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How Incentives Drove the Subprime Crisis

In order to address any systemic problem, whether the goal is to change the system, regulate the system, or change the incentives driving a system, it is necessary to appreciate all the drivers operating within the system. In the case of the subprime crisis, one of the drivers was the changing nature of the subprime loans, which was not factored into the models used by the investment bankers, the credit rating agencies, and the issuers of credit default swaps.

This paper is an attempt to look dispassionately at the subprime crisis from a particular perspective, namely, the incentives that drove the system. The roles of the borrower, the mortgage broker, the mortgage lenders, the government sponsored entities and the investment banks, the credit rating agencies, and the issuers of derivatives will be analyzed, with particular focus on what motivated each actor to take the risks that it did.

While different views have been expressed as to the cause or causes of the subprime crisis, all should be able to agree that that the events which led to the crisis demonstrate the efficacy of two well accepted economic principles: the law of supply and demand, and the proposition that people generally act in the manner in which they are incentivized to act. While this is the primary thrust of the article, it will also briefly examine why neither the Paulson plan nor the Geintner plan has worked in terms of motivating banks to lend in order to reverse the downward trend of the economy.

The conclusion asserts that some of the factors that contributed to a dysfunctional system are relatively easy to fix, such as eliminating liars’ loans. Some states have already moved in this direction, although Congress seems reluctant to do so. But some of the other contributors are more deeply ingrained in our system. Compensation systems that focus on the short run at the expense of the long run obviously should be changed, but the beneficiaries of the system are resistant to change. Rating agencies that are paid by the person seeking the rating reflect not only an irresolvable conflict of interest, but also a very entrenched system. Credit default swaps, where the purchaser of insurance has an informational advantage over the provider of insurance, make no rational sense but, again, entrenched interests are resistant to change. It will take more political courage than has been shown thus far to enact legislation that will reverse the incentives that once again could create excessive systemic risk.
Linear thinking, which is fairly prevalent in law and politics, tends to see direct relations between cause and effect. Thus, we look for the proximate cause of any particular effect. The real world is more complex. There is often an interaction of cause and effect, as well as a multiplicity of causes. When viewing a problem, some of the causes may be either benign or even positive. As developed in Part I, one of the causes of the subprime crisis was the new wealth that arose in many countries around the world.

In order to address any systemic problem, whether the goal is to change the system, regulate the system, or change the incentives driving a system, it is necessary to appreciate all the drivers operating within the system. In the case of the subprime crisis, one of the drivers was the changing nature of the subprime loans, discussed in Part II, which was not factored into the models used by the investment bankers, the credit rating agencies, and the issuers of credit default swaps.

Unfortunately, when dealing with a complex system, not only is it difficult to engage and analyze such a system, but also there is the risk that our biases will color our analysis.1 This paper is an attempt to look dispassionately at the subprime crisis from a particular perspective, namely, the incentives that drove the system. In Part III, the roles of the borrower, the mortgage broker, the mortgage lenders, the government sponsored entities and the investment banks, the credit rating agencies, and the issuers of derivatives will be analyzed, with particular focus on what motivated each actor to take the risks that it did.

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1 See, e.g., PHILIP G. ZIMBARDO & MICHAEL R. LEIPPE, THE PSYCHOLOGY OF ATTITUDE CHANGE AND SOCIAL INFLUENCE 162-63 (1991). In a study in which subjects who disagreed about capital punishment were exposed to mixed evidence about its effectiveness, the subjects “. . . became even further separated after reading the mixed evidence . . . this peculiar effect appears to be the result of biased interpretation. The subjects tended to accept at face value the data that supported their position while actively counter arguing for nonsupportive findings.” Id. (emphasis added.)
While different views have been expressed as to the cause or causes of the subprime crisis, all should be able to agree that the events which led to the crisis demonstrate the efficacy of two well accepted economic principles: the law of supply and demand, discussed in Part I, and the proposition that people generally act in the manner in which they are incentivized to act, discussed in Part III. While this will be the primary thrust of the article, it will also briefly examine in Part IV why neither the Paulson plan nor the Geithner plan has worked in terms of motivating banks to lend in order to reverse the downward trend of the economy.

The conclusion asserts that some of the factors that contributed to a dysfunctional system are relatively easy to fix, such as eliminating liars’ loans. Some states have already moved in this direction, although Congress seems reluctant to do so. But some of the other contributors are more deeply ingrained in our system. Compensation systems that focus on the short run at the expense of the long run obviously should be changed, but the beneficiaries of such systems are obviously resistant to change. Rating agencies that are paid by the person seeking the rating reflect not only an irresolvable conflict of interest, but also a very entrenched system. Credit default swaps, where the purchaser of insurance has an informational advantage over the provider of insurance, make no rational sense but, again, entrenched interests are resistant to change.

I. The Extraordinary Increase in Assets under Investment

As alluded to above, one of the drivers of the subprime crisis was the surge in wealth experienced in many countries around the world. Between 2002 and 2007 there was a tremendous upsurge in the amount of assets available for investment that were seeking a profitable, yet safe, return. While assets under investment over the decades had grown to $37 trillion by 2002, these assets basically doubled between 2002 and 2007 to $73 trillion. The United States has historically been attractive to both domestic and foreign investment. But treasury bonds, from 2003 to 2005, ranged from a little over 1% to a little over 4%, depending upon the date and maturity. Investors, seeking a better but yet safe return, turned to real estate securities which, historically, had a relatively low default rate.

When there is a surge of demand, the demand curve shifts upward to the right, normally resulting in higher prices. What is not always understood is that risk is a part of the price and what occurred in the subprime markets as a result of the surge in demand was that the product purchased became much riskier. Mortgage originations grew modestly from 1990 until 2001; they then exploded, particularly with respect to refinancings. See graph below.

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3 For a simple illustration of incentives and their impact, see ROBERT COOTER & THOMAS ULEN, Incentives for Invisible Actors, in LAW & ECONOMICS 388-389 (5th ed. 2008). For a more exhaustive discussion, see 262-279.
6 For example, total loans in the foreclosure process from 1990 to 2007, before the real estate bubble burst, ranged from 0.9% to 1.5%. See Census Bureau tbl 1154, http://www.census.gov/compendia/statab/tables/09s1154.xls (last visited Oct. 6, 2009).
Home mortgage debt approximately doubled between 1990 and 2001; however, in the next five years between 2001 and 2006, it basically doubled again. In a sense, the pool of borrowers constituting a sound risk was depleted and was replaced by a pool of less creditworthy risks, whether by virtue of their personal financial characteristics or the inflated value of the real estate underlying the security that they were offering.

II. The Changing Nature of Subprime Loans

The causes of the subprime crisis, and the responsibility therefore, cannot be understood without a perspective on the nature of subprime loans, their explosive growth, and how the risk characteristics of these loans grew riskier over time. It is important to identify the period during which this move towards greater risk took place in order to assess who were the prime contributors to the crisis and what motivated them.

From 2000 to 2003, fixed rate subprime mortgages constituted about 33% of subprime mortgages, with the percentage being basically constant across time. On the other hand, adjustable rate mortgages which would reset to a higher interest rate after two or three years, averaged about 60%. However, from 2004 to 2006, the fixed rate subprime percentage dropped to about 25%. In contrast, the adjustable rate mortgages increased to over 70% in 2004-2006. While the percentage change moved only modestly toward riskier investments, from a volume perspective, the dollar volume of subprime mortgages increased from $100 billion in 2000 to $600 billion in 2006, a 600% increase.

What is the significance of the foregoing data? It illustrates that not only was there an explosive growth in a risky class of loans, namely subprime loans, but also that the composition of these loans was growing riskier over time, as the percentage of adjustable rate loans in the subprime class also increased.

There is a similar, and even more distressing picture with respect to alt-A-loans. Alt-A loans are typically low documentation loans that were originally designed for credit-worthy, self-employed

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9 GAO Report, supra note 8, at 1.
persons who could not meet the documentation requirements for traditional loan underwriting. For example, such person would not have a W-2 form from their employer to evidence their income.

The dollar volume of Alt-A loans was only $25 billion in 2000 but increased to $400 billion in 2006, an increase of 1,600%. Sparking this rise was a loosening of underwriting standards. From 2000 to 2003, the percentage of fixed rate Alt-A loans slowly dropped from 85% to 71%. However, from 2004 to 2006, the percentage of fixed rate loans dropped markedly and was steady at about 38%.

What products replaced the fixed rate Alt-A? One essentially new product was what the GAO described as payment-option ARMs, but which have been more colorfully described as “pic-a-pay” loans. These loans comprised only about 2% of Alt-A loans in 2000-2003 but, during 2004 to 2006, this percentage rose from 13% to 25%. These loans enabled the borrower, for some fixed period, to choose how much of a payment he or she would make. Often this payment was less than the accruing interest and the deficiency in interest payment was added to principal. Thus, the loan would become a negative amortization loan, that is, one in which the principal owed is rising over time. Contrast this with a standard loan in which the payment not only covers interest but also reduces the principal balance.

This type of loan was initially designed for a sophisticated borrower who understood the risk and knew there was no Santa Claus. However, as housing prices rose, lenders began marketing this type of loan to lower income borrowers as an “affordability” loan that would enable a borrower to buy a more expensive house than the borrower could afford if the mortgage payment were determined under a standard amortized loan.

