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Center for Geoeconomic Studies

Council Special Report No. 45
March 2009

Benn Steil

Lessons of the Financial Crisis

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Cover Photo: Close-up of U.S. Treasury Department columns, Washington, DC, April 1999 (Mel Curtis/Getty Images).

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Foreword

Any short list of what led to the current economic crisis would include an abundance of inexpensive capital, the issuance of mortgages to borrowers with a high risk of default, the securitization of these mortgages into complex assets, and the extensive use of leverage by financial institutions. Results have included the collapse of housing prices, massive unemployment, and the spread of distress throughout financial markets and economies around the world. But if there is general agreement on the factors that contributed to the crisis, there is little or no consensus on how to promote a recovery and prevent a recurrence. Making the challenge particularly complicated is the need to deal with immediate problems while crafting policies that can foster a return to sustainable economic growth.

In this Council Special Report, Benn Steil offers an incisive overview of the crisis and a comprehensive guide for reform. He starts by examining the factors that helped bring the crisis about and shows how a variety of policies and practices, ranging from a tax structure that encouraged leverage and home-buying to bank compensation that gave huge rewards for short-term gains, set up a system that collapsed after the housing market started to weaken. Steil then offers policy recommendations, principally for the U.S. government. First, he argues that given the shortcomings of regulation, policymakers should work to shape incentives so that the market largely regulates itself. Second, he explains why financial institutions must be made more resilient to broad economic distress and how this can be done. The report lays out a comprehensive agenda covering issues of leverage, capital requirements, corporate and mortgage finance, the screening and monitoring of mortgage borrowers, market infrastructure, corporate governance, monetary policy, and international financial architecture.

Lessons of the Financial Crisis is a much-needed work on an issue that could not be more timely or important. It covers complex issues in a

highly readable manner. This report recommends an ambitious but practical list of measures to address the circumstances that have caused such a loss of wealth in the United States and around the world. The result is an invaluable assessment of how the economy has gotten to this point and what is necessary to reduce the chance of future crises.

Richard N. Haass

President

Council on Foreign Relations

March 2009

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I am also grateful to my research associate, Jesse Schreger, who provided exceptional research assistance, and two talented interns, Demetri Karagas and Andrew Hearst, who supported his efforts. For their work in the production and dissemination of the report, I would also like to thank Patricia Dorff and Lia Norton in the Publications Department; Lisa Shields, Leigh-Ann Krapf, and Sarah Doolin in Communications and Marketing; and Stewart M. Patrick and Kaysie Brown from the David Rockefeller Studies Program. This publication is part of CFR's Program on International Institutions and Global Governance and has been made possible by the generous support of the Robina Foundation.

Benn Steil

Council Special Report

Introduction

The story of the financial crisis will be retold endlessly as one of widespread greed, corruption, and incompetence, enabled by a policy agenda dominated by an ideology of deregulation. Yet even if the marketplace had been populated by more ethical and intelligent individuals, and even if their activities had been more carefully scrutinized by more diligent regulators, there would almost surely still have been a major financial boom and bust—such is the power, as history attests, of cheap money.

The crisis offers a sobering lesson about the dangers of policies that fuel the rapid buildup of debt across the economy. In recent years, individuals and financial institutions borrowed at unprecedented levels, funneling such funds into housing and real estate assets, in particular. As with all levered investments (investments made with borrowed money), this practice generated great profits as the assets rose in value. And as with all levered investments, it produced great losses when the assets fell in value. Leverage can create the mirage of investment acumen in a rising market that is only unmasked as recklessness in a declining one. Excessive leverage in the economy needs to be prevented because credit does not return to normal once asset prices stop rising and start falling. It becomes dangerously scarce as lenders are forced to ration, and often compete aggressively for, funds to cover losses. This causes a rapid contraction of economic activity generally.

Although debt-fueled manias and crashes undoubtedly have roots in human psychology, trying to eradicate failings of human nature through regulation is not merely exceptionally ambitious but also prone to serious unintended consequences. After all, risk-taking is the very source of economic progress. Mainstays of the financial markets such as mortgages, mutual funds, and credit cards would be impossible without it. The priorities should therefore be, first, to identify and correct policies

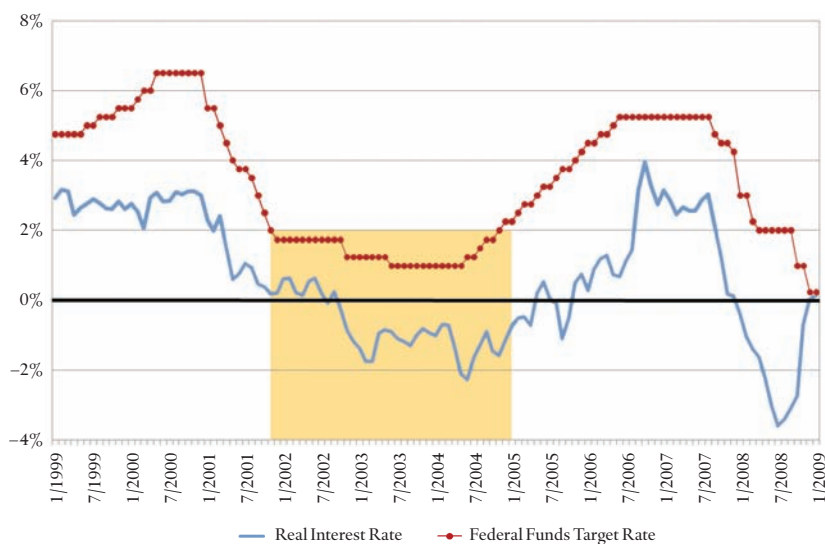
that cause certain risks to be significantly underpriced, and therefore taken on at greater levels than can be justified by the potential losses involved; and, second, to put in place new policies that make the financial system more resilient in the face of risk-taking gone bad.

