An Analysis of the Financial Crisis of 2008: Causes and Solutions

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Abstract

This research evaluates the fundamental causes of the current financial crisis. Close financial analysis indicates that theoretical modeling based on unrealistic assumptions led to serious problems in mispricing in the massive unregulated market for credit default swaps that exploded upon catalytic rises in residential mortgage defaults. Recent academic research implies solutions to the crisis that are appraised to be far less costly than a bailout of investors who made poor financial decisions with respect to credit analysis. JEL: G11, G12, G13, G14
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The financial crisis in 2008 is of such epic proportions that even astronomical amounts spent to address the problem have so far been insufficient to resolve it. Besides the well-publicized $700 billion approved by Congress, the Federal Reserve has attempted to bail out institutions and markets with about $1.3 trillion in investments in various risky assets, including loans to otherwise bankrupt institutions and collateralized debt obligations like those backed by subprime mortgages that are defaulting at rapid rates (Morris, 2008). A further $900 billion is being proposed in lending to large corporations (Aversa, 2008), making a total of nearly $3 trillion in bailout money so far, without even counting the massive sum of corporate debts guaranteed by the U.S. government in the last year. An analysis of the fundamental causes of this “colossal failure” that has put “the entire financial system… at risk” (Woellert and Kopecki, 2008) is warranted in order to both solve the problem and avoid such events in the future.

Root Cause of the Crisis: Mispricing in the Massive Credit Default Swaps Market

Many blame defaulting mortgages for the current financial crisis, but this massive tragedy is only a component and symptom of the deeper problem. The pricing of credit default swaps, whose principal amount has been estimated to be $55 trillion by the Securities and Exchange Commission (SEC) and may actually exceed $60 trillion (or over 4 times the publicly traded corporate and mortgage U.S. debt they are supposed to insure), are totally unregulated, and have often been contracted over the phone without
documentation (Simon, 2008), is the primary fundamental issue from which all the other problems of the crisis emanate.

Credit default swaps are actually rather simple instruments in concept, merely mandating that one party paying a periodic fee to another to insure the debts of some entity (such as a specified corporation) against default for a particular amount of time like 5 years. They are effectively debt insurance policies that are labeled otherwise to avoid the regulation that normally is imposed on insurance contracts. This unregulated market grew astronomically from $900 billion at the turn of the millennium to over $50 trillion in 2008 after Congress enacted a law exempting them from state gaming laws in 2000 (PIA Connection, 2008).

Any investment in a debt requires compensation not only for the time value of money but also a premium for the credit risk of the debt. Compensation for the time value of money is usually provided by the debt promising, at a minimum, a yield equal to that of the rate available on default-free government securities like U.S. Treasury bonds. The credit risk premium above that rate must compensate investors for not only the expected value of default losses but also for the systematic risk relating to the debt, as well as for any embedded options (Murphy, 1988).

In a credit default swap or bond insurance contract, there is no initial investment in the debt by the insuring party, and so only a credit risk premium is required. This premium must, however, include both the default risk premium and the systematic risk premium. Appropriate appraisal methods for estimating those premiums have long been known (Callaghan and Murphy, 1998).
However, many practitioners today apply pure mathematical theories to evaluate credit risk and estimate credit risk premiums to be required (Glantz and Mun, 2008). Rajun, Seru, and Vig (2008) have provided an analysis of the very large forecasting errors that result from the application of such models that fit “hard” historical data extremely well but ignore human judgment of “soft information.” The models of such “’quants’ who have wielded so much influence over modern banking” are, according to some analysts, “worse than useless” (NewScientist, 2008b), and the result has been catastrophic for many institutions religiously adhering to them. Just for instance, one major insurer of debts via credit default swaps (AIG) placed “blind faith in financial risk models” and their small elite staff of modelers who initially generated large income for the firm for a few years that later turned into decimating losses (Morgenson, 2008).

