

“A Ten Plank Program for Financial Regulatory Reform”

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Reform #1. All Countries Should Have a Prompt-Corrective-Action and Orderly Closure Law for Systemically Important Financial Institutions – Be They Banks or Nonbanks.

- Need analogue to what we have for banks in the United States under FDICIA (Federal Deposit Insurance Corporation Improvement Act) and CEBA (Competitive Equality Banking Act).
- Assumption that failure of large bank would be more costly for US economy than failure of large non-bank is increasingly tenuous.
- Under current situation, impending failure of systemically-important non-bank confronts authorities with two unappealing options: put it into Chapter 11 bankruptcy and accept creditor stays and potential market lock-ups not helpful to restoring financial stability; OR make a quick decision over the weekend to implement a large bail-out on terms not necessarily the most favorable to US taxpayers.
- Bank resolution framework under FDICIA and CEBA works much better: Prompt Corrective Action (PCA) capital-based triggers mandate corrective actions; close the bank when it still has positive net worth; wipe out existing shareholders and change management; resolve bank at least cost to FDIC insurance fund; receiver can establish a “bridge bank” that keeps bank operating under FDIC-appointed management and ownership.
- So what you want is an orderly resolution framework that combines continuity of operations, good moral hazard properties (wipe out shareholders, change management, guarantee some liabilities at estimated recovery cost, not par), gives some discretion to crisis manager for payment priorities, and also provides crisis managers with “time to think.”
- Need funds to pay some creditors before assets are sold; this could be done with (ex ante) levy on systemically-important nonbanks. Would probably define “systemically-important” by reference to combination of size, degree of inter-connectiveness in financial markets, and leverage (but this would make it harder for authorities to follow policy of “constructive ambiguity”).
- This framework for nonbanks would have been useful in cases of Bear Stearns, Lehman, Merrill Lynch, and AIG.
- I have been pushing this since last April; Treasury Secretary Paulson, SEC Chair Cox, FDIC Chair Bair have come out in favor (as has Shadow Financial Regulatory Committee) -- but still don’t have it; need it ASAP.

Reform #2. An international, quantitative liquidity requirement for banks, along with private-sector pooling arrangements for liquidity.

- Over past 50 years or so banks in many G-7 countries have economized unduly in the shares of cash and liquid assets in their total assets; investment banks have relied on short-term collateralized borrowing.

- This longer-term trend away from “owned” liquidity toward “just in time” borrowed liquidity was exacerbated in the run-up to this crisis.
- In worst of crisis, even collateralized borrowing against investment-grade collateral may not be available for firms facing actual or perceived liquidity/solvency pressures; SEC liquidity guidelines designed so investment bank could withstand 12 month interruption of unsecured financing but assumed that secured financing would always be available; Bear Stearns case and others shows this assumption is no longer tenable.
- Banks may hoard liquidity in a crisis (uncertain over own liquidity needs and/or nervous about creditworthiness of counterparties); so liquidity may not go to those who need it.
- Central banks can compensate for above problems by offering large-scale liquidity assistance to broad range of market participants against a wide range of collateral, but the larger, more frequent, and longer lasting is such assistance, the greater the risk that the official lifeline will undermine incentives for market participants to self insure against liquidity risk.
- What is needed is clearer picture of what constitutes minimum regulatory liquidity, along with greater incentives for holding it and for sharing it with others.
- Goldstein liquidity proposal offered in May 2008 (See “A Proposal to Improve Banks’ Regulatory Liquidity,” Financial Times, May 22, 2008).
- Main features: (i) regulators would define regulatory liquidity narrowly: would give a dominant role to cash and to US Treasuries that would retain their unquestioned liquidity in a crisis; would penalize very short-term financing relative to longer-term financing; regulators would set minimum quantitative benchmark for bank liquidity much in the same spirit as Basle I quantitative bank capital requirement was established in late 1980s; latest Basle Committee report on liquidity policy for banks still favors a “principles-based” approach that just won’t cut it; (ii) need to establish private-sector liquidity pools among systemically-important players; each member of pool deposits with pool an agreed quota of Treasuries that it could draw instantaneously when needed and without challenge; each member would be able to overdraft by several times if needed to meet unusually large liquidity strains; all pool members would agree as a condition of membership to allow their deposits to be lent to other members; since pool members would include some banks with insured deposits, unlikely that all pool members would be short liquidity at same time; market and default risks would be borne

