Moral Hazard and the Financial Crisis

Kevin Dowd

There is no denying that the current financial crisis has delivered a major seismic shock to the policy landscape. In country after country, we see governments panicked into knee-jerk responses and throwing their policy manuals overboard: bailouts and nationalizations on an unprecedented scale, fiscal prudence thrown to the winds, and the return of no-holds-barred Keynesianism. Lurid stories of the excesses of "free" competition—of greedy bankers walking away with hundreds of millions whilst taxpayers bail their institutions out, of competitive pressure to pay stratospheric bonuses and the like—are grist to the mill of those who tell us that "free markets have failed" and that what we need now is bigger government. To quote just one writer out of many others saying much the same, "the pendulum will swing—and should swing—towards an enhanced role for government in saving the market system from its excesses and inadequacies" (Summers 2008). Free markets have been tried and failed, so the argument goes, now we need more regulation and more active macroeconomic management.[1]

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[1]This argument is of course nonsense because we haven't had free markets. Instead, markets have operated within a framework of extensive state intervention that goes back a very long time, and our priority should be to investigate the impact of the state-mandated parameters within which markets have been "free" to operate.

Associated with such arguments is the claim that the problem of moral hazard is overrated. A prominent case in point is Lawrence H. Summers himself. In a widely cited column, he exhorted his readers to beware of a "moral hazard fundamentalism" which, he argued, was "as dangerous as moral hazard itself" (Summers 2007). His use of the disparaging term "fundamentalism" suggests that he did not intend it as a compliment. But whatever his intent, the issue identified by Summers—the role of moral hazard—is central to the controversy over the causes of the present crisis and the lessons that should be drawn from it. Unlike him, however, I believe that moral hazard is a (much) underrated problem: moral hazard played a central role in the events leading up to the crisis, and we need to appreciate this role if future reforms are to be well designed and prevent further disasters down the line. Understanding moral hazard is fundamental to understanding how the economy works—and if this is "moral hazard fundamentalism," so be it.

The Nature of Moral Hazard

A moral hazard is where one party is responsible for the interests of another, but has an incentive to put his or her own interests first: the standard example is a worker with an incentive to shirk on the job. Financial examples include the following:

- I might sell you a financial product (e.g., a mortgage) knowing that it is not in your interests to buy it.
- I might pay myself excessive bonuses out of funds that I am managing on your behalf; or
- I might take risks that you then have to bear.

Moral hazards such as these are a pervasive and inevitable feature of the financial system and of the economy more generally. Dealing with them—by which I mean, keeping them under reasonable control—is one of the principal tasks of institutional design. In fact, it is no exaggeration to say that the fundamental institutional structure of the economy—the types of contracts we use, and the ways that firms and markets are organized—has developed to be the way it is in no small part in response to these pervasive moral hazards.

Subsidized Risk-Taking: Heads I Win, Tails You Lose

Many of these moral hazards involve increased risk-taking: if I can

take risks that you have to bear, then I may as well take them; but if I have to bear the consequences of my own risky actions, I will act more responsibly. Thus, inadequate control of moral hazards often leads to socially excessive risk-taking—and excessive risk-taking is certainly a recurring theme in the current financial crisis.

A topical example is the subprime scandal. In the old days, a bank would grant a mortgage with a view to holding it to maturity. If the mortgage holder defaulted, then the bank would usually make a loss. It therefore had an incentive to be careful who it lent to and prospective borrowers would be screened carefully: a subprime would-be borrower didn't have much chance of getting a mortgage. However, if a bank originates a mortgage with a view to selling it on (i.e., securitizing it), this incentive is seriously weakened. In fact, if it sells on the mortgage to another party it has no interest in whether the mortgage defaults or not, and is only concerned with the payment it gets for originating the loan. The originating bank is now happy to lend to almost anyone, and we end up in the patently unsound situation where mortgages are being granted with little or no concern about the risks involved. On this basis,

> even the doziest mortgage broker can originate subprime mortgages for even the least creditworthy borrowers. The fact that the borrowers are incapable of making payments on the mortgage will magically be priced into the mortgage by the securitization process, which will bundle the mortgage with other mortgages originated by a similarly lax process and sell the lot to an unsuspecting German Landesbank attracted by the high initial yield. Everyone will make fees on the deal, everyone will be happy [Hutchinson 2008a].

Unfortunately, this giant Ponzi scheme could keep going for only as long as house prices continued to rise and new entrants continued to come into the market. Once interest rates started to rise and house prices started to fall, then the supply of suckers inevitably dried up and the whole edifice began to fall in on itself.

A second example is what the BBC's Robert Peston christens the "greed game." The partners of private equity and hedge funds would invest their backers' funds on a compensation arrangement that typically gave them 20 percent of gains made (plus a 2 percent annual management charge); any losses, however, were shouldered by the

backers alone. Investments were then leveraged by enormous borrowing. As Peston (2008) explains,

> Thus, if a private-equity firm or hedge fund generates a capital gain of £1bn—and in the boom conditions of the past few years, that wasn't unusual—the partners in the relevant fund would trouser 20 percent, or £200m. But if there was a loss of £1bn, well only the backers would lose.

Backers were willing to go along with these generous terms because the funds had generated good returns for many years. These remuneration packages prompted an exodus of (real or imaginary) talent from the banks into the funds, and the banks responded by adopting similar practices themselves. Fund managers and bankers then took much greater risks than they would had their own money been at stake. "But with none of their own money on the line and the potential to generate colossal bonuses," Peston goes on to explain, many were seemingly seduced by their own propaganda: they apparently

> believed that structured finance was revolutionary financial technology for transforming poor quality loans into high quality investments. There was an epidemic of Nelsonian Eye Syndrome on Wall Street and London. And bankers, private-equity partners and hedge-fund partners acknowledge—or at least some do—that the cause was good, old-fashioned greed induced by a turbocharged remuneration system that promised riches in return for minimal personal risk [Peston 2008].

