Draft

Containing a Systemic Crisis: Is There a Playbook?

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Abstract: With a few notable exceptions, the private sector (rating agencies, analysts), central bank regulators, policy makers, and academic economists failed to anticipate the current global financial crisis. The collective failure to anticipate and prevent this crisis warrants reexamining the current approach to preventing and resolving crises.

The paper argues that financial crises are not "unknown unknowns." They build up over time due to policy mistakes and eventually erupt in "slow motion," as the crisis in Argentina. While we cannot predict the timing of crises, we can avert them by realizing that the unsustainable eventually runs its course. By identifying and dealing with sources of instability before a crisis, we can prevent crises from occurring. The paper explores such a strategy and the institutional setting required to implement it at the country and regional level.

The paper provides evidence that all crises share the following: serious policy mistakes were made that led to significant structural vulnerabilities. It argues that crises could be "spotted" early and managed better. Crisis prevention requires effective macro surveillance consisting of top-down, complemented by bottom-up supervision. A comprehensive approach to crisis resolution is needed. The paper reviews the recent regulatory domestic and international reforms that have been undertaken to address systemic risks and deems them inadequate to combat future crisis.

The paper is optimistic that domestic measures can improve stability, but less optimistic regarding the prospects for a global strategy to address stability. The Westphalian principles governing international financial oversight are not suited to the realities of the global financial system. The paper concludes with recommendations for future action, such as establishment of domestic and regional stability regulators and the development of a cross-border insolvency regime.

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Section 1. Introduction

With a few notable exceptions (Nouriel Roubini, Bob Shiller, Bill White at the Bank for International Settlements), the private sector (rating agencies, analysts), central bankers, and academic economists failed to predict the current global financial crisis and underestimated its severity. Such a dramatic failure of the entire financial community requires soul searching. Is there really no playbook to contain a systemic crisis? In this paper we argue that such a playbook does indeed exist and that financial crises can be averted by identifying and dealing with sources of instability. The resolution process can be improved as well. We also discuss the prevention and management of systemic crises.

Section 2 provides an historical review of select crises and provides evidence that all crises have two elements in common. Virtually all of the crisis countries made serious policy mistakes that led to structural vulnerabilities. It argues that these crises could have been "spotted" early and managed better. Section 3 discusses the present crisis in detail. Section 4 addresses crisis prevention, arguing that effective macro surveillance—top-down complemented by bottom-up supervision—can effectively spot and prevent crises. The section examines at length the scope of macro-prudential surveillance. Section 5 discusses crisis management and resolution, arguing in favor of a adopting comprehensive approach to crisis resolution. It presents the Malaysian approach as best practice. Section 6 reviews recent regulatory domestic and international reforms undertaken to address systemic risks and recommends that countries create independent stability regulators. The recent reforms might be adequate at the domestic level but ultimately will fail at the regional and global levels. We offer a partial solution through "ring fencing." Section 6 concludes with recommendations for future action.

We offer a caveat. The paper does not discuss the causes of systemic crises, such as bubbles and imbalances. Neither does it discuss measures to address

systemic risk that have been covered elsewhere and are recognized as effective. For instance, the fact that Spain's leading banks have so far managed to navigate one of the worst economic slumps of any European country suggests that the measures adopted by the Bank of Spain are effective. Therefore, the paper takes for granted that common sense will prevail and that sensible measures to address procyclicality, such as countercyclical provisioning (Caruana 2003), will be adopted. The Financial Stability Forum (FSF) has issued recommendations and principles designed to strengthen financial systems. These include recommendations for addressing procyclicality in the financial system; principles for sound compensation practices; and principles for cross-border cooperation on crisis management. All of those recommendations, and more, make eminent sense, and this paper assumes that those measures will be adopted.

Section 2. What can we learn from East Asia, Japan, and Sweden?

Laeven and Valencia (2008) present a new database on the timing of systemic banking crises and policy responses to resolve them. All of the crises have two elements in common. Virtually all of the countries that suffered crisis made serious policy mistakes and had significant structural vulnerabilities. In virtually all instances, the crisis was slow to unfold: this was true of the savings and loan crisis in the US, which was 10 years in the making, the Russian crisis in 1998, and the Argentine crisis in 2001. In all instances, there were underlying vulnerabilities. The financial markets were very forgiving and gave policy makers the benefit of doubt. When it became obvious that policy makers, such as the currency board in Argentina, were unable or unwilling to address the underlying problems, this led to a loss of confidence in the financial markets.

2.1 East Asia. The financial crisis that swept East Asia in the middle of 1997 cannot be attributed to any single factor: several domestic and international factors triggered the crisis. Two country examples illustrate these points.

Thailand 1997. Thailand operated under the framework of a pegged exchange rate regime. A decline in trade pressures on the baht emerged by late 1996, amid an unsustainable current account deficit, significant appreciation of the real effective exchange rate, rising short-term foreign debt, and deteriorating fiscal balance. The financial sector weakened as a result of the economic downturn, large exposure to the real estate sector, exchange rate risk, and liquidity risk. Unregulated finance companies were disproportionately weak. The authorities responded to the mounting pressures on the exchange rate by enacting ineffective and costly interventions that depleted the foreign exchange reserves.

Korea 1997. The crisis in Korea followed the devaluation of the Thai baht in July 1997 and the subsequent regional contagion. However, Korea also made serious policy mistakes and had significant structural vulnerabilities. The liberalization of the short-term capital account led to a high level of external short-term debt and a low level of usable international reserves. It made the economy increasingly vulnerable to shifts in market sentiment. Equally, there were latent problems with the high leverage and poor profitability of the chaebols, and these were reflected in the financial sector.

Section 5 discuses the lessons from East Asia in corporate restructuring.

2.2 Japan. Two recent papers have addressed the Japanese crisis (Fujii and Kawai 2009; Hoshi and Kashyap 2008). What does Japan's "lost decade" teach us? The data in the paper by Fujii and Kawai (2009) are striking. First, the price of urban land dropped precipitously, from an index of 400 in the 1990s to 100 now. Similarly, bank lending was highly concentrated in real estate. Koo (2008) discusses the process of deleveraging a balance sheet financed by debt. Undertaking any form of intervention—assessment of major banks' balance sheets, removal of nonperforming loans (NPLs) from bank balance sheets, and bank recapitalization—at any point in the early 1990s was equivalent trying to "catch a falling knife." It is not clear that the intervention could have staved off the

deleveraging process. According to Koo (2008), the process of deleveraging and accruing bad debt is dynamic and creates a vicious cycle, and no amount of government intervention would have or should have tried to stop the market forces and deleveraging process. Simply put, asset prices had to undershoot by a considerable margin in order to generate the expectation of profit during the recovery.

The lesson from Japan is that policy makers should have allowed some sluggishness in the adjustment (but not as much as they did). They also should have cushioned the process by injecting new capital or adjusting interest rates to reduce the amount of deleveraging required. In deciding to cushion the adjustment, the Japanese authorities opted to recapitalize the banks. However, they did this without imposing any conditionality, such as suspension of dividends, injection of matching private sector funds, or recognition and removal of bad assets. Other well-known lessons from Japan are that, by tightening fiscal policy prematurely, the authorities stifled the nascent recovery in 1999.

2.3 Sweden. Sweden is a homogeneous society with the highest commitment to a civic compact. Sweden also has a small domestic financial system in which all business and financial leaders know each other. Therefore, the Swedish experience is unique and not applicable to other countries. [[shall we delete any mention of Sweden, since it isn't applicable?]]

Section 3. The 2007–2009 global financial crisis

3.1 What policy mistakes led to the present crisis? Many!

Global imbalances were at the core of the recent financial crisis. Federal Reserve Chairman Ben Bernanke and his predecessor, Alan Greenspan, among others, have argued that the savings glut overseas overwhelmed the efforts of central banks in the US and elsewhere to raise interest rates. Other observers, such as

Taylor (2009), say that the Fed policies brought excessive liquidity and low interest rates to the United States. Taylor's analysis led him to conclude that the Fed funds rate was kept too low for too long, fueling the housing boom and other economic imbalances. Regardless of whether the primary cause is seen as the savings glut or monetary policy, there is agreement that the Fed's tardiness in raising short-term rates fueled the bubble.

There were also glaring regulatory and supervisory problems (Pomerleano January 2009). For example, informed analysts knew that Basel I had glaring deficiencies that encouraged the creation of the off-balance-sheet instruments that contributed to the subprime crisis (Wessel 2007). The incentives were similar to the lights on a landing strip at the airport, serving to encourage banks to create special-purpose vehicles off balance sheet. The same glaring deficiencies were left in Basel II. As Tarullo (2008) points out, "There is a strong possibility that the Basel II paradigm might eventually produce the worst of both worlds—a highly complicated and impenetrable process (except perhaps for a handful of people in the banks and regulatory agencies) for calculating capital but one that nonetheless fails to achieve high levels of actual risk sensitivity." Tarullo notes as well that the Basel Committee acknowledged in the spring of 2008 that the revised framework would not have been adequate to contain the risks exposed by the subprime crisis.

In addition to problems in regulation, there were glaring deficiencies in supervision. Regulators did not detect the "shadow banking system" in New York, the US Securities and Exchange Commission lifted the net capital rule for investment banks, doubling or even tripling the leverage of investment banks, credit rating agencies employed practices that were fraught with conflicts of interest, and Fannie Mae and Freddie Mac employed lax lending practices. Other factors too numerous to list have been amply documented elsewhere.

Thus crisis inevitably follows a convergence of poor policies and inherent vulnerabilities. A failure of policies leads inevitably to a crisis.

The current financial crisis illustrates the propensity of supervisors to focus on individual institutions. Recently, several excellent reviews have examined what went wrong in financial regulation. For example, the latest International Monetary Fund (IMF) analysis in the April *Global Financial Stability Report* points to "macroeconomic policies, which did not take into account building systemic risks."[1] Specifically, the IMF points out, "A key failure during the boom was the inability to spot the big picture threat of a growing asset price bubble. Policy makers only focused on their own piece of the puzzle, overlooking the larger problem." Hyun Song Shin (2009) points out a fallacy of aggregation: "mis-educated" supervisors and examiners were focused on individual institutions, without regard to the impact on the system. There is growing realization that a macro-prudential approach to supervision and a systemic stability regulator are needed to complement micro-prudential measures.

Several excellent reports have addressed the need to improve financial regulation. These include the Volker recommendations in the Group of Thirty Report (2009), the Geneva report on the world economy (Brunnermeier et al. 2009), and the recent de Larosière report (2009) on financial supervision. All these reports agree on the following: the financial regulatory frameworks around the world pay too little attention to "systemic risk"; current financial regulations tend to encourage pro-cyclical risk taking, which increases the likelihood of financial crises and their severity when they occur; and current regulations do not deal adequately with "large complex financial institutions" (LCFIs). LCFIs are financial intermediaries engaged in some combination of commercial banking, investment banking, asset management, and insurance, whose failure poses a systemic risk or "externality" to the financial system as a whole. These reports

[1] IMF, "Responding to the Financial Crisis and Measuring Systemic Risks," *Global Financial Stability Report*, April 2009.

also point to the danger induced by implicit too-big-to-fail guarantees, struggle with a paradox of financial regulation, and believe that capital held to meet minimum requirements cannot be used as a buffer against unexpected losses. As such, fixed capital requirements can only ensure that losses do not immediately make banks insolvent. They might give regulators enough time to intervene, but they are ineffective against systemic risk. The real buffer can only come from equity in excess of the requirements.

