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Shaping the New Financial System

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EXECUTIVE SUMMARY

Three years after the onset of the global financial crisis, much has been done to reform the global financial system, but there is much left to accomplish. The regulatory reform agenda agreed by G-20 leaders in 2009 has elevated the discussions to the highest policy level and kept international attention focused on establishing a globally consistent set of rules. Comprehensive reform, once agreed and implemented in full, will have far-reaching implications for the global financial system and the performance of the world economy. In designing the reforms, it is imperative that policymakers keep their focus on the overarching objective of creating a financial system that provides a solid foundation for strong and sustainable economic growth.

This paper argues that the current reforms are moving in the right direction, but many policy choices lie ahead—nationally and internationally—which are both urgent and challenging. Policies need to address not only the risks posed by individual banks but also, importantly, those posed by nonbanks and the system as a whole. The recent proposals of the Basel Committee on Banking Supervision (BCBS) represent a substantial improvement in the quality and quantity of bank capital, but these apply only to a subset of the financial system.

Real progress is thus needed in several key areas where much has been said, but less accomplished. Prompt progress by the international community is essential to reduce the likelihood and impact of another crisis and to alleviate regulatory uncertainty.

According to IMF staff analysis, policymakers need to focus their attention on the following five key goals for financial sector reforms:

- **Ensure a level playing field in regulation**. Global coordination is needed to reap the benefits of global finance; foster competition; and minimize the scope for cross-sector and cross-border regulatory arbitrage, which could be damaging to global financial stability.

- **Improve the effectiveness of supervision**. Strengthened supervision is a necessary condition if a new cycle of leveraging and excessive risk taking is to be prevented. As a result, supervision needs to be more intensive and intrusive, as well as more focused on cross-border exposures.

- **Develop coherent resolution mechanisms at both national level and for cross-border financial institutions**. At the national level, it is critical to have effective policies and procedures for resolving financial institutions in a prompt and orderly manner. The IMF has proposed a "*financial stability contribution*" linked to an effective resolution regime to pay for the fiscal cost of any future government support to the financial sector. Given the global reach of financial institutions, the IMF has also proposed an enhanced cross-border coordination framework for resolution to eliminate moral hazard while preserving financial stability. The first step is to focus now on making this approach operational among a small set of countries that are home to most cross-border financial institutions. Such an agreement is critical to address the problem of "too important to fail." Because of the complexity of the issues involved, moving this work forward will require political commitment at the highest levels.

- **Establish a comprehensive macroprudential framework**. Success in achieving financial stability will depend critically on complementing microprudential regulations, which aim to improve the resilience of individual institutions, with effective macroprudential regulations that strengthen the resilience of the financial system as a whole. This will require identifying, monitoring, and addressing systemic risks generated by the individual and collective behavior of firms.

- **Cast a wide net**. Reforms must address emerging exposures and risks in the entire financial system, not just the banks. Absent a broader perspective, there is a danger that riskier activities and products will migrate to the less (or un-) regulated segments of the system, as occurred with off balance-sheet investment vehicles during the recent crisis.

While the focus of this paper is on the authorities' responses to the crisis, private sector ownership of the financial reforms will be key to the successful implementation of the new rules. Business models and practices will need to be aligned with the new financial structure laid out by public policy, risk measurement and management will need to be improved, and boards of directors will need to be equipped with powers to rein in excessive risk taking and be held accountable for it. To the extent that financial reforms succeed in restoring market discipline, by correcting misaligned incentives and enhancing transparency and disclosures, they will have found a powerful ally toward maintaining financial stability.

I. Introduction

The crisis has provided the impetus for a major overhaul of the financial regulatory system. No other financial crisis since the Great Depression has led to such widespread dislocation in financial markets, with such abrupt consequences for growth and unemployment, and such a rapid and sizable internationally coordinated public sector response. Behind this response was the acknowledgement that these costs have been imposed partly as a result of systemic weaknesses in the regulatory architecture and on the failure of supervisors to rein in the excessive private sector risk taking.

The G-20 agenda for financial reform gives both the IMF and the Financial Stability Board (FSB) a key role in maintaining global financial stability and preventing a repeat of the errors preceding the recent crisis.[2] The FSB's role in this process stems from its unique capacity as a forum for the international standard setters and other international bodies, as well as officials from regulatory agencies, central banks, and treasuries of its member countries. The IMF, for its part, also has a unique role to play, given its universal membership, its macro-financial mandate, and its well-established roles in the area of bilateral and multilateral surveillance and technical assistance.

This paper makes a case for an oversight framework that ultimately would enhance the stability of the financial system and provide the basis for strong and stable economic growth. It describes the reforms that we think are still needed to achieve this goal. A fundamental principle underlying the analysis provided here is that the private sector plays an important role—it is not up to regulators to "build" the financial system but to influence its direction by providing appropriate rules and incentives.

The paper provides a summary of the key vulnerabilities in the run-up to the crisis and lays out a vision for a better future global financial system (Section II). The following two sections take stock of the pace and direction of the current reform agenda and the IMF's contribution to this process: Section III focuses on microprudential policies that aim to make individual firms more resilient, while Section IV discusses macroprudential policies that aim to make the financial system more resilient. Section V concludes. The annex provides a summary of IMF contributions to the regulatory reform agenda.

II. What Needs To Be Fixed?

It is now widely recognized that in the run-up to the crisis, there was a significant under-appreciation of systemic risk, so much so that many viewed policymakers as having established an era of sustained and stable expansion—labeled the "Great Moderation." With the benefit of

[2] The IMF and the FSB also collaborate on providing early warning to senior policymakers of macroeconomic and financial risks, and the actions needed to address them.

hindsight, low nominal interest rates, abundant liquidity, and a favorable macroeconomic environment encouraged the private sector to take on ever-increasing risks. Financial institutions provided loans with inadequate checks on borrowers' ability to pay and developed new and highly complex financial products in an attempt to extract higher returns. Many financial regulators and supervisors were lulled into complacency and did not respond to the building up of vulnerabilities.

As a result, financial systems and transactions became distorted along several dimensions:

- **The financial system grew highly complex and opaque**. Lack of transparency and limited disclosure of the types and locations of risks made it difficult to assess the extent of exposures and potential spillovers. This opacity magnified the shock to confidence as the crisis unfolded. As the financial sector expanded as a fraction of GDP (Figure 1), an increasingly large portion of financial activity did not seem to serve the needs of the real economy.

- **The financial system became over-leveraged and heavily interconnected**. Short-term incentive structures undermined good governance and encouraged excessive risk taking. Actual leverage was even greater than was apparent, in part because it was embedded in instruments in ways that were not transparent and in part because regulatory requirements did not capture key risks. This meant that capital was inadequate as a buffer against the drop in asset prices. The interconnectedness of institutions meant that the shocks were propagated across the system, both domestically and globally.[3]

- **Liquidity risk was also higher than recognized**. Financial firms and key markets relied increasingly on short-term, wholesale funding and took on excessive maturity mismatches while failing to build adequate liquid asset buffers.