A Synopsis of the Crisis

With all scarce things that people want, a lower price induces higher demand. So it is with the price of money. The price of borrowing dollars is set first and foremost through the activities of the U.S. Federal Reserve. The historically low dollar interest rates established by the Fed, and sustained by massive official capital inflows, from 2001 to 2005 fueled a widespread buildup in borrowing by U.S. households and financial institutions, and stoked a global surge in asset prices (in particular, real estate, commodities, stocks, bonds, and art). Although U.S. consumer price inflation was moderate during this period, real (inflation-adjusted) interest rates were negative for most of it, as shown in Figure 1—a situation not seen since the 1970s. And whereas a significant rise in consumer price inflation is commonly viewed as the unique yardstick of loose monetary policy, there are historical parallels where inflation was not an important factor at the time of a credit-boom bust, such as Latin America and Asia in the 1990s, and the United States in the 1920s.

Cheap money particularly encourages a buildup in debt where debt is subsidized by favorable taxation treatment. Owing to interest tax deductibility and accelerated depreciation for debt-financed investments, U.S. corporations face an astounding 42 percentage point effective tax rate penalty for equity-financed investments (36 percent) vis-à-vis debt-financed investments (–6 percent).¹ This naturally encouraged them to operate at highly elevated levels of leverage, and has made them financially vulnerable as borrowing costs have soared during the crisis. Financial institutions, of course, have been the worst affected. At the household level, mortgage interest tax deductibility provided a tremendous inducement to own a home rather than rent one, in spite of the much greater financial risks, while home equity loan interest tax deductibility encouraged people continually to borrow against their homes, to reduce their home equity, and to increase their

FIGURE 1. U.S. REAL INTEREST RATE AND THE FEDERAL FUNDS TARGET RATE



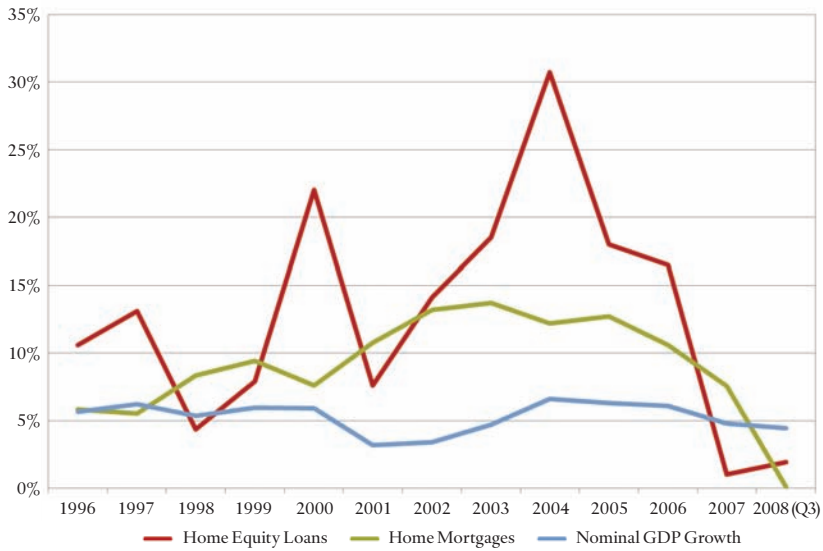
Data Sources: Bloomberg and the Federal Reserve.

risk of default. Figure 2 illustrates the remarkable growth of mortgage and home equity loans in recent years.

The cost of mortgage debt was further reduced by the behavior of the giant Government-Sponsored Enterprises (GSEs) Fannie Mae and Freddie Mac, which bought up trillions of dollars in mortgages to hold or to resell with repayment guarantees (see Figure 3). They funded these purchases through massive borrowing at below-market interest rates, attributable to implicit government backing for their debt. Ultimately their debt was indeed backed by the government, which took the institutions into conservatorship in July 2008, at very considerable and growing cost to U.S. taxpayers.

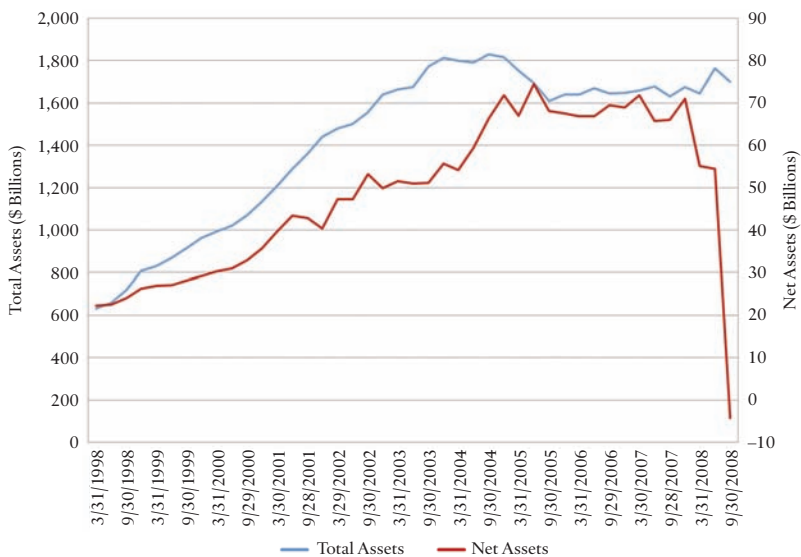
Banks that originated mortgages, as well as other debt assets such as car loans, were encouraged by regulatory capital adequacy requirements to sell them off to Fannie, Freddie, and others, rather than keep them on their balance sheets, where they would have had to be supported by equity and other relatively expensive forms of capital. By bundling and securitizing mortgages, and then selling them to institutions that did not bear such capital costs, banks were able to create far more mortgages. They were also relieved of the cost of monitoring borrowers. As a

FIGURE 2. ANNUAL U.S. HOME LOAN GROWTH VS. NOMINAL GDP GROWTH



Data Source: Federal Reserve Flow of Funds.