This year's *Geneva Report on the World Economy* argues for a fundamental reappraisal of the basis for financial regulation and sets out a proposal on how the existing Basel II regulations should be modified to incorporate macro-prudential goals. In particular, it proposes modifying the existing Basel II capital requirements by using a systemic impact coefficient that depends on indicators of potential spillovers. The recent de Larosière report on financial supervision and stability in the European Union offers a rigorous assessment of the shortcomings of the nation-based regulatory system. It points out that a fragmented national system does not meet the realities of a banking system spanning the entire European Union. It also offers recommendations to resolve these shortcomings, including introducing macro-prudential supervision to detect the development of imbalances in the financial system, such as excessive capital growth, and to counter the pro-cyclical nature of capital adequacy rules. The report assigns this task to the European Central Bank. The G-30 report also proposes setting "norms for maintaining a sizeable diversified mix of long-term funding and an available cushion of highly liquid unencumbered assets." The G-30 report argues that "legislation should establish a process for managing the resolution of failed non-depository financial institutions comparable to the process for depository institutions."

Other important efforts to reform financial regulation, supervision, and oversight are papers by a group from New York University's Stern School and Goldstein (2009). The capital insurance proposals offered by Kashyap, Rajan, and Stein

(2008), Rajan (2009), and Zingales (2008, 2009) are equally relevant. For instance, Rajan's proposal in "Cycle-Proof Regulation" is a splendid demonstration of using economic incentives in policy formulation.

3.2 **Were early warning indicators ignored before the crisis?**

The excesses in the current crisis did not build overnight. There was considerable discussion of “global imbalances” or “excessive credit growth” in the World Bank Global Development Finance and the IMF Global Financial Stability Report in 2005. The ratio of US public and private debt to gross domestic product (GDP) reached 358 per cent by the third quarter of 2008. This was by far the highest in US history (Financial Times 2009). Nearly all of this debt was private, reaching an all-time high of 294 per cent of GDP in 2007, a rise of 105 percentage points over the previous decade. The same thing happened in the UK on a far larger scale. Tobias and Shin (2008) estimate that the "shadow banking" system was as large as US$10.5 trillion, comprising US$4 trillion assets of the large investment banks, US$2.5 trillion in overnight repos, US$2.2 trillion in structured investment vehicles, and another US$1.8 trillion in hedge fund assets. This should be compared with US$10 trillion in assets held in the conventional US banking system, which meant that system leverage was at least double what was reported. However, policy makers failed to recognize the risks that were building in the financial system or to do anything forcibly about them.

3.3 What are the consequences of the crisis?

Crises are costly and have deleterious long-term impacts. First, what are the costs of present crisis? We do not know the final costs of the present crisis, but we know that they will be high. Government support to the financial sector has taken various forms, with significant implications for debt and fiscal balances. Almost all advanced economies have provided capital injections and guarantees

for financial sector liabilities. Altogether, such government support has reached 6.3 per cent of 2008 GDP on average, ranging widely from 1.1 per cent of GDP in Switzerland to 20.2 per cent of GDP in the United Kingdom (IMF 2009). The 1997 crisis in East Asia was very costly as well. For example, in Thailand nonperforming loans peaked at 33 per cent of total loans (falling to 10.3 per cent of total loans in February 2002), the gross fiscal cost was 43.8 per cent of GDP, the output loss was 97.7 per cent of GDP, and the minimum real GDP growth rate was −10.5 percent.

Second, what are the consequences of adverse macro-financial conditions? The macroeconomic impact of financial sector weaknesses, and most certainly crises, include depressed growth as a result of misallocated credit and capital; more pronounced business cycles, such as disorderly deleveraging in downturns (i.e., credit crunch and contagion to other financial institutions); reluctance to lend; and cross-border contagion. Crises make it more difficult to implement monetary policy: with high nonperforming loans, banks' responses to changes in interest rate policy are sticky and less predictable; concerns over the health of banks limit the scope for policy action, such as raising interest rates. There are negative fiscal consequences as well: the potentially large build-up of debt to support, recapitalize, and resolve banks and to recapitalize the central bank and a build-up of contingent liabilities in the form of blanket guarantees of deposits and credits.

3.4 **Was the current crisis managed effectively?**

Wessel (2009) provides a well-documented and insightful account of the thinking of US policy makers during the crisis. The inescapable conclusion is that for a long time after the crisis started, central bankers—Bernanke, King, Trichet, and their colleagues—did not see the crisis coming and for too long ignored the advice of those who did.

A brief chronology follows. The second anniversary of the crisis was in mid-August 2009. The credit crunch started in August 2007, when French bank BNP Paribas suspended three funds facing losses on US subprime mortgage lending. Even the funding crisis at Northern Rock, which resulted in a run on its funds in the summer of 2007, did not lead the Bank of England and other central banks to recognize the looming crisis. It took more than a year after the start of the crisis for the UK to intervene in HBOS and Bradford & Bingley`s. In the US, Lehman Brothers collapsed in mid-September 2009, and the US government took control of Fannie Mae and Freddie Mac in the fall of 2008. Inept policies allowed Lehman to fail without adequate safeguards. The main catalyst for change came when Gordon Brown recapitalized the UK banking system in late 2008. Finally, the US Fed took control of insurance group AIG and launched a US$700 billion bailout of banks and investment banks.

When the policy initiatives finally came, the responses were mostly reactive. The rapid recapitalizations were not associated with any conditionality, such as matching private capital or removal of troubled assets. Government blanket guarantees are blunt instruments. Throughout the world—US, Europe, and Asia—governments made widespread use of guarantees, which suggests that policy makers were not prepared for genuine restructuring or felt that guarantees would permit them to bypass budgetary scrutiny. Examples of the widespread use of guarantees abound. Numerous countries have established guarantee schemes recently: Germany (NORD/LB), the Republic of Korea, the UK, France (Dexia), Canada, Spain, Australia, Austria, Denmark, Finland, Greece, Ireland, Italy, the Netherlands, New Zealand, Portugal, and Sweden. While the guarantees brought stability, they limited the subsequent options for dealing with financial distress in the banking system. The guarantees created complacency without addressing the underlying problem.

The lessons from the Asian crisis suggest that blanket guarantees are hard to exit, can have adverse consequences for financial system stability, delay

economic recovery, and increase the fiscal costs of crises. Are we are about to repeat these mistakes? The answer is yes. Ironically, the guarantees have been used excessively in the US and other countries as a substitute for on-balance-sheet government funding. US policy makers have created a “shadow budget system,” with guarantees that Congress does not scrutinize. The costs of the extensive use of guarantees are only now coming to light, as the costs of bailing out AIG are mounting without leading to a viable insurance company.

What are the findings in the academic literature? The theoretical literature is unequivocal on the moral hazard associated with blanket guarantees. It points out that governments limit their policy options by implementing blanket guarantees that extend forbearance. Moreover, the fiscal costs of a crisis are not predetermined. If the underlying problems are swept under the rug, the costs escalate. What are the risks? In a recent article Kane (2009) points out that guarantees encourage “zombie” institutions [[explain zombie institutions or obvious ?]] to hang onto worthless toxic assets on the remote chance that the market for toxic assets will recover. In the absence of a resolution, the costs rise, and the recovery is delayed. Empirical research on the topic also finds that blanket guarantees increase fiscal costs, while lengthening the duration of the crisis and the loss of GDP. Thus the academic literature favors a stricter response to crisis resolution.

Were the guarantees priced to instill market discipline? It is highly unlikely. Assets were covered with blanket guarantees without adequate consideration for the guarantees’ ultimate costs. For example, based on November 2008 market data, the IMF (2009) estimates that the expected cost of the (explicit) guarantees provided so far is not trivial but that the margin of uncertainty is large. According to the IMF, outlays from contingent liabilities could be on the order of 1–3 per cent of GDP (cumulative) for 2009–2013 for the advanced G-20 countries, with a point estimate of 1.5 per cent of GDP. Complementary evidence is available from Thailand, where guarantees covered the liabilities of the banking system. Idanna

Kaplan-Appio (2002) estimates the value of the government guarantee, using put options, at 15 per cent of the banking system's liabilities. Governments cannot hedge to offset the risk(s) they take on via this (implicit) put, and in the absence of hedges, the costs might be even higher.

What will be the ultimate fiscal cost of this commitment? In the US, the potential costs of the guarantees could be much greater than the 1–3 per cent of GDP estimated by the IMF. While the institutional foundations of the US financial system are relatively strong, the severity of the crisis and the complexity of the instruments suggest that the estimate might be a lower bound. It is hard to tell because the expenditures were committed without any congressional budget scrutiny.

Policy mistakes continue. The Federal Reserve and the US Treasury conducted stress tests on the 20 biggest financial institutions in April 2009. The conclusion was that 18 or 19 would have enough capital even if economic and financial conditions deteriorated over the next two years. Following the stress tests, select banks—Citi, Morgan-Stanley, Goldman, Bank of America, and Wells Fargo, among others—mobilized more than US$75 billion of equity. The amount is roughly equivalent to the bonuses that financial institutions set aside in the first half of 2009. The Federal Reserve estimated in May 2009 that American banks still had about US$599 billion in assets to write down. The Public-Private Investment Program for Legacy Assets (PPIP) was designed to remove bad assets by using US$75 billion to US$100 billion in capital from the Troubled Assets Relief Program and US$500 billion in financing from private investors. However, after numerous delays, the PPIP program did not take off.

Private sector estimates of the bad assets and capital shortfall are far higher than those of the Federal Reserve. In February 2009, Pomerleano, Scheule, and Sheng (2009) estimated more than US$3 trillion in US losses. In April 2009, Pomerleano (2009) estimated a capital shortfall in the US at US$753 billion. In

May 2009, Pomerleano and Ying (2009) estimated US$2.44 trillion in Tier 1 capital and a capital shortfall of US$3.4 trillion for the largest banking systems in Europe. In East Asia, the largest banking systems have US$1.19 trillion in Tier 1 capital and a shortfall of US$758 billion. More recently, Goldman Sachs and the IMF estimated the total assets that need to be written down at about US$1 trillion. And RGE Economics, headed by Nouriel Roubini, has estimated the total at US$1.27 trillion. Needless to say three policy failures are evident: inadequate stress tests, inadequate measures to remove bad assets from banks, and inadequate measures to correct the structure of bonuses.

Even now, while the corporate and commercial real estate sectors are in the process of deleveraging, policy makers are not addressing the role that policies play in corporate restructuring. Finally, Wessel (2009) makes a persuasive case that there is a far more profound ideological problem. Our economic overseers need to denounce and renounce—clearly and openly—the lackadaisical reverence of and deference to market forces; otherwise, they risk not anticipating the next crisis or preparing to avoid it.

