The Financial Crisis and Global Policy Reforms

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1. Introduction

Given the profusion of papers on the financial crisis, the decision to write another requires some justification. I have accepted the commission for this one because it is designed to address an aspect of the problem that remains understudied, namely the design and coordination of global policy reforms. Scads have been written on reforming national financial markets. But the reach of financial markets and institutions is global. Although lip service has been paid to the need for global coordination of those national policies, progress remains halting. Whether in fact there will be a response justifying the label "global policy reforms" remains an open question.

My analysis is in two parts, corresponding to the two main explanations for the crisis. The first explanation sees the crisis as rooted in inadequate regulation and distorted incentives in financial markets. The second sees it as the result of a global savings glut that fueled an unsustainable credit boom in the United States. The debate between these two viewpoints—not so much their validity as the weight to be attached to them—will be played out in the history books. For present purposes I do not attempt to rank their importance.[1] I simply assume the validity of both explanations and, by implication, their compatibility. In each case I draw first the lessons of the crisis and then the implications for policy.

2. National Financial Markets and Global Policy Reforms

The first explanation for the crisis focuses on distorted incentives in financial markets and the failure of regulators to contain their effects. Deregulation, as symbolized by the Gramm-Leach-Bliley Act in the U.S. and the Single Market Act in Europe, allowed financial institutions to take on additional risk. The resulting intensification of competition encouraged them to do so in response to the pressure to survive. Risk-taking was fueled by the knowledge that big banks were important for financial stability—that they stood to receive official assistance in the event of difficulties. Compensation schemes for investment managers, whose bonuses depended on current performance irrespective of the future profitability or even viability of the firm, encouraged strategies that maximized short-term returns at the expense of long-term stability. The originate-to-distribute model of securitization allowed firms to neglect the long-term performance of the securities they issued since the originating entity had no skin in the game. Rating agencies, lacking reliable models of delinquency probabilities on subprime mortgages in a down market, failed to warn of the risks. As advisors on structuring securitizations as well as issuers of ratings, they faced conflicts of interest.

Regulators, meanwhile, lacked the resources to keep up with the regulated. They bought into the argument that the banks' internal models provided reliable forecasts of value at risk and that improved ability to diversify, repackage, and otherwise manage risk justified ever-lower capital ratios as necessary to minimize the costs of financial intermediation. The fragmented structure of regulation within and across countries meant that no single regulator possessed a comprehensive picture of the regulated. The fragmentation of regulation also created scope for regulatory arbitrage—for bank and nonbank financial firms to shift risky activities both to more permissive jurisdictions and off-balance-sheet, where capital charges could be evaded.[2]

2.1. Policy Implications

From this diagnosis flows a prescription. First, regulators should require banks to hold more capital. By giving bank shareholders something to lose, capital is a disincentive for excessive risk-taking. It is also a buffer against risks to the balance sheet. Well-capitalized banks are less likely to be driven into insolvency by shocks. They are less likely to lose the public confidence that is critical for the willingness of other market participants to do business with them. They will be better placed to expand their balance sheets when investment opportunities arise.

Against this backdrop it is striking that Tier 1 capital (banks' core capital as defined in the Basel Capital Accord) has been trending steadily downward in the advanced economies in recent decades, reflecting the belief that lower capital requirements reduce the cost of financial services and that banks can safely manage their affairs from a narrow capital base. The result is that Tier 1 capital in the United States has effectively gone negative in every recent recession. The traditional response of regulatory forbearance to allow the banks to earn their way out of this hole becomes less feasible in an era of mark-to-market accounting. Much higher Tier 1 capital requirements are the obvious answer.

At the same time they adjust capital requirements upward, regulators can usefully revise them along a number of additional dimensions. Capital requirements should apply to the consolidated position of the institution whether investments are held on or off balance sheet.[3] Required capital ratios should be predicated on realistic holding periods.[4] They should reflect not just the volatility of banks' investments but also the volatility of their funding. They should reflect the risk posed by failure of the individual institution to the stability of the financial system; from this flows the conclusion that more capital should be required of big banks and connected banks. Required capital ratios should have a countercyclical influence; they should rise when a bank's balance sheet is expanding, rather than falling because its internal model signals less value at risk or the rating agencies upgrade the securities in its portfolio.

Second, there is the need for a resolution regime for systemically significant nondepository institutions (both banks and nonbanks) to create a third way between government assistance and uncontrolled bankruptcy. A commitment not to extend a bailout will be time-inconsistent in the absence of a resolution regime. Auto companies can keep selling cars even while under bankruptcy protection.[5] But standard bankruptcy procedures are not feasible for financial institutions which require people to believe in their solvency in order to keep funding them. In addition to the confidence problem there is the fact that putting a financial institution through bankruptcy can place derivatives contracts in limbo, resulting in a domino effect destabilizing other institutions as claims are suspended and collateral is frozen.[6]

The very fact that the United States has the Federal Deposit Insurance Corporation (FDIC) as an alternative to bankruptcy for banks is an indication that the country needs an equivalent resolution mechanism for bank holding companies. But while we have the FDIC for banks like the old Citibank, we do not have the equivalent for bank holding companies like Citigroup. Bank holding companies in the United States are regular corporations and are therefore subject to regular bankruptcy procedures that lack preemptive provisions.[7] The U.K. similarly has a special resolution regime for deposit banks as of 2009 but not for merchant banks and other nonbank financial institutions. So long as this remains the case, moral hazard will be a problem, and potentially a serious one.[8]

A resolution regime for these entities would have the following features.[9] The regulator would be empowered to appoint an administrator. The administrator's powers would include firing the management and board and suspending the voting and other decision rights of the shareholders and unsecured creditors. The administrator could ring-fence specific activities (securities clearing, settlement and custodian activities) and instruments (derivative securities, etc.). He could transfer deposits to another bank, sell assets, and mandate debt-for-equity swaps, and finally break up the institution or order its liquidation.

Third, supervisors must be provided with the information they need to make informed assessments of risks to stability. This means not starving regulatory agencies of the resources required for information gathering.[10] It means imposing reporting requirements on hedge funds and other nonbank financial institutions of potential systemic significance, requiring them to provide information relevant to the regulator's micro- and macroprudential tasks.[11]

Fourth, regulators should address problems in markets for derivative securities. They should seek to better align the economic interests of originators and investors by requiring the originator of any securitized asset to retain a meaningful portion of the equity or first-loss tranche. This will give the originator a stake in the subsequent performance of the issue. The Treasury blueprint for reforming the U.S. financial system proposes that the originator should be required to hold 5 percent of each issue.[12] It can be argued that 5 percent is not enough—that the originator's skin should be thicker. The Committee on Capital Markets Regulation argues the other way: it warns that such measures may result in greater concentration of risk for financial institutions.[13] But, if so, then they should be accompanied by higher capital requirements. This may make originating such securities more costly, but such is the price of a stable financial system.

Further, regulators should move over-the-counter derivatives transactions into a clearinghouse where there exists a central counterparty. The central counterparty is the single buyer and seller to every other party. It collects margins on every trade and places them in a reserve fund to protect against losses if other parties default. Traders only have to worry about the creditworthiness of this one counterparty. If any single trader goes under, this is unlikely to create the kind of domino effect that resulted from the failure of Lehman Brothers. The central counterparties of some derivative securities (such as interest rate swaps) are already cleared by LCH.Clearnet Group Ltd. Credit default swaps (CDSs) based on indices have been cleared by Intercontinental Exchange's central counterparty service since March 2009. The authorities in the U.S. and Europe have announced the intention of further expanding their use of central counterparties for clearing over-the-counter derivative products. Better still would be to move transactions onto an organized exchange whose members commit their capital jointly and separately to guarantee transactions.[14]

Fifth, the compensation practices should be reformed to better align the interests of key decisionmakers and shareholders. Officials are reluctant to interfere in these intimate private sector matters, preferring to leave compensation decisions to the consenting adults involved. But experience suggests that corporate boards do not always have the independence and outside directors do not have the information needed to make decisions to appropriately incentivize those they oversee. Bonuses linked to the performance of the trading desk, division, or firm in the most recent year can encourage practices that inflate current returns at the expense of the long-term viability of the firm. A compromise would be to leave decisions regarding overall compensation to the firm but require that bonuses be linked to medium- rather than short-term performance and mandate that they be clawed back in the event of subsequent problems.[15]

Sixth and finally, there should be an agency responsible for macroprudential supervision—for the stability of the financial system as opposed to just its constituent parts.[16] In the U.S., the Barack Obama Administration would create a Financial Services Oversight Council chaired by the Treasury (and with its own permanent professional staff) to identify potential risks to systemic stability and give the Fed regulatory power over individual systemically important financial institutions. In the U.K., the Gordon Brown Government proposed vesting the Financial Services Authority, the U.K.'s unified regulator, with this responsibility. The European Union (EU) would create a European Systemic Risk Council made up of individual European central banks and regulators and chaired by the president of the European Central Bank (ECB).[17] Other countries have yet to fully specify how they would organize macroprudential supervision.

