



**Proposals for Effectively
Regulating the U.S. Financial System
to Avoid Yet Another Meltdown**

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The ideas in this paper are drawn from James Crotty, "Structural Causes of the Global Financial Crisis: A Critical Assessment of the 'New Financial Architecture'", 2008, PERI Working Paper, <http://www.peri.umass.edu>; and James Crotty and Gerald Epstein, "The Costs and Contradictions of the Lender-of-Last Resort Function In Contemporary Capitalism: The Sub-Prime Crisis of 2007 – 2008", paper presented at Conference in Honor of Jane D'Arista, PERI, University of Massachusetts, May, 2-3, 2008. We present them here in this more compact form to contribute to the current debate on regulatory reform. Author contact information: James Crotty crotty@econs.umass.edu or Gerald Epstein gepstein@econs.umass.edu.

Abstract

It is now clear that we are in the midst of the worst financial crisis since the Great Depression. This crisis is the latest phase of the evolution of financial markets under the radical financial deregulation process that began in the late 1970s. This evolution has taken the form of cycles in which deregulation accompanied by rapid financial innovation stimulates powerful financial booms that end in crises. Governments respond to crises with bailouts that allow new expansions to begin. As a result, financial markets have become ever large and financial crises have become more threatening to society, which forces governments to enact ever larger bailouts. This process culminated in the current global financial crisis, which is so deep rooted that even unprecedented interventions by affected governments have thus far failed to contain it. In this paper we first analyze a series of structural flaws in the current financial system that helped bring on the current crisis, and then propose a nine point regulation policy, informed by our analysis, designed to end this destructive dynamic. We believe that if enacted and vigorously enforced, the policy could sharply reduce financial instability and minimize the problems caused by future financial cycles.

The U.S. Congress recently passed and George W. Bush signed into law a \$700 billion bank "bail-out" bill, bringing the total taxpayer funds committed to the financial rescue operation to over one trillion dollars. The bailout bill is severely flawed and may not achieve its stated aim of stabilizing financial markets. Lawmakers were stampeded into supporting the bill without insisting on proper safeguards over how the money would be spent, and even more importantly, without even attempting to gain commitments from financial institutions that they would accept serious regulation to prevent such a catastrophe from occurring again. Still, this is not the end of the story. The government may be coming back for more money soon if the recession continues to deepen and the bail-out funds prove inadequate. Moreover, as Barney Frank, House Financial Services Chairman, promised: "We will be back next year to do some serious surgery." The *Wall Street Journal* elaborates: "Mr. Frank wants legislation to rewrite housing finance -- including the roles of mortgage giants Fannie Mae and Freddie Mac -- and overhaul regulation of financial services." (*Wall Street Journal*, "Historic Bail-out Passes as Economy Slips Further," October 4, 2008).

What kind of "surgery" should the government implement? Below we present a nine point program to "overhaul the regulation" of financial services. To explain the rationale for the plan, we first present a very brief description of key structural flaws in the financial structure that helped cause the current disaster. These flaws are explained in detail in Crotty 2008. In our discussion we use the term "New Financial Architecture" – or NFA - to represent the basic institutions and practices of today's lightly regulated financial system.

Key Structural Flaws of the New Financial Architecture

First, support for light regulation of commercial banks, even lighter regulation of investment banks, and little if any regulation of the "shadow banking system"- hedge and private equity funds and the bank-created Special Investment Vehicles (SIVs) that contributed significantly to the creation of the crisis - is founded on the core assertion of neoclassical financial economics that capital markets price securities correctly with respect to their risk and return. Given accurate risk-return pricing, buyers and sellers of financial securities can make optimal decisions that lead to risk being held only by those

capable of managing it. The celebratory narrative associated with the NFA states that relatively free financial markets minimize the possibility of financial crises and the need for government bailouts. Crotty 2008 explains that this theoretical cornerstone of the NFA is based on patently unrealistic assumptions and has no convincing empirical support. Thus, the 'scientific' foundation of the NFA is shockingly weak and its celebratory narrative is a fairly tale.