Note too that, once paid, bonuses are typically not recoverable later. This absence of any deferred compensation gives fund managers an incentive to focus only on the period to their next bonus. If the fund makes losses later, then that is not their concern (or, of course, their fault). The absence of deferred remuneration thus institutionalizes short-termism and undermines the incentive to take a more responsible longer-term view.

Yet the subprime scandal and the greed game are merely illustrative of a much broader and deeper problem—namely, that moral hazard in the financial sector has simply been out of control. As Martin Wolf (2008a) aptly put it, no other industry but finance "has a comparable talent for privatising gains and socialising losses." Instead of "creating value," as we were repeatedly assured, the prac-

tices of financial engineering (including structured finance and alternative risk transfer), huge leverage, aggressive accounting[2] and dodgy credit rating[3] have enabled their practitioners to *extract* value on a massive scale—to walk away with the loot, not to put too fine a point on it— while being unconstrained by risk management, corporate governance, and financial regulation, all of which have proven to be virtually useless. We therefore need to ask why the various "control systems" failed so dismally.

The Failure of Financial Risk Management

The first question is what went wrong with financial risk management. The answer is a complex and multi-layered one. At the most superficial level, practitioners of modern quantitative risk management all too often make a range of inadequate assumptions: they assume that financial risks follow Gaussian distributions (and so ignore the "fat tails" which really matter); they assume that correlations are constant (and ignore the fact that correlations tend to radicalize in crises and so destroy the portfolio diversification on which a risk management strategy might be predicated); and they make assumptions about market liquidity that break down when they are most needed. Many risk models and risk management strategies also ignore strategic or systemic interaction: this is comparable to a cinema-goer who thinks he can easily get to the exit in the event of a fire, ignoring the likelihood that everyone else will be running for it as well. These and other common modelling errors lead to risk models that are focused far too much on the "normal" market conditions that do not matter at the expense of ignoring the abnormal market

[2]There have also been problems with "fair value" accounting. The new accounting standard FAS157 codifies recent trends in accounting standards and gives rise to all manner of chicanery in which models can be used to create imaginary increases in value and so boost bonuses without having to realize the profits first. Going in the other direction, FAS157 also allows an institution to ignore prices received in distress sales even though those are the market prices actually obtained. For more on these and related problems, see Hutchinson (2008b).

[3]The rating agencies had routinely issued investment-grade rating to securitizations based on subprime mortgage loans. These were often justified by credit-enhancement practices (such as overcollateralization and credit default insurance), which, in theory, could suffice to make them investment-grade. However, there is also evidence that some insiders knew that the rating process was unsound. For example, there was an interesting e-mail exchange in 2006, subsequently leaked to Congress, in which a Standard & Poors's analyst opined wistfully: "Let's hope we are all wealthy and retired by the time this house of cards falters."

conditions that do. This leads to the somewhat worrying conclusion that the practice of what passes for risk management might actually be counterproductive and leave the financial system *more* rather than less exposed in a crisis.[4]

Then there are the problems with the valuation models and the ways they are used. "Marking-to-market" is not feasible in the absence of liquid markets; in such cases, valuation will often involve "marking-to model" instead. Marking-to-model depends on assumptions, however, and these are open to question and possible abuse.[5] Model-based valuations do not reflect true market prices and, as we have seen again and again recently, a marked-to-model position can suddenly be revealed to have a market value that is only a fraction of its model-based valuation.

Some highly appropriate examples are to be found in two of the most popular villains of the financial crisis: Collateralized Debt Obligations (CDOs) and Credit Default Swaps (CDSs). A CDO is a tranched claim on an underlying pool of bonds or assets such as mortgages, and a CDS is a swap contract in which the payoff is dependent on a default event. The sizes of the markets for these instruments are truly enormous: the size of the CDO market in 2007 was around $500 billion, and the notional principal of the CDS market by the end of 2007 was around $60 trillion.[6] The valuation of these instruments is however highly problematic: this is partly because of the need to use complex financial models but also, more

[4]The most commonly used risk measure, the Value-at-Risk (VaR), has major problems of its own stemming from the fact that it tells how much we stand to lose on the best 99 days (or whatever) out of 100, but does not tell us anything about what we stand to lose on the remaining 1 day that really matters. This results in VaR-based risk management systems being especially susceptible to "gaming" by traders. Indeed, it is no exaggeration to say that VaR has been discredited for over a decade and its continued widespread use has long been indefensible (see, e.g., Artzner et al. (1999) and Dowd 2005). In addition to these problems, there is considerable evidence that the VaR models used by financial institutions are alarmingly inaccurate and that sophisticated VaR models are often beaten by simplistic ones—so much for all the risk "rocket science."

[5]A recurring type of abuse that periodically hits the financial pages arises with traders using mark-to-model to value an options position. The value of options depends critically on the values of the volatilities inputted into their option-pricing algorithm, and this allows traders to boost options' model-based values (and so hide losses and increase their bonuses) by inflating their volatility estimates. The volatility of option values to changes in the volatility of the underlying asset (known in the trade as "vega") is legendary, and the volatilities themselves are notoriously hard to estimate.

