could be graduated to reflect the systemic risk of the designated groups (but designation would not have the same deterrent effect that a narrow list with more stringent requirements might have). On balance a broader list seems better on moral hazard and systemic monitoring grounds but in both cases the systemic regulator will need to use its powers to set higher prudential requirements and to demand credible resolution plans to lean against the moral hazard of too big to fail.

70. **Recommendations**

- Define principles for future access to emergency liquidity assistance for banks and non-banks to manage the widening in access to central bank liquidity support provided during the crisis. Ensure capacity to provide liquidity support in crisis situations is not so circumscribed as to be ineffective. Review prudential liquidity requirements for any institutions with potential access to liquidity support.

- Review the funding arrangements for the Deposit Insurance Fund by removing the ceiling on the size of the fund or increasing its size, to address the procyclicality in the current arrangements and to target premiums that, with more flexibility in the funding arrangements and adjustment to take account of systemic risk, are actuarially on a sound basis.

- Adopt a comprehensive resolution regime for dealing with the failure of large financial firms in an orderly manner and one that appropriately incentivizes shareholders and debt-holders through a sharing of losses. Resolution arrangements need to be credible with management, shareholders and the market and provide for adequate access to funding to allow both an orderly resolution and the mitigation of systemic risk. Ex ante resolution plans ("living wills") are one device to help promote this credibility. If the agencies conclude that a group's plan is not credible, they should take steps to make it so by pressing the group to revise the plan, by imposing higher prudential requirements or else more drastically by forcing the group to change its size and/or structure.

- Ensure that all financial groups that are potentially systemic are subject to effective consolidated supervision and to prudential requirements (larger capital or liquidity buffers) that reflect the risk they bring to the system.

IV. CROSS-BORDER ISSUES

71. **From the outset, the crisis had an international dimension.** The interconnections between the U.S. and the rest of the global financial system were extensive. At end-June 2007, consolidated overseas claims of U.S. banks amounted to US$3.2 trillion and the consolidated claims of foreign banks on the U.S. stood at US$6.5 trillion.[61] In addition, among U.S. financial groups are included a number of large complex financial institutions (LCFIs) that are active globally and play a leading role in international financial markets.[62]

72. **There was regular contact between U.S. agencies and authorities in other countries in the supervision of these individual firms and in discussion of risks in the global system more generally via meetings of the Financial Stability Forum (FSF), the Bank for International Settlements (BIS), the Basel Committee on Banking Supervision, and the International Organization of Securities Commissions (IOSCO) (amongst other forums).[63]** Through this network, there were frequent contacts between U.S. agencies and overseas authorities but while home-host relationships between regulators in the supervision of international firms had been the subject of standard-setting in Basel and IOSCO, no formal agreements were in place for how a cross-border crisis or the failure of an international firm would be coordinated. As a result, there was a lack of clarity not only as to how problems would be handled but also as to how responsibilities for taking action would be shared.

73. **Despite this, the U.S. and foreign agencies managed to achieve a high level of coordination,** building on long-standing relationships with key counterparts in other countries and interests that were generally aligned.

74. **After the crisis first broke in August 2007, coordination was needed first among central banks in responding to the problems in money markets in the U.S. and elsewhere as market participants hoarded liquidity and were unwilling to roll over interbank lending.** The scale of the reliance of European banks on dollar funding from U.S. markets quickly became apparent. G10 central banks coordinated an effective response to these problems. For example, on December 12, 2007, the Federal Reserve, the European Central Bank (ECB), and the Swiss National Bank (SNB) took concerted action to ease liquidity conditions in dollars with the introduction of temporary central bank liquidity swap lines in dollars. This announcement was made simultaneously with the announcement introducing the Term Auction Facility by the

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[61] BIS Banking Data. Consolidated claims include cross-border claims in all currencies and local claims in non-local currency by nationality of parent bank.

[62] The role of U.S. LCFIs in markets is described in G10 "Report on Consolidation in the Financial Sector," (2001) and Hawkesby, March and Stevens "Large complex financial institutions: common influences on asset price behavior?" (Bank of England Financial Stability Review, 2003).

[63] The FSF includes finance ministries, central banks and financial regulators from countries. The BIS provides a forum for regular meetings of central bank governors, experts in central banks on markets and payment systems and banking supervisors. IOSCO provides a forum for meetings of securities regulators.