Regulators’ forecasts of serious problems and “horror stories” years in advance of today’s crisis were largely ignored because of successful lobbying by the very financial institutions that are today either bankrupt or in the process of being rescued with government funding (Associated Press, 2008). For instance, the failures of the two federal agencies (often labeled Fannie Mae and Freddie Mac) were preceded in 2005 by a successful $2 million campaign by Freddie Mac to lobby Congress from restricting their own investments in higher-risk mortgages (Yost, 2008). These same agencies, banks, and other institutions provided assurances their lending practices (including those enabling loans without adequate documentation) were “safe” based on evaluations of past data (Associated Press, 2008).

Some investors in debt securities look only at the credit ratings provided by a few rating agencies such as Moody’s and Standard & Poors (S&P), which themselves
evaluate credit largely using only mathematical models. Those models, which use statistics to uncover past relationships between debt defaults and a few variables, as in the seminal Altman (1968) study, can ignore very important factors and possibilities (Woellert and Kopecki, 2008). While some have suggested that the models only need to be improved (NewScientist, 2008b), purely statistical models can’t incorporate all possible factors that are relevant to a decision. In addition, statistical models are subject to the problems of spurious correlations between variables that are magnified as the number of variables is increased, so that attempts to incorporate more relevant variables may only increase other modeling errors.

Perhaps as a result, existing mathematical credit risk models have “a tendency to underestimate the likelihood of sudden large events” (Buchanan, 2008) that are especially important in the credit markets where the tail of a distribution is key in predicting the defaults that typically have a low probability of occurrence (Murphy, 2000). The mathematical models typically fail to consider inter-related systematic risks (Jameson, 2008), and they tend to make unrealistic assumptions such as markets always being in equilibrium (NewScientist, 2008a). Despite their “poor risk modeling” in actuality (Jameson, 2008), the statistical accuracy of the models in predicting backward into the past (using historic data) resulted in the mathematical modelers developing such a “faith in their models” in forecasting the future that they began to “to ignore what was happening in the real world” (NewScientist, 2008b).

It is questionable whether credit analysis can ever be conducted without some human judgment. Human judgment can incorporate a vast number of variables that are rapidly processed using simple but effective algorithms that are subconsciously
developed (Gigenrenzer, 2007). It can therefore help avoid the errors of purely mathematical models that are based on unrealistic assumptions, that take into consideration only a subset of all the relevant variables, and that may be affected by past spurious relationships which may not hold in future environments.

Some have suggested that subjective human judgment opens up for the possibility of undesirable human biases and manipulation. However, with or without human judgment, financial models of credit risk are subject to manipulation, both legally and fraudulently. Just for instance, “soft information” about borrowers’ capacity to repay that is difficult to communicate in mathematical models to the final investors of securitized loans is subject to manipulation by lenders seeking origination income (Rajun, Seru, and Zig, 2008). The modeling predictions at the credit rating agencies themselves (such as Moody’s and S&P) have, at least recently, been biased toward granting higher ratings than merited in order to compete for revenues from the debtors who pay to be rated, and the result has been a “colossal failure” (Burns, 2008). Based on the recent record of the relative rates of defaults on loans made using strictly “hard information” (Rajun, Seru, and Zig, 2008), it may be concluded that human judgment may, at least within the framework of normal organizational controls, have greater capacity to detect and avoid biases than mathematical models that can be more easily manipulated than thinking human beings.

Modeling Away Systematic Risk and Systematic Risk Premiums.
The more sophisticated mathematical models of debt instruments were based on theories that implied the systematic risks of debts could be hedged or diversified away (Duffee, 1999). This modeling framework may have been the most catastrophic error of all. In particular, many modelers questioned the need to require any yield compensation for systematic risks (Elton, Gruber, Agrawal, and Mann, 2001).

Debt investors normally receive extra yield for the systematic or beta risk of debts because those risks of systematic losses during periods of market declines or recessions can't be fully diversified away (Murphy, 2000). Without systematic risk premiums on debts subject to default risk, risk-averse investors should optimally invest into default-free U.S. Treasury securities. However, theories have been developed that indicate investors may only need to charge sufficient interest to cover expected default losses (Duffee, 1999). These theories are based on unrealistic assumptions, such as no transaction costs and a continuous distribution of returns (Merton, 1974). As a result, the conclusions of the theories are invalid despite the impeccable accuracy of their mathematics.

