Are All the Sacred Cows Dead? Implications of the Financial Crisis for Macro- and Financial Policies

Aslı Demirgüç-Kunt • Luis Servén

The recent global financial crisis has shaken the confidence of industrial and developing countries alike in the very blueprint of the financial and macropolicies that underlie the Western capitalist systems. In an effort to contain the crisis from spreading, the authorities in the United States and many European governments have taken unprecedented steps of providing extensive liquidity, giving assurances to bank depositors and creditors that include blanket guarantees, structuring bail-out programs that include taking large ownership stakes in financial institutions, and establishing programs for direct provision of credit to nonfinancial institutions. Emphasizing the importance of incentives and tensions between short term and longer term policy responses to crisis management, the authors draw on a large body of research evidence and country experiences to discuss the implications of the current crisis for financial and macroeconomic policies going forward. JEL codes: G01, G21, G28, G32, E52, E58, F32

The financial turmoil that started as a meltdown in structured securitization instruments in the summer of 2007 in the United States and the United Kingdom has quickly spread to the rest of the industrial world, and has now become a full-blown global financial crisis. In an effort to contain the crisis from spreading, the authorities in the United States and many European governments have taken unprecedented steps of providing extensive liquidity, giving assurances to bank depositors and creditors that include blanket guarantees, structuring bail-out programs that include taking large ownership stakes in financial institutions, and establishing programs for direct provision of credit to nonfinancial institutions. In some developing countries, there is talk about reintroducing capital controls as a policy of last resort in the event of extensive bank runs and capital outflows.

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Also questioned is the wisdom of a monetary policy narrowly focused on goods prices without taking into account asset price inflation, and prudential regulation that does not recognize systemic vulnerabilities.

Hence the crisis has shaken the confidence of industrial and developing countries alike in the very blueprint of the financial and macropolicies that underlie the Western capitalist systems. It is not surprising that many analysts are already declaring capitalism, and the mainstream policy view associated with it, to be dead.

We argue that the "sacred cows" of financial and macropolicies are very much alive. We seek to make clear that (i) the ongoing crisis does not simply reflect a failure of free markets, but is a reaction of market participants to distorted incentives; and (ii) managing a systemic crisis requires policy decisions to be made at different stages of the crisis—the immediate containment stage as well as the longer-term resolution and structural reforms that follow—which often entail difficult trade-offs between re-establishing confidence in the short term and containing moral hazard in the long term.

Keeping in mind the importance of incentives and tensions between short-term and longer-term policy responses to crisis management, we address the following questions about the implications of this crisis for financial and macroeconomic policies going forward:

- Are blanket guarantees inevitable to halt a systemic crisis?
- Should governments bail out and take ownership of financial institutions?
- Should governments regulate finance much more aggressively given the failures in market discipline?
- Should monetary policy target asset prices?
- Should countries resort to capital controls to contain the crisis?

Crises recur in part because people forget the lessons from previous crises. While every crisis is different, past crises also provide important lessons that need to be learned to prevent policymakers from reinventing the wheel every time a new crisis erupts. We draw on past research and country experiences to address the issues that are at the forefront of policy debate today.

Use of Blanket Guarantees in Containing a Systemic Crisis

Crises go through different stages. The first is called the "containment" stage in which crises often emerge unexpectedly and evolve very quickly.[1] This is the stage that attracts the most attention, with bank runs, emergency liquidity loans, and weekend crisis meetings. Time is of the essence and the need for speed generally takes over good judgment. How should the authorities judge whether liquidity

support or official guarantees should be employed in the hope of preventing collapse, but potentially at high long-term costs?

Part of the answer lies in better crisis preparedness. Systemic crises are infrequent events. Hence, the incumbent policymakers often claim there is "no playbook" for handling crises. This lack of experience and knowledge leads to trial-and-error policymaking and copying of policy responses—and often mistakes—that are being employed elsewhere.

In the latest crisis the U.S. and European governments provided extensive assurances to bank depositors and creditors that included blanket guarantees in many cases. Some developing countries copied these arrangements, providing blanket guarantees in order to prevent capital outflows and assure the public about the safety of their banking systems.[2] But other countries have resisted the need to do so.[3]

It is important to recognize that careful crisis containment strategies are very difficult to devise in the midst of an actual turmoil. Political pressures to rescue powerful interests are often too difficult for the authorities to resist. Because the crisis seriously threatens the political future of the incumbent governments, the usual short-termism in policy decisionmaking is even more exaggerated. Avoiding such mistakes requires that crisis-management decisions are made in an open debate outside of an actual crisis. Accountability would be improved by requiring that regulators establish and regularly test a well-publicized benchmark plan for crisis resolution (Caprio, Demirgüç-Kunt, and Kane 2008).

What Should Be Done in the Containment Stage?

Walter Bagehot's (1894) classic policy advice for managing liquidity during a systemic crisis is for the central bank to lend freely to solvent banks—but in order to minimize the subsidizing of risk-taking (moral hazard), the loans are to be made at penalty interest rates and only on good collateral. Put differently, the advice is for governments to avoid lending to insolvent banks at all, even on good collateral, and certainly not at below-market interest rates. Unfortunately, as the recent events illustrate, modern governments pay only lip service to this principle. For governments to embrace Bagehot's advice, they need to be able to distinguish relatively quickly between deeply insolvent banks and those that are solvent enough to be salvageable. They also need to have the strength to resist the pressures that a crisis usually generates to rescue powerful interests.

In a banking crisis, just like at a battlefield, regulatory authorities need to run to the aid of wounded deposit-losing institutions and temporarily stabilize their condition by providing liquidity. Effective crisis containment requires effective triage: treatment-worthy institutions need to be identified and provided with enough liquidity to restore public confidence in their ability to continue in

operation. Unless emergency response teams are assembled and trained in advance, it is difficult to conduct good triage—a point which again stresses the importance of crisis preparedness.

Also very important are information problems, as the recent subprime crisis amply illustrated. Distinguishing viable institutions at short notice becomes more challenging in environments characterized by low levels of transparency. Therefore it is the duty of regulators to identify and remedy gaps in information well in advance, and recognize the gradual reduction in transparency that comes with financial engineering and regulatory arbitrage and to nip it in the bud by demanding improvements. Regulators also need to encourage the use of instruments and the development of markets that would help to yield more accurate assessment of risks, both in and out of crisis situations.[4]

When transparency is allowed to deteriorate, information problems can tie the hands of authorities and limit their ability to engage in efficient containment strategies. For example, advocates of bailing out insolvent institutions to halt a systemic crisis argue that only sweeping guarantees and extensive support can stop the panicky flight of depositors and other creditors. This is of course true if the crisis entails a series of self-fulfilling runs as envisioned in Diamond and Dybvig (1983). However, most modern financial crises, including the recent one, are driven instead by fundamental weaknesses in economic balance sheets, which reveal themselves initially as liquidity problems.

It must be recognized that the short-term benefits of guarantees will vary with the fiscal strength of the guaranteeing government. To hasten the end of an insolvency-driven banking crisis and to constrain the spread of insolvencies in the short term, the government must manifest a *substantial* capacity for absorbing losses. This is not a luxury most countries can afford since most governments do not have the required fiscal capacity. Depending on the depth of the systemic insolvency, such support may not even halt the spread of the crisis, but merely delay healthy adjustments. This begs the question of whether social costs and adverse distribution effects could be reduced by following an alternative strategy.

Even in the midst of a financial crisis, it is inefficient to set aside long-term goals completely. The manner in which a crisis is resolved affects the frequency and depth of future crises through the significant impact it has on market discipline. Providing extensive liquidity support and guarantees to insolvent institutions subsidizes their gambling on their own resurrection and distorts risk-taking incentives, undermining market discipline and spawning future crises (Kane and Klingebiel 2004; Calomiris, Klingebiel, and Laeven 2005). If institutions can count on crisis resolution to be handled in this way then they will be more willing to risk insolvency, and safety-net subsidies will mainly flow to institutions that take excessive risks at the expense of taxpayers. The short-term benefits of such bailouts have been oversold. Such policies seldom actually speed

the recovery of a nation's real economy from a financial crisis or lessen the decline in aggregate output. Instead, providing liquidity support for insolvent institutions often prolongs a crisis. It does this by distorting risk-taking incentives so extensively that sound investments and healthy exits are delayed and additional output loss is generated. Honohan and Klingebiel (2003) and Claessens, Klingebiel, and Laeven (2005) measure the impact of different crisis management strategies on the ultimate cost of resolving financial distress in a broad set of countries. They find that providing generous support—in terms of open-ended liquidity support and blanket deposit guarantees—not only increases the ultimate fiscal cost of resolving crises, but also that it does not speed the recovery, instead prolonging the duration of the crisis.