Federal Reserve. There was close coordination among these and other central banks throughout 2008 that led, after the failure of Lehman, to the expansion of the bilateral swap arrangements both in terms of the size of the facilities and the central banks included.

75. **The Fed's coordination efforts were largely in pursuit of U.S. system stability, with initial measures taken to address the impact the tightness of the dollar market in Europe was having on rates in the Fed Funds market.** Later, potential threats to the stability of the dollar markets were also considered. But this was not assessed systematically**.** Indeed when the foreign exchange swap program was expanded to central banks in emerging market economies (EMEs), other criteria were considered for the selection of counterparties (the size and stability of the countries and their financial systems, and the quality of their relationships with the Fed). If U.S. stability motivated the swaps, the dollar lending to market counterparties was actually transacted by the foreign central banks, leaving them to assume any credit risk in the operations, since they were seen to be in better positions to judge the credit quality of institutions in the local markets.

76. **Coordination among supervisors intensified during the crisis.** As well as bilateral contacts with foreign supervisors, the FRBNY established in September 2007 the Senior Supervisors Group (SSG) consisting of representatives from FSA, Commission Bancaire, BaFin and Swiss Financial Market Supervisory Authority (FINMA) as well as FRB, OCC, FDIC and SEC[64] to draw out supervisory issues in common across the major firms. SSG quickly became a focal point for exchanging information on specific problems. The group also tried to address some gaps that existed in available information. For example they tried to pool information on counterparty risks so that they could see the matrix of bilateral exposures on a consolidated basis by exposure type among the large firms they were responsible for, though limitations in the management information in the firms hindered this.

77. **There were frequent conference calls with the whole group, sometimes including other interested parties; for example as problems intensified, other central bank representatives also joined the calls.** For example, over the Lehman failure weekend, the SEC Chairman briefed other regulators via SSG (though without being definitive at some stages on the options that were being considered by principals on the U.S. side).

78. **A common feature of the coordination of the U.S. agencies with overseas authorities was the concentration of effort on countries that were most relevant from the perspective of U.S. institutions or markets.** Given the global reach of financial markets and of the largest firms, there is always likely to be a mismatch in a crisis between the number of countries that can closely be involved in any coordination effort and the number who have some interest in the outcome of that coordination. In smaller countries it is quite possible that the local branch or subsidiary of a foreign bank is systemically important but represents only a small part of the

[64] OSFI and the Japanese FSA were later added to the group.

operations of that group. More needs to be done internationally to set expectations as to how, in a crisis, coordination would operate, what information would be shared and how the systemic impact of a problem would be assessed. The FSF Principles for Cross-border Coordination in Crisis Management (Box 2) push in this direction (in particular the fourth bullet in paragraph 2).

79. **In the process of implementing these principles the U.S. agencies will need to consider how far to use SSG or to extend existing arrangements of supervisory colleges for individual groups to include a wider range of countries, and to include finance ministries and central banks as well as regulators.** As part of establishing the interagency coordination framework

Box 2. FSF Principles for Cross-Border Coordination in Crisis Management[1]

1. The FSF Principles were adopted by G20 Leaders in April 2009 for immediate implementation.
2. In preparing for financial crises, the principles provide that authorities will:
   - develop common support tools for managing a cross-border financial crisis, including key data lists and a common language for assessing systemic implications;
   - meet at least annually to consider issues and barriers to coordinated action that may arise in handling severe stress at specific firms;
   - work to ensure that all countries in which the firm has systemic importance are kept informed of the arrangements for crisis management developed by the core college country authorities (because all countries in which a bank has operations are not represented in core colleges);
   - share at a minimum information on group structures, contingency funding arrangements and bank resolution procedures of the countries in which the firm operates;
   - ensure that firms are capable of supplying the information that may be required by the authorities in managing a financial crisis and maintain robust, up-to-date, funding plans to use in stressed market scenarios and contingency plans and procedures for use in a wind-down situation; and
   - seek to remove any practical barriers to efficient, internationally coordinated resolutions identified when developing contingency plans.
3. In managing a financial crisis, the principles provide that authorities will:
   - strive to find internationally coordinated solutions that take account of the impact of the crisis on the financial systems and economies of other countries, drawing on information, arrangements and plans developed ex-ante;
   - share national assessments of systemic implications;
   - share information as freely as practicable with relevant authorities from an early stage;
   - if a fully coordinated solution is not possible, discuss as promptly as possible national measures with other relevant authorities; and
   - for purposes of clarity and coordination, share their plans for public communication with the appropriate authorities from other affected jurisdictions.
4. Implementation of the principles is being taken forward now in the Financial Stability Board (FSB) along with work to develop guidance for systemic assessment.[1] The U.S. agencies are participating in this implementation work that will involve a significant extension and formalization of existing arrangements.