Modeling procedures based on unrealistic assumptions resulted in many credit default swaps being priced to have the periodic payment compensate the insuring party for average default losses. No extra yield cushion was required to cover the systematically above-average default losses that inevitably occur in some years. As a result, debt investors had set themselves up for large losses at some point. With many of the insuring parties of credit default swaps being banks and other financial institutions that were highly leveraged with large current obligations, suffering losses created the risk of these insurers defaulting on their own obligations under the credit default swaps,
leading to a potential domino effect for their swap counterparties and a possible systematic cascade of defaults.

Failing to charge a systematic risk premium on the credit default swaps compounded the problem of underestimating average default losses that, as previously mentioned, also emanated from the reliance on statistical models and that were applied without human judgment or business common sense. The result has been that debt insurance in the credit default swap market was very underpriced, and the payments on credit default swaps didn’t even cover expected future default losses in average years.

Such underpricing of credit default swaps resulted in a credit bubble, as investors were able to hedge their investments in bonds and loans with the insurance of the credit default swaps to reduce their risk at abnormally low costs. In particular, the hedged positions of debt combined with credit default swap insurance were perceived to be virtually risk-free because the insuring parties on the credit default swaps (such as banks, the federal mortgage agencies FNMA and FHLMC, and insurance companies such as AMBAC, MBIA, and AIG) were typically granted the same credit rating as the U.S. Treasury at Aaa. Because of the unregulated nature of the market for credit default swaps, it was difficult for investors to analyze or question whether the Aaa ratings of the insurers were justified, since lack of regulation resulted in inadequate disclosure. Investors (and the credit rating agencies themselves) may have also perceived (perhaps with some justification) that some of these insurers had implied U.S. government backing either because they were federal agencies (like FNMA and FHLMC) or were too large to fail (like many commercial and investment banks).
Yield spreads above the interest rates on default-free U.S. Treasury bonds therefore plummeted to the level of the cost of the credit default swaps as insured bonds and loans were perceived to be almost as risk-free as Treasury debt. The resulting very low spreads between Treasury yields and corporate debt yields, especially junk yields, until 2007 were readily observed daily in the financial press like the *Wall Street Journal*.

The decline in the spreads between risky and risk-free debt yields to unprecedented levels was precipitated by investors seeking to arbitrage any bonds or loans that were priced to yield higher spreads. Those arbitragors would purchase higher yielding debts, buy cheap credit default swap insurance on them, and then earn the difference between the higher spread and the insurance premium as an excess return for little perceived risk. Such activities eventually drove the yields on all bonds and loans down to the cost of the credit default swaps as competition with lenders engaged in forming such hedged positions forced down borrowing rates.

With market prices of publicly traded debts not incorporating adequate premiums for credit risk, new loans had to be similarly priced to compete with the public markets. Thus, lenders and debt investors in general locked themselves into average returns that were less than or equal to those on default-free Treasury securities.

However, for a while, lenders were able to generate profits because initial default rates on new issues of debt tend to be lower in the early years after origination, and because loan originations generate significant fee income to the lenders. Since the economy was still expanding at a healthy pace a few years ago, and since the artificially
lower rates resulted in rising lending volume due to increased demand by borrowers, the short-term profitability was enhanced even more for lending institutions.

Nonetheless, given that no systematic risk premium was being charged, and given that the default risk premium was less than the average default losses over the life of the debt that would be estimated by expert human credit analysts, the profits were almost certain to turn into losses as soon as defaults rose to a normal level. In particular, charging inadequate credit risk premiums results in negative income even with funding costs at Treasury rates. As a result, without the cushion of a systematic risk premium to cover higher than average default losses that systematically occur in some years, highly leveraged firms like banks could systematically experience negative income in those years, leading to liquidity problems related to bank runs and failure. Until then, however, it was possible for individuals and companies to borrow at extremely low premiums to Treasury rates for several years, as the low cost of debt insurance lowered the cost of borrowing.

