

THE FINANCIAL CRISIS OF 2008

Mark Kasdorf
Boston University School of Law

Abstract

Events in the financial markets over the past 14 months have had a significant impact on university faculty and programs: endowments have decreased; student loans have been impaired; research and program support have decreased; retirement funds have been affected; and a high degree of uncertainty has permeated through nearly every budgetary decision made at universities. This paper examines some of the root causes of the financial situation, attempting to provide a history of how we have arrived at today and to gain some insight at what tomorrow will hold.

Introduction

Events over the past 15 months have had startling effects on nearly every facet of society. University faculty and students have not been spared from fallout of the financial market crisis. In the 2007 fiscal year, college endowments had an aggregate value of \$411.1 billion.[1] As events play out, by the end of fiscal year 2009, this amount is likely to drop by at least 30% to \$287.77 billion. As 2009 begins, all aspects of university life will be affected: funding for laboratory facilities; grants for both students and faculty; state and federal aid for student tuition; availability of student loans; faculty and staff salaries and retirement plans; funding for non essentials such as athletics and drama programs; and nearly any other aspect of university life that requires some form of capital contribution to support. This paper examines some of the contributing factors and events leading up to the current situation in the financial markets as well as presenting some suggestions as to what the future might hold.

As early as March 2007, the first headlines began sporting the term "Subprime Crisis".[1] On October 9, 2007, the Dow Jones Industrial Av-

erage hit an all-time high of 14,164.53.[2] On December 4, 2008, the market had dropped over 40% amid extraordinarily volatile trading,[3] the term "Subprime Crisis" has graced headlines in the *Wall Street Journal* 544 times since March 2007[4], and the subprime crisis has produced new headlines such as "Subprime Meltdown" and "Global Credit Crunch." These turbulent times beg the questions: How did we get here and where are we going?

A variety of factors have led to the current situation, but the focus of this paper will be securitization and the magic of tranching[5]. Through a combination of political pressure and Wall Street's[6] constant drive to maximize profits within the regulatory framework provided by the government, securitization has become increasingly convoluted. No longer is securitization as simple as bundling a number of like instruments and selling the newly created 'security' in order to diversify risk. Securitization has been complicated by by such contrivances as credit default swaps (CDS), structured investment vehicles (SIV),[7] collateralized debt obligations (CDO), and collateralized debt obligations squared (CDO²)[8].

This paper will begin by providing the reader with a brief history of home ownership in order to examine some of the base motivations in government policy that led to the current situation. The next several sections will provide an understanding of some of the complex financial instruments that the financial services industry has developed over the past 15 years. In the penultimate sections, the paper will examine exactly how the current situation evolved from a stable market into a financial meltdown where the likes of AIG effectively have been nationalized and 125-year old investment banks have disappeared. In the final section I will present a new structure of 'incentives'[9] to avoid similar breakdowns in the market going forward. Ulti-

mately my aim is to demonstrate that *more* regulation is not necessarily the answer so much as the *right* regulation is.

Homeownership

History

The Crisis[10] has deep roots in the mortgage industry. Although the majority of this paper will focus on securitization, some history behind political and tax pressure effects on the mortgage industry is necessary for a proper understanding. The U.S.'s stance on debt versus equity, along with an understanding of the Community Reinvestment Act (CRA) and Fannie Mae/Freddie Mac, are all factors in the current situation.

Tax Law

Tax law plays an integral part in nearly all major financial decisions. The Tax Reform Act of 1986 eliminated the standard deductibility of interest payments on all debt, but allowed for the narrower deduction on interest up to \$1,000,000 in mortgage debt and \$100,000 in home equity debt.[11] In addition to this, taxpayers are allowed a deduction of \$250,000 (\$500,000 for married couples) on capital gains from the sale of residential property if the owner used the property as their primary residence for two out of the preceding five years.[12] These tax policies create incentives for both home ownership, and more specifically, home ownership via debt.

Fannie Mae and Freddie Mac

In 1939 Fannie Mae was born[13] with Freddie Mac following in 1970.[14] Fannie Mae and Freddie Mac are government-sponsored privately-owned institutions known as "Government Sponsored Enterprises" (GSE). The President is able to appoint five of the eighteen directors of each board.[15] Public shareholders elect the rest. The Office of Federal Housing Enterprise Oversight and the U.S. Department of Housing and Urban Development regulate

both entities.[16] As a final regulatory measure, the Department of Treasury must approve any issuance of debt.[17]

Contrary to popular belief, Fannie Mae and Freddie Mac are not lending institutions. Instead, these entities provide liquidity to loan originators by taking mortgages off their books, bundling and securitizing them, and selling the securities. Fannie Mae and Freddie Mac are able to do this through their special government-sponsored status that exempts them from state taxes[18] and federal securities laws[19], offers them a line of credit from the U.S. Treasury,[20] and allows them the power to issue securities through the Federal Reserve electronic book-entry system.[21] Although Fannie Mae and Freddie Mac are not government agencies, and hence are not backed by the full faith and credit of the U.S. government, there has been a perception that the U.S. would honor their obligations in the event of financial failure.[22] This allowed them to obtain financing on terms superior to other entities in the financial industry.

Without Fannie Mae and Freddie Mac, lending within a given geographical region would freeze once that region became saturated with mortgages. By creating liquidity through securitization, Fannie Mae and Freddie Mac have allowed Americans with good credit to obtain mortgages for the last 50 years. In addition to this liquidity, banks seek to offload and/or trade loans through securitization in order to minimize excess exposure to any single market.[23]

The Community Reinvestment Act

The Community Reinvestment Act (CRA) was enacted in 1977.[24] The purpose of the act was to require depository institutions to meet the lending needs of the entire surrounding community.[25] The original law did not require high-risk lending and was extremely subjective in its enforcement. Regulations merely required that lending institutions periodically be reviewed for fair lending practices and that such records be taken into account when applying for deposit facilities.[26]

The Changes of 1999

In 1999 a variety of forces materialized to begin pressuring Fannie Mae to expand subprime credit facilities.[27] First, the Clinton administration exerted political pressure to expand mortgage offerings to low-income individuals with poor credit ratings. Second, Fannie Mae shareholders sought higher growth rates and returns than could be achieved through traditional lending. Third, banks themselves began pressing Fannie Mae to help with subprime borrowers.[28]

Finally, the Gramm-Leach-Bliley Act was passed.[29] In 1933 the Glass-Steagall Act was passed with the primary purpose of separating commercial banks from underwriters.[30] The co-mingling of these two entities was seen as having been a major cause of the Great Depression. The Gramm-Leach-Bliley Act of 1999 was a monumental piece of legislation that reversed the Glass-Steagall Act, allowing commercial banks and securities underwriters to merge. In a move not directly related to expanding subprime lending, the Clinton Administration insisted that approval of any merger between two institutions be contingent upon approval of the regulatory bodies responsible for the CRA.[31] This bolstered the regulatory power of the CRA by creating a new consequence for banks that did not abide by the terms of the CRA.[32]

Even in 1999, people saw the potential dangers inherent in such measures. In the Sept. 30, 1999 *New York Times* article "Fannie Mae Eases Credit to Aid Mortgage Lending", Steven Holmes wrote:

In moving, even tentatively, into [subprime lending], Fannie Mae is taking on significantly more risk, which may not pose any difficulties during flush economic times. But the government-subsidized corporation may run into trouble in an economic downturn, prompting a government rescue similar to that of the savings and loan industry in the 1980's.

Four years later, in 2003, the *New York Times* again commented on Fannie Mae's exposure and the unusually high level of risk that they had taken on.[33]

Historic Conclusions

Although it cannot be said that the tax system, CRA, or Fannie Mae directly caused the current financial crisis, it is important to understand how many of these historic events have impacted and shaped where we are today. The U.S. economy has been promoting home ownership as a means of wealth generation for decades. Debt has been favored over equity and has risen sharply over the years. Total mortgage debt in the U.S. as of Q2 2008 is estimated at \$14.4 trillion.[34] As of March 2008, total home equity in the U.S. was estimated at \$587 billion.

The entire mortgage market was supported by just 4.07% equity.[35] Since March this number has fallen as home values fell and equity disappeared.

There are a variety of excellent reasons for the above policies, and it is by no means the purpose of this paper to imply they are the cause of the current crisis. The above considerations are merely provided as a backdrop to the events leading up to the collapse that began in August 2007 and to help the reader understand how things began to unravel.

The Mechanics of Securitization

Definition of Securitization

Securitization is:

The sale of equity or debt instruments, representing ownership interests in, or secured by, a segregated, income-producing asset or pool of assets, in a transaction structured to reduce or reallocate certain risks inherent in owning or lending against the underlying assets and to ensure that such interests are more readily marketable, and thus more liquid

than ownership interests in and loans against the underlying assets.[36]

In simpler terms, securitization is converting third party obligations into tradable securities.