Section 4. Crisis prevention

4.1 What is systemic risk?

Carmichael and Pomerleano (2002) define systemic risk as systemic instability that “arises where failure of one institution to honor its promises leads to a general panic, as individuals fear that similar promises made by other institutions also may be dishonored. A crisis occurs when contagion of this type leads to the distress or failure of otherwise sound institutions.” Others define systemic risk as the potential for an event or shock to trigger a loss of economic value or confidence in a substantial portion of the financial system, with major adverse effects on the real economy. A core characteristic of systemic risk is the potential for contagion effects. Containing systemic risk involves oversight of the financial

system as a whole, not just its individual components, as this would help to improve the resilience of the overall system to potential systemic shocks. The sources of systemic shocks that require monitoring are macro-prudential—for example, excessive credit growth and the presence of systemically important institutions whose actions can have a domino effect on other institutions, such as through counterparty credit or liquidity risks.

Lo (2008) observes that systemic risk is usually taken to mean the risk of a broad-based breakdown in the financial system, often realized as a series of correlated defaults among financial institutions, typically banks, that occur over a short period of time and typically are caused by a single major event. He points out that “one cannot manage what one cannot measure”—i.e., although the term *systemic risk* is commonly used, it has not been quantified or formally defined. Therefore, the first order of business for designing new regulations is to develop a formal definition of systemic risk. Lo suggests applying the concepts of public goods, externalities, and incomplete markets to the functions of the financial system to yield a rational process for regulatory reform.

Adrian and Brunnermeier (2008) propose a measure for systemic risk and outline a method that allows a countercyclical implementation of macro-prudential regulation by predicting future systemic risk using past variables such as size, leverage, and maturity mismatch.

4.2 Nature of macro and micro surveillance

Bottom-up supervision addressing the soundness of individual institutions is founded on the assumption that making each bank safe makes the system safe. The following table offers a schematic of the present regulatory approach—objectives and measures—that relies on regulatory measures aimed at individual institutions. For a discussion of the approach, see chapter 2 in *The Principles of Regulation* of Carmichael and Pomerleano (2003). The focus on individual

institutions and the inadequate attention to the overall system evident in this approach go a long way toward explaining how global finance became so fragile without sounding regulatory alarms. Mitigating the costs of financial crises necessitates taking a macro-prudential approach to complement the existing micro-prudential rules.

Table: Traditional regulatory approach: objectives and measures

Regulatory measures	*Anticompetitive behavior*	*Market misconduct*	*Asymmetric information*	*Systemic instability*
Competition regulation				
Market structure policy	✓			
Anti collusion rules	✓			
Contestability rules	✓			
Market conduct regulation				
Disclosure standards		✓		
Conduct of business rules		✓		
Governance/fiduciary responsibilities		✓		
Prudential regulation				
Entry requirements		✓	✓	✓
Capital requirements		✓	✓	✓
Balance sheet restrictions			✓	✓
Associations among institutions			✓	✓
Liquidity requirements			✓	✓
Accountability requirements			✓	✓
Insurance/support schemes			✓	✓
Systemic stability regulation				
Lender of last resort				✓
Payments system oversight				✓

4.3 A systemic regulatory framework

To a large extent the discussion of the role of a stability regulator has lacked rigor. This section uses the methodology first presented in chapter 2 of Carmichael and Pomerleano (2003) to address the role of a stability regulator. This section

presents a regulatory framework that systematically reviews the following four components:

- Regulatory objectives—i.e., what the stability regulator expects to achieve
- Regulatory structure—i.e., the structure of the regulatory agency that is has the delegated responsibilities for regulating financial stability
- Regulatory backing—i.e., the political, legal, and financial backing to enable the financial stability regulator to carry out its duties effectively
- Regulatory implementation—i.e., the instruments, tools, and techniques that the financial stability regulatory agency uses to achieve its objectives.

Regulatory objectives. Regulatory objectives are what the stability regulator expects to achieve. Governments have been intensively involved in resolving systemic crises, driven by their huge costs. Their responsibility (explicit or implicit) for the banking system has included extensive interventions in the process of restructuring (to address widespread business failures deemed to threaten the entire financial system, such those of GM and Chrysler). However, those actions take place after the crisis. Consideration needs to be given to the role of government before a crisis, including steps to monitor, anticipate, and intervene *prior to a crisis*. Such an approach and methodology would aim to preserve systemic financial stability by identifying strengths and vulnerabilities in countries' financial systems, so that, if necessary, actions could be taken in a timely and informed manner to prevent a crisis from occurring. The role of the systemic risk authority would be to complement, not displace, the examiners and supervisors focused on individual institutions.

The organization needs to have a clear mission statement addressing expectations and responsibilities. Such a statement would pledge that the authority will take a macro-prudential approach to supervision that addresses risks to the financial system as a whole in an effort to enhance financial stability overall and attempt to prevent crises. The authority also would organize the immediate response to a crisis, the strategy for addressing corporate and

financial sector insolvency, and the creation of an appropriate regulatory framework for corporate restructuring. These are necessary tasks that make it desirable to charge a government entity with express responsibility for monitoring and addressing systemic risks in the financial system.

Regulatory structure. Regulatory structure is the structure of the agency that carries the delegated responsibilities for regulation. The focus of the stability regulator should be on the macrofinancial *surveillance* of the system (and would not rule out the contained failure of individual institutions); it is a top-down approach. Such an organization would require knowledge and experience across a wide range of financial institutions and markets to offer a comprehensive and multidisciplinary approach to systemic risk. The organization would need substantial analytical resources to identify the types of information needed, to analyze the information obtained, and to develop and implement the necessary supervisory response.

Regulatory backing. Regulatory backing consists of the political, legal, and financial backing to enable regulators to carry out their duties effectively. The stability regulator would need adequate powers to fulfill those responsibilities. The authority would need the authority to obtain information *directly* and the capacity to monitor, analyze, and, if necessary, intervene to prevent systemic risks within the financial system. The authority should be allowed to obtain information from assessments and from supervisory and regulatory programs of existing financial supervisors and regulators whenever possible. It would further need broad authority to obtain information—through data collection and reports or, when necessary, examinations—from a range of financial market participants, including banking organizations, securities firms, and key financial market intermediaries.

Regulatory implementation. Regulatory implementation consists of the instruments, tools, and techniques that the regulatory stability agency should use

to achieve its objectives. In the United States, Bernanke (Financial Reform to Address Systemic Risk, 2009) and Tarullo (2009) have outlined examples of a broad agenda to address systemic risk presented in the following box.

In our opinion, the financial stability monitoring agenda outlined by Chairman Bernanke and Governor Tarullo might be suited to the US, but it is exceedingly narrow for emerging market economies. The objectives of systemic oversight should be far broader, including the corporate and household sector, as well as macroeconomic elements, such as external debt.

Agenda to address systemic risk

- Undertaking consolidated supervision of all systemically important financial firms,
- Monitoring large or rapidly increasing exposures, such as to subprime mortgages, across firms and markets, rather than only at the level of individual firms or sectors,
- Assessing the potential systemic risks implied by evolving risk-management practices, broad-based increases in financial leverage, or changes in financial markets or products,
- Analyzing possible spillovers between financial firms or between firms and markets, such as the mutual exposures of highly interconnected firms,
- Ensuring that each systemically important firm receives oversight commensurate with the risks that its failure would pose to the financial system,
- Providing a resolution mechanism to safely wind down failing, systemically important institutions, such as the development of an orderly resolution of systemically important non-bank financial firms,
- Assigning uniform and robust authority for the prudential supervision of systemically important payment and settlement systems to ensure that the critical financial infrastructure, including the institutions that support trading, payments, clearing, and settlement, is robust, such as arrangements for clearing and settling credit default swaps (CDS) and other over-the-counter (OTC) derivatives,
- Working to mitigate pro-cyclical features of capital regulation and other rules and standards,
- Identifying possible regulatory gaps, including gaps in the protection of consumers and investors that pose risks for the system as a whole,
- Working to mitigate the risk of sudden stops in capital flows triggering an exchange rate correction with adverse impact on banks, households, and corporations with large unhedged liabilities,
- Sharing findings in a regional and global stability forum, and
- Issuing periodic reports on the stability of the financial system, in order to ensure market discipline through transparency as well as informed debate.

Systemic oversight

- The environment (macroeconomic, regulatory, legal) in which financial systems operate is important. For example, as evident in the case of Lehman Brothers and AIG, the legal regime governing the insolvency of non-bank financial institutions is essentially for unwinding risky institutions.
- Assessing the sources of risks and incentives in various sectors is equally essential to soundness.
- The agenda for monitoring financial institutions—both banks and non-banks—is broad. A range of tools can be deployed to assess the strengths and vulnerabilities of the financial system, including the following:
    - Review of financial stability indicators (FSIs; see Box on FSIs) and other balance sheet, income, and expenditure aggregates and review of market indicators.
    - Stress testing and scenario analysis. The stress testing can include, for instance:
        - Analyzing possible spillovers between financial firms or between firms and markets, for example, through the mutual exposures of highly interconnected firms;
        - Identifying possible regulatory gaps, including gaps in the protection of consumers and investors, that pose risks for the system as a whole; and
        - Assessing the potential for deficiencies in evolving risk management practices, broad-based increases in financial leverage, or changes in financial markets or products to increase systemic risks.
    - Assessment of regulatory and supervisory frameworks (compliance with prudential standards—Basel Core Principles)
    - Assessment of financial system safety nets (deposit insurance, LOLR facilities)
    - Assessment of markets (money and T-bills) and their infrastructure (payment and securities settlement systems)
    - Use of crisis management arrangements
    - Use of the bank resolution framework
    - Use of the resolution regime for systemically important non-bank financial institutions
- Government finances
- Household debt, which has implications for monetary policy and financial stability;
- Macro considerations, such as capital flows, in particular. International banking flows bear on systemic stability due to the risks of sudden stops;
- Underpriced risk, as the pricing of risk can indicate potential instability; and
- Corporate financial stability. In emerging markets a corporate sector that is highly leveraged and unprofitable (Korea, 1997 East Asian crisis) or that is prone to currency mismatches (Korea, 2009) can lead to massive problems.

4.5 The role of the stability regulator in corporate stability

Possibly the most controversial measure advanced in this paper is the need to monitor corporate financial stability. Therefore, this issue warrants a more extensive discussion. In most cases, government monitoring and interventions have focused on the financial sector in the aftermath of massive distress. However, the recent crisis has demonstrated the need to respond to corporate distress. For example, while some of the weaknesses of the automotive

businesses (GM, Chrysler), such as poor profitability and excessive debt, were recognized prior to the crisis, the US government did not take steps to address the situation at that time. Similarly, only during the Asian crisis was the full extent of leverage, cross-guarantees, and foreign exchange exposure in corporate finances in Korea fully understood. Similarly, in the recent crisis, little understood debt financing through knock-in knock-out (KIKO) derivatives had a global impact: 50,000 businesses around the globe became insolvent, as their currency bets went the wrong way in KIKO options involving currencies (Korean Corporations Court Bankruptcy with Suicidal KIKO Options Bloomberg http://www.bloomberg.com/apps/news?pid=20601109&sid=aDQ1pZabcyIo&refer=home). Because the transactions were undertaken by the corporate sector, public officials did not have adequate data on the extent of exposure to KIKO. Thus governments could not properly evaluate the impact of foreign exchange depreciation on the solvency of the corporate sector and on the economy as a whole.