exclusively by members of the pool: (iii) when liquidity needs went beyond the capabilities of the pool, members would turn to their national central bank to act as LOLR. Access to central bank liquidity facilities would carry a higher cost of borrowing than in the pool and there would be a strong presumption that official liquidity assistance could come only after private sources had been exhausted.

- Four advantages of the Goldstein liquidity proposal: (i) systemically-important players have increased incentive to hold minimum amount of owned liquidity to use in a crisis; (ii) hoarding of liquidity would be ruled out by membership commitment to lend to others members and loss sharing would limit their potential downside; (iii) members would have assurance that collateralized borrowing would be available from the pool even during the worst of the crisis; and (iv) central banks – as the third line of defense, could take less credit and market risks on their balance sheets and guard against becoming the lenders of first—rather than last – resort.
- On September 15, 2008. 11 major banks agreed to set up just such an emergency liquidity pool with \$77 billion in resources; while details are still sketchy and implementation seems to be delayed, it appears to share at least some of the key features of my proposal (including overdraft privileges going up to one-third of the fund).
- While central banks will no doubt continue to dominate the provision of emergency liquidity assistance during this crisis, I believe that the solution to the “liquidity hoarding” problem lies in part (along with bank recapitalization) in greater mutual support efforts among banks themselves; in this sense, there is something to be learned from what is done on the balance-of-payments front via pooling arrangements at the IMF.

Reform #3. The Basle II bank capital regime should be reworked – not just tweaked at the margin – in favor of higher minimum capital ratios, making the regime counter-cyclical, adding a leverage ratio alongside the risk-weighted capital measure, and temporarily dropping use of credit ratings and internal models to calculate risk weights.

- The existing minimum risk-weighted capital ratio (8 percent of risk-weighted assets) is too low: financial institutions worldwide have had to raise almost \$500 billion in capital during this crisis to deal with losses, considerable further writedowns are on the horizon if one believes the estimates of total projected credit losses, it’s becoming harder to raise such capital from private markets, and governments are having to put substantial public money into various schemes for

recapitalizing banks. Even though banks went into this crisis with capital ratios considerably above the minimum, bank capital has proved inadequate to deal with the bad credit decisions that have been made. While the Basle Committee has recently mandated some selective capital increases to deal with problems highlighted in the crisis (e.g. for re-securitizations and short-term liquidity facilities extended to asset-backed commercial paper conduits, and for banks' trading book exposures), they have not yet recommended an increase in the minimum capital ratio. If banks had higher capital cushions, there would be no need for potentially costly public interventions like the TARP. Hence, after recovery from the crisis has been firmly established, we should be recommending a significant (phased) increase in the minimum capital ratio, say from 8 to 12-14 percent (with accompanying increases in the Tier I ratio and in the minimum leverage ratio).

- From a macroeconomic point of view, it's desirable for the bank capital regime to be counter-cyclical – not pro-cyclical. Default probabilities, expected loss given default, changes in credit ratings, the value of collateral, profits, and asset prices are behave pro-cyclically – and the protections built into the Basle II capital regime are not sufficient to do much to alter that outcome. Because of the link between bank capital and bank lending, what would be stabilizing is for bank capital requirements to increase during the upswing, and for bank capital to fall during the downswing. The best way to do that is to make regulatory bank capital a function not just of the level of bank assets but also of the change in bank assets (as recommended by Persaud and Goodhart (2008)).
- In the United States, we require banks not only to meet a minimum ratio of bank capital to risk-weighted assets but also a simple unweighted leverage ratio. Most other countries just use the risk-weighted measure. The leverage ratio is useful and should be made part of a reformed international Basle capital regime. The leverage ratio provides protection against both mistakes in the weighting scheme for risk-weighted assets and some less desirable forms of regulatory arbitrage, and it acts as a binding constraint on the build-up in leverage on the way up in the cycle when funding conditions are ample (see Morris and Shin, 2008 and Turullo, 2008).
- One of the main innovations of Basle II was to provide more sophisticated differentiation among risk categories for bank capital by using credit ratings as risk weights and by allowing banks to use their internal models to determine their regulatory capital requirements. Even though Basle II cannot fairly be blamed for inciting this crisis (since it was not implemented in