[6]Admittedly, this latter figure is something of a scare number: as with any other form of swap, the notional principal gives an exaggerated impression of the size of the market. Nonetheless, $60 trillion is still pretty scary.

fundamentally, because their values are acutely sensitive to estimates of the parameters that determine default probabilities. They are also very sensitive to estimates of the correlations involved, and estimates of correlations are notoriously unstable and unreliable even at the best of times. Add in the sizes of the markets for these instruments, the complexities associated with the presence of hidden options, the difficulties of assessing counterparty credit risk exposures (and in the case of CDOs, the difficulties of assessing the impact of tranching), and it is little wonder that observers talk morosely about "economic dark matter" and "financial weapons of mass destruction."

Further problems arise when quantitative risk management strategies are applied in practice. Let me illustrate with three very different examples:

- We might have a good model that is abused by those who use it. An instructive example occurred a few years ago in the CDO market. The big technical problem in this area was how to estimate the probability of n defaults in a pool of corporate bonds. An ingenious solution was suggested by David Li, a Wall Street statistician, who in 2000 proposed the use of a statistical model known as a Gaussian copula. Li's model was eagerly adopted by practitioners and the market for CDOs took off. So successful was it, in fact, that it also enabled the market to develop new higher-leverage instruments, synthetic CDOs, in which the bonds were replaced by pools of swaps. Everything went well until May 2005 when hedge funds reported large losses after several of the large auto firms were downgraded. The traders then blamed Li's model, but it turned out that they had been using the model to determine their hedge ratios and the model was not designed for such purposes.
- Another common case is where a pricing model or a risk management strategy is predicated on the assumption of dynamic trading and continuous liquidity. Again and again over the crisis, we have seen pricing or risk management strategies fall apart when liquidity had suddenly dried up, to reveal massive losses that the models said shouldn't have occurred because the models had assumed continuous liquidity. Such approaches are as useful as a chocolate teapot—that is, they are fine until you actually need to rely on them. There is however no excuse for practitioners who got caught out in this way, as these problems have been well understood since portfolio insurance strategies

unravelled in the October 1987 stock market crash.

- Traders and asset managers always have an incentive to game the risk management system. They respond intelligently to the system in their own interests, and identify and exploit the system's weaknesses (e.g., they exploit relative pricing errors and underestimated risks). The result, almost inevitably, is that the real risks being taken by an institution are likely to be greater than the risk measurement system suggests, if only because no system can be perfect and there are limits to the extent to which any system can feasibly take account of how traders will react to it.

These problems point to a curious paradox at the heart of modern financial risk management: the more sophisticated the system, the more unreliable it might be. Increased sophistication means greater complexity (and so greater scope for error), less transparency (making errors harder to detect), and greater dependence on assumptions (any of which could be wrong).[7] We see this problem both with systems and with risk management strategies: dynamic strategies that involve regular trading are often superior on paper to static ones that do not, but dynamic strategies often fail, whereas static ones are robust. In theory, there is no difference between theory and practice, but in practice there is—"sophisticated" risk management is overrated.[8]

[7]In fact, the very principle of applying statistical methods to risk management is problematic: sometimes good risk management makes use of rules of thumb that constitute bad statistics, and sometimes good statistics can lead to bad risk management. This is because statistical analysis fails to allow for risk managers' need to err on the side of prudence. As one cynic recently wrote: "The statistician is trying to extract information from data, whereas the risk manager is trying to manage risks with limited information [and these are quite different tasks]. And limited information means that a good risk manager cannot afford to be anything other than prudent. Surely it is better to be careful a hundred times than to be killed just once?" (Dowd 2007: 20)

[8]There have always been those such as Richard Hoppe and Nasim Taleb who criticized the underlying epistemology of quantitative risk management, the naïve transfer of physics modelling techniques into social science contexts, the failure to appreciate how intelligent agents react to control systems, and the failure to deal with the nonstationarity and dynamic interdependence of market systems (see, e.g., Hoppe 1998; Taleb 1997, 2007). Though many of their concerns have been proven largely correct, I would not share Taleb's extreme view that quantitative risk management is nothing but charlatanry. Speaking for myself, it was clear to me that financial risk management was in trouble when *Derivatives Strategy* magazine made Enron their "risk manager of the year" shortly before it went belly up, but I can still foresee a future for a (much) more modest and limited practice of quantitative risk management that places (much) more emphasis on intelligent thinking and (much) less on mindless modelling. I will nonetheless still be asking my university to rename my chair to something a little less risible.

But perhaps the most important reasons for the failure of financial risk management to contain risk-taking are the basic economic ones. Simply put, if the incentive to take risks is strong enough, then we should expect to see excessive risks being taken.[9] In this sense, risk management is rather like the "war on drugs": it might help to reduce drugs coming in, but it can never conclusively win. There is also a second and even more powerful reason for the failure of financial risk management. However good they might be, and however good the risk management systems they install, risk managers still take their orders from senior management, who often pressure them to take shortcuts, turn a blind eye, produce low-risk numbers to keep down capital requirements, and generally not rock the boat. The ultimate responsibility for risk management must therefore lie with senior management. In the final analysis, if it is not in the interests of senior management to contain excessive risk-taking, then no amount of risk management is going to contain it. And if senior managers are themselves working on remuneration packages that encourage excessive risk-taking—as most real-world remuneration packages do—then that is what will result. The whole edifice of financial risk management is thus built on sand.

The End of Corporate Accountability

Senior management out of control means the end of corporate accountability.[10] This is an issue that has generated a huge amount of public concern and understandably so. Again and again, we have business leaders whose sky-high remuneration was said to be based on their superior abilities, the heavy responsibilities they were bearing, and so forth. They then run their businesses onto the rocks, blame bad luck, and ask us to believe that they weren't responsible—

[9]For example, if risk-taking is so lucratively rewarded, then risk-taking activities will attract the talent and the risk-takers will have the edge over the risk managers. At the same time, effective risk management is well nigh impossible if risk managers don't understand what the risk-takers are doing. This requires risk managers who have been former risk-takers themselves, but why should poachers turn gamekeepers if poaching is so much more rewarding?