FIGURE 3. FANNIE AND FREDDIE: COMBINED TOTAL AND NET ASSETS



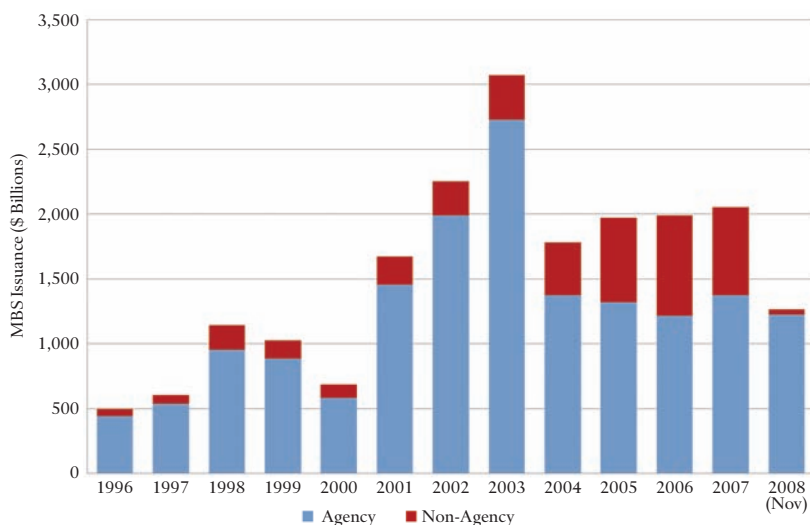
Data Source: Bloomberg.

result, the quality of credit deteriorated as its quantity increased. Figure 4 shows the tremendous growth in mortgage-backed securities (MBS) in recent years.

The role of scrutinizing borrowers was delegated to a small number of private, government-authorized credit ratings agencies (CRAs), which assign a risk rating to a given loan, after the fact, based on limited financial data. Ratings agencies are typically paid by those who issue the securities, and issuers naturally favor agencies that are compliant in assigning quick and generous ratings (as highly rated assets fetch higher prices in the market). Figure 5 shows how powerful is the financial incentive for CRAs to help create marketable mortgage-backed and other asset-backed securities (ABS), thereby encouraging the growth of the debt stock.

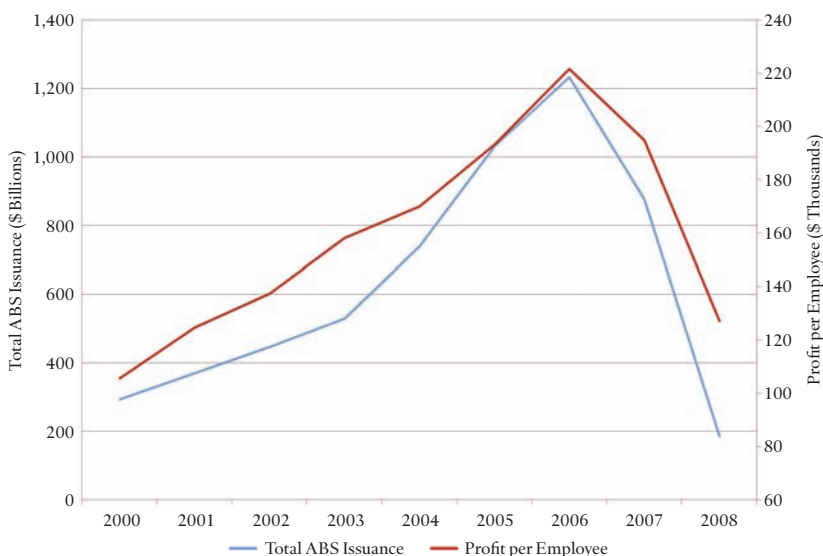
The expansion of the MBS and ABS markets was further fueled by financial sector compensation policies, which rewarded bets on rising asset markets using cheap borrowed money. Compensation based on bonuses for short-term financial performance was itself encouraged by legal limits on the corporate tax deductibility of salaries, which had been imposed in the United States in 1993 in an attempt to restrict executive pay.

FIGURE 4. ANNUAL MBS ISSUANCE



Data Source: Securities Industry and Financial Markets Association.

FIGURE 5. MOODY'S PROFIT PER EMPLOYEE VS. TOTAL ABS ISSUANCE

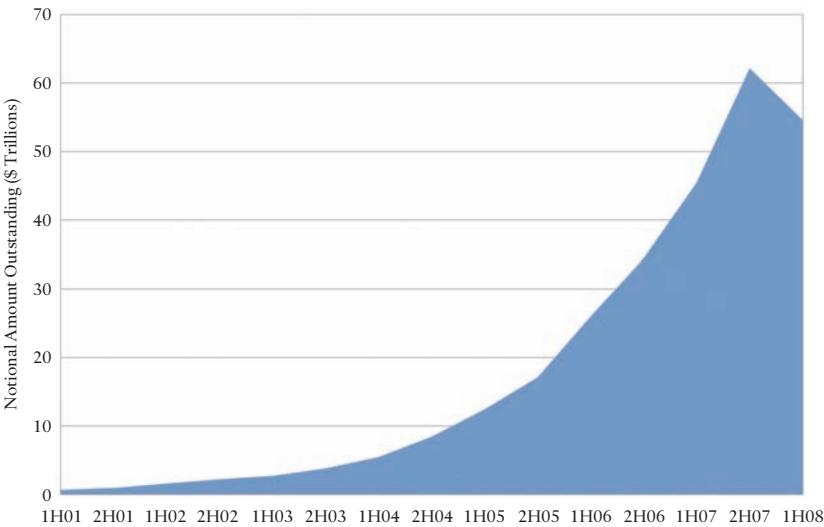


Data Source: Bloomberg.

When the housing market began declining in 2007, the generous credit risk evaluations assigned to the numerous component assets of MBSs and ABSs became suspect. Demand for them collapsed, as the ratings were the only readily available tool to value them. The banks, which were holding the securities off balance sheet, pending their expected quick sale, were obliged to bring them on balance sheet when the market dried up, incurring large and unexpected regulatory capital charges in consequence. They needed to raise new capital to cover large markdowns, but investors were unwilling to provide it, except at a very large premium reflecting the major risks involved. Their clients and trading counterparties became concerned about their solvency, and many ceased transacting with them.