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[1]IMF, BIS and FSB Secretariat "Guidance to Assess the Systemic Importance of Financial Institutions, Markets and Instruments: Initial Considerations," (October, 2009).

domestically (whether FSOC or AFS), allocation of responsibilities for coordination with overseas authorities should also be clarified.[65]

80. **Besides the need to enhance coordination arrangements, the crisis revealed the need for U.S. agencies and authorities in other countries to face up to differences in resolution arrangements across countries.** Let alone the shortcomings in resolution arrangements in individual countries, the Lehman collapse revealed the difficulty in reaching a coordinated solution for a global firm in the context of differences in insolvency arrangements across jurisdictions. Lehman Brothers Holdings Inc. (LBHI) was put into Chapter 11 bankruptcy on September 15. With liquidity support from the FRBNY (and intraday liquidity from JP Morgan Chase), Lehman Brothers Inc, the broker dealer subsidiary of LBHI, was able to continue functioning until its sale to Barclays Capital was completed on September 20. By contrast, Lehman Brothers International Europe (LBIE), Lehman's main operating entity in Europe which was reliant on LBHI for funding and making payments, was put into administration on September 15 (without the ability to make payments from LBHI it could not meet is liabilities falling due). A summary of interlinkages between LBIE and other Lehman entities and the challenge this presented in administration is provided in Box 3.

81. **The disorderly wind-down of Lehman amplified the negative impact of its failure in the days that followed.** A particular issue related to prime brokerage clients that were left uncertain as to the location and availability of their assets (many of these had been re-hypothecated and transferred elsewhere in the group). A similar fate befell the other overseas subsidiaries of Lehman[66] resulting in separate insolvency proceedings involving Lehman entities in Switzerland, Japan, Singapore, Hong Kong, Germany, Luxembourg, Australia, the Netherlands and Bermuda. There is no strong framework for coordinating these proceedings. The result is a drawn-out and costly process that will take years to complete.

82. **Looking forward, it is clear that much more work needs to be done ex ante among authorities internationally, and closer coordination will be needed between resolution authorities in different countries,[67] in preparing crisis management frameworks for problems in global firms.** Indeed, if it is not, whatever reforms are made domestically, the stability risk of the largest firms for the U.S. system will not be addressed

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[65] Clarification of responsibilities may avoid confusion or duplication among the U.S. agencies but it is unlikely to result in any simplification of overseas coordination. There is likely to be a complex web of cross-border contacts (usually by authority-type, e.g., the Fed with other central banks, the Treasury with other finance ministries etc). It will be important therefore that in a crisis any interactions with overseas authorities are coordinated by FSOC or AFS.

[66] The group consisted of 2,985 legal entities that operated in some 50 countries.

[67] See the recent MOU between FDIC and the Bank of England (Memorandum of Understanding concerning consultation, cooperation and the exchange of information related to the resolution of insured depository institutions with cross-border operations in the United States and the United Kingdom) as an example of movement in this direction.

fully and the risk will be that firms may still end up requiring government support for want of workable resolution arrangements for closing them safely.

83. **Implementation of the FSF Principles and the recommendations of the Cross-border Bank Resolution Group[68] should help in this regard.** No doubt drawing up resolution plans for international groups will reveal inconsistencies and tensions between legal frameworks in the U.S. and other countries where the large U.S. firms operate.[69] The U.S. agencies will need to decide whether these can be managed or, if not, how they are tackled - whether through revisions to resolution plans, increased prudential requirements, or changes in group structures.