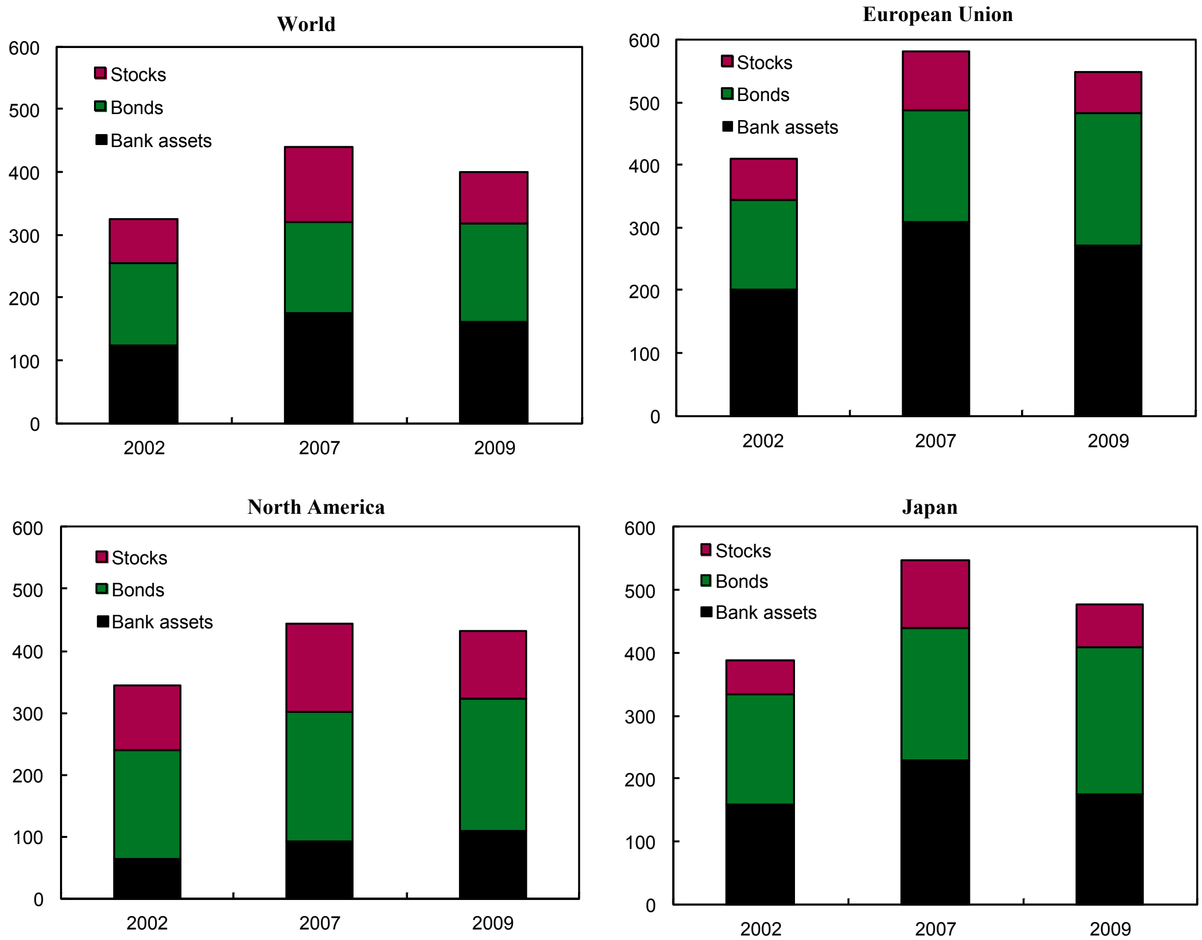
- **Large complex institutions enjoyed the benefits of being "too important to fail."** The lack of market discipline allowed them to borrow at preferential rates, operate with higher levels of leverage, and engage in riskier activities.

- **In addition to traditional capital market instruments, financial intermediation has increasingly shifted to the "shadow" banking sector**. Relatively unregulated nonbank financial institutions and markets thrived in large part because they avoided the more stringent requirements imposed on banks (Figure 2).

[3] Haldane and others (2010) report levels of leverage on average of more than 50 times equity among the major global banks at the peak of the boom compared with about 20 times in the late 1990s.

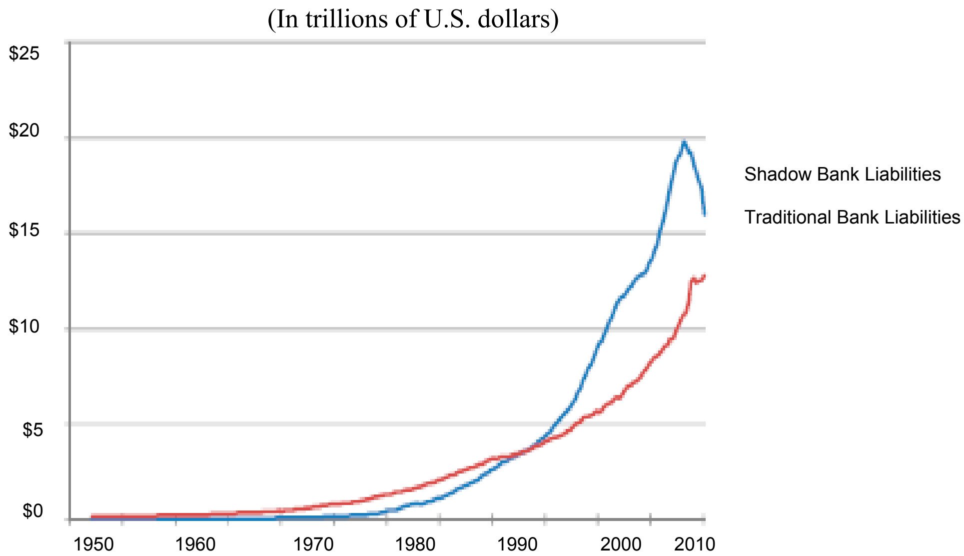
Figure 1. Size of the Financial Sector

(In percent of GDP)



Source: IMF, Global Financial Stability Report, Table 3.

Figure 2. Growth of Nonbank Financial Institutions in the United States



Source: Pozsar and others (2010) from Flow of Fund Accounts of the United States as of Q1 2010 (FRB) and FRBNY.

Note: Shadow banking liabilities include commercial paper, medium-term notes, asset-backed commercial paper, asset-backed securities, repurchase agreements, total return swaps, hybrid and repo/TRS conduits, ABS CDOs, ABS CDO-squareds, bonds, capital notes, and 1$ NAV shares (shadow bank "deposits").