Therefore, officials responsible for economic policy, as well as the public at-large, need adequate information on the financial soundness of the corporate sector. The stability regulator is able to develop and centralize expertise capable of monitoring the corporate sector. This government unit could take on the responsibilities for detailed data collection. The kinds of data that might be recorded include the composition of corporate debts, exchange rate denomination of debt, residence of debt owners, profit and loss accounts, and governance structures.

The amount of resources devoted to these efforts would vary, depending on fiscal resources, the nature of corporate vulnerabilities, and the level of development. It would be important to minimize the burden of data collection on companies and to take into account legitimate needs for confidentiality. In some countries, the stability regulator might be able to rely on private companies (for example, credit bureaus and rating agencies) to collect the data or might assign

this responsibility to bank supervisors. The stability regulator could take on coordinating responsibilities relative to ongoing corporate restructuring and act as an advocate within the government to push for the legal, regulatory, tax, and financial engineering reforms. To do so, it would need to have the capacity to enforce compliance when companies are found to be in violation of laws.

We are equally aware that advocating government intervention in corporate decision-making prior to a manifest crisis is controversial. However, in the aftermath of the Asian crisis and the interventions in GM and Chrysler, it should be evident that corporate and bank restructuring are mirror images. However, reforms typically take place when the urgency of now is evident. In the midst of a crisis, vested interests are weak, and regulators are no longer complacent. In this context, the experts may be more receptive to reform.

There are numerous reasons for expressing reservations. For example, government officials may lack sufficient information to make efficient decisions on corporate restructuring. In some cases, government interventions may simply serve the interests of particular corporate groups with an influence on government. Equally important, the ability of government to intervene and the effectiveness of interventions will depend greatly on the country context and specific circumstances. For example, in the Republic of Korea, where close ties have long existed between government and corporate interests, there are fears that the government might influence the rationalization of businesses. Therefore, most analysts favor interventionist steps through the banking system—for example, the enforcement of credit standards would lead to the insolvency and restructuring of companies.

Nevertheless, a government strategy for preventing and addressing corporate restructuring is critical to the recovery from systemic crises. Therefore, we favor systemic (and systematic) government intervention in corporate affairs through a stability regulator. The activities that a systemic corporate risk authority might

undertake include the development of an orderly resolution of systemically important corporates and benchmarks for corporate leverage. Such benchmarks could be achieved by greater transparency and market discipline and tax measures limiting the deductibility of interest and stipulating that banks cannot lend to corporations that do not meet these targets. In this context, the agency responsible for restructuring insolvent companies could divide corporations by size and by viable versus nonviable companies. This should enable the agency to focus on the largest debtors that warrant immediate attention. Government needs to demonstrate its determination to liquidate companies that have little prospect of survival and to force viable companies to take the necessary financial and operational steps to regain solvency.

Colombia: Superintendent of Companies
The Superintendent of Companies was established in Colombia to monitor and, on occasion, intervene in businesses with the goal of preventing crises, ensuring confidence in the legal system, and generating reliable accounting and financial data to ensure transparency. It is one of the few government agencies in the world with this mission.

Centralizing this responsibility within a government agency was deemed necessary because the judicial system did not have sufficient expertise or capacity in business matters and was often ineffective in resolving insolvency proceedings. For example, before 1995 some companies had been in the process of liquidation for more than 12 years without paying their debts, and this was having an adverse impact on financial institutions.

The superintendent can review any company that is registered with the Chamber of Commerce, for the purpose of obtaining all information necessary to understand the company's legal, accounting, economic, and administrative status. It also oversees corporate restructuring and seeks to ensure a sound corporate sector.

Source: Pomerleano and Shaw (2005).

Macro-prudential standard setting. After completing its assessment, the regulator should have the authority to curtail systemic risks across the entire financial system by the use of various prudential measures. Therefore, the authority in charge of macro-prudential surveillance needs to be independent, credible, and transparent.

The authority would need a role in setting the standards for capital, liquidity, and risk management practices for financial firms, given the importance of these

matters for the aggregate level of risk within the financial system. A comprehensive list of macro-prudential measures is discussed in Borio and Shim (2007). The following box offers a partial list of potential macro-prudential measures. In particular, tax measures, such as deductibility of interest for leverage exceeding a certain amount or foreign exchange–denominated loans, could be used.

Table. Systemic stability risks and measures

Measure	Has the measure been used?
Competition regulation	
" Too big to fail"	✓
Market conduct regulation	**?**
Macro prudential measures	
Higher standards on capital and risk management for systemically important firms	✓
Limits on financial firms leverage, such as a leverage ratios, and maximum	✓
Efforts to mitigate pro-cyclicality with automatic countercyclical provisioning, such as a form of dynamic provisioning	✓
Limits on sectoral exposure and consumer borrower indebtedness	✓
Households	
Loan-to-value (LTV) restrictions for mortgages	✓
Limits on consumer borrower indebtedness	✓
Corporate	
Limits on leverage, such as limits on debt-equity ratios	✓
Tax measures, such as deductibility of interest for leverage exceeding a certain amount or foreign exchange–denominated loans	✓

Finally, inadequate information, in part due to limited data capture, is the biggest obstacle to adequate monitoring and analysis. Simply put, inadequate effort and excessive parsimony in expenditures on databases are possibly the biggest obstacles to adequate macro-surveillance.

4.6 Regional and global financial stability regulatory architecture

The International Monetary Fund (2009) recognizes the problem. In a major study of the lessons learned from the financial crisis, the International Monetary Fund is recommending that financial regulators agree to binding international codes of conduct to prevent chaos when crises hit banks operating across national borders. The IMF stops short of calling for a global financial supervisor, saying that mechanisms of information sharing and risk assessment between national regulators generally have worked well in normal times. But it says that the response to the Icelandic bank runs and the collapse of Lehman Brothers showed the need for more cooperation and binding agreements on who would bear the burden when crises hit.

Section 5. Crisis management and resolution

Richard Bernstein writing in the *Financial Times* (America is for now still blowing bubbles, July 20 2009) says, “Financial history shows that bubbles create capacity, which is no longer needed once they deflate. An inevitable and intense period of consolidation follows." We concur: once a crisis unfolds, it is not clear that there are solutions. This section argues that, regrettably, once a systemic crisis starts, it is difficult to arrest the deleveraging process. Some of the standard orthodox prescriptions are to contain the systemic banking sector crisis with a set of comprehensive policy measures that include a rigorous assessment of major

banks' balance sheets, removal of nonperforming loans from banks' balance sheets, and recapitalization of banks. Virtually every analyst points to the Japanese lost decade and the applicable lessons for the recent US crisis.

While the standard prescription is to intervene promptly, let us look in another direction. Zillow Real Estate estimates that the downturn in home prices in the US has left about 20 per cent of homeowners owing more on a mortgage than their home is worth. We are in a vicious cycle, with more houses getting foreclosed and coming to the market, leading to further price declines. A similar deleveraging process has to take place in commercial real estate. Deutsche Bank has recently released sobering estimates regarding the prospective losses in commercial real estate. Equally, in light of the lost wealth in real estate and equities, the household sector needs and has to deleverage. Defaults in consumer credit are likely.

Both leverage and the asset bubble have to deflate, and both are interrelated. The evidence leads us to the counterfactual question. Can the deleveraging process be stopped through fiscal interventions? Admittedly, it would be useful to quantify the losses and calculate the costs of intervention by looking at the aggregate numbers to determine whether intervention is feasible. We have not analyzed the aggregate numbers for the US, UK (which has particularly high leverage), or Spain. But we doubt that intervention is feasible. One needs to question the orthodox prescription to recapitalize banks to contain a systemic banking sector crisis.

It is likely that in the US, the magnitude of the intervention required to break the fall in prices is prohibitive. The political will and financial resources are lacking. Further the economic rationale of interfering with markets in order to offset the loss of assets and wealth is not clear. In fact, in order to ensure a recovery in asset prices and attract buyers, asset prices have to undershoot. The process of deleveraging by the household and corporate sector is exceedingly slow in the

present crisis, and this defers the recovery. As painful as the deleveraging process is, the government should allow it to proceed.

The opposite view, adopted by the present US administration, is that crises do end and that crisis managers have to muddle through. The design of the US administration's resolution strategy appears to give due regard to mitigating the negative feedback loops. In this approach, policy makers have implicitly, if not explicitly, recognized the tradeoffs between competing objectives—whether to have short and very sharp slowdowns or spread the adjustment through time—and selected a longer adjustment.

5.1 Consistent and comprehensive domestic policies

It became clear during the East Asian crisis of the late 1990s that the resolution of a financial crisis is a tedious exercise in corporate finance. The lesson from the East Asian crisis is that corporate difficulties are not limited to countries that have suffered spectacular crises. In many countries, corporate weakness or "silent" distress builds for many years and, in the absence of "exit" mechanisms, sets the stage for financial crises.

The severe financial crises that devastated East Asia a decade ago underlined important gaps in our ability to deal with corporate distress. The Asian crisis led to massive declines in output and corporate profitability and to widespread corporate insolvencies. There is no magic bullet for addressing systemic corporate distress. Coping with it requires a host of simultaneous measures, such as financial engineering techniques for restructuring, consideration of the impact of the tax system on incentives for restructuring, policy approaches to the disposal of bad debts, efforts to strengthen bankruptcy courts and the legal framework for insolvency, and the establishment of procedures for out-of-court workouts. It is clear that governments often lack the resources and expertise required to address corporate distress on a large scale and that policies,

institutions, and legal frameworks may not be adequate to the task. A scarcity of skills (legal, financial) in the private sector and in the judiciary is a further impediment in many countries.

Malaysia's experience is most likely the "best practice" for tackling corporate and bank restructuring in unison. The National Economic Action Council, created in January 1998 as a high-level consultative body (including the prime minister and governor of the central bank), formulated an agenda for comprehensive restructuring of the banking and corporate sectors. Three agencies—Danaharta, Danamodal, and the Corporate Debt Restructuring Committee (CDRC)—were established for this purpose: Danaharta was an asset management company with functions similar to those of the US Resolution Trust Corporation; Danamodal Nasional Berhad was established to recapitalize the banking sector, especially to assist banks whose capital base had been eroded by losses; and CDRC was established to reduce stress on the banking system and to repair the financial and operational positions of corporate borrowers. These three agencies linked their efforts effectively.

