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Financial System Stability Assessment

Prepared by the Monetary and Capital Markets and Western Hemisphere Departments

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This report summarizes the findings of the Financial Sector Assessment Program (FSAP) for the United States. The assessment involved two missions, during October 14–November 3, 2009 and February 17–March 12, 2010. The team comprised Christopher Towe (head), Christian Durand and S. Kal Wajid (co-deputies), Martin Čihák, Francesco Columba, Randall Dodd, Jennifer Elliott, Dale Gray, Simon Gray, Andreas Jobst, Elias Kazarian, John Kiff, Aditya Narain, Miguel Segoviano, Ian Tower (all IMF/MCM), Ashok Bhatia (IMF/SPR), Andrea Maechler (IMF/WHD), and the following outside experts: Susanne Bergsträsser, Richard Britton, Wayne Byres, Andrew Gracie, Frédéric Hervo, Tom Karp, Nicholas Le Pan, Goran Lind, Tanis McLaren, and Daniela Russo. Concluding meetings were held with Treasury Secretary Geithner, Federal Reserve Chairman Bernanke, and heads of various U.S. agencies.

A forceful policy response has rolled back systemic market pressures, but the cost of intervention has been high and stability is tenuous. Comprehensive reforms are being legislated, addressing many of the issues that left the system vulnerable. Given the severity of the crisis and the many weaknesses revealed, bolder action could have been envisaged—but the priority now is to ensure effective implementation:

- *Strengthen micro-prudential regulation and supervision and establish clear macro-prudential responsibilities*: This requires more robust and consistent regulation and consolidated supervision; forceful action to improve cooperation among regulatory agencies given their multiplicity; and the closing of material gaps in market regulation. Clear responsibilities and accountability for assessing and responding promptly to systemic risks, buttressed by clear communication, will be critical.
- *Bolster market discipline*: Prompt and proactive application of new resolution mechanisms will be needed to ensure the non-disruptive failure of systemic financial groups. There is also a need to reform U.S. credit policies that have sought to promote access to credit and home ownership but have helped soften lending standards, imposed conflicting mandates on supervisors, and weakened the financial position of the housing-related government sponsored enterprises (GSEs).
- *Continue U.S. leadership in building an international consensus on reforms*: Many of the issues addressed in this assessment are also being considered by the international standard setters, the G20, the Financial Stability Board, and others to establish a globally coordinated response to the crisis. To the extent that U.S. measures move in advance of these deliberations, it will be important to avoid inconsistent approaches that could widen the scope for regulatory arbitrage.

FSAP assessments are designed to assess the stability of the financial system as a whole and not that of individual institutions. They have been developed to help countries identify and remedy weaknesses in their financial sector structure, thereby enhancing their resilience to macroeconomic shocks and cross-border contagion. FSAP assessments do not cover risks that are specific to individual institutions such as asset quality, operational or legal risks, or fraud.

Contents Page

Tables

Contents Page

GLOSSARY

ABCP	Asset backed commercial paper
ABS	Asset backed security
AIG	American International Group
AML/CFT	Anti-Money Laundering/Combating the Financing of Terrorism
BHC	Bank holding company
CCA	Contingent claims analysis
CCP	Central counterparty
CFTC	Commodity Futures Trading Commission
CPP	Capital Purchase Program
CRE	Commercial real estate
FATF	Financial Action Task Force
FBA	Federal banking agency
FDIC	Federal Deposit Insurance Corporation
Fed	Federal Reserve
FFIEC	Federal Financial Institutions Examination Council
FHFA	Federal Housing Finance Agency
FHLB	Federal Home Loan Bank
FICC	Fixed Income Clearing Corporation
FSAP	Financial Sector Assessment Program
FSOC	Financial Stability Oversight Council
GAO	Government Accountability Office
GSE	Government sponsored enterprise
IOER	Interest on excess reserves
LCFI	Large complex financial institution
MBS	Mortgage backed security
NAIC	National Association of Insurance Commissioners
NSCC	National Securities Clearing Corporation
OCC	Office of the Comptroller of the Currency
OMO	Open market operations
OTC	Over-the-counter
OTS	Office of Thrift Supervision
PCA	Prompt corrective action
QFC	Qualified financial contract
RBC	Risk-based capital
ROSC	Report on Observance of Standards and Codes
SCAP	Supervisory Capital Assessment Program
SEC	Securities and Exchange Commission
SIPC	Securities Investor Protection Corporation
TALF	Term Asset-Backed Securities Loan Facility
TARP	Troubled Assets Relief Program

EXECUTIVE SUMMARY

1. **The United States has experienced one of the most devastating financial crises in a century, but now seems to be slowly recovering**. The costs of the crisis have been massive, in terms of job and output losses, a significant deterioration in public debt, and enormously damaging spillovers to the rest of the world. Helpfully, the U.S. policy response was bold and aggressive and has helped restore stability. As a result, most emergency liquidity and guarantee facilities have been wound down, and significant legislative steps are being taken to strengthen the supervisory and regulatory system.

2. **The factors that contributed to the crisis were multi-faceted, but its scale and breadth revealed many important weaknesses**. In the years prior, the U.S. economy experienced an unsustainable lending boom, fueled by low interest rates and capital inflows from abroad; a housing bubble; the rapid rise of a "shadow banking system"; a decline in underwriting standards; weaknesses in risk management, governance, and compensation structures in the financial sector; and the growing use of complex derivative and structured credit instruments whose risk properties and contribution to systemic fragility were poorly understood. These vulnerabilities were allowed to build as a result of insufficient market discipline but also because of critical shortcomings and gaps in the supervisory and regulatory framework, both at a micro- and macro-prudential level.

3. **Despite the restoration of stability, pockets of vulnerability linger and difficult challenges remain in implementing financial sector reforms**. This assessment was undertaken as a major legislative overhaul of the financial system was being developed, and the report was finalized before it was signed into law. Encouragingly, the reforms have evolved in a way largely consistent with the team's recommendations, but implementation will be the key test. Critical priorities will be to: (i) strengthen micro-prudential regulation and supervision; (ii) establish clear macro-prudential responsibilities; and (iii) strengthen market discipline and reform U.S. credit policies. Every effort should be taken to coordinate these efforts internationally, to ensure they encourage a "race to the top" rather than inconsistent approaches that could widen the scope for regulatory arbitrage.

Stability is being restored but remains fragile…

4. **There remain important risks to the U.S. financial system and its ability to support the economic recovery**. Bank balance sheets remain fragile and capital buffers may still be inadequate in the face of further increases in nonperforming loans. The economy and financial system remain vulnerable to an unexpected weakening of demand, credit quality in the commercial real estate (CRE) sector, and housing prices. Recent months have also illustrated, both domestically and internationally, heightened risks of a sharp deterioration in market perceptions of sovereign risk.

5. **The team's stress tests illustrate important vulnerabilities in the bank and nonbank sectors**. Thanks to substantial public and private capital injections, equity buffers

now appear adequate from a systemic perspective. Nonetheless, some institutions may still face strains even under a baseline macroeconomic scenario, given the lagged effects of the economic downturn on credit quality, regulatory demands for higher capital, and the continuing adjustment to more sustainable levels of leverage. And even a modestly adverse scenario could leave important parts of the system—especially the regional and smaller banks—facing further difficulties.

…and crisis management required considerable improvisation

6. **The U.S. framework for crisis management and financial stability was severely tested and effective implementation of new arrangements will be critical**. The experience of recent years illustrated the need for a more systematic and forward-looking framework, one that clearly defines responsibilities and takes a broader, more systemic view. The new systemic oversight council, and a strengthened role for the Fed as the consolidated supervisor of systemically important financial institutions and market utilities, are appropriate responses to these evident weaknesses. But it will be critically important to ensure that mechanisms are in place to ensure effective inter-agency coordination, accountability, and the will and capacity to act.

7. **Decisive action was taken to expand official liquidity backstops, when traditional central bank standing facilities proved insufficient in the face of systemic stress**. Most of the crisis support facilities have expired without noticeable market impact but the experience of the past few years illustrates the need to retain scope for broad liquidity provision in case pressures re-emerge. As the Federal Reserve (Fed) articulates principles to guide future lending to nonbank financial intermediaries in the event of another run on the shadow banking system, it will be important also to strengthen risk monitoring in such areas.

Financial regulation and supervision need to be strengthened…

8. **Shortcomings in the U.S. regulatory and supervisory system left it ill-placed to stem the buildup of systemic risks**. The Administration's white paper on regulatory reform detailed the numerous "gaps and weaknesses" and similar assessments have come from the heads of the various regulatory agencies. Many of these promise to be addressed by legislation and rulemaking, and the focus going forward should be on:

- *Strengthening supervision of risk management*, especially among regulated and systemic entities, through better implementation of existing rules and guidelines as well as new processes and rules with clear accountability to ensure a stronger supervisory will to act coupled with more effective management of credit, market, liquidity, and operational risks.

- *Reinforcing consolidated supervision and attendant capital and liquidity rules*, including by addressing legal and administrative constraints on bank holding

company (BHC) oversight, and by establishing effective and comparable oversight of broker-dealer, insurance, finance company, and savings and loan groups.

- *Broadening the perimeter for oversight of securities and derivatives*, to cover key funding and risk transfer markets, e.g., over-the-counter (OTC) derivatives, unregistered structured finance securities, and off-exchange trading platforms.

- *Strengthening oversight of payment, clearing, and settlement infrastructures*, including by providing the Fed authority over systemic infrastructure providers and payment, clearing, and settlement activities.

- *Addressing supervisory gaps and the shadow banking sector*, given that the crisis was fueled in part by regulatory arbitrage that spurred the rapid growth of leverage and maturity transformation outside the banking sector. Steps are needed to level the playing field, improve risk management in repo and other funding markets, and ensure that all systemic institutions and markets are inside the regulatory perimeter.

…with the fragmentation of U.S. supervision posing challenges…

9. **The complexity of the U.S. supervisory system and the diffusion of powers across agencies undermined its efficiency, effectiveness, transparency, and accountability**. The crisis brought home weaknesses in systemic oversight, inter-agency communication, and consolidated supervision, compounded by the blurring of lines between banks, broker-dealers, insurers, and other financial intermediaries. Important steps have been taken to improve inter-agency coordination, but there remains the need to reinforce this effort to clarify the mandate and accountability of each agency and enforce greater cooperation, including in the area of information sharing.

10. **Reform legislation seeks to address these issues but bolder action would have been preferable**. Some streamlining of bank supervision has been achieved, but the number of U.S. agencies responsible for financial sector oversight has been increased rather than shrunk. The continued fragmentation of the supervisory system means that achieving the needed improvement in supervisory coordination and effectiveness will represent a critical challenge for the new council of regulators.

…as will new responsibilities for systemic risk

11. **This new council of regulators is to be mandated to identify and act upon systemic risk**. Effective discharge of this responsibility will require appropriate authority to access information, to mandate council members to undertake coordinated "horizontal" (cross-firm) supervisory reviews and market analysis, and to require supervisory and regulatory actions to head off emerging systemic threats. It is appropriate to define the Fed as its lead agent for systemic risk oversight, given its existing expertise, synergies with monetary policy, and responsibility as lender of last resort.

12. **The experience of recent years illustrates the need to reverse perceptions that major financial institutions are "too-big-to-fail."** This should involve steps to discourage both size and complexity, including by: subjecting systemic firms to stricter enterprise-wide standards for capital, liquidity, and risk management; requiring such firms to submit "living wills" and enabling supervisors to order pre-emptive changes to group structure to facilitate orderly resolution; introducing a special resolution framework to ensure early intervention and non-disruptive wind-down of failing systemic conglomerates; and compensation and governance rules that discourage excessive risk taking.

Critical reforms of the GSEs are still pending…

13. **The housing GSEs have helped both underpin and unhinge the U.S. financial system, and require fundamental reform**. These entities were pivotal in developing key markets for securitized credit and hedging instruments, but their implicit guarantee and social policy mandates contributed to a softening in credit discipline and a buildup of systemic risk. As part of the planned overhaul of the U.S. housing finance system, there would be merit in moving to a public–private model, in which the GSEs' retained portfolios are privatized and their social objectives/guarantee functions are re-assigned to an explicitly public utility.

KEY RECOMMENDATIONS

(ST: short-term, implementation within 12 months; MT: medium-term, 1–3 years;
HP: high priority; MP: medium priority)

RECOMMENDATION	Timing, Priority
Institutionalize and strengthen systemic risk oversight	
• Establish a council of the regulatory agencies, the Fed, and the Treasury, with a mandate for financial stability and powers *inter alia* to designate potentially systemic financial firms for enhanced regulation and supervision focused on systemic risk	ST, HP
• Define the Fed as the lead executor of this council and the consolidated supervisor of designated potentially systemic financial firms, to work with other regulators	ST, HP
• Provide the Fed oversight authority over systemically important payment, clearing, and settlement infrastructure	ST, HP
Redesign the regulatory architecture	
• Strengthen the Fed's role in consolidated regulation and supervision, including by enhancing coordination with bank and functional regulators and restricting deference requirements	ST, HP
• Unify safety-and-soundness regulation and supervision of commercial banks and thrifts in a single federal agency and eliminate the federal thrift charter	ST, HP
• Unify federal securities and derivative market regulation into one federal agency	ST, MP
• Establish an independent and accountable federal consumer protection agency, removing this responsibility from the other agencies to enhance their focus and effectiveness in their primary roles	ST, MP
• Establish a federal office tasked with promoting greater regulatory uniformity in the insurance sector	MT, MP
Strengthen micro-prudential regulation and supervision	
Banking	
• Enhance the capacity for group-wide oversight of banking groups and conduct regular inter-agency horizontal assessments of complex groups (possibly by establishing domestic supervisory "colleges")	MT, HP
• Boost timeliness and forcefulness of supervisory and regulatory interventions to address weaknesses in enterprise-wide risk management practices	MT, HP
• Strengthen channels for cooperation, coordination, and learning from best practices—within and among the federal banking agencies (FBAs), market regulators, and the states—to close regulatory gaps and prevent regulatory arbitrage, including with regard to charter conversions	MT, HP
Securities and derivative markets	
• Enhance enforcement and oversight capacities and re-examine capital rules and other prudential requirements, such as risk management standards, to ensure that risks are fully addressed	ST, HP
• Implement the recommendations of the Joint Report to enhance investor protection and improve cooperation between the Commodity Futures Trading Commission (CFTC) and Securities and Exchange Commission (SEC); close legislative and regulatory gaps identified in the Joint Report	MT, HP
• Complete the consolidation of equity and equity option market surveillance into a single entity taking into account issues of dark pools, high-frequency trading, predatory algorithms, and other technology-based practices	ST, MP
• Promote standardization of OTC derivatives in order to increase market reliance on exchange trading and multilateral clearing and require proper collateralization of all derivative transactions, whether held at a clearinghouse or bilaterally	MT, MP
• Improve transparency of OTC derivative and securities markets by requiring timely reporting of transactions and providing better information to investors	MT, MP