Some of these distortions are being unwound as part of the deleveraging process. Financial institutions have been re-building capital and liquidity buffers, and have been required to bring some of their off-balance sheet activities back onto their balance sheets. The concern remains, however, that many of the structural characteristics that contributed to the build-up of systemic risks are still in place today. Perhaps most worrisome is that the large-scale public support provided to both large institutions and markets—a contingent liability equivalent to about one-fourth of advanced economies' GDP—has exacerbated the moral hazards and perceptions that certain institutions and markets are "too important to fail." The challenge, therefore, remains to establish a policy framework that can both sustain growth and reduce the severity of boom-bust cycles.[4] Some argue that less-volatile economic growth is likely to come at a cost in terms of risk-taking opportunities and innovation in the financial system and, therefore, be associated with a lower growth path. But, encouragingly, recent empirical work suggests that the trade-off is nearly absent if the large output costs of financial crises are taken into account. [5] While this may

[4] See for instance Kodres and Narain (2010).

[5] See BCBS (2010a).

lead to consistently lower risks and lower returns in the financial system, these need not be associated with substantially lower output in the short term and may yield significant net output gains as well as stability in the medium term.

In our view, looking ahead, financial regulatory policies should aim to ensure:[6]

- financial intermediation that delivers products **better geared to satisfy the needs of households and firms**;
- a **better-governed and more transparent** financial system—in terms of corporate structures, instruments, and markets;
- institutions endowed with **higher, better quality, and globally consistent capital and liquidity buffers** that weigh systemic risk appropriately and discourage procyclical lending behavior;
- institutions—even systemically important ones—that can be **resolved in an effective and timely way** and with **minimum cost to the taxpayer**;
- a financial system that is **competitive** and allows for ease of entry and exit; and
- a **better understanding and oversight of risks in the nonbank financial sector** and greater transparency about the risks that institutions are taking and the protections they are receiving as a result—extending the **regulatory perimeter** to include all systemically important institutions, markets, and instruments.

The financial oversight framework should be strengthened to help reach these end-goals in terms of depth, breadth, and global consistency, and comprise five key goals:[7]

1. ***Strong microprudential regulation that is globally coordinated***. It should strengthen the resilience of financial institutions, ensure as much as possible a level playing field of regulations, and minimize regulatory arbitrage that could be damaging to global financial stability.

2. ***Effective supervision***. The IMF's work on assessing financial sector standards suggests that countries often lag behind in meeting good practices of supervising key risks, taking corrective action in a timely manner, and enforcing and sanctioning noncompliance.

[6] See, for example, IMF (2009).

[7] The sixth goal, improving governance and risk management practices in financial institutions is not covered explicitly in this note.

3. ***A robust and globally consistent cross-border resolution framework***. An enhanced international coordination framework for cross-border resolution is essential. Such a framework is also needed to ensure that financial institutions that are "global in life" do not become "national in death."

4. ***A macroprudential dimension***. Such an approach is needed to reduce the systemic risk contribution of individual institutions and markets, and to encourage the build-up of strong buffers of capital and liquidity in good times, which can be run down during periods of stress. An effective macroprudential framework will depend critically on addressing the flaws in the microprudential regime.

5. ***A larger regulatory perimeter***. The perimeter should be enlarged to cover banks and nonbanks alike, so that weaknesses in the entire financial system can be addressed. Consistency in the application of regulations across different types of financial institutions producing similar products is critical to avoid risk being shifted into the shadows.

III. Making Individual Firms More Resilient

The remainder of this paper examines the current regulatory reform agenda against the goals just laid out for the regulatory framework and what needs to happen to bring it about. Focus of this section is on microprudential measures that aim to make individual financial institutions more resilient, or allow them to fail smoothly. The next section discusses macroprudential policies that aim at making the overall financial system more resilient.

A. Microprudential Regulations: Bank Capital and Liquidity

Banks entered the crisis with inadequate capital buffers and suffered severe losses, some of which only became evident as events unfolded. From the start of the crisis, the IMF has been providing objective assessments of the size of write-downs in global banks in an effort to keep the international agenda focused on reforming the capital framework for banks.[8]

At the core of the reform program endorsed by the G-20 are measures aimed at making individual banks less likely to fail through actions to reduce leverage, build more robust capital and liquidity buffers, and limit maturity mismatches. Key measures proposed by the BCBS include:[9]

- Improving the quantity and quality of capital, so that it can absorb losses more easily;

[8] *Global Financial Stability Report* (2008–10).

[9] BCBS (2009a and 2009b).

- Ensuring that capital requirements are more closely associated with the risks they are meant to protect against—and, in particular, capture more fully market risk, counterparty credit risk, and risk in securitized portfolios;

- Introducing a leverage ratio as a credible supplementary measure to the risk-based requirements; and

- Introducing measures to protect against liquidity shortages by holding more assets that could be liquidated rapidly, and lowering rollover risks by limiting asset/liability maturity mismatches and less-secure forms of funding.

The IMF has been supportive of BCBS proposals. In particular, the adoption of an enhanced market-risk framework for internal models is critical to reduce incentives for regulatory arbitrage between banking and trading books. Banks are expected to comply with the revised trading book requirements for better risk recognition and capital coverage by end-2011 (originally proposed for end-2010, but subsequently revised).

A key concern with the proposals has been whether the reforms would lower the availability, or raise the cost, of credit and, hence, harm economic growth before the recovery is well established. Work on the macroeconomic impact of the reforms, recently published by the BCBS and the FSB and conducted in collaboration with the IMF, suggests that higher bank capital and liquidity requirements would have only a modestly adverse temporary impact on aggregate output and clear net long-term economic benefits.[10] According to the study, a phasing-in period of the reforms over four years would minimize the transitory impact of the reforms on output.

The BCBS has finalized certain aspects of the new standards on which there is consensus and has allowed a more gradual phase-in of some aspects that require more calibration work. The leverage ratio will be introduced alongside current regulations on a trial basis starting 2013, with implementation by January 2018. On liquidity, the introduction of a new global liquidity standard aimed at ensuring adequately stable funding (Net Stable Funding Ratio) will be delayed until January 2018, which is important to allow for further calibration and refinement although it will extend regulatory uncertainty. This makes it all the more critical to address systemic liquidity risks—perhaps the defining characteristic of the crisis—to encompass markets, nonbanks, and cross-border issues (see Section IV.B). In this context, the merits of introducing

[10] See BCBS (2010) and FSB-BCBS (2010). The Macroeconomic Assessment Group report concludes that, if higher requirements are phased in over four years, each 1 percentage point increase in a bank's actual ratio of tangible common equity to risk-weighted assets will lead to a decline in the level of GDP relative to its baseline path by about 0.2 percent after implementation is completed. The LEI report concludes that the long-term benefits of higher capital and liquidity requirements accrue from reducing the probability of financial crisis and the output losses associated with such crises. The benefits substantially exceed the potential output costs for a range of higher capital and liquidity requirements.

some type of surcharge or insurance premiums to protect against a system-wide liquidity shortage should be further investigated.