The other product that replaced the fixed rate Alt-A was the adjustable rate Alt-A loan. From 2000 to 2003, the loans steadily increased from about 14% to 25%. However, they rose to over 60% in 2004 to 2006. Thus, the number of Alt-A loans increased even more explosively than the subprime loans and, like the subprime loans, as their numbers increased so did their risk characteristics as more and more loans were adjustable rate or pic-a-pay loans.

If the foregoing analysis is correct, one would expect that the delinquency, default and foreclosure rates (the “default rates”) for loans would increase for annual cohorts of loans from 2000 to 2006 and that the loan types which this article asserts as the riskiest would have the highest default rates. That is exactly what the data has demonstrated.

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10 Id.
11 GAO Report, supra note 8, at 5.
12 With this type of loan, the borrower could choose a payment amount that was substantially below the accruing interest rate, with the deficiency in accrued interest added to principal. When these loans reset, the mortgage payment could triple. See Kelly D. Edmiston & Roger Zalneraitis, Rising Foreclosures in the United States: A Perfect Storm, FED. RES. BANK OF KAN. CITY ECON. REV., Fourth Quarter 2007, at 127-128, available at http://www.kc.frb.org/publicat/econrev/PDF/4Q07Edmiston.pdf.
13 GAO Report, supra note 8, at 26, tbl 5.
The default rate for fixed rate subprime mortgages dropped from 23% in 2000 to 11% in 2003, but then rose from 16% in 2004 to 32% in 2006. The default rate for hybrid ARMs dropped from 23% in 2000 to 13% in 2003, but then rose from 17% in 2004 to 50% in 2006. A similar pattern existed for Alt-A loans. The default rate for fixed rate Alt-A loans was 8% in 2000 and averaged less than 5% for the next three years. In 2004-2006, the default rate rose from 4% to 13% to 23% for fixed rate alt-A loans. With respect to payment-option loans, the default rate averaged less than 1% in 2000-2002, when they were used by sophisticated borrowers. From 2003 to 2006, the default rates increased from 4% to 8% to 22% to 37% in 2006. These was a similar pattern of increased default rates for adjustable Alt-A mortgages in 2004 thru 2006, which contrasted with an average default of about 4% from 2000 to 2003.

Thus, there is a clear pattern that the default rates for annual cohorts of mortgages increased over time and particularly from 2004 to 2006. There is a second clear pattern which shows that the default rates for the riskier mortgages increased faster than the default rates for the fixed mortgages. This continued into 2007.

Since the critical period is 2004-2007, there are two major questions: who were the major players involved in producing these risky mortgages and what drove them to take such risk.

III. Who Was Responsible for These Risky Loans and What Drove Their Actions.

It is already been posited that the overarching driver of the subprime crisis was the explosion in assets under investment looking for a home. However, it is difficult to assess culpability on the investors when they were buying a security with a triple A credit rating from the rating agencies and through a prospectus which did not adequately alert them to the dangers of the investment. Accordingly, this paper will now examine the cast of participants who brought the loan ultimately to the investor. These include the borrower, the mortgage broker, the mortgage banker, the syndicator of the security [generally either a government-sponsored entity or an affiliate of an investment banker], the rating agencies, and the issuers of derivatives.

A. The borrower: opportunist or victim?

The borrower is often pictured either as an unscrupulous opportunist, who sought to cash out some of the inflated value of his home or to buy a property beyond his means, or a victim of avaricious businesses who euchred her into a transaction that she did not understand. The data, often anecdotal, suggest that there is truth to both tales, as well as many situations falling on a continuum in between. There undoubtedly were borrowers who sought to game the system. On the other hand, there is no

15 GAO Report, supra note 8, at 35-36 enclosure III, tbl 10. The percentage used in this section for default rate is the sum of percentages for mortgages that are delinquent, that are in default, that are in the foreclosure process, and that have completed the foreclosure process.

16 Default rates in the period 2000-2003 are generally highest in the 2000 cohort of loans. This may be related to the dot com bubble bursting in 2000. Banks which originated mortgages in 2000 may have found that the income and assets upon which they relied shrank when the bubble burst.

17 A tattoo-parlor owner, known as Sonny, made ninety sales in about four years, often using strawmen buyers who received a small slice of the mortgage proceeds, put no money down and then disappeared and were untraceable. He cleared $4 million. Sonny’s deals were financed by Wachovia, Wells Fargo, Washington Mutual, Bank of America, Lehman Brothers,
doubt that there was incredible selling pressure brought to bear upon prospective borrowers. What would induce mortgage brokers to go out into the hinterlands to find prospective mortgagors? That is a subject for the next section. But first let us examine the incentives for borrowers to enter into risky transactions.

At one end of the spectrum, some degree of opportunism lurks in all of us. Combined with optimism, there is frequently a tendency to stretch to move up in the housing market, particularly when prices are rising and there is the fear of being left behind. When offered the so-called 2/28 or 3/27 adjustable rate mortgage, there is a tendency to focus upon being able to afford the payment predicated upon the teaser rate, rather than the sobering reality of being able to make the principal payment when the mortgage resets. So how do you deal with opportunistic optimism? There is a serious question as to whether 2/28 or 3/27 mortgages have a place in the financing system for home mortgages, at least below a certain threshold of income. This is not to suggest that there is a correlation between income and intelligence, but rather that there is a correlation between income and sophistication, namely the ability to appreciate risk.

Do we need more regulation here? A good case can be made that naïve regulation has complicated the task of being able to decipher the economics of a proposed mortgage. As one conservative commentator stated, “Most of us have experienced being overwhelmed and befuddled by the huge stack of documents full of confusing language in small print presented to us at a mortgage closing. These documents are the result of legal and compliance requirements, including regulatory attempts to insure disclosure.” Alex Polack has developed a one-page mortgage summary sheet which, among other information, would give the borrower the current interest rate and mortgage payment and the maximum reset interest rate and corresponding monthly payment. An outstanding suggestion! This is one idea that all facets of the political spectrum should endorse.

How many borrowers find the mortgage documentation to be confusing? The Milken Institute, relying on Federal Trade Commission data, found that 87% of respondents could not identify the total up-front cost of the loan, 51% could not identify the loan amount from the documents, and 30% could not identify the presence and amount of a balloon payment. Regulation should not encourage pages of boilerplate disclosure, but rather, as Mr. Pollock suggests, meaningful disclosure. There is often a wide gap in sophistication between the borrower and the providers of credit. In this context, complexity works to deceive the borrower.


Even today, as I was writing this article, I received a text message soliciting me to refinance my mortgage. Being financially ultraconservative and risk-averse, I am an unlikely candidate.

A Federal Reserve Bank study found that about 70% of subprime loans were what is known as “2/28” or “3/27” loans, meaning that they have a low teaser rate for two or three years, and then reset to a much higher interest rate which can double the mortgage payment. See Edmiston supra note 8, at 13.


But what of the borrowers who were unscrupulous opportunists? As the subprime market developed in the mid-2000s, prospective borrowers were encouraged to be unscrupulous by the explosion of the so-called liars’ loans. These loans evolved from stated income loans, in which the borrower did not need to document income, and which made some sense for a self-employed person, into “stated asset” loans to, in which the borrower need document neither income nor assets. As one lender stated: "So I don’t really need to know what you make. I don’t need proof. You tell me you make $200,000 a year? You make $200,000 a year." The Internet was alive with mortgage brokers and mortgage lenders offering stated income and stated asset loans. For those at the unscrupulous end of the spectrum, it is hard to conceive of a better incentive to fabricate personal financial data than the broad-based solicitation of liars’ loans.

One way to take the incentive out of lying is a criminal prosecution for fraud. Unfortunately, as the next section illustrates, it often is not clear whether the borrower unilaterally lied, whether the borrower lied with the explicit or tacit encouragement of the broker or lender, as illustrated in the preceding paragraph, or whether the broker or lender itself falsified the documents. Today the business sector is overwhelmed by the problems of liars’ loans. The criminal system has far less resources and, with proof beyond a reasonable doubt required, has little incentive to prosecute “he said, she said” type cases.

Looking forward, why should a financial institution ever make a loan without verified documentation as to income and assets? Even with self-employed persons, there should be state and federal income tax returns and estimated tax payments on the income side. Just because it is not possible to obtain some of the documentation that would be available to an employee is no justification for not seeking any documentation. With respect to assets, status as a self-employed person has no impact whatsoever on the ability to disclose assets. Moreover, disclosure of assets, such as bank accounts, may well provide correlation to income disclosure. Thus, tightening lending standards and requiring documentation is a simple way to eliminate liars’ loans.

B. The mortgage broker

One of the culprits in the subprime crisis was the mortgage broker. Mortgage brokers clearly were incentivized to make loans, since the commission was paid upfront, often out of the points charged. While an honest broker might charge a commission of around 1%, unscrupulous brokers charged fees ranging up to 5% or higher. A 5% commission on a $200,000 loan would produce a fee of $10,000.

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23 The early rationale for these loans was that some borrowers, such as self-employed persons, could not provide income verification because of the lack of documents such as W-2s.


25 Googling “stated income loans” produces over 1 million responses, many of which are offering such loans.


Not a bad day’s work! Six-figure incomes were typical, and some brokers made upwards of $1 million a year. One mortgage research organization reported that, at the end of 2006, the average monthly volume of a mortgage broker was $1.6 million. At a 1 1/2% fee, this would produce a monthly income of $24,000 a month or $288,000 annually.

While this compensation may seem exceptional to some, salesmen are often compensated by commissions and, in some non-public companies, a salesman could make more than the CEO. The purpose of paying on a commission basis is to incentivize performance, namely, generate sales. The problem is not compensation in the abstract, but rather whether the broker is acting ethically and whether the amount of compensation incentivizes brokers to engage in fraud, or act in a manner antithetical to the interests of the borrower.