The recipients of the periodic insurance payment on the credit default swaps themselves were also able to initially report large profits from the contracts, despite the underpricing of the insurance, as the early defaults on new debt issues were lower than the insurance payments (Morgenson, 2008). That situation was especially prevalent in the residential mortgage market because newly issued mortgages tend to be characterized by especially low default rates compared to more seasoned ones. In addition, many of the newly originated mortgages had adjustable rates that offered a low teaser payment for the first 1-5 years of the loan (before they were contracted to rise according to a formula
based on market rates of interest), and default rates naturally rise with such adjustable-rate mortgages (ARMs) when those artificially low rates expire.

The Foreclosure Catalyst

The current mortgage crisis itself seems to have been largely caused by the mispricing of credit default swaps. A major contributor to the lack of subjective judgment and verification of the model inputs was the fact that mortgage brokers were motivated by loan origination commissions to just maximize the volume of issued mortgages because they were to be owned by other investors who took positions in them through collateralized debt obligations or CDOs (Buchanan, 2008). One factor causing CDO investors to accept such uncertainties may very well have been that such mortgage-backed securities were widely insured against losses from default by insurers like AIG via credit default swaps (Morgenson, 2008). As a result of such blurring of risks to final investors, many mortgages were made with no money down and no proof of income (Buchanan, 2008).

Insurers of mortgage-backed securities likely justified their pricing by applying purely statistical credit scoring procedures using a limited number of factors that didn’t incorporate the effects of requiring no documentation for the inputs to the models and having no human credit analyst to provide a subjective judgment. In many cases, the unverified inputs to the models were even widely recognized to be false or misleading. For instance, Alternative-A mortgages, which required no documentation of income or assets, were widely referred to as “liar loans” but developed into a very large market
because they generated large fees for mortgage bankers, who sold them to other investors (Zibel, 2008). The process was self-reinforcing initially since it generated very low costs for borrowers and large profits to lenders and insurers in the early years before default losses rose above credit premiums charged.

The problem of underpricing the insurance payments on credit default swaps on mortgage paper may have been at least partially exasperated by the mathematical models of the insurers not fully allowing for the rising defaults that normally occur on adjustable rate mortgages as the interest rate invariably rises following initially low teaser rates. Unrealistic expectations of ever-rising home prices that would enable refinancing mortgages when the introductory teaser rates rose after a few years may have also contributed. Given the sensitivity of mortgage defaults to home price declines (Rajun, Seru and Vig, 2008), the existence of evidence of a possible bubble top in real estate prices at that time (Shiller, 2005) would make the latter expectations appear to be especially implausible. However, Rajun, Seru and Vig (2008) have documented the fact that mortgages originated for sale in securitized packages ignored such deficiencies in credit analysis because of inadequate incentives for the originating lenders to do more than consider data inputs into models that were based on imperfect evaluation of the past history of default rates on loans with a limited set of specified criteria that ignored the very lack of motivation lenders had to conduct independent credit evaluation with "soft information", which includes "information about a borrower’s income or assets that is costly for investors to process".3

In the meantime, insurers of mortgage paper like AIG were able to record large profits from its insurance scheme until those higher default rates on the securitized
mortgages materialized (Morgenson, 2008). However, default losses on subprime mortgages in 2007 began to exceed the credit premiums that had been charge on them. One of the reasons for the rise in mortgage defaults was the increase in interest rates charged on the loans that had been set at introductory teaser rates which were contractually raised to market levels after the introductory period (of often 5 years) expired. The resulting foreclosures brought an excess supply of homes onto the market that caused residential real estate prices to fall, contributing to further mortgage defaults (that tend to rise substantially when home equity turns negative) and inhibiting refinancing of unaffordable mortgage payments. As the market value of mortgages fell, the viability of many banks and other financial institutions was called into question, resulting in a wholesale bank run that required the Federal Reserve to bailout the system with several hundred billion dollars in liquidity in the summer of 2007.