We welcome the recent proposals of the BCBS which represent a substantial improvement in the quality and quantity of capital in comparison with the pre-crisis situation (Table 1 provides a summary of the proposals). Common equity will represent a higher proportion of capital and thus allow for greater loss absorption. In particular, the required minimum will increase to 4.5 percent from 2 percent under existing standards and will be complemented by an additional 2.5 percent capital conservation buffer (composed of fully loss absorbing capital) which would restrict distributions as banks approach the minimum. Also, the amount of intangibles and qualified assets that can be included in capital will be limited to 15 percent.[11] Phase in arrangements have been developed to allow banks to move to these higher standards mainly through retention of earnings.

Table 1. Phase-In Arrangements for Capital and Liquidity Standards

(In percent, shading indicates transition - all dates are as of January 1)

	2011	2012	2013	2014	2015	2016	2017	2018	2019
Leverage ratio	Supervisory monitoring		Parallel run 2013-17 Disclosure starts January 1, 2015					Migration to Pillar 1	
Minimum common equity capital ratio			3.5	4.0	4.5	4.5	4.5	4.5	4.5
Capital conservation buffer						0.625	1.25	1.875	2.50
Minimum common equity plus capital conservation buffer			3.5	4.0	4.5	5.125	5.75	6.375	7.0
Phase-in deductions from CETI (including amounts exceeding the limit for DTAs, MSRs, and financials)				20	40	60	80	100	100
Minimum Tier 1 capital			4.5	5.5	6.0	6.0	6.0	6.0	6.0
Minimum total capital			8.0	8.0	8.0	8.0	8.0	8.0	8.0
Minimum total capital plus conservation buffer			8.0	8.0	8.0	8.625	9.25	9.875	10.5
Capital instruments that no longer qualify as noncore Tier 1 capital or Tier 2 capital			Phased out over 10-year horizon beginning 2013						
Liquidity coverage ratio	Observation period begins				Introduce minimum standard				
NSFR		Observation period begins						Introduce minimum standard	

Source: BCBS.

[11] These include deferred tax assets, mortgage servicing rights, significant investments in common shares of financial institutions, and other intangible assets.

As the global financial system stabilizes and the world economic recovery is firmly entrenched, phasing out intangibles completely and scaling back the transition period should be considered. This will raise further banking sector resilience to absorb any future shocks that may lie ahead. In our view, it would have been desirable to provide for the eventual exclusion of all intangible assets from capital, and, under the baseline scenario of the *World Economic Outlook*, shorter phase-in periods would not have placed undue pressure on the banking system and the economy.[12] The longer financial institutions remain with lower buffers, the higher the burden will be on supervisors.

B. Strengthening Supervision

Since the outset of the crisis, the focus of near-term policy action has been on strengthening the regulatory framework. But regulations are only part of the solution, and it is through supervision that the authorities enforce compliance with the rules.

Good supervision requires the ability and the will to act—both of which had often been missing in the run-up to the crisis. In no jurisdiction will this ever be an easy task and may require forcing the board of a financial institution to direct management to cease an activity or to replace key managers. Proactive supervision is adaptive to changing conditions and can observe when activities are taking place on the fringe of the regulatory perimeter. The supervisory mandate needs to carry over to systemic concerns—supervisory bodies must be given the authority and mandate to act not just when individual institutions pose undue risks, but also when the entire system is behaving in a manner that jeopardizes systemic stability.

So far there has been little progress on this front. It is thus encouraging that the Toronto G-20 Summit declared supervision a key pillar of the financial reform agenda and gave an explicit mandate to develop it. This focus on strengthened supervision is very important, not just for banks but for the broader financial system. Indeed, evaluations of national oversight frameworks as part of the Financial Sector Assessment Program (FSAP) show that countries often do not meet good practices in supervising key risks, taking timely corrective action, or enforcing and sanctioning noncompliance (Figure 3).[13] Thus, it is critical that supervisory agencies be provided with the mandate; resources; and authority, along with accountability, to carry out their tasks. Adopting guiding principles for supervision would be helpful in this respect, and would support supervisors carrying the burden of preventing a new cycle of leverage and excessive risk taking while the new Basel rules are being phased in (Box 1).

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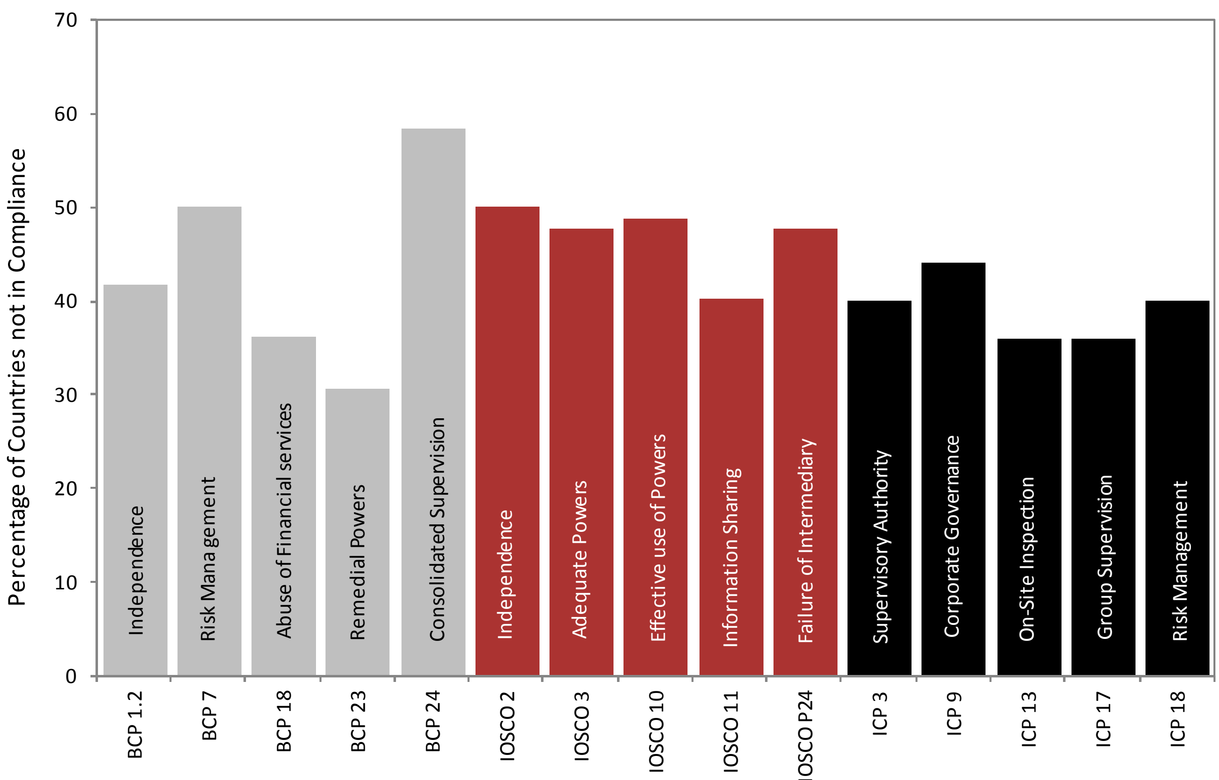
[12] "The Implications of Regulatory Reform Initiatives for Large Complex Financial Institutions," IMF, forthcoming.