The term broker is ambiguous. When the broker tells a prospective borrower that he can get the borrower the "best" mortgage for the borrower, the borrower would understand that the broker is acting for the borrower’s benefit. In other words, the borrower would expect that the broker is the agent of the borrower. In such case, the broker has fiduciary duties, including duties of full disclosure of all material aspects of the transaction, as well as the compensation of the broker. And of course, the broker has an obligation not to deceive or defraud the borrower.

In response to the subprime crisis, California, and New York and Illinois, in 2008 passed legislation that would, in effect, legislatively impose fiduciary duties on mortgage brokers. In California, Gov. Schwarzenegger vetoed the legislation, in part because of his concern that the legislation covered independent brokers but not employees of the lender, and part over the ability of borrowers to obtain attorneys fees. However, Gov. Paterson signed the New York legislation. Among other things, this legislation would require each mortgage broker to:
(a) act in the borrower’s interest;
(b) act with reasonable skill, care and diligence;
(c) act in good faith and with fair dealing.

are mortgage brokers who will attempt to sell the borrower on a loan with the most fees and highest interest rate possible so that he/she will get more compensation. Some of these brokers may charge fees of 8 to 10 points. That means that on a $100,000 loan, the borrower is paying and financing an additional $8,000 to $10,000”). See also Socialserve.com, Predatory Mortgage Lending, http://www.socialserve.com/tenant/PredatoryLending.html (last visited Oct. 7, 2009).  
29 See Effect of Subprime Mortgage Lending on Mortgage Brokers, http://www.subprimelendingcrisis.com/Effect_of_Subprime_Mortgage_Lending_on_Mortgage_Brokers.php. See also Peter J. Generis, GETTING STARTED AS A COMMERCIAL MORTGAGE BROKER: HOW TO GET TO A SIX-Figure SALARY IN 12 MONTHS (2008).
32 See Restatement (Third) of Agency §8.01, General Fiduciary Principle.
33 A summary of the California legislation can be found at http://democrats.assembly.ca.gov/members/a53/pdf/AB1830.pdf (last visited Oct. 9, 2009)
34 The first reason that Gov. Schwarzenegger gave for vetoing a bill was that “its provisions will only apply to state regulated entities, as federally regulated entities will be exempt.” However, the federal government does not regulate mortgage brokers. Thus, the governor must have been referring to lenders that are regulated by the federal government. But most subprime lenders were “non-banks” that were not regulated by the FDIC. Gov. Arnold Schwarzenegger, Address Regarding Assembly Bill 1830, http://gov.ca.gov/pdf/press/AB_1830_Lieu_Veto_Message.pdf (last visited Oct. 9, 2009).
(d) not charge any undisclosed compensation, directly or indirectly;
(e) clearly disclose all material information that affects the borrower’s interests; and
(f) diligently work to present the borrower with a range of loan products for which the borrower likely qualifies and which are appropriate to the borrower's existing circumstances, based on information obtained in good faith by, the broker.  

Placing a borrower in a 2/28 or 3/27 teaser loan, which could reset into a mortgage payment that would double or more, generally would not be in the borrower's best interest, unless full disclosure of the risks involved and the scope of the potential reset was made to the borrower. Nor would steering the borrower into a subprime loan be in the borrower’s best interest when the borrower could qualify for a conventional loan. A study commissioned by the Wall Street Journal found that, in 2005, 55% of the subprime borrowers had credit scores generally high enough to qualify for conventional loans with far better terms. In 2006, the proportion was even higher, namely, 61%. While there is some softness with respect to what credit score is sufficient to get conventional financing -- generally over 620 -- during the period 2004 to 2007 about one-eighth of the subprime borrowers had credit scores over 700, clearly sufficient for conventional financing.

What drove mortgage brokers to place qualified buyers in subprime loans? Very likely, the increased commissions that are generated in the subprime market. On many subprime mortgage loans, brokers receive a kickback from the lender known as a “yield spread premium.” Basically, the lender offers a wholesale rate and the broker quotes a retail rate to the borrower, which can be a point or two higher and, in some cases, substantially higher. The higher the interest rate, the more the broker gets paid. Professor Elizabeth Warren of Harvard has estimated that 85% to 90% of subprime loans involved a yield spread premium. She opined that a borrower, who could qualify for a 6.5% fixed-rate 30 year mortgage, could end up with a 9.5% variable mortgage. While this is clearly to the disadvantage of the borrower, it provides substantial increase in compensation to the mortgage broker.

Regulation of mortgage brokers varies widely across the country. In Florida, more than 10,000 convicted criminals worked in the mortgage business, thousands of whom were licensed brokers. One Congresswoman observed that Florida was particularly lax when it came to mortgage regulation, and she connected the lack of oversight with state politics and the political clout of developers.

The potential to make huge sums of money motivated some mortgage brokers to falsify documentation and even create bogus transactions. Such action should be criminal. In fact, mortgage fraud

37 See Brooks & Simon, supra note 27.
38 Id. (interactive graphic).
41 Haggman & Dolan, supra note 41, at 84-85.
42 One mortgage broker, just out of college, made $75,000-$100,000 a month. Unfortunately, he not only put qualified borrowers in subprime mortgages but also falsified the documentation. One person he placed in an adjustable rate mortgage was a Marine veteran who could have qualified for a VA loan. The veteran gave the broker his tax returns showing income
prosecutions are ongoing around the country. Recently, forty-one defendants were charged in one of the largest mortgage fraud schemes in the country. The mastermind of the scheme allegedly pocketed $31 million through bogus mortgage loans by bringing in buyers and helping them falsify credit applications to obtain loans. But, as observed in the preceding section, the criminal system does not have the resources to deal with this problem. The goal should not be prosecution, but rather prevention. That is why it is essential that documentation be required and verified.

C. The mortgage lenders

It does not take a rocket scientist to decipher the incentive for mortgage lenders to ratchet up subprime lending to satisfy the market demand for mortgage backed securities. More loans meant more revenue, which translated into greater earnings and higher stock prices and, of course, greater compensation for management. Coupled with this was the seeming lack of risk when loans can be packaged and sold to underwriters without recourse. Set forth below is a graph of the stock prices for Countrywide Financial from 2000 to 2008.

![Countrywide Financial Stock Prices Graph](http://www.thislife.org/extras/radio/355_transcript.pdf)

of $37,000 a year. The broker completed the application and listed the veteran’s income at $16,250 a month, or almost $200,000 per year. When the mortgage reset, veteran’s payments increased by $2000 a month. This American Life: The Giant Pool of Money, Chicago Public Radio Broadcast (May 9, 2008), available at http://www.thislife.org/extras/radio/355_transcript.pdf.


Since Countrywide Financial is no longer publicly traded, this graph was developed from data available from Thomson Reuters “Datastream.” The code for Countrywide is 916036.
Up to 2003, Countrywide was mainly making conventional 30 year fixed-rate mortgages, but then got heavily into the subprime business. Mortgages for securitization were mainly sold to the GSE's, as the investment banks were not major players. When Countrywide started producing riskier products, loan volume, revenues, earnings, and executive compensation all increased, paralleling the increase in stock prices. See the chart below.

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47 Government Sponsored Entities

48 See text at note 63, infra

49 The above chart is based on data in Countrywide Financial Corporation’s Form 10-K for fiscal year ended December 31, 2007, Form 10-K/A for fiscal year ended December 31, 2007, Form 10-K for fiscal year ended December 31, 2002, Schedule 14A filed April 29, 2002, and Schedule 14A filed June 8, 2001. These documents are available under CIK # 0000025191 at www.sec.gov. The Chart is developed from the following table of data:

<table>
<thead>
<tr>
<th>Year</th>
<th>Total Revenues</th>
<th>Net Earnings</th>
<th>Volume of Loans Originated</th>
<th>CEO Compensation</th>
</tr>
</thead>
<tbody>
<tr>
<td>2000</td>
<td>2,073,839,000</td>
<td>374,153,000</td>
<td>68,923,000,000</td>
<td>6,476,604</td>
</tr>
<tr>
<td>2001</td>
<td>2,860,359,000</td>
<td>537,541,000</td>
<td>126,980,000,000</td>
<td>7,682,302</td>
</tr>
<tr>
<td>2002</td>
<td>4,519,466,000</td>
<td>841,779,000</td>
<td>251,901,000,000</td>
<td>11,041,852</td>
</tr>
<tr>
<td>2003</td>
<td>8,026,846,000</td>
<td>2,372,950,000</td>
<td>434,864,000,000</td>
<td>25,925,941</td>
</tr>
<tr>
<td>2004</td>
<td>8,566,627,000</td>
<td>2,197,574,000</td>
<td>363,364,000,000</td>
<td>24,642,098</td>
</tr>
<tr>
<td>2005</td>
<td>10,016,708,000</td>
<td>2,528,090,000</td>
<td>499,301,000,000</td>
<td>24,350,342</td>
</tr>
<tr>
<td>2006</td>
<td>11,417,128,000</td>
<td>2,674,846,000</td>
<td>468,172,000,000</td>
<td>51,755,223</td>
</tr>
<tr>
<td>2007</td>
<td>6,061,437,000</td>
<td>-703,538,000</td>
<td>415,634,000,000</td>
<td>10,812,297</td>
</tr>
</tbody>
</table>
The two charts above essentially demonstrate the correlations between the venture into risky lending practices, generating increased volume, and thereby hyping the stock price and increasing the compensation Andrew Mozilo, the CEO of Countrywide.