RECOMMENDATION	Timing, Priority
Shadow banking and other short-term funding markets	
• Discourage the use of deposit-like instruments outside the formal banking sector and ensure appropriate liquidity management by sectors potentially falling within the systemic liquidity safety net	ST, HP
• Set minimum haircuts for repo transactions and address incentives for the repo clearing banks to extend intraday credit in the clearing and settlement cycle	ST, HP
• Require money market funds to make real-time disclosures of their actual (as opposed to "stabilized") net asset values	MT, MP
Insurance	
• Develop the supervision of insurance groups through consolidated financial reporting and establish policies and procedures for the regulation of systemically important institutions, markets, and instruments in the insurance sector	MT, HP
• Increase information sharing and coordination between state regulators and federal authorities, including through representation of state regulators in national bodies with responsibilities for system-wide oversight	MT, MP
• Strengthen regulation of bond insurance and securities lending and modernize solvency requirements	MT, MP
• The National Association of Insurance Commissioners (NAIC) and state legislatures should undertake reforms covering the terms of Commissioners' appointments, the rulemaking powers of state insurance departments, and their funding and staffing to bolster specialist skills	MT, MP
Strengthen oversight of market infrastructure	
• Allow systemic payment, clearing, and settlement infrastructures to have accounts at the Fed in order to settle in central bank money and to have emergency access to Fed liquidity under terms and conditions established by the Fed's Board of Governors as an additional buffer against systemic risk	ST, HP
• The Fed should continue to assess payment, clearing, and settlement infrastructures for their ability to cope with extreme liquidity stress and explore the introduction of a queuing and offsetting mechanism in the *Fedwire Funds Service* similar to those in other G10 countries' large value payment systems	ST, MP
• Clearing and settlement infrastructures should enhance their risk management procedures by increasing the frequency of stress testing from monthly to weekly and strengthening liquidity back-up facilities	ST, MP
Enhance crisis management, resolution, and systemic liquidity arrangements	
• Extend the special powers of the Federal Deposit Insurance Corporation (FDIC) to enable receivership or conservatorship of BHCs and systemically important financial firms	ST, HP
• Review the funding arrangements for the Deposit Insurance Fund by removing the ceiling on the size of the fund and increasing its size	MT, MP
• Implement "living will" requirements for large and complex financial groups, and address group structures that appear likely to severely impede effective resolution	MT, HP
• Consider widening the range of counterparties and collateral used for open market operations (OMO) and articulating policies for future Fed lending to nonbank financial firms to enhance the scope and predictability of systemic liquidity provision	MT, HP
Address too-big-to-fail issues and the future of the GSEs	
• Discourage size and complexity by subjecting systemic financial institutions to more stringent prudential requirements	ST, HP
• Provide regulators the authority to take pre-emptive actions when vulnerabilities build at potentially systemic financial firms	ST, HP
• Reform the housing GSEs, possibly by privatizing their retained asset portfolios and re-assigning responsibilities for social objectives/system support to an explicitly guaranteed public utility	MT, HP

I. Overall Stability Assessment

A. Financial Crisis and Risk Factors

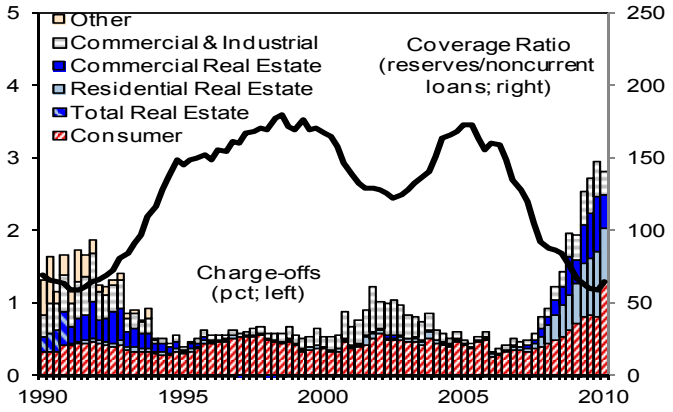
14. **Decades of lax regulation of maturity and risk transformation rendered the U.S. financial system vulnerable to crisis**. In the lead up to the crisis, the "originate-to-distribute" model for residential mortgage and other debt gave rise to increasingly complex structured securities, credit derivatives, and funding chains with embedded leverage and poorly understood risk characteristics. This process was facilitated by a shadow banking sector that provided short-term wholesale funding of longer-maturity, illiquid, structured credit. Much of the activity was driven by regulatory gaps and arbitrage, information asymmetries, and diluted underwriting standards.

15. **The trigger for the crisis was the collapse of the subprime mortgage segment**. This led to downgrades of a broad range of structured debt securities that impaired investor confidence and caused a seizing of markets. Mistrust of counterparties and volatility of collateral values led to a jump in repo "haircuts" and a run on wholesale funding. Spectacular failures and losses resulted.

16. **The authorities responded aggressively to avert systemic collapse**. The Fed relaxed monetary policy and provided liquidity support to depository institutions and critical nonbank financial firms and markets.[1] The Treasury intervened through its Troubled Assets Relief Program (TARP; Box 1), injecting capital into financial holding companies and firms, and guaranteeing stable net asset values across the money fund industry. Significant exceptional financial support was provided to systemically important, failing institutions, and the FDIC guaranteed new debt of banks and holding companies.

17. **Bank balance sheets have been strengthened but remain vulnerable**. Capital positions have been improved and banks are provisioning substantially against loan losses (Figure 1 and Table 1). Nonetheless, although the ratio of reserves to noncurrent loans showed its first signs of stabilization by the first

Figure 1. United States: Banking System Net Charge-Off and Reserve Coverage Ratios, 1990–2010



Sources: Fed, FDIC, and Haver Analytics.

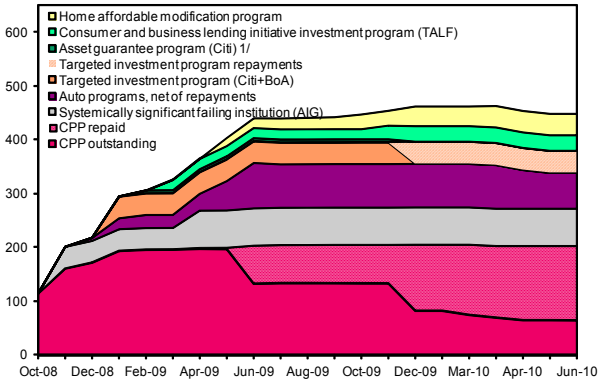
[1] The Fed provided liquidity through its discount window and a new Term Auction Facility; introduced funding mechanisms to support primary dealers and the tri-party repo market, money market mutual funds and the asset backed commercial paper (ABCP) market, other commercial paper issuers, selected securitizations, and offshore dollar markets; and mounted a Large Scale Asset Purchase program to support mortgage and other private credit markets.

Box 1. The TARP and Other U.S. Government Interventions

An aggressive policy response helped avert the collapse of the U.S. financial system. Coordinated actions were taken by the Treasury, the Fed, the FDIC, and other public bodies.

The TARP played a critical role in this success. In September 2008, the Treasury was given authority to use $700 billion under the TARP to purchase assets, make equity investments and loans, and provide asset guarantees in a range of financial institutions and markets. The program, now subject to strict transparency and reporting requirements and close monitoring by the Special Inspector General for the TARP, focused on three key areas: (i) providing capital infusions to financial institutions through the Capital Purchase Program (CPP) or more-targeted assistance to particular institutions; (ii) supporting securitization markets critical to restoring credit to consumers and small businesses through the Term Asset-Backed Securities Loan Facility (TALF); and (iii) mitigating the foreclosure crisis through a mortgage modification program. So far, some $310 billion of capital has been provided to around 400 financial institutions.

Figure 2. United States: TARP Programs, 2008–10
(In billions of dollars)



Source: www.FinancialStability.gov

A range of other government measures were also taken. At the height of the crisis, the Treasury also guaranteed over $3 trillion in assets to prevent runs on money market mutual funds. The FDIC extended the coverage of insured deposits to $250,000, provided an unlimited guarantee of transactions deposits, and guaranteed new bank debt issues. The Fed provided a range of liquidity support to depository institutions, securities dealers, select foreign central banks, and key markets, and conducted unconventional large-scale asset purchases to support the housing sector and the economy.

By end-FY2009, the fiscal cost of stabilizing the financial system was estimated at less than $120 billion, lower than initially expected. In September 2009, the Treasury ended its Temporary Guarantee Program for money market funds, with no losses and earning $1.2 billion in fees. Issuances under the FDIC's Debt Guarantee Program ended in October 2009, with over $10 billion in fees collected thus far. The Fed's crisis-related programs have expired progressively as scheduled, except for the foreign exchange swap lines with foreign central banks, which were re-opened in May 2010 in response to turbulence in Europe. The CPP has effectively been closed, earning $19 billion in dividends, interest income, and other income and representing a 17 percent return on investment on the top-25 institutions that have fully repaid. The TARP was extended until October 3, 2010, to support small business lending, foreclosure mitigation efforts, and TALF commitments.

Table 1. United States: Financial Soundness Indicators for the Banking Sector, 2002–10 [1/]

(In percent unless otherwise indicated)

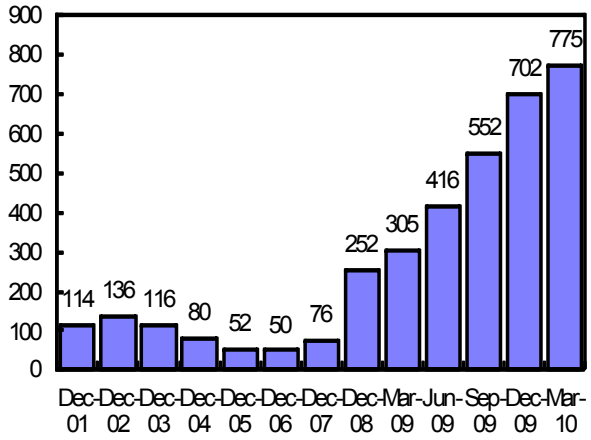
	2002	2003	2004	2005	2006	2007	2008	2009	March 2010
Capital adequacy									
Total regulatory capital to risk-weighted assets	13.0	13.0	13.2	12.9	13.0	12.8	12.8	14.3	14.7
Tier 1 capital to risk-weighted assets	10.4	10.5	10.8	10.6	10.5	10.1	10.0	11.7	12.1
Core capital (leverage) ratio 2/	7.9	7.9	8.1	8.3	8.2	8.0	7.5	8.7	8.6
Equity capital to total assets	9.2	9.2	10.3	10.3	10.5	10.3	9.3	11.0	10.9
Asset quality									
Sectoral distribution of credit 3/									
Securities	26.7	27.0	26.1	24.9	24.2	23.3	22.0	25.6	26.0
Commercial and industrial loans	16.9	14.9	14.0	14.3	14.7	16.1	17.3	14.8	14.1
Real estate loans	35.4	36.7	38.7	40.1	41.6	40.5	40.8	41.8	41.3
Consumer loans	10.4	10.7	10.6	9.7	9.2	9.0	9.3	9.2	9.9
Other loans and leases	10.6	10.7	10.7	11.0	10.3	11.1	10.5	8.6	8.6
Nonperforming loan ratio 4/	1.4	1.1	0.8	0.7	0.8	1.4	2.9	5.4	5.5
Nonperforming loans net of provisions to capital 5/	-10.8	-9.8	-8.4	-6.5	-2.1	1.0	6.1	14.8	13.1
Reserve coverage ratio 6/	123.7	140.3	168.0	154.8	134.8	91.7	75.3	58.1	64.2
Loan-loss provisions to loans	1.7	1.6	1.3	1.2	1.1	1.3	2.2	3.1	3.5
Net charge-off rates 7/									
Business loans	1.8	1.1	0.5	0.4	0.5	0.8	1.6	2.6	1.9
Loans secured by real estate	0.2	0.3	0.1	0.1	0.1	0.4	1.8	2.9	2.2
Residential	0.2	0.4	0.1	0.1	0.2	0.5	1.6	2.8	2.4
CRE	0.2	0.1	0.1	0.1	0.1	0.4	2.2	3.3	2.1
Consumer loans	3.0	3.1	2.8	3.2	2.4	2.8	4.2	5.4	6.5
Profitability and efficiency									
Return on assets 8/	1.3	1.4	1.3	1.3	1.3	0.8	0.0	0.1	0.5
Return on equity 9/	14.1	15.1	13.2	12.4	12.3	7.8	0.4	0.9	5.0
Net interest income to gross income	60.1	58.1	59.1	58.7	57.9	60.2	63.3	60.3	63.9
Noninterest expenses to gross income	56.2	56.6	58.0	57.3	56.8	59.5	59.4	55.5	54.4
Noninterest income to average earning assets	2.6	2.7	2.4	2.5	2.4	2.2	1.8	2.3	2.2
Net operating income to average assets	1.2	1.3	1.2	1.2	1.2	0.8	0.1	0.1	0.5
Net interest margin 10/	4.0	3.7	3.5	3.5	3.3	3.3	3.2	3.5	3.8
Yield on earning assets 11/	6.2	5.4	5.0	5.7	6.5	6.8	5.4	4.8	4.9
Cost of funding earning assets 12/	2.2	1.6	1.5	2.2	3.1	3.5	2.2	1.3	1.0
Retained earnings to average equity	3.9	3.7	6.2	5.6	4.4	-0.8	-3.6	-2.5	3.8
Earnings coverage of net charge-offs 13/	417	503	632	706	882	496	197	145	144
Share of institutions with earnings gains	73.6	58.4	62.7	64.3	55.4	48.5	36.3	41.0	52.4
Liquidity									
Liquid assets to total assets 14/	24.4	24.2	22.6	21.4	20.7	19.0	22.7	27.1	27.2
Net loans and leases to total deposits	89.2	89.7	91.7	93.0	91.5	92.7	85.2	76.5	78.7
Net loans and leases to core deposits 15/	120.9	122.2	129.4	133.9	136.5	137.1	122.7	105.8	107.7
Sensitivity to market risk									
Derivative exposure to tier 1 capital 16/	...	...	...	...	126.9	155.5	210.6	128.9	...
Annual change in house price index 17/	6.9	7.0	10.5	11.2	4.8	-0.1	-4.4	-4.5	-6.8
Memorandum items:									
Number of institutions	9,354	9,181	8,976	8,833	8,680	8,534	8,305	8,012	7,932
Household debt-service ratio 18/	13.2	13.2	13.3	13.8	13.9	13.9	13.6	12.7	12.5

Sources: Fed, FDIC, and Federal Housing Finance Agency (FHFA).

1/ All FDIC-insured commercial banks and savings associations unless otherwise indicated.
2/ Tier 1 (core) capital to average total assets less ineligible intangibles.
3/ Shares of total gross credit; commercial banks only.
4/ Loans and leases 90 days or more past due or in nonaccrual status to gross loans and leases.
5/ Nonperforming loans net of allowances for loan and lease losses to tier 1 capital.
6/ Allowances for loan and lease losses to nonperforming loans.
7/ Gross charge-offs less recoveries to average gross loans and leases by sector; commercial banks only.
8/ Net income after taxes and extraordinary items to average total assets.
9/ Net income after taxes and extraordinary items to average equity.
10/ Net interest income to average earning assets.
11/ Gross interest income to average earning assets.
12/ Gross interest expense to average earning assets.
13/ Income before income taxes and extraordinary items and other adjustments, plus provisions for loan and lease losses and allocated transfer risk reserve, plus gains on securities not held in trading accounts, to net charge-offs.
14/ Liquid assets defined here as cash and due from depository institutions plus total investment securities.
15/ Core deposits defined as total domestic deposits less time deposits of $100,000 or more held in domestic offices.
16/ Derivative exposure defined as credit equivalent amount of current plus potential future exposure; derivative reporters only (e.g., 1,124 institutions at end-2009).
17/ FHFA national index, not seasonally adjusted.
18/ Debt-service payments to personal disposable income.

quarter of 2010, nonperforming loans and net charge-offs seem likely to rise further owing to high jobless rates and still significant weaknesses in the real estate sectors. About $1.4 trillion of CRE loans will mature in 2010–14, nearly half of which are already seriously delinquent (90 days or more past due) or "underwater" (loan values exceeding property values). The rising gap between residential real estate foreclosures and seriously delinquent loans suggests the risk of further bank losses, especially for regional and community banks, as foreshadowed by the growing number of such firms on the FDIC's "problem bank" list (Figure 3). Furthermore, the very high level of underwater mortgages increases the risk of strategic defaults and further losses to banks and mortgage backed security (MBS) investors.