[13] See Viñals and others (2010).

Figure 3. Gaps in Compliance with Select International Regulatory and Supervisory Standards



Source: IMF.

Box 1. A Framework for Enhancing Supervisory Effectiveness

The following framework should guide effective supervision of financial firms (see Viñals et al., 2010).

Mandate: Each supervisory agency must have a clear legal mandate to supervise financial institutions and markets, with priority given to maintenance of financial stability and the safety and soundness of the financial system.

- *Resources and capacity*: Each supervisory agency must have access to adequate funding arrangements that enables it to make budgetary, staffing, and operational and enforcement decisions without necessitating it to be beholden to any political or commercial interests.
- *Risk assessment*: Individually, each supervisory agency must have the capacity to assess risks in its sector and the legal ability to share this information with other domestic regulators and foreign counterparts. Collectively, there should be arrangements at the national level to monitor activities in all segments of the financial systems.
- *Accountability*: Supervisors must be required to make regular public reports of their use of resources, key decisions, and of their own evaluation of effectiveness. In addition, they should be subject to an independent evaluation of effectiveness periodically.
- *Supervisory strategy*: Supervisors must develop and implement a clear strategy for supervision and have robust internal systems in place to ensure that decision-making processes are well defined and understood; staff is empowered to make judgments and take actions, and individual supervisors are supported in the case of adverse reactions from the supervised entity.

C. Resolution

The failure of Lehman Brothers and the near-failure of other large, cross-border firms demonstrate the need for effective policies and procedures for resolving financial institutions. Well-designed resolution frameworks that allow authorities to address the insolvency of financial institutions—not just banks and not just within the national borders—are thus necessary ingredients of a strategy to maintain global financial stability. For market discipline to work, orderly resolution must be a credible option.

G-20 leaders agreed that public funds should not be used to cover the costs of resolving failing institutions and that the costs of resolution should be borne first by the owners and creditors of the failed institutions, with any shortfalls covered by the industry itself. In response to the request of the G-20 leaders, the IMF has proposed a "f*inancial stability contribution"* linked to a credible and effective resolution mechanism to pay for the fiscal cost of any future government support to the sector. [14] This could either accumulate in a fund to facilitate the resolution of weak institutions or be paid into general revenue.

Proposals discussed in international forums—BCBS, FSB, and IMF—have focused on improving the capacity to resolve large, cross-border financial firms, including:

- Recovery and resolution plans—also called "living wills"—as a tool to identify steps the firm and authorities should take to address contingencies and to improve resolvability in the event of failure;
- Effective resolution regimes to resolve systemically important financial institutions (SIFIs) in a way that minimizes risks to financial stability and the public sector. This may include statutory powers or contractual arrangements to convert debt into equity or impose haircuts on creditors as an institution approaches insolvency, so that losses are absorbed by the private sector;
- Cross-border resolution frameworks and burden-sharing arrangements; and
- Absent an effective cross-border resolution process, the ability of host governments to require foreign banks to operate as "stand-alone" subsidiaries in their jurisdiction.

Recovery and resolution plans are an important step forward and should allow, if properly executed, for better preparedness by individual firms for contingencies and effective resolution by authorities, including by helping identify weaknesses in authorities' resolution powers. Resolution plans should also be used to inform action by authorities to deal with institutions that are found to be "too complex to resolve." However, the benefits of forcing banks to simplify their structures—through stand-alone subsidiaries; removing operational interdependencies; and

[14] IMF (2010c).

linking business products to legal entities—as a means of enhancing resolvability, need to be carefully weighed against potential inefficiencies and costs.

Discussion is ongoing to develop "bail-in" procedures that would seek to maintain an institution as a going concern through a reliance on debt-for- equity conversions, achieved either through contract or forcibly through regulatory intervention. While this approach deserves further consideration, it needs to be recognized that it raises a number of complex issues that need to be resolved (e.g., how to avoid the triggering of early termination and acceleration clauses). Further analysis of this and of new capital instruments to encourage private sector involvement (such as convertible capital at the point of non-viability)[15] will be necessary before these can become part of the toolkit for resolution. In any event, these mechanisms should be seen as a complement and not a substitute for the establishment of an effective resolution framework.

Reform work on resolution frameworks, particularly cross-border resolution, has yet to gain critical momentum among key global countries. In this context, the IMF has recently proposed a "pragmatic approach" to cross-border resolution—including for nonbanks—focused on establishing an enhanced coordination framework, which would be put in place through nonbinding multilateral understandings reached among those countries that are in a position to adhere to the following four elements:[16]

- Adoption of legislation to permit local authorities to cooperate in an international resolution whenever such cooperation is viewed to be in the interest of creditors and financial stability.

- Adherence to "core coordination standards" to ensure that national supervisory and insolvency frameworks are sufficiently robust and harmonized in key areas, and that the treatment of domestic and foreign creditors under national bank insolvency regimes is nondiscriminatory.

- Agreement on the criteria and parameters that would guide the burden-sharing process among members of the coordination framework. These principles could reflect features, such as the relative systemic importance of the group across jurisdictions; the relative contribution from deposit guarantee schemes or resolution funds; and the relative distribution of losses across jurisdictions.

- Agreement on procedures for coordinating resolution measures across borders that would enable the resolution process to take place in a rapid and predictable manner.

[15] See BCBS (2010b). This proposal converts Tier 2 into Tier 1 capital instrument to enhance the quality of capital.

[16] IMF (2010d).

Our proposed enhanced coordination framework is intended to address a number of fundamental problems. First, many national regimes effectively preclude the authorities from cooperating in an international resolution exercise by requiring that local assets of a foreign bank branch or subsidiary be ring-fenced for the benefit of local creditors. Second, authorities in many countries lack the tools to deal effectively in the early stages with a failing financial institution. Finally, with the recent exception of the Nordic countries, there is no international agreement on principles that would be applied on an institution-by-institution basis to guide burden sharing.

Work should now focus on making this approach operational among the seven or eight countries that are home to the majority of cross-border banks, which are also highly interconnected. These countries should follow through on putting in place the above elements with solid determination and by an agreed date (say, by end 2012). This is critical to achieve a more effective and value-preserving international resolution framework.

IV. Making the Financial System More Resilient

The crisis has shown that focusing on the safety and soundness of individual institutions is not enough. Policies must be within a framework that can deal with the system-wide interactions of institutions and markets and their roles vis-à-vis the macroeconomy. As the system is not just the sum of its parts, a *macroprudential* overlay must accompany the traditional microprudential policy. While this dimension of reform has been acknowledged by the various policymaking bodies, the formulation of reforms has focused mainly on institutions. It is crucial, therefore, that the reform agenda be realigned with a holistic view of the financial system. Since the policy proposals on which to take a firm view are more limited in this area, we outline below the direction needed for this next push to the reform effort.