84. **Recommendations**

- As part of resolution planning, arrangements for the resolution of cross-border groups and the compatibility of resolution arrangements in different countries should be reviewed in conjunction with the authorities from those countries. If, as a result of the review, the credibility of the resolution arrangements is doubtful then the U.S. agencies should consider the steps they might take, whether by seeking revisions in resolution plans, applying increased prudential requirements, or by requiring changes in group structures.

- Within the proposed body for coordinating work on financial stability, responsibilities should be established among the agencies for coordinating with authorities overseas, building on existing practices and responsibilities among the agencies. The body should also ensure that the FSF Principles for Cross-Border Coordination in Crisis Management are implemented by the U.S. agencies.

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[68] Report and recommendations of the Cross-border Bank Resolution Group (BIS, 2009).

[69] For example, under FDICIA, deposits in overseas branches of a U.S. bank are not insured by FDIC and in a winding up would rank behind insured U.S. deposits.

Box 3. Cross-Border Insolvency and Interdependencies in Lehman Brothers

Like many other LCFIs, Lehman was run day-to-day along global product lines with extensive linkages between entities in the U.S. and elsewhere. Liquidity management for the group was centralized in LBHI and there were large volumes of other intra-group transactions for financing or risk management purposes. Besides any financial ties, group companies shared IT platforms, staff and other services (settlement, accounting, risk management, legal etc). Following the bankruptcy of LBHI, and Lehman entities elsewhere being placed into insolvency proceedings, any links between group companies were effectively broken and all transactions had to be viewed instead on a legal entity basis.

A summary of intra-group interdependencies in LBIE[70] at September 15 illustrates the complexity involved:

- Collateral placed by LBIE with other group companies under repo and stock lending transactions totaled US$210 billion (collateral received US$208 billion). The process of establishing claims on similar transactions with third parties (another US$283 billion and US$278 billion of collateral placed and received) has been complicated by counterparties asserting a right of set-off where they have trades with LBIE and other Lehman entities.

- There were more than 300 debtor and creditor balances between LBIE and other Lehman entities amounting to US$10.5 billion receivable and US$11 billion payable.

- A priority in administration was resolving an estimated US$26 billion of claims for client money and assets in LBIE. Of this, US$1 billion in cash was on deposit in Bankhaus (a Lehman bank subsidiary in Germany), US$6.6 billion in assets was held with LBI and a further US$1 billion with Lehman entities in Japan and Hong Kong.

- LBIE has made claims on LBHI for US$217 million in payments made to LBIE's account at LBHI on 15 September by third parties under standard settlement instructions (SSIs) (even though one of the administrator's first acts that morning was to amend the SSIs).

- LBIE was dependent on other Lehman entities for staff and IT services (all provided from LBL, a dedicated service company for LBIE and other Lehman entities in Europe), for operational management of many of its accounts, for sub-custodian and settlement services in many markets. Administrators for the different entities have been forced to set up alternative arrangements or to negotiate service agreements[71] to allow the provision of services to continue.

- Closing accounting records for 15 September had to be coordinated across Lehman entities taking account of failed trades (800,000 in the case of LBIE). This involved 200,000 manual ledger entries for LBIE alone and ongoing discussions with administrators for the other entities to reconcile balances.

[70] PWC "Lehman Brothers International (Europe) in administration─joint administrators' progress report," (2009).

[71] With Barclays Capital and Nomura in respect of the Lehman entities acquired by them.