Another term for securitization is “structured financing.”[37] In general, structured financing is securitization when a large corporate borrower uses securitization as a financing tool. Such entities are able to securitize both their obligations and financial assets.[38]

The Birth of Securitization

Modern securitization began in the mid 1970s with the birth of securitization of loans by participation(LP).[39] LPs were used to securitize large loans during this time and is distinguishable from syndication among lenders.[40] Banks were willing to sell LPs for many of the reasons enumerated in the preceding section and, most notably, to generate fee income and promote liquidity.[41] Until 1999, LPs were unique in that they were not subject to the legal limitations on securities’ holdings, thus allowing banks to diversify their holdings in ways not otherwise allowed. This changed in 1999 with the Gramm-Leach-Bliley Act; since then, LPs have lost their primary advantage.[42]

Securitization by pooling was also contrived in the 1970s. The practice began with the pooling of mortgage loans.[43] These loans are pooled into special purpose vehicles (SPV) which distributes the securities issued by these pools.[44] The creation of secondary markets for these securities was quick to follow.

As early as 1973, the government created the Student Loan Marketing Association (SLMA, or Sallie Mae) to aid in securitizing student loans.[45] Until then, banks were unable to securitize such loans without aid from the government.[46] Although Sallie Mae still exists, through credit swaps banks are now able to effectively securitize such loans without aid from the government agency.

The Growth of Securitization

The growth trajectory of securitization has been tremendous. In 1989, the market for mortgage-backed securities had reached approximately \$900 billion.[47] By Q2 2008, outstanding mortgage-backed securities (MBS) had reached \$6.2 trillion in total value,[48] making it the second largest fixed income market behind U.S. Treasuries.[49] Asset-Backed Securities (ABS) had reached an aggregate outstanding balance of nearly \$2.5 trillion as of Q2 2008.[50]

Nearly anything that can be securitized has been securitized. Initially, securitization expanded from mortgage loans to auto and truck loans.[51] From there, the flood gates opened and, over the next several decades, the number of different assets that were securitized exploded to include health care and pharmaceutical receivables;[52] license and franchise fee receivables; airline ticket, hotel, and other travel receivables;[53] tax receivables;[54] trade credits;[55] equipment and automobile leases;[56] taxicab medallions;[57] computer leases;[58] municipal leases;[59] bad debts and defaults resulting from credit cards and junk bonds;[60] cosmetic surgery receivables;[61] loans made by the U.S. Government;[62] royalties from performing artists record sales;[63] natural resource assets;[64] mutual fund shares;[65] athletic venue revenues;[66] software financing obligations[67]; third world loans.[68] This list is not exhaustive; however, it does demonstrate how pervasive securitization has become in the U.S. economy.

The Mechanics of Securitization

The precise structure of a securitization transaction can vary widely, but all such transactions have five basic steps: (1) A loan is made (2) the loan is transferred to an SPV (3) credit enhancements are provided [69] (4) the securities are distributed by the SPV (5) a secondary market for these securities is formed.[70]

Once a loan originator (often a bank) has made a loan, the loan becomes an asset. Thus, a bank might make one hundred \$200,000 loans that amortize fully over 30 years at a 6% rate of interest. Each of these loans will generate payments (principal and interest) totaling roughly \$14,500 per annum for 30 years. From here, these loans are transferred to an SPV.[71] The SPV serves a primary purpose of protecting the investors of the securities, alienating the assets in the SPV from any of the liabilities of the originator [72]. The SPV has no liabilities other than to investors.[73] Thus, the funds from the securities sales flow back up to the bank and, even if the bank enters bankruptcy, the pooled assets in the SPV that have been securitized are safe from the creditors of the originator.

After the assets are placed in the SPV, they are securitized. In our example, the one hundred \$200,000 loans might be securitized into 1000 'shares' that each represents a stream of payments of \$1,450 per annum for 30 years. Finally, these securities are sold to investors. The assets (loans) stay in the SPV, and payments are distributed to the investors. The primary risk to investors involves the integrity of the stream of payments from the securities and, hence, the SPV; in our example the payments come from one hundred individual mortgages. In most cases, mortgages are considered a safe investment because of the underlying security's value. It is this very belief that sets the stage for difficulties that have recently beset the markets.[74]

The Rules and Regulations Behind Securitization

Securitization is regulated by a patchwork of laws. The making of loans and creation of financial assets is governed by laws concerning lending. Establishing the necessary SPVs requires use of corporate, partnership, trust, and other sources of law that govern establishment of such entities. The Uniform Commercial Code and its counterpart in each state govern the transfer of the financial assets. Securities laws govern distribution of securities after they have been bundled.[75]

A large part of this regulatory framework consists of disclosure regulations.[76] The purpose of the various laws is not to restrict what can be securitized but to make sure that proper disclosure is made at each step of the process so that investors are aware of what they are investing in and the risks relative to other investments. In 1986, an Economist article published a popular Wall Street saying. "If it's gradable; it's tradable." [77] As long as sufficient data were provided to the ratings agencies, the agencies were willing and able to provide a rating for a new security. Nearly any asset could be securitized at a relatively low cost.[78]

The Collateralized Debt Obligation (CDO)

History

The infamous Wall Street firm Drexel Burnham Lambert Inc. created the first CDO in 1987. The transaction was for Imperial Savings Association, which later became insolvent, and was eventually taken over by the Resolution Trust Corporation in 1990.[79] Growth of the CDO industry over the next 14 years was relatively slow until the creation of the Gaussian Copula Model by David X. Li in 2001.[80] Before 2001, the aggregate outstanding CDO obligations totaled about \$280 million. Between 2001 and 2004 this number grew to over \$1.5 trillion.[81] Current estimates place it at roughly \$2.5 trillion.[82]

Definition

CDO's are similar to MBSs in that they are both bundles of, often illiquid, assets that are pooled together and securitized for distribution in a secondary market. In general, MBSs, along with many other types of assets provide the collateral within a CDO. Depending on the assets backing the instrument, a variety of different "flavors" of CDOs exist, including Collateralized Loan Obligations (CLO),[83] Collateralized Bond Obligations (CBO),[84] and Collateralized Mortgage Obligations (CMO).[85]

CDO Mechanics

The most interesting feature of a CDO[86] is its ability to offer multiple ‘tranches’ of securities. A tranche is Wall Street jargon for ‘level.’ By tranching its securities, a CDO is able to offer multiple securities with different credit ratings comprised of the same underlying assets.[87] The purpose of such a structure is to spread the underlying credit risk of the assets among investors in a manner proportional to the amount of risk they are willing to assume. A typical CDO capital structure might contain four tiers of debt: (1) AAA [88] rated tranche comprising 65% to 85% of the CDO; (2) AA rated tranche comprising 5% to 15%; (3) BBB rated tranche comprising 5% to 10% of the capital structure; (4) BB rated tranche comprising 5% to 10% of the CDO; and (4) an unrated ‘equity’ tranche [89] comprising 3% to 12% of the capital structure.[90] In general, insurance companies and banks invest in the AAA and AA tranches, and insurance companies, hedge funds, and high net worth individuals seeking higher yields invest in the remaining tranches.[91] Each tranche is paid interest from the cash flows of the underlying assets in order of seniority.

Going back to our original example, suppose a CMO was comprised of one hundred \$200,000 mortgages at 10% per annum. Rather than each tranche receiving a 10% coupon, the AAA might receive a coupon for 7%, the AA for 7.75%, the BBB for 13%, the BB for 15%, and an “equity tranche”[92] for 18%.[93] If the cash flows were to shrink, the various tranches would bear the associated losses in order of seniority. Equity would lose their coupons first, BB second, etc. Through this structure, a variety of investors with different levels of risk aversion are able to invest in securities that meet their needs.

To provide an even simpler example, imagine 10 people are sitting at a table and rolling dice. Anything above one is a winning roll. Each player puts in \$1 each roll. The most risk averse player wins \$1.06 if a single die rolls two or higher. The next most risk averse player wins

\$1.08 if just two dice roll two or above. The player willing to bear the greatest risk will win \$1.20 if at least eight of the dice come up two or higher. In this way, mathematically, the chances of the first player not winning are extremely low.[94] Theoretically, in order for the AAA debt holders to lose their money, unprecedented drops in the value of the underlying CDO assets would have to occur.

The above structure has no built-in limits as to how complex a CDO can become or how many tranches can be offered. For example, in 2004, Axa Investment Managers launched the Aria CDO.[95] The Aria CDO referenced a pool of 140 corporate names, was divided into 28 tranches in five currencies – Swiss francs, sterling, dollars, euro and yen – and incorporated fixed, floating, and inflation-linked tranches.[96]

CDO Intricacies

The above structure, although complex, is relatively understandable. A group of cash assets are bundled and securitized. The security is then segmented to allocate different levels of risk to those investors with the corresponding appetites for such risk. CDOs are similar to mutual funds in that there are a variety of different types with different strategies. In mutual funds there are numerous different criteria that define a given fund. For example: domestic or international; growth or value; small, medium, or large cap. These different criteria can be mixed and matched in a variety of ways to build a fund strategy. As the popularity of CDO investments increased, ever-increasing layers of complexity convoluted this structure. This section will briefly observe some of these complexities and attempt to offer a fuller understanding of the differences between various CDOs.