Using a sample of 42 banking crises Laeven and Valencia (2008) also show that blanket guarantees have little impact on domestic deposits (they pretty much continue their trend), but more often than not exacerbate the decline in foreign liabilities. Indeed, announcement of a blanket guarantee is almost taken as a signal to start a run on a currency. Not surprisingly guarantees are often accompanied by increases in liquidity support, increasing the fiscal cost significantly. Indeed it is important to note that empirical evidence suggests that governments incur most of the fiscal costs of resolving the crisis during the containment phase. Honohan and Klingebiel (2003) show that much of the variation in the fiscal costs of crises is explained by differences in the way a government handled its liquidity crisis, with the highest costs associated with governments that provided open-ended liquidity support and blanket deposit guarantees.

Alternatives to Blanket Guarantees

Providing blanket guarantees poses many challenges to government authorities. The first important challenge is to convince creditors and depositors that they have the political will and fiscal capacity to afford the cost of such guarantees. This may be quite difficult for many governments of developing countries. If the emergency response is seen as inadequate, it may quickly compound the problems, requiring emergency funding from external sources, such as resource-rich governments or the International Monetary Fund.

Even if the guarantees provided are deemed credible and the crisis is contained, the governments still face a second set of important challenges. These include: the need to control the additional (guaranteed) debt that insolvent institutions will continue to attract; to make sure the guaranteed institutions invest these new resources prudently; to reduce or eliminate the guarantees once the containment stage of the crisis is over. Regulators are likely to find it very difficult to address the moral hazard created by these guarantees. Because fully guaranteed institutions can attract funding independent of the risks they take, managers of

insolvent institutions can be easily tempted to abuse their government assistance by gambling on their resurrection.

There is already a large literature which establishes that in normal times overly generous safety-net policies and deposit insurance will lead to moral hazard and financial instability.[5] The longer the guarantee remains in place, and insolvent banks are allowed to operate, the more difficult it will be to curb these excessive risk-taking incentives. Furthermore, once installed, such guarantees are difficult to claw back and, more importantly, they seriously undermine the credibility with which future safety net arrangements can be limited.

While introduction of blanket guarantees may be tempting for policymakers in the short term, they are not inevitable. Provision of such extensive guarantees represents an extreme measure that is best resisted before other alternatives are exhausted. Ideally, policymakers must be ready to take the time to separate hopelessly insolvent institutions from potentially viable ones, and to provide liquidity support, guarantees, or "haircuts" in a way that would protect taxpayer interests. Hence an alternative strategy to an indiscriminate blanket guarantee is to take a "banking holiday" over several days in order to identify insolvent institutions and to recommend and impose preliminary haircuts on uninsured depositors and non-deposit creditors before they can liquidate their claims (Kane and Klingebiel 2004). Using the holiday to prepare a program of limited guarantees and to write down the uninsured debt can restore public confidence both in the government's ability to deal with the crisis and in the banking system itself.

Baer and Klingebiel (1995) examine the aftermath of pre-1992 systemic crises in a number of countries and find that in cases where the governments assigned losses to depositors of insolvent banks, the positive effects of reducing depositor uncertainty quickly overcame the negative effects that surviving banks experienced from depositor write-downs. Fairness requires that small depositors—who are often more than covered by explicit deposit insurance schemes—have immediate access to their funds. By the same token, at the end of the holiday, larger uninsured depositors should also be allowed immediate fractional access to their transaction balances. Clearly the speed with which the authorities can deal and resolve these situations depends on the extent to which they have engaged in contingency-planning and crisis-management simulations.

A holiday that lasts for weeks or months is called a "deposit freeze," and this reduces depositors' liquidity and the nation's aggregate money supply; it may also have long-term adverse effects on depositor confidence.[6] Hence to minimize these adverse effects, insured depositors should be granted access to their funds as soon as this is feasible. It is also important to note that it is not necessary for banks to close for triage to begin. In a systemic crisis, bank holidays may be prolonged because it may be difficult to complete the investigation of all banks quickly. Hence, banks may continue to operate during inspections, though the deposit

insurer may be given a right to void large loans and withdrawals made from a bank within a certain period of its closure. This would make large transactions subject to clawback, but it would not interfere with the business of ordinary households while the inspections are going on.

Broader time-out strategies for creditors that follow bankruptcy proceedings can also be employed. Productive assets can be conserved by instituting a grace period during which major creditors do not receive payments of principal or interest due on existing bond or loan contracts, but use the time to work out a replacement contract structure with the help of courts, mediators, or both. Forcing private creditors to renegotiate unenforceable contracts is called "bailing-in," and, like haircuts imposed on uninsured depositors, is intended to trap creditors that financed weak institutions into participating more fully in loss-sharing.

Whichever strategy is used, ultimately the damage the crisis causes to the country's financial sector and its real economy is reduced by separating the insolvent from the viable institutions as quickly as possible and by providing support and allocating losses in ways that protect taxpayers and avoid subsidizing the go-for-broke strategies of insolvent institutions. Prior crisis planning and commitment to these plans are important steps in being able to retain a long-term perspective in the containment stage of any crisis.

The Role of the State in the Financial System

After the panic abates, confidence is restored, and markets start functioning again, the crisis moves into its resolution stage. With the crisis contained, policies must now be chosen to deal with the undercapitalization and insolvencies that are often revealed. Past research and experience provide many valuable lessons on how best to deal with systemic insolvencies, an issue we discuss below.

Given the intensity of the recent crisis, direct interventions in the financial system have been so massive that by the end of 2008 governments will be the largest shareholders in most developed economies' financial industries, reversing a trend of state retreat over the last 20 years.[7] With $500 billion or more invested, this is equivalent to roughly state ownership of a quarter of the industry's market value, which strongly contrasts with the ideology of Western capitalist systems. Indeed, the extent of these interventions and the increasing government stake in financial institutions have led to questions as to whether financial systems should be privately owned in the first place, shaking the commitment of developing country policymakers to ongoing bank privatization programs. If private banks are prone to excessive risk-taking leading to crises and costly bailouts, is it not better to have the governments own and operate the financial system in the first place?

In answering this question it is important to recognize that bank nationalizations are very common ways of dealing with systemic financial crises. Indeed, governments have always taken ownership positions in banking either deliberately or indirectly as a result of banking crises. In almost every major banking crisis in recent history—in East Asia, Latin America, and other countries—governments have become temporary caretakers of financial institutions.[8] Hence, the recent crisis is not the exception in this regard. But the way in which this is done has important implications for maintaining and restoring a functioning financial system and minimizing the short term and long term costs of such interventions.[9] But the fact that governments find themselves involved in resolution of insolvencies does not imply this role should be permanent. On the contrary, all evidence suggests that they would be well-advised to do otherwise.

Bureaucrats as Bankers?

Government ownership of banking has been popular throughout history.[10] Early proponents of state control argued that the government can better allocate capital to highly productive investments. Gerschenkron (1962) was among the first to argue that private banks would not be able to overcome deficiencies in information and contracting in weak institutional environments. State ownership also makes appropriation of the surplus from finance and directing credit much easier, making it attractive for policymakers. Moreover, there is the concern that private ownership and concentration in banking may lead to limited access to credit by different parts of society, so hampering the development process. Indeed, government banks are often expected to expand access, making financial services more broadly available. A final argument is rooted in the fragility of finance, and that private financial institutions are too prone to excessive risk-taking, which is difficult to keep under check; a popular sentiment that resurfaces with every significant crisis.

By now there is a significant amount of empirical research that suggests state ownership of banks is associated with less financial sector development, lower growth and lower productivity, and that these negative effects are more pronounced at lower levels of income with less financial sector development and with weaker property rights' protection (Barth, Caprio, and Levine 2001; La Porta, Lopez-de-Silanes, and Shleifer 2002). Despite explicit mandates for government banks to expand outreach, in banking systems dominated by state banks there are fewer bank branches and automated teller machines. Customers in such systems face lower fees but they also experience poorer service quality (Beck, Demirgüç-Kunt, and Martinez Peria 2007, 2008). There are some exceptions in that certain state-owned banks, designated as development finance institutions, have become effective providers of know-how and have had a useful catalytic

function in "kick-starting" certain financial services, for example in Latin America (De la Torre, Gozzi, and Schmukler 2007). But even then the most successful of these initiatives are expected to be privatized.