Second, the current financial system is riddled with perverse incentives that induce key personnel in virtually all important financial institutions - including commercial and investment banks, hedge and private equity funds, insurance companies and mutual and pension funds - to take excessive risk. For example, banks get large fees to originate, securitize and service mortgages and distribute mortgages to capital markets whether these mortgages later default or not. Top investment bank traders and executives receive giant bonuses in years in which risk-taking behavior generates high profits that they do not have to give back when their reckless behavior causes their firms to collapse. Such asymmetric reward structures make it rational to take excessive risk in the bubble even if 'rainmakers' understand that a crash is likely to take place in the intermediate future. Or consider that credit rating agencies are paid by the investment banks whose complex derivative products they evaluate. It is therefore hardly surprising they gave high ratings to dangerous products during the bubble. The NFA operated with an incentive system virtually guaranteed to generate rapid financial growth fueled by excessive risk taking and dangerous levels of leverage.

Third, the commonly accepted view was that banks were no longer risky because they sold loans to capital markets (the new 'originate and distribute' model of banking) and hedged whatever risk remained through credit default swaps. Both these propositions turned out to be myths. The banks kept hundreds of billions of dollars of very risky assets either on their balance sheets or as off-balance sheet items that they would ultimately be responsible for. In July 2008, the IMF estimated that global bank write-downs already exceeded \$500 billion dollars. Meanwhile, the value of credit default swaps in 2008 was ten times larger than the available debt to be insured. This market turned into a frenzied gambling casino that helped destroy insurance giant AIG and investment bank Bear Stearns, and caused widespread panic when Lehman Brothers was allowed to fail.

Fourth, financial innovation has proceeded to the point where important structured financial instruments such as mortgage backed securities and collateralized debt obligations (CDOs) are so complex and so opaque that they are inherently non-transparent. They do not trade on markets. Eighty percent of all derivatives are sold over-the-counter (OTC) in deals negotiated between an investment bank and one or more customers. Indeed, the value of securities not sold on markets may exceed the value of securities that are. Thus, the claim that capital markets price risk optimally does not apply even in principle to these securities. Prices for these products are determined by the originating investment banks and ratings agencies through easy-to-manipulate black-box statistical models. Industry insiders said they were priced or 'marked' to magic or myth. Markets for such products are inherently illiquid. Buyers were plentiful in the boom because the returns were high and the products carried top ratings. But when the boom ended, the fact that no one knew what they were worth caused demand to evaporate and prices to plummet.

Fifth, it was claimed that in the capital-marked based NFA, complex derivatives would allow the risk associated with any class of securities to be divided into its component parts. Investors could buy only the risk segments they felt comfortable holding. The global integration of financial markets allowed to be distributed around the world to whichever investors were best suited to deal with them. Rather than concentrate in banks as in the "Golden Age" financial system of the 1950's and 60's, risk would be lightly sprinkled on agents across the globe. Since markets priced risk correctly, no one would be fooled into holding excessive risk, so systemic risk would be minimized. But the NFA created and widely distributed extraordinary levels of risk, while structured financial instruments re-concentrated risk segments in astoundingly complex ways. And securitization and funding via global capital markets created channels of contagion in which problems originating in one location (the US subprime mortgage market) spread throughout the world, triggering a systemic crisis.

Sixth, in the NFA banks were allowed to hold risky securities off their balance sheets, with no capital required to support them. Since capital had to be held against on-balance-sheet assets, the regulatory system induced banks to move as much of their assets off-balance-sheet as possible. Off-balance-sheet special investment vehicles and conduits

borrowed short-term in the commercial paper market and invested in long-term, illiquid but highly profitable securities such as CDOs. This was a dangerous game. The crisis destroyed the value of these illiquid assets and triggered an exodus from asset-backed commercial paper; the amount outstanding fell by \$450 billion in the second half of 2007. This forced banks to take these devalued securities back onto their balance sheets, which forced capital write-downs and spread panic.

Seventh, giant financial conglomerates were allowed to become so large and complex that neither insiders nor outsiders could accurately evaluate their risk. Conceding that outsiders regulators could not do this job, the Bank for International Settlement allowed banks to evaluate their own risk through statistical exercises such as Value at Risk (VAR). Crotty 2008 demonstrates that VAR exercises are inherently flawed. These flaws led to a gross underestimation of risk in the financial boom that allowed banks to hold less capital than they should and take more risk than they should. This is just one of many examples of totally ineffective regulatory processes. Financial markets were not just lightly regulated in the NFA, such regulation as did exist was often ‘phantom’ regulation designed to be ineffective.