As investors began to perceive that defaults could spread beyond mortgages, the systematic risk premiums began to rise across all debt instruments, resulting in a fall in debt prices across the board. Systematically falling debt prices led to further increases in perceived systematic risk and further rises in systematic risk premiums in a cycle that brought us to the 2008 financial crisis.

The Liquidity Crisis

Exasperating the cycle along the way were the failures of several large financial institutions such as Bear Stearns, FNMA, FHLMC, Lehman Brothers, and AIG. These failures were related to the investments of those institutions into debt contracts of various
types that had fallen in value to the point where their liabilities exceeded the market value of their assets. In some cases, such as that of Bear Stearns, there was a liquidity crisis that catalyzed the firm’s failure, insofar as the market value of the liabilities of that investment bank on its massive portfolio of credit default swaps began to rise so much that the counterparty was able to demand additional collateral be put up as security against payment on the credit default swaps.⁴

A similar liquidity crisis later ensued at AIG, with that insurance company having insured a massive amount of collateralized mortgage obligations. As previously explained, much of the mortgage crisis may be attributed to AIG and other insurers of mortgage paper like AMBAC and MBIA. In particular, many of the subprime mortgages may never have been originated and packaged into pools if there hadn’t been an agreement by the insurance companies to guarantee the mortgage-backed securities with specified characteristics against default. The premiums charged on the credit default swaps do not appear to have provided sufficient compensation for the higher default rates on mortgages with lower (or no) downpayments, especially when no documentation was required and no human credit analysis was undertaken.

As more institutions failed, market credit risk premiums rose ever further, leading to further calls for collateral on firms that were receiving the periodic payments on credit default swaps. The resulting liquidity squeeze caused more defaults and further rises in market credit risk premiums in a vicious cycle. Despite the Federal Reserve’s massive efforts to intervene with needed cash, credit risk premiums rose to over 8% on a leading index of credit default swaps (Moses and Harrington, 2008).
With the credit crisis leading to a severe stock market decline and panicked public requests by government leaders for taxpayers to bail out the troubled financial institutions in the fall of 2008, consumer confidence fell precipitously. That factor along with the contraction of credit from the earlier loose standards as mortgage defaults rose caused a serious decline in consumer spending that has resulted in a recession. With default rates rising in a recession, the problem of having mispriced credit premiums on past debt contracts will likely be magnified further, especially given another year of large amounts of ARMs scheduled for rising payments in 2009 that will further negatively impact consumer spending capacity. The result can lead to further declines in consumer confidence and spending that magnifies and lengthens the recession, which in turn exasperates the credit crisis in a vicious cycle that may lead to a depression. In a depression, default rates and losses are much higher, and so a larger portion of rising credit risk premiums in existence today seems to represent rising default risk premiums (as opposed to just rising systematic risk premiums) as investors begin to forecast a larger chance of a depression scenario (and extremely large default rates) unfolding.

The Size of the Problem

Despite the enormous amount already spent by the federal government to bail out the financial markets, much more may be needed to save the system as it is. In particular, assuming the average debt for the approximately $60 trillion in credit default swaps outstanding merited a Baa credit rating, and assuming credit risk premiums being charged that equaled only 2/3 that of the expected default losses on those credits, data provided in
Murphy (2000) indicate that the contracted underpricing was \(\{\frac{1}{3}\}0.33\%+1.35\%=1.46\%\) per year. That comes to a market value loss of \(0.0146\times60\text{ trillion}=852\text{ billion per year},\) or nearly $5 trillion over the typical 5-year life of a credit default swap. Those huge market value losses exist even though initially the premium of 0.22% on the credit default swaps may have exceeded the typical abnormally low default losses on ARMs shortly after origination. In a protracted recession or depression, those market value losses may represent minimum actual default losses.5

In addition, it should also be mentioned that the premiums charged for the credit default swaps in no event covered the abnormally large default losses that periodically occur during recessions. With the financial crisis likely to result in such a downturn, the losses on the credit default swaps are likely to be even larger for the duration of that recession. That could easily raise the cost of a bailout by over $1 trillion per year of an economic slowdown. Since the very existence of the financial crisis may negatively affect the economy through reduced consumer spending (caused by the uncertainty), decreased lending (caused by rising credit risk and credit risk premiums), and rising business bankruptcies, such additional costs may be further magnified by a more severe and protracted recession.