Instead, the bulk of the evidence suggests that state-owned banks tend to lend to cronies, especially around the time of elections, as vividly illustrated by the recent empirical studies of Cole (2004), Dinç (2005), and Khwaja and Mian (2005). For example, Cole has shown that state banks in Indian states ramped up agricultural lending in tightly contested districts in election years. Dinç showed that increased lending by government-owned banks right before elections is not specific to India but can be observed in data from 22 developing countries. Drilling down to the individual loan level, Khwaja and Mian found evidence from Pakistan that politically active borrowers were able to secure larger and cheaper loans from state-owned banks and that they defaulted on these loans much more than other business borrowers.

Given the extent to which lending policies are politicized, it is not surprising that state ownership appears to heighten the risk of crises instead of reducing it. If anything, research suggests that greater state ownership is associated with various measures of financial instability, including a greater probability of banking crises (Caprio and Martinez Peria 2000; Barth, Caprio, and Levine 2001; La Porta, Lopez-de-Silanes, and Shleifer 2002).

These results and other related evidence explain why many countries embarked on privatization programs, selling their state banks. Indeed, evidence also suggests bank privatization, if well-designed, can significantly increase bank performance (Clarke, Cull, and Shirley 2005; Megginson 2005). To be sure privatization is difficult and can lead to problems in weaker institutional environments. Hence the sequencing is important: moving slowly but deliberately with bank privatization, while preparing state banks for sale and addressing the weaknesses in the overall incentive environment and regulations, seems to be the preferred strategy. Ultimately, gains from privatization—if designed properly—can be substantial since the alternative of maintaining large state ownership can significantly undermine real sector reforms and deter economic development.[11]

So what explains the poor performance of bureaucrats as bankers? As often the case in finance, incentive problems are at the root of this issue since bureaucrats do not face incentives designed to reward efficient resource allocation. Not only do government officials often lack the expertise to be effective managers, they also face conflicts of interest due to their desire to secure their political base and reward supporters, which often goes against efficient resource allocation. These problems become worse with fewer checks and balances and in poorer institutional environments, explaining why state ownership is more damaging at lower per capita income levels (Keefer, 2000; La Porta, Lopez-de-Silanes, and Shleifer 2002).

Hence while governments may inevitably find themselves as stakeholders in financial institutions as the outcome of systemic crises, they would do well to see this as a temporary arrangement and plan for their exit as part of the crisis resolution exercise. Despite its weaknesses, a well-functioning private financial system is crucial for promoting development, and substituting government provision of financial services for that of the market is likely to lead to inferior outcomes. Economic growth does not resume on a sustainable basis until productive assets and banks are back in the hands of well-capitalized private parties.

But how should financial crises be resolved and solvency of institutions restored? In other words, how should bail-out programs be designed in the event of crises, and what should be the government's role in this process?

Bureaucrats as Caretakers

If bureaucrats are not good bankers in good times, they are not likely to do better in bad times, given that the tendency for political forces to dominate economic judgments will be even stronger. As we have seen in the latest crisis, systemic crises often involve the injection of substantial sums and the determining of the financial fate of powerful interests. But systemic crises often require comprehensive solutions by the government. So how should governments behave?

While governments should be prepared to act in a systemic crisis, the approach and the actions they take still need to be designed to reduce conditions for moral hazard and the likelihood of a subsequent crisis. This should be done by imposing real costs on all responsible parties and getting the resources back in productive use as soon as possible (Demirgüç-Kunt, 2008).

To see the importance of paying attention to incentives, consider what happens to firms outside the financial sector that fall into a state of insolvency. Those in control of the firm find it difficult or impossible to raise new funds in any form. They can no longer act on profitable investment opportunities and may be forced to sell important assets. Creditors recognize this situation may distort the incentives of managers, making them more susceptible to fraud and moral hazard, which at the very least reduces the incentives of the owner and managers to exert effort. In a market economy, the solution is bankruptcy. As long as the firm is economically viable, it makes sense to continue its operations, but only after restructuring. This restructuring generally wipes out existing equity holders, while debt holders often have a portion of their claims converted to equity. Alternatively debt holders can agree to cut down the face value of their debt in exchange for some warrants. Old management is often replaced, a substantial portion of the firm's assets are sold, and workers are laid off. This restructuring is not a mere reworking of the firm's balance sheet, but represents very real changes to the way it does business, perhaps even in the business it does.

The happy result for the economy is that resources continue in their best use, while all responsible parties incur some costs for the firm's poor performance.

To a large extent dealing with financial insolvencies should follow the same general principles. Admittedly the financial sector is special due to its particular fragility, the possibility of contagion, and the major macro-implications when it is in systemic distress. However, although these differences may justify different approaches, they do not suggest that incentives matter any less. Any government involvement should be designed to protect the interests of the taxpayers, impose losses on the responsible parties, and use the private sector to pick the winners and losers. For example any plan that purchases bad assets from troubled financial institutions, or recapitalizes without extracting some claim from the institutions, amounts to a transfer from taxpayers to shareholders, which is the group that keeps the residual value of the entity.

Recapitalization of the banking system should be designed so that those banks that need assistance with recapitalization are helped in an incentive-compatible way. Such a plan would limit taxpayers' loss exposure, and, in environments with good information and contract enforcement, leave resolution of bad assets to the banks themselves. But how should the banks be recapitalized? Just as bureaucrats are likely to make poor bankers, the selection of individual winners and losers is also what markets, not governments, do best.

One way is for the authorities to inject funding only to those institutions that are able to meet the following criteria (World Bank 2001; Honohan 2005):

- Those institutions that are in a strong position should be able to raise capital privately, say from a syndicate of private banks. If the institution has difficulty raising capital, it should at least be able to obtain some proportion of it—at least half of it or more—from the private sector before applying for government recapitalization assistance. Only those institutions that can secure private sector funds would be eligible for the plan. This will ensure that the private sector plays an important role in picking the survivors.[12]
- Those institutions that are eligible receive government assistance in the form of preferred stock. Preferred stock status would force private parties rather than taxpayers to bear the first-tier losses.
- Any bank participating in the plan will have to suspend all dividend payments (and restrict the amount and structure of its compensation plans for its senior managers) until the government is fully "bought out." The bank will also agree to comply with strict regulations on its leverage, risk-taking, transparency, and disclosure in order to participate in the plan. This will give incentives to banks to retire their preferred stock as soon as possible.

These are tough criteria and only desperate banks will agree to these terms. Which is exactly the point: government assistance should only be injected into

banks in dire straits, yet simultaneously to those with a real chance of survival. As long as the amount of funding is such that some banks fail, this approach removes government from decisions as to which banks survive. The availability of private sector funding serves to identify the candidates, and restrictions on different ways to take these funds out of the banks, combined with greater transparency, makes it more likely that the banks will not be looted or engage in gambling with taxpayers' money. By openly stating the terms on which it will assist banks, and ensuring that those terms provide good incentives for the restructured bank going forward, the government will have made the best use of market forces while minimizing its direct ownership involvement. Many of these features characterized the U.S. Reconstruction Finance Corporation's (RFC) program of taking temporary preferred equity positions in banks after the great depression.[13]

Another alternative that has gained popularity after its successful application in Spain in the early 1980 s is a centralized approach where banks' nonperforming loans are carved off into an asset management company (AMC) which continues the restructuring process. The carving-out of an insolvent bank's bad loan portfolio and its organizational restructuring under new management and ownership may be appropriate when large parts of the bank's information capital is dysfunctional. The bad loan portfolio may be sold back into the market or disposed of by a government-owned AMC.

A survey by Klingebiel (2000) shows, however, that the AMCs formed in developing countries have not been as successful in restructuring nonperforming loans. The effectiveness of AMCs has been quite mixed, better when the assets to be disposed are primarily real estate, less good when they are loans to large politically connected firms. In countries with developed private markets and institutions, individual banks—if well capitalized—would be in a superior position to engage in restructuring their own assets. But policymakers in weak institutions should not expect to achieve the same level of success in restructuring as those in more developed economies, and they would do well to design simple resolution mechanisms that offer little discretion to government officials (Honohan and Laeven 2005).

In summary, governments are not good at providing financial services in normal times or in crises, and those governments that find themselves as bankers as a result of such crises should focus on their exit strategy as quickly as possible, using the market to identify winners and losers. And although drawing on public funds to recapitalize some banks may be unavoidable in systemic crises, they must be used sparingly for leveraging private funds and incentives (World Bank 2001). Hence, although finance is prone to excesses and crises, there is a substantial literature that suggests government ownership is not the answer. Where governments have a very important role to play in finance, it is in providing the

regulatory and supervisory arrangements that help reinforce incentives that limit this excessive risk-taking and fraudulent behavior.