2.2. Challenges at the National Level

Implementing these principles at the national level is not straightforward. To start, moving to higher capital requirements creates a transition problem. Assuming that there is no appetite for a taxpayer gift to the banks, it implies a long period of subdued lending as banks limit the growth of the denominator of the capital-to-assets ratio. Then there are practical issues of how to reform other dimensions of capital adequacy requirements. While it may be straightforward to index capital adequacy to the size of a financial institution, size really is of concern only insofar as it has implications for systemic stability. Size in and of itself is a poor proxy for the threat to systemic stability posed by the failure of a particular institution; the variables of interest are systemic importance or connectedness. And it is not clear that regulators know how to measure these things.[18]

Indexing capital ratios to the cycle may similarly be less than straightforward. Should these be indexed to the growth of GDP or the growth of bank lending? There may be agreement that internal models and commercial credit ratings are weak bases on which to assess the riskiness of a bank's investments for purposes of capital adequacy, but it is not clear what to replace them with.

The current fashion is to supplement existing measures with a simple leverage ratio (the ratio of capital to unweighted assets). But the latter ignores entirely the correlations between the returns on different assets. It thus implies very different degrees of self-protection for different financial institutions.[19]

A special resolution regime will send a clear signal to banks' unsecured creditors that they too are at risk in the event of insolvency—that their claims will be wiped out if the institution is dismantled and that their claims will be liquidated or converted from debt to equity if it is restructured and allowed to continue. But this will make it more difficult for banks to access debt finance precisely when capital is scarce.[20] Then there is the question of to what entities exactly the special resolution regime should apply: insurance companies, hedge funds, finance companies, and credit unions as well as banks, for example?[21] Finally there is the question of who in a fragmented regulatory system activates the special resolution regime. The Insurance Commissioner of the State of New York regulated AIG's investment activities, the Pennsylvania Insurance Department its property and casualty businesses, and the Delaware Insurance Department its life insurance business. Which would be responsible for determining that the company had failed to meet the threshold conditions for financial solvency?[22]

To ensure adequate information on hedge-fund operations, U.S. regulators are moving toward a system where all hedge funds register with the authorities. Under the Treasury's July 15, 2009, proposal, hedge funds, private equity funds, and venture firms with more than $30 million in assets would be required to register with the Securities and Exchange Commission (SEC) and to report assets, leverage, off-balance-sheet holdings, and other investments on a confidential basis.[23] The SEC would possess power of examination and the right to share this information with other regulators. But the form and content of these "periodic" reports remains to be specified. And the speed with which hedge funds trade raises questions about the timeliness of the information. Information on last week's hedge fund portfolio is at best only marginally more informative than no information at all.[24]

Neither is requiring underwriters to retain a portion of any security they issue as straightforward as it may seem. Financial engineers would be quick to identify other securities that are correlated with the issue in question and short them as a way of hedging out the position and its implications for behavior. Long positions in other investments whose returns are negatively correlated with the issue could be used to the same end. It is hard to imagine that requiring the originator to hold onto a fraction of the issue would have much impact on behavior when the entire portfolio was taken into account.

And even ignoring the scope for hedging, it is not clear that requiring a bank to hold on to 5 percent of the issue, as proposed by the Obama Administration, would have much impact on its underwriting activities. Investment banks in fact had been forced to warehouse more than 5 percent of the subprime-related securities issued in the late stages of the housing boom, and this did not deter them from originating them as fast as they could. Requiring the underwriter to retain a larger share of the issue might have more substantial effects, but this could result in dangerous portfolio concentrations.[25] And even then, to the extent that underwriting and investment decisions take place in different arms of the financial group, it is not obvious that the exposure of those responsible for the latter will impact the behavior of the former.

Forcing transactions in derivative securities through a clearinghouse or exchange would have costs in terms of instrument diversity, since only a limited number of securities subject to a critical mass of transactions would be feasible for centralized clearing and exchange-based trading. Offering customized contracts for insuring against idiosyncratic risks would become more costly. The central counterparty would also, by definition, be a locus of systemic risk. In the United States, clearinghouses are regulated by the Federal Reserve and the Commodity Futures Trading Commission. For stability purposes they will have to be regulated closely. The question then becomes how to plan for a government rescue of the clearinghouse without distorting the incentives of its operators.

Finally there are questions about the effectiveness of macroprudential oversight. Recall how under the Obama Administration's proposal macroprudential supervision would be the responsibility of a Financial Services Oversight Council chaired by the Treasury while macroprudential regulation of systemically important institutions would be undertaken by the Fed.[26] Making macroprudential supervision the responsibility of a council of regulators is a recipe for endless bickering over the existence of risks, the definition of bubbles, and the assignment of responsibilities. When setting guidelines and identifying risks is the responsibility of one entity but enforcing regulations and otherwise intervening in the operations of systemically important institutions is the responsibility of another, can we be confident of adequate coordination?

The alternative of placing both functions within a single institution eliminates this coordination problem but creates other difficulties. Making the central bank the sole macroprudential supervisor and regulator may create a conflict with its price-stability objective and expose it to unwelcome political scrutiny. But assigning those responsibilities to an independent supervisor may limit information flows to and from the central bank and complicate the lenderof-last-resort function.[27] It is not clear that there is a single optimal solution to this assignment problem or even a clear second best.[28]

2.3. Challenges at the Global Level

In a world in which human and financial capital are mobile, few of these reforms are likely to be feasible and effective without international cooperation.

This has long been recognized in the case of capital adequacy, given the incentive for individual jurisdictions to impose less-demanding requirements in order to attract business. The Basel process was designed to address this problem, but its track record is less than reassuring. The negotiation of Basel II, now shown to have been deeply deficient, occupied the better part of a decade. Given the recent demonstration of the costs of financial instability, it is clear that we cannot wait another decade for Basel III.

What has been done? The Basel Committee has agreed to increase trading book capital requirements to reflect liquidity as well as default risk. It has pledged to submit proposals by the end of 2009 for countercyclical buffers and provisioning over the cycle. The Financial Stability Board has produced recommendations designed to reduce reliance on cyclical value-at-risk-based capital estimates and to supplement risk-based capital requirements with a leverage ratio. The question is whether these limited steps will be enough.

For capital adequacy there at least exists an established process. Negotiating rules for executive compensation will be harder insofar as there is no established international venue. The Financial Stability Board has agreed on principles for the governance of compensation systems, but the mere existence of principles does not guarantee that anything will be done.[29] Implementation is by national authorities who will be concerned with brain drain and institutional flight.

One approach would be to proceed under existing corporate governance conventions. Compensation rules are properly the domain of corporate boards and compensation committees. The Organisation for Economic Co-operation and Development (OECD) has promulgated principles for sound corporate governance and consulted with its members and civil society on the role of governance failures in the financial crisis. Unfortunately, aside from monitoring the compliance or otherwise of members, it has no way of enforcing its recommendations.

Similarly, in a world where bank holding companies operate globally, an effective resolution regime cannot be organized at the national level. Host supervisors and creditors may discover that all of a group's liquidity is in another jurisdiction, available first to creditors there. In turn this can alter the incentives for home regulators to be forthcoming in their interactions with host supervisors.

In the case of nonfinancial firms there has been some progress at harmonizing these arrangements. The International Association of Restructuring, Insolvency & Bankruptcy Professionals (INSOL International), Committee J of the International Bar Association, and the United Nations Commission on International Trade Law (UNCITRAL) all have commissioned working papers, organized meetings, and created working groups to encourage informal cooperation, foster the recognition of foreign insolvency proceedings, and promote model legislation. But the harmonization of special resolution arrangements for financial institutions has lagged.

Only in the EU has there been agreement on the adoption of a uniform insolvency law for banks. The Commission's Directive on the reorganization and winding-up of credit institutions introduced a single entity regime in 2001.[30] But even there, difficulties remain. Recall Fortis, the Dutch-Belgian-Luxembourg financial services company hit by the subprime crisis. In the interest of maintaining existing synergies, the Belgian authorities agreed to put up 50 percent of the rescue fund, the Dutch authorities 40 percent, and the Luxembourg authorities 10 percent. But these efforts at cross-border fiscal burden sharing lasted all of a week, after which they collapsed over disputes between the contributors. Rather than saving the baby, the three national authorities chose to dismember it. The Dutch government took 100 percent of the Dutch operations, the Belgian authorities 100 percent of the Belgian operations, and the Luxembourg authorities 100 percent of the Luxembourg operations. So much for synergies. And not even this was straightforward. In June 2009 Fortis Bank Netherlands (owned by the Dutch State) and Fortis Holdings (a Belgian-listed company) ended up in court, litigating which rump unit was responsible for paying preference shareholders.[31]

Turning to securities markets, there is the fact that over-the-counter transactions can migrate. Banning them in one jurisdiction may only cause them to move to another. Even heavier capital requirements for institutions with positions in credit default and interest rate swaps may be ineffective when not all jurisdictions cooperate in applying them. The solution presumably is to incorporate such measures into the revised Basel Capital Accord, though this has yet to be done.