Eighth, the structural flaws in the NFA created dangerous leverage throughout the financial system. Financial market debt nearly doubled between 2000 and 2007. Just prior to the crisis, large investment banks had asset to equity ratios of 30 or more and some hedge funds were more highly levered. It is estimated that half of the spectacular rise in investment banking return on equity in the four years leading up to the crisis was attributable to higher leverage (*Financial Times*, “Worst period for investment banking in 30 years,” April 2, 2008). Commercial banks appeared to be adequately capitalized, but only because a high percentage of their assets was hidden off-balance-sheet. In fact, they were excessively leveraged. By 2007 the global financial system had become, to use Hyman Minsky’s famous phrase, “financially fragile.” Any serious deterioration in the cash flows required to sustain security prices would trigger a dangerous de-leveraging process. Falling housing prices and rising defaults provided that trigger. As the value of mortgage backed securities fell, lenders demanded increased collateral for the loans used to purchase them. This forced borrowers to sell securities, accelerating the fall in prices in a vicious cycle that created a panic that no knows how to stop.

It is time to break this ongoing cycle of deregulation, exotic financial innovation, boom, crash and bail-out. After every 'rescue,' financial markets become larger, more complex, more opaque, and more highly leveraged. The value of all financial assets in the US grew from four times GDP in 1980 to 10 times GDP in 2007. The share of corporate profits generated in the financial sector rose from 10% in the early 1980s to 40% in 2006. The latest financial crisis is so severe that it is not yet clear whether even government bailouts of unprecedented size can resolve it. We cannot permit the growth trajectory of financial markets in recent decades to continue; it is too dangerous. Financial markets must be reduced to a size relative to nonfinancial sectors that allows them to perform their basic productive services, but reduces the exotic gambling casino activities that have led to the current crisis and contributed dramatically to the rise in inequality in this era.

We need an aggressive system of financial regulation that will be as effective as the one used in the US and other Western countries in the 1950's and 1960's. There can be no simple return to the past: the suggested agenda of reform that follows is tailored to current conditions. This program does not exhaust the list of regulatory changes that might be required to tame out-of-control financial markets.

A Nine Point Program for Financial Regulation

1. Restrict or eliminate off-balance sheet vehicles.

Move all risky investments back on bank balance sheets and require adequate capital to support them. Capital requirements should be sufficient to protect bank solvency even during the liquidity crises that occur from time to time. As an illustration of the potential effectiveness of this proposal, consider that several years ago a group of Spanish banks approached the Spanish central bank asking permission to set up a network of Special Investment Vehicles that would allow them to profit from off-balance-sheet holdings of mortgage-backed collateralized debt obligations without setting aside capital to support them. The Spanish Central Bank demanded that these banks post an eight percent capital charge against SIV assets, just as they would have to do if they were on balance sheet. This stopped the innovation in its tracks (*Financial Times*, "Spain's banks weather crisis", January 31, 2008). *The Economist* observed that "with no reason to set up the

SIVs, the Spanish banks did not bother. Other countries could have saved themselves a lot of trouble by taking a similarly rigorous view of consolidation” (“Spanish Steps,” May 17, 2008). This sensible decision did not prevent Spain from enduring a housing-related financial crisis, but it did eliminate one key element of the meltdown in the US and elsewhere. (See *Financial Times*, "Time for Central Bankers to Take Spanish Lessons," September 30, 2008).

2. Require due diligence by creators of complex structured financial products.

Require the investment banks that create mortgage backed securities, CDOs and other opaque mortgage backed financial assets to perform “due diligence” on the individual securities embodied in these products. “Due diligence” would obligate the issuer to evaluate the risks of each underlying mortgage, then use this information to evaluate the risk of the asset-backed security under varying conditions that might affect the value of the underlying mortgages. This task would be difficult and costly if done properly; it could make the most complex securities unprofitable. If this could not be done to regulators' satisfaction, sale of these securities should be prohibited. A related requirement should be that the underlying mortgages in a complex security must be identifiable, and ultimate ownership of these mortgages must be clear. Where this is not the case, securities cannot be ‘unwound’ in a crisis and the terms of the mortgage cannot easily be adjusted to stop the spread of defaults. Imposition of this requirement would probably close the market for CDOs and more complex securities based on CDOs.¹ At present, investment banks claim to assure the safety of these assets through over-collateralization. For example, investors can buy tranches of the expected cash-flows from the mortgages in a CDO that will receive their payments before holders of riskier tranches do. Mathematical models are used to demonstrate the safety of such tranches under various adverse conditions, but these models have been shown to be totally unreliable under the threatening and uncertain conditions of the current crisis. A “due