Figure 3. United States: Number of FDIC-Insured "Problem Institutions," 2001–10



Source: FDIC.

18. **Although stability seems to have been restored, the macrofinancial situation is still fragile**. The economy and some key financial markets continue to depend heavily on fiscal, monetary, and financial policy support, and the output gap is expected to remain wide for many years. Household balance sheets are undergoing significant adjustment and the sector continues to deleverage rapidly. Corporate default probabilities have been falling, but credit conditions for the smaller firms are expected to tighten further.

19. **As illustrated by recent events in Europe, macroeconomic risks remain significant**.[2] These risks persist with much less fiscal and monetary policy leeway to absorb additional unexpected financial shocks. Key concerns include:

- *Sluggish growth*: The near-term outlook could worsen with a slower-than-expected recovery. In conjunction with tight financial conditions, this could dampen borrowers' ability to honor their debts and further reduce credit demand, thereby undermining balance sheet rehabilitation and earnings in the financial sector.
- *A sharp worsening of real estate conditions*: A sharp rise in mortgage rates or a new wave of foreclosures could create a self-reinforcing price dynamic between low property prices, tight financial conditions, and a further rise in delinquencies and

[2] Macroeconomic developments and risks are covered in more detail in the accompanying staff report for the 2010 Article IV consultation with the United States.

foreclosures. Small or midsize depositories with significant exposures to CRE and limited access to private capital could be especially vulnerable.

- *Mounting fiscal deficits and debt*: The Administration's 2011 budget proposal projected federal debt to rise to over 70 percent of GDP by 2020. Especially in light of recent events in Europe, an erosion of market confidence could trigger higher interest rates and impair the process of balance sheet repair.

B. Stability of Financial Markets

20. **The U.S. financial system comprises a broad range of intermediaries and markets with deep linkages to the global financial system** (Table 2). About one-quarter of aggregate financial assets is held by depository institutions and slightly over one-fifth is owned or guaranteed by the GSEs. Private securitization pools, securities broker-dealers, pension and investment funds, and insurance firms account for most of the rest. A uniquely large share of intermediation takes place in arm's-length credit and capital markets, including vast and essentially borderless OTC derivative markets that are subject to fewer market conduct and prudential regulations and where notional amounts are many times GDP. The crisis revealed shortcomings in certain OTC markets, including with regard to collateral, haircutting, and margin requirements.

21. **Financial markets have broadly stabilized but remain more volatile than before the crisis**. Although equity and fixed income markets recovered some of their lost ground and credit spreads have narrowed, growing concerns regarding sovereign and banking risks in Europe have once again roiled sentiment and raised broader concerns regarding public debt sustainability, including in the United States. In addition, some securities markets have not recovered—e.g., trading volume in the OTC municipal bond market is less than half of what it was before the crisis and private-label residential mortgage securitization markets remain essentially closed. Given the importance of these markets for credit flow, their impairment could weigh on the economic recovery.

22. **Exchange-traded securities and derivative markets, while suffering heightened price volatility, weathered the crisis relatively well**. Derivative transactions (futures and options) conducted on exchanges maintained liquidity and tight bid-ask spreads, facilitating price discovery and risk management. However, concerns that some market participants might take advantage of issuers that were temporarily in distress by engaging in short selling, thereby further undermining confidence, prompted the SEC to strengthen its rules concerning failures to deliver on short sales and impose a temporary ban on short selling for designated financial stocks.[3]

[3] The ban exempted certain *bona fide* market-making activities.

Table 2. United States: Financial System Structure, 2002–10 [1/]

(In percent unless otherwise indicated)

	2002		2007		2008		2009		March 2010	
	% share	% GDP	% share	% GDP	% share	% GDP	% share	% GDP	% share	% GDP
Fed	1.9	6.9	1.4	6.4	3.6	15.1	3.6	15.7	3.7	16.0
Depository institutions	24.0	88.3	22.1	97.8	25.9	109.0	25.9	112.6	26.5	113.6
Commercial banking	19.1	70.0	18.0	79.5	22.1	92.8	22.5	97.8	23.0	98.9
U.S.-chartered commercial banks	14.1	51.8	13.3	58.7	15.9	67.1	16.0	69.5	16.4	70.2
Foreign banking offices in U.S. 2/	2.1	7.7	1.6	7.1	2.6	10.9	2.0	8.8	2.1	8.9
Banks in U.S.-affiliated areas	0.2	0.7	0.2	0.8	0.2	0.7	0.2	0.7	0.2	0.7
BHCs 3/	2.7	9.8	2.9	12.9	3.4	14.2	4.3	18.8	4.4	19.0
Savings associations 4/	3.5	12.9	2.9	12.9	2.5	10.5	2.0	8.7	2.0	8.6
Credit unions	1.5	5.4	1.2	5.4	1.3	5.6	1.4	6.1	1.4	6.1
GSEs	14.8	54.5	12.3	54.3	13.7	57.8	13.3	58.0	12.7	54.3
Agencies and GSEs 5/	6.6	24.4	5.1	22.5	5.6	23.5	4.8	20.9	11.0	47.2
Agency- and GSE-backed mortgage pools 6/	8.2	30.2	7.2	31.7	8.2	34.4	8.5	37.2	1.7	7.2
"Shadow banking system"	21.4	78.5	23.5	103.9	24.5	103.3	20.9	90.8	19.3	83.1
Issuers of ABSs	5.1	18.9	7.3	32.1	6.7	28.4	5.4	23.4	4.5	19.2
Money market mutual funds	5.8	21.2	4.9	21.5	6.2	26.0	5.2	22.5	4.7	20.1
Securities broker-dealers	3.5	12.8	5.0	22.0	3.6	15.4	3.3	14.4	3.3	14.3
Finance companies 7/	3.8	13.8	3.1	13.6	3.0	12.8	2.6	11.5	2.7	11.4
Real estate investment trusts	0.3	1.0	0.5	2.2	0.4	1.8	0.4	1.8	0.4	1.8
Funding corporations 8/	2.9	10.8	2.8	12.4	4.5	18.9	4.0	17.2	3.8	16.4
Insurance companies	11.1	40.8	10.1	44.8	9.6	40.3	9.8	42.9	10.1	43.2
Life insurance companies	8.7	31.9	8.0	35.2	7.4	31.3	7.7	33.4	7.8	33.7
Property and casualty insurance companies	2.4	9.0	2.2	9.7	2.1	9.0	2.2	9.5	2.2	9.5
Investment and pension funds	26.8	98.3	30.5	134.6	22.7	95.5	26.5	115.4	27.7	119.1
Mutual funds	9.5	34.8	12.6	55.6	8.9	37.6	11.1	48.2	11.7	50.1
Closed-end and exchange-traded funds	0.4	1.4	0.5	2.3	0.3	1.4	0.4	1.6	0.4	1.6
Private pension funds	9.6	35.1	10.3	45.4	7.6	31.9	8.7	37.9	9.1	39.2
State and local government retirement funds	5.0	18.4	5.2	22.8	3.8	16.1	4.3	18.6	4.5	19.1
Federal government retirement funds	2.3	8.5	1.9	8.5	2.0	8.5	2.1	9.2	2.1	9.0
Total financial system	100.0	367.2	100.0	441.7	100.0	420.9	100.0	435.3	100.0	429.3
Memorandum items:										
Equity market capitalization										
NYSE	81.9	86.1	79.6	111.2	79.4	63.8	78.5	81.9	78.0	85.1
NASDAQ	18.1	19.1	20.4	28.5	20.6	16.6	21.5	22.4	22.0	24.0
Average monthly bond market trading volume										
Treasury and municipal securities	59.9	3.6	58.7	4.2	55.4	4.0	51.6	2.9	55.5	3.3
Agency MBSs	24.5	1.5	31.6	2.3	33.4	2.4	36.8	2.1	34.1	2.0
Corporate debt	2.6	0.2	1.6	0.1	1.1	0.1	2.1	0.1	2.1	0.1
Agency debt	13.0	0.8	8.2	0.6	10.1	0.7	9.5	0.5	8.2	0.5
Total bond market volume	100.0	6.0	100.0	7.2	100.0	7.2	100.0	5.6	100.0	6.0
Average monthly equity market trading volume										
NYSE	58.7	8.2	59.1	12.9	58.0	12.0	52.9	6.8	47.3	6.6
NASDAQ	41.3	5.8	40.9	9.0	42.0	8.7	47.1	6.0	52.7	7.3
Yearly options contract volume 9/										
Equity options	90.9	...	90.3	...	91.6	...	92.9	...	91.5	...
Non-equity options	9.1	...	9.4	...	8.3	...	6.8	...	7.9	...
Futures	0.0	...	0.3	...	0.1	...	0.3	...	0.7	...
New capital issuance 10/										
Total debt	89.6	12.7	91.0	17.7	79.4	6.5	80.9	7.8	89.0	9.1
Straight corporate debt	42.9	6.1	41.2	8.0	59.6	4.9	64.7	6.3	76.0	7.7
Convertible debt	2.1	0.3	2.8	0.5	3.0	0.2	2.4	0.2	2.4	0.2
ABSs	25.2	3.6	18.6	3.6	13.5	1.1	12.1	1.2	9.9	1.0
Private-label MBSs	19.4	2.8	28.3	5.5	3.4	0.3	1.7	0.2	0.8	0.1
Total equity	10.4	1.5	9.0	1.8	20.6	1.7	19.1	1.8	11.0	1.1
Common stock	7.8	1.1	6.9	1.3	14.0	1.1	18.5	1.8	9.7	1.0
Preferred stock	2.5	0.4	2.2	0.4	6.6	0.5	0.7	0.1	1.3	0.1

Sources: Fed, Securities Industry and Financial Markets Association, and World Federation of Exchanges.

1/ Total financial assets; some assets may be double-counted if they appear on the balance sheets of more than one group of financial intermediaries.
2/ Branches and agencies of foreign banks, Edge Act corporations, and Agreement corporations.
3/ Unconsolidated; holding company assets only.
4/ Savings and loan associations, mutual savings banks, and federal savings banks.
5/ Housing GSEs, Federal Agricultural Mortgage Corporation, Farm Credit System, Financing Corporation, Resolution Funding Corporation, and Sallie Mae (in 2002).
6/ Ginnie Mae, Fannie Mae, Freddie Mac, Federal Agricultural Mortgage Corporation, and Farmers Home Administration pools.
7/ Includes retail captive finance companies and mortgage companies.
8/ Funding subsidiaries, nonbank financial holding companies, custodial accounts for reinvested collateral of securities lending operations, Fed lending facilities, and funds associated with the Public-Private Investment Program.
9/ Based on number of contracts traded; figures in March 2010 column are for January to mid-June 2010.
10/ Figures in March 2010 column are annualized.

23. **The opacity of OTC markets exacerbated uncertainty and contributed to the depth and scope of the crisis**.[4] Trading volumes for the more bespoke products—including many forwards, options, swaps, credit derivatives, and private-label pool securities—fell sharply and trading sometimes ceased altogether, undermining the usefulness of market prices for valuing and hedging positions. These markets suffered from critical weaknesses, including: lack of transparency in pricing; opacity of the risk characteristics of many of the instruments (especially collateralized debt obligations); and inadequate collateralization. Lack of publicly available information on derivatives transactions and financial institutions' exposures to derivative counterparties exacerbated market uncertainty about risk management, losses, and capital positions.[5] Moreover, weak margining practices were a key vulnerability. The widespread rehypothecation of collateral to secure derivative or repo trades exacerbated system-wide leverage and left the system highly vulnerable.[6]

24. **Markets for structured credit products were subject to significant valuation uncertainty with substantial knock-on effects**. There was a heavy reliance on third-party ratings to gauge risk and an under-appreciation of the vulnerability of these instruments to sharp downgrades and price declines. In addition, given the degree to which such products were funded by maturity mismatched portfolios (structured investment vehicles, securities lending, etc.), downgrades and price declines fed disruptive deleveraging. Markets for ABCP experienced similar problems.

25. **Legislative and other initiatives now seek to strengthen SEC oversight of the credit rating agencies**.New mechanisms will be established to avoid "ratings shopping" by issuers and to enhance the SEC's regulatory authority to address conflicts of interest at credit rating agencies.

26. **The securitization market has remained dysfunctional since 2007 and could become a drag on the economic recovery**. Almost all of the recent issuance of U.S. private-label MBSs has comprised re-securitizations of formerly "AAA" senior securities (so-called "re-remics"), with the Fed's TALF responsible for much of the 2009 issuance of other asset backed securities (ABSs). Although signs of recovery are appearing in some ABS markets, care will be needed to avoid unintended consequences from the combination of tougher accounting rules, higher regulatory capital requirements, and "skin in the game" proposals

[4] See the forthcoming technical note on OTC derivatives.

[5] For instance, inadequate disclosure of the accumulation of massive, but improperly collateralized, derivative books contributed to the consequences of the collapse of Lehman Brothers and the near-failure of American International Group (AIG).

[6] For example, Lehman had reused or rehypothecated an estimated $427 billion of securities posted as collateral by its counterparties or prime brokerage clients.

for securitizers.[7] The absence of well functioning securitization markets may impair the ability of banks and others to roll over maturing securitized products and engage in new lending, and thus weigh heavily on credit conditions, especially for small- and medium-sized companies that do not have capital market access.

C. Stress Testing Vulnerabilities in the Financial System

27. **The U.S. authorities undertook a detailed stress test of the financial system in early 2009**. The Supervisory Capital Assessment Program (SCAP) involved multiple supervisory agencies and subjected the 19 largest BHCs (groups with businesses ranging from banking to securities underwriting to insurance) to a comprehensive and uniform stress test. Where capital deficiencies were identified, institutions were required to either raise private capital or access public funds through the Capital Assistance Program. Following this exercise, the "SCAP-19" raised a total of some $205 billion of private capital, 54 percent of which was in common equity, and redeemed 86 percent of the $221 billion of preferred shares previously issued under the Treasury's CPP. However, the CPP remains an important source of capital, accounting for about one-quarter of the aggregate tier 1 capital of the roughly 260 institutions yet to redeem their government shares.

28. **Stress tests carried out by the FSAP team show pockets of vulnerability in the system and considerable interdependencies among institutions**.[8] Reflecting the authorities' preferences and confidentiality concerns, the team's analysis utilized only publicly available data. While an impressive range of information is publicly available on U.S. financial institutions, the lack of access to more granular supervisory data was a constraint, particularly in the area of funding risk. The analysis employed three different approaches: a balance sheet-based macro-prudential analysis, a distress-dependency model, and a contingent claims analysis (CCA). Results point to vulnerabilities among specific sets of institutions that could be amplified by inter-linkages, and suggest that, while capital injections significantly lowered individual institutions' (market-implied) contingent liabilities and reduced systemic tail risk, it may take time to clean up financial institutions' portfolios.

29. **The team stress tested the 53 largest BHCs, representing 85 percent of aggregate BHC assets**. The baseline was consistent with the IMF's *World Economic Outlook*, while the adverse scenario was predicated on further shocks to demand and potential output, as well as the impact of market fears of an unsustainable fiscal situation and related inflationary expectations (Box 2, Tables 4–5, and Figures 4–5).[9] The scenarios are consistent with

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[7] For details on policies affecting securitization, see the IMF's October 2009 *Global Financial Stability Report*.