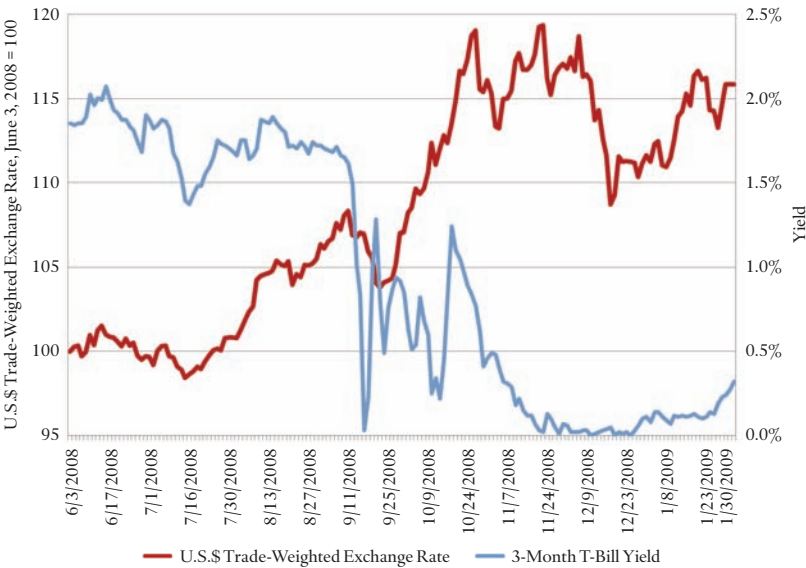
This precipitated precisely the insolvency threats they all feared. Insolvencies then triggered waves of further distress through defaults on payment obligations. Such defaults became a risk to the stability of the financial system, ironically, through the market for which default risks were hedged: credit default swaps. CDSs were traded “over the

FIGURE 6. THE GROWTH OF THE CDS MARKET



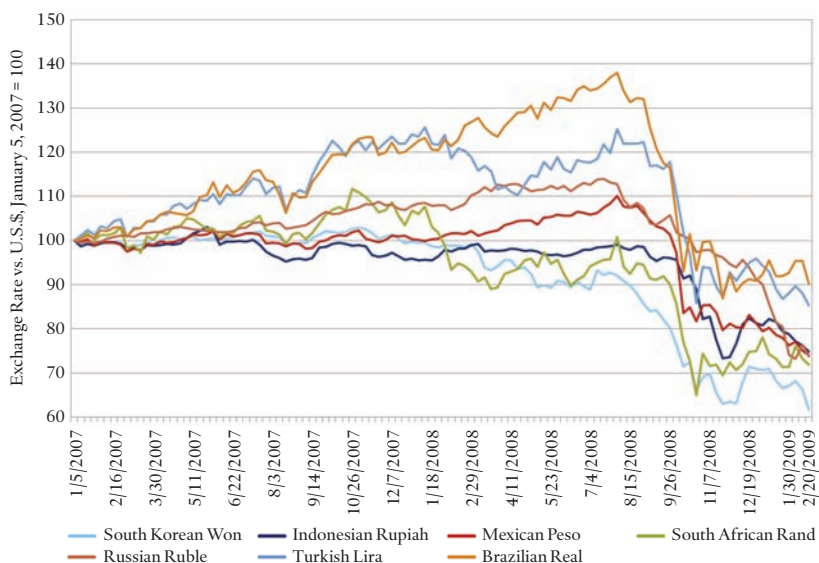
Data Source: ISDA.

FIGURE 7. U.S. DOLLAR EXCHANGE RATE VS. TREASURY BILL YIELDS



Data Source: Bloomberg.

FIGURE 8. THE COLLAPSE OF EMERGING-MARKET CURRENCIES



Data Source: Bloomberg.

counter,” rather than through organized exchanges. This meant that there was no central clearinghouse to track exposures, net trades, collect daily margin, and absorb default risk. The result was an unmonitored and unchecked buildup of exposures (Figure 6) that threatened to bring down other significant market participants, and ultimately forced the U.S. government to bail out insurance and financial giant AIG at massive, and still growing, cost.

The crisis quickly went global, affecting countries whose institutions had no exposure to any of the so-called toxic assets originated in the United States. This occurred through investors selling risky assets, such as foreign stocks and bonds, in order to cover losses, to meet margin calls, and to replace those risky assets with securities that had the highest liquidity and lowest default risk—short-term U.S. Treasury bills, whose yields were driven below 0 percent in December 2008 (Figure 7).

Emerging market currencies were, as in the crises of the 1990s, particularly badly battered by the soaring demand for dollars (Figure 8).

An Agenda for Policy Reform

Two broad principles should guide the search for effective, long-term policy responses to the financial crisis.

The first is the recognition that enduring, sustainable reforms must mold the incentives of private actors such that the system sufficiently self-regulates. That is, if policymakers want the market to work in such a way that institutions and individuals take fewer risks with their solvency, it is critical to have mechanisms in place that automatically raise the immediate costs of taking on such risks, and not to rely on regulators—who are, like those in the markets, human beings with their own foibles and blind spots—to identify and put a stop to it in a timely fashion. Even in the best of cases, regulatory intervention tends to bite too slowly. And in the worst cases it is subject to manipulation from below by the regulated and from above by politicians with countervailing agendas.

The second is the central importance of what is known in engineering and risk management as “safe-fail” approaches—making institutions resilient in the face of wider failures. The existing framework for financial market supervision wrongly assumes that the system as a whole is made safe by making the individual institutions safe²—a traditional “fail-safe” approach. As the current crisis has shown, actions taken by prudent institutions, such as selling assets and ceasing lending, affect other prudent institutions in ways that may undermine the safety of all of them. The requirements for securing the financial system are therefore very different from those of improving risk management within individual institutions—or individual countries, for that matter.

It is important to call explicit attention to some widely discussed reform items that this report’s recommendations do *not* cover, and why.

First, this report proposes little in the way of formal international cooperation. Most of what needs to be done as a matter of urgency can be done nationally (and, in the case of Europe, at the EU level), and in

most important areas (in particular, capital standards and monetary reform) the prospects for a timely, coherent, and effective international response are poor.