¹ We are grateful to Rob Parenteau for suggesting this point about the need to unwind mortgage backed securities.

diligence” requirement would also reduce the deleterious role played by ratings agencies in the NFA.²

3. Prohibit the sale of financial securities that are too complex to be sold on exchanges.

Eighty percent of all derivative products and one hundred percent of the complex CDOs, credit default swaps and other exotic financial instruments implicated in the current crisis are traded off markets or over-the-counter. If regulators insisted that all derivative securities must be exchange traded, those OTC securities that could be simplified and commodified would shift to exchanges where they would be transparent, involve less counter-party risk, and be cheaper sources of finance. “Simpler products impose lower costs of credit analysis on end users, which in turn makes them less expensive sources of funding” (*The Economist*, “Ruptured credit,” May 17, 2008). The most complex products, including CDOs, cannot be sufficiently simplified and would disappear from the market. (See *Financial Times*, “Fed plan is spoilt by its backing of hypocrites,” April 15, 2008, for one such proposal). Of course, investment banks and hedge fund traders would not meekly accept such a proposal since writing and trading complex derivatives OTC is a source of huge profits (*The Economist*, “Clearing the fog,” April 19, 2008). A general ban on OTC derivative trading has one key advantage over attempts to prohibit specific products such as CDOs. Investment banks can evade regulations banning specific products or services by creating alternative products that are not identical, but perform the same functions. Prohibiting OTC products would eliminate this form of regulatory evasion. NFA supporters would argue that this reform would inhibit useful innovation, but it is now clear that the societal costs of such innovation - in terms of financial crises that cause or exacerbate real-sector problems and require government bailouts - far exceed their possible social benefits. (See *Financial Times*, “A New Formula,” October 1, 2008.)

² Originating investment banks could also be required to retain ownership of a minimum percent of the securities they create sufficient to reduce their propensity to sell excessively risky products that come with overly optimistic risk ratings. This minimum would have to be quite large unless the perverse compensation incentives discussed in point 4 below are reduced substantially.

4. Transform financial firm incentive structures that induce excessive risk-taking.

Perverse incentives for top decision makers in important financial firms is a major cause of the current crisis. This asymmetric pay structure has greatly exacerbated the inherent pro-cyclical behavior of financial markets. Without solving this key problem, it might not be possible to create an effective regulatory regime. One mechanism to make the pay-off structure more symmetrical, and thus reduce incentives for risk-seeking, would be to implement “clawbacks” through which excessive salaries and bonuses paid during the upturn would have to be repaid in the downturn.³ Such clawbacks could be required in compensation contracts or could be implemented via the tax system, through a series of escrow funds and limitations on deductions from losses. Of course, there would be great incentives to engage in tax or restriction avoidance as is always the case. The appropriate response is not to stop trying to use appropriate taxes, but to enforce the tax laws more vigorously. Incentives to ratings agencies also need to change. If they were paid by institutional investors or associations of security buyers rather than the investment banks who sell complex products, the incentive to give excessively optimistic ratings would be eliminated. Alternatively, the government could create independent public ratings agencies that might function in a manner similar to the Government Accountability Office.

5. Extend regulatory over-sight to the “shadow banking system.”

The ‘shadow banking system’ of hedge and private equity funds and bank-created SIVs had become increasingly powerful. Though humbled by the current crisis, it is nonetheless still very much alive, waiting in the wings to revive if and when the crisis is over. This 'shadow banking system' played a key role in creating the conditions that led to the global crisis. These institutions must be brought under adequate regulatory control. Investment banks also played a crucial role in the NFA and bear substantial responsibility for creating the current crisis. Though the Fed does not regulate them, it was forced to bail them out. Dangerous risk taking caused the big five independent investment banks to

³ The \$700 billion bail-out program does not contain such provisions. It has only weak language suggesting that new "golden parachutes" for executives leaving the firm might be in jeopardy. Existing golden parachutes would remain in place.

disappear in the crisis; two went bankrupt, one was taken over by a commercial bank, and two converted themselves from investment banks to financial conglomerates. The SEC was responsible for regulating investment banks, but it required only voluntary compliance with its rules and never even read the compliance reports submitted by the banks – yet another example of ‘phantom’ regulation. Investment banks need to be tightly regulated.