A bank in trouble because of the huge amount of bad loans on its books could have Danaharta sell its nonperforming loans. Thereafter, if the bank was still in financial trouble and the shareholders could not recapitalize, the bank could seek financial assistance from Danamodal, at a cost. Effectively, new money would be injected into the bank, diluting the original shareholders. This meant that Danamodal could facilitate consolidation of the sector by selling its stake to a stronger bank and thereby fostering mergers. Meanwhile, CDRC acted as an informal mediator, facilitating dialogue between borrowers and their creditors to achieve voluntary restructuring schemes. If CDRC could achieve this, then nonperforming loans would be resolved voluntarily. If not, Danaharta would take over the bad loans.

Korea's corporate measures during the Asian crisis
Governments need to forge stronger links between corporate and bank restructuring, because it is impossible to address the problems of banks successfully without addressing the underlying problem of bad corporate loans. Korea learned the need for corporate restructuring the hard way, as policy makers believed that the largest chaebols were "too big to fail." With the exception of Daewoo, the seven largest chaebols were allowed to undertake voluntary restructuring. The restructuring went nowhere after months of talk, and the rehabilitation of the banking system failed. Banks can be recapitalized, but they are saddled with a huge portfolio of bad loans. Korea eventually adopted a twin corporate and bank restructuring approach. The integrated approach to restructuring involves pressuring the banks to address corporate weaknesses.

Finally there was recognition at the time of the need for a comprehensive review of the international financial architecture, with a view to developing a framework to prevent, manage, and resolve future crises, within the context of a global environment of liberalized capital flows. The Financial Stability Forum (FSF) was established, and members committed to pursue the maintenance of financial stability, maintain the openness and transparency of the financial sector, implement international financial standards (including the 12 key international standards and codes), and agree to undergo periodic peer reviews, using FSAP reports. It is fair to say that 10 years after the East Asian crisis, the results of the FSF actions are disappointing, but not surprising, as explained later in this paper.

5.2 Coordinated corporate/bank recapitalization and the London approach

It is impossible to address the problems of banks without addressing the underlying problem of bad corporate loans. Therefore, governments should forge stronger links between corporate and bank restructuring. By contrast, rehabilitating banks with the intention of addressing nonperforming loans at a later time is a recipe for failure: banks can be recapitalized, but they remain with a huge portfolio of bad loans.

European insolvency laws in the tradition of Roman or Napoleonic laws are antiquated and not suited to giving businesses the best chance of survival because the bankruptcy regimes lack restructuring provisions. There is wide agreement that corporates have a better chance of survival under a London approach or provisions similar to Chapter 11 of the US bankruptcy code.

Nevertheless, restructuring is lagging (*Financial Times*, August 4, 2009). In much of Europe, debt restructurings are negotiated out of court to avoid formal insolvency proceedings, which are often seen as unpredictable and lengthy, without any formal binding rules of engagement. Caballero, Hoshi, and Kashyap (2008) discuss the problem of "zombie" corporates. They propose a model that highlights the implications of the zombie problem for restructuring. The congestion created by "zombie" corporates reduces the profits of healthy firms, discouraging their entry and investment. In this context, even solvent banks do not find good lending opportunities.

What is the London approach? In short, the London approach sets specific rules for collective voluntary action in order to limit deadlocks in the restructuring process. The United Kingdom entered a recession during the mid-1970s, with the banks having little experience in organizing internal workout units and dealing effectively with debtors short of formal action. The insolvency legislation was out of date and unsuited to achieving constructive resolutions. Against this backdrop, the Bank of England played an activist role, largely through suasion, by bringing together both the debtor and its banks and brokering a restructuring of the lending arrangement. Similarly, after the Asian crisis, most countries, adopted a model for large-scale corporate restructuring under a government-sponsored out-of-court process—a variant of the London approach—with specific rules for restructuring.

In the present climate, banks are trying to rebuild shaky balance sheets and cannot be expected to show enthusiasm for restructuring, "haircuts," or debt-equity swaps. The economic problem is like the "prisoners' dilemma" with a glaring lack of coordination. Each bank is reluctant to lend because of the "zombie" borrowers, because it does not makes commercial sense for an individual bank to lend because no bank acting in isolation can kick-start a recovery. Therefore, the prospects for each borrower and bank are gloomy. In this type of market failure, the government needs to find some credible

mechanism that would restructure the failing corporates and encourage banks to lend. Therefore, governments need to be actively involved in the deleveraging process, possibly by establishing (or reestablishing in the case of Asia) government-sponsored voluntary workout schemes. To reach an optimal social outcome, the government needs to “weed out” the zombie borrowers. Much operational and financial restructuring will be needed in the present crisis, as we witnessed with the US automotive industry. The US government acted decisively in the restructuring and took ownership stakes in GM and Chrysler. It also provided “debtor-in-possession” financing and got involved in significant operational restructuring. Therefore, policy makers are well advised to undertake large-scale corporate restructuring under a government-sponsored or industry-sponsored out-of-court process. However, to establish the right incentives for sound financial behavior, this role should rely, to the extent possible, on market forces rather than government fiat.

Section 6. Recent regulatory reforms to address systemic risks

Efforts to address systemic risks are proceeding at the national level as well as the global level. At the international level, the international financial community has established the Financial Stability Board (FSB) in response to the crisis. National efforts to address financial stability are under discussion in the European Community, UK, and the US.

6.1 National efforts to establish a stability regulator

In the US as well as the UK, there is an ongoing debate regarding the role of the respective central banks—Federal Reserve and Bank of England—in a financial stability–oriented regulatory system. Numerous analysts and policy makers, such as Mishkin (2009 in the FT) view the central bank as the natural home for the stability regulator. Their view derives directly from the position of a nation's central bank. Their arguments are as follows: In the US, maximum employment and price stability are the dual mandate conferred by Congress on the Federal

Reserve in the conduct of monetary policy. Financial stability is integral to the achievement of those objectives. Second, there are important synergies between the regulation of systemic risk and monetary policy, as insights garnered from performing one of those functions inform the performance of the other. Third, close familiarity with private credit relationships, particularly among the largest financial institutions and through critical payment and settlement systems, makes monetary policy makers better able to anticipate how their actions will affect the economy.

We have reservations about the proposed approach. A financial stability regulator needs a broader perspective than a central bank can offer. We subscribe to the view that it is desirable to establish an independent financial stability regulator with adequate independent analytical capacity. We support creating an independent federal regulator, with independent analytical capacity, charged with monitoring the entire economy in order to identify financial weaknesses that might lead to systemic risk. Several arguments lead us to this conclusion.

First, as discussed earlier in the paper, the concept of financial stability is far broader than the stability of the financial sector, encompassing macroeconomic elements, such as external debt, as well as the corporate and household sector. For instance, in developing countries, it is important to focus on reserves, external debt, and corporate restructuring. Those areas fall outside the traditional mandates of central banks. Macroeconomic corrective measures involve other agencies, such as a tax authority in a ministry of finance. Equally, issues such as corporate stability have long suffered benign neglect due to market failure. To our knowledge, no agency is designated to address corporate stability in any country. The stability regulator should be empowered with the accountability and authority to address systemic corporate stability.

Second, each organization develops a culture that reflects its core mission. The mission of central banks is monetary policy. The conduct of monetary policy requires a vast, specialized set of skills different from systemic surveillance or consumer protection. This culture, including professional interest, expertise, and incentives structure—e.g., promotions—typically leads organizations to neglect marginal functions. This problem was evident in recent crisis episodes. For example, the Federal Reserve and the Bank of England failed in their stability function, as well as their conduct of supervision and consumer protection, because those activities were “orphans” within the Federal Reserve professional hierarchy and setting. It is evident that the Bank of England was not engaged while Northern Rock was failing, not for the lack of powers.

Therefore, it is highly desirable to establish a stability regulator with the right mission, focus, and set of skills. The Australian Wallis Inquiry recommended a structure that took those issues into account. The Reserve Bank of Australia (RBA) deals with monetary policy and systemic stability, while the Payments System Board regulates the payments system; the Australian Prudential Regulation Authority deals with prudential regulation; and Australian Securities and Investments Commission (ASIC) deals with market integrity, consumer protection, and corporations. Third, it is desirable to give an agency a clear mission and hold it accountable for its performance of the mission. Fourth, invariable crises entail fiscal outlays, and the fiscal expenditures should be transparent and accounted for in the fiscal budget. If the central bank, as lender of last resort, is given authority to manage a crisis, it might tend to take the path of least resistance: instituting blanket guarantees and other nontransparent measures designed to hide the costs of resolution in the accounts of the central bank. Of course, an independent stability board, chaired by a reputable expert with final authority to address crisis prevention and management, should have the central bank, the ministry of finance, and other relevant parties as active members.

Finally, to a large extent, the discussion of the role of a stability regulator has lacked rigor. The first issue that needs to be articulated is the regulatory objectives—i.e., what the stability regulator expects to achieve. The following table analyzes the stability regulatory framework based on the criteria detailed in the previous section: regulatory objectives, structure, backing, and implementation:[2]

Table. A Framework to analyze national stability regulators (TBC)

Country	Regulatory objectives	Regulatory structure	Regulatory backing	Regulatory implementation
Central bank or agency				
Australia				
Japan				

Japan. In Japan the Financial Services Agency (FSA) has dramatically eased the regulations on how banks may interact with their securities arms, with sweeping implications for Japan's financial markets. The reform is intended to unleash more sophisticated financial products in Japan. Japan has established a Financial Crisis Response Council (FCRC). The FCRC is chaired by the prime minister and attended by the cabinet chief secretary, financial supervision minister, FSA commissioner, finance minister, and governor of the Bank of Japan. Japan is considering whether to transform the FCRC into a systemic crisis overseer with an identical structure.

UK. The UK is proposing reforms as well. First, supervision must be top-down as well as bottom-up. It should be "macro-prudential," monitoring the financial system as a whole, as well as "micro-prudential," keeping an eye on individual firms. The Financial Services Authority supervises banks and is in charge of both macro-prudential supervision and micro-prudential regulation. The FSF will

[2] This section uses the methodology first presented in Chapter 2 (The Principles of Regulation) of Carmichael and Pomerleano (2003) to address the role of regulators.

address systemic risks such as dangerous credit surges, for example, by requiring banks to hold more capital. The Bank of England will have statutory responsibility for financial stability and will be given new powers to deal with banks that run into trouble.

US. In the US, the Obama administration proposes that the Federal Reserve become the nation's financial stability overseer. The central bank would have power to monitor risks across the financial system and sweeping authority to examine any firm that could threaten financial stability, even if the Fed would not normally supervise the institution. The nation's biggest and most interconnected firms would be subject to heightened oversight by the central bank. Systemically important financial institutions ("Tier 1 institutions"), whether or not they are banks in the old-fashioned sense (such as GE), will be more tightly regulated by the Federal Reserve. The administration proposal calls for a "rapid resolution plan," which requires systemically important financial companies to file a "funeral plan" regularly—a set of instructions for how the institution could be quickly dismantled should the need to do so arise. Finally, a new insolvency regime would cover all such firms, modeled on the scheme run by the Federal Deposit Insurance Corporation for ordinary banks.