Second, this report does not address the admittedly important issue of reforming the institutional structure of U.S. (or EU) financial regulation. There can be no doubt that overlap across federal and state regulators (particularly in banking) and conflict among federal regulators (particularly in securities) has led to critical gaps in oversight and hinders timely adaptation of regulation to changing market conditions. But reform of regulatory institutions merits a paper in its own right, and, more importantly, is not a precondition for any of the more urgent interventions this report focuses on.

LEVERAGE AND CAPITAL ADEQUACY

Falling asset prices have caused much greater financial stress at major banks than capital regulation was supposed to allow. In recent years, leverage at systemically important financial institutions, such as Bear Stearns, Lehman Brothers, and Citigroup, reached unprecedented levels. Thirty-to-one leverage ratios are far too dangerous to tolerate going forward, particularly now that so much moral hazard has been injected into the markets by repeated government bailouts and debt guarantees.

The current international capital adequacy regime for large banks (“Basel II”) has three major flaws that must be addressed.

The first is the procyclicality of the requirements, which allows for ever-greater financial risks to be supported by a thin base of capital during good times, and demands a damaging curtailment of credit and a scramble for more expensive capital as assets are marked down in bad times. This needs to be stood on its head.

Critics of “fair-value accounting,” or “mark-to-market accounting,” rightly point out that having to mark down assets to the value they would fetch in a quick fire sale significantly exacerbates the procyclicality problem in a downturn. The solution to this particular problem, however, is not to abandon fair-value accounting in financial reporting, as the alternatives are much less objective, subject to strategic manipulation, and less credible with investors. Far better is simply to allow bank regulators discretion to accept alternative valuation methods for the purpose of determining whether a bank meets minimum capital requirements.

The second flaw in the Basel II regime is the role of officially sanctioned credit ratings agencies in assigning the risk ratings that determine capital requirements: the lower the rating on an asset, the more capital the bank has to hold against it as cushion against default. But other, sounder metrics are available for this purpose; for example, the size of the asset's yield spread over Treasurys. CRAs, as discussed further on, are rife with conflicts of interest that cannot be regulated away. They should be treated like any other forecasting organizations, and should not have any formal role in the regulatory process.

The third flaw is the role of proprietary "value at risk" (VaR) models employed by banks, and sanctioned by regulators, to determine risk levels on a portfolio basis. These models, based on historical data, have been shown systematically lacking in encompassing so-called black swan risks: that is, previously unencountered, and therefore unmodeled, occurrences (such as a large decline in U.S. house prices). These are precisely the risks responsible for bringing down major institutions, and therefore highly relevant to determining whether a bank has sufficient capital to withstand major losses. Whereas banks should be strongly encouraged to develop their own risk models, it makes no sense to allow them to establish their own capital requirements when the very purpose of such requirements is to oblige banks to hold more capital than they otherwise would.

Some excellent ideas for regulating bank capital from the 1990s, such as requiring large international banks to issue credibly uninsured subordinated debt, have unfortunately been undermined by government actions during this crisis. Subordinated debt can provide useful market signals of default risk *only* if debt holders believe that they will not be bailed out. In the wake of debt-holder bailouts at Bear Stearns, AIG, Fannie Mae, and Freddie Mac, that belief can no longer be presumed.

It must be emphasized that improving the Basel regime is not a simple or mechanical task. For example, under the Basel approach bank capital is understood broadly to include hybrid claims such as preferred equity or subordinated debt. But when trying to adapt capital requirements to encompass meaningful leverage (debt-capital) ratios, it is critical to use a much narrower measure of capital in the denominator. If a regulator wants to understand whether leverage is sufficiently high to threaten the ability of an institution to continue to attract necessary funding from the market, the regulator must view the firm's capital the way the

market would—as common equity, and not as preferred shares or subordinated debt. Common equity holders have the last claim against the firm’s assets, but also the voting power, and therefore control over the firm’s operations. As their stake in the entity deteriorates, they have little to lose and much to gain from taking on more risk, the downside of which will be borne by other capital contributors. In the months leading up to its collapse, UK bank Northern Rock, which relied very heavily on short-term funding, would not have appeared in great danger under a leverage ratio based on a broad measure of capital, but was clearly in danger when seen through the prism of common equity as the appropriate measure of capital.³

In short, bank capital requirements need to be revamped along the following lines:

- Systemically important institutions should to be subjected to strict limits on leverage ratios. These limits must encompass potential exposure to off-balance-sheet risks, which have proven to be a major source of hidden vulnerability. Leverage ratios should be calculated using common equity, and no other forms of capital, in the denominator.
- Institutions wishing to exceed established leverage limits should be regularly recertified as posing no threat to the financial system. Such certification must involve examining, first, the degree to which their risk exposure were in the form of liquid (generally exchange-traded) assets, as opposed to assets for which markets may dry up in times of stress, or for which counterparty risk is high because of the absence of clearinghouse payment guarantees; and, second, the degree to which their funding were in the form of more reliable long-maturity assets, as opposed to less reliable short-maturity debt, which must be continuously rolled over.
- Capital requirements should be made countercyclical, rather than procyclical, by raising them in line with growth in a bank’s assets—that is, banks should be obliged to build up their capital faster when credit is expanding. This suggestion is consistent with Tobias Adrian and Hyun Song Shin’s finding that leverage ratios are procyclical⁴—that financial institutions actively adjust their leverage upward as asset prices rise. This increases risk to the financial system as a whole, and should be counteracted through the capital adequacy regime.

- Capital requirements should rise with the level of maturity mismatch—that is, higher capital requirements should accompany the use of short-term borrowing to fund investments in longer-term assets.

In the 1980s, then Fed chairman Paul A. Volcker was justifiably concerned to see capital standards applied internationally, and not just in the United States, to ensure that U.S. banks were not put at a competitive disadvantage. The two versions of the international regime that have emerged since then (Basel I in 1988 and Basel II in 2004), however, have revealed significant limitations to this approach. They have been conceptually flawed political compromises that have distorted bank behavior and failed to restrain risk-taking. The priority at the moment must therefore be for the United States and the EU to begin significantly reshaping their respective regimes in line with the principles laid out above, putting a premium on timeliness and flexibility. The experience of the 1980s would indicate that whatever shows itself to work well in the United States and the UK will ultimately be adopted more or less intact elsewhere (Basel I mimicked a 1986 U.S.-UK accord), and that the merits of formal prior global agreement should therefore not be overstated.⁵

CORPORATE FINANCE

As long as the U.S. taxation system remains so highly favorable to corporate debt finance, and unfavorable to equity finance, the U.S. economy will remain vulnerable to downturns in the credit markets. It is imperative that this disparity be addressed as part of wider efforts to make the tax system less distortionary in its effects on economic activity generally.