Source of Funds/Rating - Cash Flow Versus Market Value Model

The primary method of valuing a CDO is through its rating. Two different methods of rating the inherent credit risk in a CDO have dom-

inated throughout the decade. The method used is generally premised on the underlying strategy of the fund. The cash flow model focuses on the creditworthiness of the underlying assets as well as the sufficiency and predictability of the cash flows.[97] In our mortgage example, the rating agency might look at the underlying value of homes on which the mortgages were taken, the degree of total leverage on these homes, and the ability of the mortgagor to continue to make payments.[98] CDOs using this model generally seek to maximize returns by carefully managing the underlying assets within the portfolio.

The market value model looks to the value of the underlying assets rather than the strength of the cash flows being generated. Under this model, the price sensitivity of the asset is determined and used to create a trigger, at which point the asset could still be liquidated with enough proceeds to pay the various contingencies of the CDO.[99] Using this model, the value of the underlying assets should be monitored frequently in order to reassess risk and accurately price the securities. In the mortgage example, assuming the bundled mortgages are all senior notes on the properties, a trigger point of \$220,000 might be set. As the market value of the mortgages dropped below various triggers, the ratings for the securities could be adjusted accordingly. CDOs using this model are generally actively managed, and the collateral turns over more often in an attempt to keep the underlying risk of the portfolio consistent.

Funding – Cash Verses Synthetic CDO

As discussed, CDOs generally take existing income producing assets and package them into securities. In this respect, we have thus far considered cash CDOs. Cash CDOs use real assets as collateral. A typical cash CDO is one backed by mortgage obligations. Mortgages are hard assets with homes as collateral. In the event of a default, the houses can be foreclosed upon and the proceeds used to mitigate losses in the CDO.

Standing in contrast, synthetically funded CDOs do not own the underlying assets but seek

credit exposure through the secondary market of credit default swaps (CDS).[100] Thus, synthetic CDOs can simulate an identical risk exposure to a cash CDO without actually purchasing or owning any assets.[101] There are several advantages to synthetic CDSs. First, synthetic CDOs can be created much faster than cash CDOs. Purchasing assets takes time, while purchasing CDSs does not. Also, even in the debt filled market of 2006, debt instruments were becoming scarce. By building a synthetic CDO it was not necessary to find actual debt to purchase. Synthetic CDOs have gained in popularity in large part because of the low cost access it gives entities to the bond market when the entities previously had no access.[102]

Motivation – Balance Sheet Versus Arbitrage CDO

CDOs fall into various categories, most generally either balance sheet or arbitrage funds. The comparatively simple balance sheet CDO serves a specific purpose: our mortgage example is a typical balance sheet CDO. A loan originator forms a CDO either to remove mortgages from its balance sheet or in anticipation of doing so.[103] From here, the CDO offers all the advantages that we have discussed in terms of tranching securities and allowing for risk to be spread to those parties willing to take it. The only purpose of a balance sheet CDO is to help banks diversify risk.

Arbitrage funds are considerably more complex. All securitized debt is rated. Such debt falls on one side or another of an arbitrarily drawn line delineating the boundary between investment grade securities and ‘junk’ bonds. Given the restrictions on many major institutions[104] from holding below investment grade debt, the spread between investment grade and below investment grade debt is often much larger than can be rationalized by the underlying risk. Through the creation of a CDO, \$100 million in below investment grade debt can be bundled and securitized in the process discussed above.

Assume that an arbitrage CDO is formed for the purpose of securitizing \$100 million in B grade debt from 20 different medium-sized corporations. By bundling and securitizing this debt into an arbitrage CDO, rather than the entire \$100 million of debt being rated at a B level, with an effective interest rate of 11%, the debt might be rated according to the scheme set forth earlier. In this way, 65% of the debt might be given a AAA rating[105], with various other tranches bearing the additional risk shed by this portion. Through this process, the effective yield on the entire fund might be just 9%, allowing the CDO manager to take a 1% fee and still provide an interest rate of 10% rather than 11% to the corporations.

The reason this works is that there is a much smaller buying audience for B rated debt because many institutional buyers are unable to purchase below investment grade securities. Thus, demand is lower than it should be and yields are pushed up. By tranching the security, a portion of it can be offered at investment grade, increasing overall demand and lowering effective yield. The principle behind this process is not necessarily flawed, though it is clear that there is a substantial chance for abuse given the complexity of these funds and the difficulty of accurately rating the various tranches. The vast majority of CDOs are arbitrage CDOs.[106]

Single Tranche CDO[107]

A single tranche CDO is structured identically to a normal CDO with the only caveat being that the sponsor of the fund sells only a single tranche. Single Tranche CDOs are almost always synthetic. In these cases, the sponsor holds the vast majority of the portfolio. For example, a hedge fund may approach a loan originator and request a custom CDO to be built for the fund. The hedge fund might specify a return of 9%, desired portfolio composition, tranche size, spread, and target rating. After selling this large tranche, the issuer will retain the rest of the CDO delta hedged[108] within their portfolio.[109]

Single Tranche CDOs offer a variety of advantages to a seller and have been a primary driver in the synthetic CDO industry.[110] In a single tranche CDO, a dealer is able to effectively build a fund and sell a single slice of credit risk to a single buyer. In this way, transaction costs are reduced significantly, and the needs of the two involved parties can be adequately met. Single tranche CDOs provide yet another example of how increasingly complex instruments have allowed an incredible amount of risk to be spread among the system as various organizations are able to select a security that precisely meets their needs.

CDO Regulation

Under the current regulatory framework, CDOs themselves are not regulated; they are merely instruments. Similar to securitization, it is the process of creating a CDO that is regulated. The entire process is nearly identical to the securitization process; CDOs are simply securities that are being tranching. The only added layer of regulation is that each tranche must be separately rated by the ratings agencies.

The CDO² and Credit Default Swaps: Spreading Risk Throughout the Market

Our final technical section will examine two relatively complex instruments that were developed recently and played a pivotal role in the market meltdown that is currently unfolding. Currently, both of these instruments are extremely lightly regulated. Given recent events, this is unlikely to remain the case.

One purpose of this paper is to discuss risk. Whenever a lending institution originates a loan, the institution is subject to a 'bundle' of risks, including interest rate-market risk (the risk of unexpected changes in interest rates), liquidity risk (inability to sell an asset), and credit risk (default on the part of the seller).[111] A simple mortgage provides an excellent example of each of these. Assume a 30-year \$200,000 mortgage is issued at 10%. A bank has three potential risks associated with this loan: (1) The market

rate on deposits (how the bank funds its lending) could unexpectedly rise to 11% (2) the bank could experience a run on its deposits and be forced to sell the loan for substantially less than it is worth do to the instant need for capital (3) the mortgagor could default on the loan.

Credit Default Swaps

Credit default swaps (CDSs) were first engineered in 1987 on Wall Street. From its inception just 21 years ago, the total face value of interest rate and currency derivatives contracts exceeded \$200 trillion by the end of 2007![112] Another \$17 trillion is currently outstanding in new CDSs.[113] Regulators in the financial services industry were speculating as recently before the “Crisis” as 2006 that CDSs were growing far too fast for any self-regulation system to keep up and that, without outside intervention, banks would be unable to cope with a failure in the system.[114]

The purpose of a CDS is to allow a loan originator to reduce the default risk of a given transaction. In our example of a single \$200,000 mortgage, the originator might purchase a three year CDS from another institution for a fee of 1% (the spread) of the total value of the loan per annum. In exchange for this fee, the seller of the CDS agrees to either take over the loan at face value in the event of default, or, more often, pay a sum of money through a third party intermediary to settle the note for the originator. Thus, the originator is effectively purchasing an insurance policy on the debt issued. CDSs are generally written on corporate bonds, and the spread is dictated by the rating of the bond. Payment on a CDS is triggered by some predetermined event such as degradation in credit rating, default on two consecutive payments, etc.[115]

Triggering events can be defined in innovative ways to create a unique risk profile for a lender. For example, if a lender makes a \$10 million loan to a corporation and wishes to take on the default risk for the corporation, but hedge against the industry risk, a CDS could be purchased tied to an industry index rather than the

stock price of the corporation or its bond rating.[116]

Taken at face value, the CDS seems to be nothing more complex than bond insurance. The driving factor behind the CDS market is that the purchaser of a CDS does not have to be an originator. Anyone can purchase a CDS against any entity if they can find an insurer willing to sell it. Thus, a hedge fund with no financial stake in General Motors (GM) might purchase a CDS against a GM bond on the assumption that GM will be forced to default in the next two years. In this way, CDSs have become less a means of insuring against debt issuance and more a method of hedging against any trade, or even just betting against debt. John Paulson managed to achieve a 598% return in 2007 through a strategy of using CDSs and other derivatives to bet against the housing sector.[117]

Collateralized Debt Obligation²

CDO²s combine the entirety of the financial concepts discussed within this paper to create a financial instrument so complicated that very few people in the market have a firm grasp on how they work and how best to value them. Generally speaking, CDO²s are simply a CDO of CDOs. In a typical CDO², a master CDO is set up which purchases only tranches of other CDOs.[118] The senior tranches of this master CDO theoretically have two layers of protection from default. For example, assume an originator creates a CDO². This CDO could purchase all BBB tranches of other CDOs. By re-tranching these tranches, the CDO² can sell a range of securities from AAA to equity tranches.