Design of Prudential Regulations

One important implication of the recent crisis is the widespread calls for reforms of regulation and supervision. The initial reaction to the emerging crisis was one of disbelief: how could the crisis emerge in countries whose supervision of credit risk had been thought to be the best in the world? Indeed, the regulatory standards and protocols of these countries were in the process of being emulated worldwide through the international capital accords, known as the Basel standards.

Basel II—which is currently in its implementation stage—grew out of concern that the Basel I accord was unable to address the range of risks in bank activities, as evidenced by the growth of securitization.[14] Basel II is built on three pillars: (1) minimum regulatory capital requirements for credit risk, operational risk, and market risk; (2) the supervisory review process; and (3) market discipline and disclosure. The minimum capital requirements are determined by either external ratings from ratings agencies for smaller banks or by outputs from the larger banks' own internal ratings models.[15]

Many interpreted the crisis as a vivid example of market failure, evidence that there is no such thing as market discipline, reinforcing calls for stronger regulations through improvements in the Basel II accord. But the crisis also spawned a growing argument about the role that the Basel I accord may have played in causing the crisis. Indeed, it is no secret that Basel I contributed to the growth in securitization by assigning lower capital charges and thus giving incentives to institutions to move their assets into off-balance-sheet securitization vehicles. While advocates claimed that Basel II, had it been implemented earlier, could have lessened or prevented the turmoil, critics of the Basel approach to capital regulation pointed out that the crisis has simply reconfirmed fundamental flaws that have been evident in this approach.[16]

The financial turmoil challenged the Basel II framework in important ways. First, the events raised serious questions about setting capital requirements based on external ratings. These ratings proved excessively optimistic and confirmed long-standing concerns about the conflicts of interest that arise out of having the issuers pay the agencies for ratings required by regulators. More importantly, credit ratings are not appropriate for setting capital requirements. Ratings are based on expected default rates, yet capital is intended for unexpected losses. Ratings can be useful for establishing loss reserves for particular assets, but they do not consider correlations among assets, hence they are not helpful in assessing

how a bank's net worth or its portfolio of assets may vary. Therefore the amount of capital required for an institution's safety has to be linked explicitly to measures of volatility of its earnings, which is not information that ratings provide.

Second, the crisis raised serious concerns about the accuracy of internal risk models employed by even the largest and most sophisticated market participants. These models proved inadequate and illustrated how financial models and datasets can be manipulated to provide desired outcomes.

Third, the way the crisis emerged in subprime lending but spread to other securities revealed problems with inadequate documentation, the disconnect between the source of risks and the bearers of those risks, and lack of knowledge about how risks are ultimately distributed.[17] All these point to weaknesses in the disclosure provisions included in the market discipline pillar of the Basel accord, and how fundamental issues of transparency were not addressed.

Given the intensity and persistence of the crisis, many proposals for regulatory reforms are emerging. Some proposals originate from sources that interpret recent events as evidence that market discipline is not reliable and want to focus on designing tougher and more comprehensive regulations. These proposals range from re-establishing extensive activity restrictions, to speedier implementation of Basel II, to revising the accord in order to address the weaknesses discussed above, to enhanced opportunities for further official intervention.[18]

Others continue to believe in the reliability of market signals and market discipline, and argue that the Basel approach is fundamentally flawed. On the hypothesis that investors would be quicker to recognize changes in risk and risk premiums, such sources propose an alternative approach where official supervision would focus on generating and using better market signals.

The main features of this approach can be summarized as follows.[19] While the Basel Committee has been responsive to its critics by trying to make the capital requirements more reflective of the ways in which risks and vulnerabilities are assessed, this has led to greater and greater complexity. Increased complexity in bank regulation reduces transparency but increases the scope for regulatory arbitrage and forbearance, without necessarily increasing accuracy. Indeed, these critics argue that while the task of computing correct economic capital for banks is very difficult and complex, bank capital regulation need not be. An alternative is to rely in large part on the market itself to provide a measurement of risk, together with the enforcement of simple rules such as the leverage ratio and prompt corrective action, which are not subject to manipulation. Supervisors must not only draw on—but also help develop—informative market signals such as those imbedded in the prices of credit default swaps and subordinated debt. By requiring large institutions to engage in these markets, regulators would be able to incorporate market-generated information to their risk assessments. Hence this alternative combines supervisory and market oversight, helping to generate

and harness the information markets are capable of producing. The job of the supervisors would be significantly easier if this could be done effectively.

However, as Caprio, Demirgüç-Kunt, and Kane (2008) emphasize, prices in credit default swap or subordinated debt markets can be a strong source of discipline only under two conditions: (1) market participants do not expect to be bailed out when trouble develops, and (2) investors have access to regular flows of high-quality information. This underlines the importance of establishing incentives that would lead both supervisory authorities and market forces to operate more effectively.

Caprio, Demirgüç-Kunt, and Kane argue that this crisis exemplifies not just the limits of market discipline, but the power of government-induced incentive distortions—and the limits of official supervision as commonly practiced. The failure of private parties to exercise sufficient due diligence was rooted in the failure of government supervisors to challenge decisions made by private accountants and credit-rating organizations. Authorities neglected their duty of examining and publicizing the implications that these decisions might have for safety-net loss exposure. By tolerating a decline in transparency, supervisors made it difficult to recognize and price the risk expansion, not only for themselves but also for the market participants.[20]

Hence, Caprio, Demirgüç-Kunt, and Kane propose reforms that improve the chain of incentives under which market discipline and official supervision operate, which include reforms for lenders, credit rating organizations, securitization, accounting, and government officials. Perhaps most important among these are their proposals for enhancing accountability of government officials through better crisis preparedness, greater use of market information to track risks and subsidies, publicizing estimates of safety-net subsidies, and deferred compensation schemes.

First, as already discussed above, crisis preparedness is important to avoid short-termism in crisis-management. Accountability would be greatly improved by requiring that regulators establish and regularly test a well-publicized benchmark plan for crisis resolution.

Second, regulators need to draw on market signals to overcome information problems and improve their ability to track risk in and out of crises. Requiring the largest banks to issue at regular intervals a series of credit default swaps or uninsured subordinated debt would provide such signals, since the holders of these instruments would apply the market discipline that pillar three of Basel II seeks to harness.[21]

Third, the safety net needs to be strengthened by making authorities more accountable for its cost. This requires the development of a system of fair-value accounting for intangible safety-net subsidies to establish political accountability for controlling them. Important institutions and their supervisors must be

required to model, estimate, and expose to outside review the value of this intangible source of income—both in individual institutions and in the aggregate.

Fourth, the decisionmaking horizons of government officials can be lengthened if employment contracts included a fund of deferred compensation that the heads of supervisory authorities would have to forfeit if a crisis occurred within a couple of years after leaving their office. Calomiris and Kahn (1996) show that such a system worked well in the 19th-century Suffolk banking system, where claims to deferred bonuses were paid only after losses were deducted.

While the discussion of how best to reform regulation and supervision of financial institutions is likely to continue, it is important to keep in mind that ultimately the goal of financial regulation and supervision is not to reduce financial institution risk-taking, but to manage the safety net so that private risk-taking is neither taxed nor subsidized. This goal implies that supervisors have a duty to see that risks can be fully understood and fairly priced by investors. No one should expect that, in a risky world, risk-neutral regulation and supervision can eliminate the risk of financial crises; what it can do is to reduce their frequency and cost.

Monetary Policy, Asset Prices and Macroprudential Regulation

Most observers agree that lax monetary policy in the United States in the early 2000s helped fuel the housing bubble, at least in its initial stages. In light of the devastating effects of its bursting, one major policy question looking forward is the proper role of monetary policy. Should central banks respond systematically only to inflation in goods prices, as they do at present, or should they also respond systematically to inflation in assets prices? To put it more bluntly, should monetary authorities attempt to "prick bubbles" through monetary tightening?

Not all bubbles are alike. Some create risks to the financial system, while others do not.[22] Bubbles that threaten financial stability typically involve a feedback loop between asset prices and credit conditions: a credit expansion raises asset prices, which in turn encourages further lending and hence further asset price rises, and so on. When the bubble bursts, asset prices collapse and the loop goes in reverse, eroding the balance sheets of financial institutions, causing a credit crunch and a fall in economic activity. But not all bubbles have these features—for example the dot-com bubble of the late 1990s in the United States was not associated with a credit boom, and its crash did not weaken lenders' balance sheets to a significant extent. Hence the pursuit of financial stability poses a greater need for the monetary authority to react to some bubbles than to others.