Work on addressing stability of the financial system as a whole tries to address two features of financial systems: (i) the *systemic risk* arising from financial institutions and their interactions, bilaterally and through markets; and (ii) the tendency for regulations and market practices (and macro policies, to some extent) to behave in a *procyclical* manner, with system-wide vulnerabilities building up in good times that translate into widespread financial sector losses and real economy stress in bad times.

A. Regulations for Systemically Important Financial Institutions

Regulatory initiatives to date have sought to improve the existing sets of bank regulations with a view to building up larger individual buffers to withstand shocks. This is important but is not sufficient to address a key lesson from the crisis—that the crisis was a global systemic event where some institutions were not only interconnected through bilateral relationships, but also through the markets in which they operate and the instruments they trade.

Addressing systemic risks and drawing the right perimeter of regulation requires, as a first task, determining which institutions and markets are systemically important. The IMF has contributed to this work, in partnership with the Bank for International Settlements (BIS) and the FSB, by developing a framework for the assessment of systemic importance.[17] The framework defines systemic risk as a risk of disruption to financial services that (i) is caused by an impairment of all or parts of the financial system; and (ii) has the potential to have serious negative consequences for the real economy. It then identifies three key criteria behind systemic importance: *size* (the volume of financial services provided by the individual component of the financial system); *substitutability* (the extent to which other components of the system can provide the same services in the event of a failure); and *interconnectedness* (linkages with other components of the system). This work has served as a basis for identifying information gaps (see Section B below), as much of the information needed remains unavailable to those overseeing financial stability.

Assessments of systemic importance are also instrumental in determining the appropriate boundaries of regulation.[18] Enlarging the regulatory perimeter will help avoid a repeat of build-up of systemic risk outside the boundaries of official oversight. Consistency in the application of regulation across financial sub-sectors producing similar products is equally critical. For instance, money market mutual funds proved to be of systemic importance during the crisis and, to the extent they provide bank-like services and perform maturity transformation like banks, they should be overseen in a manner that is consistent with that of banks.

Specific proposals aimed at lowering systemic risk have focused, to date, on SIFIs. A number of measures are under consideration by the FSB and BCBS, which are expected to be finalized in late 2010; a few of them have yet the details needed for full implementation.[19]

- ***Prudential requirements***. These cover prudential rules that are assessed on an individual institution but reflect the greater risks these institutions pose to the financial system. Within this group are systemic risk-based (solvency) capital surcharges and use of contingent capital instruments.[20] The former uses a measure of an institution's contribution to the risk of the system as a whole to compute additional capital charges. The latter provides an institution with additional loss-bearing capacity and enhances market discipline by automatically converting debt into equity to provide more capital, when needed during periods of stress. Although a critically important issue, there has been much less discussion of the construction or potential effectiveness of surcharges to

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[17] See IMF-FSB-BIS (2009).

[18] See Carvajal and others (2009).

[19] Proposals with respect to the resolution of SIFIs are described in Section II.2 above.

[20] A specific methodology to compute such a risk-based capital surcharge is proposed in the April 2010 GFSR, based on a network model of interconnectedness of institutions to assess their contribution to systemic risks. A discussion of contingent capital is also included.

minimize institutions' contribution to "systemic liquidity risk" (via a surcharge or insurance premia based on, perhaps, wholesale funding risks).[21]

- ***Systemic levies***. Another approach is to link a financial institution's systemic importance to a levy whose receipts could either accumulate in a resolution fund or be paid into general revenue. Such a levy (a "financial stability contribution" as described in the previous section) can be imposed on all financial institutions, with the rate initially flat but refined over time to reflect institutions' riskiness and contributions to systemic risk—such as those related to size, inter-connectedness, and substitutability—and variations in overall risk over time.[22]

Systemic capital surcharges and levies can be structured to induce changes in behavior by discouraging activities that contribute to the build-up of systemic risk.[23] Both a capital charge and a risk-based tax have unique but complementary merits. A key differentiating factor is that capital surcharges remain on institutions' balance sheets, thereby strengthening the resilience of the banking sector. By contrast, funds collected under a systemic levy, which could be used to finance a resolution fund, make it more likely that, in the future, the financial system rather than the taxpayer will bear most of the costs of crises. Setting funds aside in advance of a crisis will also allow for risk sharing across time and across all financial institutions. To ensure that funds are not used to bail out institutions, such a contribution should be linked to the development of a credible and effective resolution mechanism.

Regarding the use of *contingent capital*, the jury is still out on whether the overall benefits of this tool outweigh the costs, since the trigger for converting debt to equity prior to the point of non-viability may cause adverse market dynamics. One option is to base the conversion trigger on a combination of market conditions and supervisory stress tests. The rating and pricing of contingent capital instruments, however, will likely be highly complex because of the difficulty of predicting when a trigger event will occur. It is thus necessary to conduct further analytical work in this area as well as on operational aspects, including the implications for the investor base and market dynamics. It is also important to view contingent capital as a complement, not a substitute, for an effective resolution regime. Contingent capital will be most effective in an environment in which the threat of resolution is credible.

- ***Structural constraints***. These proposals put constraints on size, legal structure, or activities of financial firms to limit the degree of complexity and risk taking, with a view to reducing the probability and impact of an institution's failure. One of the most

[21] See Chapter 2 of the October 2010 GFSR ("Systemic Liquidity Risk: The Resilience of Institutions and Markets"). http://www.imf.org/external/pubs/ft/gfsr/2010/02/pdf/chap2.pdf

[22] IMF (2010c).

[23] As mandated by the G-20, the BCBS, FSB, and IMF have developed a framework to compare proposed regulatory and tax instruments to reduce systemic risk.

prominent is the so-called "Volcker rule," which bans proprietary trading, private equity, and hedge funds housed inside a bank.

In general, "price-based" (capital and levy or tax) instruments may be more effective than "quantity-based" (structural constraints) instruments. Quantity constraints, regardless of the specific circumstances, may generate economic efficiency losses that are greater than those for price-based methods. Furthermore, quantity constraints may be more subject to gaming (i.e., be subject to regulatory arbitrage). Hence, the imposition of blanket structural constraints may be a second-best solution in many situations.

B. Improving the Resilience of Markets

One of the key lessons from the crisis is how much damage can be inflicted on the system when the market infrastructure either breaks down or is insufficient, and information on which to base financial decisions is absent. The market disruptions—in the unsecured interbank market, the repurchase market, and the over-the-counter (OTC) derivatives markets, for instance—caused by the failure of Lehman Brothers show the importance of resilient markets. The transactions associated with Lehman that were unwound easily were those that had been placed in formal clearing facilities, whereas bilateral contracts took months, in some cases, to sort out. The inability of market participants to see the build-up of risks in the estimated $600 trillion OTC derivatives market, most specifically in the smaller credit default swaps market, was in part due to the bilateral nature of the trading and the absence of transparency, even to those in the official sector.