most countries when the build-up to the crisis was occurring), the credibility of this innovation has been seriously damaged by the crisis. More particularly, the performance of credit rating agencies has been dismal and so too with the performance of banks' internal models (to the extent that the latter have been leaned on to guide portfolio decisions in the run-up to the crisis). The solution to this problem is not to discard risk-weighted capital measures entirely. It is instead to temporarily suspend use of the credit ratings and internal models in favor of weights chosen by bank supervisors – until such a time as it can be demonstrated that the performance of the credit rating agencies and of banks' risk management has improved markedly. Government officials seem loathe to make yet another significant change in the international bank capital regime given the long and arduous approval process for Basle II but that is a weak argument when set against the cost of maintaining a risk-weighting scheme for bank assets that has simply shown major shortcomings in this crisis.

Reform #4. Coordination needs to be improved between the monetary and regulatory authorities during the build-up of asset-price bubbles so that both of them don't say simultaneously that the identification and pricking of asset-price bubbles is not my job.

- Central banks have argued for some time that they should not attempt to prick asset-price bubbles because they have only the level of short-term interest rates as a policy instrument and it has to be directed at maintaining price stability, because they can't reliably identify asset-price bubbles, because interest rates are too blunt an instrument to affect asset prices without doing large collateral damage to the economy, and because when asset-price bubbles do bust, easier monetary policy can usually limit damage to the real economy.
- Others – including the BIS – have countered that the most notable financial crises of the past 75 years or so were not preceded by notable run-ups in inflation rates and that good early warning indicators of impending trouble are available, including rapid credit growth, large increases in asset prices themselves, and seemingly unsustainable patterns in the composition of aggregate demand. All this justifies some “leaning against the wind” at times of increased vulnerability.
- More recently, another school of thought has aired (e.g., Mishkin, 2008) that suggests that action should be taken against asset-price bubbles that are accompanied by credit booms but not against those that are not, and that this action ought to be mainly in the area of tougher prudential supervision. But the desirability of relying on tougher

regulation to prick asset-price bubbles has long been opposed by, among others, former Fed Chairman Greenspan. He has maintained (Greenspan, 2008) that bank loan officers are more knowledgeable about credit risks than regulators, and that regulators confronting real time uncertainty have rarely if ever been able to achieve clarity to act pre-emptively; more generally, until very recently, he doubted that tougher regulation would improve performance. The latter conclusion is not without significance since the US Federal Reserve acts as the supervisor for bank holding companies in the US (which covers most of the largest US banks).

- I don't buy the Greenspan doctrine. Even if one were to accept that monetary policy is not the proper policy tool to deal with asset-price bubbles, it is a step too far to argue as well that bank supervisors should not attempt to do so. Supervisors are not subject to the same competitive pressures as bank loan officers and managers to "... (in the words of Chuck Prince) keep dancing while the music is playing;" the supervisors can stop the music. They should also be able to identify large, rapidly increasing, and (probably) unsustainable levels of concentration risk. If we were to accept the notion that neither monetary nor regulatory policy can deal with the build-up of asset-price bubbles, then we will be left with only a mop to clean up financial crises. In addition, this financial crisis does not lend support to the notion that easier monetary policy can deal with the collapse of a huge property price bubble with little damage to the real economy.
- All this suggests that going forward, monetary and regulatory officials will have to coordinate better (than in the past) during the build-up of asset-price bubbles; if one (say, the monetary authority) is constrained from doing much, then the other (say, the regulatory authority) will have to act more forcefully.

Reform #5. Clearinghouses should be established in the OTC derivative markets; if that takes too long, incentives should be considered to shift more of derivative trading to the organized exchanges.