Attempts by the authorities to deflate an asset price bubble—through monetary policy or other means—in the absence of obvious symptoms of inflationary or

financial distress face serious political-economy obstacles. Lenders and borrowers riding the bubble euphoria are likely to condemn such seemingly unwarranted courses of action, and politicians may oppose it under the view that, rather than a bubble, rising asset prices actually reflect the beneficial effects of improved policies.[23] Deflating a bubble amounts to suppressing an event, and it is impossible to prove ex post that the event would have occurred in the absence of policy action (Wyplosz 2009).

Political economy concerns aside, the monetary policy response to bubbles has been debated mainly in industrial countries in the context of inflation targeting regimes, under which monetary authorities react solely to inflation forecasts and the output gap (the "Taylor rule"). But the relevance of the question is much broader. It is of special significance to a growing number of emerging economies that have in recent years adopted inflation targets to guide monetary policy. More generally it matters to all countries whose monetary authorities are entrusted with inflation control and macroeconomic stability.

The conventional view of inflation targeting assigns no role to asset prices in the conduct of monetary policy, except to the extent that changes in asset prices signal changes in expected inflation (Bernanke and Gertler 2000). In this view, the authorities should deal with asset price bubbles only as their consequences, if any, arise in terms of the inflation objective—for example by supplying the needed liquidity in the event of a bubble burst. In other words, the authorities should not attempt to "prick" bubbles.[24]

An alternative view advocates a more proactive response of monetary policy to asset prices. Of course, asset prices may rise or fall for many reasons, including changes in fundamentals—that is, reassessments of the anticipated future productivity of the assets—so in principle monetary policy should react to deviations of asset prices from their underlying fundamentals, that is, to asset bubbles, rather than to deviations from any particular target level (Cecchetti, Genberg, and Wadhwani 2003). Formally, while the monetary authorities' objective function would continue to be defined only in terms of goods inflation, their reaction function should include not only inflation forecasts and the output gap, but also measures of asset price misalignment. In theory, adding more arguments to the monetary policy reaction function should allow the authorities to do no worse, and possibly to do better, than in the standard framework. But the approach remains untested, and several objections have been raised against its practical feasibility.

First, asset price bubbles are not easy to spot in real time—at least at their early stages when policy action might be most useful to stop them. Identifying a misalignment of asset prices requires a reliable assessment of their fundamentals. But available models of asset price fundamentals are inherently imperfect, and in addition some fundamentals—for example investors' perceptions of risk and

future asset productivity—are not readily observable. A simpler alternative would be to use arbitrary rules of thumb, such as a threshold above which asset price increases would be deemed to involve bubbles. However, simple rules of thumb would likely lead to frequent identification errors, especially in narrow and illiquid asset markets (such as those of most emerging countries), characterized by high asset price volatility.[25] And reacting to a misidentified bubble may be very costly—for example tightening in response to an asset price rise that in reality is driven by improving fundamentals will both hamper growth and interfere with the role of asset prices in allocating resources. Of course, one possible solution to this problem is to react only to bubbles once they become self-evident, but by then it may be too late for monetary policy to mitigate their effects. Indeed, if the authorities tighten when the bubble is already nearing collapse on its own, the contractionary effects of the tightening could compound, rather than mitigate, those of the bubble collapse. Yet while this view that bubbles are hard to spot ex ante is certainly correct, one could argue that other standard tasks of monetary policy, such as forecasting output and inflation over a multiyear horizon, are not less difficult.

Second, what asset prices should the monetary authority watch? Not all asset prices are synchronized, and at any one time bubbles may be present in just a few of the many assets available in the economy. Some observers suggest that the price of housing may be the best candidate for close monitoring, given that housing values have major wealth effects on spending—and hence are more relevant than other asset prices for inflation and the output gap—and that housing cycles of boom and bust are more frequent than equity market cycles.[26] A broader view holds that the monetary authority should focus on the prices of assets held by highly leveraged financial intermediaries, given their key role in the boom-bust credit cycle and the propagation of financial turmoil in the current crisis (Adrian and Shin 2009).

Third, little is known about the timing and magnitude of the effects of monetary policy on asset prices, and hence its ability to prick bubbles. For example, some research suggests that very large interest rate hikes may be necessary to bring housing prices down to any noticeable extent—so large in fact as to result in huge output losses (Assenmacher-Wesche and Gerlach 2008). But other recent research indicates that monetary policy has a sizable effect on the acquisition of assets by leveraged intermediaries (Adrian and Shin 2009) and on bank lending standards (Maddaloni, Peydró, and Scopei 2008). The implication is that a timely monetary tightening in the boom might have been effective at containing the cyclical expansion of leverage, credit, and asset prices, and prevented the deterioration of lending standards, two key ingredients in the gestation of the current crisis.

Overall, the usefulness of monetary policy to prick bubbles remains controversial. One additional concern is that gearing monetary policy to deflate hard-to-identify

bubbles may detract from its transparency and predictability, especially in emerging markets that are still at the early stage of establishing the credibility of their inflation targeting regimes or, more generally, their commitment to price stability.

To approach the problem from a different angle, it is important to recall that monetary authorities in most countries face two different objectives: price stability and financial stability. With monetary policy as their only instrument, the authorities can find themselves in situations where the objective of price stability requires a policy change in one direction, while that of financial stability points in the opposite direction. Ideally a second instrument should be devoted to financial stability. The best option is a prudential regime capable of dampening financial cycles of boom and bust by preventing feedback loops between asset prices and credit supply. This is what has been termed "macroprudential" regulation. Its thrust is to complement regulators' traditional focus on the risk management of the *individual* financial institution with a focus on the risk management of the financial *system* as a whole. Macroprudential regulation aims at dealing with increases in systemic vulnerabilities due to (i) periodic business downturns that effect all financial institutions; (ii) increases in the number of financial institutions that have become too large, too interlinked, and therefore too difficult to fail and unwind. The first is an age-old problem, which is exacerbated by the amplitude of the business cycle, as discussed above. The second has become increasingly more important as safety-net subsidies provided to large, interconnected firms have increased over time, giving them more incentives to become even larger and more interlinked.

While monetary authorities possess a variety of tools to pick up the pieces after a financial crash, they lack the regulatory instruments to contain the lending boom that usually precedes it. However, provisions, leverage ratios, loan-to-value ratios, and additional capital buffers can all be designed to be countercyclical, that is, to move inversely with the business cycle in order to make financial intermediaries hold more liquid assets in good times so that they can be run down in bad times (Goodhart 2008a, 2008b; Goodhart and Persuad 2008). The idea is to switch the basis of capital adequacy requirements from levels of risk-weighted assets to their rates of growth—hence requiring additional capital and liquidity when bank lending and asset prices are rising fast—and relaxing such requirements in the downturns. This can be seen as an alternative (or a complement) to monetary policies to prevent the growth of asset bubbles (and their busts). To date, however, this kind of instrument has seen little use, except for Spain's countercyclical "dynamic provisioning," as well as the introduction of time-varying, loan-to-value ratios in a few small economies.

Aside from practical questions—for example, over what periods applicable credit growth rates should be calculated—these proposals also raise other potential difficulties that require deeper consideration.[27] As prudential requirements

are tightened in the upswing, they will encourage disintermediation to less-regulated entities (or countries), and this may weaken the effectiveness of the regulations. In addition, the cost of intermediation will rise in the boom, possibly constraining growth and financial innovation. Lastly, macroprudential regulation adds to the informational burden on the regulators and the complexity of their task. As with monetary policy, significant political will is required to enable the authorities to tighten regulation in the upswing. Although reliance on well-defined rules (rather than reliance on discretionary regulatory changes) and independence from government may be helpful in this regard, it is still questionable whether without appropriate incentive reforms this will be possible.

Finally, to deal with too large or too interconnected firms, reform proposals aim to increase supervisory scrutiny (potentially through a college of supervisors) or additional capital charges imposed on these institutions. However, proper identification and increased regulation of these institutions require credible estimates of the safety-net subsidies that are provided to them. Estimating and publicizing safety-net subsidies as advocated by Caprio, Demirgüç-Kunt, and Kane (2008), as discussed in the previous section, would be one step in this direction.

These and similar ideas underlie an active debate on macroprudential regulation that has already generated a number of reform proposals (Kashyap, Rajan, and Stein 2008; Acharya and Richardson 2009; Brunnermeier and others 2009). However, their specifics differ, and a consensus on the best way to go has yet to be achieved.

