Discussion of "The credit rating crisis" by E. Benmelech and J. Dlugosz, NBER Macro conference, May 2009.

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The financial crisis has raised questions about all aspects of the financial system, but especially about the role of products created with the help of modern financial engineering. How much of the blame should be laid on credit rating agencies for failing to assess the credit risks involved in structured products? The collapse in ratings in 2007 and 2008 was sudden and dramatic as the paper demonstrates. AAA rated tranches, which constituted more than half of the outstanding securitized products in 2008, were heavily affected as well. It appears that something went really wrong with the rating system.

The paper by Benmelech and Dlugosz is an in-depth investigation into the ratings of structured products and how they evolved over the past two decades. The data are fascinating and the authors are to be applauded for producing such a rich set of facts. The data will undoubtedly be of great value in the on-going investigation of the causes of the crisis.

I'm less sure of what the data tell about the behavior and culpability of raters. The authors provide evidence of ratings shopping. Tranches that were rated by one rater performed worse than tranches that were rated by two or three raters. This could be the result of issuers seeking out the most lenient rater. But if that is the case, why did the market not factor this into the price of such products, especially since a relatively small fraction of all tranches had just one rater?

I would be more concerned that raters turned into consultants, advising issuers on what it would take to make a AAA rating. The value of tranches could be adjusted by credit enhancements, by the distribution of cash flows and by the underlying portfolio of assets. With all these margins available, and with the advice of raters, issuers could maximize the amount of AAA tranches that could be squeezed out of a given set of assets.[1] The result was that asset backed AAA tranches were marginal AAAs not average AAAs. This type of bias may not have been as well understood by the market and if pervasive could explain the high fraction of AAA securities – over half of all the rated tranches and typically representing over 70% of the value of the underlying assets.

The paper's evidence of excessive reliance on mechanical rating models is anecdotal, but there seems to be wide agreement on this point. With everyone using the same or similar formulas, systemic risk stemming from erroneous modeling assumptions was enhanced.

[1] Raters also tell corporations what it takes to keep a bond rating – for instance, they may warn about a drop in the rating if too much is paid in dividends, or the level of debt rises too high. But this type of advice does not allow corporations to tailor their bond offerings as finely as in the case of structured products.

Why didn't rating agencies realize this or if they did, why didn't they do something about it?

The simplest hypothesis is that the raters were irresponsibly short-sighted. Business was brisk and there was no reason to stop the gravy train. Competition among raters for a lucrative business may have led all of them down the same path (explaining perhaps the small fraction of tranches with a single rater). It is hard to tell how much of the blame to lay on rating agencies. I don't think the paper does much to convince us one way or the other. However, the data speaks to a number of other issues related to the crisis.

What I want to do with the balance of my time is move the discussion onto a broader arena by asking why ratings tend to be so coarse and why following mechanical rules may make sense without alluding to short-sightedness and wrong incentives. I will argue that in normal times, low levels of transparency can substantially enhance liquidity especially in markets that provide liquidity services. Regulatory reform should take this into consideration and not merely look at the adverse consequences of this system.

The nature of liquidity provision and the lack of transparency[2]

For most people, it is difficult to understand how a financial system could function without being transparent. Structured financial products are highly opaque as Gorton (2008) describes in detail. Through repeated tranching, small slices of an underlying set of assets get distributed across hundreds or even thousands of structured products, such as CDOs, making it difficult to value the cash flows of individual tranches. The toxic assets we are now dealing with would be rather less toxic if it were easier to know and evaluate their component parts.

Why would anyone buy opaque securities? Wall Street did and in large volumes. According to the paper, structured products were worth over $11 trillion in 2008. Around $7 trillion were mortgage-based products, double the amount ten years earlier (Adrian and Shin, 2008). The market was growing fast and expanding into lower quality assets leading to more complex products, reducing their transparency.