Then there are the questions of where to locate clearinghouses and how to avoid unnecessary proliferation.[32] In addition to the two clearinghouses set up in the United States in 2009, five more have been established or proposed in Europe, and it will not be long before more follow in Asia. Netting positive and negative exposures is difficult if some CDS positions of an individual derivatives dealer are cleared through one clearinghouse while others are cleared through a different clearinghouse.[33] In addition, clearinghouses may be tempted to relax collateral standards and reduce guarantee fund contributions in order to attract business, in which case their stability will be at risk.

One solution is to work on netting across clearinghouses. But this would require strong standardization of contracts and collateral terms—stronger standardization than in current proposals. Another solution would be to agree on the location of one or a small handful of clearinghouses. But not only is this politically difficult, it puts regulation of that global clearinghouse in the hands of a particular set of national authorities who may or may not follow policies congenial to the others.[34]

Then there is the question of what to do about the rating agencies. In July 2009 the Obama Administration proposed new legislation under which rating agencies would have to register with the SEC and document their internal controls, due diligence, and rating methodologies. The proposed legislation would also prohibit rating agencies from advising clients whose securities they also rate. The EU has agreed to create a college of supervisors for each rating agency and committed to adopting legislation for a single European supervisor for rating agencies by July 2010. That supervisor will presumably demand action limiting conflicts of interest and otherwise ensuring minimally acceptable practices. But even if the EU moves to a single supervisor, the international community will inevitably be left to rely on a college of supervisors, given resistance at the global level to establishing a single supervisor. Whether U.S., European, Asian, Latin American, and other officials can work together to ensure that the rating agencies adopt sound methodologies and avoid conflicts of interest, while at the same time reducing the dependence of the regulatory regime on the ratings they issue, remains to be seen.[35]

Finally there is the question of how to conduct macroprudential supervision at the international level. Financial institutions and markets are international; so too, therefore, must be the macroprudential response. Here again, Europe epitomizes the challenges, given the deep integration of its financial markets. The Commission has endorsed the recommendations of the de Larosiere Group to establish a European Systemic Risk Council (ESRC) for macroprudential supervision to identify risks, sound warnings, and issue guidelines for corrective action.[36] The ESRC will function under the Governing Council of the European System of Central Banks, chaired by the president of the ECB, with the representatives of all 27 EU central banks present along with the presidents of three supervisory bodies: the European Banking Authority, the European

Insurance and Occupational Pensions Authority, and the European Securities and Markets Authority.[37]

But the ESRC will have no responsibility for regulation, financial supervision, or monetary and fiscal policies, the three key pillars of macroprudential supervision. It will have no ability to change actual policies in these areas, only the ability to communicate its findings to the competent national authorities. As the de Larosiere Report emphasized, binding mechanisms are needed to ensure that the macroprudential findings of these bodies are followed by microprudential supervisors. It is proposed that the ESRC or its constituents could request the Commission to adopt a decision that there has been a "manifest breach" of Community law and thereby require a national supervisory authority to take a specific action in order to come into compliance. In this way the ESRC and the Commission together would have the power to compel corrective action on the part of national authorities—assuming of course that national authorities assign them this power.

What is difficult at the European level is even more difficult globally. The approach that emerged from the G-20 process would put the newly expanded and reconstituted Financial Stability Board in the pilot's seat, with the IMF as copilot. The FSB will set guidelines for and support the establishment of supervisory colleges for systemically important firms, collaborate with the IMF on early warning exercises, and undertake strategic reviews of the policy work of international standard-setting bodies. It will do so by establishing Standing Committees on Vulnerabilities Assessment, on Regulatory and Supervisory Cooperation, and on Standards Implementation and by expanding its secretariat. As I read it, the idea is that the IMF would report its findings on financial stability risks to the FSB. The FSB would then identify "enhancements" to regulatory frameworks to mitigate risks and communicate these to the relevant national authorities. But it would not have enforcement powers.

Then again, creating a global macroprudential supervisor with enforcement powers may not be as infeasible as commonly believed. Imagine creating a World Financial Organization (WFO) analogous to the already existing World Trade Organization (WTO).[38] In the same way that the WTO establishes principles for trade policy (nondiscrimination, reciprocity, transparency, binding and enforceable commitments) without specifying outcomes, the WFO would establish principles for prudential supervision (capital and liquidity requirements, limits on portfolio concentrations and connected lending, and adequacy of risk measurement systems and internal controls) without prescribing the structure of regulation in detail.[39] The WFO would define obligations for its members; the latter would be obliged to meet international standards for supervision and regulation of their financial markets and institutions. Membership would be obligatory for all countries seeking freedom of access to foreign markets for domestically chartered financial institutions. The WFO would appoint independent panels of experts to determine whether countries were in compliance with their obligations. Importantly, it would authorize sanctions against countries that failed to comply. Other members would be within their rights to restrict the ability of banks and nonbank financial institutions chartered in the offending country to do business in their markets. This would provide a real incentive to comply.

It will be objected that national governments will never let an international organization dictate their regulatory policies. The rebuttal is that the WFO would not dictate. The specifics of implementation would be left to the individual country. Members would be able to tailor supervision and regulation to the particulars of their financial markets. But those regulatory specifics would have to comply with the broad principles set down in the WFO charter and associated obligations.

We already do the equivalent for trade. Dispute settlement panels already determine whether, inter alia, U.S. tariffs on timber imports from Canada are in compliance with the U.S. WTO obligations. If not, we have the choice of whether to change those laws or face sanctions and retaliation. If the U.S. and other countries accept this in the case of trade, why should they not accept it for finance?

3. Global Imbalances and Global Policy Reforms

The other view of the crisis focuses on global imbalances. The run-up in asset prices and associated financial excesses in this view derived from the combination of accommodative policy in the United States and large capital inflows from emerging Asia and petroleum-producing countries. China's current account surplus rose from less than 2 percent of GDP early in the decade to a whopping 11 percent in 2007. Under other circumstances such large surpluses resulting in foreign-asset accumulation would have led to real exchange rate appreciation through some combination of nominal appreciation and inflation. But China sterilized the asset accumulation, squirreling it in international reserves held largely in U.S. Treasury and agency securities. Moreover, while China's reserves grew rapidly it was not alone; India, South Korea, and Taiwan, among others, also saw very sharp increases in reserves. Oil-exporting countries also ran large current account surpluses and accumulated considerable quantities of reserves after 2000. Russia's reserves rose from negligible levels at the beginning of the decade to nearly $150 billion at the end of 2007. More generally, there were large petrodollar flows from the Persian Gulf states, Russia, Nigeria, and Venezuela toward the United States and other advanced country markets.

While China, the rest of emerging Asia, and the oil exporters all had rising national savings after the turn of the century, their national investment rates also rose. But those increases were inadequate to absorb the growing pool of savings. Investment rates in China were in fact extraordinarily high by international standards, and it is not clear that the country could have deepened its capital stock even more rapidly without significant inefficiencies.[40] Other emerging Asia countries had maintained higher gross investment rates and kept their aggregate current accounts broadly in balance prior to the financial crisis of 1997–98, but some of this investment had been inefficient: it reflected directed-credit policies of governments resisting the inevitable deceleration from the high-growth period and empire building by highly leveraged family-owned conglomerates. These problems were corrected, at least in part, following the crisis. Investment rates in emerging Asia excluding China recovered from their post-crisis lows after the turn of the century but never rescaled the inefficiently high levels of 1993–96. The oil exporters saw modest increases in their investment rates in 2000 and 2006–07, but not on the scale needed to absorb their rapidly deepening pool of saving.[41]

All this money had to go somewhere, and much of it flowed to the United States. One estimate (Warnock and Warnock 2006) suggests that U.S. Treasury rates were 100 basis points lower than they would have been in the absence of foreign inflows. The Fed raised short-term rates from 1 to 5.25 percent between mid-2004 and mid-2006, but the yield on 10-year Treasuries actually fell over the period.[42] This was Chairman Alan Greenspan's "bond market conundrum," which his successor and others ascribed to the so-called "global savings glut." Low real interest rates on 10-year Treasuries pushed capital into other assets. The consequent higher home and stock market valuations had positive wealth effects on spending. Measured household savings in the U.S. fell from approximately 10 percent of disposable income in the first half of the 1980s and 7 percent in the early 1990s to close to zero in 2005–07.[43]

Spending was further encouraged by U.S. monetary and fiscal policies. While the Fed raised short-term interest rates in 2004–06, it started from exceptionally low levels, reflecting the low rates put in place in response to 9/11 and the 2002–03 deflation scare. It hesitated to normalize too fast for fear of choking off the expansion. The federal funds rate was consistently below Taylor rule levels between 2002 and 2007.[44] Fiscal policy operated in the same direction. The most reliable way of preventing overheating and discouraging capital inflows is of course by tightening fiscal policy.[45] And, after a long period of deficits, net borrowing by the U.S. public sector had actually gone negative in 1998–2000.[46] But public-sector borrowing resumed in late 2001 with the recession and the George W. Bush Administration tax cuts. Public-sector net borrowing in fact exceeded net borrowing by households in most quarters between the beginning of 2002 and the end of 2007.