Australia. In Australia, a Council of Financial Regulators comprises the Reserve Bank of Australia, which chairs the council; the Australian Prudential Regulation Authority (APRA); the Australian Securities and Investments Commission (ASIC); and the Australian Treasury. As specified in the council's charter, the council's role is to contribute to the efficiency and effectiveness of financial regulation by providing a high-level forum for cooperation and collaboration among its members. The council also has a role in advising the government on the adequacy of Australia's financial system architecture in light of ongoing developments. The Council of Financial Regulators is the coordinating body for Australia's main financial regulatory agencies. However, the council is non-statutory and has no regulatory functions separate from those of its members. It

operates as an informal body in which members share information and views, discuss regulatory reforms or issues where responsibilities overlap, and, if the need arises, coordinate responses to potential threats to financial stability. Therefore, it does not have the degree of authority and accountability advocated here.

Indonesia. In Indonesia, the government has submitted to lawmakers a bill—the Indonesian Financial Sector Continuity Plan—to provide it with extra authority and guidance in preventing possible systemic threats to the financial sector. Under the bill, a team called the Financial System Stability Committee (KSSK), headed by the finance minister, with the central bank governor as a member, will have full authority to address threats to the financial system. The Financial System Safety Net (FSSN) provides the underlying framework for the deposit insurance scheme and the emergency financial facility under the central bank's lender-of-last-resort function. It also forms the basis for crisis resolution policy. The FSSN foremost objective is crisis prevention, but it also includes mechanisms to control the fiscal costs of resolution. While the KSSK has not yet been formally approved by the parliament, the near-equivalent, FSSK, functions under earlier arrangements.

Korea. At the end of 2006, Korean policy makers identified various risk factors. They included (a) a sharp rise in mortgage lending and rising housing prices, (2) increasing short-term capital inflows, (3) heavy reliance of banks on short-term foreign currency borrowing, and (4) growth in foreign currency lending. Given these risk factors, the Korean government determined that it was important to monitor the market developments and undertake timely interventions, with the objective of ensuring a “soft landing” in the financial and real estate markets and preventing a financial crisis. The Korean government established a framework for preemptive risk management that enabled policy makers to monitor the developments of both the financial market and the real economy and to take preemptive policy measures.

The centerpieces of the preemptive program were regular high-level meetings on financial issues. The chair of these financial policy coordination meetings was the minister of finance and economy (currently the minister of strategy and finance); other members included the chairman of the Financial Supervisory Commission (FSC), the governor of the Bank of Korea, and the advisor to the president on economic policies. Each member organization had a different role to play. The Ministry of Finance and Economy was responsible for making policies to ensure financial market stability, the FSC (and the Financial Supervisory Service) was responsible for ensuring soundness of the financial sector, and the Bank of Korea was responsible for analyzing and responding to developments of the financial and currency markets. Policy makers worked together to step up monitoring of financial markets and preempt potential problems in the financial system. For instance, the government tightened the prudential regulations on mortgage lending by lowering the maximum loan-to-value (LTV) ratio to 60 per cent and the maximum debt-to-income (DTI) ratio to 40 per cent for certain speculative areas. Such measures slowed mortgage lending and stabilized the real estate market.

Other regions. In Israel, the new Bank of Israel law states that the Bank of Israel will take responsibility for ensuring the stability of the financial system and intervening in the affairs of non-banking entities. We are not aware of any initiatives in Latin America or Eastern Europe.

6.2 Regional initiatives

EU reforms. In Europe, the IMF is encouraging a robust approach to coordination, in particular on issues related to financial and regional macroeconomic stability. Other proposals were put forward by a high-level expert group headed by Jacques de Larosière. In its report, this group proposed

establishing two supra-national structures to deal with cross-border aspects of financial stability:

- A *European System of Financial Supervisors* (ESFS), which would bring together existing national supervisors with three new sectoral EU-level authorities (for banking, insurance, and securities markets, respectively), and
- A *European Systemic Risk Council* (ESRC), which would monitor systemic risks and address them through coordinated policy responses from EU member states.

The European Commission favors a systemic-risk board to sound the alarm when it perceives the build-up of risk. The European Commission has drafted proposals to establish a European Systemic Risk Board. The council will be headed by the president of the European Central Bank (ECB). The EU has recognized a second problem as well: the system for supervising cross-border banks is flawed. Who is in charge of Europe-wide bank oversight? The European Commission has drafted proposals to establish a European supervisory authority to keep an eye on big cross-border financial institutions. Finally, new European Union laws are likely to require banks to strengthen capital cushions, liquidity, and countercyclicality.

Asia. The Chiang Mai Initiative is making progress in multilateral efforts with a newly established surveillance unit, leading to the creation of an Asian monetary fund. Ultimately, it may produce a regional zone of deep integration around an AMF. A new Asian Financial Stability Dialogue will make a significant contribution to the region's financial stability. The region also needs to create regional capacity.

6.3 International financial stability architecture for the 21st century

The communiqué of the G-20[3] in London established the Financial Stability Board (FSB) as a successor to the Financial Stability Forum (FSF). The FSB includes the G-20 countries, FSF members, Spain, and the European Commission. The FSB aims to address vulnerabilities and to develop and implement strong regulatory, supervisory, and other policies in the interest of financial stability.

The FSB mandate is sweeping. It proposes to assess vulnerabilities affecting the financial system; identify and oversee action needed to address them; promote coordination and information exchange among authorities responsible for financial stability; monitor and advise on market developments and their implications for regulatory policy; advise on and monitor best practices in meeting regulatory standards; undertake joint strategic reviews of the policy development work of the international standards-setting bodies; set guidelines for and support the establishment of supervisory colleges; manage contingency planning for cross-border crisis management; and collaborate with the IMF to conduct early warning exercises.

The FSB comprises senior representatives of the national financial authorities (central banks, regulatory and supervisory authorities, and ministries of finance) in the G-20 and a few other countries, international financial institutions, standards-setting bodies, and committees of central bank experts. Mario Draghi, governor of the Banca d'Italia, chairs the FSB in a private capacity. The FSB is supported by a small secretariat (9–10 staff members) based at the Bank for International Settlements in Basel, Switzerland.

There is considerable skepticism regarding the capacity of the FSB to manage this ambitious agenda. The first concern is straight-forward. As successor to the Financial Stability Forum, the FSB has the same modus operandi and staff, albeit

[3] London Summit http://www.londonsummit.gov.uk/resources/en/news/15766232/communique-020409

with broader membership. With a small homogeneous membership of seven or so major central banks, the FSF failed to identify and prevent the US financial crisis and the Eastern European crisis. The FSB has a far more heterogeneous membership of G-20 plus countries and three to four institutions from each country—ministries of finance, central banks, financial sector supervisors, and, in some cases, securities commissions—and it is not entirely clear why there is an expectation that the FSB will succeed where the FSF failed.

There are doubts regarding the independence and analytical capacity of the FSB. Nicholas Stern, writing in the *Financial Times* on global surveillance, states, “Any forthright, disinterested assessment of the global economic system’s stability requires two sorts of independence.” He points out that the institution that is conducting the analysis and making judgments about the stability of the system must not have anything other than its own reputation riding on its assessment. Therefore, it must be independent of the G-7. In this light, however, the FSB is a secretariat, without independent analytical capacity. The second concern is that the FSB does not offer the type of independent “high-powered” analytical surveillance that is needed at the global level. It does not have the adequate staffing nor does it propose to undertake independent evaluations, as outlined by Nick Stern. It merely collects information from members and disseminates it. There is an inherent contradiction built into this approach: country authorities that did not report adverse information in a small setting of seven or so central banks will likely be far more reluctant to share information in a wider G-20-plus setting. The FSB members will not be prepared to share sensitive or adverse domestic information with other members, and therefore the discussions will not be substantive.

A third concern relates to governance of the FSB. The Westphalian principles governing international financial oversight are not adequate to address the problems in the contemporary financial system, such as cross-border contagion and insolvencies. The self-interest of financial centers, such as London, fails to

reflect the global agenda of actively regulating the global financial system and will inevitably lead to another race to the bottom in regulatory forbearance. A European regional effort is already unraveling, with the UK resisting ceding power to the EU regulatory agencies.

Will the FSB fail? Not necessarily. In order to succeed, it needs to lead in several areas. Most important, the FSB cannot be an insular organization in Basel. It needs to have a vision and to think outside the box. The FSB needs to leverage regional and country-based financial stability organizations effectively. The first layers are national financial stability organizations in all the G-20-plus countries. The debate on whether those functions belong in central banks is only starting. For instance, in the US, the Federal Reserve perceives the stability function to be directly related to the role of the central bank. In Indonesia, the government has submitted to lawmakers a bill providing it with extra authority and guidance in preventing possible systemic threats to the financial sector. Under the bill, the Financial System Stability Committee (KSSK), headed by the finance minister, with the central bank governor as a member, will have full authority to take measures in response to threats to the financial system.

The second layer in this architecture is the creation of regional financial stability organizations. The European initiative to set up a European Systemic Risk Board as a macro-prudential overseer and a European System of Financial Supervisors as a micro-prudential coordinator is a good example. Asian policy makers are discussing the possibility of establishing an Asian Financial Stability Dialogue (AFSD) among the region’s financial authorities. Such regional organizations in Latin America, Eastern Europe, and other regions could serve numerous beneficial functions. They could conduct regional monitoring of key financial products, institutions, and markets on the ground and facilitate regional financial integration. The KSSK in Indonesia could act as a regional training ground and community of practice for the staff members of national systemic councils in other countries in the region.

Finally, it is important to remember that the global payments imbalances played a key role in the global financial crisis. After the Asian financial crisis, many economies in the region started building foreign exchange reserves as self-insurance. For them, going to the IMF is political suicide because of the public's lingering memory of the "IMF crisis." These economies have had incentives to accumulate reserves by running large current account surpluses or intervening in the currency markets. Countries in the region would benefit from an Asian Monetary Fund (AMF) that would help to rebalance sources of growth and payments by reducing financial turbulence and acting as a lender of last resort. An AMF could work closely with the region's financial authorities under the AFSD to conduct regional economic and financial surveillance.

In conclusion, the proposed international financial regulatory oversight is not suited to the realities of an interconnected financial system in the 21st century. Far more efforts are needed to ensure the success of the international financial regulatory architecture, foremost among them the need to create an international framework for insolvency.

6.3 An international framework for insolvency

The major impediment to achieving global financial stability is the inadequate international framework for dealing with insolvency. Prospects of illiquidity and potential insolvency are becoming more likely around the world, and this makes the effectiveness of bankruptcy regimes an important concern for policy makers. However, there are no standards. Weak provisions for cross-border bank restructuring are possibly the biggest stumbling block to binding global financial standards. It is sufficient to document the problem with a recent example. In London, US$32 billion of client assets have been entangled in the Lehman bankruptcy for more than nine months (see the Lehman box). The clients of Lehman Brothers International, including several hedge funds and insurance

companies in the London-based unit who have had their accounts frozen since the Wall Street firm filed for bankruptcy last September, may finally begin to receive some of their assets by next year, according to the *New York Times* (2009). It is not difficult to understand the deleterious effects that this delay is having on trading, custodial relationships, and confidence in the markets.