MORTGAGE FINANCE

In late 2008, residential mortgages and home equity loans accounted for 85 percent of national income, up dramatically from 52 percent in 1995.⁶ This element of household leverage has proven to be a devastating source of vulnerability not just for the U.S. economy, but for the global economy as well.

The idea that all Americans should own their homes, and that having to rent one is necessarily a sign of market failure or lending discrimination, has been burned into the American political psyche over many decades. It has resulted in policy interventions as diverse as full mortgage interest deductibility to encourage borrowing, the creation of GSEs to boost lending, and implementation of the Community Reinvestment Act of 1977 (as revised in 1995) and the Federal Housing Enterprises Financial Safety and Soundness Act of 1992 to increase lending specifically to low-income (typically higher default risk) households. Whereas tighter regulation of mortgage lending practices is undoubtedly necessary, it is not sufficient. With Fannie Mae and Freddie Mac now controlled by the government, and more central to the housing market than ever, continuing to subject them to mortgage-holding quotas targeted at low-income families and geographic areas virtually ensures that imprudent borrowing and lending practices will reemerge.

The extreme antirental bias in government policy needs to be fundamentally reconsidered. Whereas affordable housing is certainly an important political objective, encouraging people to take on more debt than they can afford is dangerous, both for them and for their fellow citizens who at least partially underwrite it. At a minimum, the United States should immediately impose circuit breakers on this debt-expansion paradigm in the form of an upper limit of 90 percent on loan-to-value ratios. Government aid to assist low-income families to buy homes should in the future be provided “on balance sheet,” through explicitly and transparently funded government programs, and not “off balance sheet,” by corrupting the credit markets. As for mortgage interest deductibility, it does nothing to assist low-income families, as few of them pay federal income tax. It merely encourages higher-income families to borrow more to buy bigger homes. It should, together with home equity loan interest deductibility, be dramatically scaled down once the housing market has revived.

BORROWER SCREENING AND MONITORING

The area where reregulation needs most to focus on altering incentives is securitized lending. Securitization provides enormous benefits in terms of better risk distribution. But the current crisis has revealed that

it can often come at the cost of counterpart scrutiny and monitoring. This is particularly evident in the U.S. mortgage market, where lenders expect to sell off mortgages they originate, and therefore have little or no interest in vetting borrowers or subsequently collecting payments from them.

Restrictions must therefore be applied to lenders and creators of ABSs or MBSs such that they are obliged to retain a material economic interest in the assets they originate. There are many ways to do this. With securitized assets, originators should be required to retain some portion of the highest-risk tranche—the tranche that bears losses first in the case of defaults. Interventions like this would also encourage the use of alternatives to securitization, such as covered bonds, that capture its benefits without adding its systemic costs. Used widely in the European mortgage markets, covered bonds allow issuers to enhance the credit rating of their own debt issues by providing recourse to a pool of assets, such as mortgages, in the event of their default. Yet since the loans remain on the issuer's balance sheet, the issuer retains a clear interest in the quality of such loans and in servicing them. Development of a U.S. covered bond market would provide financing for residential mortgages without having to resort to government-backed enterprises like Fannie Mae and Freddie Mac. Temporary Federal Deposit Insurance Corporation (FDIC) payment guarantees recently extended to bank-issued covered bonds should have the effect of stimulating development of this market in the United States.

Credit ratings agencies played a significant role in the crisis by systematically underestimating the default risk on massive amounts of securitized debt, particularly mortgages, which resulted in inflated prices and overissuance. This has called forth two broad charges against them: that they are incompetent and that they are corrupted by their business models. Both may be true, but neither problem is going away. Forecasting skill cannot be inculcated through better regulation. Conflicts of interest that bias ratings can be mitigated, but not eliminated, because those who demand considered and unbiased ratings have much less incentive to pay for ratings services than those who demand quick and positive ones.

Two groups have a financial interest in credit ratings: investors and issuers. Investors will generally not pay for them (or not pay much for them), because of an endemic free-rider problem—no one will pay for

services that others can enjoy for free after they are rendered. Issuers, on the other hand, will pay to have their securities rated, but, since he who pays the piper expects to call the tune, they will naturally press CRAs for quick and favorable ratings. Regulators can address this problem by insisting that CRAs earn their living from activities unrelated to assigning ratings, but this will then discourage CRAs from devoting resources to it. Bias can be mitigated by banning CRAs from advising issuers on structuring debt so as to achieve positive ratings (which are then subsequently granted), but the circle can never be squared.

The central role that regulators, state governments, and institutional investors have assigned to CRAs in the area of borrower evaluation and monitoring has effectively obliterated this critical market function. Complex ABSs and MBSs have become the centerpiece of the securitization paradigm, in which the component financial risks of specific assets, like mortgages, are repackaged and redistributed across the economy—in theory, such that they are taken on by those most willing and able to bear them. But these products are valued in the marketplace based wholly on the credit ratings assigned to the underlying assets, or bundles of assets, which themselves are based only on limited financial data processed through ad hoc mathematical models, not familiarity with the actual borrowers. When these ratings become suspect, demand for the ABSs or MBSs collapses, as they are exceptionally difficult and costly, if not impossible, to evaluate from scratch.

No one else in the financial system is expected to find the unexpected, yet the belief persists in Washington and Brussels that companies officially authorized to be credit ratings agencies can and will do this, in spite of repeated dramatic failures over decades. The latest reform strategies are aimed at making them more accountable to government, rather than to the investment entities, which are told to rely on their opinions. This is surely misguided, on the basis of both logic and long experience. Part of the necessary reforms should therefore be to eliminate rather than enhance their official status, and to permit unlimited competition in the ratings-opinions business. It will then be incumbent on firms assigning credit ratings to persuade investors of their integrity and capability, rather than rely on a government imprimatur. Investors will then be obliged, in turn, to draw and justify their own conclusions about investment risk, rather than delegate these critical tasks to firms whose capabilities will never match their authority.