Much of Mr. Mozilo’s income is attributable to stock options. This form of incentive compensation is supposed to align the interests of management with that of the stockholders. However, this conventional wisdom has a fatal flaw in that it does not take into account the risk profile of the two groups. Shareholders have a sunk economic stake in their investment in stock and a risk profile that is more conservative than management’s. When management takes on increased risk, the stockholders can gain handsomely or lose all. On the other hand, when management is given options together with $1 million salary, taking risk can pay off handsomely if gains ensue. If the loans eventually turn out badly, the executive holding options, unlike the long-term shareholder investor, has no sunk investment to lose.

In the case of Countrywide, the price of the stock quadrupled from 2002 to 2005. Mr. Mozilo sold $130 million of Countrywide in 2007 before the market for Countrywide stock plummeted and was later charged with fraud.\(^{50}\) Through stock options, Mozilo could buy cheaply and sell at the peak. This gave him an incentive of hundreds of millions of dollars to take the risks that ultimately brought the company down.

On the other hand, investors were not privy to the inside information Mr. Mozilo had. According to FOXBusiness, “Countrywide portrayed itself as underwriting mainly prime-quality mortgages, using high underwriting standards. But concealed from shareholders was the true Countrywide, an increasingly reckless lender assuming greater and greater risk.”\(^{51}\) Mr. Mozilo's attorney asserted that he was not aware of the problems with Countrywide's loan portfolio, but FOXBusiness released a series of his e-mails in which Mozilo recognized the "toxic" nature of the loans.\(^{52}\) When the stock of Countrywide plummeted, it was the investors who lost their sunk investment.

After Bank of America acquired Countrywide, it paid $8.6 billion to settle lawsuits brought by the attorneys general of eleven states based on Countrywide's predatory lending practices.\(^{53}\) Apparently, one of the reasons that Gov. Schwarzenegger vetoed the California legislation that would have imposed fiduciary duties upon mortgage brokers, but that it did not apply to mortgage lenders.\(^{54}\) In point of fact, legislation is needed not just to impose fiduciary duties upon mortgage brokers but also to impose similar reponsibilities upon lenders and their employees. It is equally serious for the lender to

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\(^{51}\) See Barnes & Ossinger, supra note 50 (quoting SEC Enforcement Director Robert Khuzami.).

\(^{52}\) Id.

\(^{53}\) See BofA in $8.6 bln Settlement over Countrywide Loans, REUTERS, Oct. 6, 2008, available at [http://www.reuters.com/article/financialservicesAndRealEstate/idUSBNG28749420081006](http://www.reuters.com/article/financialservicesAndRealEstate/idUSBNG28749420081006)

\(^{54}\) See supra note 34.
misrepresent the terms of the transaction or to induce borrowers to enter into mortgages which they cannot afford.

By way of illustration, one of the subprime lenders, was subjected to a cease-and-desist order by the FDIC which required the lender not to make mortgage loans without adequately considering the borrower’s ability to repay the mortgage. In particular, the lender was enjoined from qualifying borrowers for loans with low initial payments based on an introductory rate that would expire after an initial period without an adequate analysis of the borrower’s ability to repay the debt at the fully-indexed rate; approving borrowers without considering appropriate documentation and/or verification of their income; providing borrowers with inadequate and/or confusing information; approving loans with inadequate debt-to-income analyses that did not properly consider the borrowers’ ability to repay; and approving loans with loan-to-value ratios approaching or exceeding 100 percent of the value of the collateral. \(^{55}\)

Subprime lenders share a similarity with a mortgage brokers. Both the mortgage brokers and the subprime lenders receive substantial upfront fees, enabling them to realize income at the front end, without waiting for the borrower to begin making mortgage payments which would translate into interest income on an ongoing basis. In the abstract, there is nothing wrong with a lender charging points and other reasonable upfront fees. But the availability of upfront fees accelerates income to the lender and provides an incentive for the lender to be less concerned about the credit worthiness of the borrower.

Of the top twenty-five subprime lenders in 2006-2007, only five are still in the lending business; the large majority, like Countrywide, are now either insolvent or have been bought out at distressed prices. \(^{56}\) Many of these subprime lenders were "non-banks", that is, they did not accept deposits. Accordingly, they were not regulated by the FDIC. Since depositors were not providing the funds for these mortgage banks to loan, their funding came in the way of lines of credit and other arrangements with the major investment banks and commercial banks. The role of the investment banks in funding these non-banks will be considered in the next section.

D. Fannie Mae, Freddie Mac, and the investment banks

There is no doubt that Fannie Mae and Freddie Mac, the dominant government sponsored entities ("GSEs"), committed serious errors of judgment and engaged in questionable underwriting practices in the 2004-2007 period, and that risky lending and securitization practices during this period were significant drivers of the subprime crisis. \(^{57}\) The American Enterprise Institute, a conservative think tank, however, laid the blame for the subprime crisis solely on the shoulders of Fannie Mae and Freddie Mac. In a position paper written when Congress was considering the subprime bailout, the authors of the paper stated:

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This *Outlook* tells the disheartening story of how the GSEs [Fannie Mae and Freddie Mac] sold out the taxpayers by taking huge risks on substandard mortgages, primarily to retain congressional support for the weak regulation and special benefits that fueled their high profits and profligate executive compensation. As if that were not enough, in the process, the GSEs' operations promoted a risky subprime mortgage binge in the United States that has caused a worldwide financial crisis.\(^{58}\)

Unfortunately, focusing solely upon the GSE's looks only at part of the picture. It fails to recognize that the investment banks were also a significant cause of the subprime crisis. In fact, a case can be made that the investment banks, by financing "non-banks,"\(^{59}\) by buying and selling derivatives, and through their underwriting of private-label securities ("PLS"), were the predominant cause of the crisis.

Mortgage-backed securities ("MBS") increased $3.161 trillion in 2000 to $4.547 trillion in 2003, a 44% increase.\(^{60}\) However, from 2004 to 2007, mortgage backed securities increased from $4.835 trillion to $7.417 trillion, an increase of over $2.5 trillion, or 53%. Overall, mortgage-backed securities increased over $4.25 trillion, or 135%, from 2000 to 2007.\(^{61}\)

Consider now the GSEs. Fannie Mae and Freddie Mac issued $1.879 trillion in 2000, about 60% of the total of mortgage-backed securities. This increased to $3.014 trillion in 2003, or about 66% of the total. But while the volume of mortgage-backed securities issued by these two GSEs grew steadily gone $3.09 trillion in 2004 to $4.015 trillion in 2007, the impact of these GSEs dropped from 64% to 54%,\(^ {62}\) since the private investment banks had now become a significant, if not dominant, participant in this market.

Consider the private-label securities issued by the investment banks. From 2000 to 2003, the investment banks were minor players. Private-label securities group from $0.667 trillion in 2000 to $1.058 trillion in 2003. But from 2004 to 2007, private-label securities grew from $1.291 trillion $2.953 trillion, an increase of almost 130%. From 2000 to 2007 private-label securities grew by an astounding 343%.\(^ {63}\)

From a relative perspective, between 2000 and 2003, private-label securities as a percentage of the mortgage-backed securities increased modestly from 21% to 23%. But from 2004 to 2007, the percentage of private-label securities increased from 25% to 40%. However, even though the investment bankers were no longer minor players, they still were not equal to the GSEs in volume or percentage. Why then were they so significant in causing the crisis?

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\(^{59}\) A mortgage bank which does not accept deposits is sometimes referred to as a "non-bank," and is not regulated the same as a bank that accepts deposits.


The complicity of the investment bankers in the subprime meltdown is a function, not just of the volume of subprime loan that they securitized, but also the quality of such loans. A study by Fannie Mae on the comparative riskiness of Fannie Mae versus private-label Alt A loans is set forth in the table below:

<table>
<thead>
<tr>
<th>Fannie Mae Alt-A Versus Private-Label Security Conforming Alt-A</th>
<th>Fannie Mae Alt-A</th>
<th>Private-Label Alt-A</th>
</tr>
</thead>
<tbody>
<tr>
<td>Outstanding Alt-A loans in Fannie Mae’s Single-Family Guaranty Book of Business as of May 2009</td>
<td>716</td>
<td>710</td>
</tr>
<tr>
<td>Outstanding loans backing non-agency Conforming Alt-A MBS as of May 2009</td>
<td>73%</td>
<td>75%</td>
</tr>
<tr>
<td>FICO</td>
<td>77%</td>
<td>81%</td>
</tr>
<tr>
<td>Original Loan-to-Value Ratio</td>
<td>22%</td>
<td>27%</td>
</tr>
<tr>
<td>Combined Loan-to-Value Ratio at Origination 16</td>
<td>11%</td>
<td>13%</td>
</tr>
<tr>
<td>Geography</td>
<td>Fixed Rate</td>
<td>72%</td>
</tr>
<tr>
<td></td>
<td>Adjustable-rate</td>
<td>25%</td>
</tr>
<tr>
<td></td>
<td>Interest-Only</td>
<td>23%</td>
</tr>
<tr>
<td></td>
<td>Negative-Amortizing</td>
<td>3%</td>
</tr>
<tr>
<td></td>
<td>Investor</td>
<td>13%</td>
</tr>
</tbody>
</table>

Only 28% of the Fannie Mae loans were adjustable rate loans, whereas 50% of the PLS loans were. The problem of defaults occurring when the adjustable rate loan resets has already been discussed. In addition, only 3% of the Fannie Mae loans were “pic-a-pay,” or negative amortization loans, whereas 20% of the PLS loans were. If a borrower cannot even pay the interest at the outset of the loan, when the loan resets to an amortization schedule at a higher interest rate, the likelihood of default obviously increases.