Case study: Lehman's insolvency

- Administrators for Lehman's US estate plan to ask a federal judge to approve an international framework for coordinating bankruptcy proceedings among subsidiaries spread across the globe.
- US$32 billion of client assets in London have been entangled in the Lehman bankruptcy for more than nine months. clients of Lehman Brothers International, including several hedge funds and insurance companies in the London-based unit who have had their accounts frozen since the Wall Street firm filed for bankruptcy last September, may finally begin to receive some of their assets by next year (New York, 2009).
- Administrators in Hong Kong, Singapore, Germany, Luxembourg, and Australia signed on to the protocol.
- A global protocol is "unnecessary, insufficiently tailored, and unacceptably burdensome" for Lehman's UK estate and its creditors, said Tony Lomas, a PricewaterhouseCoopers partner and administrator of the London estate.
- "There need to be international standards when dealing with a global company that collapses," said Bryan Marsal, Lehman's chief restructuring officer and co-CEO of turnaround firm Alvarez & Marsal LLC. “Otherwise, every country acts like ‘Every man for himself.’”

Sources: *Wall Street Journal,* various editions.

The existing arrangements, in which cross-border operations are covered solely by the financial stability arrangements of the home country, are unsustainable. When a large company with global operations seeks Chapter 11 protection, it can spawn numerous legal proceedings with different rules in different countries. However, there is no official code that brings them together. In such cases, the threat of bankruptcy is not credible: the private and social costs are simply too prohibitive.

Hüpkes (2009) finds that the cross-border framework for managing a crisis is weak and that the wind-down of a large cross-border institution is complex. The resolution is hampered by the asymmetries of exposures across jurisdictions that create a risk of asset grab and discourage the sharing of information and collaboration; legal form that does not follow function; multiple (and conflicting) insolvency processes across jurisdictions; resolution tools that do not work when

markets are not functioning; and practical constraints such as technical competence across jurisdictions and different time zones. Therefore, the use of international bankruptcy in the resolution of financial institution distress is virtually unprecedented. According to Altman (2009), a possible alternative is to develop an informal agreement similar to the London approach for international insolvencies: “With the increased internationalization of bankruptcy, it's more and more important for the different jurisdictions to come to an informal agreement."

The puzzle of why governments continue to use blanket guarantees in crisis after crisis, despite the universal understanding that they entail high contingent costs and create moral hazard problems, has been solved. Governments use blanket guarantees to stabilize sizable systemic financial crises in the absence of the institutional capacity to deal with large cross-border financial institutions. Until the problem of cross-border insolvency is solved, domestic policy makers are left with an ad hoc set of half measures, such as guaranteeing banks’ obligations, direct capital support, direct liquidity support, blanket deposit guarantees, and forbearance.

In April 2008, the Financial Stability Forum (FSF) issued a report on principles for cross-border cooperation on crisis management. A careful read of the report leads to the conclusion that the entire set of recommendations is based on voluntary cooperation. It is ludicrous to assume that countries will ignore self-interest in cross-border financial crises. Speaking on the eve of the G-20 summit in London, German Chancellor Angela Merkel said bluntly what everyone knows: “International policy is, for all the friendship and commonality, always also about representing the interests of one’s own country” (Merkel, *New York Times*, March 30, 2009). The FSF report does not recognize that self-interest will guide the countries, which will not be willing to adopt the principles in a real crisis, and does not offer any roadmap for implementation. Until the issue of cross-border insolvency is addressed, it will be impossible to reach a binding global financial order.

The present stability setting leads to the danger of two great backlashes. First, regulatory arbitrage contributed to the present crisis. It is not surprising that London, focusing on "exotic assets,**"** led the race to the bottom in an effort to overcome New York's competitive advantage in standardized products (*The Economist*, Survey of International Banking 2008). Therefore, London was the home to innovations, such as the structured investment vehicles (*Wall Street Journal*, 2007). In fact, the majority of collateralized debt obligations probably were structured and packaged in London, under the benevolent oversight of the FSA.

A new financial order can be constructed only with a binding set of minimum international guidelines. In the absence of such guidelines, there will be differences in financial accounting, financial transparency, regulating leverage, and capital standards. The main challenge facing such a regime will be the incentive for regulatory arbitrage. In the absence of internationally binding agreements, we will witness a regulatory arbitrage race to the bottom, with the competition from less-strict jurisdictions undermining stringent regulatory regimes and "exporting" financial instability.

There is nothing in the present FSB configuration to prevent the recurrence of a race to the bottom. Ironically, in the UK, the policy goal stated in HM Treasury's white paper on financial markets (2009) is to "maintain the future pre-eminence of the UK's international financial services markets." A competitive advantage in the supply of global financial services might lead to another race to the bottom. A recent example is fair value accounting, where the Financial Accounting Standards Board, pressured by US lawmakers and financial companies, voted to relax fair-value accounting rules[4] and allow companies to "ignore" the traded price of a financial instrument in favor of using internal models. Due to pressure

[4] Changes to fair-value, or mark-to-market accounting, approved by FASB allow companies to use "significant" judgment in gauging prices of some investments on their books, including mortgage-backed securities. The measure may reduce banks' write downs and boost net income.

from bankers and policy makers in the UK and Europe, the International Accounting Standards Board (IASB) also voted to ease the impact of fair-value accounting.

Second, in light of the unfavorable experiences of Korea and Mexico with foreign financial institutions, as well as virtually all of Eastern Europe, in the recent crisis, a natural response is for national authorities to reassert control over their domestic financial systems and to review foreign entrants with suspicion. Equally financial institutions might opt to retrench to their home turf. As Belka and Fonteyne (2009) write in a *Financial Times* editorial, the consequences of the current crisis will affect the quality and safety of financial intermediation in Europe's 52-year quest for a single financial market. The only way to prevent this retrenchment is to ensure adequate cross-border financial stability arrangements: "What is needed is a dedicated EU-level resolution framework that can credibly discipline Europe's large cross-border banks while offering depositors protection equivalent to national deposit guarantee schemes."

Josef Ackermann, Deutsche Bank chief executive and chairman of the Institute of International Finance, wrote in July 2009 in the *Financial Times*: "There is a danger that changes in the regulatory environment will, by accident or design, lead to a refragmentation of markets … Consequently, we should not seek answers in the perceived safety of nation-based structures, but rather establish effective processes for cross-border crisis management." According to Mr. Ackermann, the inability to reach binding cross-border standards and insolvency systems is likely to lead domestic regulators to abandon trust in home or host regulatory arrangements and encourage financial institutions to restrict their operations to their home turf. Should we support Mr. Ackermann's recommendations? The answer is no.

We propose that large, internationally active financial institutions—institutions that are too big to fail or too interconnected to fail—should be reduced to holding

companies of national operations that are organized as stand-alone units in the respective countries. Such a structure would reduce the risks to financial stability by creating domestic financial institutions subject to local jurisdictions in the respective markets. New Zealand's approach to financial regulation and cross-border banking is an example of what we propose (Mayes 2006). Once other countries demonstrate commitment to achieving some measure of stability, the UK and the US can be brought on board to discuss and accept the detailed arrangement of a new financial order.

A further advantage of this approach is that domestic pools of liquidity and capital will prevent short-term, destabilizing capital flows. According to data from the Bank for International Settlements (BIS 2009), cross-border lending had slumped to US$29.4 trillion at the end of March 2009, down from US$35.8 trillion at the end of March 2008 (distorted by the strength of the US dollar). This level of contraction (US$6 trillion or 16.75 per cent in the course of a year) is the highest in at least 30 years.

Dani Rodrik, the Harvard economist, has long questioned the benefits of capital account liberalization. “Global finance, to work well and safely, requires institutions similarly global in scope. The chance that these global institutions can be created is, well, nil—at least in our time,” he wrote on his blog and in the *Financial Times*. Moreover, Rodrik’s empirical analysis in a publication in 1998 finds no correlation between the openness of countries’ capital accounts and the amount they invest or the rate at which they grow.

Since the release of that publication, evidence has mounted in support of the view that capital account liberalization has no impact on investment, growth, or any other real variable with significant welfare implications. For example, in his survey of the research on capital account liberalization, Eichengreen (2001) concludes that the literature finds, at best, ambiguous evidence that liberalization has any impact on growth. Tong and Wei (2009) study whether capital flows

have affected the degree of credit crunch faced by a country's manufacturing firms during the recent crisis. They find that the *volume* of capital flows has no significant effect on the severity of the credit crunch. However, the *composition* of capital flows matters: pre-crisis exposure to inflows of non-foreign direct investment capital worsens the credit crunch, while exposure to foreign direct investment alleviates the liquidity constraint.

While direct investment and portfolio equity can be beneficial, countries should discourage short-term international bank lending. This lending is prone to boom-and-bust cycles and generates financial crashes with painful economic consequences equivalent to "playing Russian roulette with bullets in all the chambers." Domestic regulators could further mandate domestic subsidiaries of foreign banks to maintain prudential norms related to local currency lending as a percentage of local currency funding, as well as foreign currency assets as a percentage of foreign currency funding. This would prevent sloshing short-term capital inflows. Banks and domestic regulators would be able to manage their risk, capital, and liquidity on a country basis, without relying on ineffective division of labor between home and host regulators.

Finally, the role of the IMF in the future architecture is not clear. A priori, the expectations are that the IMF will conduct macroeconomic surveillance. In response to criticism from Mussa (2007), the IMF decided to sharpen the focus of its surveillance by improving the quality of its exchange rate analysis. Recently the IMF has revised the way it monitors foreign exchange rates of member countries, acknowledging that its efforts had backfired. In a recent staff report, the IMF said that it would no longer use the specific phrase "fundamental misalignment" in its assessment of exchange rates, which it had used since 2007 to pressure countries to alter foreign exchange policies. The staff report said that, because of a shift in policy, it would no longer hold ad hoc consultations with countries whose currencies are misaligned and causing problems for other nations. Therefore, the role of the IMF in macroeconomic surveillance is not clear.

Section 7. Conclusions

With a few notable exceptions, the private sector (rating agencies, analysts), central bank regulators, and policy makers as well as academic economists failed to predict the advent and severity of the current global financial crisis. The collective failure to anticipate and prevent this crisis requires reexamination of the supervisory methodology and carries important lessons for the future of the regulatory system.

Several conclusions are unavoidable. The paper argues that financial crises are not "unknown unknowns." They build up over time in response to policy mistakes. Markets tend to be forgiving for a long time, which makes it impossible to predict the timing of a crisis. However, the unsustainable eventually runs its course. By identifying and dealing with sources of instability before a crisis, policy makers can prevent it. We need to design a comprehensive strategy for containing systemic risk at the country level. Can financial crises be averted by identifying and dealing with vulnerabilities before they cause instability? This paper argues that they can be. Will there be future crises? Yes there will. But the counterfactual is equally important: numerous potential crises can be averted. In our experience, focusing inadequate effort on the capture and analysis of data is the biggest obstacle to conducting adequate macro surveillance.