The effect of all of this was that the U.S. current account deficit reached 6 percent of GDP in 2006.[47] Slightly more convoluted is the link to the particular constellation of financial weaknesses that culminated in the crisis. The story as typically told goes like this.[48] Low yields on 10-year Treasuries encouraged money to flow into higher-yielding assets backed by, inter alia, residential mortgages. Mortgage originations as a share of total mortgage debt outstanding thus rose from 6 percent in 1985–2000 to 10 percent in 2001–06. To meet the demand for mortgage-backed securities, lending standards for residential mortgages were relaxed. Agency problems between mortgage brokers who originated the loans, financial institutions who packaged and distributed them, and investors who purchased them allowed this problem to go uncorrected.[49] The income streams associated with those mortgages were then sliced, diced, repackaged, and insured to render them compatible with the covenants and capital requirements of institutional investors.

A variety of feedbacks amplified these dynamics. Lower lending standards and easy mortgage finance pushed housing prices even higher, which encouraged further reductions in standards by lenders impressed by the increase in the value of real estate collateral. The increase in mortgage activity encouraged entry by brokers and squeezed margins, further aggravating agency problems at origination. Higher asset prices encouraged larger flows into U.S. financial markets from domestic and foreign investors convinced that past performance was a guide to future returns. Higher asset prices also meant more revenues for state and local governments that depend on capital gains and property taxes, respectively, for much of their income; these ramped up their spending accordingly. All these were typical responses to a surge of capital inflows. The only difference from earlier capital flow bonanzas was that this time the country on the receiving end was the United States.

Starting in 2007 these same feedbacks shifted into reverse. Private foreign demand for additional U.S. portfolio investments disappeared in the early part of 2007. The result was a weaker dollar and tighter U.S. financial conditions. U.S. housing prices, having reached historically high levels, had already been in decline since the summer of 2006, causing delinquencies, starting in the subprime segment of the market, to rise sharply.[50] This created problems for debt securities backed by claims on pools of mortgages and, in turn, for institutions like American Home Mortgage Investment Corporation, BNP Paribas, and Countrywide Credit heavily involved with them. They had to sell other assets in order to square their books, raise liquidity, and meet shareholder redemptions. The more highly leveraged the institution, the more extensive the resulting fire sales. Because the U.S. economy as a whole and its financial sector in particular had become more leveraged during the expansion, deleveraging now was dramatic. Banks, under balance sheet stress and seeing the value of collateral eroding, raised lending standards, putting further downward pressure on housing prices.[51] Private foreign investors who had previously bought U.S. financial assets with wild abandon now withdrew from the market. The story of the crisis can be told more colorfully and in more detail. But from the point of view of our second explanation emphasizing global imbalances, this was the essence of the matter.

3.1. Policy Implications

From this diagnosis again flows a prescription for policy responses. As in the first half of the paper, I highlight six.

First, monetary policy makers must worry about imbalances even in the absence of inflation. The first half of the present decade was notable for the absence of overt inflation in the United States. But even if low interest rates did not spur commodity price inflation, they fed asset price inflation through the various channels enumerated above. They encouraged the financial excesses that set the stage for the crisis. It follows from their commitment to the maintenance of macroeconomic stability that monetary policy makers should lean against unsustainable asset as well as commodity price developments. Regulation alone, no matter how comprehensively reformed, cannot be relied on to prevent unsustainable asset market conditions or to fully contain their consequences. The textbook view of inflation targeting in which asset market developments matter only insofar as they convey information about prospective future commodity price inflation should be abandoned or at least modified to admit an independent role for asset market conditions.

Second, policymakers in the U.S. and elsewhere should attend to the procyclical bias in fiscal policy. The budget deficit and net borrowing by the public sector were allowed to explode in 2003–06 precisely when the U.S. economy was growing strongly and the current account deficit was widening. These were years when the economy did not need a shot in the arm from deficit spending. Fiscal policy makers would have done better to keep their powder dry. Better still would have been to have taken the same advice that they regularly doled out to emerging markets—that tightening fiscal policy is the best way of moderating the impact of large capital inflows and, indeed, of moderating those inflows themselves.

Third, a large current account deficit cannot be regarded as benign even by a country like the United States that borrows in its own currency. Foreign finance for the current account can dry up abruptly. The U.S. has not felt the full effects this time, foreign central banks having stepped in to replace much of the foreign private investment that evaporated, but it may not be so lucky next time.[52] A current account deficit that cannot be financed will necessarily be compressed; unlike other deficits, it cannot then be financed at home. Such compression in turn requires a change in relative prices, including in the exchange rate, which can catch investors wrong-footed. It can also precipitate a recession if it takes time to shift resources between the production of nontraded and traded goods. The same arguments leading to the conclusion that monetary and fiscal policy makers cannot afford to disregard asset market developments similarly suggest that they cannot afford to disregard the current account.

Fourth, countries equally cannot regard large current account surpluses with equanimity. If someone else's current account deficit puts financial stability at risk, so too by implication does your surplus, since the former is not possible without the latter. Countries where domestic saving exceeds domestic investment by a large margin have tools with which to boost spending, from increasing public spending directly to easing credit terms for household and corporate spending.

Fifth, relative prices must adjust to accommodate these changes in the pattern of demand. Insofar as the residents of each country exhibit home bias in consumption, the relative price of home goods will have to rise in the surplus country and fall in the deficit country. Ruling out deflation—which policymakers in the deficit country will work hard to avoid—this adjustment will have to occur through some combination of inflation and currency appreciation in the surplus country. For well-known reasons, currency appreciation is the preferable alternative.

Sixth, reserve accumulation will have to be less insofar as surplus countries encourage domestic absorption and see their real exchange rates appreciate in response. Such countries will have to seek other ways of insuring themselves against shocks.

It is worth asking how history would have differed had these recommendations been adopted at the beginning of the decade. U.S. monetary and fiscal policies would have been tighter.[53] Chinese and more generally Asian fiscal policies would have been looser. Global imbalances would have been less. Less accommodating monetary policy and less capital inflow would have dampened financial excesses in the United States.[54] The combination of less demand stimulus in the United States and more demand stimulus abroad would have left global demand unchanged to a first approximation. To the extent that there were worries about overheating in China and elsewhere, foreign stimulus might not have been increased sufficiently to offset the reduction in demand stimulus in the United States, and the global economy would have grown more slowly. Recall however that global growth in 2005–06 was the fastest in more than 30 years. Slightly slower growth would have been an acceptable price to pay for warding off the most serious financial crisis in generations.

3.2. Challenges at the National Level

Challenges again arise when we attempt to move from principle to practice. It is easy to say that inflation targeting should be modified to admit a role for asset market conditions but harder to know exactly how to modify it. For example, it is easy to assert with benefit of hindsight that monetary policy should have been tightened faster in 2004–06 in response to the rise in housing prices and widening of the current account deficit, but it is more difficult to say by how much. By exactly how much do asset prices and the current account have to move before they justify a monetary policy response over and above that warranted by their implications for expected future inflation and the output gap? The presumption in the debate over whether central banks should target asset market conditions may have tipped away from the Jackson Hole view in favor of the Bank for International Settlements (BIS) view, but earlier questions about the BIS view—starting with how central banks know when asset prices pose a significant threat to stability—have not gone away. If the effect of asset prices on the economy is complex, nonlinear, and contingent, then the monetary policy response to asset price fluctuations will have to be complex, nonlinear, and contingent.[55] Attempts to routinize monetary policy in the form of a post-Taylor rule are unlikely to succeed.

Similarly, inadequate fiscal restraint in good times is an old problem with no simple solution. Institutional reforms can help, but effective reform will depend on circumstances. In general, fiscal rules that limit deficit spending (but also limit fiscal flexibility) work best where ideological differences between political parties are relatively pronounced, while fiscal procedures that delegate decisionmaking to, inter alia, the executive work best where ideological polarization is relatively limited.[56] In a presidential system like that of the United States, it may be necessary to have both supportive rules and procedures. Given the electoral returns to pork barrel spending it is important to have powerful party leaders and a strong committee system to exercise agenda-setting powers and discipline members of Congress. At the same time, when the balance of power between the legislative and executive branches is relatively even—also the U.S. case—ex ante agreements (balanced budget rules, multiyear fiscal targets) can be critical for fiscal discipline. But reform to give party whips and committee chairs even more power would be strongly resisted. And the unhappy record of the Gramm-Rudman-Hollings balanced budget legislation and its successors does not reassure one about the prospects for binding fiscal rules.