The total cost of the crisis could exceed $10 trillion.6 While there may have been some hedging or offsetting contracts that would reduce the scope of the cost of a full bailout, it is unclear how large an offset that would be. Some financial institutions may have indeed acted as dealers in credit default swaps, whereby they both insured and bought insurance on a particular debtor, making money on a small spread between the periodic insurance payment they receive and the premium they pay to another party. In
addition, some investors such as hedge funds may have decided to take their profits (or cut their losses) on credit default swaps into which they had earlier entered by contracting with another party to take the other side of the contract at the new market price of insuring the risk. In both those cases, the only risk of loss left would be counterparty risk (as long as the two offsetting contracts were identical—that was not always the case since contractual terms varied, such as with respect to payments in default that were set based on an estimated market value in some and dependent on delivery of defaulted securities in others). While the entire amount of the contract would be exposed in the case of a bankrupt insuring counterparty, mark-to-market collateral payments required in many swaps for the losing side (when the midpoint market price of each credit default swap changes) would even minimize this risk of loss associated with the counterparty of a profitable contract defaulting.

The purchase of credit default swaps on counterparties with which an investor had a large volume of contracts (such as a dealer in credit default swaps) could further lower counterparty risk. However, the purchase of such insurance from a third party (such as another dealer) might not be effective in a systematic failure of dealers and other financial institutions selling that insurance. In fact, buying credit default swaps on such institutions could affect any reduction in the size of the aggregate credit losses from netting in a systematic failure. For example, assume that a dealer X had $20 million on both sides of a credit default swap on a company ABC, for a total of $40 million in credit default swaps held by X that were theoretically offsetting. If the contracting buyer of credit default swap insurance on ABC purchased $20 million in credit default swaps on its counterparty X from another dealer Y, there would be $60 million in credit default
swaps outstanding that could result in total losses of $40 million (including $20 million lost by X if both ABC and X’s counterparty from whom it bought credit default swap insurance on ABC defaulted, and $20 million lost by Y if X goes totally bankrupt). On the other hand, without the purchase of the $20 million in credit default swaps on X from Y, the total amount of credit default swaps outstanding would be $40 million, which could result losses of $20 million (or only 50%) if the contracting seller of credit default swap insurance on ABC to X went bankrupt before ABC.

If the financial institutions to be rescued had net exposure on only half the total $62 trillion of credit default swaps, the cost of bailing them out would be halved. However, it is quite likely that many of the financial institutions (including investment banks such as Bear Stearns) were merely selling the debt insurance as a means of generating premiums and recording income from off-balance-sheet contracts that were unregulated and lacked normal capital requirements. The only hedging for many of these organizations might have been in the form of diversification across many borrowers that wouldn’t be effective in reducing losses in a systematic downturn.

It should also be emphasized that the bidding down of default and systematic risk premiums in the credit default swap market carried over into the loan and bond markets. A large number of the loans held by financial institutions might therefore have interest payments that don’t provide sufficient compensation for the default risks on those assets as well. Losses on those investments could conceivably exceed the risk-reducing effects of any credit default swaps that were netted out with offsetting contracts.
Possible Solutions to the Crisis

There are perhaps other solutions to the crisis besides a massive bailout of the markets. One simple policy would be to nationalize the depository institutions of the failed corporate holding companies, and simply let the holding companies and all other failed institutions go bankrupt and default on their credit default swaps. The nationalized banks could then go back to making loans as they did in the old days, having real human beings make credit-granting decisions. In addition, nationalized banks could choose to take controlling equity positions in borrowing companies in default on their loans and effectively nationalize them in order to enable them to continue to operate (and maintain some production and employment) if they have some chance of recovery. The cost of this policy to taxpayers might be rather small, especially since most of the losses on the defaulting credit default swaps would then either be offsetting or be incurred by investors like hedge funds. In addition, given that the current massive rescue operations don’t seem to be successful in averting an economic downturn, it is unclear the need to rescue many of the failed financial institutions.