The paper is less sanguine regarding the prospects for a global strategy to address stability. The Westphalian principles governing international financial oversight are not suited to the realities of an interconnected financial system in the 21st century. If the financial authorities do not make progress with a binding global financial order, the prospects for attaining global financial stability are limited. The world would have to continue to live with regulatory fragmentation and financial refragmentation, with all the attendant risk to stability.

Bibliography

Acharya, Viral V., and Matthew Richardson, eds. 2009. Restoring Financial Stability. NYU-Stern Report. John Wiley and Sons (March).

Ackermann, Josef, Smaller banks will not make us safer Financial Times July 29 2009

Adrian, Tobias and Brunnermeier, Markus K., CoVaR(September 1, 2008). FRB of New York Staff Report No. 348. Available at SSRN: http://ssrn.com/abstract=1269446

Adrian, Tobias and Hyun Song Shin, 2008, Money, Liquidity and Monetary Policy, AEA, December

Bank for International Settlements, Provisional international banking statistics, first quarter 2009, http://www.bis.org/statistics/rppb0907.htm

Belka, Marek and Wim Fonteyne, 2009, A banking framework to secure single market, Financial Times, June

Bernanke, Ben S. 2009. “Financial Reform to Address Systemic Risk.” At the Council on Foreign Relations, Washington, D.C. March 10, 2009.

Bernanke, Ben S. 2009. “Lessons of the Financial Crisis for Banking Supervision.” At the Federal Reserve Bank of Chicago Conference on Bank Structure and Competition, Chicago, Illinois (via satellite), May 7. http://www.federalreserve.gov/newsevents/speech/bernanke20090507a.htm.

Borio, Claudio E. V. and Shim, Ilhyock. 2007. What Can (Macro-) Prudential Policy Do to Support Monetary Policy? BIS Working Paper (December).

Brunnermeier, Markus, Andrew Crockett, Charles Goodhart, Avinash Persaud, and Hyun Song Shin. 2009. “The Fundamental Principles of Financial Regulation.” 11th Geneva Papers on the World Economy.

Caballero, Ricardo J., Takeo Hoshi, and Anil K. Kashyap, “Zombie Lending and Depressed Restructuring in Japan", January 2008. American Economic Review, forthcoming.

Carmichael, Jeffrey and Michael Pomerleano (2003): The development and regulation of non-bank financial institutions, The World Bank

Caruana, J. (2003): Banking Provisions and Asset Price Bubbles in C. Hunter, G. Kaufman and M. Pomerleano (eds.): Asset price bubbles and their implications for monetary policy and financial stability MIT Press

Eva Hüpkes, Crisis resolution: Where we stand and how to improve it? After the Storm: The Future Face of Europe’s Financial System 23 March 2009 Brussels

Eichengreen, Barry. 2001. “Capital Account Liberalization: What Do Cross-Country Studies Tell Us?” *The World Bank Economic Review*, 16(3), 341-365.

de Larosiere Group. 2009. Report on Financial Supervision (February). www.ec.europa.eu/internal_market/finances/docs/de_larosiere_report_en.pdf.

Geneva Report no. 11, *Fundamental Principles of Financial Regulation.* www.voxeu.org/index.php?q=node/2796

Goldstein, Morris. 2009. Reforming financial regulation, supervision, and oversight: What to do and who should do it. February 24, 2009.
http://www.voxeu.com/index.php?q=node/3133

Group of Thirty. 2009. *Report on Financial Reform* (January).
www.group30/pubs/reformreport.pdf,

Financial Stability Forum (2009) Recommendations for Addressing Procyclicality in the Financial System
http://www.financialstabilityboard.org/index.htm

Financial Stability Forum (2009) Principles for Sound Compensation Practices
http://www.financialstabilityboard.org/index.htm

Financial Stability Forum (2009) Principles for Cross-border Cooperation on Crisis Management
http://www.financialstabilityboard.org/index.htm

Financial Stability Board (FSB). About
http://www.financialstabilityboard.org/about/overview.htm

Financial Stability Forum. 2008. Report of the Financial Stability Forum on Enhancing Market and Institutional Resilience. Basel, Switzerland: FSF (April 7).

Financial Times 2009. Why dealing with the huge debt overhang is so hard, by Martin Wolf (January 28)

Fujii, Mariko and Masahiro Kawai, 2009, Lessons from Japan's Banking Crisis, 1991-2005

Goodhart, Charles, and Dirk Schoenmaker. “Two down, two to go.” de Larosière report.
http://www.voxeu.com/index.php?q=node/3290

Hoshi Takeo and Anil K Kashyap. 2008, “Will the US Bank Recapitalization Succeed? Lessons from Japan”, NBER Working Paper 14401, Cambridge, Massachusetts: National Bureau of Economic Research

Hyun Song Shin. 2009. “It is time for a reappraisal of the basic principles of financial regulation.” January 31, 2009.
http://www.voxeu.com/index.php?q=node/2949.

HM Treasury, Reforming financial markets, 08 July 2009
http://www.hm-treasury.gov.uk/reforming_financial_markets.htm

Idanna Kaplan-Appio, 2002 ”Estimating the Value of Implicit Government Guarantees to Thai Banks.” Review of International Economics 10 (1): 26-35

IMF (International Monetary Fund). 2009, Initial Lessons of the Crisis for the Global Architecture and the IMF Prepared by the Strategy, Policy, and Review Department (February)
http://www.imf.org/external/np/pp/eng/2009/021809.pdf

IMF (International Monetary Fund). 2009. “Regional Economic Outlook: Europe. Addressing the Crisis.” (May).
http://www.imf.org/external/pubs/ft/reo/2009/EUR/eng/ereo0509.pdf.

IMF. 2009. “Responding to the Financial Crisis and Measuring Systemic Risks.” *Global Financial Stability Report* (April 2009), Chapter 3: Detecting systemic risks.

http://imf.org/external/pubs/ft/gfsr/2009/01/pdf/chap3.pdf.

IMF. 2009. Regional Economic Outlook: Europe, Addressing the Crisis, May

IMF. 2009 Crisis Management and Policy Coordination: Do We Need a New Global Framework? Speech by Dominique Strauss-Kahn, Managing Director, International Monetary Fund
http://www.imf.org/external/np/speeches/2009/051509.htm

IMF. 2009 Staff Position Note Fiscal Implications of the Global Economic and Financial Crisis A Staff Team from the Fiscal Affairs Department June 9,
http://www.imf.org/external/pubs/ft/spn/2009/spn0913.pdf

IMF. 2009 Financial Stability and the Design of a New Rule Book, Keynote remarks by José Viñals, Financial Counsellor and Director, Monetary and Capital Markets Department, IMF
http://www.imf.org/external/np/speeches/2009/051509a.htm

Kane, Edward J. 2009 Safety-net Subsidies Keep "Toxic" Assets Illiquid.
http://www.voxeu.org/index.php?q=node/3241

Kashyap, A., R. Rajan, and J. Stein. 2008. "Rethinking Capital Regulation." Kansas City Symposium on Financial Stability

Koo, Richard, 2008. The Holy Grail of Macroeconomics: Lessons from Japan's Great Recession Nomura Research Institute, Wiley,

Kose, M. Ayhan, Prasad, Eswar S., Rogoff, Kenneth S. and Wei, Shang-Jin, Financial Globalization: A Reappraisal(August 2006). IMF Working Paper, Vol., pp. 1-94, 2006. Available at SSRN:
http://ssrn.com/abstract=934448

Laeven, Luc A. and Valencia, Fabian V., Systemic Banking Crises: A New Database (September 2008). IMF Working Papers, Vol. , pp. 1-78, 2008

Lo, Andrew W., Hedge Funds, Systemic Risk, and the Financial Crisis of 2007-2008: Written Testimony for the House Oversight Committee Hearing on Hedge Funds(November 13, 2008). Available at SSRN: http://ssrn.com/abstract=1301217

Mayes, D. G. (2006). "Financial Stability In A World Of Cross-Border Banking: Nordic And Antipodean Solutions To The Problem Of Responsibility Without Power," Journal of Banking Regulation, (October): 20-39. https://secure.palgrave-journals.com/jbr/journal/v8/n1/abs/2350034a.html

Mussa, Michael, 2007, IMF Surveillance over China's Exchange Rate Policy , IIE, October http://www.iie.com/staff/author_bio.cfm?author_id=128

Pomerleano, Michael, The failure of financial regulation, FT Economists Forum January 15 2009

Pomerleano, Michael.2009. Geithner and Summers need to address the banking problems square-on FT Economists' Forum April 13, 2009

Pomerleano, Michael and Ying Lin.2009. The capital shortage is global FT Economists' Forum May 1, 2009

Pomerleano, Michael, Harald Scheule, and Andrew Sheng. 2009. Is Tarp II enough? FT Economists' Forum February 10, 2009

Pomerleano, Michael and William Shaw 2005 Corporate restructuring: lessons from experience, World Bank

New York Times: A Path for Lehman Clients to Recover Assets July 15, 2009
http://www.nytimes.com/2009/07/15/business/15lehman.html

Rajan, R. 2009. “Economics Focus, Cycle-Proof Regulation.” *The Economist* (April)

Royal Bank of Scotland, 2009 Overview on Guarantee Schemes, third edition, January 30

Rodrik, Dani. 1998. “Who Needs Capital Account Convertibility?” *Princeton Essays in International Finance* 207, 55-65.

Tarullo, Daniel (2008), Banking on Basel- the Future of International Financial Regulation ,Institute of International Economics, October

Tarullo, Daniel K. 2009. “Modernizing Bank Supervision and Regulation before the Committee on Banking, Housing, and Urban Affairs,” US Senate, Washington, D.C., March 19.

Taylor, John B. (2009) Getting Off Track: How Government Actions and Interventions Caused, Prolonged, and Worsened the Financial Crisis, Hoover Institution Press Publication Feb 25

Tong, Hu and Shang-Jin Wei, (2009) The Composition Matters: Capital Inflows and Liquidity Crunch during a Global Economic Crisis IMF Working Paper No. 09/164
http://www.imf.org/external/pubs/cat/longres.cfm?sk=23141.0

US Department of the Treasury. Treasury Outlines Framework For Regulatory Reform
www.treasury.gov/press/releases/tg72.htm

Yong Duk Kim, Chief Economic Advisor to the President, Note: Korean Government Effort to Manage Risks in the Financial System (Dec. 2006 – Feb. 2008)

Wall Street Journal, October 18, 2007 Gordian Knot --How London Created a Snarl in Global Markets

Wessel, David 2007 “New Bank Capital Requirements Helped to Spread Credit Woes”, The Wall Street Journal, 30 August

Wessel, David (2009) In Fed We Trust: Ben Bernanke’s War on the Great Panic, Crown Business

Zillow Real Estate www.zillow.com

Zingales, L. 2008. “Plan B,” Economist’ Voice.

Zingales, L. 2009. “Yes We Can, Secretary Geithner.” VoxEU.org, January 22.