The anticipated higher default rate for the private-label securities underwritten by the investment banks is confirmed by the graph below:

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65 Id.
For each cohort of loans -- 2005, 2006, and 2007 -- the default rate for the private label Alt A loans is more than twice that of the Fannie Mae Alt A loans.

Besides securitizing loans, the investment banks, together with the large commercial banks, were a major source of financing for the subprime lenders. In addition, the investment banks also had subprime lending subsidiaries. Bear Stearns owned and operated EMC Mortgage, while Merrill Lynch bought First Franklin, a non-bank lender that used only independent loan brokers who were paid on commission. 66 BNC Mortgage Inc. was part of Lehman Brothers. 67 However, more significant was the fact that the investment and commercial banks funded the operations of the non-bank subprime lenders. For example, the 10-Q report for New Century Financial Corp., for the quarterly period ended June 30, 2006, disclosed:

We have credit facilities with Bank of America, N.A., Barclays Bank PLC, Bear Stearns Mortgage Capital Corporation, Citigroup Global Markets Realty Corp., Credit Suisse First Boston Mortgage Capital LLC, Deutsche Bank Securities, Inc., IXIS Real Estate Capital Inc. (formerly known as CDC Mortgage Capital Inc.), Morgan Stanley Mortgage Capital Inc., UBS Real Estate Securities Inc., Goldman Sachs Mortgage Company, State Street Bank and Trust Company and Guaranty Bank, and we also have an asset-backed commercial paper facility. We use these facilities to finance the actual funding of our loan originations and purchases and to aggregate pools of mortgage loans pending sale through securitizations or whole loan sales. We typically sell all of our mortgage loans within one to three months of their funding and pay down the credit facilities with the proceeds. 68

67 The Center for Public Integrity, supra note 56, at 15. In addition, some of the largest commercial banks also had the subprime lending units, including Wells Fargo, J.P. Morgan Chase, Citigroup, and HSBC Holdings. Id.
From a dollar standpoint, there was a $3 billion line of credit from Bank of America, $1 billion from Barclays, $800 million from Bear Stearns, $1.5 billion from Credit Suisse First Boston, $3 billion from Morgan Stanley, and $450 million from Goldman Sachs, as well as additional billions from the major commercial banks. The financial statements of New Century for this period showed $9,303,086,000 of mortgage loans held for sale and $8,786,300,000 of credit facilities on such loans. In other words, the investment and commercial banks were providing almost 100% financing.

What drove the investment banks to fund the subprime lenders and securitize their loans? It is the same incentives that drove the subprime lenders: revenues translating to earnings, leading to stock appreciation and executive compensation. The stock performance of Merrill Lynch from 2003 to 2008 is not unlike that of Countrywide:

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69 Id. at 67-69.
70 Id. at 5.
71 Since Merrill Lynch is no longer publicly traded, this graph was developed from data available from Thomson Reuters “Datastream.” The code for Merrill Lynch is 922060. Cf. the stock price graph for Countrywide at note 45 supra.
into the 30s around the start of 2003. After aggressively getting into the subprime mortgage game, the stock rose into the 90s in 2007 and then dropped precipitously when the subprime crisis unfolded. While the Dow Jones industrial average increased about 50% in that period, this increase paled in comparison to Merrill Lynch which increased about 200%. There is a similar pattern with Wall Street bonuses as disclosed by the comptroller of New York State, except that bonuses have not yet dropped precipitously:

The average Wall Street bonus increased from $74,140 in 2001 to $99,930 in 2003. However, between 2003 and 2006, it almost doubled to $190,600. Funding the subprime lenders and packaging subprime mortgages into securities paid off handsomely during those years.

In the previous section, it was asserted that stock options do not align the interests of management with those of the shareholders. The New York Times recently did an analysis of how shareholders and management would fare after Merrill Lynch's "new" incentive plan was introduced in 2006. The article stated that the incentive program "did not keep workers from taking risks that nearly

72 See Yahoo Finance, Dow Jones Industrial Average, http://finance.yahoo.com/echarts?s=%5EDJI#chart10:symbol='dji';range=my;indicator=volume;charttype=line;crosshair=on;ohlcvalues=0;logscale=on;source=undefined (last visited Oct. 9, 2009).
74 Id.
75 See supra note 50.
76 See Louise Story, In Merrill's Failed Plan, Lessons for Pays Czar, N.Y. TIMES, Oct. 8, 2009, available at http://www.nytimes.com/2009/10/08/business/08pay.html?_r=1&th&emc=th (the articles summarize the plan as follows: "Tie executives’ compensation to their company’s stock price. Withhold big paydays for years. Claw back bonuses if things go wrong. And force risk-loving traders to gamble with their own money, not just their company’s.")
sank a brokerage giant." But the major risks were taken in the period 2004 to 2006, before the plan went into effect, so the plan cannot be blamed for the risks that the employees took. However, it does demonstrate that the incentive program did not align the interests of managers and shareholders. The study compared a $2 million investment by private investors with a $2 million investment by company management. The executives would have realized a $570,000 gain on their investment, or an annualized return of 9%, whereas the private investors would have lost $1.55 million, or -45% return on their investment. The top six executives would have lost money because they had a less favorable match of company contributions, but they still would have lost less than the private investors.

E. The rating agencies

Probably the most reprehensible players in the subprime crisis have been the credit rating agencies. It is clear that the goal of mortgage brokers, mortgage lenders and investment banks is to make money for the benefit of their shareholders. With respect to the credit rating agencies, on the other hand, while they are in business, their business is involved with the public trust. They are seen, or rather had been seen, as institutions upon whom investors could rely for impartial judgment. Investors around the world relied upon their analysis. Mortgage-backed securities and collateralized debt obligations are complex instruments,77 which few investors would have the time or expertise to analyze. Standard and Poor’s said that "Lehman and AIG are included in 2634 tranches of 1889 synthetic CDO’s."78 The Securities and Exchange Commission has observed:

Some investors use the credit ratings to assess the risk of the debt instruments. In part, this may be due to the large number of debt instruments in the market and their complexity. Other investors use credit ratings to satisfy client investment mandates regarding the types of securities they can invest in or to satisfy regulatory requirements based on certain levels of credit ratings, or a combination of these conditions. Moreover, investors typically only have looked to ratings issued by Fitch, Moody’s, and S&P, which causes the arrangers of the subprime RMBS and CDOs to use these three NRSROs to obtain credit ratings for the tranche securities they brought to market.79

As previously discussed, the period 2004 to 2007 was a critical one in terms of the deterioration of quality of the mortgages that were securitized.80 In 2004, Moody’s and Standard & Poor’s eased their standards under pressure from Wall Street to enable more securities to be rated AAA. They changed their rating models to accommodate more concentration in one type of asset and utilize a hypothetical

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See supra text at notes 8-16.
investment pool. The overall effect was to create more AAA (the supposedly safest type) securities.\(^81\) Thereafter, one study found that the value of AAA-rated mortgage-backed securities (as measured by the corresponding credit default swaps prices) had fallen by 70 percent between January 2007 and December 2008.\(^82\) Accordingly to another report, by August 2008, Moody's had downgraded 90% of all asset-backed CDO investments issued in 2006 and 2007, and Standard & Poor's had downgraded 84% of the CDO tranches it rated.\(^83\) Moreover, they had downgraded 85% and 76% respectively of the AAA's they had rated.

What happened? Basically the rating agencies were bought off by the underwriters. At one time, the creditor rating agencies charged a subscription fee to subscribers to cover their rating activity.\(^84\) That has changed: the current practice is that the company or issue being rated pays the fee. Thus, there is an inherent conflict of interest. Standard & Poor's, for example, claimed that such a conflict was not a concern since it rated 37,000 issues.\(^85\) However, with respect to structured financial products such as the securitized mortgages, the rating agencies could charge almost three times as much as they charged for rating corporate bonds.\(^86\) This created a huge incentive "to get the business." While there are those who advocate going back to a subscription fee,\(^87\) the rating agencies disagree.\(^88\)

But the fees paid for rating services were not the only conflicts of interest that infected the rating process. SEC Chairman Cox last year observed that “structured products were specifically designed for each tranche to achieve a particular credit rating — and the ratings agencies then made a lucrative business of consulting with issuers on exactly how to go about getting those ratings. Selling consulting services to entities that purchased ratings became a triple-A conflict of interest.”\(^89\) Fortunately, the SEC has just adopted a new rule prohibiting this activity.\(^90\)

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84 See Standard & Poor's Ratings Services Statement, Role and Function of Credit Rating Agencies in the U.S. Securities Markets, SEC public hearing, Nov. 15, 2002, available at http://www.sec.gov/news/extra/credrate/standardpoors.htm (“Since 1968, Standard & Poor's has charged issuers for its credit rating services. The practice was implemented because of increasing costs related to credit ratings surveillance and the growing need for more ratings coverage. Prior to that, Standard & Poor's provided its credit ratings services on the basis of subscription fees, which were not adequate to offset the increased costs of maintaining a high level of quality in this business.”)