[8] Details on data and methodology are provided in the forthcoming technical note on stress testing.

[9] In a recent speech, for example, Fed Vice Chairman Kohn highlighted the potential upward push on interest rates if the rising trajectory of U.S. debt to GDP is not curbed in the future, and the impact of higher interest rates on financial intermediaries ("Focusing on Bank Interest Rate Risk Exposure," January 29, 2010).

Box 2. Stress Test Scenarios and Shocks

The Baseline Scenario was the scenario from the IMF's April 2010 *World Economic Outlook* update. The output gap closes over the medium term from a negative level in 2009, while inflation is well-anchored and stabilizes at about 2¼ percent. Government bond yields continue to rise moderately, reflecting the increasing government debt-to-GDP ratio.

An Adverse Scenario was generated using a simple closed-economy business cycle model for the United States, with standard monetary channels (Taylor rule and nominal rigidities) and fiscal channels (a fiscal rule and a link between the real interest rate and government debt).[1] The scenario was calibrated to illustrate the combined impact of the following four adverse shocks: (i) a sizeable and persistent shock to the growth rate of potential output, reflecting continued difficulties in the financial system and very weak investment; (ii) an additional demand shock in the short run, reflecting high unemployment, weak credit, and continued fall in house prices; (iii) further near-term fiscal stimulus to support near-term growth; and (iv) rising inflation expectations, reflecting concerns over medium-term fiscal risks and renewed higher oil prices. Reflecting this combination of shocks, economic growth falters, inflation and government bond yields rise, and the government debt-to-GDP ratio climbs almost 10 percentage points above the baseline by 2013.

The Alternative Scenario was a different type of stressful scenario, conducted to test banks' resilience to a further deterioration in the real estate sectors (lower real estate prices and higher loan losses), reflecting difficulties in rolling over maturing CRE debt and continuing accumulation of seriously delinquent mortgages on their balance sheets. Nearly half of the $1.4 trillion in CRE loans maturing in 2010–14 have negative equity and foreclosures lag far behind the rising stock of "seriously delinquent" mortgages (many of which are "underwater").[2] This would suggest that banks could face difficulties in rolling-over loans if economic conditions did not improve and real estate prices did not rebound. Relative to the adverse scenario, the unemployment rate rises faster in 2010 and real estate prices are expected to fall until 2011 (e.g., CRE prices fall by another 8 percent by end-2012 as opposed to 3.3 percent in the adverse scenario). CRE losses are assumed to peak at 5.1 percent at end-2011.

Single-factor shocks were also employed. The calibration of these shocks was based on U.S. historical data for the last 50 years as well the experience from other countries.

Table 3. United States: Macroeconomic Scenarios for FSAP Stress Tests, 2010–14
(Annual percentage change unless otherwise indicated)

	2010		2011		2012		2013		2014	
Baseline scenario										
Real GDP	3.1		2.6		2.4		2.5		2.4	
Output gap (percent)	-2.0		-1.0		-0.6		-0.3		-0.1	
Unemployment rate (percent)	9.8		8.9		7.0		5.8		5.5	
Case-Shiller 10-city house prices	2.1		2.0		2.9		2.5		1.5	
General government debt (percent of GDP)	66.2		72.0		75.4		78.4		81.8	
Adverse										
Real GDP	2.3	*-0.8*	0.8	*-1.7*	2.6	*0.2*	2.6	*0.1*	2.2	*-0.2*
Output gap (percent)	-3.0	*-1.0*	-3.3	*-2.3*	-2.1	*-1.5*	-1.1	*-0.8*	-0.6	*-0.4*
Unemployment rate (percent)	10.0	*0.2*	9.9	*1.0*	8.9	*1.9*	7.7	*1.9*	6.9	*1.5*
Case-Shiller 10-city house prices	-2.2	*-4.3*	-2.1	*-4.1*	2.2	*-0.7*	2.5	*0.0*	1.8	*0.2*
General government debt (percent of GDP)	70.4	*4.2*	78.8	*6.8*	83.3	*7.9*	88.8	*10.4*	95.3	*13.5*
Alternative										
Real GDP	2.4	*-0.6*	0.8	*-1.8*	1.6	*-0.8*	2.5	*0.0*	2.4	*0.0*
Output gap (percent)	-3.3	*-1.3*	-2.6	*-1.6*	-0.8	*-0.3*	-0.3	*0.0*	-0.1	*0.0*
Unemployment rate (percent)	10.6	*0.8*	9.9	*1.0*	7.2	*0.1*	5.8	*0.0*	5.5	*0.0*
Case-Shiller 10-city house prices	-4.1	*-6.1*	-2.6	*-6.7*	3.1	*0.3*	2.4	*0.0*	1.5	*0.0*

Sources: IMF, World Economic Outlook; and Fund Staff Estimates.
Note. Numbers in italic denote deviations from baseline.

[1] See M. Kumhof and D. Laxton, 2007, "A Party Without a Hangover? On the Effects of U.S. Fiscal Deficits," IMF Working Paper 07/202.

[2] Congressional Oversight Panel, 2010, "February Oversight Report: Commercial Real Estate Losses and the Risk to Financial Stability," February, Available at http://cop.senate.gov/reports/library/report-021110-cop.cfm

Table 4. Peak Net Loan Loss Charge-Off Rates, 2009–12
(In percent)

	Baseline Scenario		Adverse Scenario		Alternative Scenario	
	Max.	Timing	Max.	Timing	Max.	Timing
Residential real estate loans	2.7	2009 Q4	3.4	2011 Q4	3.5	2012 Q1
Consumer loans	6.5	2010 Q1	6.5	2010 Q1	6.5	2010 Q1
CRE loans	3.4	2011 Q2	4.6	2011 Q3	5.1	2011 Q4
Commercial and industrial loans	2.6	2009 Q3	2.6	2009 Q3	2.6	2009 Q3
Other loans	3.4	2009 Q4	3.8	2011 Q2	3.6	2011 Q3

Sources: Bloomberg, SNL Financial, and IMF staff estimates.

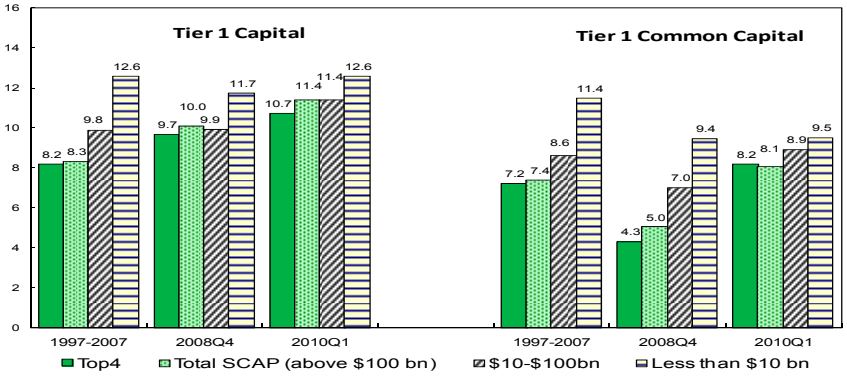
Table 5. BHC Capital Needs, 2010–14
(In billions of dollars unless otherwise indicated)

	U.S. BHCs					
	All	Top-4	Regional	Small	SCAP	Foreign BHCs
Baseline scenario						
Cumulative pre-tax, pre-provision net revenue	1,792.6	895.0	179.7	55.2	1,481.7	121.6
Cumulative loan losses	794.9	496.3	87.2	46.2	631.8	66.0
Cumulative securities losses	1.9	1.5	0.2	0.1	1.8	0.0
Capital needed (at lowest point) to attain tier 1 common capital ratio of:						
4 percent 1/	7.9	0.0	0.0	4.1	3.8	15.8
6 percent 1/	14.2	0.0	1.3	6.3	7.4	26.3
Number of BHCs falling short of tier 1 common capital ratio of:						
4 percent 1/	6	0	1	4	1	4
6 percent 1/	12	0	4	7	3	4
Adverse scenario						
Cumulative pre-tax, pre-provision net revenue	1,559.8	770.8	156.1	46.3	1,295.0	94.9
Cumulative loan losses	1,022.6	633.3	121.4	61.5	811.0	90.8
Cumulative securities losses	93.3	47.2	9.4	3.6	64.6	7.8
Capital needed (at lowest point) to attain tier 1 common capital ratio of:						
4 percent 1/	31.8	0.0	8.1	14.9	14.5	21.8
6 percent 1/	44.6	0.0	12.8	19.7	21.9	31.7
Number of BHCs falling short of tier 1 common capital ratio of:						
4 percent 1/	15	0	4	10	3	4
6 percent 1/	17	0	5	11	4	6
Alternative funding risk scenario						
Cumulative pre-tax, pre-provision net revenue	1,641.4	812.6	163.5	49.4	1,357.8	106.4
Cumulative loan losses	980.7	625.3	112.9	56.0	790.0	88.2
Cumulative securities losses	41.2	21.1	4.1	1.6	28.8	3.3
Capital needed (at lowest point) to attain tier 1 common capital ratio of:						
4 percent 1/	20.5	0.0	4.0	10.0	8.9	17.8
6 percent 1/	32.4	0.0	8.2	14.5	15.7	27.6
Number of BHCs falling short of tier 1 common capital ratio of:						
4 percent 1/	14	0	4	9	3	4
6 percent 1/	16	0	4	11	3	5

Sources: Bloomberg, *FinancialStability.gov*, SNL Financial, and IMF staff estimates.

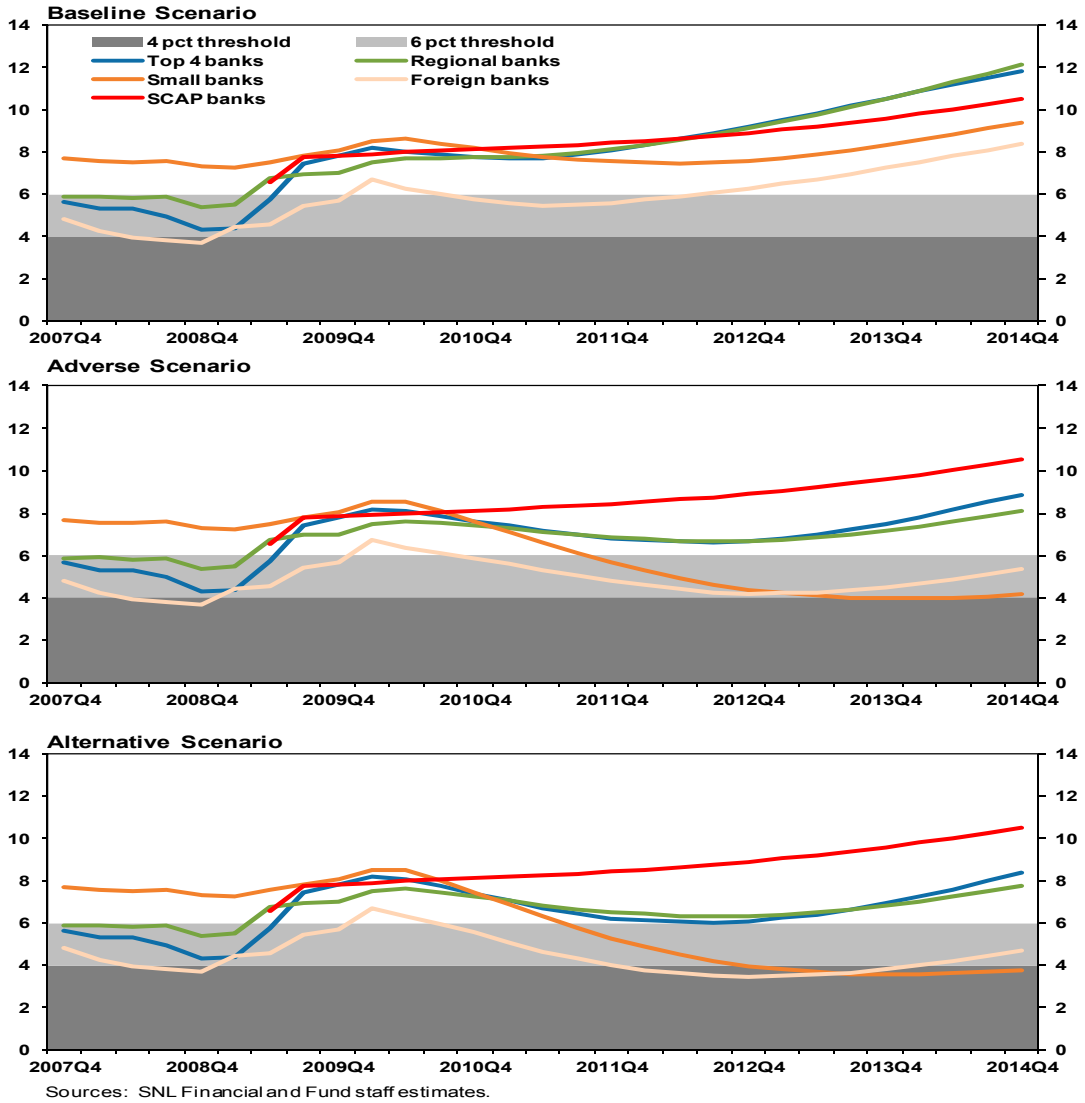
1/ Tier 1 common capital ratio defined as tier 1 capital less all "non-common" elements (qualifying minority interest in consolidated subsidiaries, qualifying trust preferred securities, and qualifying perpetual preferred stocks) as a percentage of risk-weighted assets.

Figure 4. United States: BHC Capital Trends, 1997–2010
(In percent of risk-weighted assets)



Source: SNL Financial.

Figure 5. United States: Scenario Analysis of BHC Tier 1 Common Capital Ratios, 2007–14



Sources: SNL Financial and Fund staff estimates.

historical distress episodes, with shocks broadly in the range analyzed in other FSAPs. The results, which are necessarily subject to wide confidence bands, are summarized below:

- *In the baseline scenario, capital should be adequate for most banks*. Notwithstanding record-high charge-off rates and high unemployment, the four largest BHCs and the former investment banking groups are expected to maintain a 6 percent tier 1 common equity ratio over 2010–14. However, to meet this same capital threshold, four regional banks and seven smaller institutions (with assets below $60 billion) would require a total of $8 billion in additional capital, owing to their high exposure to CRE losses; subsidiaries of foreign banks, which tend to be lightly capitalized, would require up to $26 billion.[10] However, these estimates do not allow for new capital injections nor the possibility of limiting dividend payments. Nonetheless, the 6 percent threshold is not ambitious relative to historical norms, as the average was 7.4 percent for the SCAP institutions over 1997–2007 and did not fall below 7 percent for the smaller banks during the crisis.
- *In an adverse scenario, around one-third of the U.S. BHCs would experience some capital shortfall, even assuming a less stringent capital threshold*. A total of $32 billion would be needed to maintain a 4 percent tier 1 common equity ratio until end-2014, including $15 billion for three SCAP banks.[11] In particular, four regional banks would require $8 billion and ten smaller institutions another $15 billion; foreign BHCs would need $22 billion in additional capital. These estimates assume that residential real estate and CRE losses continue to rise until the second half of 2011 (peaking at 3.4 percent and 4.6 percent, respectively), while losses on consumer loans remain elevated over the same period (although below their 6.5 percent peak in the first quarter of 2010).

30. **Market liquidity risks appear to have declined for the systemic financial firms, although rollover risk should be monitored carefully**. Financial institutions have been able to improve liquidity buffers, but they face rollover risks owing to a bunching of loan maturities in 2011–13. If banks were to face difficulties in refinancing these maturing loans, this would accelerate the rate of foreclosures and hence bank losses, as foreclosures tend to be very costly, especially when occurring in large numbers.