There are a variety of difficulties inherent when trying to value CDO²s and assign a credit rating to their issued securities. One is created by the overlap in the various CDOs that comprise a CDO². [119] This overlap is inevitable. When the proliferation of CDOs began its heyday in 2003, there were roughly 400 corporations with liquid securities in the CDS market.[120] In a typical CDO², over 1000 com-

panies are referenced, implying that there is a significant amount of overlap within a single CDO².^[121] The problem with this overlap is that it makes exposure to a given company or industry very difficult to determine and thus makes rating the security difficult. This is one of the many issues that ratings agencies have struggled with for the last ten years as these securities have proliferated. Obviously, the problem is compounded exponentially when CDO²s are compiled into a CDO³, etc.

One of the problems that occurred when subprime markets started to turn was the perceived diversification of CDO²s. Going back to our dice-rolling example, imagine that all ten dice need to roll a one before the senior tranche loses any value. As long as all the players are rolling different dice, there is little chance of any loss. However, if everyone is rolling the same die, suddenly the senior tranche does not have nearly the perceived protection. This is one of the effects of CDO²s owning tranches from many different CDOs. If the senior tranche in a CDO² is safe as long as there are fewer than 8 defaults in the underlying assets and there is a single default, there are no losses. If the defaulting security asset is held by 9 CDOs that make up the CDO², then the CDO² registers 9 separate defaults due to their high exposure to that security, and this single default triggers losses. This has resulted in an enormous amount of risk filtrating the market with deceiving credit ratings.

The Crisis

On October 16, 2008, *The Economist* proclaimed “2008 marked the end of an era.”^[122] The article goes on to blame nearly the entire financial disaster on decreased regulation and increased pressure to write subprime loans.^[123] John Gutfreund remarked in a recent interview with Michael Lewis that the entire disaster is to blame on greed, “greed of investors and the greed of the bankers.”^[124] Thousands of people and pundits across the country are crying fraud and demanding that the crooks on Wall Street go to jail.^[125] In reality, the crisis was

caused by a series of events that, when taken in aggregate, combined to create a market situation that no one could predict.

Subprime Lending

Certainly one of the biggest problems has been the proliferation of subprime lending. In recent days, this problem has been laid at countless different entities’ feet including the Republican Party,^[126] Democratic Party,^[127] lending institutions, and the Federal Reserve.^[128] In 2006 and 2007 alone, over \$1.2 trillion in new subprime loans were originated. The problem stems from a combination of events over two decades and the fundamental market belief that went horribly wrong: that home values would never fall across the country.

Subprime lending is lending money to people that cannot obtain credit in standard markets at standard market rates. Generally, those borrowing with credit scores lower than a FICO^[129] credit score under 600 will be forced to obtain a ‘subprime mortgage.’^[130] Subprime mortgages fall into one of two sub groups: fixed and adjustable rate (ARM).^[131] As of December 2007, just 6.8% of all mortgages were subprime ARMs; yet, these same mortgages comprised 43% of the foreclosures within the U.S.^[132]

Such lending can be justified in a number of ways, but the most common method is to assume that home prices will continue to rise. On principle, this assumption is well reasoned. Land is one of the few truly scarce commodities, and property is generally an appreciating asset that serves as middle America’s primary means of wealth generation. If a \$100,000 home is purchased with a \$98,000 mortgage, 2% equity becomes 12% equity if the value of the home rises to \$112,000. If, on the other hand, the value of the home drops from \$98,000 to \$88,000, the little equity in the property disappears and the value of the debt drops substantially.

Decreases in home value have been occurring on a grand scale in the United States. The froth of easy credit,^[133] political pressures to in-

crease lending, and predatory lending techniques[134] led to a housing bubble. A ‘bubble’ is an increase in prices within an industry to a level that is not sustainable by the underlying value of the industry or assets. For example, in 2000 the market endured the “tech bubble.” As the housing bubble has deflated, countless homes bought with little or no equity have lost the equity that existed and, as a result, cannot be sold for as much as is owed on them. As foreclosures began steadily mounting and housing markets began to crumble across the entire nation, the first signs of the current situation began to appear in the summer and fall of 2007.[135] Taken as an isolated problem, a nation-wide decrease in home value would have led to a relatively mild recession as consumer spending decreased to offset wealth evaporation.

Predatory Lending

A factor that exacerbated the subprime issue is predatory lending. As discussed, the financial magic of this decade allowed mortgage originators to remove most of, and sometimes all, the risk associated with providing a subprime mortgage. As a result, the fees associated with writing mortgages became a lucrative business with virtually no downside.

The laws governing lending practices are a patchwork of common law, disjointed case law, and a relatively small number of regulations. This body of law is poorly understood.[136] What is known is that this situation is perhaps one of the most glaring examples of a dangerous incentive scheme. By improperly regulating lending practices, while allowing a system to be put in place where there is no risk involved in writing mortgages, all restraints on mortgage brokers were removed. As quickly as mortgages could be securitized, they could be originated. Gone were the days of putting 20% equity into a home and providing proof of employment.

Deregulation

There has been relatively little deregulation in the US financial system during the past ten years; the single major exception to this is the Gramm-Leach-Bliley Act (GLBA). The GLBA deregulated markets by allowing commercial and investment banks to affiliate with one another, theoretically to increase competition.[137] Ironically, this act repealed much of the Glass-Steagall Act of 1933, which was enacted following the Great Depression to achieve the exact opposite result.[138] By allowing different types of financial institutions to affiliate with each other, transaction costs could be reduced, and consumers could realize significant savings.[139]

Following passage of the GLBA, the primary problem was not further deregulation but, rather, a lack of new regulations.[140] Wall Street devised and refined the financial instruments discussed in this paper. This resulted in de facto deregulation; financial firms were able to alienate and spread risk throughout the market in a manner that would have been impossible under the current regulatory scheme without new products such as CDOs and CDSs.

Division and Separation of Risk

As the housing bubble began to build, the growth of CDOs, MBSs, CDSs, and many other financial instruments began to grow exponentially. At the same time that banks were under increased pressure to make risky loans, banks were becoming larger and more stable and housing prices were rising, risk was segregated from the lending process. The creation of MBSs and CDOs allowed banks all over the country to originate a tremendous volume of high-risk loans without having to retain any of the associated risk.

Derivatives contracts such as CDSs allowed nearly every different type of risk associated with a bond (interest rate risk, liquidity risk, credit risk, market risk, etc.) to be separated and sold individually. In this way, institutions and individuals were able to build increasingly diversified and hedged portfolios that theoretically had extremely low risk.

There were three fundamental failures in these theories. First, the actual diversification was significantly less than the perceived diversification. Secondly, when the credit markets closed (although banks were originating and selling loans) banks were caught with loans slated to be sold on their balance sheets. Finally, banks often kept a portion of the equity tranche on their books under the theory that a high rate of interest would compensate for a relatively large number of defaults. In reality, these equity tranches became almost worthless.

The Ratings Game

In order for any CDO to be marketed, each tranche must be rated by the ratings agencies. Herein lies one of the largest problems. CDOs, and particularly CDO²s, are incredibly complicated. The theory behind the CDO is that by bundling many assets into a single security (although some individual assets within the CDO might generate losses) through the magic of tranching, the AAA portion of any CDO was protected by the first loss portions. The AAA tranche of a CDO full of subprime loans or corporate junk bonds could comprise as much as 85% of the fund. To put this in perspective: AAA is the same rating held by the U.S. government.

Next, through CDO²s and CDO³s, the non-AAA rated portions of other CDOs could be re-collateralized into a new CDO where 85% of this new fund would be AAA rated. Through this entire process as much as 96% of all subprime loans eventually obtained a AAA rating.[141] Although there have been allegations of fraud within the rating agencies,[142] it is more likely that the rating agencies were simply

unable to cope with the complexity of the instruments they were being asked to rate; and, at the same time, they were under too much pressure from various entities to approve securities for distribution.

The Skidding Halt

In Q3 2006, home values across the U.S. registered their first quarterly decline in nearly a decade.[143] Home values began to plummet, falling nearly 12% in the second half of 2007.[144] At this time the market realized some of the mortgage-backed securities that had been issued over the past five years were improperly rated.

On November 12, 2007, Fitch cut the ratings on two Security Capital CDOs.[145] The first was a \$420.9 million fund. The rating on this fund was lowered from AAA to BBB.[146] The second was a \$371 million fund. The rating was cut from AAA to CCC, well into junk bond territory.[147] Over the past twelve months, billions of dollars worth of asset-backed securities have been downgraded to junk bond status.