85 Id.


87 See Pagano & Volpin, supra note 82.


90 Rule 17g-5(c)(5), 17 C.F.R. §240, adopted 74 FR 6456 (Feb. 9, 2009).
Of the three rating agencies, Moody's is the only freestanding, publicly traded agency. Once again, it is instructive to look at the stock price movement during the time of the subprime crisis. From 2003 to 2007, the price of Moody's advanced from $20 a share to about $70 a share, or increase of about 250%. See chart below. The process repeats itself: more business means more income means stock appreciation. There is nothing wrong with this process so long as the increased business is legitimate.

How do you change the mindset that "let's hope we are all wealthy and retired by the time this house of cards falters." One way would be to go back to the practice that prevailed before 1970 and have the investor, rather than the issuer, pay the fee. However, the implementation process and costs for such a change over would be substantial; accordingly, a study presented to the British Treasury and Bank of England recommended that “issuers should pay an upfront fee irrespective of the rating issued (the so-called “Cuomo plan,” named after NY Attorney General Andrew Cuomo) and credit shopping should be banned.”

Another possibility would be to subject the rating agencies to civil liability. Currently, rating agencies are insulated from liability under section 11 of the federal securities act. Legislation now

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91 Moody's became an independent, publicly traded company as a result of a spinoff on Sept. 30, 2000. For a history of the various spinoffs by which Moody's became an independent company, see its 2002 10-K. report, Item 1: Business -- Background, available at http://www.sec.gov/Archives/edgar/data/1059556/000095012303003112/y83456e10vk.htm
92 See Yahoo Finance, Moody's Corp., http://finance.yahoo.com/echarts?s=MCO#chart1:symbol=mco;range=my;indicator=volume;charttype=line;crosshair=on;ohlcvvalues=0;logscale=on;source=undefined (last visited Oct. 9, 2009).
94 See Pagano & Volpin, supra note 82, at 3.
95 See 15 USC §77k, Rule 436(g)(1), 17 CFR §230. 436(g)(1), provides that a rating which is assigned to a security "shall not be considered a part of the registration statement prepared or certified by a person within the meaning of sections 7 and 11 of the Act"
being introduced in Congress would reverse that.\textsuperscript{96} However, the rating agencies contend that their ratings are opinion is which are protected under the First Amendment as free speech.\textsuperscript{97}

F. Derivatives: AIG and credit default swaps

No analysis of the financial meltdown would be complete without examining the role of derivatives, particularly credit default swaps (“CDS”), which Warren Buffett has characterized as “instruments of mass destruction.”\textsuperscript{98} One of the difficulties, however, is the lack of information. While Brooksley Born, the former head of the Commodity Futures Trading Commission, foresaw the risks from these instruments and sought to regulate them,\textsuperscript{99} the Clinton administration, led by Rubin and Sommers,\textsuperscript{100} in conjunction with Alan Greenspan,\textsuperscript{101} squelched her efforts and induced Congress, under the leadership of Sen. Phil Gramm, to enact legislation freeing derivatives from regulation.\textsuperscript{102}

Following this, the President’s Working Group on Financial Markets in 1999 concluded that “the trading of financial derivatives by eligible swap participants should be excluded from the CEA. To do otherwise would perpetuate legal uncertainty or impose unnecessary regulatory burdens and constraints upon the development of these markets in the United States.”\textsuperscript{103} At this time, the volume of OTC derivative contracts was $80 trillion. It is now reported that the volume has grown to $604.6 trillion. The markets have certainly developed. Compare this to our gross domestic product in 2008 of about $14.2 trillion.\textsuperscript{104} Derivative contracts, however, are reported in notional value, in other words, if you had a $1 million dollar loan, the notional value of a derivative credit default swap contract is reported as

\begin{びん}{footnote}

\textsuperscript{97} See Standard & Poor’s Ratings Services Statement, \textit{supra} note 84 (“Today, credit rating agencies are free to develop and publish their credit rating opinions under strong First Amendment protections. Indeed, it is Standard & Poor’s key role as a publisher of credit ratings and financial information that has been the basis for judicial recognition of significant First Amendment protections afforded to Standard & Poor’s.”). \textit{See also} Frank Partnoy, \textit{How and Why Credit Rating Agencies Are Not Like Other Gatekeepers}, \textit{http://papers.ssrn.com/sol3/papers.cfm?abstract_id=900257} (last visited Oct. 9, 2009).


\textsuperscript{101} \textit{See} Goodman, \textit{supra} note 100.


\textsuperscript{104} See Google “Gross Domestic Product,” \textit{available at} http://www.google.com/publicdata?ds=wb-wdi&met=ny_gdp_mktp_cd&idim=country:USA&dl=en&hl=en&q=gross+domestic+product
\end{びん}{footnote}
$1 million, even though the risk of loss may not be anywhere near that figure. But the fact that credit default swaps are privately traded make transparency, and accurate information, difficult.

According to the Comptroller of the Currency, in the third quarter of 2009, US commercial banks held $204.3 trillion of derivative contracts, and the current credit exposure was $484 billion. This report, however, covered only a fraction of the overall derivatives market and gives gross information without significant detail. In previous reports, the Comptroller of the Currency noted that “[f]rom 2003 to 2007 creditor derivative contracts grew at a 100% compounded annual growth rate,” from about $1 trillion in 2003 to about $16 trillion in 2007. This is illustrated below:

<table>
<thead>
<tr>
<th>Derivative Contracts by Type ($ Billions)*</th>
</tr>
</thead>
<tbody>
<tr>
<td>$ in billions</td>
</tr>
<tr>
<td>------------------------------</td>
</tr>
<tr>
<td>Interest Rate</td>
</tr>
<tr>
<td>Foreign Exchange</td>
</tr>
<tr>
<td>Equities</td>
</tr>
<tr>
<td>Commodity</td>
</tr>
<tr>
<td>Credit Derivatives</td>
</tr>
<tr>
<td>TOTAL</td>
</tr>
</tbody>
</table>

*In billions of dollars, notional amount of total futures, exchange traded options, over-the-counter options, forwards, and swaps.

As of Q206 equities and commodities types are shown as separate categories. They were previously shown as “Other Derive.”

The federal government’s bailout of AIG, which could be as much as $182.5 billion, has prompted Congress to seek detail from AIG about its derivative activity. Unfortunately, the SEC initially supported AIG in keeping secret the details of AIG’s funneling of millions of dollars of bailout money to major financial institutions to satisfy, arguably at 100 cents on the dollar, AIG’s obligations under credit default swaps it issued to the institutions. The exhibit detailing this information was recently disclosed to the public, listing more than a dozen financial institutions, domestic and foreign,

106 Id.
108 OCC 2008 Report, supra note 9, at 5.
109 Id. at 10, fig.2.
110 Id.
115 Id.
that were the beneficiary of the credit default swaps issued from AIG.\textsuperscript{116} It also listed the various tranches of mortgage-backed securities that were insured\textsuperscript{117} and the notional value of the credit default swaps, or CDSs, namely, $62,129,000,719,482, which reflected an obligation of AIG under the CDSs of $32,543,783,557.\textsuperscript{118}

What were the incentives that led AIG, which had prided itself on its AAA credit rating, and its ability to manage and hedge risk, to incur liabilities of this magnitude?

By way of background, the “quants”\textsuperscript{119} behind AIG’s entry into the derivative business were Howard Sosin and Randy Rackson. When they left Drexel to form the Financial Products unit at AIG, they negotiated for 38\% of the profits,\textsuperscript{120} a nice incentive, and set up a system that supposedly “married technology, intelligence, verve, and cultural discipline.”\textsuperscript{121} According to them, “[t]he excitement of it wasn’t the money. The money was the scorecard. The drive behind it was creating something new.”\textsuperscript{122} The first derivative they entered into was a $1 billion interest rate swap that was ten times larger than the typical Wall Street swap at that time. A swap of this sort had minimal exposure vis-a-vis its notional value and could be hedged. It earned Financial Products $3 million, as much as AIG’s other financial operations earned in a year.\textsuperscript{123} This encouraged additional focus upon derivatives.

Ten years later, Financial Products created a new derivative contract, a credit default swap, or CDS. This instrument looked like it could mint money; the computer model showed that AIG would have a 99.85\% chance of never having to make any payment.\textsuperscript{124} Tom Savage, the president of Financial Products at that time, stated that “[t]he models suggested that the risk was so remote that the fees were almost free money. Just put it on your books and enjoy the money.”\textsuperscript{125} However, the computer models were based upon corporate debt, a subject upon which there existed years of historical financial data. Unfortunately, AIG moved into guaranteeing securities involving mortgage-backed securities, or MBSs, including collateralized debt obligations, or CDOs, which increasingly incorporated subprime and alt A loans. Not only were there limited historical data on these loans, but the data that did exist were stale since, as discussed earlier, underwriting standards were eroding.\textsuperscript{126} Paul Wilmot, one of the world’s leading quants, stated with respect to CDOs: “They built these things on false assumptions

\begin{footnotesize}
\begin{itemize}
\item \textsuperscript{116} AIG, Schedule A – List of Derivative Transactions, available at http://static.reuters.com/resources/media/editorial/20100127/Schedule%20A.pdf
\item \textsuperscript{117} Id. at 5.
\item \textsuperscript{118} Id.
\item \textsuperscript{119} “Quants” is the designation in financial circles of highly educated and sophisticated people who do quantitative analysis, basically the application of higher mathematics to finance. Sosin was a finance scholar who had honed his theories at Bell Labs before moving to Drexel Burnham Lambert, while Rackson was a computer wizard from the Wharton business school. See Robert O’Harrow Jr. & Brady Dennis, What Went Wrong: The Beautiful Machine, WASH. POST, Dec. 29, 2008, http://www.washingtonpost.com/wp-dyn/content/article/2008/12/28/AR2008122801916_pf.html
\item \textsuperscript{120} O’Harrow, Jr. & Dennis, supra note 119, at subdiv. 3.
\item \textsuperscript{121} Id.
\item \textsuperscript{122} Id.
\item \textsuperscript{123} Id., at subdiv. 4.
\item \textsuperscript{125} Id.
\item \textsuperscript{126} See supra Part II, text at notes 8-16.
\end{itemize}
\end{footnotesize}
without testing them, and stuffed them full of trillions of dollars. How could anyone have thought that was a good idea? … We don’t have the tools yet to truly price them. People thought we did, but they were nowhere near robust enough." In other words, garbage in equals garbage out.