[10]Not to mention the end of political accountability. One of the most depressing aspects of the financial crisis is the way in which so many of the "controllers"—the politicians, regulators, and central bankers, but especially the politicians—evade accountability for their own mistakes. One of those most responsible is Prime Minister Gordon Brown, who set up the current UK system of financial regulation only to see it fail in spectacular fashion. (Aren't ministers who make blunders meant to resign?)

and, in many cases, have no shame bailing out on generous golden parachutes. Instead of the wise stewardship we were led to expect, we discover after the event that they have been raiding the larder and the taxpayer is called upon to replenish it. These cases are so commonplace these days that they are barely newsworthy anymore, but their commonality does not make them any the less distasteful. These following are my particular favorites.

In fourth place is Citigroup's CFO, Gary Crittenden, who ascribed Citi's large losses announced in November 2007 to the firm being the victim of unforeseen events. As one commentator wryly noted:

> No mention was made of the previous five years, when Citi was busily consolidating mortgage debt from people who weren't going to repay, pronouncing it "investment grade," mongering it to its clients and stuffing it into its own portfolio, while paying itself billions in fees and bonuses. No, like the eruption of Vesuvius; even the gods were caught off guard. Apparently, as of September 30th, Citigroup's subprime portfolio was worth every penny of the $55 billion that Citi's models said it was worth. Then, whoa, in came one of those 25-sigma events. Citi was whacked by a once-in-a-blue-moon fat tail. Who could have seen that coming? [Bonner 2007]

And no mention of all those fancy risk forecasting models either.

In third place is Goldman Sachs's CFO, David Viniar. In August 2007, Goldman reported heavy losses on its flagship GEO hedge fund, which Viniar explained by saying, "We were seeing things that were 25-standard deviation moves, several days in a row" (Larsen 2007). A single 25-standard deviation event was widely cited in the press as one that we would expect to see 1 day in a 100,000 years—that is, very unlikely. Goldman must have been very unlucky[11]—or else Goldman was incompetent or its models were just wrong. Viniar's comments were met with widespread ridicule and achieved instant notoriety.

[11]For the record, the true probability of a 25-sigma event is in fact almost inconceivably smaller than what the estimated 1-day-in-a-100,000 years waiting time would have us believe. If Goldman's models were right, calculations suggest that we would expect to have to wait about 1.31e+135 years—that is, 1.31 years, but with the decimal point moved 135 places to the right—to see a single 25-event, let alone several (Dowd et al. 2008). To put this into context, the number of particles in the universe is believed to be no more than a mere 1.0e+85 (Clair 2001).

The runner-up is Richard S. Fuld Jr., the chief executive of Lehman Brothers who led his firm to the biggest corporate bankruptcy in U.S. history. At a congressional hearing on October 6, 2008, Congressman Henry Waxman said to Fuld, "You made all this money by taking risks with other people's money. The system worked for you, but it didn't seem to work for the rest of the country and the taxpayers, who now have to pay $700 billion to bail out our economy." Fuld's response was extraordinary: "I take full responsibility for the decisions that I made and the actions that I took." What he meant by that is hard to fathom as he then denied that he had made any errors or misjudgements in the period leading up to the firm's bankruptcy. When the touchy subject of his remuneration then came up, he went on to defend the compensation system that had paid him about $350 million between 2000 and 2007. As he explained, "We had a compensation committee that spent a tremendous amount of time making sure that the interests of the executives were aligned with shareholders." So that's all right then.[12]

In each of these cases, the executives involved took the line that it wasn't really their fault, but they could with at least the appearance of some justification say that they were just doing what they had always done and had got caught up in a terrible storm. In this next case, however, the principal executive *deliberately chose* a risky business model and then denied any responsibility when things went wrong. Accordingly, the first prize goes to Adam Applegarth, the chief executive of UK bank Northern Rock. Applegarth's distinctive business model involved rapid growth, large-scale reliance on the capital markets for finance, and an innovative and very accommodating mortgage, the racy "together loan," in which customers could borrow 125 percent of their property value and up to six times their annual income: the boring days when customers could borrow only 75 percent of their property value and a maximum of three times their income were over. This aggressive business model worked well in the good times and the bank grew to be the fifth largest mortgage provider in the UK, but soon became unstuck as the subprime crisis broke in the summer of 2007. The

[12]And it turned out that senior executives had been working on their golden parachutes at the same time as they were pleading for a federal rescue, and that three departing executives had been paid bonuses just days before the company collapsed.

bank then lost the confidence of its depositors and experienced a run in September 2007—the first run on an English bank since Overend Gurney in 1866—before being bailed out by the Bank of England and subsequently nationalized.[13] After the bailout, the bank's senior executives still insisted that the bank's business model was a good one because it had worked well until August that year. They also maintained that they had done nothing wrong, while admitting that they hadn't stress-tested their exposure to a market dry-up. This has the same credibility as the captain of the *Titanic* saying that everything was okay until the iceberg turned up. The resulting public uproar forced them to resign, but even then Applegarth was able to retire comfortably to his mansion to spend more time with his money.[14]

One can only wonder what these people were being paid so much for. Cases such as these give great offence to the public who must pay for them, and the system that gives rise to them is manifestly indefensible. Besides the direct damage they inflict, which is bad enough, they also seriously undermine informed debate by giving easy fodder for ill-considered accusations that absence of accountability is (somehow) a natural consequence of "free markets" in which the public simply gets ripped off. Indeed, I would go so far as to say that this type of irresponsible behavior on the part of so many senior executives has now become the single biggest challenge to the political legitimacy of the market economy itself.[15] As Martin Wolf recently put it,

> A financial sector that generates vast rewards for insiders and repeated crises for hundreds of millions of innocent bystanders is . . . politically unacceptable in the long run. Those who want market-led globalisation to prosper will recognise that this is its Achilles heel [Wolf 2008b].