Countries with large current account surpluses may similarly encounter difficulties when attempting to narrow them in short order. In China, significant reductions in household saving rates will require a stronger social safety net, something that cannot be built overnight. Government saving and investment can be adjusted more quickly, but here too there are limits. For example, doubts have been voiced about the efficiency and productivity of the additional investment spending undertaken by China's local governments since the outbreak of the crisis.[57] Such questions are likely to deter the central authorities from relying yet further on expansionary fiscal policy to address the current account imbalance.

3.3. Challenges at the Global Level

What to do about global imbalances may be the thorniest question of all. In the years leading up to the crisis, both the United States and China followed the policies they did, despite voices warning of risks, because they perceived them as in their self interest.[58] It could be that they misperceived the balance of risks and rewards and that more effective advice could have alerted them to their error and prompted corrective action. It could be that they failed to understand the impact of their policies on other countries and that more effective consultation would have caused them to recognize the existence of these spillovers and, good global citizens that they are, to internalize them. It could be that there existed policy adjustments that would have been mutually beneficial if taken in tandem even though either would have been welfare-reducing for the country concerned if taken in isolation. It could be, in other words, that what was needed was more effective policy coordination.

The problem is that there already exist mechanisms for correcting these deficiencies. Warning of the risks posed by large current account deficits is at the heart of the International Monetary Fund's (IMF) country surveillance. The Fund issued warnings about the danger that chronic large U.S. current account deficits could result in a disorderly adjustment, but these led to no changes in U.S. policy. It expressed reservations about the constellation of policies that resulted in large and growing Chinese surpluses but again without noticeable results.

Similarly, the IMF's multilateral surveillance is designed to alert countries to the spillovers and external effects of their policies. Instruments here include the IMF's two flagship reports, the *World Economic Outlook (WEO)* and *Global Financial Stability Report*, its *Regional Outlooks*, its contributions to interregional committees and forums (the G-7/8, G-10, G-20 etc.), and confidential briefings on internal evaluations like those undertaken by the Coordinating Group on Exchange Rate Issues. The spring and autumn 2005 WEOs devoted considerable space to the factors underlying global imbalances, the risks, and the appropriate policy response, again without discernible results.

Since 2006 the IMF's arsenal has included a Multilateral Consultations Initiative bringing together a small number of countries for whom such spillovers are first order. The first such consultation, announced in June 2006 and concluded with an Executive Board discussion in July 2007 (note the date), brought together the United States, China, Japan, the euro area, and Saudi Arabia to discuss the cross-border impacts of global imbalances. This consultation started with bilateral staff visits with the five participants followed by multilateral meetings and a joint report. The report mentioned how the process had been "useful" and how it had "contributed to an improved understanding of the issues and each other's positions."[59] Again, however, it is hard to see that this useful initiative and improved understanding led to significant adjustments in the policies of the countries in question.

Finally, if the problem is to coordinate policy adjustments that are unappealing in isolation but mutually beneficial if undertaken jointly, then there already are mechanisms for achieving this. There is the aforementioned Multilateral Consultations Initiative. There are country groupings ranging from the G-7/8 to the G-20. There are bilateral consultations among governments such as the annual U.S.-China Strategic Dialogue. If there is a shortage of coordinated action, it is not for a shortage of venues for coordination.

Why these processes did not lead to different outcomes is familiar enough. While the IMF can issue warnings, it cannot compel policy adjustments by countries that do not borrow from it, either because they have no difficulty borrowing on the market (the U.S. case in the period leading up to the crisis) or because on net they do not borrow at all (the Chinese case). Louder warnings might be more likely to elicit action, but these would be problematic on a number of grounds. IMF staff and management operate under the oversight of the Executive Board, which speaks for the governments about whose policies they are warning. Large shareholders could push back against warnings that cause them significant embarrassment, through actions in the Board that make management's position untenable. Staff and management know this and choose their language accordingly.

Likewise, the notion that good global citizens should internalize the cross-border spillovers of their policies and that difficult policy adjustments may be easier when coordinated internationally runs up against domestic political constraints. The multilateral consultation on global imbalances resulted in statements by the United States that it would pursue fiscal consolidation and from China that it would encourage domestic spending. But for the U.S., meaningful fiscal consolidation would have meant tax increases, which were a nonstarter politically. For China, ramping up domestic spending more rapidly (which, in practice, would have meant ramping up public spending) would have meant ramping down something else given that the economy was operating close to capacity. That something else would have been exports, which would have antagonized politically influential export interests.[60] For other Asian countries, it would have meant forgoing the reserve accumulation seen as the first line of defense against financial instability.

The familiar responses to these problems go as follows. The IMF needs to devote more resources to surveillance—and so it has gone on a hiring binge since the crisis. It needs to develop better early warning indicators—notwithstanding the fundamental difficulties of crisis prediction and the failure of all concerned to predict the last one.[61] Governments should take the results of such surveillance and early-warning exercises more seriously—despite their manifest reluctance to do so over the years. They should behave more cooperatively.

In addition to relying on clearer crystal balls and better behavior, it might be worthwhile to think about more ambitious reforms. None of the initiatives I am about to describe will happen overnight. The political obstacles are formidable. But if one takes seriously the risks posed by global imbalances, they are worth contemplating.

One option would be strengthen IMF surveillance by giving greater independence to those vested with the surveillance function. The IMF department responsible for surveillance would function independently of management and the Board. Firewalls would separate surveillance from other IMF functions like emergency lending. The surveillance unit would have its own budget. It would be overseen by a director appointed to a single long term in office. It could issue reports without the prior approval of management or the Board. It would be able to call a spade a spade. The IMF has adopted this kind of structure for its Independent Evaluation Office (IEO), which is independent of management, operates at arm's length from the Board, and is overseen by a director serving a single six-year term. The U.K. government in 2003 proposed this kind of structure for the surveillance function.[62]

But what we have learned about the effectiveness of Chinese walls in other financial institutions gives grounds for questioning whether they would be effective in this context. Staff will be moving back and forth between the surveillance unit and other departments.[63] Can they really be expected to ignore the preferences of management and the Board? Can they really be expected to disregard the ability of management and the Board to shape their career prospects in other departments? The crisis has also alerted us to the kind of problems that arise when the monitoring function is allocated to one entity and the lending function to another.[64] Effective firewalls and seamless information sharing do not go hand in hand.

A stronger alternative to imagining that a unit within the IMF can be made more independent is to make the entire institution more independent.[65] Members of the management team would serve long terms. They would not have to seek the approval of an Executive Board of political appointees. They could issue strong surveillance statements. At the same time, surveillance could be adequately coordinated with other functions. An independent management team could react quickly to the events, in the manner of national central banks. They could adopt innovative tactics and instruments, much like central banks in the recent crisis.

For such strong independence to be acceptable, management would have to be strongly accountable for their actions. They would have to be more transparent about their decisions and their criteria for taking them. One could imagine publication of minutes of their deliberations.[66] One can imagine the managing director holding press conferences summarizing the management team's decisions, much like the president of the ECB.

Management would have to be strongly accountable to the International Monetary and Financial Committee (IMFC), the oversight committee of 24 officials whose composition mirrors that of the Executive Board. Much as the president and monetary policy committee of a central bank are accountable to their national parliament or congress, IMF management would have to justify their actions to the IMFC. They should be subject to a formal vote of no confidence. The IMFC, for its part, would be accountable to the Board of Governors of the IMF. The IMFC would have to be reconstituted as the IMF Council, as provided for under the Articles of Agreement, so that what are now recommendations become binding instructions to management.

It would of course be necessary to abolish the convention that the managing director should be a European and his first deputy an American. Leadership selection would have to reward the most qualified candidates.[67] It would be necessary to devise a selection mechanism for the entire management team that both picked out high-quality candidates and ensured a reasonable degree of geographic and economic diversity.

For some, delegating these sensitive functions to independent technocrats would be a bridge too far.[68] If so, the alternative to delegation is rules. The other way of insulating surveillance from politics, in other words, is by mechanizing it. If chronic surpluses and deficits pose a threat to systemic stability, then another way of applying stronger pressure to correct them would be by automatically levying penalties on the countries running them.[69] A country that had run a current account surplus or deficit in excess of 3 percent of GDP for three years, for example, might be required to transfer resources to the Fund at the end of every year in which that excess persisted.[70] The transfer might equal one-half of the current account balance in excess of 3 percent of GDP.[71] Nothing would prevent countries from running large and persistent external surpluses and deficits if they found it difficult and costly to adjust saving and investment, but their doing so would entail an additional cost, in turn ratcheting up the pressure to adopt policies of adjustment.[72] This tax could be written into the Articles of Agreement so that collecting it would not require, inter alia, a decision by the Executive Board.[73]

A problem with a symmetrical scheme of this sort is that deficit countries may lack resources to transfer to the Fund. They will be losing reserves rather than gaining them. But they will be subject to market discipline. The same is not true of surplus countries that feel no direct pressure from the market to adjust. This asymmetry was what motivated the decision to include a scarce currency clause in the IMF's original Articles of Agreement so that other countries could apply pressure for chronic surplus countries to adjust. If the present measure were applied to surplus countries alone, it could be thought of as a price-based scarce currency clause.