It was the reliance upon its AAA rating that, in part, led to AIG’s downfall. To appreciate this, consider the interrelationships between the CDOs issued by the investment bankers and the credit default swaps issued by AIG. As stated earlier, a CDO is a complex instrument. First, take a pool of mortgages whose tranches are rated from AAA to BB or even unrated. Then take slices, some BBB, some BB and lower, and put them in a CDO. Even though none of the mortgage slices are AAA, the rating agencies would give the top tranches of the CDO an AAA rating, arguably because it had the first claim on payments in the CDO pool and was undergirded by the lower tranches. This is somewhat similar to the medieval alchemists who supposedly made gold out of base metal. To enhance the top tranche, the investment bankers would purchase credit default insurance from AIG or another vendor.

The AAA tranche now looks good to investors. In fact, so good that there was less interest in the lower rated tranches, with the result that the financial institutions who syndicated the lower rated CDOs got stuck with them, a subject discussed in the next section. But the AAA tranche was readily salable: its income was undergirded by the lower tranches and was guaranteed by AIG, with its AAA credit rating; consequently it was rated AAA by the rating agencies.

The problem was that, by 2007, “[d]eals were flying out so fast that the Wall Street firms sometimes could not tell investors what specific collateral was going into which CDO, making a mockery of anyone who tried to do a fundamental analysis of the assets backing the bonds before agreeing to buy.” For example, in February and March of 2007, Merrill Lynch sold $29 billion of securities, 60% more than any other two-month period. Leading to the profits and stock price growth previously discussed. But, even under the pressure of this volume, the rating agencies were churning

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128 The tranching process itself is deceptive. The SEC explained the process as follows:

For example, if a trust issued securities in 10 different tranches of securities, the first (or senior) tranche would have nine subordinate tranches, the next highest tranche would have eight subordinate tranches and so on down the capital structure. Losses of interest and principal experienced by the trust from delinquencies and defaults among loans in the pool are allocated first to the lowest tranche until its principal amount is exhausted and then to the next lowest tranche and so on up the capital structure. Consequently, the senior tranche would not incur any loss until the principal amounts from all the lower tranches have been exhausted through the absorption of losses from the underlying loans.

See Proposed Rules for Nationally Recognized Statistical Rating Organization, Exchange Act Release No. 34-57967 [File No. S7-13-08] at 11 (June 16, 2008), at 9-10. This suggests a linear relationship, in other words, the top tranche is supported by the assets and income expected by the other nine tranches. But, for example, in the Ameriquest Mortgage Securities Inc/Asset Backed Pass-Through Certificates/Series 2005-R11 . 424B5, Dec. 19, 2005, SEC File 333-121781-11, in a $1,793,610,000 offering of mortgage backed securities, five tranches totaling $1,483,410,000 were rated AAA, and another seven tranches totaling $251,650,000 were rated A- or better. The last three tranches, rated BBB+ to BBB-, totaled only $58,550,000. So, while there were twelve tranches below the AAA tranches, they totaled only 17% of the offering. SEC Info - Ameriquest Mortgage Securities Inc/Asset Backed Pass-Through Certificates/Series 2005-R11, http://www.secinfo.com/df66r.z2F9.htm, at 1, 88 (last visited Feb. 16, 2010).
out their triple-A ratings for securities that, in a few months, the rating agencies would be downgrading.\textsuperscript{130}

Then came the chain reaction. Apparently, AIG did not need to post collateral as long as it maintained its own AAA rating. But, when it was downgraded to AA, it was required to post collateral as the CDOs began to default. As the CDOs were downgraded, more collateral calls came, triggering a liquidity crisis.\textsuperscript{131} To complete the picture, as the CDOs dropped in value, the capital of the financial institutions became impaired.\textsuperscript{132} As stated above, this problem is addressed in the following section.

There are several issues with the derivatives known as credit default swaps. One is the problem of transparency, that is, the lack of information not only about volume but also the resources, or lack thereof, backing the guarantee. The CDOs are essentially incomprehensible.\textsuperscript{133} But neither the underwriter nor the buyer nor the rating agency needed to worry when a AAA business like AIG was guaranteeing the obligation. Assuming, of course, AIG has the financial wherewithal to support its guarantee. The problem is similar to that of the mortgage bankers: they did not need to worry about the credit worthiness of the mortgagor if they could sell the mortgages to an investment banker who would securitize them. With respect to the resulting CDOs, neither the underwriter nor the buyer needed to worry as long as the rating agency gave the instrument a AAA rating and a AAA company like AIG guaranteed the obligation. With no likely liability, no need to do due diligence! Everybody was making so much money, or so they thought, that nobody needed to worry.

The second issue is that the credit default swap is unlike an interest rate swap or currency swap in which a party is trying to hedge its risk from activities, such as the change in interest rates or a change in currency value, over which it has no control. But in a credit default swap, the creditor who is seeking protection from another is the very person who has the greatest opportunity to assess the risk because the creditor is directly involved in creating the debt instrument. Thus, there is a marked asymmetry in information between the creditor who seeks protection, and who has or should have done the due diligence and have the relevant information, and the issuer of the swap who provides protection.

Accordingly, from a policy perspective, should credit default swaps even exist? Just because an “innovative” financial instrument can be created, does not necessarily mean that it should be created. While there are those who consider all derivatives gambling, there is no question that interest rate swaps and currency swaps fulfill a useful business function through hedging risks that neither party controls. But to carry forward the gambling analogy, CDSs are gambling with loaded dice since the insured has better data than the insurer.

Assuming that they do continue to be employed, regulators are currently considering a central clearinghouse to provide some degree of transparency. As the Comptroller of Currency stated in its 2008 report, “[t]he OCC is working with other financial supervisors and major market participants to address

\textsuperscript{130} See supra text accompanying notes 82- 83.
\textsuperscript{132} See supra text accompanying notes 128-129 and infra notes 141-149 (discussing how large banks are unable to sell the lower rated tranches and are thus holding toxic assets on their balance sheet).
\textsuperscript{133} See supra note 128.
infrastructure issues and credit derivatives, including a central counterparty clearinghouse strategy.”

Even the 1999 President’s committee report recognized:

[C]learing systems can serve a valuable function in reducing systemic risk by preventing the failure of a single market participant from having a disproportionate effect on the overall market. Clearing systems also facilitate the offset and netting of obligations arising under contracts that are cleared through the system. Because they may serve to concentrate diffuse credit risks in a single entity, however, clearing systems should be subject to regulatory oversight in order to help ensure that proper risk management procedures are established and implemented and that the clearing system is properly structured.

Legislation has now been introduced that would regulate derivatives and create a clearing authority. This is a minimalist response, which has some support from industry. The industry survey reported that “[t]he case is most pressing for credit default swaps” which, as stated above, are instruments replete with moral hazard. It remains to be seen whether there is bi-partisan political support to at least take this minimalist step.

IV. Why the Paulson and Geithner Plans Are Not Working: The Banks’ Incentive to Sit Tight

The purpose of last September’s financial institution bailout was to stem what was feared could be a worldwide financial crash. In particular, if credit dried up, a recession, or worse, depression, could result. By bailing out the banks, it was hoped that they would continue lending so that business would not be brought to a standstill. Measured by the rate of bank lending, the bailout itself, and the Paulson and Geithner implementation of it, while preventing a total meltdown, has not restarted lending activity by the banks. From 2000 to the start of 2008, there had been a fairly steady increase in lending activity from $3.7 trillion to $6.9 trillion. In the spring and summer of 2008, lending was essentially flat. After the bailout, there was a brief, month-long upward spike to $7.3 trillion. But, from October, 2008 to September 2009, there has been a steady decrease in bank lending to approximately $6.85 trillion, a decrease of almost 1/2 trillion dollars. In addition, securitization of private-label mortgages (non-GSE) has come to a standstill, reducing the availability of home mortgage credit.