In the meantime, what can monetary policy do? An emerging view holds that, even if bubbles cannot be accurately identified, monetary policy can contribute to financial stability by becoming more "symmetric" over the financial cycle—that is, becoming more restrictive during a financial market boom, just like it almost invariably becomes accommodative at times of asset price crashes (Papademos 2009). This view is supported by theoretical models in which monetary policy reacts to credit growth or other indicators of the financial cycle to dampen boom–bust episodes (Bordo and Jeanne 2002a, 2002b; Christiano and others 2008). In light also of the recent empirical findings cited earlier, that monetary policy affects significantly the volume and the quality of the assets held by leveraged financial institutions, the implication is that there might be a role for balance sheet aggregates in the determination of monetary policy. But that role would be due to reasons of financial stability, rather than the classic reasons of price stability behind the once-popular targeting of monetary aggregates. (Adrian and Shin 2009) However, at this stage little is known about the complexities of implementing such policy or about its likely effects, for the obvious reason that it has never been applied. These questions are currently the subject of active research.

Capital Controls

The financial turmoil of the current crisis propagated rapidly to emerging markets around the world, which suffered, to varying degrees, sharp increases in external borrowing premiums and abrupt declines of capital inflows, as well as large falls in their currencies in the face of a flight to safety by international investors. Thus, even though the crisis originated in the North, the financial symptoms in emerging markets have been similar—albeit in general less acute—to those of the homegrown crises of the 1990s. Propagation of this financial shock—which adds to the real shock accruing through the global slowdown—has been facilitated by the deepening of direct and indirect financial links across economies brought about by international financial integration.[28]

As in previous episodes of global turmoil, the sudden stop in capital flows has put emerging markets under stress and has hit especially hard countries that were running large current account deficits, had developed large currency and maturity mismatches, or both—as was the case in several Eastern European economies. In this context, some observers have advocated controls on capital outflows to stem the creditor run and relieve the pressure on foreign reserves and exchange rates.[29] Indeed, rigorous exchange controls were a key feature of Iceland's 2008 emergency package (supported by the IMF), amid the collapse of its currency and banking system. Among emerging markets, only a few have resorted to controls on outflows so far. Ukraine, Russia, and Belarus introduced some restrictions on outflows, while Ecuador imposed an exit tax.[30]

Controls on capital outflows, which date back to Germany in the 1930s, have a long tradition as a crisis containment tool. They seek to prevent the disorderly retreat of investors at times of turmoil[31] and thereby protect the stock of reserves of the Central Bank, relieve pressure on the exchange rate, and provide some room for monetary policy—which is severely constrained when capital mobility is high and policymakers also try to pursue exchange rate targets.

There have been numerous episodes of outflow controls in crisis times—for example Spain, in the context of the 1992 ERM crisis; Venezuela, at the time of the banking crisis of 1994; Malaysia and Thailand, on occasion of the 1997–98 East Asian and Russian crises; and Argentina, at the time of collapse of the Convertibility Plan in 2001.

These controls took a wide variety of forms. They frequently targeted "speculative" transactions and exempted current account transactions, flows related to foreign direct investment, or both. They ranged from unremunerated deposit requirements on banks' foreign asset holdings (Spain) to comprehensive prohibition of outflows (Venezuela and Argentina). But how effective were they? The question has been the focus of a multitude of studies: see for example the overviews by Ariyoshi and others (2000) and Magud, Reinhart, and Rogoff (2007).

The case of Malaysia is perhaps the one that has attracted the most attention. Observers agree that the controls succeeded in limiting outflows and segmenting onshore and offshore markets, providing some breathing space for monetary and financial policy. There is much less agreement regarding the effective contribution of the controls for easing the cost of the crisis, as some observers contend that the worst of the global turmoil was already over at the time the controls were instituted and that Malaysia's subsequent recovery path was no better than that of countries that did not introduce controls, while others argue that the controls did allow a speedier recovery than would have otherwise occurred given the higher vulnerability of the Malaysian economy relative to that of other East Asian countries.[32]

Analyses of other episodes of controls on outflows yield mixed conclusions. In Spain and Thailand, the controls helped contain outflows and relieve pressure on the exchange rate only temporarily, and eventually both countries had to abandon their pegs—Spain through an ERM realignment, and Thailand by floating the exchange rate. In Venezuela, the controls did not fully succeed in containing outflows either, but there is evidence that they helped to ease pressure on the exchange rate and gain some degree of monetary policy autonomy which, through lower interest rates, reduced the immediate fiscal cost of the country's banking crisis.

A concrete way to assess the action of controls is by examining the differential between the prices of identical assets traded in onshore and offshore markets. Among such assets are the American Depositary Receipts (ADRs) issued abroad by an increasing number of large emerging market firms. The onshore–offshore price differentials on ADRs have been recently examined by Levy-Yeyati, Schmukler, and van Horen (2009) for several episodes of inflow and outflow controls. The finding is that controls on outflows generate a positive differential between onshore and offshore prices as investors buy equity at home and sell it abroad in order to transfer their wealth out of the country (inflow controls have the opposite effect).[33] This suggests that even if capital controls fail to bring outflows to a halt, they usually do succeed in temporarily segmenting asset markets, by creating "no-arbitrage" bands that effectively decouple rates of return at home from those prevailing abroad.

However, there is also evidence that this market segmentation weakens with the passage of time (Kaminsky and Schmukler 2001). The reason is that capital controls develop leakages as investors find arbitrage strategies and loopholes to circumvent them.[34] The search for loopholes at times of crisis is driven by investors' anticipations of big return differentials between domestic and foreign assets, especially in the event of a large exchange rate depreciation. These anticipated differentials often dwarf the increase in the cost of taking capital out imposed by the controls. Evasion mechanisms for controls on outflows range from the

traditional overinvoicing of imports and underinvoicing of exports to misreporting of capital account transactions in order to make them fit under those categories of flows left unrestricted by the authorities. Deeper international financial integration, as well as a higher degree of development of domestic financial markets, make the enforcement of controls harder, as they broaden the menu of evasion strategies available to sophisticated (and typically large) investors.[35] As a result, effective enforcement of controls typically requires continuous monitoring and adaptation efforts by the authorities. In this regard, the international experience shows that comprehensive controls are easier to enforce because they are not vulnerable to evasion through those outflows left unrestricted. However, comprehensive controls also deter "nonspeculative" transactions, such as those related to foreign direct investment, as was seen in the Malaysia episode.

Controls on outflows also entail costs in terms of investors' confidence. Because they are usually imposed ex post, as an emergency measure, they typically lead to violation of explicit or implicit contracts. As a result they may raise the perceived riskiness of inward investment and reduce access to foreign capital, and this adverse effect may last well after the removal of the controls on outflows, as investors considering future capital inflows factor into their risk-return assessment an increased perception of the likelihood that they may be unable to take their capital out when needed, at least without cost. While this credibility effect is hard to quantify, there are strong indications that it was at work in the experience of Malaysia, in which the evidence suggests that the controls on outflows subsequently had a deterrent effect on capital inflows, including long-term ones (Goh 2005).

Lastly, capital controls create rents whose allocation is at the discretion of public officials and which therefore opens the door to cronyism and corruption around exceptions and loopholes. In the Malaysia episode, for example, there is evidence that politically connected firms did much better under the controls than unconnected firms.[36]

To summarize, the evidence indicates that controls on capital outflows are effective only temporarily and are more vulnerable to evasion when they are selective rather than comprehensive. They also involve costs in terms of investor confidence and augmented potential for rent-seeking. All this, however, does not mean that controls on outflows should never be used under any circumstances. In fact, when a run on domestic assets gets under way, the authorities may have no option but to impose controls to prevent the collapse of the financial system, a free fall of the currency, or both. The lesson instead is that controls should only be used as a last resort, and only for brief periods to give the authorities a respite from corrective measures. But the more frequent the resort to controls, and the longer they are held in place, the more likely they are to become a substitute for the actual measures and lead eventually to an even bigger crash.

From a broader perspective, controls on capital outflows are just a rudimentary tool of last resort to cope with the vulnerabilities associated with international financial integration. While integration offers countries new opportunities in terms of access to foreign financing and enhanced risk diversification, it also increases countries' vulnerability to external shocks—as the current crisis has clearly shown. How to manage this vulnerability remains a hotly debated issue.[37]

Conceptually, the fragilities associated with capital account openness arise from two main sources: currency mismatches and maturity mismatches. For developing countries, currency mismatches are due to their inability to borrow externally in domestic currency (the "original sin" of Eichengreen and Hausmann 1999), which forces them to bear the exchange risk associated with foreign-currency borrowing.