APPENDIX I: COMPARISON OF CURRENT PROPOSALS FOR REFORM OF U.S. CRISIS MANAGEMENT ARRANGEMENTS

	Administration Proposal [72] **June 2009**	**House Act**[73] **December 2009**	**Senate Banking Committee Bill** [74] **March 2010**
Institutional Framework	• Create a FSOC chaired by Treasury to help fill gaps in regulation, facilitate coordination of policy and resolution of disputes, and identify emerging risks in institutions and markets. • Give Fed powers to act as consolidated supervisor of Tier 1 FHCs (see below). • Establish a new National Bank Supervisor to supervise all federally chartered banks. • Create a Consumer Financial Protection Agency.	• Create a FSOC chaired by Treasury to monitor and take actions to address systemic risk. • Give Fed powers as agent of FSOC, to regulate systemically risky institutions on a consolidated basis. • Consolidate OTS with OCC. • Create a Consumer Financial Protection Agency.	• Create a FSOC chaired by Treasury to identify, and respond to, threats to financial stability and to promote market discipline by eliminating shareholder expectations of government support. • FSOC to identify FHCs as potentially systemic and to determine higher prudential requirements for such groups. • Data collection and analysis for FSOC to be supported by Office of Financial Research within Treasury • Consolidate OTS with OCC and divide responsibility for BHC supervision between Fed and OCC[75] for large (>$50billion in assets) and smaller groups respectively. • Create Consumer Financial Protection Bureau as autonomous office located in the Fed.
Regulation of systemically	• Subject all institutions that pose a threat to financial stability due to their size,	• Subject all FHCs that pose a threat to financial stability as decided by FSOC to	• Subject all FHCs that pose a threat to financial stability as decided by FSOC to

[72] Financial Regulatory Reform (Treasury Department, June 2009).

[73] The Wall Street Reform and Consumer Protection Act of 2009 (House of Representatives).

[74] Restoring American Stability Act (U.S. Senate, March 2010).

[75] FDIC in case of BHCs of state-chartered banks with less than $50billion in consolidated assets.

important institutions	leverage and interconnectedness (Tier 1 FHCs) to consolidated supervision by the Fed. • Impose higher prudential requirements on FHCs.	consolidated supervision by the Fed. • Grant powers to the Fed to impose higher prudential requirements on FHCs in consultation with other regulators.	consolidated supervision by the Fed. • Subject designated FHCs and large BHCs to higher prudential requirements as decided by FSOC.
Emergency liquidity assistance	• Amend Section 13(3) of the Federal Reserve Act to require the prior written approval of the Secretary of the Treasury for any extensions of credit by the Fed to individuals, partnerships, or corporations in "unusual and exigent circumstances."	• Amend 13(3) of the Federal Reserve Act to permit the Fed to lend to individuals, partnerships or corporations only where there is a determination from FSOC that a liquidity event exists that could destabilise the financial system and written approval from the Treasury Secretary up to a limit of US$4 trillion. • Amend 13(3) to allow lending only as part of a broadly available program.	• Amend 13(3) to allow lending only as part of a program with broadly based eligibility or to a financial market utility deemed systemic by FSOC. • Require the Fed to report to Congress within seven days of any use of 13(3). • Future use of FDIC debt guarantee powers to be subject to the determination of FSOC and the Fed that a liqudity event exists with adverse systemic consequences.
Resolution of systemic institutions	• Supplement existing resolution regimes with a resolution regime for failing BHCs or Tier 1 FHCs where a disorderly resolution would have severe adverse effects on the financial system or the economy (i.e., modelled on the systemic risk exception in FDIC rules).	• Establish a resolution regime in which, where the failure of a firm is determined by the Treasury Secretary as having severe adverse effects on the financial system or the economy, the FDIC is appointed as receiver to dissolve the firm. • Grant FDIC as receiver powers to buy or sell assets, make loans, provide guarantees or inject capital. • Require FDIC to ensure that in any resolution taxpayer funds are repaid, unsecured creditors bear losses, shareholders receive nothing until all other claims are paid, management are removed. • Establish a Systemic Dissolution Fund, pre-funded by assessment on largest firms.	• Establish an orderly resolution authority under which, where the failure of a firm is determined by the Treasury Secretary as having a serious impact on financial stability, and as approved by Court, the FDIC is appointed as receiver to resolve the firm. • Grant FDIC as receiver powers to buy or sell assets, make loans, provide guarantees or inject capital. • Provide that any shortfall in funds recovered in a resolution is recouped ex post from industry via assessment on institutions with assets over US$10 billion.