- According to BIS figures, there was approximately \$600 trillion – yes, trillion not billion – of OTC derivative contracts outstanding (in notional terms) as of end-2007. In contrast, the amount outstanding on organized exchanges was about \$80 trillion. Credit default swaps alone on OTC markets are roughly \$50 trillion (all these amounts are much lower in terms of replacement values).
- The problem with so much of trading taking place on the OTC market is that it doesn't offer the same level of systemic

protection as on organized exchanges (or more generally, when there is a central clearing party). When you have a well-capitalized central clearing party that acts as the counterparty on all trades, when initial and maintenance margins are strongly enforced, when each participant's net position is known in real time and is recorded electronically, and when price information is transmitted rapidly to all traders, the systemic consequences of a failure by one trader are likely to be much more limited than when these conditions are not fulfilled. Also, when the products traded are more standardized (as they are on the exchanges), public understanding of them is likely to be higher.

- All that said, the OTC markets could not have grown as large as they have without offering some advantages. One of them is clearly customization. The question is how much is this customization worth—given the apparently higher level of systemic risk that goes with these markets.
- The perils of AIG also illustrate what can happen when the financial unit of a large conglomerate builds up hundreds of billions of dollars of exposure in the CDS market (selling protection) and then doesn't in the end have fast enough access to the firm's capital resources to meet escalating collateral calls.
- The Federal Reserve Bank of New York has been pushing hard to improve the infrastructure of the OTC markets and has been making progress (the Counterparty Risk Management Group III has also made useful suggestions in this area). There are plans to set up a clearinghouse for the CDS market by the end of this year; but the CDS market accounts for roughly only 15 percent of the total (notional value) of outstanding contracts on the OTC markets.
- We have been lucky that we haven't had a more costly accident in the OTC markets. We need to move as rapidly as possible to set up clearinghouses in the OTC markets that mimic the credit, clearing, settlement, and margin infrastructure that we have on the organized exchanges. If that effort meets strong and effective resistance, then I would recommend that we begin examining the bank capital regime and the bankruptcy regime to see if we can offer incentives to shift more derivative trading to the organized exchanges. AIG's unhappy experience in the CDS market also suggests that this market ought to have some official oversight to ensure that participants that run-up very large net exposures have access to the capital needed if large losses ensue.

Reform #6. Reduce conflict of interest in the major credit rating agencies (and its consequences) by restricting the rating agencies to their ratings business and by dropping (at least for now) the formal link between credit ratings and risk weights in the Basle capital regime.

- As is well known, the ratings given by the major rating agencies for complex structured products (CDOs and the like) have had to be significantly and repeatedly downgraded during this credit crisis and have proved to be poor guides to the credit quality of those products – especially when investors were using those ratings as a quick substitute for doing their own due diligence.
- Worse yet, there are good reasons for believing that the poor performance of the credit rating agencies during this crisis episode wasn't merely due to using an inappropriate methodology for rating these products. Conflict of interest also appears to have been a factor (SEC, 2008, Portes, 2008).
- The consulting arms of the rating agencies were providing advice to issuers and packagers on how they could design structured products in order to achieve particular credit ratings (eg., a triple A rating). Moreover, the consulting business dealing with structured products was an important source of revenue for the major rating agencies (see Portes, 2008). Simultaneously, the rating arms of these agencies were then providing a rating on these same products -- in many cases, validating the advise of the consulting arm. Also, if the issuer wasn't happy with the rating offered, he could shop around to see if another agency would provide a higher rating.
- My recommendation is similar to what was done in the case of the auditing/accounting industry after the Enron (and similar) scandals. The major credit rating agencies should be restricted to doing ratings business and their consulting activities should be split into separate firms; firewalls within the same firm will not do the job. This recommendation reflects my view that the rating agencies provide a potentially most valuable service to investors and the quality of this output should not be contaminated by conflicts of interest that flow from also operating a consulting business with the same clients. I also applaud the agreement negotiated between the NY Attorney General and the rating agencies that specifies that all rating agencies that review an issue be paid before they award a rating; this should discourage "ratings shopping." Finally, until we see a sustained improvement in the performance of the major credit rating agencies, I would suspend using the ratings as risk weights in the Basle II capital regime for banks.