In turn, maturity mismatches can leave borrowing countries vulnerable to creditor runs in a way that is analogous to bank runs. These runs were at the core of the East Asian crisis and have been a recurrent factor in other emerging market crises (Broner, Lorenzoni and Schmukler 2007). They played also a key role in the propagation and amplification of the subprime crisis in the United States (Brunnermeier 2009). Maturity mismatches may reflect the reluctance of lenders to enter into long-term contracts when moral hazard and asymmetric information are pervasive, or when the macrofinancial framework is deemed fragile. The appeal to public and private borrowers is that in such conditions short-term borrowing is cheaper than long-term borrowing.[38] However, private external borrowing decisions fail to take into account their social costs—that is their contribution to raising the aggregate risk of a creditor run or a currency collapse (Caballero and Krishnamurty 2003; Korinek 2009).

In fact, major currency and maturity mismatches did arise in a number of countries in the run-up to the global crisis. For example, in some Eastern European countries households actively engaged in the "reverse carry trade" by borrowing in low-interest rate currencies, oblivious to the exchange risk involved; hence foreign-currency financing of residential mortgages became ubiquitous. Worse yet, corporations often borrowed short term in foreign currency to finance long-term domestic-currency assets. Banks lent in foreign currency to borrowers lacking foreign currency assets or income, effectively replacing currency risk with credit risk in their balance sheets (Buiter 2009). These mismatches have contributed to the magnification of the adverse impact of the financial turbulence triggered off by the crisis.

The lesson, however, is not that external borrowing should be restricted. In the case of currency risk, the key is to achieve an efficient distribution of currency risk within the economy by ensuring, through regulatory means, that it is appropriately priced and therefore borne by those best able to do so (for example agents holding foreign currency assets, including exporters). For instance, regulations

should discourage banks from lending foreign currency to borrowers without foreign currency assets or income. Likewise, adequate prudential regulation of large financial and nonfinancial borrowers can help limit maturity mismatches. Alternatively, the government could contain aggregate exposure to currency and maturity mismatches by accumulating short-term foreign assets to offset, at least in part, private sector actions—a strategy adopted by a number of emerging markets after the East Asia crisis.

In the longer term, institutional changes supporting credible nominal stability should help open the door to domestic-currency borrowing, even if only marginally at first—as seen in countries like Chile, Mexico, Poland, and South Africa—thereby helping to mitigate currency mismatches. Credible macrofinancial stability should also allow enhanced access to borrowing at longer maturities.

Controls on capital inflows are often advocated as a potential alternative (or a complement) to prudential regulatory measures for preventing the build-up of currency and time mismatches. Depending on the specifics, controls on inflows could help deter overborrowing—limiting exchange rate appreciation, asset price bubbles, and excessive risk-taking at times of large inflows—and/or alter the composition of flows against short-term inflows ("hot money") susceptible to rapid reversal.

Since the early 1990s, recourse to controls on capital inflows has become frequent as a number of emerging countries have tried to navigate global inflow booms. A partial list includes Indonesia (where controls were introduced in 1991), Malaysia (1994), Thailand (1995, and again in 2006), Brazil (1994), Chile (1991), Colombia (1993, and again since 2004), Mexico (1990), and the Czech Republic (1992). As in the case of outflows, controls on inflows included a variety of instruments—from explicit taxes on foreign borrowing by local firms and fixed-income investments by foreigners (Brazil) to unremunerated reserve and minimum-stay requirements for foreign borrowing by domestic firms (Chile and Colombia, as well as Thailand over 2006–08)—and limits on banks' external borrowing (Indonesia, Malaysia, Thailand, the Czech Republic, and Mexico). Several of these countries matched the introduction of controls on inflows with a removal of barriers to outflows and with various reforms in the prudential framework of the domestic financial system.

The case of Chile in the 1990s has been closely scrutinized by a host of empirical studies. The controls were based on a mandatory unremunerated one-year deposit (or *encaje*) at the Central Bank equal to a given fraction (initially set at 20 percent) of eligible inflows. The two distinguishing features of the scheme were (i) its implicit cost was higher for short-term inflows than for long-term ones, and (ii) the cost was determined by the prevailing level of world interest rates. Initially the regime was applied only to foreign loans (except trade credit). As investors succeeded in finding a variety of loopholes, it was gradually extended to

encompass nondebt creating flows as well—even including foreign direct investments deemed "speculative." The scheme was eventually eliminated as inflows evaporated at the time of the 1998 Russian crisis.[39]

In spite of the often-heard view (especially outside Chile) that the inflow controls were highly successful, their effectiveness remains disputed. On the whole, the large literature concerned with the Chilean experience suggests that (i) the controls were successful at giving the Central Bank some degree of monetary autonomy, allowing it to keep domestic interest rates above international levels—although by most estimates this effect was quantitatively small and temporary; (ii) the composition of inflows was somewhat altered in favor of longer-term flows—although here the evidence is weak; (iii) no clear result emerges regarding the impact on total capital inflows; (iv) there was no discernible effect on exchange rates.

Evidence from other episodes is mixed. Colombia's unremunerated reserve requirement, which was in effect over 1993–2000, and then again in 2007, was designed along the same lines as Chile's. Moreover, during 2004–06, as well as in 2007, Colombia also imposed restrictions on short-term portfolio investment (initially including its outright prohibition).[40] But there is little evidence that these measures made any difference for the volume of inflows, the share of short-term flows in the total, or the level of the exchange rate. In contrast, there is some indication that short-term inflows were reduced in the episodes of Malaysia and Thailand in the 1990s. In Brazil the controls were seemingly ineffective in all dimensions. Thailand's recent imposition of unremunerated reserve requirements in 2006 was followed by a shift of portfolio inflows away from debt instruments and toward equity, and a substantial differential between offshore and onshore interest rates.[41]

As with controls on outflows, these episodes show that controls on inflows quickly develop leakages. The most common evasion mechanism was the misstatement of the purpose of the inflow; see Carvalho and Garcia (2006) for the case of Brazil and Nadal-de-Simone and Sorsa (1999) for Chile. The result was a weakening of the controls over time—especially rapid in the case of Brazil—in spite of the authorities' constant efforts to close loopholes and deter unwanted flows.

Controls on capital inflows also entail other costs. Persistent barriers to capital inflows may deter the development of local financial markets, which in turn may hamper efficiency and growth.[42] And they also raise domestic financing costs by allowing local interest rates to remain above international levels. Microeconomic studies have found large adverse effects of Chile's higher domestic interest rates on the availability and cost of firms' financing.[43] Moreover, because larger firms could better afford the cost of evasion strategies, or had direct access to foreign financing, the cost of the controls—in the form of a higher cost of borrowing—was disproportionately borne by small and medium-sized firms.

Finally, what about the ability of controls on capital inflows to prevent volatility and crises, which was the main rationale for their use? Overall, there is not much evidence that they were of great help in this regard, although identifying the counterfactual is admittedly hard. Many observers have noted that the *encaje* did not prevent Chile from suffering a major sudden stop on occasion of the Russia crisis in 1998, although the scheme may have helped Chile mitigate the "normal" ups and downs of capital inflows in the 1990s (Edwards 1999). In retrospect perhaps this should not be surprising. At times of acute financial turmoil, the run for the exit is not limited to the unwinding of short-term domestic asset positions—whose build-up the *encaje* and similar mechanisms try to deter—but includes also that of longer-term ones, and involves domestic and international investors alike. The only deterrent to investor exit then is the possibility that the entry cost would have to be incurred again in the future, should investors decide to rebuild their positions. But in past crisis episodes most countries have in fact dismantled their inflow controls, so not even this deterrent remains. This puts into perspective the capacity of inflow controls to deliver stability in times of extreme financial turmoil such as is the case at present.

Conclusions

The intensity and the breadth of the on-going financial crisis have surprised nearly everyone. Perhaps, more importantly, the policy responses to the crisis have led to considerable confusion and shaken the confidence of the development community in the wisdom of financial and macroeconomic policies that underpin Western capitalist systems.

We have drawn on a large body of analytical research, econometric evidence, and country experience to argue that the "sacred cows" of financial and macropolicies are still very much alive. For the most part, the confusion arises from not being able to recognize incentive conflicts and trade-offs inherent in short-term and long-term responses to a systemic crisis. Policies employed to contain a crisis—often in haste to re-establish confidence and with disregard of long-term costs—should not be interpreted as permanent deviations from well-established policy positions. The fact that governments may end up providing blanket guarantees or owning large stakes in the financial sector in an effort to contain and deal with the crisis does not negate the fact that generous guarantees over the long term are likely to backfire or that government officials make poor bankers.