MARKETS INFRASTRUCTURE

The 2006 collapse of the large hedge fund Amaranth caused barely a ripple in the markets. This is because their derivatives exposures were on-exchange (natural gas futures) and guaranteed by a well capitalized clearinghouse. Lehman Brothers and AIG, in contrast, were major players in the over-the-counter (OTC) derivatives markets, particularly credit default swaps (CDSs), which involve no central clearinghouse to track exposures, net trades, novate trades, collect margin, and absorb default risk. The result was an unmonitored and unchecked buildup of exposures that threatened to bring down other significant market participants, and ultimately forced the U.S. government to bail out AIG at massive, and still growing, cost. The OTC derivatives markets therefore represent an obvious focus for safe-fail regulatory reforms.

The OTC markets are essential for financial product innovation and the creation of bespoke contracts to manage customer-specific financial risks. However, many successful OTC contracts eventually achieve a level of standardizability and trading interest that makes them appropriate for exchange trading, while at the same time straining the ability of the OTC market infrastructure to provide timely monitoring and control of counterparty risk buildup. As the large banks that dominate the OTC markets are competing with the exchanges, however, trading does not migrate naturally. U.S. and European regulators (whose institutions account for the vast bulk of OTC trading) should therefore oblige regulated central clearing, whether trading is on- or off-exchange, once volume barriers in a given contract are breached. They must also coordinate closely enough to ensure that minimum transatlantic standards in areas such as margining requirements are observed, and that timely information-sharing is provided for. International Swaps and Derivatives Association (ISDA) member banks should be free to design their own clearing solution (as indeed they currently are), and exchanges should be free to offer alternatives.

As more OTC volume migrates onto clearinghouses, it is obvious that the financial integrity of these institutions will become critical. Although there have been no major clearinghouse failures in the United States, it will become even more imperative going forward that they be strictly and continuously regulated to ensure that they are more than adequately financed. This is particularly the case as trading becomes

ever more international, and cross-border competition for business among exchanges and clearinghouses continues to rise.

Whereas the focus of OTC market regulatory attention of late has been on CDSs, it would be a great mistake merely to reregulate trading of that particular instrument. The CDS market may actually contract in the coming years, whereas other OTC instruments, including many that do not even exist at present, will inevitably grow in importance, and must therefore be encompassed in the solution.

CORPORATE GOVERNANCE

The extraordinary financial rewards that have been reaped by executives whose institutions have failed spectacularly have stoked political pressure for government control of compensation policies. Indeed, institutions receiving U.S. government funds have already been subjected to rules limiting executive bonuses to three times salary levels.

The potential for such interventions to distort the composition and location of economic activity is considerable. The ubiquity of performance-based executive compensation today is itself a function of political outrage fifteen years ago, which led to legal limits on the corporate tax deductibility of executive salaries but did not encompass performance bonuses. Nonetheless, more such interventions are inevitable without significant changes in corporate governance and compensation policies. In particular, the system of bonuses based on the past year's financial performance must give way to one that better aligns compensation to the timescale over which the success or failure of business strategies can be reasonably measured, which is generally several years or more.

Financial returns above and beyond what should be required by the level of risk borne are known on Wall Street as "alpha." If returns are only commensurate with the risk borne, this is known as "beta." Since a monkey throwing darts at a stock chart can generate beta, Wall Streeters are only paid well to generate alpha. The problem is that alpha can be faked by borrowing money, since assets generating a modest 5 percent return will generate thirty times more if \$30 of borrowed money is added to every \$1 of capital invested in them. Borrow enough money and make obscure enough investments, and "leveraged beta" looks, to a naïve compensation formula, just like alpha. It is then only a matter

of time before the entire firm is leveraged thirty times, as much of the U.S. banking sector was, and executives and traders become rich pursuing strategies that are bound to produce catastrophic losses when asset prices fall.

This problem can be mitigated through compensation reforms that include long-term clawback and vesting provisions, which hold executives financially accountable for the longer-term results of past decisions. The question is why such reforms are only now just starting to be implemented. Naïveté among company board directors can only explain so much. Boards in which outside directors are effectively chosen by the chief executive, or become beholden to him or her over time to sustain their tenure, can be expected to back compensation policies that appear generous vis-à-vis the competition. One manifestation of this is the tendency of boards simply to pay the CEO in line with the top quartile of CEOs in their sector, thus abdicating responsibility for controlling compensation and fueling pay growth industry-wide. This problem has been exacerbated in the financial sector by the conversion of investment banks and private equity firms from partnerships to publicly listed companies, management of which appears to have exploited the information gap between themselves and the new outside owners to extract higher compensation based largely on risks borne by the latter.

New regulatory leverage limits will go some way toward mitigating the incentive problems created by the growing gap between principals and agents in the financial sector. With so much downside risk now being passed on to taxpayers by too-big-to-fail institutions, there is also a case to be made for allowing regulators some measure of intervention—for example, through increased capital charges—if they judge that compensation formulas do not impose adequate risk-taking discipline on senior management.

Strengthening corporate governance practices is also important. Comprehensive risk monitoring must be made a primary board responsibility. As a former company nonexecutive director myself, I found that one of the most useful exercises I engaged in was a company risk profile evaluation mandated by the UK Financial Services Authority. This obliged the board to scrutinize every aspect of the company's risk exposures and risk management capabilities, ranking risks in order of concern and explaining how they were being handled. The

Federal Reserve should require such a yearly analysis at the institutions it supervises. These might be shared with other government agencies, but otherwise not made public. Increasing the profile of nonexecutive directors on company boards, particularly on compensation committees, may help—though it is unrealistic to assume that directors can or will always behave “independently” once they are part of the board, and therefore charged with assisting as well as monitoring management.