Such downgrades have had tremendous ramifications in other segments of the market. Typical buyers for AAA securities are pension funds, college endowments, and other large institutional buyers seeking superior returns over Treasuries. In many cases, these investors are restricted from investing in securities below a certain rating. Downgrades have wreaked havoc in such funds.

In order to hedge against the slim chance of this happening, many of these entities purchased insurance against the possibility of a downgrade. Insurers such as AIG or Ambac Financial (ABK) offered such insurance for relatively low premiums due to the perceived safety of AAA investments. Recent events effectively forced the U.S. government to nationalize AIG. Over the past 12 months ABK fell from nearly \$30 per share to a closing of \$1.34, a 95% drop, on December 2, 2008.

Moving Forward

As the country moves forward there are two distinct questions that need to be answered. First, how can we recover from the current situation? With credit markets frozen and unemployment nearing 10%, the country stands at the brink of a recession, the likes of which have not been seen since the 1930s. How the political establishment approaches this situation has the potential to define a generation. Secondly, how can the system be changed to reduce the risk of similar breakdowns in the future? This is a remarkably delicate problem, because any solution must regulate without stifling innovation.

Fixing the Present

At present three distinct problems exist that no single solution can fix. First, mountains of illiquid assets have created a level of uncertainty that has paralyzed credit markets. Secondly, the country is rapidly sinking in to an attrition driven recession;[148] fears about the market drive layoffs, which reduce consumer spending, which drives further layoffs. Finally, the rampant decrease in home values in the U.S., coupled with a near 40% decline in the stock market, has wiped out an enormous amount of wealth over the past 12 months. As an entire generation of baby boomers prepares for retirement, many are finding that more than 50% of their net worth has been erased in the last year.

An Illiquid Market

Much of the current situation can be traced to a high level of uncertainty within the market. As the trillions of dollars of CDO securities continue to fall in value, banks around the world are unable to accurately gauge their potential liabilities or the liabilities of those seeking credit. Until a "bottom" can be found, the market is likely to remain extremely volatile. Without finding this bottom to the market, fear and uncertainty will compound all of the other difficulties discussed in this section.[149]

The government's response thus far to this problem has been to approve a \$700 billion 'bailout' package designed to recapitalize and backstop[150] financial institutions around the country. This solution ignores the underlying problem of uncertainty and illiquid assets. Although the health of institutions such as AIG are important to the system, until entities around the country are able to fully understand their current liabilities, credit markets will remain frozen.

The Great Recession

On December 1, 2008, it was officially reported that the U.S. sank into a recession in the Q4 2007. Over the past months, Sun Microsystems,[151] AT&T[152], and Bank of America[153] announced layoffs amounting to between 4% and 18% of their total workforce. Other stalwart firms have joined in the lay-off parade and some are going out of business. As layoffs mount and consumer spending ebbs, the threat of Depression-era deflation could resurface.[154]

A proposed answer to this problem was a new federal government stimulus package.[156] But stimulus packages merely force future generations to pay for the mistakes of the current. And it is difficult for government spending to be designed to create jobs through direct means that allows the taxpayers to receive tangible benefits from their tax dollars.[155]

Wealth Erosion

The problem of wealth erosion is a society-wide concern. All individuals take a known short-term risk by placing money in the market; with a carefully handled recovery, the market should eventually recover most of its losses. The government has already suspended mandatory withdrawals in 2009 from IRAs for seniors rather than force them to sell securities into a severely depressed market.

Fixing the Future

Perhaps the biggest question on the horizon is how to proceed in a post-2008 financial world. The global financial market has been drastically altered. The UK has partially nationalized nearly its entire banking system;[157] the Icelandic financial system has completely collapsed;[158] and the age of the investment bank seems to have ended.[159] Some new forms of regulation must be enacted in order to avoid the situation that we now face. The key, however, is not to regulate for the sake of regulating. Not all regulations are good, and there is considerable danger that policies made in response to the current market conditions could have a stifling effect for years to come.[160]

The key is not to focus on regulation *per se*, but to focus on creating a proper system of incentives. One of the greatest (and most dangerous) features of the U.S. financial system is its ability to innovate in order to maximize profits. "Greed on Wall Street was a given – almost an obligation. The problem was the system of incentives that channeled the greed." [161]

Alienation of risk

Of the many factors leading to the current crisis, the ability of banks to alienate nearly all risk from the loan origination process is perhaps the most obvious culprit. In a recent talk, Professor Tamar Frankel from Boston University opined that "[b]anks should be forced to keep some skin in the game." [162] In framing this inevitable regulation, it is important that Congress and regulators not put undue restrictions on securitization, lest they do more damage than good.

Credit Rating Agencies

"Credit rating agencies use their control of information to fool investors into believing that a pig is a cow and a rotten egg is a roasted chicken. Collusion and misrepresentation are not elements of a genuinely free market." [163] Credit agencies have experienced extreme criticism

for their role in rating CDO securities. Although some of this blame is properly placed, the ratings agencies operate in a rigged system. There is a constant tension between Wall Street bankers making tens of millions of dollars and ratings agencies employees making tens of thousands of dollars. Furthermore, the agencies are compensated directly by issuers, creating a significant conflict of interest.[164] Compensation is a percentage of a given issuance determined by the size and complexity of the issuance.[165]

As so many other players in the market, the rating agencies were a product of the incentives in place.[166] With no liability for rating unratable securities and huge fees available, it was not irrational or even wrong that ratings were issued.[167] But it is the job of the government to adjust such incentives in order to protect the public.

Complex Financial Products

The final long-term problem is the government's inability to keep up with complex financial products. There is no simple solution to this quandary; it is almost impossible to foresee exactly what new financial products will exist ten years hence. In 1991 the first CDO was born; no government regulator could possibly have seen the havoc it would help to sow in 2008.

Note that the average salary at the Securities and Exchange Commission (SEC) was \$64,000 in 2008.[168] This stands in stark contrast to companies such as Goldman Sachs where the average salary was \$622,000 in 2006.[169] With such discrepancies, there is going to be a natural difference in the quality of recruits at these two entities. The federal government regulating agencies should be funded in such a way (and create incentives) that allow them to recruit on par with top Wall Street Banks. Strategies to accomplish this include competitive starting salaries (in the \$120,000 range), aggressive bonus structures, and intangible benefits, such as time off for lecturing at universities or writing.

Conclusions

The market currently rests on a precipice awaiting dramatic change. Events over the past ten years have necessitated such change by

plunging the economy into a state of disarray not seen since the Great Depression. Moving forward, the key is to apply measures designed for long-term stability, not born of short-term reaction.

Appendix A

Arbitrage CDO – A CDO designed to exploit the artificially large spread between investment grade corporate debt and “junk” bonds. Due to the fact that many institutional buyers are precluded from purchasing junk bonds, arbitrage CDO’s can capitalize by turning junk bonds into AAA rated securities through the CDO tranching process.

Balance Sheet CDO – A CDO formed for the express purpose of moving potential liabilities and credit risk off an entity’s balance sheet.

Cash CDO – A traditional CDO of asset-backed securities

Collateralized Bond Obligation (CBO) – A CDO backed primarily by corporate bonds.

Collateralized Debt Obligation (CDO) – A bundle of assets that are securitized and tranced into separate securities, each bearing a different credit rating.

Collateralized Debt Obligation Squared (CDO²) – A CDO comprised primarily of other CDO tranches.

Collateralized Mortgage Obligation (CMO) – A CDO backed primarily by mortgage obligations.

Credit Default Swap (CDS) – A derivative contract whereby one party pays a series of premiums to another in exchange for a payoff if a certain credit event comes to pass. For example, party A might pay premiums of \$40 per month to purchase protection against a default on GM debt. If GM defaults, party B will owe party A a one time payment of \$1,000.

Equity Tranche – The lowest rated tranche in a CDO, generally between 3% and 5% of the total offering and often kept on a bank’s balance sheet.

Originator- Throughout this paper, the term originator is used to refer to any entity that ‘originates’ loans, i.e. issues debt. A father can be an originator by loaning his son \$10,000 for school as easily as a bank can be an originator by holding 200 mortgages. The difference between the bank and the father is that the bank may sell the loan, creating a distinction between it being the originator and another entity that actually holds the debt.

Single Tranche CDO – In a single tranche CDO, the issuer designs the entire CDO for a single buyer (generally institutional) and retains the remainder of the CDO. This allows for a CDO to be built very quickly to a buyers specifications.

Synthetic CDO – A synthetic CDO is a CDO with no underlying assets but instead bundles credit derivatives to simulate the risk of a cash CDO. For example, suppose an issuer wanted to create a \$100 million CDO with three tranches, yielding 7%, 11%, and 15% respectively. Further, the issuer is not in-

terested in purchasing mortgage backed securities or other hard assets. Instead, the issuer could simulate the appropriate degree of risk by purchasing and selling Credit Default Swaps and other credit derivatives. By selling CDSs, the issuer is effectively generating a stream of insurance premiums in place of mortgage payments. If the mortgagor defaults on their payments, this triggers liability on the part of the issuer. Thus, a properly crafted portfolio of CDSs can simulate the same level of income and risk as a CDO backed by mortgages.