Financial crises often do expose weaknesses in the underlying incentive frameworks and the regulation and supervision systems that are supposed to reinforce them. But finance is risky business and it is naive to think that regulation and supervision can, or should, completely eliminate the risk of crises, although they

can make crises less frequent and less costly. Neither monetary policy nor capital controls can substitute for well-designed prudential regulation.

Despite their inherent fragility, financial systems underpin economic development. The challenge of financial sector policies is to align private incentives with public interest without taxing or subsidizing private risk-taking. Public ownership or too aggressive regulation would simply hamper financial development and growth. But striking this balance is becoming increasingly complex in an ever more integrated and globalized financial system.

Notes

Aslı Demirgüç-Kunt is Chief Economist, Financial and Private Sector Development Network and Senior Research Manager, Development Research Group, the World Bank, 1818 H Street NW, Washington DC 20433, USA; email address: Ademirguckunt@worldbank.org. Luis Servén is Senior Adviser for Macroeconomics and Growth, the World Bank; email address: Lserven@worldbank.org. Useful comments from Alan Gelb, Edward Kane, Michael Klein, Justin Lin, Martin Ravallion, and Sergio Schmukler are gratefully acknowledged. Annamaria Kokenyne kindly contributed information on recent capital control measures. The authors' findings, interpretations, and conclusions do not represent the views of the World Bank, their Executive Directors, or the countries they represent.

1. Honohan and Laeven (2005) bring together research and first-hand crisis experience to catalog lessons on a variety of issues that regularly arise in crises.

2. Hungary and Jordan are such examples.

3. See for example Switzerland, the Czech Republic, Poland, and Slovakia.

4. See 'Design of Prudential Regulations' below for further discussion of these instruments and markets.

5. See Demirgüç-Kunt and Detragiache (1998, 2002), Demirgüç-Kunt and Huizinga (2004), Demirgüç-Kunt and Kane (2002), and Demirgüç-Kunt, Kane, and Laeven (2008a, 2008b).

6. Argentina's reduced deposit mobilization after its 2001 deposit freeze is an example.

7. "Bank Bail-outs: Quids pro-quo," *The Economist*, November 22, 2008, pp.84–6.

8. Indonesia, the Philippines, South Korea, Mexico, and Chile are examples. See Caprio and Klingebiel (1996) for a complete list.

9. Whether or not the control of the bank completely passes into public hands during the resolution stage is secondary to the fact that after the resolution the bank should be well-capitalized. Problems often emerge because governments are unable to do the financial restructuring properly; and banks that continue to operate with insufficient capital have every incentive to resume reckless risk-taking.

10. See World Bank (2001) for a discussion.

11. Similar trade-offs are considered in liberalizing financial systems, since premature liberalization without adequate attention to developing institutions increases financial fragility. See Demirgüç-Kunt and Detragiache (1998).

12. Notice there was also significant private equity injected into financial institutions in the latest crisis. The figures reached US$500 billion by September, 2008, which is larger than in any other crisis in history.

13. It is difficult to evaluate the success of programs such as the RFC, but in this case it is credited with having contributed to a recovery of confidence and output (until monetary tightening reversed both in 1937). The government recovered its initial capital and did not bail out nonviable banks. See Mason (2000) for an analysis.

14. The Basel committee itself notes that Basel II arose in response to the growth of securitization, giving the impression that this growth was an exogenous development rather than at least in part a response to Basel I and its "loan-by-loan" approach to assessing a firm's overall risk exposure.

15. See Caprio, Demirgüç-Kunt, and Kane (2008) for an in-depth discussion of Basel I and Basel II accords and recommendations for reforms.

16. See Caprio, Demirgüç-Kunt, and Kane (2008) and statements of the Shadow Financial Regulatory Committee, which can be found on the American Enterprise Institute (AEI) website.

17. For a discussion of tensions between the goals of expanding access and maintaining stability, see World Bank (2007).

18. These include proposals by Krugman (2008), the Institute for International Finance, the Counterparty Risk Management Policy Group (2008), and the Financial Stability Forum. Goodhart (2008a) and Goodhart and Persuad (2008) recommend authorities set countercyclical capital requirements, introducing a leverage ratio that would move inversely to the business cycle.

19. See American Enterprise Institute statements and Caprio, Demirgüç-Kunt, and Kane (2008).

20. Investigating the impact of compliance with Basel Core Principals on bank soundness, Demirgüç-Kunt, Detragiache, and Tressel (2008) show that compliance with information provision and transparency is the most robustly associated with the financial strength of institutions.

21. Subordinated debt has advantages in terms of improving market discipline since subordinated debt holders have incentives to negotiate covenants that would protect their interests. However, credit default swaps (CDS) have advantages in tracking risk since, unlike subordinated debt (which are illiquid instruments), CDS are continuously traded, providing useful signals on a timely basis.

22. Indeed, bubbles can be welfare-enhancing to the extent that they provide stores of value that would otherwise not be available to savers. The best example is that of fiat money in Samuelson's overlapping-generations model; see also Ventura (2004) for a recent open-economy example.

23. Goodhart (2008b).

24. This view is also stated by Mishkin (2008).

25. How fast should asset prices rise for us to conclude safely that a bubble is at work? Too low a threshold would lead to the (incorrect) detection of too many bubbles. Even modest changes in key fundamentals—such as investors discount rates or their anticipations of the rate of growth of future dividends—can lead to large changes in the prices of long-lived assets over short periods. In turn, too high a threshold (say 20 or 40 percent per year) could fail to detect many bubbles altogether. For example during the recent U.S. housing bubble real-estate price increases remained consistently below 15 percent per annum, according to the Case-Shiller U.S. national home price index (see http://www.standardandpoors.com/home/en/us).

26. The role of housing prices is stressed by Bordo and Jeanne (2002a, 2002b) and Cecchetti, Genberg, and Wadhwani (2003).

27. Goodhart (2008b).

28. These links have been documented by extensive theoretical and empirical research. See for example Calvo (1999), Broner, Gelos, and Reinhart (2006), and Didier, Schmukler, and Mauro (2008).

29. Calls for a reconsideration of controls on capital outflows in the context of the current crisis span a broad range of observers, from leading academics like Calvo (2008) and Subramaniam and Rodrik (2008) to the World Council of Churches (2008).

30. Also, Indonesia and China tightened reporting requirements. Argentina has also recently sought to prevent sales of American Depositary Receipts abroad by domestic residents.

31. In this sense, controls on outflows are similar in spirit to a bank holiday or a suspension of stock market trading.

32. See Ariyoshi and others (2000), Dornbusch (2001), Kaplan and Rodrik (2001) and Magud, Reinhart, and Rogoff (2007).

33. Notice that these transactions do *not* entail a net capital outflow or a reserve loss, as the gross outflow implied by the nonrepatriation of the proceeds of the asset sale abroad is matched by

the gross inflow implied by its purchase with foreign funds, without any net effect on the foreign reserve stock; see Levy-Yeyati, Schmukler, and van Horen (2004). However, this kind of international asset migration may have consequences for the tax collection capacity of the local authorities, as domestic residents effectively shift assets out of the domestic jurisdiction.

34. This applies also to the case of inflow controls; see Carvalho and Garcia (2006) for a detailed account of evasion strategies employed by investors in Brazil.

35. As evasion strategies often involve setup costs (as well as the possibility of penalties), they are more easily available to large, wealthy and/or well-connected investors. In fact, evidence from several crisis episodes in Latin America shows that large investors typically liquidate domestic assets ahead of the full-blown crisis and the imposition of controls, so that the burden of controls falls mainly on small investors—while flight from domestic assets by large investors helps trigger the eventual crash. This is one of the mechanisms identified by Halac and Schmukler (2004) through which the cost of financial crises is disproportionately borne by small investors.

36. Johnson and Mitton (2003).

37. The perils of financial integration in a world of imperfect markets have been stressed by many distinguished observers, going as far back as Tobin (1978), and including Harberger (1980), Diaz-Alejandro (1985), Bhagwati (1998), Cooper (1998), and Stiglitz (2002).

38. Broner, Lorenzoni and Schmukler (2007) show that this maturity premium is quite substantial in the case of emerging markets.

39. Nadal-de-Simone and Sorsa (1999) provide a detailed description of Chile's controls on inflows.

40. Concha, Galindo, and Quevedo (2008) provide a detailed analysis of Colombia's experience with controls on capital inflows.

41. McCauley (2008) documents Thailand's recent experience, as well as those of other Asian countries.

42. See for example Bekaert, Harvey and Lundblad (2003).

43. Forbes (2007).

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