The real estate and mortgage crisis itself could possibly be resolved by allowing defaulting mortgagors to refinance with shared appreciation mortgages (SAMs) that would lower their payments in return for the lending institution receiving a share in the future appreciation on the home (Murphy, 2007). The SAMs could possibly be standardized to both reduce legal costs and also potentially create a secondary market for them in the form of SAM pools in which investors seeking diversification into residential real estate might be interested. By replacing foreclosure solutions with SAMs, less homes would be put on the market for sale, thereby reducing the downward pressure on real
estate prices. The cycle of falling real estate prices leading to more mortgage defaults and foreclosures, which cause further drops in real estate prices that prompt more foreclosures, might therefore not only be stopped but even reversed.

Any bailouts of industrial corporations like the U.S. automobile manufacturers would optimally be tied to the loosening of the credit standards of those companies for purposes of financing new purchases. With excess capacity and large gross profit margins in many industries (such as auto and homebuilding), credit would optimally be granted to any buyers whose expected value of default losses were only about 3% less than the gross profit margin (after all variable costs) earned from the sale. A mere 3% cushion represents the systematic risk premium required on the highest-risk debt (Murphy, 2000), and so employment of that credit granting criteria would not only increase effective demand and therefore production but also maximize profits (and should therefore be adopted even by companies not requiring a bailout).

Another policy that might enhance profitability and help reverse the ongoing economic decline would be to have cases of defaults on secured consumer loans (such as for autos or homes) result in possible renegotiation of both the loan terms and the collateral in a unique way. For instance, instead of repossessing cars of defaulting auto loan borrowers, a cheaper car (or even clunker trade-ins) could be offered in exchange for the existing, more valuable collateral, and the borrower would have lower (and potentially more manageable payments as a result. The same could be done with respect to replacing foreclosures with trading defaulting mortgagors down to smaller houses with lower payments (and such programs could be combined with SAM participation by the
lender to further lower periodic payments). Companies nationalized by nationalized banks could easily lead the way in developing such policies.

For institutions suffering strictly from a liquidity crisis but having a firm value in excess of their liabilities, simple enforcement of the regulations on short sales might be of great assistance without a government bailout or a change in operating policies. In particular, as shown theoretically and empirically by Murphy, Callaghan, and Parkash (2005), companies with inadequate internal liquidity can have their stock price shorted down to zero and then be totally unable to access the capital markets, thereby resulting in the failure of the firm. To inhibit such shorting down of value, the illegal “naked” shorting that is concentrated in foreign markets but also goes on in the U.S. because of inadequate enforcement by clearing agents (Boni, 2006) could be prevented by having the SEC start to enforce the laws requiring delivery of borrowed shares by short sellers. Since there is an estimated $1 trillion in illegal “naked” short sales (Financial Wire, 2004), which have been alleged to be related to the activities of organized crime (Weiss, 1997), enforcing the requirement that short sellers deliver the securities they sell like any other seller would result in a short squeeze that would send stock market prices soaring, as those short sellers had to buy back the securities they sold to deliver the shares they had never borrowed. Most importantly, however, such a policy would inhibit the bankruptcy of the thousands of firms that have been shorted out of existence (Financial Wire, 2005) simply because of a short-term liquidity crisis.

With the current financial catastrophe having led to a significant economic decline and deflation already in late 2008 despite the government’s enormous (and ineffective) monetary stimulus of $3 trillion, a significant amount of government
spending would be required very soon to reverse the decline in consumer sentiment and spending that is threatening to increase in 2009. Because tax cuts would likely be heavily saved or used to pay down debt in this environment, direct large-scale government outlays (like for the environment, infrastructure, education, research, and subsidies or other incentives for consumer purchases of homes and other goods) are needed. Government spending could also be employed to offset any declining output and employment caused by the failure of financial institutions and other corporations.