[13]Having obtained a bailout at public expense, Northern Rock cheerily announced that it still intended to go ahead with a planned dividend payment, presumably to protect their executives' bonuses. It took a public outcry to get the dividend payment cancelled.
[14]While the Northern Rock workforce could anticipate major job losses, Applegarth was able to retire on a generous settlement package. It also transpired that he had been quietly cashing in his own Northern Rock shares—a nice vote of confidence in his own leadership. He managed to get £2m for his shares while other shareholders lost everything.
[15]It is for this reason—rather than because I have any love for the "controllers"—that I have focused on the (for want of a better word) "misdemeanors" of the corporate executives. It is indeed strange that corporate misbehavior always leads to a chorus of calls for more regulation and better government, and yet the responsibility of the controllers—especially the politicians—is much greater, because they are responsible for the system and assured us that we would be safe under their wise stewardship.

The End of Corporate Governance

The buck therefore stops with the senior management, and risk management will only ever really work if senior executives have an incentive to make it work. So the $64 trillion question is: Why didn't they? And why did corporate stakeholders allow them to get away with it? The answers to these questions take us to the heart of what is wrong with modern corporate governance and what needs to be done about it.

The problem lies in the nature of the joint stock company itself. One of the earliest and still one of the best critiques of the joint stock company is that given by Adam Smith in the *Wealth of Nations*:

> The directors of such companies . . . being the managers of other people's money than their own, it cannot well be expected that they should watch over it with the same anxious vigilance. . . . Negligence and profusion must always prevail, more or less, in the management of such a company [Smith (1776) 1976: 741].

The root problem is limited liability, which allows investors and executives the full upside benefit of their risk-taking, while limiting their downside exposure. David Campbell and Stephen Griffin gave a brilliant and prescient analysis of this issue in the wake of the Enron scandal:

> One has to stretch the point to say that the executives of large public companies are exposed to the economic risks of failure in any significant way, and certainly they are more or less completely cocooned from the most fundamental market pressure, fear of personal bankruptcy. By in this way distancing directors from the down-side of their decisions, the public company based on incorporation and limited liability severely handicaps or even eliminates the core function of the market [Campbell and Griffin 2006: 59–60].

These problems were anticipated by those who opposed the Victorian companies legislation that granted limited liability, and the controversy on limited liability was a bitter one. To quote one contemporary, who was the author of a successful company law textbook:

> The Law of Partnership hitherto has been . . . that he who acts through an agent should be responsible for his agent's acts, and that he who shares the profits of an enterprise ought also to be subject to its losses; that there is a moral obligation, which it is the duty of the laws of a civilised nation to enforce, to pay debts, perform contracts and make reparation for wrongs. Limited Liability is founded on the opposite principle [Cox 1857: 42n38].

He then goes on to say that limited liability deprives people of their common law right "to recover their debts, enforce their contracts, or obtain redress for injuries" (Cox 1857: 42n38). As Campbell and Griffin (2006: 61–62) explain,

> Limited liability under the Companies Acts was and is not the product of private negotiation in a market but of a public intervention. That the state created limited liability is, of course, allowed by all, but that by doing so it ousted the market is by no means realised by all; indeed in our leading company law textbooks the introduction of limited liability is often described as the result of *laissez faire*, which is precisely what it was not . . . it was and is perfectly possible for those *ceteris paribus* exposed to unlimited liability to contract with others to limit their liability as one of the terms on which they deal. This would be limited liability established through negotiation on the market. But the Companies Acts generally imposed limited liability, and it is a very different matter to negotiate to a position of limited liability than to negotiate away from unlimited liability (even when this is allowed), for the competitive setting is completely changed by this intervention. This line of thinking also suggests that repeated attempts to reform corporate governance have been misguided. The typical legislative response, especially in the United States, is to impose ever more demanding and costly sets of rules and ever more severe criminal penalties. It should be obvious by now that this isn't working and the reason it isn't working is because it does not address the underlying causes.

What is the realistic alternative to repealing limited liability? We could increase the rulebook and make penalties even harsher, but at what point do we accept that the formula of even more rules and even bigger penalties is not working?

Policy Failure 1: Misguided Intervention in the U.S. Housing Market

We now turn to consider some of the other policy failures that have contributed to the financial crisis. The first of these is misguided intervention by the federal government into the U.S. housing market. This intervention is motivated by a long-standing desire to expand home ownership, especially to low-income households. U.S. government policy toward housing could almost be described as "one where too much is never enough" in the words of Lawrence J. White (2004: 6). Key features of this policy included the mortgage interest deduction in the tax code, "affordable lending" requirements and legislation such as the Community Reinvestment Act (1977), both of which pressured bankers to make loans to people with poor credit, and the establishment of massive government mortgage behemoths, the most prominent of which were the government-sponsored enterprises (GSEs) Fannie Mae and Freddie Mac.