To the extent that surplus countries are motivated by the desire to accumulate reserves, a tax requiring them to transfer dollars or the equivalent to the IMF could conceivably have the perverse effect of encouraging them to undervalue their currencies still more so that they could replace the reserves that they had been forced by the provision to transfer to the Fund. In other words, the tax would have a relative price effect and an income effect working in opposite directions.[74] Thus, marrying the current measure to other sources of emergency liquidity besides own reserves would make it more effective. More generally, global reforms enhancing those other sources would mitigate the tendency for countries to run chronic surpluses.

The most obvious source of emergency liquidity is, of course, the IMF itself. The Fund's original *raison d'être* was to act as a reserve pooling arrangement. It has recently received a considerable increase in the resources that it can deploy in emergency lending. It has streamlined its procedures for deploying them.[75] It has established a Short-Term Liquidity Facility for making substantial loans of reserves without conditions to countries with strong policies. Quota reform has begun to better align voice in the institution with 21st century realities. Yet no Asian country has requested eligibility for the Short-Term Liquidity Facility. Other conference participants will have to explain what further reforms would make it politically acceptable for an Asian government to again borrow from the IMF.

The alternative is regional reserve pooling. Different countries being hit by shocks at different times, the timing of reserve needs will differ as well.[76] The same quantity of reserves can go further if pooled, and effective pooling will reduce the pressure to run large surpluses in order to accumulate more. It will also minimize the other costs of reserve accumulation which range from the risk of capital losses on foreign currency holdings to forgoing higher levels of consumption and investment.

The Chiang Mai Initiative, now the Chiang Mai Initiative Multilateralization Agreement (CMIM), is the most highly developed example. In May 2009 ASEAN+3 finance ministers agreed to transform their $120 billion of bilateral swaps and credits into a reserve pool. Operational decisions will be by simple majority, where countries will have votes roughly in proportion to their contributions. China and Japan will both contribute 32 percent, Korea 16 percent, ASEAN the remainder. The agreement also included a commitment to establish a regional surveillance unit, although there is no consensus on where to situate it or how to staff it.

But disbursing more than 20 percent of the credits available to a country still requires that it reach an agreement with the IMF; 20 percent of a country's entitlement is actually less than it contributes to the pool. This nullifies the purpose of the arrangement, which is to provide an alternative to the IMF. While there is a plan to first raise and then eliminate the 20 percent threshold, this is left for some unspecified date.

The reason is straightforward. Countries want assurances that their resources will not be used frivolously. They want to know that they will be repaid. But regional neighbors find it hard to criticize one another's policies and demand adjustment. Political sensitivities run high in Asia. But even in Europe, with its long history of cooperation, surveillance and conditionality are outsourced to the IMF. Revealingly, the Fund and not the EU has taken the lead in negotiating emergency assistance packages for Hungary and Latvia.

Delinking the CMIM from the IMF will require Asian countries to undertake hard-hitting reviews and demand difficult policy adjustments. One solution, again, would be to give both surveillance responsibilities and the actual power to disburse funds to an independent board. Its members, enjoying statutory independence and long terms in office, could function like the monetary policy committee of a central bank. They could issue a Financial Stability Report that bluntly flags weak policies and vulnerabilities. And they could demand policy adjustments as a condition for disbursing funds. The CMIM could then be delinked from the IMF.

Then there are a variety of proposals for reforming the international monetary system. The current system already includes the one feature that is most useful for correcting imbalances, namely exchange rate flexibility. This permits surplus countries increasing spending to raise the relative price of locally produced goods without suffering inflation and deficit countries doing the opposite to avoid significant deflation. It is all to the good that we are unlikely to see changes in this exchange rate system as a result of the crisis.

The other relevant aspect of the international monetary system is the supply of international reserves. Here one encounters a variety of proposals for replacing the dollar with another unit. These are based on the argument that allowing a national currency to constitute the dominant share of international reserves requires the country issuing it to run the current account deficits that are at the root of the imbalances problem.[77] It is important to understand that the "requires" part does not follow. To see this, observe that the euro has gained ground as a reserve currency even though the euro area has not run significant current account deficits in recent years. Or recall that countries accumulated dollar reserves under the original Bretton Woods system even though the U.S. had a balanced current account and even substantial surpluses for the vast majority of the period. All that is required is that the reserve-currency country running the balanced current account should invest abroad at least in an amount equal to the incremental demand for reserves in the rest of the world.

Hence the argument that being the sole supplier of reserves creates a tendency for a country to run chronic deficits must be a different one. It must be that the desire of other countries to accumulate reserves reduces the *incentive* for the reserve issuer to run a balanced current account. Knowing that other countries demand additional reserves and will willingly finance the reserve center's current account deficit, policymakers in the reserve-issuing country must have less incentive to adopt painful policies that raise national savings to the level of national investment.[78] Think of it as a problem of moral hazard.

To the extent that this moral hazard is present, the question is what to do about it. One idea is ongoing issuance of Special Drawing Rights (SDRs) to provide a nonnational source of incremental reserves. The IMF would issue SDRs on a regular basis in amounts equal to the increase in global reserve demand. The problem here is that SDRs can be used only for transactions with the IMF and among consenting governments. Unlike national currencies they cannot be used for foreign exchange market intervention and other transactions with market participants. For central banks and governments that see reserves as insurance—that anticipate actually having to use them—this illiquidity renders SDRs unattractive.[79]

Making SDRs attractive would require making them liquid. This would mean developing private markets on which SDR claims can be bought and sold. It would be necessary to build broad and liquid markets on which governments and, for that matter, financial and nonfinancial firms can issue SDR bonds at a competitive cost. Banks would have to find it attractive to accept SDR-denominated deposits and extend SDR-denominated loans. The pension funds and insurance companies that are the dominant sources of private demand for bonds would have to be attracted to holding bonds denominated in a basket of currencies despite the fact that their liabilities tend to be dominated in a single national currency.[80] It would be necessary to restructure foreign exchange markets so that traders seeking to buy, say, Korean won for Thai baht first sold baht for SDRs (before buying won) rather than first selling baht for dollars. While all this is possible, it would not be easy. It is worth recalling that there was a previous attempt to commercialize the SDR in the 1970s that never really got off the ground. Succeeding this time would take decades rather than years.[81] We can discuss it at the San Francisco Fed's 10th biennial Asia-U.S. conference.

As part of this effort, the IMF would have to be authorized to issue additional SDRs in periods of shortage, much as the Fed provided dollar swaps to provide dollar liquidity in the second half of 2008. At the moment countries holding 85 percent of IMF voting power must agree before SDRs can be issued, which is not exactly a recipe for quick action. IMF management would have to be empowered to decide on emergency SDR issuance just as the Federal Reserve can decide to offer emergency currency swaps. For the SDR to become a true international currency, in other words, the IMF would have to become more like an independent global central bank. The idea of an independent IMF has its advocates, as I have made clear above, but it is not clear that China, Russia, Brazil and other advocates of replacing the dollar with the SDR are aware that this is the implication of their proposal.

The other approach to reducing the dominance of the dollar would be to diversify the sources of international reserves. The moral hazard felt by any one nation's policymakers would then be limited. Imagine 20 years from now, three economies of roughly comparable size, each with a convertible currency traded on liquid markets that can be used to satisfy the incremental demand for reserves. No one of them will be able to reduce its saving relative to its investment by a substantial margin simply because the global demand for reserves is growing. One way of understanding how global imbalances grew so pronounced in recent years is that the incremental demand for reserves was increasingly large while the share of the reserve-issuing country in the global economy was unusually small. So it was that the United States came to account for some 75 percent of global current account deficits. With the U.S., the euro area and China all issuing reserves (to reveal the identities of my three plausible candidates for reserve center status 20 years from now), such imbalances would be less. Given the existence of alternatives, an issuer prone to excessive deficits would quickly see other countries accumulating reserves in currencies other than its own. That, in turn, would be a source of external discipline.

This, I have argued elsewhere, is the direction we are heading.[82] The euro's share of global reserves has risen since the new European currency was created in 1999. And Chinese officials have clearly mounted a campaign to transform the renminbi into an international currency, encouraging domestic and foreign firms to settle their transactions in renminbi, signing agreements with foreign governments to do likewise, extending renminbi swaps to foreign central banks, and relaxing restrictions on the ability of foreign financial institutions to issue renminbi debt in Hong Kong.

But again, the euro and the renminbi will match the dollar as an attractive form of reserves only when they possess equally deep and liquid markets. The market in U.S. Treasury debt remains far and away the most liquid in the world. Europe and China may eventually succeed in creating equally liquid markets in debt securities denominated in their currencies, but the relevant time frame is measured in decades, not years. Europe's problem is that the stock of government debt securities is not homogeneous. Different government bonds differ in their risk, returns, and liquidity. German bunds have a reputation for stability, but since they tend to be held to maturity by institutional investors, the market in them lacks liquidity. Other euro-area countries with plenty of bonds have deep financial problems as a result of past policies and the crisis. Italian government bonds are in fact the most important euro-area debt securities by value, but the country's problems mean that they are not attractive as reserve assets. The crisis has encouraged talk of issuing euro-area bonds and putting the full faith and credit of the entire set of members, starting with Germany, behind them. Were this done on a significant scale and were such debt to replace the national debt securities of the member states, the euro area would possess something more closely resembling the U.S. Treasury market.