APPENDIX II: EXCEPTIONAL CRISIS MEASURES: TABLE 1. TREASURY

Facility/Institution	Acronym	Instrument	Announcement date	Announced capacity ($ bn)	Initial size ($ bn)	Mazimum size ($ bn)
Main Program						
Troubled Asset Relief Program[1]	TARP	Capital Injection, asset purchase, debt guarantee	3-Oct-08	700	306.81	443.40
Capital Purchase Program[2]	CPP	Capital injection	14-Oct-08	250	161.47	204.66
Targeted Investment Program[3]	TIP	Capital injection	23-Nov-08	40	40.00	40.00
Asset Guarantee Program[4]	AGP	Asset guarantee	23-Nov-08	-	5.00	5.00
Systemically Significant Failing Institutions Program[5]	SSFIP	Capital injection	25-Nov-08	-	69.84	69.84
Automotive Industry Financing Program[6]	AIFP	Capital injection	19-Dec-08	-	6.00	79.96
Public-Private Investment Program[7]	PPIP	Asset purchase	10-Feb-09	100	6.60	16.60
Making Home Affordable Program[8]	MHAP	Loan modification	10-Feb-09	75	17.90	27.35
Automotive Supplier Support Program[9]	ASSP	Loans	19-Mar-09	-	5.00	5.00

Source: U.S. Treasury.

1. Fund introduced by the Emergency Economic Stabilization Act approved by Congress on 03 October 2008.
2. Initial size corresponds to the amounts injected as of November 21, 2008. The maximum amount relates to the total gross amount invested since the start of the program.
3. Capital injections in Citigroup and Bank of America (US$20 billion each).
4. Asset guarantees for Citigroup.
5. Support to AIG that refinanced part of the earlier lending provided by the Fed.
6. Financial support to GM and Chrysler. Initial value corresponds to the amounts disbursed in December 2008. The maximum amount is the total amount invested in this program.
7. Treasury committed funds to buy legacy securities and loans in partnership with private institutions. Initial values correspond to outstanding values as of September 2009 (when the program effectively started) and maximum values relate to values outstanding as of October 2009.
8. Initial values correspond to amounts at the end of June 2009 (the first month of operations) and maximum values correspond to the most recent data (October 2009).
9. Financial support to suppliers of GM and Chrysler. Initial value corresponds to amounts disbursed in December 2008. Maximum amount relates to the total gross amount invested since the start of the program.

APPENDIX II. EXCEPTIONAL CRISIS MEASURES: TABLE 2. FEDERAL RESERVE

Facility/ Institution	Acronym	Authority	Form of Intervention	Instrument	Announcement date	Announced Capacity ($ bn)	Initial Size ($ bn)	Maximum Size ($ bn)
General Programs								
Term Auction Facility [1]	TAF	Section 10 (B)	Liquidity	Loan	12-Dec-07	900.00	40.00	300.00
Term Securities Lending Facility [2]	TSLF	Section 13 (3)	Liquidity	Securities lending	11-Mar-08	200.00	200.00	200.00
Primary Dealer Credit Facility [3]	PDCF	Section 13 (3)	Liquidity	Loan	16-Mar-08	-	28.80	146.56
Term Securities Lending Facility Options Program [4]	TOP	Section 13 (3)	Liquidity	Options to borrow securities	08-Aug-08	50.00	50.00	50.00
Asset-Backed Commercial Paper Money Market Mutual Fund Liquidity Facility [5]	AMLF	Section 13 (3)	Liquidity	Loan	19-Sep-08	-	72.60	152.10
Commercial Paper Funding Facility [6]	CPFF	Section 13 (3)	Liquidity	Loan	07-Oct-08	1,800.00	144.70	334.30
Money Market Investor Funding Facility [7]	MMIFF	Section 13 (3)	Liquidity	Loan	21-Oct-08	540.00	-	-
Term Asset-Backed Securities Loan Facility [8]	TALF	Section 13 (3)	Liquidity	Loan	25-Nov-08	200.00	4.70	41.40
Support for Specific Firms								
Bear Stearns [9]		Section 13 (3)	Liquidity	Bridge loan	14-Mar-08	-	12.90	12.90
Bear Stearns (Maiden Lane) [10]		Section 13 (3)	Liquidity	Loan	16-Mar-08	-	29.00	29.00
AIG [11]		Section 13 (3)	Liquidity	Loan	16-Sep-08	-	85.00	85.00
AIG (Maiden Lane II) [12]		Section 13 (3)	Liquidity	Loan	10-Nov-08	-	19.50	19.50
AIG (Maiden Lane III) [13]		Section 13 (3)	Liquidity	Loan	10-Nov-08	-	15.10	24.30
TOTAL						3,690.00	702.30	1,395.06

Sources: FED, FDIC, U.S. Treasury.