Tranche- A tranche is a 'slice' of a security. To use a very simple example, assume that new corporation X wants to issue stock. Rather than issue all the stock at \$8 per share, it might issue 3 'tranches' of stock. The first tranche will be entitled to a 7% dividend, no equity appreciation, and a security interest in the corporation's holdings. The second tranche will be entitled to a 9% dividend, no equity appreciation, and have only an unsecured interest in the company's holdings. The final tranche is entitled to a 4% dividend, no security interest in the company's assets, and full equity appreciation on the company's value. In this case, the three 'tranches' are known much more simply as debt, preferred stock, and common stock. Tranches are just a fancy term to describe different levels or slices of securities with different rights pertaining to the same underlying assets.

References

1. www.nacubo.com, College and University Endowments Realize 8.6% Average 10-Year Return, Jan 24, 2008, http://www.nacubo.org/documents/research/News%20release%20&%20fact%20sheet_2007_NES.pdf.
2. Associated Press, Subprime crisis shouldn't hurt many funds, CHICAGO TRIBUNE, Mar. 14, 2007, at 7
3. Henceforth the Dow Jones Industrial Average will be used as a proxy for the market. Although an argument can be made that 30 stocks serve as a poor proxy for the greater market, other indices have moved very closely with the Dow, making it a good enough gauge for the current crisis.
4. On December 4, 2008, the market stood at 8500, 5500 points off its high.
5. As of November 2, 2008.
6. For a variety of "jargon" terms throughout this paper, an appendix has been provided. When not adequately explained within the body of the paper, look to the appendix for further clarification.
7. Throughout the paper the term "Wall Street" will be used in the colloquial sense that it has evolved into. That is as a stand in for investment banks, corporate executives, underwriters, and generally the movers and shakers in the financial world.
8. Also known as special investment vehicle.
9. CDOs have moved to the third dimension and beyond. These will be explained at a later point in this section.
10. Incentives is really just a non threatening way of saying regulations. By putting together the proper regulatory framework the various actors in a free market can have incentives to continue innovating without creating a perfect storm where the system collapses.
11. The "Crisis" will henceforth refer to the current economic situation rather than the plethora of stand-in terms that are currently being used such as the subprime meltdown, subprime crisis, credit crisis, etc.
12. Tax Reform Act of 1986, 26 USC § 1 et seq.
13. Id.

14. Id.
15. Id.
16. 12 U.S.C. § 1723(b) (2006) (Fannie Mae); id. § 1452(a)(2)(A) (Freddie Mac).
17. Id. at § 4541; Id. at 4513.
18. Id. at § 1719(b) (Fannie Mae); Id. at §1455(j) (Freddie Mac).
19. Id. at § 1433.
20. Id. at § 1455(g).
21. Id. at §§ 1455(c), 1719(c).
22. See id. §§ 1452(d), 1723a(g). See also Richard Scott Carnell, Handling the Failure of a Government-Sponsored Enterprise, 80 WASH. L. REV. 565, 582 (2005).
23. See U.S. General Accounting Office, Housing Enterprises: Potential Impact of Several Government Sponsorship, 17 (1996); For a more complete view of Fannie and Freddie and their history, see Julia Patterson Forrester, Fannie Mae/Freddie Mac Uniform Mortgage Instruments: The Forgotten Benefits to Homeowners, 72 Mo. L. Rev. 1077 (2007).
24. See Franklin, G., "The Secondary Market" Syndicated Lending: A Handbook for Borrowers in Emerging Markets. Ed. Saurabh Murkherjea (London: Euromoney, 1999) 132.
25. 12 U.S.C.A. § 2901 (1977).
26. FederalReserve.gov, Community Reinvestment Act, <http://www.federalreserve.gov/dcca/cra/> (last visited Nov. 4, 2008). For a fuller discussion of the CRA's past and future, see Michael Malloy, Towards a National Community: The CRA and the Contemporary Market, W. New Eng. L. Rev. 25 (2006).
27. Id.
28. Steven Holmes, Fannie Mae Eases Credit To Aid Mortgage Lending, N.Y. TIMES, Sept. 30, 1999.
29. Id.
30. Gramm- Leach-Bliley Act, Pub. L. No. 106-102, Nov. 12, 1999 Stat. 1338 (1999). The act is discussed in detail infra, Section XX.
31. Pub. L. No. 73-66, 48 Stat. 162 (1933) (also known as the Banking Act of 1933).
32. ftc.gov, In Brief: The Financial Privacy Requirements of the Gramm-Leach-Bliley Act, <http://www.ftc.gov/bcp/edu/pubs/business/idtheft/bus53.shtm>, (last visited Nov. 15, 2008).
33. For a more complete discussion of the Glass Seagall Act and the Gram-Leach-Bliley Act, See Mathew Restrepo, The Convergence of Commercial and Investment Banking Under the Gram-Leach-Bliley Act: Revisiting Old Risks and Facing New Problems, 11 L. Bus. Rev. Am. 269, (2005).
34. Alex Berenson, Fannie Mae's Loss Risk is Larger, Computer Models Showing, N.Y. TIMES, Aug. 7, 2003.
35. 94 Fed. Res. Bull, Statistical Supplement, 1.54 (Oct. 2008).
36. Id.
37. Frankel, 5.
38. E.g., Exclusion from the Definition of Investment Company for Structured Financing, IC-19105 (Nov. 19, 1992) (adopting Rule 3a-7 "to exclude issuers that pool incoming-producing assets and issue securities backed by those assets).
39. Id.

40. Frankel 46
41. See *Id.*; See generally Wimarth, *The Transformation of the U.S. Financial Services Industry, 1975-2000: Competition, Consolidation, and Increased Risks*, 2002 U. Ill. L. Rev. 215, 378-388 (2002).
42. E.g., Kurtz, *Loan Participations after Penn Square*, *Int'l Fin. L.J. Rev.* at 24 (1982).
43. Gramm- Leach-Bliley Act, Pub. L. No. 106-102, Nov. 12, 1999 Stat. 1338 (1999); There are a variety of other advantages to LPs, including allowing banks to effectively lend in states that consider lending “doing business” and to capitalizing on less restrictive usury laws.
44. See Frankel at 49.
45. *Id.* The process of securitization is examined in more detail *infra* at section III D.
46. Education Amendments of 1972, Pub. L. No. 92-318, §439(b), 86 Stat. 234, 265, codified as amended at 20 U.S.C. former § 1087-2(b).
47. See Frankel at 51.
48. See 76 Fed. Res. Bull. At A38 Table 1.54 line 44 (Mar. 1990).
49. This includes only securities issued by Ginnie Mae, Fannie Mae, and Freddie Mac. See Securities Industry and Financial Markets Association, *Agency Mortgage-Backed Securities Outstanding*, <http://www.sifma.org/research/pdf/AgencyMortgageOutstanding.pdf> (last visited Nov. 16, 2008). Non-Agency issued “securitizes” could add an additional \$3 trillion to this total, placing the aggregate total of MBS at roughly \$9 trillion.
50. *Mortgage Backed Securities*, RBS Wealth Management, <http://www03.50below.com/33/330/File/MBSs.pdf> (last visited Nov 15, 2008).
51. See Securities Industry and Financial Markets Association, *Asset-Backed Securities Outstanding*, http://www.sifma.org/research/pdf/ABS_Outstanding.pdf (last visited Nov. 16, 2008). The asset classes included in this total are automobile loans, credit card receivables, equipment leases, home equity loans, manufactured housing, and student loans. All other classes have been aggregated separately as an ‘other’ category in the cited study.
52. E.g., Hill, *Securitization: A Low-Cost Sweetener for Lemons*, 74 Wash. U.L.Q. 1061, 1076 (1996) (the auto loan securitization market exceeded \$35 billion by January 1, 1995) . Total outstanding securities as of Q2 2008 for auto loans was \$199 billion.
53. See Lupica, *Asset Securitization: The Unsecured Creditor’s Perspective*, 76 Tex. L. Rev. 595, 603 (1998) (a pool of \$500 million in pharmacy receivables was issued).
54. See Chen, *Don’t Sell Out, Sell Bonds: The Pullman Group’s Securitization of the Music Industry An Interview with David Pullman*, 2 Vand J. Ent. L. & Prac. 161, 162 (2000).
55. See Pointexter, Rogovoy & Wachter, *Selling Municipal Property Tax Receivables: Economics, Privatization, and Public Policy in an Era of Urban Distress*, 30 Conn. L. Rev. 157 (1997).
56. See Pavel, *Securitization*, *Econ. Persp.* At 16-22 (July-Aug 1986).
57. See Kravitt & Raymond, *Overcoming the Legal Barriers to Auto Lease Securitization* (May, 1995).