For the renminbi, an important precondition is full capital account convertibility, and even that is only necessary, not sufficient, for market liquidity. Chinese officials have targeted 2020 as the date by which Shanghai should be transformed into an international financial center, meaning that its markets are open to foreign investors free of capital account restrictions. At that point the process of building truly liquid markets can commence.

Someday we will have a multiple reserve-currency system not unlike the one that existed before 1913 that limits the problem of global imbalances. But not tomorrow.

4. Conclusion

Financial crises are complex. Our recent crisis is one such complex event whose causes can be broadly grouped under two headings: lax regulation combined with skewed incentives in financial markets, and accommodating monetary policy combined with global imbalances that fueled an unsustainable housing and credit boom.

That crises rarely have a single cause means that avoiding them can rarely be achieved by a single policy reform or set of reforms. This paper has therefore provided two lists of reforms designed to address the two sources of instability contributing to our recent crisis. Both lists are long. Neither will be easy to implement. In both cases powerful stakeholders will resist reform. In both cases important details remain to be worked out. In both cases the extent of intellectual agreement on what must be done may be less deep and broad than I have made out in this paper.

Be that as it may, now that the worst of the crisis has passed it is important that the sense of urgency attached to reform, and the willingness to collaborate internationally in its pursuit, not also be allowed to pass.

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NOTES

1 For my views on this question see Eichengreen (2009a).

2 Given this litany of incentive problems, it is not hard to see how the world fell prey to a financial crisis. In retrospect the more appropriate question would seem to be, how could it have avoided one given these conditions? All this might seem blindingly obvious in retrospect. What is less obvious is why these problems were so inadequately appreciated before the fact. The failure of financial market participants to sound alarm bells is perhaps understandable, given that they were able to profit handsomely from exploiting incentives for risk-taking and, in the words of Chuck Prince, to keep dancing so long as the music is playing. The failure of the regulators to do more plausibly reflects intellectual regulatory capture—the tendency for regulators to buy into the world view of the regulated. For my money, the most troubling aspect is the failure of independent observers—including academics—to appreciate the prospective risks (Eichengreen 2009b).

3 As Spanish regulators insisted prior to the crisis.

4 Thus, capital requirements for asset-backed securities have been predicated on the assumption of a 10-day trading horizon, which is patently unrealistic in many cases.

5 At least if someone stands behind their warranties.

6 The Federal Deposit Insurance Act allows the FDIC, when resolving a bank, to transfer certain derivatives and other qualified financial contracts to third parties, eliminating this problem. But not so the U.S. Bankruptcy Code to which nondepository institutions are putatively subject. For more on this, see the immediately following paragraph.

7 The Fed does have the power to require a bank holding company to divest its banks if it fails to meet minimum capital requirements, although the holding company normally has 180 days to complete the divestiture (Elliot 2009).

8 The U.S. Treasury has proposed extending FDI-like resolution authority to bank holding companies and their subsidiaries but not to hedge funds, private equity firms, and other non-holding company financial entities. Seizing, restructuring and reprivatizing a large bank holding company either as a unified whole or in parts is likely to be more complex than doing so for a depository institution, not just since bank holding companies are more complex but because each one is unique. Banks should therefore be required to provide a roadmap for how this can be done. Anil Kashyap (2009), the Bank of England (2009), and the Committee on Capital Markets Regulation (2009) all suggest that bank holding companies should be required to plan their own funeral arrangements in advance; they should be required to draft a set of instructions for how their institutions could be quickly dismantled

should the need arise. Providing regulators with a roadmap would give them an alternative to bailouts. Reducing bailout incidence would in turn mitigate moral hazard. In addition, having to sign off on their own funeral arrangements would focus the attention of managers and directors on the mortality of their institution. It would deter them from taking on additional risks that made orderly unwinding more difficult—especially if banks whose own plans indicated that more days would be required for orderly resolution were required to hold commensurately more capital.

9 More detailed discussion is in Cohen and Goldstein (2009).

10 It means compensating their staffs appropriately. The problem of bloodhounds and greyhounds is a perennial: the greyhounds (financial market participants) run very fast while the bloodhounds (their regulators) struggle to stay on the trail. But a starvation diet does not help the bloodhounds keep pace.

11 Confidentiality should be ensured, but this should not be something to lose sleep over insofar as reporting will be to the regulators, who can aggregate the information before releasing it.

12 See U.S. Treasury (2009a).

13 Committee on Capital Markets Regulation (2009), p. 22.

14 Related to the preceding, the authorities should encourage standardized derivative instruments that lend themselves to centralized clearing and exchange-based trading. Bespoke instruments, being one of a kind, are necessarily bought and sold over the counter. Banning such instruments, which would deny issuers the ability to ensure themselves against idiosyncratic risks, might be a bridge too far. But the associated externality—that securities traded over the counter pose greater risks to systemic stability—should be internalized by holding investors in such instruments to higher capital charges.

15 This problem of compensation practices points to larger problems with the corporate governance of large financial institutions. Fixing these problems is not straightforward: strengthening the fiduciary responsibility of directors would more effectively incentivize existing board members but discourage qualified individuals from serving. One desirable reform would be more independence for the risk management function. The chief risk officer should be required to report directly to the board of directors as opposed to the CEO, and his compensation should be tied to the stability of the firm and not simply its profits. Buiter (2009) recommends subjecting all new board members to a written test, set by the regulator and marked by independent experts, on the products, services, and instruments traded and managed by their financial institutions, to guard against the danger that directors are inadequately knowledgeable of the business they oversee.

16 The latter being known, for present purposes, as microprudential supervision.

17 More on this below.

18 Avinash Persaud (2009) has suggested relating capital requirements to cross-institution correlations (whether a bank holds the same assets as other banks and may be inclined or forced to sell them at the same time, posing a threat to the stability of the system). Do regulators in fact know how to implement such a complex capital adequacy regime? The U.S. Treasury evidently proposes to place financial institutions into a couple of categories by size and connectedness, requiring so-called Tier 1 financial institutions to hold more capital (U.S. Treasury 2009b); in principle one would want a more nuanced categorization.

19 By way of example, these questions are all implicit in U.S. Treasury Secretary Timothy Geithner's statement of principles for reforming the capital adequacy regime in the United States and globally (U.S. Treasury 2009b), but they remain unanswered.

20 There is also an issue of fairness insofar as bondholders purchased the bonds of bank holding companies in the expectation that they would be protected by the provisions of the currently applicable bankruptcy code.

21 My own answer is "all of the above" if they are systemically significant.

22 This problem could in principle be solved by establishing a single consolidated regulator, but in the U.S. at least this does not appear to be in the cards. The Obama Administration's White Paper (U.S. Treasury 2009a) would have the Treasury Department invoke this authority after consulting with the President and the relevant regulators. Cohen and Goldstein (2009) recommend that the decision to activate should be vested in the Treasury on the written recommendation of two-thirds of the members of the Federal Reserve and FDIC boards.

23 Some hedge funds are already required to register with the SEC. The existing loophole is for private advisors with fewer than 15 investors that do not proffer general investment advice. But these existing registration requirements do not come with reporting requirements.

24 And for hedge funds that churn their portfolios rapidly, it may be positively misleading. Whether it is possible for hedge funds to provide and regulators to process in real time information on funds' portfolios, as advocated by Blinder (2009) and Calomiris (2009), is an open question.

25 If so the appropriate response would be still higher capital requirements. This might make securitization more costly, but so be it.

26 In the U.K. there is a similar debate over where to place ultimate responsibility for macroprudential supervision, with the Financial Services Authority (the preference of the current Labour Government) or the Bank of England (as proposed by the shadow finance minister of the Conservative opposition).

27 As arguably happened in the U.K. in the case of Northern Rock.

28 The author, for what it is worth, inclines in the direction of making the central bank the consolidated macroprudential supervisor, notwithstanding the associated conflicts and unwanted political attention.

29 See Financial Stability Forum (2009).

30 See Tucker (2009).

31 In a dispute that looks like it will take several years to resolve.

32 For more on these issues see Duffie (2009).

33 They are inefficient if different derivatives (credit default swaps, interest rate swaps) cleared through separate clearinghouses.

34 Still another idea would be for national authorities to agree on a single clearinghouse to be operated and backstopped by a multilateral organization such as the IMF. But this would be a radical departure for what is a fundamentally monetary institution. And it would entail ceding significant national prerogatives to an international organization.

35 While the Financial Stability Forum analyzed the role of the rating agencies in a 2008 report (FSF 2008), it did not recommend moving toward a new regulatory regime. This is not promising.