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[10] The capital shortfalls in the case of the foreign institutions may be somewhat misleading, as these firms tend to operate with lower capital buffers than their domestic peers (foreign-owned BHCs may be exempted from U.S. regulatory capital requirements if their parents are deemed well-capitalized and well-managed). The exercise presented here, however, stress tests foreign institutions in the same way as it does domestic ones, as a way of gauging the shock absorption capacity of the U.S. banking system.

[11] The adverse scenario assumes a 2010–11 cumulative loan loss rate of 7.7 percent (or 8.7 percent including write-downs on securities), which remains below the 9.1 percent 2009–10 cumulative loan loss rate assumed under the authorities' SCAP stress tests.

31. **The system was also tested for distress dependencies among major financial firms—something that was not explicitly taken into account in the SCAP**. The distress dependencies were analyzed using a forward looking, market data-based framework.[12] Broadly consistent with the findings above, the analysis suggests that under both the baseline and adverse scenarios, substantial cumulative losses could weigh on the capital adequacy of the system (Table 6). The analysis illustrates that the contribution of firms to systemic risk depends not only on their size, but also on their linkages to the rest of the system.[13]

Table 6. United States: Systemic Distress-Dependent Losses, 2007–13

	Baseline scenario			Adverse scenario		
	$ billion	% of assets	% of GDP	$ billion	% of assets	% of GDP
			Systemic expected losses			
2007	28	0.2	0.2	28	0.2	0.2
2008	125	1.0	0.9	125	1.0	0.9
2009	82	0.6	0.6	82	0.6	0.6
2010	75	0.6	0.5	77	0.6	0.5
2011	34	0.3	0.2	56	0.4	0.4
2012	20	0.2	0.1	24	0.2	0.1
2013	21	0.2	0.1	20	0.2	0.1
			Systemic extreme (unexpected) losses 1/			
2007	182	1.5	1.3	182	1.5	1.3
2008	427	3.3	3.0	427	3.3	3.0
2009	330	2.5	2.3	330	2.5	2.3
2010	326	2.5	2.2	331	2.6	2.2
2011	224	1.7	1.5	280	2.2	1.8
2012	191	1.5	1.2	204	1.6	1.3
2013	192	1.5	1.1	192	1.5	1.1
Memorandum item:						
Total equity (2009)	1,020	7.9	7.2	...	...	...

Sources: SNL Financial and IMF staff estimates.

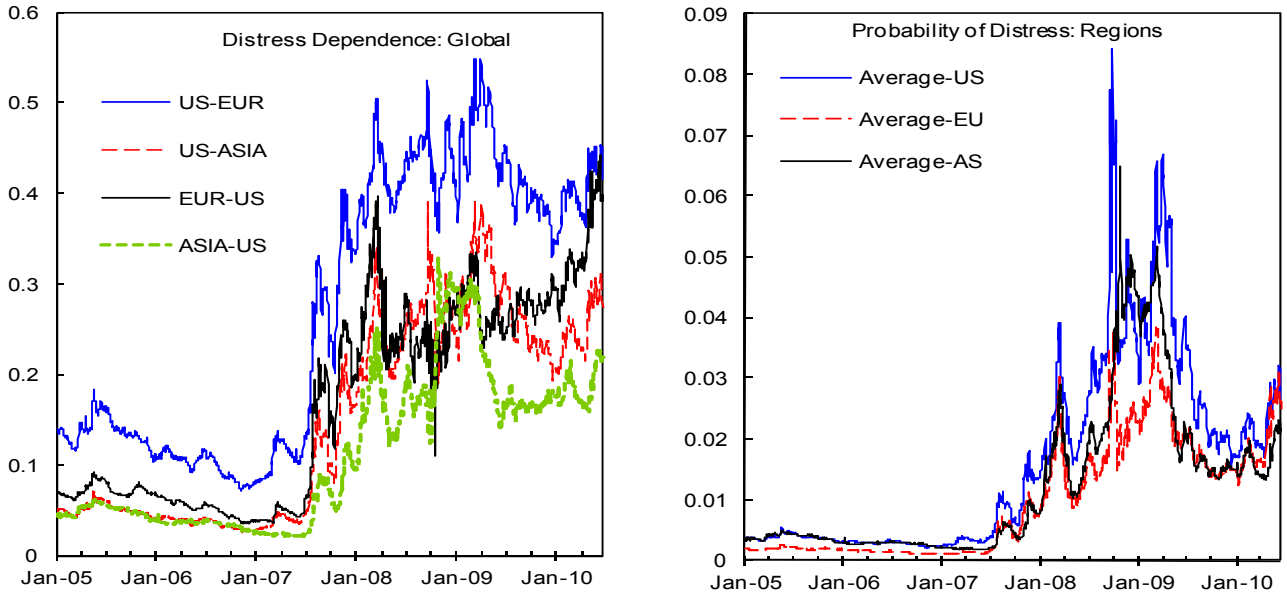
1/ 99th percentile.

32. **Tight inter-linkages persist between U.S. and European banks** (Figure 6). Although this inter-dependence—measured by the probabilities of distress of U.S. banks conditional on distress in European Union banks, and vice-versa—has eased from its recent peak in early 2009, it continues to be higher than pre-crisis levels. By mid-2010, this interdependence was rising again, possibly reflecting instability in the euro area. For example, as of June 2010, if all the U.S. (or, conversely, all the European) banks in the sample were to fall into distress, there would be a roughly 40 percent chance that this distress would spill over to European (U.S.) banks.

[12] These tests cover 14 major financial firms, including the ten largest BHCs, two housing GSEs (Fannie Mae and Freddie Mac), and two large insurance groups (AIG and Met Life). The calculations were based on the Joint Implementation of the Consistent Information Multivariate Density Optimizing methodology (Segoviano, 2006, and Segoviano and Padilla, 2006) and the Banking Stability Index measure (Segoviano and Goodhart, 2009). To ensure computational stability, the exercise focused on the largest firms and a limited sample size. Simulations indicate that approximately 20 percent of the overall systemic losses are attributable to the housing GSEs.

[13] The firms included in this part of the analysis are chosen according to their relevance based on market capitalization, and comprise Bank of America, Citibank, JPMorgan Chase, Wells Fargo, Goldman Sachs, and Morgan Stanley (banks); and Boeing, AT&T, Johnson and Johnson, IBM, Walmart, and Chevron (corporates).

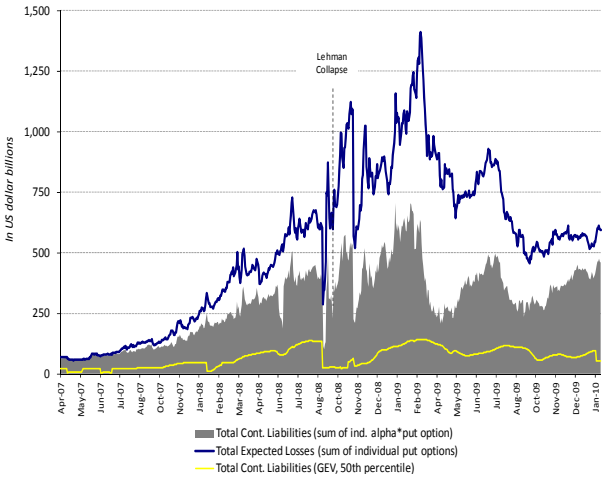
Figure 6. United States: Global Spillover Effects, 2005–09
(In percent of risk-weighted assets)



Source: IMF staff estimates.
Sample includes US FIs (Citigroup, Bank of America, J.P Morgan, Wachovia, Merril Lynch, Morgan Stanley, Goldman Sachs), European FIs (HSBC, RBS, UBS, Deutsche Bank) and Asian FIs (Industrial Bank of Korea, ANZ, Mitsubishi UFJ, Bank of China). Distress dependence (group A-group B) shows the probability that all members in group A become distressed conditional on all members in group B becoming distressed.

33. **The team's analysis demonstrated the efficacy of the public support provided to financial institutions during the crisis**.[14] Systemic CCA indicates that capital injections into the three largest TARP recipients significantly lowered individual (market-implied) contingent liabilities and systemic tail risk. CCA simulations also suggested that doubling the original amount of capital injected into these firms would have had little additional effect overtime. Conversely, in the absence of capital injections, the tail risk and average risk would have escalated substantially (Figure 7 and Table 7).

Figure 7. United States: Total Market-Implied Contingent Liabilities of the Financial Sector [1/]



Source: IMF staff estimates
1/The multivariate density is generated from univariate marginals that conform to the Generalized Extreme Value Distribution estimated via the Linear Ratio of Spacings method over a rolling estimation window of 60 working days with daily updating, and a non-parametric identification of the time-varying dependence structure.

[14] The systemic CCA framework combines equity market and balance sheet information to infer underlying asset dynamics and expected losses in a multivariate set up. For a discussion see Gray and Jobst, 2010, "New Directions in Financial Sector and Sovereign Risk Management," *Journal of Investment Management*, Vol. 8, No. 1, pp. 1–16.

Table 7. United States: Financial System CCA-Based Contingent Liabilities [1/]
(In billions of dollars)

Period	Dates	Assuming no capital injection	Actual	Assuming 2x actual capital injection
Full period	April 1, 2007–January 29, 2011	238	214	197
Pre-crisis period	July 1, 2007–September 14, 2009	91	91	91
Crisis period 1	September 15–December 31, 2009	484	479	469
Crisis period 2	January 1–May 8, 2010	414	359	353
Crisis period 3	May 11, 2009–December 31, 2010	356	227	226

Source: IMF staff estimates.

1/ 95th percentile.

34. **Much of the insurance industry, especially the property and casualty segment, remained resilient through the crisis but severe distress was experienced at some firms** (Table 8).[15] The monolines—writers of financial guarantees—lost their high credit ratings after serious losses on structured finance exposures.[16] While pressures have eased, life insurers are exposed to weakness in the economy on account of their exposure to CRE, both in loans and investments. In addition, health insurers are subject to significant uncertainty arising from implementation of recently enacted legislation to reform the U.S. healthcare system. Property and casualty risks are more dispersed and, while some companies are heavily exposed to particular events, national companies have broadly diversified risks and the largest catastrophe risks are carried by reinsurers offshore.

35. **Quantitative analysis suggests that buffers in the life insurance sector are adequate**. Stress tests for the largest 30 life insurance companies (accounting for two-thirds of U.S. life insurance premium income) were carried out in cooperation with the NAIC. These included an adverse scenario that combined negative shocks to the companies' assets (including their bond, stock, real estate, and loan portfolios), a liability-side shock impacting variable annuity writers, and a major insurance shock (a pandemic).[17] The aggregate risk-based capital (RBC) ratio would decline from 843 percent at end-2008 to 459 percent after the shocks, with six out of the 30 companies having RBC ratios below 200 percent. Companies with substantial variable annuity business would be particularly hard hit, but no company would have a negative RBC ratio under the scenario.[18]

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[15] The U.S. insurance market is the largest in the world, comprising 7,948 licensed insurance companies at end-2008. Total premium volume in 2008, at $1.24 trillion, accounted for 29 percent of the global market. There are three main sectors: life, property and casualty (divided between personal and commercial lines), and health insurance. Key specialist lines (those which must be written in separate companies) are: financial guaranty (bond insurance—the "monoline insurers"), mortgage insurance, and title insurance.

[16] AIG required massive federal support after major losses were experienced by its capital market affiliate.

[17] The shocks were calibrated consistently with the adverse macroeconomic scenario; the pandemic was an additional shock with an impact equivalent to 100 percent of RBC (see technical note on stress testing).

[18] Detailed stress testing of property and casualty insurance companies was not carried out because a high-level test indicated a relatively limited sensitivity of the sector to macroeconomic shocks.

Table 8. United States: Financial Soundness Indicators for the Insurance Sector, 2004–09

	2004	2005	2006	2007	2008	2009
Life insurance						
Total adjusted capital ($ billion)	340	344	364	383	338	385
RBC requirement ($ billion)	44	42	45	48	45	46
Aggregate RBC ratio (percent)	775	814	811	802	758	835
Median RBC ratio (percent)	940	975	996	1,009	910	989
Number of companies in action levels	17	11	13	13	23	18
(Percent of all companies)	1.7	1.1	1.4	1.5	2.7	2.2
Property and casualty insurance						
Total adjusted capital ($ billion)	485	524	599	641	579	644
RBC requirement ($ billion)	94	94	99	103	97	100
Aggregate RBC ratio (percent)	518	556	608	624	598	645
Median RBC ratio (percent)	828	877	935	977	992	1,047
Number of companies in action levels	108	86	75	71	79	65
(Percent of all companies)	4.3	3.4	2.9	2.7	3.0	2.5
Health insurance						
Total adjusted capital ($ billion)	47	62	72	80	75	82
RBC requirement ($ billion)	8	10	11	12	13	14
Aggregate RBC ratio (percent)	578	642	662	655	592	590
Median RBC ratio (percent)	548	574	582	589	545	533

Source: NAIC.

D. Systemic Liquidity Arrangements and Exit Issues

36. **During the crisis the authorities expanded liquidity backstops in extraordinary ways**. The maturity transformation activities of the shadow banking sector—notably, money market funds with stabilized net asset values, and ABCP conduits—had become both systemically important and highly "bank-like" in their liquidity risk, but were neither supervised as banking activities nor backstopped by the official safety net. Liquidity support thus had to be provided to a broader range of firms and markets and entailed invoking the "unusual and exigent" provisions of Section 13(3) of the Federal Reserve Act.

37. **While these extraordinary facilities have been allowed to expire, the Fed's balance sheet is likely to remain swollen for years to come**. Conventional borrowing under the Fed's discount window fell below $5 billion at end-May 2010, far below the peak level of $112 billion at end-October 2008. Borrowing under the Term Auction Facility, which had peaked at nearly $500 billion, was fully repaid by mid-April 2010. As a result of its Large Scale Asset Purchase program, Fed holdings of GSE bonds and MBSs totaled $1.3 trillion at end-May 2010, with the counterpart being excess bank reserves of over $1 trillion.

38. **Instruments are being developed to enable the Fed to implement monetary policy even in the face of large excess reserves, but they are untested**. The likely initial focus will be on reverse repos of assets into the market, auctions of term deposits, and adjustments to the rate of interest on excess reserves (IOER). However, operational and communications challenges include: (i) gauging the post-crisis demand for reserve balances and its elasticity to the IOER rate; (ii) estimating the impact of large reserve balances, or the use of tri-party repos and term deposits, on the transmission of changes in money market

rates to lending rates; and (iii) ensuring that the various policy rates are consistent and properly aligned while providing markets with clear signals regarding the policy stance.

39. **The crisis has illustrated the possible merit of amending certain operational aspects of the Fed's OMO framework**. For example, once excess reserve balances are drained and the Fed resumes lending operations, consideration could be given to expanding the list of regular OMO counterparties beyond primary dealers to include selected money-center banks. While such a step could entail drawbacks, it could encourage this broader group of counterparties to hold reliably liquid assets and to become familiar with the Fed's operating procedures. Also, the flow of liquidity through a wider range of counterparties could be helpful in periods of incipient market strain. Similarly, consideration could be given to widening the range of collateral eligible for OMO, although care would be needed to avoid exposing the Fed to unnecessary risk and distorting markets.

II. Strengthening Financial Sector Oversight

40. **The financial crisis revealed important weaknesses in U.S. supervision and regulation**. These weaknesses stemmed from the system's exceptional complexity—involving a large number of agencies—as well as important gaps in coverage and responsibility (Box 3). Coupled with a tilt toward a laissez-faire approach in recent decades, the system did not respond effectively to the growth of shadow banking, opacity in the securitization and OTC derivative markets, weak risk management, compensation practices skewed toward short-term profits, and bubbles in the real estate and equity markets.