This was hardly the result of hubris or an attempt to disguise the true value of subprime assets. The explanation has to do with the nature of markets for liquidity provision (money markets, interbank markets and repo markets for instance). These are high volume, high velocity markets where hundreds of millions of dollars of credit may be extended in a single trade on short notice. For example, Bear Sterns had to roll over 25 per cent of its funding every night, much of it more or less automatically, but still requiring daily confirmation. In such markets there is little time for background checks and most of the trading is based on trusting that counter-party risk is minimal.[3] As the

[2] This discussion draws on Holmstrom (2009) and on Dang, Gorton and Holmstrom (2009).

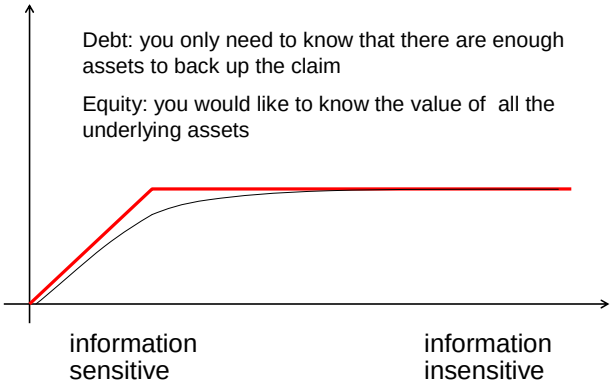
[3] In the interbank market, the lending bank has to trust that the borrowing bank has more than enough assets that it can liquidate if necessary to pay back its overnight loan; much of the interbank market is unsecured in this sense. In the case of repo markets, the borrower sells an asset to the lender with a commitment to repurchase it at the end of the loan term (often a day later) at a slightly higher price. If the

saying goes, if a banker has to prove his creditworthiness, he has already lost it. The market grinds to a halt if background checks are needed.

Liquidity providing markets are therefore structured to avoid information asymmetries that bear on counter-party risk and collateral values. They minimize the need for information acquisition by trading in instruments that are information insensitive. As Gorton and Pennacchi (1990) argued, debt is an information insensitive security. When debt is riskless or near riskless there is no need to acquire any information, nor is there any concern about adverse selection because one's trading partners may be better informed. Information has no value and for that reason it doesn't matter if other parties have some information. While debt has many virtues and has been rationalized in a variety of ways in the modern corporate finance literature, its information insensitivity appears to be the most relevant attribute in the context of liquidity provision.

Of course, debt is information insensitive only for a limited range of values of the underlying assets (the explicit or implicit collateral). In the figure below, I have drawn the lender's payoff from a debt contract (console) at the time of repayment with a thick line under the assumption that the lender gets possession of the collateral. The thinner line represents the lender's value of debt at some date before expiration as a function of the value of the collateral. It is equal to the face value of the debt less the value of the borrower's put option and therefore concave. The higher the value of collateral, the less information insensitive debt becomes. Far out, the thin line coincides with the face value. Sufficiently well collateralized debt is essentially riskless. At the left, debt is in default and every piece of information about the value of the collateral is valuable, just as in the case of equity.

Debt and information sensitivity



borrower fails to buy back the asset as promised, the lender is free to sell it in the market. This is akin to a secured loan, but with no need to recover the collateral – it is the property of the lender until the repurchase. Counter-party risk still matters, since the lender may not get the promised repurchase price in the market.

Since the lender's value of debt is concave, less risky collateral (in the sense of a mean preserving spread) implies a higher value of debt: the thin line will get closer to the expiration value of debt. Less risky collateral expands the information insensitive region of debt, but it also increases the information sensitivity of debt when the underlying value of the assets gets close to the face value if debt. The effects are the same (and for much the same reason) when the duration of a loan is reduced: the value of debt increases uniformly. The thin curve in the diagram rises, but information sensitivity does not change uniformly. It decreases sufficiently far from the point of default, but increases close to and in the default region.

These observations are relevant for the current crisis.

First, we see that transparency may not matter much for well-collateralized debt. There is little need to assess the counter-party risk of a bank as long as one is confident that the net assets are more than sufficient to cover a short-term loan. An overnight loan in the interbank market or an overnight transaction in the repo market are good examples. Note that using an equity like instrument in the repo market could be much more costly, since it is more information sensitive.