58. See Lupica, Asset Securitization *supra* n. 47, at 603.
59. Arnold, Strategies in Securitizing Non-Mortgage Assets (First Boston Corp.), Securitizing Financial Assets, Executive Enters. Inc. Seminar, New York (Oct. 5-6, 1987).
60. Saladino, Securitization of Municipal Obligations in the Secondary Market: The California Legislative Response, 28 Urb. Law. 1 (1996).
61. Kantrow, Card Issuers Find Market for Bad Debt, Am. Banker at 1, Col. 3 (Oct. 17, 1991).
62. Financial Co. Plans Beauty Backed Bond Offering, Corp. Fin. Wk. at 2 (Nov 6, 1995).
63. Alexander, Tax Liens, Tax Sales, and Due Process, 75 Ind. L. J. 747, 761 (2000).
64. In 1997, a \$55 million bond was issued, backed by the future royalty stream from David Bowie's recording made prior to 1990. Karen Richardson, Bankers Hope for a Reprise of 'Bowie Bonds,' Wall St. J., http://online.wsj.com/public/article/SB112476043457720240Tvpthd07S8mCqCxLFNKIPnWWY9g_20060823.html?mod=tff_main_tff_top, (last visited Nov. 15, 2008).
65. See Harrell, Rice & Shearer, Securitization of Oil, Gas, and Other Natural Resource Assets: Emerging Financial Techniques, 52 Bus. Law. 885 (1997).
66. See Plesset & Ambler, The Financing of Mutual Fund "B Share" Agreements, 52 Bus. Law. 1385 (1997).
67. See Comment, "Bankers Up!" Professional Sports Facility Financing and Other Opportunities for Bank Involvement in Lucrative Professional Sports, 3 N.C. Banking Inst. 202, 226 (1999).
68. See Mann, Secured Credit and Software Financing, 85 Cornell L. Rev. 134, 172 (1999).
69. Lebron, First Things First: A comment on Securitizing Third World Debt, 1989 Colum. Bus. L. Rev. 173 (1989).
70. Risk is reduced through guarantees against third party collateral or other means.
71. Frankel at 55-56; Brendt C. Butler, Asset-Backed Securitization, Special Purpose Vehicles and Other Securitization Issues, SJ082 ALI-ABA 55 (2004).
72. SPV's come in a variety of forms. They may be wholly owned subsidiaries of the loan originator, subsidiaries of third parties, or formed by government sponsored entities such as Fannie Mae and Freddie Mac.
73. See Appendix for Clarification.
74. This represents a slightly oversimplified example. SPVs can take on other liabilities that can present a variety of risks to investors. For the purposes of this paper we will not focus on the many complexities of SPVs. For further information on the topic see Frankel at 59-66.
75. In Tamar Frankel's treatise on securitization that has been oft quoted in this paper, she writes a tone point "Securitization produces huge securities Markets, and Markets pose the risks of extreme volatility. However, as between market liquidity (that securitization offers) and illiquidity (provided by the traditional structure of the banking system), liquidity may be preferable." Frankel at 44. These words, written in 2005, seem to almost foretell the storm that the markets are currently enduring and may cause some to ponder the very question of whether it is in fact preferable.

76. For an in depth look at the process and legal framework behind Securitization see Frankel.
77. Merrill & Smith, *The Property/Contract Interface*, 101 Colum. L. Rev., 773, 845- 46 (2001) (“Mutual funds and to a lesser degree securitization” are regulated through regulatory schemes that “tend to take the form of mandatory information disclosure rather than nonwaivable fiduciary duties.”)
78. Finance Brief, *Economist*, June 14, 1986, at 70 -71.
79. In general, the higher the information costs behind a given security the more difficult it would be to rate. Thus, rating a single debt issuance of GE is much easier than rating a bundled security of 200 different mortgages around the country.
80. See Sandy Hock, *Imperial’s Sour Real Estate Loans Dot the Country*, San Diego Bus. J. (1990).
81. Copulas are mathematical equations that help predict the likelihood of events occurring that depend on each other. Li found that the best copulas for bond pools was one named after Carl Friedrich Gauss, a 19th century German statistician. Mark Whitehouse, *How a Formula Ignited Market That Burned Some Big Investors*, Wall St. J., Sept. 12, 2005 <http://online.wsj.com/article/SB112649094075137685.html> (last visited Nov. 17, 2008).
82. Id.
83. Financial Markets Association, *Agency Mortgage-Backed Securities Outstanding*, http://www.sifma.org/research/pdf/SIFMA_CDOIssuanceData2008q3.pdf (last visited Nov. 16, 2008). The number will probably hover at \$2.5 trillion for the foreseeable future, as the entire CDO market has frozen due to current market conditions.
84. These are comprised completely of medium and large business loan obligations. CLOs have made it possible for small and medium business to reduce their borrowing costs by allowing purchasers of the securities to diversify their bond holdings across a broad range of companies through owning a single CLO.
85. These are made up entirely of corporate bonds.
86. Predictably these are CDOs comprised only of mortgage backed assets. In this case, the differences between a MBS and a CDO are slightly more subtle, with the MBS being a subset of the CMO.
87. Henceforth in this note, the terms CDO, CMO, CLO, etc will all be used interchangeably. The only difference is the makeup of the assets backing the fund based on the examples being given.
88. Gary Barnett, *Understanding CDOs*, 1653 *PLI/Corp* 437 (Feb. 2008).
89. For the purposes of this note, all ratings will be according to the Standard and Poor’s rating system.
90. This tranche is often referred to as the ‘first loss piece.’
91. Id. at 411.
92. Id. at 441. In the past, the originator was forced to keep at least a portion of the equity tranche on their books. As the market became flooded with investors seeking a greater return on capital, originators have been able to sell greater and greater portions of this highest risk tranche, enabling them to shed ever-increasing levels of risk when selling CDO securities. Find Source! See *Omni Doc*.
93. See Appendix A.

94. These numbers have been exaggerated for the purpose of this example. In reality the spreads on a non subprime CMO would be much tighter.
95. The most risk averse player's chances of not receiving his \$1.06, assuming ten standard dice are rolled is equal to $(1/6)^{10} = .0000000282$.
96. Mathew Attwood, Creating CDO Tranches, CREDIT, Aug. 2004, <http://www.creditmag.com/public/showPage.html?page=168502>. (last visited Nov. 17, 2008).
97. Id. A discussion of fixed, floating, and inflation-linked tranches is outside the scope of this note. For an in depth discussion of such complexities, see FIND ARTICLE.
98. See Barnett at 442.
99. In reality this last bit is far beyond the resources of the credit agencies. In recent years evaluating the credit worthiness of the mortgagor has even been ignored by the originator of the loans. This is the subject of an entirely different paper.
100. Id.
101. A discussion of Credit Default Swaps can be found infra Section V. Also see Appendix A infra.
102. Frank Partnoy, David A. Skeel, The Promise and Perils of Credit Derivatives, 75 U. Cin. L. Rev. 1019, 1022 (2007). Also see Appendix A for another example.
103. See Partnoy at note 22.
104. FIND SUPPORT
105. Banks, pension funds, insurance companies, mutual funds, etc. These restrictions are generated both internal and by regulations. See FIND CITATION.
106. Thus, these securities are deemed to have the equivalent level of safety as the U.S. Government or General Electric.
107. Sifma.com, Global CDO Market Issuance Data, 2007, http://archives1.sifma.org/assets/files/SIFMA_CDOIssuanceData2007q1.pdf
108. See Appendix A
109. Delta hedging uses credit derivatives to hedge against price movements of an asset. For instance, a classic delta hedge is purchasing a put option on a stock that is being held long.
110. Mathew Attwood, Creating CDO Tranches, CREDIT, Aug, 2004, <http://www.creditmag.com/public/showPage.html?page=168502>.
111. Id.
112. See, e.g., Antulio N. Bomfim, Understanding Credit Derivatives and Related Instruments 3- 5(2005).
113. This amounts to over 16 times America's GDP. Robert F. Schwartz, Risk Distribution in the Capital Markets: Credit Default Swaps, Insurance and a Theory of Demarcation, 12 Fordham J. of Corp. & Fin. L 167 (2007);
114. On Top of the World: In Its Taste for Risk, the World's Leading Investment Bank Epitomises the Modern Financial System, The Economist, Apr. 29, 2006, at 11.
115. See, e.g., Hamish Risk, Credit Derivatives Market Expands to \$17.3 Trillion (2006) available at <http://www.bloomberg.com/apps/news?pid=10000103&sid=a9mg9712QnRU&refer=us>.
116. See Schwartz at 175. Determining a triggering event can become substantially more difficult when the CDS is purchased against sovereign wealth fund, CDO, or SPV. Credit

events in reference to these entities are much more difficult to judge, and a “reference entity” must generally be chosen. Id.