Fannie had been set up in 1938 to expand the ability of residential mortgage finance by buying up mortgages from originators and holding them, and was privatized in 1968. Freddie was set up in 1970 with the remit of expanding the availability of residential mortgage finance mainly through the securitization of S&L mortgages. Both institutions had considerable legal privileges—most notably, the implicit backing of the federal government and lower capital requirements—that enabled them to dominate the huge mortgage underwriting market. They were also central players in the growth of the mortgage securitization markets when they took off.

Both institutions were subject to congressional oversight, but over time their relationship with the politicians took on an incestuous air:

> At heart, Fannie and Freddie had become classic examples of "crony capitalism." The "cronies" were businessmen and politicians working together to line each other's pockets while claiming to serve the public good. The politicians created the mortgage giants, which then returned some of the profits to the pols—sometimes directly, as campaign funds; sometimes as "contributions" to favored constituents [O'Driscoll 2008c].

This unhealthily close relationship meant that the politicians often blocked attempts to reform the GSEs or to investigate their activities,

and then dodged responsibility when things went wrong (see Rahn 2008). But by about 2003–2004, Fannie and Freddie were fighting off accounting scandals and possible congressional action:

> To get Congress off their backs they became more committed to financing homes for families with low incomes. The ploy worked like a charm. Congressman Barney Frank, who now chairs the House Financial Services Committee, turned a blind eye to their accounting shenanigans and praised their newfound zeal.… [As a result] Fannie and Freddie became the largest purchasers of subprime and borderline (Alt-A) mortgages in the 2004–2007 period with a total exposure of $1 trillion and thereby contributed mightily to the housing bubble as well as to their own later collapse [Hanke 2008c].

Hand-in-hand with these developments, from the early 1990s onwards, there was a sustained attack by virtually branch of government on mortgage underwriting standards. The resulting fall in underwriting standards was widely praised as an "innovation" in mortgage lending (Liebowitz 2008: 1; see also Coats 2008). To make matters worse, in 2002 the Department of Housing and Urban Development imposed "affordable housing quotas" on Fannie and Freddie (which were increased again in 2004), which encouraged Fannie and Freddie to further increase their huge holdings of subprime portfolios (Mitchell 2008). These policies had the desired effect of increasing home ownership, but they also pushed up house prices and further fuelled the growing housing bubble. Government intervention into the housing market was thus a major contributor both to the housing bubble and to the subprime mess.

Policy Failure 2: Loose U.S. Monetary Policy

A second contributory factor is U.S. monetary policy. The main objectives of U.S. monetary policy are to control inflation and protect the stability of the real economy, but the Federal Reserve has considerable discretion in how to achieve these objectives. Consequently, U.S. monetary policy is acutely dependent on the views of policymakers. A key factor here is the "Greenspan Doctrine," set out in 2002, that the Fed could do nothing to stop asset bubbles from occurring, but would stand by to cushion the fall if they did occur. This effectively promised a partial bailout of bad

investments and produced the so-called Greenspan put—an option to sell depreciated assets to the Fed (i.e., yet another moral hazard).

A second key concern of Fed policymakers—and of Ben Bernanke especially—has been fear of deflation. In late 2002, then-governor Bernanke persuaded Alan Greenspan that the main danger facing the U.S. economy was the prospect of it falling into a Fisherian debt-deflation spiral. This "false deflation scare" led the Fed to put its foot on the monetary accelerator and squeeze the Fed funds rate down to just over 1 percent in July 2003, and to keep it at that level for a year.

The combination of the Greenspan put and artificially low interest rates then set off what Steve Hanke (2008b) memorably describes as the "mother of all liquidity cycles and yet another massive demand bubble." House prices soared and the seeds were set for their later fall. At the same time, tiny yields pushed investors toward higher-yield (i.e., more risky) investments and toward greater leverage as they borrowed extensively to lever up their returns. The result was an explosion of risk-taking: "irrational exuberance" was no longer so irrational.[16]

Inevitably, the Fed's policy led inflation to trend upwards, which in turn put pressure on interest rates to rise as bondholders sought to compensate for expected inflation. From 1.01 percent in July 2003, the Fed funds rate then climbed erratically to peak at 5.26 percent in July 2007.

At this point, the subprime crisis broke and the Fed resorted to loose money again. The Fed funds rate then gradually fell to almost zero by November 2008, implying an unprecedented real interest rate of close to *minus* 5 percent.[17] At the same time, the latest available (as of mid-February 2009) M2 monetary growth is over 10 percent p.a. (if we take year-on-year growth) or 18 percent p.a. (if we take the last three months), and the corresponding growth rates for M1 are considerably higher. We thus have all the ingredients for rising inflation and interest rates that will rise in its wake.

[16]For further details (and some cogent analysis) of the Greenspan-Bernanke policy bubbles, see Hanke (2008b) and O'Driscoll (2008a).

[17]For its part, US CPI has been falling since later summer 2008, and its current latest available year-on-year growth rate is almost zero percent. The recent falls in the CPI inflation rate can however be attributed to a number of temporary factors—most especially, recent falls in commodity prices and in aggregate demand, and the temporary strength of the dollar—which are unlikely to persist for long. The longer-term prognosis is therefore for a resurgence of inflation, notwithstanding that CPI is currently falling.

The Fed now faces an acute dilemma of its own making. With the economy so fragile, it is reluctant to apply unpleasant monetarist medicine. But from the perspective of inflation control, with negative real interest rates, high monetary growth and the prospect of resurgent inflation, what is now needed is tighter monetary policy and therefore higher short-term interest rates. The twin objectives of controlling inflation and stabilizing the real economy have never been so strongly at odds: the Fed has painted itself into a corner.