Reform #7. Improve incentives in the originate-and-distribute model

- In the old days, if you got a home mortgage, you typically got it from your local bank or saving and loan who serviced it, held it, and was responsible for the loss if you were delinquent on your payments. Nowadays, and in contrast, mortgage originators often sell mortgages to third parties who pool them with other mortgages and create simple or complex asset-backed securities.
- One charge is that mortgage originators no longer have a proper incentive to do solid credit analysis because they don't have enough "skin in the game" once they sell the mortgages to those further down the distribution chain. The high delinquency rate for subprime mortgages –and to a lesser extent, for mortgages more generally, during this crisis is regarded as supporting this charge.
- Another charge is that the originate-and-distribute model – or securitization more generally, did not deliver what it advertized, namely, more financial stability because it in fact didn't transfer risk to those best equipped to bear it. Here, it is noted that when complex structured products (CDOs) were held in off-balance sheet vehicles designed for this function, these vehicles suffered, inter alia, from large maturity mismatches; hence, when funding dried up, after the underlying mortgages showed large increases in delinquency rates, these vehicles came under strong liquidity pressures. Put in other words, these vehicles were not good candidates for "bearing risk." In addition, because these vehicles were usually sponsored by banks or investment banks that had nontrivial reputational risk associated with the latter's survival, the risk really wasn't being "distributed;" indeed, the troubled assets either had to be returned to the balance sheet of their sponsors or the sponsors had to bail out those vehicles (in some cases, however, the off-balance sheet vehicles were allowed to fail).
- I think these charges against the originate-and-distribute model have some validity. The question is what to do about it.
- I have few doubts that if mortgage originators get paid mainly for how many mortgages they originate and if they get paid more for putting borrowers into very high interest rate loans that the borrowers cannot afford, then the originators will not spend much time or effort to assess the creditworthiness of the borrower. Hence, where applicable, the compensation arrangements of originators should be altered so that they have more to gain when they put borrowers in mortgages suited to the borrower's ability to pay. A recent paper by Gorton (2008)

argues that this problem should not be exaggerated. He documents that mortgage originators and packagers didn't fully escape the consequences of bad lending decisions because they had to warehouse the securities before they put them together and because the originators typically retained the mortgage servicing rights; on both counts, they suffered losses.

- A second useful way of getting more skin-in-the-game for loan originators is the “covered bonds” instrument that is so popular in Europe (roughly \$3 trillion outstanding) and that has been championed by the Paulson Treasury. The basic idea here is that the securitized instrument is covered not only by the underlying loan payments (and by over-collateralization) but also by the pledge of the issuing bank to meet payments if the borrower is delinquent. The problem with getting covered bonds to take off in the US market is that the availability of low-cost loans from the Federal Home Loan Banks and of insurance from Fannie and Freddie removes much of the incentive for US banks to issue such securities; in contrast, those substitutes for the extra layer of protection that covered bonds provide do not exist in the Euro-zone.
- Yet another way to go is to improve the disclosure and documentation for complex, structured products – and to sell them only to “sophisticated” investors, as recommended recently by the Counterparty Risk Management Group III (CRMG III, 2008). When I buy 100 shares of Citigroup stock from my broker, I don't ask him to take 10 shares because I have a good idea what I am buying, and given that transparency, I am willing to shoulder the risks alone. Not so with complex, structured products. In this connection, the EU has apparently just offered an amendment to its Capital Adequacy Directive that would require originators to hold a 10 percent slice of whatever they distribute.
- Also on the distribution side, it would be helpful that when banks are moving complex, structured products to off-balance sheet vehicles and when there is not a genuine transfer of risk (including reputational risk) and control, these off-balance-sheet assets should find their way into at least one of the required minimum regulatory capital ratios, either the risk-weighted one or the leverage ratio.
- In short, I don't think it is either realistic or desirable to think of halting the securitization process. But it is possible to improve the pattern of incentives so that it does not worsen prospects for financial stability.