MONETARY POLICY

In monetary theory, a perfect money is a “neutral money,” or a money in which relative prices are the same as they would be under a frictionless barter economy. Such a barter economy could not exist in reality, and neither could a neutral money. Money’s role as a store of value, and not just a means of measuring relative values, assures that it always acts as a more or less distorted lens of relative values, and therefore itself affects such values. Thus there can never be a perfect money or a perfect monetary policy. The best a central bank can do is to try to approximate money neutrality.

Not surprisingly, then, orthodoxies regarding what constitutes good monetary policy have changed over time. For a hundred or so years leading up to President Richard M. Nixon’s closing of the gold window in 1971, good monetary policy was generally considered, around the globe, to be maintenance of a fixed rate of exchange with an ounce of gold. More recently, it has been the targeting of a low and stable rate of inflation (either consumer price index inflation or so-called core inflation). Detractors from this view have pointed to the dangers of asset price bubbles—the economic damage that could be wrought if they were not brought under control by higher interest rates, irrespective of whether the inflation rate appeared to be low and stable at the time.

The current crisis being of vastly greater severity than anything that accompanied the collapse of the dot-com bubble in 2000, it is clear that targeting specific asset price bubbles is to focus on trees rather than forests. Former Fed chairman Alan Greenspan may well be right that specific asset bubbles are hard to spot, but the growth of credit and asset prices was so widespread after 2001 that such subtle analysis was beside the point.

This credit-driven boom and bust is hardly a new phenomenon. Broad growth in credit and asset prices, and a rise in demand for alternative monetary assets (particularly gold), preceded the 1929 stock market crash and the collapse of the Bretton Woods system in the early 1970s. They are signs of money deviating from neutrality, and were sources of concern to some of the important economic figures of the twentieth century, in particular Jacques Rueff, Friedrich Hayek, and Benjamin Strong.

It is perhaps the case that the Fed's relatively short historical experience with managing a global fiat dollar led it to conflate consumer price stability with money neutrality, but going forward there can be little doubt that more attention needs to be paid to the wider aspects of the latter. If it had been, interest rates would certainly have risen faster after 2002, credit would have been more expensive, leverage by both households and institutions would have been restrained, the mass shift of assets out of dollars and into euros and commodities would never have been encouraged, the global inflation spike of late 2007 and early 2008 would have been avoided, and the subsequent collapse in prices would never have occurred.

FINANCIAL ARCHITECTURE

In 1971, U.S. treasury secretary John Connally famously told a foreign delegation that the dollar was “our currency, but your problem.” In 2008, the world relearned this lesson.

In a mere matter of months, the world swung violently from one pole of the “Triffin dilemma” to another—that is, economist Robert Triffin's 1960 observation that a state whose currency played the role of a global one would have to run continuous balance of payments (or current account) deficits to supply it, but that such deficits would eventually undermine confidence in it. Against the backdrop of large accumulated U.S. current account deficits, the first half of 2008 was marked by a plummeting dollar and soaring commodities prices, as the Fed slashed interest rates and let inflation mount, while the second half was marked by a soaring dollar and plummeting commodities prices as a credit freeze led to a global scramble for dollar liquidity. Countries as diverse as Iceland, Russia, South Korea, and Mexico were severely buffeted.

In the absence of a return to a strict commodity money standard, of the sort last seen before 1914, or some other almost inconceivably radical global monetary reform, the world will be obliged to live under the shadow of the Triffin dilemma indefinitely. There are two ways to move forward, and they are not mutually exclusive.

One option is to upsize, or at least “flex-size,” the International Monetary Fund (IMF), so that in times of crisis (crises coming in clumps every five years or so) the organization can in a timely fashion marshal sufficient hard-currency reserves to provide large-scale liquidity support. These are frequently high-risk and politically controversial interventions, however, and neither lenders nor borrowers have thus far shown enthusiasm for a much more powerful IMF. No major upsizing is even feasible without much greater contributions from, and therefore voting rights for, China, which strongly opposes IMF scrutiny of its exchange rate policy.

The second option is for countries, particularly smaller ones, to self-insure against currency crises by replacing their national currencies with one of the two globally accepted means of international payment, the dollar or the euro. This is the ultimate safe-fail approach. Countries that are dollarized (Panama, Ecuador, El Salvador) and euroized have in the current crisis been spared the devastation of mass capital flight. Countries on the periphery of the eurozone—Iceland, Denmark, Hungary, Poland, the Czech Republic, Bulgaria, Romania, and the Baltic states in particular—have suffered far more from the global financial upheaval than their euroized neighbors.

The European Union has, unfortunately, to date been almost pathological in imposing senseless suffering on member states in order to grant them permission to join the eurozone. The benchmark inflation rate for entry, the average of the lowest three national rates, will in short order require aspiring eurozone members to *deflate* their way into the club—certainly something no one in the EU ever wanted or envisioned. And the exchange rate stability criteria will require aspirants to engage in useless and damaging trading wars with currency speculators. The upshot is that many countries that could be quickly absorbed into the eurozone, and spared the vicissitudes of speculative capital flows, will instead be negotiating IMF assistance and reinstating capital controls.

Countries can, however, adopt the euro without explicit EU cooperation. Kosovo and Bosnia have already done so. Non-EU member

Iceland debated the option in 2007, when it could have used its central bank reserves to buy up all the krona in the country at a favorable exchange rate. Had it done so, national financial collapse would have been averted.

It is high time for governments to begin seriously rethinking the logic of monetary nationalism. No meaningful reform of the global financial architecture can avoid this issue.

Conclusion

The current financial and economic crisis is a classic bust of a credit boom, the boom having been fueled by policies whose combined effects were to increase the demand for debt to unsustainable levels. U.S. monetary policy, taxation policy, and home ownership promotion policy were so conducive to credit expansion that the idea, understandably popular in Washington and Brussels, that preventing future such crises can be accomplished simply by waking up regulators “asleep at the switch” is dangerously simplistic. The United States in particular, given that it effectively sets monetary and credit conditions for a significant portion of the global economy, needs to put in place policies that can better discourage, recognize, and curtail a credit boom, and ensure that systemically important financial institutions can withstand its unwinding.

Endnotes

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