And yet, if it is not careful, the Fed could paint itself even further into the corner. If it does not reverse its monetary policy and rapidly raise interest rates to above-inflation rates, then the Fed risks inflation getting out of control as it gets caught in the quicksand of a classic Wicksellian trap in which an unsustainable attempt to keep real interest rates down leads to ever rising inflation. Inflation expectations will rise further and the Fed's credibility will continue to disintegrate. The combination of rising inflation and the squandering of its own credibility will then make its policy tradeoffs even more unpalatable than they already are—and the U.S. economy will find itself in the horrors of a stagflationary spiral. Those who call for more cheap money need to appreciate that we can't cure the patient by giving him more and more of the poison that is already killing him.

Policy Failures 3: Deposit Insurance

The third major policy failure is state-mandated deposit insurance.[18] Although this might seem like a good idea on first sight—after all, who wants bank runs?—the impact of deposit insurance on the banking system is in fact both profound and highly destabilizing. To appreciate this, first consider a banking system that has no deposit insurance at all. In this system depositors' funds are at risk, but depositors know this and have an incentive to be careful where they make their deposits. The bankers also know this, and know that they

[18]There are also the moral hazard problems created by the lender of last resort. If the central bank is (or even might be) willing to assist an institution that gets itself into difficulties, then institutions have weakened incentives to avoid getting themselves into difficulties in the first place. Traditionally, central bankers have attempted to deal with this problem by threatening to refuse assistance to reckless institutions in future, but such threats have always lacked credibility—not least because bank crises always produce intense political pressure on central banks to cave in, and they have usually done so. The recent bailouts will have destroyed whatever little credibility those threats might once have had.

have to cultivate the confidence of their depositors: lose that confidence and the bank will face a run. The banker therefore needs to be prudent: risk-taking has to be moderate and the bank needs to maintain levels of liquidity reserves and risk capital that are high enough to retain depositor confidence. The bottom line is that the financial health of the bank is ultimately determined by public demand: if the public want safe banks, they get them. Note, however, that the public has to pay for what they get: if they want banks to take moderate risks, be strongly capitalized and so on, then they have to accept relatively low interest rates on their deposits, and they have to pay relatively high rates on their loans.

Now imagine that we have a "good bank" that operates prudently and a "bad bank" that operates recklessly, and the two banks compete for market share. While the economy is doing well, the bad bank appears to win: it can attract depositors with higher deposit rates and it is popular with shareholders because it earns higher returns on its capital. However, these are paid for by reckless risk-taking. Nonetheless, the good bank feels the pressure but stands its ground. Then times turn sour, the bad bank's reckless risk-taking is exposed and its depositors lose confidence. Those who can, withdraw their money from the bad bank and deposit it with the good bank. The bad bank is then run out of business and the good bank finally wins. The important point here is that the competitive process eventually rewards the good bank and punishes the bad one.

This process changes, however, when we introduce deposit insurance into the picture. With deposit insurance in place, depositors now know that their money is safe. They don't care any more what risks their bank takes: their only concern is with the interest rate they receive. This takes the pressure off the bad banker who can now take more risks and reduce capital levels safe in the knowledge that depositors won't run. As before, in the good times the bad bank pays higher deposit rates and generates higher returns for its shareholders and in doing so puts pressure on the good bank. When times go bad, however, the bad bank no longer faces a run and can continue to attract depositors by offering high deposit rates: it therefore puts pressure on the good bank even in bad times. The bad bank therefore wins in both states: indeed, under deposit insurance, competitive pressures eventually force the good bank to imitate the bad bank if it is to be able to compete. The introduction of deposit insurance

thus subverts the competitive process and makes prudent banking uncompetitive. Systemic risk-taking increases and the financial health of the banking system deteriorates.[19]

Policy Failures 4: Financial Regulation

The fourth policy culprit is financial regulation. Recall that all this regulation was meant to ensure the stability of our financial system and it is, I think, clear that it hasn't worked. However, I would suggest that there was never any good reason to think it would.

Consider the process that produced it. Regulations emanate from a highly politicized committee process, and are the product of arbitrary decisions, irrational compromises, and political horse-trading—not to mention the personalities and prejudices of the main participants involved. This process necessarily leads to inconsistent treatment, regulatory arbitrage opportunities, and a compliance culture, while imposing large implementation costs on regulated firms. It also leads to ever-longer rulebooks that attempt to standardize practice in an area where practice is always changing and where the development of best practice requires competition in risk management practice—not an irrelevant and ossified rulebook that is out of date before it comes out.[20] One is reminded here of an anecdote by Riccardo Rebonato from a big risk management conference in 2005. He quotes an unnamed "very senior official of one of the international regulatory bodies" who, in "looking over the hundreds of pages of the brand new, highly quantitative, bank regulatory regime (Basel II) … sighed: "It does read a bit as if it has been written without adult supervision" (Rebonato 2007: xxiii). It is naïve to expect that such a process of politicized committee groupthinking would produce a set of regulations that would work. It follows, too, that there is no point "having another go" in an effort to get the regulations "right" the next time.[21] The process itself is deeply flawed and is akin to repairing a

[19]For more on the impact of deposit insurance on the banking system, see, e.g., Benston et al. (1986), Kaufman (1988), and Dowd (1996a, 1996b).

[20]And as Jacobo Rodriguez (2002) points out in a telling critique of the Basel regime, it also produces a strange combination of complexity and vagueness that threatens to stifle market-based innovation in risk management practices.