41. **Assessments of the U.S. supervisory system against international codes identified many positive aspects, as well as important shortcomings**. A more detailed overview of U.S. compliance with core international standards is provided in the reports on observance of standards and codes (ROSCs) accompanying this report, but key points include:

- The multiplicity of regulators also creates challenges for systemic oversight, both because no single body has a clear financial stability mandate, and because information sharing and tools are inadequate.
- Consolidated regulation and supervision have fallen short of what is necessary for effective oversight of systemic groups, which is a particular concern given the complexity, size, and interconnectedness of the U.S. financial system.
- Weaknesses exist in the regulation and supervision of risk management. This was illustrated in the run-up to the crisis, when the build-up of credit concentrations and the deterioration in underwriting standards did not trigger a timely response.
- Funding arrangements for supervisors are also a concern, especially for the SEC, the CFTC, and the state insurance regulators (which are subject to state-level budgetary pressures).

Box 3. The (Current) U.S. Regulatory Framework

Although legislation will imply significant reforms in coming years, the present U.S. system includes five independent federal regulators of depository institutions:

- The Fed, founded in 1913, is consolidated supervisor of some 520 financial holding companies and 4,400 other BHCs, and joint primary supervisor with the respective state authorities of about 840 state-chartered banks that are Fed members.
- The FDIC, created in 1933, is joint primary supervisor with the respective state authorities of some 4,500 state-chartered banks that are not Fed members and about 400 state-chartered thrifts. In addition, it serves as a backup supervisor of state member banks, national banks, and federal thrifts, and is deposit insurer and presumptive receiver of all commercial banks and thrifts.
- The Office of Comptroller of Currency (OCC), established in 1863 as a financially autonomous bureau of the Treasury, is chartering authority and primary supervisor of about 1,500 national banks as well as primary supervisor of some 50 U.S. branches of foreign banks.
- The Office of Thrift Supervision (OTS), established in 1989 as an autonomous bureau of the Treasury and successor to the Federal Home Loan Bank Board, is consolidated supervisor of some 440 savings and loan holding companies, charterer and primary supervisor of some 750 federal thrifts, and joint primary supervisor of about 60 state thrifts.
- The National Credit Union Administration, set up in 1970, is chartering authority and supervisor of about 5,000 federal credit unions, and deposit insurer of all federal and some 3,000 state credit unions.

These organizations are bound together by institutionalized coordination mechanisms. As members of the Federal Financial Institutions Examination Council (FFIEC), they jointly propose principles, standards, and reporting forms.

There are also 50 state regulators of state-chartered commercial banks, 50 state regulators of state-chartered savings associations, and 50 state regulators of state-chartered credit unions. Coordination between the FBAs and their state counterparts is achieved through the participation in the FFIEC of a representative of the State Liaison Committee, a body comprising the Conference of State Banking Supervisors, the American Council of State Savings Supervisors, and the National Association of State Credit Union Supervisors. Coordination with functional regulators, in turn, is achieved primarily through the Fed's authorities over BHCs, with arrangements permitting joint inspections of nonbank institutions within the group structure.

Functional oversight of the securities and futures markets is also fragmented:

- The SEC regulates securities markets, participants, and self-regulatory organizations, including exchanges, securities associations, broker-dealers, investment advisers, investment companies, alternative trading systems, and clearing agencies.
- The CFTC regulates futures markets, participants, and self-regulatory organizations, including exchanges, derivative transaction execution facilities, clearing organizations, futures associations, futures commission merchants, introducing brokers, commodity trading advisors, and commodity pool operators.
- Certain permissible securities activities are performed by banks and overseen by banking regulators.
- Self-regulatory organizations are responsible for oversight of exchange members, clearing members, and certain intermediaries: the Financial Industry Regulatory Authority oversees more than 4,750 securities broker-dealers; and the National Futures Association and others oversee more than 130 futures commission merchants.

The insurance industry is regulated exclusively by the states, with the NAIC acting as a coordinating body.

The housing GSEs—Fannie Mae, Freddie Mac, and the Federal Home Loan Bank (FHLB) system—are regulated by the FHFA, which is also their presumptive receiver.

The Fed's Board of Governors writes consumer protection regulations governing all lending to households, but shares the enforcement authority with other federal regulators of depositories, the Federal Trade Commission, and the states.

42. **These shortcomings were evident in U.S. banking supervision, notwithstanding its many strengths**.[19] Deficiencies included a lack of comprehensive consolidated prudential regulation and supervision of all important entities involved in banking, stemming primarily from certain exceptions embedded in the Bank Holding Company Act and restrictions imposed by the Gramm–Leach–Bliley Act that limited the capacity of any one regulator to supervise on a group-wide basis. The large number of agencies and their multiple mandates undermined supervisory efficiency, effectiveness, and accountability; left the system open to regulatory arbitrage (including by charter conversion); and meant that there were overlapping responsibilities for holding companies.

43. **A comprehensive effort to strengthen both the structure and conduct of U.S. banking supervision is needed**. This effort should aim to improve the forcefulness of interventions, timeliness of guidance, and consistency of follow-up on new guidance. It should enable the FBAs to make their views known about weaknesses in risk management practices or policies, including in areas they may not control. Additional investments in staff skills, data collection and processing, and examination procedures will be required to:

- Enhance the capacity for group-wide oversight of complex banking groups and conduct regular inter-agency horizontal assessments (possibly by establishing domestic supervisory "colleges").
- Boost the timeliness and forcefulness of supervisory and regulatory interventions to address weaknesses in credit risk management practices.
- Strengthen channels for cooperation, coordination, and learning from best practices—within and among the FBAs, functional regulators, and relevant state authorities—including with regard to charter conversions.

44. **Given the weaknesses in oversight of risk management, it will be important to ensure improvements under Basel II**. The United States was a key sponsor of the new capital adequacy framework and preparations for implementation by large internationally active banks are advanced. However, the authorities have yet to take a final view on the capital regime that would apply to the multitude of small and midsize banking institutions. Moreover, the authorities will need to take into account the changes in the Basel Framework being considered at the international level, while also giving due weight to Pillars II and III.

45. **Regulatory oversight in the securities area has not kept pace with innovation in financial markets and instruments**. Securitization and growth in certain OTC derivative markets, along with the growth of "shadow banking," were key factors contributing to the

[19] Details are provided in the ROSC on the Basel Committee's *Core Principles for Effective Banking Supervision* and in the forthcoming technical note on consolidated regulation and supervision.

crisis. The oversight of these markets, the prudential regulation of firms trading in them, and the market conduct rules governing market participants fell behind, resulting in important regulatory gaps. Although a strong legal framework is in place and the regulatory agencies are independent and have sufficient authority, institutional insularity, over-specialization, and the lack of a comprehensive risk map have undermined effectiveness. Recent securities scandals have revealed shortcomings in enforcement programs and a need to enhance inspections. Moreover, the sharp intra-day crash in stock prices in May 2010 illustrated the risks associated with algorithmic trading, while so-called "flash trading" and "dark pools," have created challenges to the regulatory goals of equal market access and transparency.

46. **Significant gaps existed in the regulation of OTC derivative products and markets**. Legislation in 2000 generally excluded derivatives from much market regulation (although most major derivative dealers are affiliated with regulated financial firms), and the lack of collateral requirements for certain significant market participants in bilaterally-settled OTC derivatives contributed to the undetected build up of leverage.

47. **The new legislation should strengthen the regulation of OTC derivative markets and improve the resiliency of the system**. Key provisions include: (i) registration requirements for OTC derivative dealers and "major swap participants"; (ii) powers for the CFTC and SEC to determine which instruments should be subject to clearing and to trading on an exchange or swap execution facility; (iii) reporting requirements for all derivative transactions and the trading positions of major market participants; (iv) enhanced prudential requirements for risk exposures arising from OTC derivative trading for transactions that are not centrally cleared and collateral requirements for OTC derivatives; and (v) authority for regulators to safeguard market stability. Decisions of regulatory agencies on what services a swap execution facility is required to provide, what is suitable for clearing, and the breadth of exemptions for trades with end-users will be critical to the effectiveness of these reforms.

48. **Welcome steps are also being taken to address the risks posed by securitized credit instruments, especially those that are "structured."**As the crisis illustrated, while these products provided greater scope for diversification and lowered borrowing costs, their complexity and opacity, coupled with poor risk management, led to an overreliance on ratings and a build-up of systemic risk. The new legislation and other proposals would improve disclosure standards for issuers—including requirements to publicly provide the computer coding for complex cash-flow "waterfalls"—and the quality of credit ratings. Care will be needed, however, to ensure that the interaction between accounting rule changes, higher capital charges, and requirements that issuers retain some exposure to the performance

of their products ("skin in the game") do not result in disincentives for these instruments beyond that warranted by the systemic risk they pose.[20]

49. **Important shortcomings in the supervision of the insurance sector, which is a state responsibility, also should be addressed**.[21] Segments of the insurance industry contributed to the buildup of systemic pressures and to the subsequent bust (most notably the so-called monoline insurers and AIG), and while the state-based regulatory system was effective in assuring policyholder protection and the soundness of individual insurance companies, it lacked a systemic focus and the capacity to exercise group-wide oversight. Federal regulators had limited regulatory responsibility over insurance companies, extending only to those that are affiliated with commercial banks or thrifts. The multiplicity of state regulations also imposes inefficiencies and can constrain the effectiveness of U.S. participation in multilateral discussions on insurance regulation.

50. **Insurance regulatory reforms that would help address these issues include**:

- Improving the regulation of bond insurance and securities lending, including the reserving and capital treatment of market risks associated with guarantees (as in variable annuities) and the treatment of liquidity risks.
- Modernizing solvency requirements, including through more forward-looking approaches to solvency regulation (e.g., utilizing stress and scenario testing and other forms of dynamic financial analysis).
- Developing the approach to supervision of groups through consolidated financial condition reporting and analysis of the group as a whole (including unregulated affiliates) and further development of colleges of supervisors.
- Moving further from the current, rules- and compliance-based, supervisory approach to relatively more emphasis on principles and risk-based techniques.

51. **Payment and securities settlement systems held up well during the crisis, but systemic concerns remain**. These systems benefited during the crisis from the exceptional liquidity that was injected. Nonetheless:

- In the payment system, the Fed's new intraday liquidity policy—to be implemented in late 2010 or early 2011—will facilitate collateralization of daylight credit and

[20] New accounting rules (Financial Accounting Standards 166 and 167) now significantly limit the extent to which firms treat securitized assets as off balance sheet, while the FDIC has proposed rules that would limit the "safe harbor" provided to securitized assets in the case of bank failures.

[21] A more detailed assessment is provided in the ROSC on the International Association of Insurance Supervisors' *Insurance Core Principles* included in this report.

reduce the Fed's credit risk, but it remains to be seen whether incentives to discourage late-day payments will be strong enough.[22]

- As regards securities settlement systems, the concentration of government securities settlement in two clearing banks exposes the Fixed Income Clearing Corporation (FICC) and its participants to potential settlement bank risk, which requires careful monitoring. Also, to reduce their vulnerability to defaults by participants, the FICC and National Securities Clearing Corporation (NSCC) would benefit from increasing the frequency of stress testing, external validation of testing parameters, a separate pool of collateral to cover exceptional losses in extreme but plausible scenarios, and access to liquidity outside the repo market.[23]

52. **The reform legislation will give the Fed new powers to oversee systemically important payment, clearing, and settlement systems**. Under the outgoing legal arrangements, the Fed may supervise only payment, clearing, and settlement systems chartered as state member banks or Edge corporations, leaving other systems beyond its reach. The systemic importance of several systems in the latter category argued for a clearer legal mandate for the Fed from a systemic risk perspective, irrespective of the systems' charter type. The recent financial reform legislation takes this important step.

53. **The June 2006 Financial Action Task Force (FATF) AML/CFT mutual evaluation report indicated that the U.S. system is broadly in line with the international standard but made a number of recommendations**.[24] The regime has been significantly strengthened since then, including through enhanced legislation and the continuation of aggressive law enforcement action. A financial intelligence unit has been established that is fully operational and substantially meets the FATF standard. Most financial institutions are covered by customer due diligence, recordkeeping and reporting obligations. However, the majority of designated non-financial business categories and professions are not subject to the preventive measures regime required under the FATF standard. Deficiencies also remain with respect to the transparency and availability of beneficial ownership and control information for legal persons and arrangements.

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[22] The U.S. wholesale payment infrastructure comprises two systems, which are of systemic importance and settle in central bank money: the *Fedwire Funds Service*, which is a real time gross settlement system operated by the Fed; and the *Clearing House Interbank Payments System*, which is a private sector system combining net and gross real time settlement. Payment services are also provided by CLS Bank International, which operates payment-versus-payment settlement services mainly for foreign exchange-related transactions.

[23] The FSAP covered two securities settlement systems, the FSS and the Depository Trust Company, and two securities central counterparties (CCPs), the FICC–Government Securities Division and the NSCC.

[24] The June 2006 mutual evaluation report is the latest available comprehensive Anti-Money Laundering/ Combating the Financing of Terrorism (AML/CFT) assessment of the United States. A technical note has been prepared for the U.S. FSAP that will update some of the findings and follow up on the mutual evaluation report.

III. Macrofinancial and Systemic Oversight

A. Regulatory Architecture

54. **The complexity of the U.S. regulatory system is a well-recognized problem, and both the Administration and the Congress have acknowledged the need for change**. The standards assessments undertaken as part of this FSAP assessment also have uniformly identified the complex web of multiple federal and state authorities as having contributed to regulatory gaps and overlaps, as well as weaknesses in supervisory accountability.

55. **The team argued for a bold reorganization and streamlining of oversight along functional lines**. Although the international experience during the crisis did not demonstrate the superiority of any particular regulatory model, significant opportunities exist to simplify the U.S. system, focusing agency responsibilities on what firms and markets *do* rather that their legal *pro forma*. The team encouraged a reorganization along six axes:

- *Micro-prudential safety-and-soundness regulation and supervision* of all financial firms deemed systemically important, individually or collectively, at both the legal-entity and consolidated levels;
- *Special resolution procedures* for financial firms deemed to require carve-outs from the creditor-centered process of the U.S. Bankruptcy Code, at either the legal-entity or consolidated levels or both, as appropriate;
- *Market conduct and investor protection* covering all financial products, markets, and investors, with appropriate tailoring to the complexity of products and the sophistication of market participants;
- *Consumer protection* in retail financial products, including residential mortgages, credit cards and consumer loans, deposits, and all other financial services geared primarily to households;
- *Oversight of payment, settlement, and clearing systems* deemed systemically important; and
- *Cross-sectoral systemic risk oversight* bringing together all of the above elements as well as a macroeconomic perspective.

56. **In many respects, but not all, the U.S. authorities have sought to meet these criteria**. Detailed legislative proposals were put forward by the Administration in mid-2009, and omnibus reform legislation—the Dodd–Frank Wall Street Reform and Consumer Protection Act of 2010—was passed on the floor of the House on July 1, 2010. The Act heralds far-reaching changes in the way U.S. financial sector oversight is to be applied, although it will likely take some years before its impact is fully defined and understood. The opportunity to introduce a substantive streamlining of the regulatory architecture was not taken, however, with the focus being much more on the "what" than the "who" of regulation.