6. Implement a financial pre-cautionary principle.

Once the financial regulatory structure is extended to all important financial institutions, as we propose in point 5, it would be possible to implement a regulatory precautionary principle with respect to new products and processes created by financial innovation similar in principle to the one used by the US Food and Drug Administration to determine whether new drugs should be allowed on the market. Destructive innovations were at the center of crisis-creation. Proposal 1 mentioned that Spanish banks had to ask permission from the Bank of Spain to create off-balance-sheet SIVs. This principle could be extended to all financial institutions and all important proposed financial innovations. Regulators would determine whether these innovations were likely to increase systemic fragility. Typically, the regulatory authority would do as the Spanish authorities did: tell the financial institution that as long as they could raise sufficient capital to insure that the risk to that institution was minimal, they could implement it. Regulators would be empowered to monitor the evolution of the innovation to make sure that it did not threaten systemic stability. However, there would be cases in which the regulatory authority would prohibit the innovation on the grounds that even with more capital, it would have serious negative externalities for the system. China’s system of regulation includes a strict policy of ‘anything not specifically permitted is prohibited.’ When asked what other countries could learn from China’s regulatory system, Liao Min, director-general and acting head of the general office of the China Banking Regulatory Commission, replied that “Chinese financial institutions needed CBRC approval to launch individual product types, making it nearly impossible for exotic financial instruments, such as the ones blamed for the subprime crisis, to exist in China.” As a result of this practice, “Chinese banks have emerged relatively unscathed from the global

credit crisis...” (*Financial Times*, “China says west’s lack of market oversight led to the subprime crisis,” May 28, 2006”). Until South Korea accelerated the liberalization of its financial system in the mid-1990s, its government maintained a list of acceptable banking practices. Financial institutions had to get regulators’ permission to do anything not on the list. We suggest careful consideration of the “anything not specifically permitted is prohibited” principle.

7. Restrict the growth of financial assets through counter-cyclical capital requirements.

A number of the previous suggestions might help restrict the excessive growth of financial assets in the boom. But they may not, by themselves, eliminate the excessive growth of financial assets. As a number of observers have noted, asset creation is extremely pro-cyclical (see, for example, Wray, 2008). As asset prices rise, bank capital rises as well, so banks can increase loans until they hit regulatory capital constraints. This lending leads to a rising demand for securities and thus higher security prices, which allows the process to continue. To assure control of the rate of expansion of financial assets, regulators should impose *counter-cyclical* capital-asset ratios (See Adrian and Shin, 2008.) Spain experimented with such a policy. “Since 2002 the Bank of Spain has had something called a “dynamic provisioning” regime, where bank provisions go up when lending is growing quickly... Over the cycle the effect is neutral, but the timing of provisioning should make the troughs less deep and the peaks less vertiginous” (*The Economist*, “Spanish Steps,” May 17, 2008). Though Spanish regulators did not impose this policy with sufficient vigor, its experience is suggestive.

8. Implement lender-of-last-resort actions with a sting.

Institutions might be too big to fail, but no CEO should be. The CEOs of the seven largest investment banks received a total of \$3.6 billion from 2004-07, yet the market capitalization of their firms declined by \$364 billion from their peak values, an average fall of 49 percent. As long as there is financial capitalism, there will be a need for the some lender of last resort bailouts, even if all of these proposed policies are implemented. But a key distinction must be made between the financial institution itself and the agents

who made the decisions to take risks and benefited from these decisions – top management, key traders and other richly rewarded operators. These rainmakers must be made to pay significantly when their firms are bailed out. As things currently stand, the perverse incentives embodied in financial firms’ asymmetric reward structure are underwritten by the central bank, which creates extreme moral hazard.