[21]Calls for "better regulation next time" are of course just a siren song. If it is that easy to identify what "better regulation" might entail, then why didn't our political masters give it to us the last time? And if it is not that easy to identify, then what reason is there to expect that they will happen to get it right the next time?

structurally unsound building by merely repainting it: it might look fresher, but it still won't stay up.[22]

There are also good economic-theoretical reasons to doubt that financial regulation helps to promote financial stability. Two problems in particular stand out:

- *Endogenous risk*: This refers to the risk that shocks to the system might be amplified within the system (e.g., Danielson and Shin 2002). The potential for this problem occurs wherever individuals react to their environment and the environment reacts to them.[23] For example, when asset prices fall and traders approach their position limits, then they will be forced to sell. However, this selling puts further downward pressure on asset prices, which then triggers more selling, and so on. Mitigating this problem requires institutions to have heterogeneous trading and risk management strategies, but the Basel system pressures them to react to shocks in similar ways (e.g., to sell when a shock pushes institutions' VaR numbers up).
- *Procyclicality*: Risks vary procyclically over the business cycle. This means that as the cycle approaches its peak, risk assessments will fall, leading risk-based capital requirements to fall and lending to rise just at the point where the danger of a systemic downturn is greatest. As a consequence, risk-based capital regulation (such as Basel II) not only makes crises more likely but is also likely to make them more severe as well (see, e.g., Danielson et al. 2001). Proponents of capital regulation (e.g., Goodhart and Persaud 2008) have suggested that the solution is to make capital requirements countercyclical instead, but this essentially amounts to "taking away the punchbowl just as the party is getting going" and it is difficult to see how that could be done in practice. It would be better for the central bank simply to keep money tight and inflation stable.

[22]Another telling anecdote comes from a 2007 conference on operational risk, where one notable op risk expert remarked that it was just as well that they didn't have much op risk data as the regulators would then have forced them to use backward-looking modelling rather rely on scenario analysis, which attempts to anticipate possible problems before they occur.

[23]Danielson (2003) elaborates on this theme further: risk models are typically based on the assumption that that the practitioner is affected by his environment but does not affect the environment itself. This assumption is reasonable in normal market conditions but unreliable in a crisis, and it is for this reason that endogenous risk is so difficult to model. He also draws an analogy to the old-fashioned macro forecasting models, which worked well most of the time but broke down when the monetary regime shifted and inflation took off in the early 1970s.

These problems call into question the very principle of "risk-based regulation": modern capital regulation might simply be attempting the impossible.

But perhaps the most convincing argument against financial regulation comes from watching how it actually works in practice. Consider for example the UK Financial Services Authority's supervision of Northern Rock. When it audited the FSA in 2006, the UK National Audit Office praised the FSA as "a well-established regulator with an impressive set of processes and structures to help tackle high-risk organisations and markets." City Minister Ed Balls took this as a ringing endorsement of the regulatory structure that he and his muppeteer Gordon Brown had created (*Private Eye* 2007: 1).[24] Then along comes Northern Rock, an institution that had grown very rapidly over the period of a few years (a traditional red flag, by the way) and one which had an extreme business model (another red flag!) that relied more heavily than any other major UK bank on access to wholesale funding and securitization for its financing (yet another red flag). How did the FSA handle Northern Rock? For much of the period, it had the bank supervised by insurance regulators who knew little about how a mortgage bank operated. Only eight supervisory meetings were held between 2005 and August 9, 2007, and most of those involved low-level FSA staff. Of these meetings, five were held over just one day and two were by telephone; then, when the internal auditors looked for a paper trail, it turned out that the supervisors hadn't even bothered to take notes. From February 2007, Northern Rock's share price started to deteriorate (red flag #4) and, as the year progressed, concerns about mortgage defaults started to rise (possible red flag #5?). Did it occur to the FSA that Northern Rock might be in any danger or that it might be a good idea for the FSA to suggest that the bank stress-test its liquidity exposure? Not at all. Instead the FSA's response was to approve a dividend payment and fast-track the approval process for its models. Northern Rock then hit the rocks shortly afterwards and all hell broke loose. The FSA's own internal investigation published in March 2008 reads like "a script for an episode of the Keystone Cops" as Brummer (2008: 107) put it, and the subsequent report into the fiasco by the Treasury Select Committee was scathing in its criticism of the FSA's handling of the case—"asleep at the wheel" being the gist of it.

[24]For more on the Northern Rock case, see Brummer (2008) and the recent issues of *Private Eye*.

The new FSA chairman, Lord Turner, now assures us that this won't happen again and that the FSA will hire better regulators in future. So there will be no repeat of the Keystone Kops—and the next disaster will presumably be more Laurel and Hardy.

Lessons for the Future

If anything is obvious about the current crisis, it is that the system of managed state intervention into the financial system has failed dismally: it is not "free"—that is, unregulated—markets that have failed, but the statist system within which financial markets and institutions have been forced to operate. This is not an academic issue or a case of ideological point scoring. It matters because we need to understand what went wrong if we are to get future reforms right. My own view is that the edifice of modern central banking cum financial regulation cum limited liability needs to be dismantled and 150 years of state intervention needs to be rolled back, but I have few illusions that this will happen. Be this as it may, my main message here is to take moral hazard seriously. Measures that rein in moral hazard are to be welcomed and will help to reduce excessive risk-taking; measures that create or exacerbate moral hazard (such as massive bailouts?) will lead to even more excessive risk-taking and should be avoided. In short, a key yardstick that should be applied to any proposed reform measure is simply this: Does it reduce moral hazard or does it increase it?

The bottom line? If someone takes a risk, someone has to bear it. If I take a risk, then we want to ensure that I be made to bear it. But if I take a risk at your expense, then that's moral hazard and that's bad. As the late, great Milton Friedman might have put it: there ain't no such thing as a free risk.

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