57. **A critical and welcome step has been taken to define a Financial Stability Oversight Council (FSOC) to serve as the systemic risk regulator**. This statutory body, bringing together the Treasury, the Fed, and essentially all financial regulators, backed by a dedicated Office of Financial Research, will bear the financial stability mandate. It will have powers to: (i) demand information from any member agency or regulated or unregulated financial firm; (ii) deem any nonbank financial firm potentially systemic for enhanced regulation and supervision (by the Fed), and deem financial market utilities and payment, clearing, or settlement activities potentially systemic; (iii) recommend (but not require) surveillance or corrective regulatory or supervisory actions by one, several, or all member agencies; and (iv) approve the break-up of systemic financial firms deemed by the Fed to pose a "grave threat" to financial stability. The FSOC would be tasked with publishing periodic reports to and testifying before the Congress on emerging systemic and regulatory challenges, with a special emphasis on issues that might call for a legislative response.

58. **The Fed's strengthened role as consolidated supervisor, including of all potentially systemic financial groups, positions it as the "lead executor" of the FSOC**. A pre-eminent, hands-on role for the Fed backed by binding enforcement authorities is wholly appropriate given its existing expertise, broad understanding of the financial sector, role as lender of last resort, the synergies with monetary policy, and its statutory mandate. Success will require a more muscular approach to consolidated regulation and supervision (quite likely involving less deference to functional regulators of nonbank subsidiaries) to enable it to effectively identify and act upon emerging systemic risks.[25]

59. **A new special resolution mechanism will cover potentially any systemic financial firm**. This new resolution authority will provide the FDIC with substantially similar powers to those it has long exercised in resolving insured depository institutions. The FDIC will henceforth be able to intervene in a failing systemic financial group by taking control at the level of the ultimate holding company, even as bank, broker-dealer, and insurance subsidiaries would remain under their pre-existing resolution regimes (with some adjustments). The team had strongly encouraged this concept of "umbrella resolution," but had also suggested greater automaticity, based on prompt corrective action (PCA) triggers, as well as greater reach, e.g., extending to all BHCs, to help mitigate moral hazard.

60. **Unfortunately, only partial steps have been taken to streamline federal safety-and-soundness regulation and supervision**. The new Act eliminates the OTS but preserves the Federal thrift charter. The responsibilities of the OTS regarding federal thrifts, state-

[25] Equally, the team stressed the need for all holding companies owning FDIC-insured depository institutions to be subject to consolidated oversight, with appropriate activity restrictions (notably, to separate banking from commerce) and group-level capital and liquidity requirements (see technical note on consolidated supervision). Unfortunately, the Dodd–Frank Act does not close the related exceptions in the Bank Holding Company Act, imposing instead certain moratoria pending a review by the Government Accountability Office (GAO).

chartered thrifts and savings and loan holding companies will be transferred to the OCC, FDIC, and the Fed, respectively. This, however, will still leave three FBAs with significant and overlapping oversight responsibilities; in the team's view, there remains a good case for defining one agency with safety-and-soundness responsibility for national banks, federal thrifts, state member banks, state nonmember banks, and state thrifts, in the latter cases serving as joint primary supervisor along with the applicable state regulators. This would free the Fed to focus on monetary policy, macrofinancial oversight, and consolidated regulation and supervision, and the FDIC on insurance and resolution.[26]

61. **Similarly, no steps were taken to unify responsibilities for securities and derivatives markets**. As many observers have noted, the SEC and CFTC have similar and converging market oversight and conduct-of-business missions, and a merger would help address the seeming artificiality of the present separation between securities and futures oversight, as well as the complexities of reporting to two separate Congressional oversight committees, which have led to inefficiencies and jurisdictional disputes.[27]

62. **Oversight authority for systemically important payment, clearing, and settlement systems is taking an important step forward**. The new Act (i) vests the FSOC with responsibility to designate as systemic any payment, clearing, or settlement activity or financial market utility to be subject to heightened and uniform risk management standards, including on margin, collateral, capital, and default policies, to mitigate systemic risk; and (ii) allows the Fed's Board of Governors to authorize designated financial market utilities to open deposit accounts at the Fed and, in unusual and exigent circumstances and after consultation with the Treasury Secretary, access the discount window.

63. **Welcome steps are being taken to strengthen consumer protection in the area of financial services**. Pre-crisis, weak consumer disclosures in retail lending products helped foster a systemic deterioration in underwriting practices. A strong rulewriting and enforcement function for retail lending—applying to all lenders—was thus needed to help protect not only vulnerable borrowers but the system as a whole. Under the Dodd–Frank Act, this function will sit at a new, independent Bureau at the Fed. Preliminary analysis suggests this outcome may satisfactorily meet the goals of ensuring: (i) *clarity of mandate* to avoid potential overlaps and co-mingling of consumer protection and safety-and-soundness

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[26] The recommendation was contingent upon the Fed gaining separate oversight authorities over systemically important payment, clearing, and settlement systems, including those chartered as state member banks. The team also felt, on balance, that the Fed should retain some responsibility for the consolidated supervision of non-systemic BHCs, even as broad back-up supervisory authorities spanning all insured banks and thrifts would suffice for the FDIC's resolution planning and deposit insurance responsibilities.

[27] Several systemic financial intermediaries are classed as both SEC-registered securities broker-dealers and CFTC-registered futures commission merchants, subject to overlapping rules. The Dodd–Frank Act introduces yet another designation, the "major swaps participant," with securities swaps and commodities swaps to fall under SEC and CFTC jurisdiction, respectively.

responsibilities across regulators; (ii) *independence/autonomy* from other functional regulators to effect rules; and (iii) *span* to cover customers of all firms that provide consumer financial services, irrespective of whether they are regulated, to ensure consistency.

64. **The reform legislation establishes a federal office to monitor the insurance sector**. This office will track industry developments and help identify systemic insurance groups. It should help promote uniformity of certain state regulations (such as those related to the treatment of non-U.S. insurers), assure a more coordinated system-wide perspective, and enhance U.S. participation in international discussions on insurance. In view of the costs associated with the existing state-based regulatory system, the team considers it appropriate to re-consider past proposals for an optional federal insurance charter.

B. Addressing Macro-Prudential Risks

65. **As noted above, a new framework for macro-prudential oversight is to be established, with the FSOC as its keystone**. The FSOC will identify and address systemic risks, with powers and duties, *inter alia*, to gather information, designate systemically important nonbank financial firms for consolidated regulation and supervision by the Fed, make broad recommendations to its member agencies, and report to Congress.

66. **Successful implementation of this framework will require addressing a number of challenges**. First, the FSOC will be composed of ten voting members, and ensuring this large body achieves consensus and timely responses to emerging risks will be important. Second, it will be critical that data and information be available to the FSOC in a timely fashion, which will require investment in systems and commitment to inter-agency information sharing. Third, member agencies of the FSOC will need to develop or adjust a range of regulations to focus more on systemic risk mitigation, combining automatic triggers with room for discretionary action.[28] Fourth, the accountability and "will to act" of all agencies will need to be underpinned by transparency and communication, ideally to include policies governing the release of minutes of FSOC proceedings.

67. **Moral hazard and the too big-to-fail problem will be an important challenge**. The substantial liquidity and capital support that has been provided in recent years is likely to exacerbate long-standing concerns that larger institutions bear an implicit government guarantee. Action will be appropriate on multiple fronts: *Prudential norms:* International efforts are underway to redefine capital and liquidity charges that apply to banks to take better account of their risk profiles, including with regard to their trading books. Enhanced

[28] Such instruments, many of which are enumerated in the Dodd–Frank Act, could include: (i) penalizing size, complexity, and interconnectedness through measures such as liquidity and capital surcharges, anti-cyclical provisioning, leverage ratios, contingent capital, resolution fees, or insurance schemes; (ii) encouraging financial firms to build capital buffers in good times; (iii) tightening risk exposure limits on rapidly expanding asset classes; and (iv) limiting the impact of corporate governance and compensation policies on risk-taking.

supervisory oversight and application of prudential norms will also need to apply to CCPs, in concert with efforts to encourage a greater role for them in the clearing of OTC derivatives.

- *Systemic risk charges:* The U.S. effort to subject all systemically important financial institutions to comprehensive, consolidated supervision should help limit systemic risks. These institutions should also be subject to prudential norms that help them internalize the systemic risks they pose.[29]
- *Narrow banking/size limitation:* The legislation includes limitations on banks' proprietary trading and investments in or sponsoring of hedge or private equity funds. Nonetheless, given the difficulty of ring-fencing business lines, and the risk of potentially systemic activities migrating outside the regulatory perimeter, these measures should not be seen as substitutes for effective supervision, prudential norms, and limits on complexity.
- *Compensation/governance:* Compensation practices need to avoid encouraging excessive risk taking, and it will also be important to ensure that shareholders are engaged in oversight of the financial firm, Boards of Directors are of a level of competence and authority to exercise appropriate risk management, and management information systems are state of the art.[30]
- *Prompt corrective action:* A critical outcome of the U.S. savings and loan crisis was the establishment of a set of PCA triggers for mandatory intervention based on regulatory leverage ratios. Although these were viewed internationally as best practice, most if not all of the very large institutions that failed during the recent crisis experienced liquidity pressures before breaching these triggers, underscoring the need to develop better, forward-looking maturity mismatch and liquidity indicators and a greater willingness for swift, pre-emptive action on the part of supervisory bodies.
- *Living wills:* The complexity involved with the resolution of large groups and the need to stem moral hazard underscores the importance of *ex ante* resolution plans ("living wills"). These can help ensure that group structures are kept manageable and—in the event of crisis—the resolution agency is prepared to take effective action. They would need to be reviewed critically, updated periodically, and acted on pre-emptively, to require systemic firms to simplify their structures.[31]

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[29] Several efforts are underway (Arachya et al., 2009; Brunnenmeier, et al., 2009; Jobst and Gray, 2010), to calibrate the contribution to systemic risk of individual institutions.

[30] The Dodd–Frank Act introduces stronger shareholder rights on executive pay and independent compensation committees for listed companies, and on Fed-defined compensation rules for financial institutions.

[31] The Dodd–Frank Act requires large, complex financial institutions to periodically submit plans for their rapid and orderly resolution, and these firms would be subject to capital charges and other sanctions, including divestment, if these plans are deemed deficient. A critical responsibility of the supervisor will be to use these plans to develop institution-specific contingency plans.

68. **A key role of the FSOC will be to monitor and adjust the regulatory perimeter**. Steps are already being taken to address the risks posed by the so-called shadow banking system, and the FSOC will need to carry forward these in a number of important areas: (i) requiring money market funds to make real-time disclosures of their actual, as opposed to "stabilized," net asset values; (ii) eliminating restrictions that bar depository institutions from remunerating transaction deposits; (iii) subjecting ABCP conduits and ABS issuers to stringent disclosure and other requirements; and (iv) restructuring the tri-party repo system to make it more resilient to stress.[32]

69. **The reform debate has also addressed concerns regarding the governance structure of the Fed**. The Presidents of the regional Federal Reserve Banks, which are in charge of conducting on-site supervision under authorities delegated from the Fed's Board of Governors, are elected by boards of directors that are majority-controlled by the supervised entities. While this seems to have had little impact in practice, the Dodd–Frank Act moves to eliminate this seeming conflict of interest.

C. Strengthening Crisis Management and Resolution

70. **Although the U.S authorities improvised well in the face of crisis, shortcomings were exposed in crisis management arrangements**. The President's Working Group on Financial Markets, established by an Executive Order after the stock market crash of 1987, provided a framework for coordination. However, crisis events underscored the challenges posed by the multiplicity of agencies, the lack of a statutory crisis management framework, and the limitations of the toolkit available to deal with failing financial firms.

71. **The reform legislation will formalize most crisis management arrangements under the FSOC**. This should build on the regular process for macro-prudential surveillance already envisaged for the FSOC, but will require enhanced arrangements for coordination, information sharing, and decision making in crisis. Such arrangements should be tested periodically in simulation exercises similar to those currently employed by the agencies to check the resilience of business continuity arrangements.

Liquidity provision

72. **The U.S. authorities responded decisively in the midst of crisis to expand liquidity backstops**. Given the scale of maturity transformation outside the formal banking system, liquidity support had to be provided to a broad range of nonbank financial intermediaries and markets in order to contain the crisis. In many cases, Fed lending relied on

[32] The recommendations of a market working group sponsored by the Federal Reserve Bank of New York to address these issues should go some way to reduce liquidity risk in the tri-party repo system, notably through the phased elimination of the "daily unwind."

the "unusual and exigent circumstances" provision of Section 13(3) of the Federal Reserve Act. These extraordinary facilities have largely been wound up.

73. **The international dimension of managing systemic liquidity in stressed conditions was made amply evident in the crisis**. In response to the vulnerability of offshore dollar markets, especially in Europe, and the potential for feedback to U.S. markets—given linkages via the interbank market, foreign exchange swaps, and securities trading—swap agreements were forged with 14 foreign central banks. These proved an effective means to provide dollar liquidity to strained offshore markets. Although first-round support for such markets was wound down, some swap arrangements have been resurrected in the wake of the new market turbulence in Europe. The experience suggests merit in ensuring that such facilities are readily available in the future. Close international cooperation should be sought to systematically collect information on relevant markets and ensure continued timely and effective well-coordinated responses to systemic turmoil abroad.

74. **The recent experience has left open the question of whether the Fed is optimally equipped to support domestic liquidity in situations of incipient systemic stress**. The Dodd–Frank Act introduces new requirements on the future use of the "unusual and exigent circumstances" clause of the Federal Reserve Act, which will be limited to broadly available liquidity programs for solvent nonbank financial firms, subject to *ex ante* Treasury sign-off and *ex post* reporting to Congressional committees and GAO audit. The Act also requires the Fed, in consultation with the Treasury Secretary, to develop regulations to guide such emergency lending. While proscribing Fed liquidity support to failing individual firms is generally appropriate, since this carries with it moral hazard and exposes the Fed to inappropriate credit risk, the inherent unpredictability of crises and their scale argues for retaining some flexibility in this area.[33]

Deposit insurance

75. **Despite widespread bank failures, U.S. deposit insurance arrangements performed well through the crisis**. Confidence was bolstered especially by the FDIC's capacity to resolve small or midsize banks quickly, typically executing the transfer of insured deposits over a weekend from a failing institution to another institution.

76. **However, resources in the Deposit Insurance Fund have been eroded, and should be restored under revised rules**. The FDIC's restoration plan will only restore funding to pre-crisis levels by 2017, and the system remains subject to procyclical funding

[33] See the technical note on crisis management arrangements. The Dodd–Frank Act also includes an emergency financial stabilization provision under which the FDIC, "during times of severe economic distress," may create a widely available program to guarantee obligations of solvent insured depository institutions or BHCs, to be activated using procedures analogous to those used to trigger the systemic risk exception (to the general requirement that the FDIC resolve failed depositories at least cost to the Deposit Insurance Fund).

arrangements. Under current rules, banks only pay premiums up to a certain level after which they are rebated, and while premiums are risk-based, they capture only expected losses from an individual bank failure and do not build in any allowance for systemic risk.

77. **In light of the experience of the crisis, deposit insurance funding arrangements should be reviewed, revisiting premiums and the size of the fund**. One response would be to increase the targeted ratio of reserves in the fund to insured deposits, and the mission therefore welcomes increased target ratios in the Dodd–Frank Act and the additional flexibility provided to the FDIC to set risk-based premiums and revise funding arrangements.

Resolution arrangements

78. **The crisis highlighted the lack of effective resolution arrangements for large complex financial conglomerates**. A special resolution regime operated by the FDIC is in place for depository institutions but most other types of financial firms are subject to the Bankruptcy Code.[34] This denied the authorities the scope to take control of groups at the holding company level (either as receiver or conservator). As a result, the cost and systemic disruption of the disorderly collapse of Lehman Brothers, the emergency sale of Bear Stearns, and the outright rescue of AIG were likely greater than otherwise, and highlighted the need for tools to deal effectively with such entities. The new "orderly liquidation authority" for systemic financial firms as created by the Dodd–Frank Act should substantially fortify the U.S. resolution toolkit, although it is unfortunate that earlier proposals to establish a pre-funded special resolution fund have been dropped.