9. Create a bailout fund financed by Wall Street.

When the FDIC rescues failing commercial and savings banks, it uses insurance funds paid for by the banks themselves, not by the taxpayer. A similar insurance scheme should be created to finance bailouts for other kinds of financial institutions. The government should impose a small transactions tax on all security sales. (See Pollin 2005 for a general discussion of the transaction tax.) The tax rate might be calibrated to generate about \$100 billion in annual tax revenue. The fund would typically accumulate hundreds of billion of dollars in normal and boom times prior to the outbreak of a financial downturn. If effective regulations are put in place that prevent a truly dangerous risk buildup in the expansion phase of the financial cycle, the fund should have more than enough money to rescue those institutions that fail in the downturn.

We conclude with the important and obvious caveat that none of these proposals nor any other serious new regulations will be implemented unless there is a dramatic change in the political economy of regulation. Over recent decades, top officials at the Federal Reserve, the SEC, the Treasury, and elsewhere either believed in the theory of efficient capital markets and the celebratory narrative of the New Financial Architecture, or at least acted as if they did. Alan Greenspan was until recently the most important financial market regulator in the world as well as a disciple of free-market ideologue Ayn Rand. According to the *Wall Street Journal* “Mr. Greenspan says he didn’t get heavily involved in regulatory matters in part because his laissez-faire philosophy was often at odds with the goals of the laws Congress had tasked the Fed with enforcing” (*Wall Street Journal*, “Did Greenspan add to subprime woes,” June 9, 2007). Moreover, regulators move to and from Wall Street in a kind of revolving door relationship. Henry Paulson, the current U.S. Secretary of the Treasury, was CEO at Goldman Sachs and Robert E.

Rubin, the current Chairman of the Executive Committee at Citi Group, had served as Co-Chairman of Citi Group prior to becoming Treasury Secretary. It is never clear – perhaps even to them – whether they represent Wall Street or the American people when they make important decisions. For example, the original bailout bill presented to Congress by Secretary Paulson and vigorously supported by Fed Chairman Bernanke was a clear attempt to deliver \$700 billion to Wall Street without any effective protection of the public interest.

We will not be able to enact adequate reforms until two fundamental changes take place. First, the mainstream theory of efficient financial markets that is the foundation of support for the NFA must be replaced by the realistic financial market theories associated with John Maynard Keynes and Hyman Minsky. Recent events should convince any rational economist that the theory of efficient capital markets should be rejected once and for all, though it is far from clear that this ideologically grounded vision will in fact disappear. Second, there must be a broad political mandate in support of serious financial regulatory reform. For too long the Lords of Finance have corrupted the political process. Congress and the President have acted in recent decades as if they were paid employees of financial market interests, which many of them were. Perhaps anger over the \$700 billion dollars and the likely recession can galvanize the needed political support for change. The key is to channel the anger into pressure for a new "New Deal" in government regulation of financial markets.

Until we have regulatory institutions empowered by law to control financial markets and force them to act in the public interest and we populate them with well-trained officials who believe in serious regulation, we will continue down the disastrous path we have been following for the past three decades.

References

Adrian, Tobias and Hyun Song Shin. 2008. "Liquidity, Monetary Policy and Financial Cycles", *Current Issues in Economics and Finance*. New York Federal Reserve, January/February, 2008.

Crotty, James, 2008. "Structural Flaws in Deregulated Financial Markets Caused the Current Crisis: A Critical Evaluation of the 'New Financial Architecture' ", PERI Working Paper. <http://www.peri.umass.edu>

Crotty, James and Gerald Epstein, 2008. "The Costs and Contradictions of the Lender-of-Last Resort Function In Contemporary Capitalism: The Sub-Prime Crisis of 2007 – 2008", paper prepared for Conference in honor of Jane D'Arista, Political Economy Research Institute (PERI), University of Massachusetts, Amherst, May 2 – 3, 2008.

Pollin, Robert, 2005. "Applying a Securities Transactions Tax to the U.S.: Design Issues, Market Impact and Revenue Estimates", in Gerald Epstein, ed. *Financialization and the World Economy*. Northampton, MA: Edward Elgar Press, pp. 409 – 425.

Wray, L. Randall. 2007. "Lessons from the Subprime Meltdown", The Levy Economics Institute. Working Paper No. 522.