1. The cycle of auctions started with US$40 billion and reached a peak of US$300 billion in Oct 2008.
2. Program offered up to US$200 billion in securities lending monthly.
3. At the end of the first week of operations, amounts outstanding were US$28.8 billion and peaked at US$146.6bn on 2 Oct 2008.
4. Fed committed up to $50bn for this program.
5. At the end of the first week of operations, amounts outstanding were US$72.6 billion and peaked at US$152.1billion on 2 Oct 2008.
6. At the end of the first week of operations, the Fed had extended US$144.7 billion in loans to the Special Purpose Vehicle (SPV). Outstandings peaked at US$334.3 billion on 8 Jan 2009.
7. This facility has not been used since its introduction.
8. At the end of the first month of operations in March 2009, amounts outstanding were US$4.7 billion, peaking at US$41.4 billion in September 2009.
9. The bridge loan was provided to Bear Sterns before the deal with JP Morgan was closed.
10. To facilitate the acquisition of Bear Stearns by JPMorgan Chase, Fed extended credit to Maiden Lane, a limited liability company formed to acquire up to US$29 billion of assets of Bear Stearns.
11. Initially, Fed extended a credit line of US$85 billion to AIG.
12. Fed extended credit to Maiden Lane II LLC, a company formed to purchase residential mortgage-backed security (RMBS) assets from AIG subsidiaries.
13. FED extended credit to Maiden Lane III LLC, a company formed to purchase multi-sector collateralized debt obligations (CDOs) on which the Financial Products group of AIG had written credit default swap and similar contracts. Initially (28 Nov 2008), the Fed extended US$15 billion to this LLC. Since then, this amount peaked at US$23.4 billion.

APPENDIX II. EXCEPTIONAL CRISIS MEASURES: TABLE 3. FDIC

Facility/ Institution	Acronym	Form of Intervention	Instrument	Announcement date	Announced Capacity ($ bn)	Initial Size ($ bn)	Maximum Size ($ bn)
Main Program							
Temporary Liquidity Guarantee Programme	TLGP	Guarantee	Debt and deposit account guarantee	14-Oct-08	940.00	908.20	1,081.78
Programs under TLGP							
Debt Guarantee Program [1]	DGP	Guarantee	Debt guarantee	14-Oct-08	940.00	224.20	345.78
Transaction Account Guarantee Program [2]	TAGP	Guarantee	Account guarantee	14-Oct-08	-	684.00	736.00
Support for Specific Firms							
Wachovia [3]		Guarantee	Debt guarantee	29-Sep-08	312.00	-	-
Citibank [4]		Guarantee	Debt guarantee	23-Nov-08	-	306.00	306.00
Bank of America [5]		Guarantee	Debt guarantee	16-Jan-09	-	118.00	118.00

Sources: FED, FDIC, U.S. Treasury.

1. As of Dec 2008 (the facility's first month of operations), guarantees amounted to US$224.2 billion. The maximum amount guaranteed since inception was US$345.78 billion (as of May 2009).
2. As of Dec 2008, total amount guaranteed was US$684 billion. The amount guaranteed peaked at US$736 billion at the end of the second quarter of 2009.
3. FDIC agreed to enter a loss-sharing agreement to facilitate Citigroup acquisition of Wachovia. Under the agreement, FDIC agreed to absorb losses above US$42 billion on a pool of assets of US$312 billion. However, the transaction was not consummated and Wachovia ended up being acquired by Wells Fargo.
4. Asset guarantee provided by Treasury and FDIC on a pool of $306billion of Citigroup's assets, where Citigroup were to bear the first loss up to $39billion. Subsequent losses were to be shared, with Citigroup bearing 10% and the remaining 90% being allocated first to Treasury, up to a maximum of $5billion, and then to FDIC, up to a maximum of $10billion.
5. Asset guarantee agreed by Treasury and FDIC on a pool of $118billion of Bank of America's assets, where Bank of America were to bear bears the first loss up to $10billion. Subsequent losses were to be shared, with Bank of America bearing 10% and the remaining 90% being allocated first to Treasury, up to a maximum of $7.5billion, and then to FDIC, up to a maximum of $2.5billion.