Hence it is equally important for regulatory reforms to tackle system-wide problems that emerge in markets. This requires a close look at the functioning of afflicted markets—what information is provided to participants, and when and how trading, clearing, and settlement are conducted. Again, there has been some movement forward in this area of the reform agenda, but it remains centered on fixing identifiable problems in each market, without a holistic approach.

Repo markets. In the run-up to the crisis when measured risk and asset price volatility was low, margin requirements associated with repo activities were too low and collateral valuations too high—providing overly ample funding opportunities to banks and nonbanks. When risks suddenly increased, margins rose and collateral valuations fell, leading to many "fails" in bilateral transactions. This underscores the need to improve the resilience of the secured (repo) money markets through better margining practices and collateral valuation. Two main proposals have been made in this area and implementation is in train.[24]

[24] U.S. Triparty Repo Infrastructure Reform Task Force and CGFS (2010a).

OTC derivatives markets. Another contributing factor to the volatile conditions in markets, particularly in derivative markets, was concern about counterparty credit risks. The G-20 have agreed to enhance the infrastructure associated with OTC derivatives, and work is underway in the FSB, with active IMF participation, to develop proposals on: recording transactions in trade repositories; clearing them through central counterparties (CCPs); and, ultimately, to move those OTC contracts that can be standardized to exchange or electronic trading environments. This work recognizes that not all OTC derivatives need to be centrally cleared and not all cleared transactions need to be exchange-traded. Some would prefer all OTC derivatives to be cleared and exchange traded. However, this transition can only occur once sufficient liquidity in specific contracts has been attained and should not be mandated. In addition, the existing standards for CCPs are being revised to take into account OTC derivatives, with the goal of making minimum standards more stringent. In addition, it is our view that central bank emergency liquidity facilities should be made available to those CCPs that have adequate capital and are deemed to be well managed.[25]

Credit rating agencies. In the aftermath of the crisis, there has been much discussion about the behavior of credit rating agencies (CRAs) and the implications of relying on ratings. A number of steps have been taken to address conflict of interests and improve transparency in CRAs through enhanced regulatory oversight. In addition, it is now recognized that to encourage better due diligence by investors and less mechanistic use of ratings, mandatory use of credit ratings in laws and regulations should be reduced wherever possible. A key concern relating to financial stability in this area is that when downgrades occur or negative "watches" or "outlooks" are issued, those securities that fall below a given threshold force investors to sell, sometimes simultaneously, causing "cliff effects," especially if the threshold is between investment and noninvestment grade.[26] The recent FSB initiative to develop principles to reduce reliance on CRA ratings in the regulatory and supervisory frameworks, and in other official contexts, is therefore very relevant and welcome. The IMF has also argued that CRAs should be subject to heightened oversight when their ratings are used for regulatory purposes. This is of particular importance, given the current very small number of CRAs with a global reach—a result of the informational needs of running a business where attaining a critical size and reputation is difficult.

Securitization. The private label securitization market was at the center of the crisis. Structured credit products were poorly understood and complex, and risks came to the fore when real estate prices began to fall. In general, however, securitization allows banks to economize on capital by

[25] See April 2010 GFSR for an analysis of the usefulness of centralized counterparties as well as the costs associated with moving OTC transactions to CCPs. The report also stresses that the fewer central counterparties the better, so as to maximize their ability to mitigate systemic counterparty risks through multilateral netting of exposures.

[26] See Chapter 3 of the October 2010 GFSR ("Uses and Abuses of Sovereign Credit Ratings"). http://www.imf.org/external/pubs/ft/gfsr/2010/02/pdf/chap3.pdf

removing some loans from their balance sheets, packaging them into securities, and selling them to investors, thereby allowing more credit to be originated. A number of reforms have been put into place to curtail the flaws in the "originate-to-distribute" model of securitization, including: more information about the underlying pools of loans and the techniques used by credit ratings agencies to rate securitized products; retention of a proportion of loans by originators; and accounting rules that consolidate the risks of off-balance sheet entities where securitized risks were housed. There remain hurdles to restoring the market, including poor credit demand and high credit standards that have limited the take up of mortgages. The efforts to date suggest that when securitization does return it will be on a safer basis than prior to the crisis, but accelerating the restart of securitization may require further action, including a re-examination of the totality of the reform efforts as the potential cumulative effect of these initiatives may discourage the resumption of the market.

Transparency and disclosures. Finally, a key feature of a healthy and dynamic financial system is accurate and timely reporting and public disclosure. Opaque and nontransparent financial systems are inconsistent with a market-based financial system that relies on accurate pricing of risk. Lack of transparency makes market discipline difficult to attain and places a significant burden on the public sector to monitor and address excesses in the financial sector. In addition, much of the information needed to identify the build-up of systemic risks remains unavailable to those overseeing financial stability. In the latter area, the BIS, FSB and IMF are working closely to identify and fill information gaps—the black holes in the financial system. Progress with actual information gathering under this initiative (and deciding what to gather and to whom to disclose) remains slow due, in part, to confidentiality concerns. Such concerns, however, should not limit the ability of the official sector to gather information if it is deemed critical to identify and address systemic risks.

C. Addressing Procyclicality

The likelihood that vulnerabilities in institutions or markets reach a level where a systemic event can occur is heightened by the amplification of cycles—credit cycles, and more broadly, business cycles. This is another critical element that must be considered in reform efforts, particularly because some of the procyclicality arises from financial regulation, accounting standards, and business practices.[27] Work is underway to design and calibrate specific macroprudential tools that will address procyclicality, but more analysis is needed.[28] The BCBS has requested comment on the basis for computing countercyclical risk weights and more generally, how to construct countercyclical capital charges. As well, further work is needed to calibrate microprudential measures such as loan-to-value ratios so that they can effectively counter real estate booms and busts. Accounting standards also need to be reexamined (and

[27] See in particular FSB (2009) and Andritzky and others (2009).

[28] See for instance CGFS (2010b).

converged internationally) to reduce the procyclicality of loan-loss provisioning and fair value accounting for financial instruments. The FSB has introduced principles and standards to address the procyclicality of compensation, but more efforts are needed by institutions and national authorities to effectively align pay with long-term, risk-adjusted returns.

More generally, there is also a need to develop guidance on the governance and institutional arrangements that will be needed to effectively integrate monetary and macroprudential policies into coherent frameworks. How to organize institutions will have a bearing on whether central banks should use interest rate policy or other monetary measures to contain the build-up of financial imbalances, especially those related to excessive credit growth or asset-price bubbles.[29] A number of principles can help guide and frame the debate:[30] (i) the financial stability objective is not always aligned with the price stability objective and thus requires a separate set of macroprudential policies and instruments; (ii) the central bank will need to play a key role in the development and use of macroprudential policies, whether or not it is the main financial regulator;[31] (iii) financial stability considerations need to be better incorporated into the monetary policy decision-making process; and (iv) official interest rates can lean in a non mechanistic manner against financial imbalances when pursuing price stability so as to render policy more symmetric during the business cycle and thus reduce the likelihood of boom-bust cycles.