Reform # 8. Make Wall Street compensation an integral part of risk management by giving firms an incentive to implement sensible deferred compensation plans.

- What's wrong with Wall Street compensation? I think the best answer has been given by Rajan (2008). He argues that Wall Street managers understand that one can't get paid much for taking on the general risk of the market (so-called beta risk). What you can get paid handsomely for is beating the market return regularly, that is, you will get well rewarded for "alpha" risk. The problem is that the manager has an incentive to take on false alpha if he can get paid for it. Put in other words, he will appear to generate excess returns but really he will be taking on hidden tail risk (that is, there will be a steady positive return most of the time but at some point there will be a huge very negative return).
- The triple-A rated tranches of CDOs are cited as an example of such false alpha. They paid a return of 50-60 basis points more than triple-A rated corporate bonds but this excess return was really just compensation for the low probability that the underlying assets would default and generate a huge loss.
- The rub, as Rajan (2008) explains it, is that true alpha can be measured only in the long run with the benefit of hindsight. As such, if you pay top managers bonuses based on annual profits but you don't claw back the losses when the tail risk materializes, then you create large incentives for those managers to create false alpha.
- The antidote for false alpha is to have a deferred compensation plan where you get only part of the bonus upfront and the rest only when superior performance is confirmed over a period of years; another way to handle the problem is to pay annual bonuses on some measure of risk-adjusted profits.
- Reform of Wall Street compensation has of course been discussed for many years. The catch has always been that firms were reluctant to implement or sustain such reforms for fear of losing key employees to firms with more generous and front-loaded compensation plans. That's why it is crucial to offer complying firms an incentive in the form of a lower regulatory capital charge for implementing sensible deferred compensation plans. The current Basle II bank capital regime addresses many factors that affect the risk-taking behavior of banks but omits this very important one, namely, how you get paid for taking risk. That should be changed.
- The first step should be to take a comprehensive survey of Wall Street compensation practices; perhaps the Institute for International Finance could take the lead in obtaining that data. Some Wall Street insiders maintain that deferred compensation plans are already the rule for senior managers and traders and hence, that there is little scope for further reform. Others (see,

for example, Purcell, 2008) lament that as the “rainmakers” of bankers and traders have gained power, current revenues have driven compensation. We need to get the facts and then act.

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Reform #9. Rationalize the US financial regulatory structure using the objective-based model, as outlined in the recent US Treasury Blueprint (US Treasury, 2008).

- By an “objective-based” model of regulation, I mean one where one regulator is responsible for all of prudential regulation, another for business conduct and consumer protection, and yet another for financial market stability. In countries where the third objective is subsumed under prudential regulation, this regulatory structure is sometimes known as the “two peaks” model. With the Treasury plan calling for the Federal Reserve to serve as the market stability regulator, the contemplated US structure would have three peaks.
- I don’t see that we get any advantage in the United States from having five banking regulators rather than one, or from overlapping responsibilities in other areas of finance. Just because the FSA did not catch the troubles at Northern Rock earlier does not provide a justification for continuing our outdated, multiple-regulator structure here.
- One place where the Treasury Blueprint got it wrong, I think, was to suggest that investment banks should be put under the business conduct regulator rather than the prudential regulator. Given what’s happened in the Bear Stearns, Lehman, and Merrill Lynch cases, it seems clear (at least to me) that systemically important nonbanks should be under the supervision of the prudential regulator as a quid pro quo for their now greater access to the official safety net.
- As suggested in my discussion above of the OTC derivative markets, I think one of the three regulators – probably the prudential regulator – ought to satisfy itself that those firms taking very large net positions in the OTC credit default swap market have access to sufficient capital to meet large unexpected losses. The AIG case suggests that the CDS market has not been subject to sufficiently rigorous oversight, given the systemic threats embedded in a market of that size.
- It is not imperative that this move to a more streamlined US financial regulatory structure happen right away – especially at this time when the credit crisis is in full swing. But after the election and when this crisis is over, it would make sense to implement the basic thrust of the Treasury Blueprint.