Conclusion

By analyzing the root causes of the financial crisis, it is possible to estimate the costs of resolving that crisis utilizing current policies of bailing out investors who made poor investment decisions. Although the cost of the bailout may be staggering, cheaper solutions appear to exist. In any event, it would seem imperative that the financial managers of the future be better educated in the art of credit analysis.
Footnotes

1. The required posting of additional collateral when the market value of a swap contract becomes negative to a counterparty minimizes the risks associated with that counterparty going bankrupt and not fulfilling the terms of the contract. The risk of a domino effect remains, however, insofar as one large institution failing can lead to defaults on obligations without collateral requirements that can result in losses to other institutions which might thereby be driven into bankruptcy. Such losses can exist on all over-the-counter trades with brokers and dealers that are not performed through the regulated markets like the futures and stock exchanges (Collins and McMahon, 2008).

2. That market may never have existed without guarantees against default by insurers like AIG, AMBAC, and MBIA.

3. For instance, “the likelihood that the borrower’s job may terminate, or other upcoming expenses that are not included in her current credit report” were generally ignored in securitized lending decisions (Rajun, Seru, and Zig, 2008).

4. Callaghan and Murphy (1998) have shown that bankruptcy is typically caused by liquidity problems when external capital is typically not available. Murphy, Callaghan, and Parkash (2005) have demonstrated theoretically and empirically why external capital isn’t available during liquidity crises.

5. Data provided by Murphy (2000) indicate that typical systematic risk premiums cover default losses in past volatile times which include a 10-year depression every 4 decades, but actual default losses may exceed that by a factor of two in the years of an actual protracted recession or depression.

6. The actual form of the costs of the bail out will vary with the various methods employed. These include payoffs on the debts that are guaranteed by the government (such as those of rescued bankrupt firms and mortgages in default), losses resulting from buying up assets privately or in the markets (such as mortgage-backed securities), and losses on financing provided to bankrupt firms to keep them afloat (that provide inadequate returns to the government in comparison to those available on other assets of similar risk).

7. The extensive resources an international criminal consortium dominated by emigrants from the former Soviet Union has allocated to financial market manipulation since the 1991 overthrow of communism there (Friedman, 2000) may be connected to the increase in both the complaints and the significance of the illegal naked shorting. The fact that many of the naked short sales are currently rumored to emanate in some form from unauthorized USA stock listings on the Berlin Stock Exchange (Koh, 2005), which promotes itself (e.g., in its brochure entitled “Boerse Berlin Bremen” under the heading “Schwerpunkte des internationalen Angebots) as listing more U.S. stocks than any other foreign exchange in the world and having market makers with connections to Eastern Europe, also supports this very tentative hypothesis, albeit only circumstantially.
8. In an attempt to mitigate the financial crisis, the SEC began in late September 2008 to temporarily restrict short selling of financial service stocks, thereby causing short sellers such as hedge funds to switch to shorting other stocks and thus leading to no overall benefit to the stock market (Favel, 2008). Although short selling illiquid companies out of business can occur with traditional legal short selling and synthetic short positions via the option exchanges (Murphy, Callaghan, and Parkash, 2008), the costs of holding legal short positions can become extremely high with heavy shorting activity (Jones and Lamont, 2002). Since extensive short sales might likely occur when the stock values of viable companies short of cash are manipulated down, ending the naked shorting might lead to especially large inhibitions on manipulative shorting activities. It is interesting in this context to observe that there had been one effort to impose delivery requirements on September 18, 2008 (when new short positions were restricted on all stocks until there was delivery on all existing short positions held by a broker or other market participant), and the result was the stock market rose substantially at the end of that day as many shorts were squeezed to buy back to cover their naked positions (even though it doesn’t appear that there was full compliance). In any event, the enforcement of the rules apparently was reduced in scope on the following day to only financial service stocks for reasons that are not completely clear. Complaints from hedge funds (and their brokers), which were finding spreads in the market soaring to as high as 700% as a result of the short squeeze, may have resulted in so many complaints (Favel, 2008) and outright refusals to buy back at such costs that the SEC backed off from enforcing the delivery rules.
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