117. See Partnoy at 1022.
118. Wsj.com, John Paulson’s Hedge Funds Return 19% in a Down Market, Oct. 1 2008, <http://blogs.wsj.com/deals/2008/10/01/john-paulson-the-hedge-fund-manager-actually-making-money-in-the-market/>.
119. The underlying CDOs are generally synthetic CDOs created in part for the purpose of feeding the master CDO.
120. Michiko Whetlen, Mark Adelson, CDO’s Squared Demystified, Normura Fixed Income Research, (Last Visited Nov. 16, 2008).
121. Kai Gilkes, Mike Drexler, Drill-Down Approach for Synthetic CDO Squared Transactions, Standard & Poors, Link (Dec. 10, 2003) (Reprinted at LINK).
122. Id.
123. Link by Link, The Economist, Oct. 16, 2008, http://www.economist.com/display_story.cfm?story_id=12415730.
124. Id.
125. Michael Lewis, The End of Wall Street’s Boom, Portfolio.com, Dec. 2008, <http://www.portfolio.com/news-markets/national-news/portfolio/2009/11/11/The-End-of---Wall-Streets-Boom>.
126. Joe Conason, Bring Wall Street Crooks to Justice, N.Y. OBSERVER, Sept 24, 2008, <http://www.observer.com/2008/politics/bring-wall-street-crooks-justice> (“From the bottom-of-the-barrel bucket-shop mortgage salespeople, who sought inspiration and technique from the movie Boiler Room, to the geniuses who packaged those bad and often fraudulent loans into bad paper for sale to major banks, investment houses and insurance companies, literally thousands of crooks are out there.”)
127. 127.Nytimes.com, The Republican Party, Having Brought you the Meltdown, Now Blames Obama, N.Y. TIMES, Sept. 30, 2008, <http://theboard.blogs.nytimes.com/2008/09/30/the-republican-party-having-brought-you-the-meltdown-now-blamesobama/?scp=2&sq=republican%20subprime%20fault&st=ce>.
128. Merely turn on Rush Limbaugh or most other Conservative talk radio shows to find a plethora of blame being heaped on the Democrats.
129. Charles W. Calomiris, Most Pundits are Wrong About the Bubble, WALL ST. J., Oct. 18, 2008, <http://online.wsj.com/article/SB122428270641246049.html>.
130. FICO is a registered trademark of the Fair Isaac Corporation.
131. FICO scores are generated from a mathematical formula incorporating all available credit information about a consumer including mortgage debt, credit card history, student debt, etc. Scores range from 300 to 850. People with low FICO scores are the equivalent of corporations that can only issue junk bonds due to insufficient cash flows and too much leverage.
132. In recent years, a variety of hybrid mortgage structures has been created that blend the features of fixed and ARM mortgages. For the purposes of this paper, these hybrid mortgages will fall into the category of ARMs.
133. Mbaa.org, Delinquencies and Foreclosures Increase in Latest MBA National Delinquency Survey, <http://www.mbaa.org/NewsandMedia/PressCenter/58758.htm> (last visited Dec. 2, 2008).

134. Attributed at least in part to the Federal Reserve's reluctance to raise interest rates following the 2000-2002 recession.
135. An entire paper could be written on predatory lending techniques and the patchwork of regulations, common law, and self regulation that failed to properly govern lending practices
136. See n. 1, *supra*.
137. The intricacies of the law behind predatory lending is unfortunately outside the scope of this paper.
138. 145 Cong. Rec. H11255 (daily ed. Nov. 2, 1999) (statement of Rep. Leach).
139. See note 29, *supra*.
140. Christopher Wolf, 2005 Overview of the Gramm-Leach-Bliley Act, [828 PLI/Pat 761, 765 \(May-June 2005\)](#); For a more thorough discussion of the GLBA, see Kathleen A. Hardee, *The Gramm-Leach-Bliley Act: Five Years After Implementation, Does the Emperor Wear Clothes?*, 39 Creighton L. Rev. 915 (2006).
141. Or proper incentive structures.
142. Tamar Frankel, Professor, Boston University School of Law, Talk at Barristers Hall, Boston University (Oct. 14, 2008).
143. Dealbreaker.com, Rethinking The Ratings Agency Scandal, Part IV: Homogenous Ratings Labels For Heterogeneous Credits, <http://dealbreaker.com/2008/02/rethinking-the-ratings-agency-2.php> (last visited Dec. 2, 2008).
144. S&P/Case-Shiller U.S. National Home Price Values, Q3 2008 (published Nov. 25, 2008). The last quarterly decline was Q4, 1996. *Id.*
145. As of December 2, 2008, home values across the U.S. had fallen 21% with no definite sign of a bottom to the market in sight. *Id.*
146. Alistair Barr, Security Capital Hit by CDO Downgrades, Market Watch, <http://www.marketwatch.com/news/story/security-capital-hit-cddo...rades/story.aspx?guid=%7B7D035313-B075-46BE-A5F7-6A173EC8EB8A%7D>, last visited December 2, 2008.
147. *Id.*
148. *Id.*
149. Attrition driven in the sense that as consumers spend less due to a perceived lack of wealth (as their homes decrease in value), corporations are forced to lay off workers, leading to less spending and more layoffs.
150. As a more intuitive example, consider the standard horror film. Very often it is far more effective to leave the actual form of the villain or monster unknown in order to allow the audience's own fears to conjure an image that the movie studio would be unable to match. The exact same phenomenon is occurring in the market now.
151. Effectively guarantee the liabilities of a given institution.
152. Don Clark, Sun Micro Slashes Jobs, Wall Stl J., Nov. 15, 2008, <http://online.wsj.com/article/SB122666922420228145.html> (Sun Microsystems is cutting 5,000 to 6,000 employees, or 15% to 18% of its total work force).
153. Peter A. McKay, Dow Tumbles \$215.45 Points on Worries of Job Losses, WALL ST. J., DEC. 5, 2008, <http://online.wsj.com/article/SB122845338007682489.html>. (AT&T to cut 12,000 jobs).

154. Dan Fitzpatrick and Susanne Craig, BofA to Cut 35,000 Jobs as it Absorbs Merrill Lynch, Wall St. J., Dec. 12, 2008, <http://online.wsj.com/article/SB122901448971498505.html#articleTabs%3Darticle>.
155. Phill Izzo, FedEx Cuts Wages, Will Other Companies Follow?, Wall St. J. Dec. 18, 2008, <http://blogs.wsj.com/economics/2008/12/18/fedex-cuts-wages-will-other-companies-follow/>.
156. Theoretically, stimulus packages create jobs by allowing consumers to spend more money which in turn creates jobs.
157. Carried interest is a cut of all profits over a predetermined hurdle rate such as 7%. Given the size of the fund, it should be structured into a great number of smaller funds targeted at certain industry segments such as clean energy, telecom, etc. Venture capitalists could be enticed to work outside their current fee structure in a number of ways but most importantly is their ability to invest along side the fund.
158. Associated Press, U.K. Government to Partially Nationalize Banks, msnbc.com, Oct. 8, 2008, <http://www.msnbc.msn.com/id/27078582/>.
159. See Hannes H. Gissurarson, Iceland Abandoned, wsj.com, Nov. 17, 2008, <http://online.wsj.com/article/SB122695569056034695.html>.
160. Three of the five major investment banks have disappeared (Bear Stearns, Lehman Brothers and Merrill Lynch), while the other two have converted into bank holding companies, Goldman Sachs and J.P. Morgan.
161. For an example of a debatable over burdensome regulatory scheme passed in a fervor of public sentiment, see the Sarbanes-Oxley Act of 2002, Public L. No. 107-204, Sec. 806, codified at [18 U.S.C. § 1514A](#).
162. Lewis, n. 124, *supra*.
163. Tamar Frankel, Professor, Boston University School of Law, Talk at Barristers Hall, Boston University (Oct. 14, 2008).
164. U.S. Congressman Gary Ackerman.
165. Approximately 90% of rating agency revenue comes from issuers who pay for ratings. Frank Partnoy, How and Why Credit Rating Agencies Are Not Like Other Gatekeepers, San Diego Legal Studies Paper No. 07-46 (2006), http://www.tcf.or.jp/data/20050928_Frank_Partnoy.pdf. Citing
166. *Id.*
167. Assuming the agencies gave a fair rating to the best of their ability. Due to the lack of competition there is no pressure on the agencies to give particularly good ratings, so it is assumed that there was no outright fraud in overrating securities.
168. Simplyhired.com, Average SEC Salaries, last visited Dec. 23, 2008, <http://www.simplyhired.com/a/salary/search/q-SEC>.
169. Robert Gavin, Good Deal: Average Goldman Sachs Employee Makes \$622,000, Boston.com, Dec. 12, 2006, http://www.boston.com/business/articles/2006/12/12/good_deal_average_goldman_sachs_employee_makes_622000/.

Biographical Information

Mark Kasdorf received the B.A. in Mathematics degree from Hamilton College in Central New York with a year studying mathematics at Oxford University, England. He is completing the final year for a Juris Doctorate in May 2009 at Boston University School of Law. He is Founder and CEO of Burning Hollow Technologies, a cutting edge startup in the home automation industry.