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Reform #10. Last but not least, we need a set of complementary reforms in housing finance.

- We should be putting more resources into education about mortgage financing – even before Americans become mortgage applicants. Buying a home is the largest purchase individuals will make in their lifetime. I see no reason why high school seniors wouldn't profit from a short course in what is and what is not a sensible mortgage contract. Counseling should also be expanded at the neighborhood level (with government support) for individuals who are contemplating buying a home. There are indications that such counseling helps to reduce mortgage delinquencies.
- There should be a simple (in plain language) template for home mortgages, along the lines laid by Bailey et al (2008). This will reduce the likelihood that borrowers agree to contracts that they do not understand.
- There should be a single federal regulator for the home mortgage industry that sets standards for mortgage originators and for mortgage products. I think a federal regulator that specializes in this area would be more effective than either state regulators or the Federal Reserve (via enforcement of the Truth in Lending Act).
- The Treasury should go the full Monty and put Fannie and Freddie into receivership, on the way to breaking them up into smaller units and then privatizing them (see Summers, 2008 and Wallison, 2008). The previous public/private hybrid model has broken down and ultimately exposed the taxpayer to potentially very large losses. With proper oversight, there is no reason why private firms cannot carry out the commercial (mortgage finance and guarantee) functions that Fannie and Freddie undertook; with smaller firms, there will also be less danger of “too large to fail.” The government's affordable housing and home ownership objectives should be made more transparent and the pursuit of them should be made compatible with maintaining financial stability; for example, if it wants to encourage home ownership for certain sub-groups, it would be better to do so by say, having the government extend matching down payments than to attract the marginal borrower via relaxation of loan-to-value or other standard lending criteria (Calomiris, 2008).
- The financial industry should consider introducing (on a trial basis) what Shiller (2008) calls “continuous workout mortgages.” The idea here is have mortgage payments adjust frequently to changes in the borrower's ability to pay – much in the same way that GDP-indexed bonds have been proposed as a superior alternative to standard sovereign debt contracts. The borrower's ability to pay would be measured not only by the level and change in his income but also by variables that

are not directly under his control (such as occupational and local indices), so as to mitigate the chances of manipulating the ability-to-pay indices in search of lower mortgage payments.

- Additional public funds should be allocated for reducing home foreclosures, as a way of reducing the chances that US home prices will overshoot their equilibrium levels on the down side. I would prefer a model fashioned on the Home Owners Loan Corporation of the 1930s (see Roubini, 2008) but using a sizeable chunk (say, \$300 billion) of the TARP's financial resources for that purpose, or supplementing existing legislation aimed at restructuring troubled mortgages (the Housing and Economic Recovery Act of 2008) would also be on point.

In considering this ten-plank reform plan, two caveats should be kept in mind.

- First, while this credit crisis reflects a major failure of regulation and supervision, I am not saying that regulatory shortcomings were the only cause of the crisis. Other factors were also important, including, inter alia: very low short-term and long-term real interest rates in the run-up to the crisis (that encouraged a pervasive search for yield and low mortgage rates); misguided assumptions about the future path of US housing prices (after years of rapid home price appreciation); shifts in the composition of bank lending toward the less creditworthy, marginal borrower; widespread maturity mismatches, high risk concentrations, and excessive leverage; and unwarranted optimism -- both about the financial stability consequences of securitization and about the continuous availability of borrowed liquidity.
- Second, major regulatory reform does not come for free. For example, to the extent that tougher capital and liquidity requirements are put into effect for banks, along with reform of the OTC derivative markets, one can expect lower leverage, slower asset growth, and probably, a lower average profit rate in the financial service industry vis-à-vis what had come to be expected in the run-up to this crisis. Of course, the other side of that coin is that these regulatory reforms should also contribute to fewer severe financial crises that you and I wind-up paying for – be it in the form of lower interest rates on savings deposits (as central banks reduce interest rates to prevent a strong feedback from the financial sector on to the real sector) or in the form of taxpayer financed bailouts of troubled financial institutions.