36 On the report of the de Larosiere Group, see de Larosiere et al. (2009).

37 There would seem to be heavy overrepresentation of central bankers and underrepresentation of supervisors on the risk council. But it is not clear how to fix this given the presence of 50 some supervisors in the EU. A further problem is that the lines between insurance, pensions, and securities are blurring. Goodhart and Schoenmaker (2009) suggest moving directly to two institutions, one for banking and one for securities markets. But then there would be even heavier numerical overrepresentation of central bankers.

38 I have proposed this in Eichengreen (2009c), from which the next couple of paragraphs are drawn.

39 The Basel Core Principles for Effective Banking Supervision would be the obvious place to start when defining these principles.

40 In a sense, the 2008–09 fiscal stimulus, a considerable fraction of which was devoted to additional investment, will provide a test of the hypothesis.

41 In the Bretton Woods II view, China's investment in U.S. Treasury and agency securities reflected the inefficiency of its financial system: the Chinese authorities invested (on behalf of their residents) in U.S. financial assets, and U.S. financial institutions used the resulting liquidity and their superior investment expertise to channel resources to U.S. corporations, which invested directly in China (see Dooley and Garber 2005). The flaw in this view was always that FDI into China plus domestically financed investment fell short of Chinese savings. In other words, there did not exist profitable investment opportunities sufficient to absorb the pool of Chinese savings, regardless of who did the intermediation. The flaw in the Bretton Woods II story, in other words, is that while it could explain the two-way flow of capital it could not explain the current account imbalance.

42 From 4.7 to 4.5 percent.

43 The ratio of total household debt to disposable income rose meanwhile from 80 percent in the 1990s to nearly 135 percent in 2007. It was also argued at the time that increased consumer spending reflected the belief that productivity growth had accelerated permanently—that household debt could rise now because of expectations of increased disposable income in the future. The problem with this argument is that it doesn't explain why U.S. households chose to leverage in response but the U.S. corporate sector did not, since higher expected future incomes for households should have had as their counterparts higher expected future revenues for firms, which would have encouraged them to assume higher debt ratios, which they did not.

44 See Taylor (2009).

45 This is the advice that the U.S. Treasury, among others, has regularly given emerging markets over the years.

46 Recall contemporary fears of a shortage of marketable U.S. Treasury securities and questions, which now seem quaint, about how monetary policy might be conducted in their absence.

47 Note that the U.S. was not alone in seeing its current account deficit widen: similar trends were evident in, inter alia, Australia, New Zealand, the U.K., and Spain, among others.

48 My favorite rendition is Goldman Sachs (2009).

49 Or at least to remain uncorrected.

50 The peak in housing prices was already in 2005 according to the Case-Shiller 10-city index.

51 And on economic activity generally.

52 Nor may other countries.

53 My friends at the Fed will no doubt object that a tighter monetary policy in 2002–03 would have exposed the U.S. economy to very serious danger of deflation. Perhaps, but this does nothing to weaken the argument that monetary policy should have been tightened more aggressively starting in 2004 in response to the housing bubble and other evidence of financial excesses—more so insofar as fiscal and regulatory policies were not doing their parts.

54 This, recall, is the premise of the second half of the paper.

55 A point that is not original to me; see for example Visco (2009).

56 See Hallerberg, Strauch, and von Hagen (2009).

57 See Shih (2009).

58 Here "China" is shorthand for surplus countries generally. "The United States" is, similarly, a stand-in for deficit countries generally, although the fact that the United States accounted for the vast majority of global current account deficits in the years leading up to the crisis means that this shorthand does little violence to the facts.

59 The quotes are from the Public Information Notice summarizing the Executive Board discussion (IMF 2007).

60 This adjustment to prevent the economy from overheating would have been achieved by allowing the currency to appreciate. Of course, there was no such currency adjustment after November 2008 when Chinese public spending was ramped up, but then there was no longer a danger of the economy overheating, export demand having collapsed. And given that increased public spending no longer threatened to crowd out exports, given that growth had slowed relative to capacity, opposition to increased public expenditure was less.

61 My favorite statement of the limitations of such early warning exercises is Eichengreen and Rose (1999). A recent analysis attempting to predict the incidence of the 2008–09 crisis and link it to causes—reaching essentially the same conclusion—is Rose and Spiegel (2009).

62 See Balls (2003).

63 Certainly this is the case if the experience of the IEO is any guide.

64 Can you say "Northern Rock?"

65 I will be excused, I hope, for repeating this argument, having made it now for fully a decade. See DeGregorio et al. 1999. The excuse for repeating it is that the case is, if anything, stronger than ever in the wake of the crisis. I argue this in Eichengreen (2009c), from where this paper's material on this subject is drawn.

66 In the manner of the Fed. This would be a small step technically, since minutes of board meetings are already kept and a highly sanitized version is published as the conclusions of the chair.

67 As G-20 finance ministers reportedly agreed at their mid-March 2009 meeting in Sussex, England.

68 The objection to schemes of this sort is that the decisions of the IMF are more complex and therefore entail more discretion than those of a central bank and that they require the Fund to put taxpayer money more directly at risk. Since a central bank just sets interest rates rather than applying detailed prescriptions for changes in the fabric of social and economic policy, it is said, independence for its monetary policy committee is politically tolerable. Since it just sets interest rates, an action which is easily monitored and assessed, holding its independent management accountable for their actions is relatively straightforward. And since central banks accept only high-quality collateral in their lending operations, they do not put serious taxpayer money at risk (typically, in contrast, they are a profit center). In the wake of the crisis it is clear that none of these objections hold water. We have seen national central banks engage in very detailed interventions in financial and other markets. They have purchased all manner of collateral as required by policies of credit easing, exposing themselves to significant balance sheet losses. The reality is that modern central banks, not unlike the IMF, are required to do much more than just set interest rates. This has created some discomfort among observers and demands that central bankers do a better job at justifying their actions; it has similarly created pressure that mechanisms for holding them accountable, be these oversight committees of or appointed by the U.S. Congress or the relevant committees of the European Parliament, be strengthened. Ron Paul notwithstanding, it has not given rise to the view that central bank independence is intolerable or, for that matter, undesirable.

69 I made this case for chronic surplus countries in Eichengreen (2009c); here I generalize the argument to deficit countries.

70 The particular thresholds mentioned in the text are purely illustrative; readers are free to substitute their own. Note that nothing requires that the tax revenues be paid in to the Fund. They equally well might go to the World Bank for development assistance or the United Nations for peacekeeping operations.

71 Or the charge might initially be set at a lower level and raised to, say, 50 percent over time (as members who wished to minimize it had more time to adjust). More recently Prasad (2009) has suggested that such a tax might be applied to countries' holdings of Special Drawing Rights (SDRs) at the IMF and would be levied if a country failed to hit its target for its current account (and fiscal) balance over a three-year horizon.

72 Economists not liking tax schedules with discontinuities, one can imagine a tax on all increases in foreign reserves that started at infinitesimal levels but rose fairly quickly as the increase in reserves rose as a share of GDP and as a function of its persistence.

73 It would presumably be easiest to implement in a period when it was not so obvious on which members it would predominantly fall.

74 The desire to accumulate reserves is only one reason, of course, why some countries are inclined to maintain highly competitive real exchange rates and run chronic external surpluses. Rodrik (2008) argues for example that so-called undervalued exchange rates are associated with rapid economic growth because they encourage manufacturing employment. To the extent that these other motives prevailed, the perverse "income effect" would not dominate.

75 I cannot resist observing that an independent IMF could react to events even more quickly.

76 Insofar as shocks have a strong regional component—different countries in a region tend to suffer them at the same time—regional reserve pooling is second best to global reserve pooling. On the regional dimension of crises see Glick and Rose (1998).

77 There are also other arguments, such as the desirability of substituting another unit, say the SDR, for existing dollar holdings to relieve reserve holders of the risk of capital losses on those existing dollar balances. This is the idea of creating a new "substitution account." I do not consider this here (except in a later footnote) for reasons of space and because it is concerned with the financial legacy of past imbalances rather than the question of how to prevent future imbalances.

78 This is a conceivable result, although not a necessary one. Still, it is not implausible that this was part of the explanation for the imbalances problem of recent years. In other words, there is a high probability that the United States would have adopted policies more closely equalizing the country's saving and investment—or that the market would have brought about this result through a decline in the dollar—had there not existed a strong central bank demand for dollar reserves.

79 Just why Chinese, Russian, and Brazilian officials have been pushing the SDR option is an interesting question. It could be that they see it as a stalking horse for a substitution account—as a way of getting existing dollar balances off their balance sheets as opposed to an alternative for accumulating future reserves. It could be that they see this as a way of demonstrating their desire to be players in discussions of international monetary reform. Conference participants may have a better answer to this question than I.

80 They could swap out the currency risk, but this would be an additional cost of the investment strategy, which would presumably render it unattractive—or require an interest-rate premium of the issuer, which would make issuance less attractive.

81 The current crisis itself is a reminder that building liquid markets in a new, novel asset is not something that occurs overnight.

82 See Eichengreen (2009d).