79. **Application of the new authority will not be easy**. The crisis illustrated the speed with which large entities can lose access to wholesale funding, their critical role in markets and payment and settlement systems, and the pace at which difficult rescue operations need to be formulated. Moreover, especially in the case of systemic firms, contagion risks may require that short-term funding in repo and securities lending would need to be honored and the close-out of foreign exchange and derivative contracts avoided.[35] *Ex ante* information gathering, preparation, and "war gaming" will thus be essential.

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[34] Under the Securities Investor Protection Act, the Securities Investor Protection Corporation (SIPC) has the power, *inter alia*, to intervene in the liquidation of a securities broker-dealer to ensure that assets are returned to customers (where assets are missing, customers are compensated from the SIPC Fund up to $500,000 each); the FHFA has FDIC-like resolution powers over the housing GSEs; and insurance companies are subject to dedicated state-level resolution procedures.

[35] Under both the Federal Deposit Insurance Act and the new systemic resolution authority, repos, forwards, swaps and other similar transactions are defined as "qualified financial contracts" (QFCs). The FDIC must decide within a day of intervening whether to transfer QFCs to another solvent entity (e.g., a bridge bank) or to leave them in the failed firm subject to termination and close out.

IV. Withdrawing Crisis Interventions and Addressing Housing Finance

80. **Official interventions have dramatically increased public involvement in the U.S. financial system**. Encouraging steps have been taken by many financial firms to repay TARP funding, but the exit has a way to go. Given that the TARP is likely to maintain significant ownership of financial and nonfinancial firms for some years, it may be appropriate to transfer these to a trust or similar arrangement to avoid any appearance of conflicts of interest with the supervisory function.

81. **An orderly withdrawal from government ownership of financial firms, as conditions permit, is important to leveling the playing field and reducing distortions**. Continued official ownership risks undermining the system's dynamism and subjecting it to inappropriate political influence in pursuit of social policy goals. It may also aggravate concerns associated with "too-big-to-fail," moral hazard, and the scope of safety nets.

82. **Key to the exit process will be to establish a vision for U.S. housing finance**. Government support for the housing market is extensive, with the housing GSEs—Fannie Mae, Freddie Mac, and the FHLB system—as cornerstones. These entities play important roles in maintaining liquidity in the market for MBSs, with their guarantees assuring a plentiful supply of credit risk-free "rates products." Their statutory privileges bestow a risk-insensitive funding advantage that incentivizes growth and leverage.[36] Fannie and Freddie's Senior Preferred Stock Purchase Agreements commit the Treasury to providing unlimited capital support to these entities through 2012 and capped but large amounts thereafter.[37]

83. **The U.S. authorities have emphasized that lasting reforms will be defined once the mortgage market stabilizes**. This remains an important unfinished area in the reform process. The housing finance system continues to be costly, inefficient, and complex, with numerous subsidies that do not translate into a sustainably higher homeownership rate. Any reform of the system should avoid a return to the *status quo ante* involving ambiguous public/private status and implicit guarantees, including of the FHLB system.

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[36] The privileges include: a dedicated regulator and presumptive receiver, the FHFA; exemptions from state and local income taxes; eligibility to settle through the *Fedwire Funds Service*; and classification of their debt and MBSs as "exempt securities" under the Securities Act of 1933 (with important ramifications such as eligibility to issue through the *Fedwire Securities Service*; use by the Fed in OMO; exemption from bank concentration limits; and low risk-based bank regulatory capital charges, currently only 0.8 percent).

[37] Total assets of these entities have broadly stabilized and their net worth is now roughly zero, but their guaranteed MBS pools have grown dramatically, with the Fed as the predominant buyer throughout 2009. The share of U.S. single-family residential mortgage originations financed (retained) or guaranteed (securitized) by the two GSEs increased from 54 percent in 2007 to 78 percent in the first three quarters of 2010, in addition to which they are actively involved in the various government mortgage modification programs. Fed purchases of agency MBSs were terminated at end-March 2010. The GSEs are also among the largest participants in the market for OTC interest rate derivatives, which is another aspect of their systemic importance.

84. **The mandate of the GSEs should be streamlined, guarantees removed or made explicit, and Fannie and Freddie's retained portfolios privatized**. These retained portfolios have been key sources of past losses and are largely separable from the two GSEs' core bundling and guarantee business—a function that arguably provides a public good worth making explicitly public. The implicit guarantee of the FHLB system should similarly be stripped away or made explicit. Strong oversight will be required of any new public entities to ensure robust asset-vetting and pool-structuring standards, as well as derivative market involvement consistent with systemic stability. Alternatives include:

- *Full privatization:* Under this option, the GSEs would be recapitalized and sold to the public, as a whole or in pieces, and the conservatorships terminated, with Congress legislating to rescind their federal charters and associated privileges.[38] This would mark a definitive solution to the competitive equality issue, leveling both the public–private and mortgage–nonmortgage playing fields, but could leave the system without a public body for promoting securitization.
- *Part privatization/part public utility:* This option would involve restoring the GSEs' investment operations to profitability and recapitalizing them (again whole or in pieces) by selling shares to the public, even as the Congress legislated, first, to rescind the federal charters and, second, to establish a new public entity to take over the guarantee operations.[39] The resulting privatized investment companies would have no special privileges and the new public entity no ambiguity in its federal backing. This would limit any future misappropriation of a funding advantage, with the utility preserving government support for securitization, subject to appropriate criteria.

V. INTERNATIONAL LINKAGES AND COORDINATION

85. **The U.S. financial system represents a significant and deeply connected component of the global financial system** (Figure 8). U.S. large complex financial institutions (LCFIs) play a critical role in international financial markets, and U.S. payment and securities settlement systems involve a large volume of transactions with foreign entities.[40] International trading in securities and derivatives linked to U.S. securitized assets has been substantial—over one-fifth of U.S. ABSs are estimated to have been held abroad in the lead up to the crisis. This, along with transactional, reputational, and ownership ties

[38] Lessons could be drawn from the successful privatization of Sallie Mae in 1995.

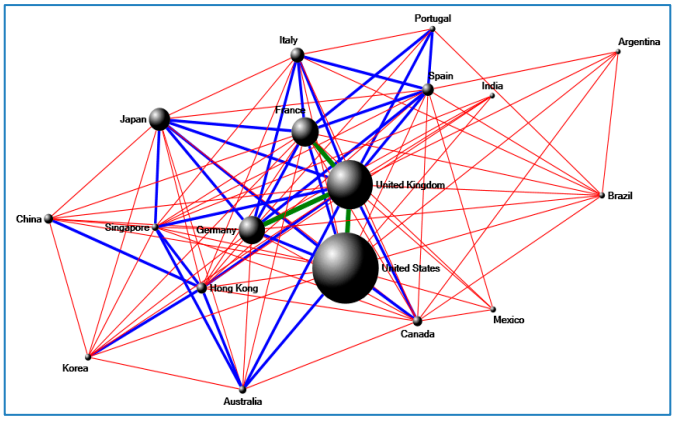
[39] Under the receivership provisions of the Housing and Economic Recovery Act of 2008, the FHFA could start by establishing "limited-life regulated entities"—modeled on FDIC bridge banks—which would afford it the flexibility to, say, move core securitization and guarantee operations to the bridge while leaving lower-quality portfolio assets in the receivership pending liquidation.

[40] 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 behaviour?" (*Bank of England Financial Stability Review*, 2003).

between leading intermediaries in the U.S., U.K., and Euro area financial systems, help explain the speed and virulence of the freeze of the U.S. funding markets.

86. **These interlinkages increase the premium on mutually consistent macroeconomic and financial policies**.[41] The growth in transactions booked in offshore tax havens illustrates the channels that have opened for regulatory and tax arbitrage and underscore the importance of U.S. participation in international efforts toward coordinated and consistent supervisory and regulatory policies. As the U.S. authorities have advanced relatively quickly in developing specific regulatory reform proposals, care will be needed to ensure these encourage a "race to the top" rather than mutually inconsistent approaches.

Figure 8. United States: Financial System Linkages to the Rest of the World [1/]



Sources: Kubelec, C., and F. Sa, 2010, "The Geographical Composition of National External Balance Sheets: 1980-2005," Bank of England Working Paper (forthcoming); and "Organic Mechanics," 2009, *Financial Times,* November 26.

1/ Vertices reflect relative size of total external assets & liabilities (FDI, equity, debt, and reserves) for each country; thickness of connectors (green being thickest and red thinnest) reflects relative size of bilateral external financial stocks (assets and liabilities divided by the sum of host and source country GDP)

87. **The U.S. authorities can play a leading role in international efforts to strengthen international crisis coordination**. U.S. agencies appear to have managed to achieve a high level of coordination with counterparts abroad during the recent crisis, building on long-standing relationships. Looking forward, it would be helpful to build on this experience and further develop the arrangements for coordinating supervisory policies. As noted, there would be merit in establishing a more permanent and coordinated mechanism for addressing periodic pressures in offshore dollar markets.

88. **The United States has embraced efforts to improve information sharing and cooperation in the supervision of internationally active financial firms**. This has helped

[41] Cross-border financial flows are discussed in greater detail in the Spring 2009 *Global Financial Stability Report* and *World Economic Outlook*.

establish supervisory colleges for some 30 globally active firms. The mission supports the authorities' commitment to the operational development of these colleges, which should result in joint risk assessments under the auspices of a lead supervisor and plans for remedial actions as needed. Given the growing importance of emerging markets, consideration should be given to extending the number of institutions and supervisors to include major emerging markets in a manner consistent with the efficient functioning of the supervisory colleges.

89. **The authorities' commitment to coordinated approaches to strengthening the international capital framework is similarly welcome**. Although the United States has been slow to adopt Basel II, the authorities have been active participants in the Basel Committee discussion on new risk weights applicable to banks' trading books and securitized products; a new supplemental leverage ratio to ensure adequate quantity and quality of capital; harmonization of the definition of capital; and counter-cyclical capital buffers.

90. **U.S. financial sector reforms could provide impetus to international efforts to improve arrangements for dealing with the resolution of global financial conglomerates**. The Lehman collapse illustrated the constraints on reaching coordinated solutions given differences in insolvency, regulatory, accounting, and governance regimes. It would be helpful to ensure that the "living wills" that will be required for systemically important financial firms identify inconsistencies and tensions with legal frameworks in foreign jurisdictions where the large U.S. firms operate and catalyze the preparation of coordinated *ex ante* crisis management frameworks, building on the Financial Stability Forum's *Principles for Cross-border Cooperation in Crisis Management*.[42]

91. **Reforms to U.S. markets for structured securitization and OTC derivatives could have significant cross-border implications, given strong global participation**. These reforms encourage greater reporting, standardization, and oversight of credit and other OTC derivatives through the greater use of exchanges and CCPs. They would also require advisers to hedge funds to register and to regularly report information to facilitate assessments of systemic risk. It would be important to coordinate to the extent possible these efforts with other key jurisdictions to avoid pushing transactions to less stringent jurisdictions.

[42] For example, under the Federal Deposit Insurance Act, deposits in overseas branches of a U.S. bank rank behind insured U.S. deposits in a wind up.

APPENDIX I: RISK ASSESSMENT MATRIX

Nature/Source of Main Threats	Likelihood of Severe Realization in the Next Three Years	Expected Impact on Financial Stability if Threat is Realized
Inability to roll over outstanding CRE loans	***Staff assessment: High*** • Given the employment situation, which tends to be a good indicator for CRE, commercial property prices are not expected to recover soon. Around $1.4 trillion of CRE loans are expected to mature by 2014, and almost half of these are underwater or seriously delinquent. The market for commercial MBSs remains depressed.	***Staff assessment: Medium*** • Banks are the largest lenders against commercial property, comprising nearly 50 percent of CRE debt outstanding. CRE exposure accounts for 10 percent of total bank loans, but represents 50 percent of smaller banks' loan books.
Further weaknesses in residential real estate prices	***Staff assessment: High*** • The rising gap between the volume of delinquent mortgages and the number of foreclosures suggests an overhang of homes still to be placed on the market. "Strategic defaults" by underwater but performing mortgage borrowers are on the increase. • A modest rise in mortgage rates could speed up the rate of foreclosures, dampening a recovery in house prices.	***Staff assessment: Medium*** • A worsened house price outlook would hurt the value of repossessed homes on banks' balance sheets. • It could also induce banks to foreclose more aggressively the rising stock of seriously delinquent residential mortgages. Given low callateral values, this would raise losses across the financial system and lower bank capital.
Double-dip recession	***Staff assessment: Low*** • Consumption spending could remain lower than projected, given still-high debt loads, substantive hits to household net worth, high unemployment, and possible further pressures on house prices. • Low consumer spending would depress corporate and small business profits, hampering employment and GDP growth.	***Staff assessment: Medium*** • Slower GDP growth would reduce credit demand and thence net interest margins, and possibly impact financial sector fee and trading income. • A weaker economy would dampen corporate and small business profits and employment, and undermine credit quality. • Lower profits would make it more difficult for banks to re-build capital buffers.
Loss of credibility of long-term fiscal consolidation	***Staff assessment: Low (but rising)*** • The potential need for more aggressive public support for housing and employment, state governments, and small- and medium-sized companies, could weaken long-term fiscal credibility and trigger a sharp hike in risk premiums attached to U.S. securities. Under the authorities' current projections, the federal debt-to-GDP ratio is expected to rise to nearly 100 percent by 2020.	***Staff assessment: Medium*** • Higher U.S. interest rates could undermine growth prospects and credit quality. They would also increase rollover risks and hurt convexity hedging by mortgage holders, triggering a re-pricing of long-term instruments.

Nature/Source of Main Threats	Likelihood of Severe Realization in the Next Three Years	Expected Impact on Financial Stability if Threat is Realized
Credit crunch/limited securitization	***Staff assessment: Low*** • Some banks continue to face balance sheet pressures and are likely to remain reluctant to expand their lending. • Private securitization markets remain impaired. • However, the risk of a more severe disruption to credit supply seems to have dissipated with signs of some easing of bank lending standards, and the uneventful expiration of the Fed's Large Scale Asset Purchase program.	***Staff assessment: Low*** • Constrained credit and crisis legacies are likely to depress potential output, with negative spillover effects on banks' asset quality and earnings outlook. • Limited securitization could be particularly difficult for the small community banks, which almost doubled their market share of residential loans in the run up to the crisis in the expectation of selling them after origination.
Regulatory uncertainty	***Staff assessment: Low*** • The new financial reform legislation is likely to be passed into law before end-July 2010, but rule writing will take some time. • Implementation delays could impede lending with negative macroeconomic consequences, especially if new rules are not mutually consistent.	***Staff assessment: Low*** • Unless new requirements are carefully phased in, a sharp increase in funding costs could weaken credit growth. Credit quality, bank capital, and earnings could also be hurt. • Lending could be pushed to new (less well managed) channels, contributing to new systemic risks.
Failure of systemically important institutions	***Staff assessment: Low*** • Recent efforts to boost capital have borne fruit and regulatory reform will further improve regulation and supervision of systemic firms, including by allowing an expansion of the supervisory perimeter to include systemically important nonbank financial firms.	***Staff assessment: Medium*** • The new reform legislation introduces a new mechanism to resolve failing systemically important financial conglomerates, but challenges remain, including with regard to cross-border groups.