Why then are the banks not lending? The likelihood is that many banks are insolvent, or that their capital remains impaired, even after the infusion of capital by Secretary Paulson, if their balance sheets were to show the current value of their assets. In addition, there is concern that a commercial

\begin{itemize}
  \item \textsuperscript{134} OCC 2008 Report, supra note 105, at 6.
  \item \textsuperscript{135} The Over-the-Counter Derivatives Markets Act of 2009, available at http://www.financialstability.gov/docs/regulatoryreform/titleVII.pdf.
  \item \textsuperscript{137} Id.
  \item \textsuperscript{138} Prior to the federal bank bailout, Secretary Paulson met with members of Congress and Senator Dodd reported that Paulson told them: "Unless you act, the financial system of this country and the world will melt down in a matter of days.” Senator Dodd added: “There was literally a pause in that room where the oxygen left.” FRONTLINE, (PBS television broadcast Feb. 18 2009), available at http://www.pbs.org/wgbh/pages/frontline/meltdown/etc/script.html.
  \item \textsuperscript{139} See Federal Reserve Bank of St. Louis, Economic Research: Series TOTLL, Total Loans and Leases of Commercial Banks, updated Sept.28, 2009, available at http://research.stlouisfed.org/fred2/series/TOTLL is a ?cid=100.
  \item \textsuperscript{140} Jenny Anderson, A Thirst for Credit, N.Y. TIMES, Oct. 7, 2009.
\end{itemize}
mortgage meltdown may be coming. While Secretary Paulson initially indicated that the purpose of the Emergency Economic Stabilization Act ("EESA") was to purchase troubled assets, he quickly shifted to infusing capital into the banks. History has shown that this was a good move since it forestalled a complete breakdown of the financial system; on the other hand, the Troubled Asset Repurchase Program ("TARP") is just getting under way, or at least the Public-Private Investment Program ("PIPP") part of it. The FDIC announced in June that it was temporarily suspending the LPP program, supposedly because the banks’ ability to raise private capital had lessened their need to sell the toxic assets. The counterpoint to this explanation is that there were no buyers. It has been reported that the banks think the toxic assets are worth about $.60 on the dollar, whereas private investors want to pay about $.30 on the dollar. With that large a spread in value, it would not be surprising that deals were not done.

Recently, however, the Treasury announced that a scaled-down program would soon be operating. However, it is anticipated that this program will only buy $12 billion, a tiny fraction of the trillions of dollars invested in troubled assets. The International Monetary Fund recently announced that

Sample Investment Under the Legacy Loans Program

Step 1: If a bank has a pool of residential mortgages with $100 face value that it is seeking to divest, the bank would approach the FDIC.

Step 2: The FDIC would determine, according to the above process, that they would be willing to leverage the pool at a 6-to-1 debt-to-equity ratio.

Step 3: The pool would then be auctioned by the FDIC, with several private sector bidders submitting bids. The highest bid from the private sector – in this example, $84 – would be the winner and would form a Public-Private Investment Fund to purchase the pool of mortgages.

Step 4: Of this $84 purchase price, the FDIC would provide guarantees for $72 of financing, leaving $12 of equity.

Step 5: The Treasury would then provide 50% of the equity funding required on a side-by-side basis with the investor. In this example, Treasury would invest approximately $6, with the private investor contributing $6.

Step 6: The private investor would then manage the servicing of the asset pool and the timing of its disposition on an ongoing basis – using asset managers approved and subject to oversight by the FDIC.


143 See Statement by Secretary Henry M. Paulson, Jr. on Emergency Economic Stabilization Act, U.S. Dept. of the Treasury, Sept. 28, 2009, available at www.treas.gov/press/releases/hp1162.htm. (“This bill provides the necessary tools to deploy up to $700 billion to address the urgent needs in our financial system, whether that be by purchasing troubled assets broadly, insuring troubled assets, or averting the potential systemic risk from the disorderly failure of a large financial institution.”)

144 PIPP has two elements: a "Legacy Loans Program," ("LLP") and a "Legacy Securities Program," ("LSP"). The funds contributed by the government and a private investor would go into a Public-Private Investment Fund ("PPIF"), which would be managed by a fund manager. The Fact Sheet set forth the following example as to how the LLP would work:
worldwide financial institutions still held about $2.8 trillion in troubled mortgages and securities, and that losses had been booked on less than half that amount. It can be seen from the spread referenced in the preceding paragraph why banks have little incentive to sell their troubled assets. While financial institutions supposedly are required to mark their assets down to market value, the recent changes in these rules have postponed the day of reckoning.

Banks currently have little incentive to modify the troubled assets so that the homeowner could pay a reduced monthly payment and still stay in the home. It seems that banks would rather go through the foreclosure process because, since this can stretch out to as much as 18 months. This defers the day of reckoning, even though the banks often realize less as a result of foreclosure than what they might realize from negotiating with the borrower. One study indicated that the average loss on a mortgage foreclosure was $132,761 or 63% of value, while the average loss on a modification was $25,968 or an average loss of just under 13%.

The Obama administration’s "Making Home Affordable" program was supposedly designed to enable homeowners to refinance into more stable, affordable loans. However, as indicated above, banks, at present, have little incentive to participate in the program. The most recent report of the Congressional Oversight Panel was highly critical of the program as being inadequate to address the continuing and increasing wave of foreclosures. The report observed that each foreclosure “imposes direct costs on displaced owners and tenants, and indirect costs on cities and towns, and neighboring homeowners whose property values are driven down.”

Since banks have little incentive to renegotiate mortgages, one way to have encouraged voluntary renegotiation would be to have permitted bankruptcy judges to lower the amount owed on a home mortgage. Sen. Durbin of Illinois introduced a bill to amend the bankruptcy code to restore a power that some bankruptcy judges had exercised prior to the Supreme Court decision in Nobleman v. American Savings Bank, which held that such power did not exist under the existing bankruptcy

148 Id.
150 See, for example, Eric Lipton, No Easy Workout, N.Y. TIMES, Apr. 17, 2009, available at http://www.nytimes.com/2009/04/17/business/smallbusiness/17debt.html. The owners of the Fayetteville Athletic Club offered to pay $6 million immediately and an additional 1 million upon the future sale of the club, if the FDIC, which had taken over the bank that made the loan, would accept that in settlement of their $10 million debt. Instead, it was sold to a “vulture investor” who paid $.34 on the dollar, a price far below what the owners were willing to pay.
151 Professor Alan M. White, of Valparaiso University School of Law, has analyzed data on 3.5 million subprime and alt-A mortgages in securitization pools overseen by Wells Fargo. For the month ending March 25, 2009, there were 460,775 foreclosures but only 20,894 mortgage modifications. Prof. White's data is available at http://www.valpo.edu/law/faculty/awhite/data/index.php.
154 Id. at 1.
155 S. Res. 61, 111th Cong., 2009.
code. Passage of this bill would have put pressure on lenders to voluntarily renegotiate and might have made the "Making Home Affordable" program more effective. Unfortunately, it did not pass.

V. Conclusion

If you want to avoid a new crisis, logic would suggest eliminating the incentives that gave rise to the initial crisis. This would require concerted effort at both the state and federal level. Part of the problem should be easy to resolve. There is no reason that liars’ loans should ever exist. Some sort of documentation is always available. If the elimination of liars loans were coupled with imposing fiduciary responsibilities on mortgage brokers and a similar type obligation on mortgage lenders, namely, that borrower information should be obtained and should support a reasonable likelihood that the borrower will be able to meet his or her payment obligations, a large step will be taken to forestall future problems. Unfortunately, the House Financial Services Committee has already buckled under lobbying pressure and deleted such a provision from a draft bill.

The business of business is to make money. Lenders should make loans and investment bankers should securitize loans. The key is to ensure that the loans make sense. Thus, the steps suggested in the above paragraph. However, it may be argued that this will inhibit financial innovation. Maybe it should. Some of the products that were created make little overall economic sense. As Warren Buffett has stated, risk comes around because you don’t understand something; better to “keep it simple.” It is questionable whether collateralized debt obligations are appropriate instruments to be securitized and sold to the general investment community.

A serious problem has been the lack of “skin in the game.” Lenders could lay off risk by selling to investment banks, who in turn would securitize the mortgages. Neither needed to worry about the borrowers’ ability to repay, absent fraud or a rule 10b-5 disclosure liability, because they have sloughed off their economic risk. From an economic and efficiency perspective, it is more desirable to avoid bad loans, than to litigate the nuances of adequate disclosure, or the lack thereof. Proposed legislation would require a “securitizer” to retain at least five percent of the credit risk. Even if such legislation is passed, is five percent sufficient? The upfront fees generally exceed this amount. Thus, you can be exposed to five percent liability and still make money.

157 Many home owners had successfully argued that, when the balance on their loan was less than the value of the property, the loan was bifurcated such that the part of the mortgage represented by the existing value of the home was a security interest which could not be released in bankruptcy, but that the excess was unsecured and could be released.


Incentives are important, but it is also important to ensure that incentives are properly aligned. There is enough data today to suggest that stock options, as presently structured, create a short-term focus for management and do not align management’s interests with those of the shareholders. Thus, there is the incentive to move the price of the stock upward in the short term, without adequate concern for the long-term. This pattern is demonstrated in the stock charts for Countrywide, Merrill Lynch, and Moody's. Legislation is needed that would disallow deductibility for, or otherwise inhibit, compensation schemes that do not have a clawback provision so that executives, who are compensated based upon fictitious earnings, do not walk away with their ill-gotten gains.

It makes little sense for the person who is seeking the rating to pay the rating agency. This is a conflict that cannot be avoided. Disclosure of the conflict and the elimination of some conflicts, such as the rating agency instructing the issuer on how to get a better rating, should help, but the basic conflict of interest still exists. At a minimum, issuers should pay an upfront fee irrespective of the rating issued, and credit shopping should be banned.

It also makes little sense for the financial institution that creates the debt or securitized instrument to purchase credit insurance from an entity such as AIG. Because of the informational asymmetry, this enables the creator of the instrument to insure against its own lack of due diligence. However, the overall key to avoiding crises such as the present is integrity and courage. The corporate culture needs to reject the ethic reflected in “let's hope we are all wealthy and retired by the time this house of cards falters.” And politicians need the courage to stand up to lobbying pressure and do what is necessary, both to solve the present crisis and to avoid future ones. It will take more political courage than has been shown thus far to enact legislation that will reverse the incentives to again create excessive systemic risk.