Using interest rates to counter financial imbalances may risk increasing macroeconomic volatility and thus impose collateral damage to the real economy and, in some cases it may even lead to an increase in capital inflows. Still, the high cost of systemic financial instability shown by the crisis strengthens the case for "leaning against the wind" as a supplement to macroprudential policies oriented towards preserving financial stability. The lack of understanding of transmission suggests that, for now, central banks should best utilize judgment. The combination of rising asset prices and rapid credit growth may warrant a higher policy rate than otherwise.

V. Conclusions

Today's regulatory choices will have a material impact on whether the financial system and its oversight framework end up fostering stable and sustainable growth, or be rendered ineffective by compromises and omission. This paper lays out a vision for a better future global financial

[29] See Blanchard and others (2010).

[30] See IMF (2010b).

[31] See Chapter 2 of the April 2010 GFSR for a discussion of the placement of a systemic risk regulator within the regulatory and monetary policy architecture.

system and, on that basis, takes stock of progress in the regulatory reform agenda, including areas where more forceful action or more emphasis is needed.

We have argued that the regulatory reform agenda agreed by the G-20 has provided impetus for an important set of countries to move in the right direction. Considerable progress has been made in correcting the weaknesses that led us into the crisis, notably in the area of banking regulation. The reform agenda now stands at a critical juncture where difficult policy choices have to be made—both to conclude international agreement on the new microprudential standards and to advance national implementation.

There are also areas of reform that merit more attention, especially macroprudential policies and the perimeter of regulation, the treatment of nonbanks, and the development of strong supervisory and resolution frameworks both across and within countries.

Clearly, financial reforms will affect the macroeconomy in various ways, and work is needed to examine the macroeconomic impact of the cumulative effect of reforms, including at the global level. So far, studies have attempted to estimate the growth effect of the recent Basel proposals on liquidity and capital, but there are a host of reforms (both to institutions and markets) that will affect the functioning of the economy. The interaction of regulatory reforms with monetary policy and its effectiveness is particularly important given the changes to market infrastructures and practices. As well, the planned structural reforms (in labor markets, product markets, and so on) to enhance the growth potential of economies will affect the functioning of financial markets. Indeed, the positive impact of structural reforms may allow more rapid implementation of some financial sector reforms. A comprehensive view about such interactions between the financial sector and the economy will be an important component to better balanced policies and more stable economic growth.

The combined effect of the various reform measures, when they are phased in, will depend on how financial institutions react to the additional costs imposed on them. A cumulative impact assessment should be conducted to assure that the burden on the financial sector will not unduly depress credit and real activity. It is also important to ensure global consistency of these regulatory measures, since, if they are allowed to develop piecemeal, a de facto fragmentation of global financial markets could lead to regulatory arbitrage and a build-up of systemic risks in countries or regions where such measures are absent or oversight is lax.

While this paper has focused on the response of the official sector, it is ultimately the industry that will translate rules into actual changes in industry practice. For reform initiatives to be successful, regulatory efforts should continue to be directed toward improving the internal operations of financial firms, including their risk management and governance. They should seek to restore the credibility of market discipline in the face of past failures. Current proposals aim to do so both directly (for example, through improved oversight of credit rating agencies, better and more harmonized accounting standards, and enhanced disclosures) as well as indirectly (for example, by addressing the moral hazard posed by institutions that are too important to fail).

In the years ahead, key challenges in moving the reform agenda forward will be (i) filling the gaps in international policy development, and ensuring that the international community remains alert and responds promptly to emerging risks to global financial stability; and (ii) achieving national implementation that is consistent with a level playing field across countries and takes due account of the global implications of large cross-border financial institutions. These are areas where the IMF will continue to play a key role:

- Promoting a global approach to regulatory reform that is both nationally relevant and internationally consistent through the IMF multilateral and bilateral surveillance, its recently enhanced Financial Sector Assessment Program (FSAP), its financial support for members' programs of economic reform, and its technical assistance activities.

- Helping spot trends in financial systems with important implications for regulatory policy (including through the IMF-FSB Early Warning Exercise), as well as gaps in international policy initiatives through bilateral and multilateral surveillance.

- Providing the analytical foundations of regulatory developments and the implications of alternative (micro) regulatory approaches on the financial system and, more broadly, the macroeconomy.

- Helping design a framework for macroprudential regulation that takes into account macro-financial linkages and examines the interaction with macroeconomic policies.

Global regulatory reform should remain a top priority. Governments should put in place supervisory and regulatory frameworks that deliver a safer and efficient global financial system. Acting promptly is essential to reduce the likelihood of another crisis, alleviate regulatory uncertainty, and promote strong and sustainable growth.

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Appendix 1. Financial Sector Reform Agenda: IMF Contributions

A. Making Banks More Resilient	**B. Making the Financial System More Resilient**	**C. Promoting International Consistency**
1. Microprudential rules: Bank capital and liquidity	**1. Identifying and measuring SIFIs and Systemic Risk**	**1. Strengthening Financial Sector Surveillance**
Estimates of capital needs in the financial sector (GFSR)	Measuring "systemic risk" (GFSR)	Modernizing the FSAP by introduction of Stability Modules and Risk-based Assessments (with WB)
Macroeconomic impact of reform proposal (BIS-IMF)	Identifying SIFIs (IMF-FSB-BIS report to G20)	Monitoring policy consistency through G-20 MAP
	Early Warning Exercise (IMF-FSB)	Revising assessment methodology for IOSCO Objectives and Principles (with IOSCO)
2. Strengthening supervision	**2. Macroprudential regulations**	Developing assessment methodology for Deposit Insurance Core Principles (with IADI and BCBS)
Proposals to Enhance Supervision (SPN)	Proposal for a financial sector levy (G-20 report)	Multilateral surveillance and analyses of macro-financial developments (GFSR and WEO)
	Systemic capital surcharge (GFSR)	Mandatory FSAPs for countries with systemically important financial sectors
	Systemic surcharges vs. levies (BCBS-FSB-IMF report to G20)	
	Structural measures to limit activities (GFSR)	
	3. Dealing with procyclicality	
	Addressing Procyclicality (SPN)	
	Systemic Risk Regulator (GFSR)	
	Macroprudential Dimension of Monetary Policy (SPN)	
	Rethinking Macroeconomic Policy (SPN)	
	Monetary Policy and Risk Taking (SPN)	
	Capital Inflows: The Role of Controls (SPN)	
	4. Improving the resiliency of markets	
	Analyzing systemic liquidity (GFSR)	
	Making OTC Derivatives Safer: Role of CCPs (GFSR)	
	Restarting Securitization (GFSR)	
	5. Resolution and safety nets	
	Development of a pragmatic approach to cross-border resolution (Board Paper)	