Second, and related to the first point, coarse credit ratings, based on gross characteristics of the collateral or the underlying assets are natural ways to preserve information symmetry among those trading in these claims. It is of course essential that the ratings are made public. It is also important that people have a common understanding of what the ratings mean. Morris and Shin (2006) analyze the value of "commonality" in several other economic contexts, showing that there is an optimal level of granularity of information. Pagano and Volpin (2009) study how coarse the credit ratings should ideally be from the issuers point of view. In their model, coarse ratings are good for the value of issuing shares, but bad for the secondary market. The first effect is based on the notion that less information reduces adverse selection. The second effect comes from the assumption that the information will eventually leak out in the secondary market causing those who can process the information to gain an informational advantage over those who are less well positioned to interpret such information or who don't have the same opportunities to access information.

The general point here is that people often equate information symmetry with full transparency. But as Morris and Shin as well as Pagano and Volpin stress, approximate symmetry of information (shared understanding) is better preserved by carefully managing the amount of public information that is released.

It is interesting to note that the distribution of ratings of tranches, besides being heavily tilted towards AAA ratings, also reveals that parties shun fine distinctions. Few tranches at the initiation stage are close to AAA. The equilibrium values of tranches are much further apart than their risk differences would suggest. This is consistent with a desire for commonality.

Finally, on this second point: what about the reckless use of mechanical rating models? The logic of symmetric information and commonality, paired with the low demand for information in the first place, puts this practice in a rather different light. Credit ratings of banks and structured products are not only coarse, but appear to be based on relatively limited information; unlike corporate ratings, they don't change very often (perhaps because banks normally want to stay well above the risky line).

Third, securitization is an obvious way to reduce the volatility of collateral and reduce the returns from information acquisition and hence adverse selection (see Gorton and Pennacchi, 1993). In principle, mixing and remixing of mortgages could improve diversification from the individual issuer's point of view, but the paper does not provide evidence on whether that actually happened. One hears a lot about the systemic risks brought about by structured securities, however, suggesting that individual products did indeed manage to eliminate much of the idiosyncratic risk. I will return to the fact that individual and social interests may be misaligned because of difficulties in pricing systemic risk.

The presumption that agents acted irresponsibly by not finding out more about the value of the underlying assets in structured products, or that mixing the assets over and over until the products became totally non-transparent and able to disguise the true value of the underlying assets, also seems questionable. The logic of structured products is consistent with very limited information acquisition – indeed part of the purpose of the creating non-transparent structured products was to make it unnecessary, perhaps even difficult to acquire information.

Evidence in support of the last point can be found in the way deBeers sells wholesale diamonds (Milgrom and Roberts, 1992). The diamonds are put in bags, which the buyers cannot open and inspect. They are only provided with the gross characteristics of the content in the bags. The purpose is to make trading more liquid and faster moving by avoiding unnecessary costs of inspection and adverse selection that would follow. This is an apt metaphor for securitized assets. Mortgages were put in a "bag" and given a coarse label. All bags labeled AAA were seen as similar. AAA collateral became the main currency in repo markets, fueling the demand for AAA ratings.

The crisis and the cost of opaqueness

The low information sensitivity of debt when it is well in the money turns into a major liability if debt gets close to default. Everything that expands the region of information insensitivity also makes the transition into information sensitivity more abrupt. The tail risk becomes more concentrated. Once we are in the information sensitive region, the returns from learning about the value of assets can be so high that it triggers information acquisition and adverse selection that freezes the market. This may be the reason the repo markets froze. Morris and Shin (2009) show that even small amounts of adverse selection can freeze markets. The strong non-linearity inherent in option values near the exercise price may explain why the collapse was so sudden.

It is evident and interesting that information acquisition can be triggered by a public signal that raises the probability of default sufficiently, freezing or impairing the market due to adverse selection. (Dang, Gorton and Holmstrom (2009) present a simple model of this sort.) It has been suggested that the ABX index that began trading in 2006 and provided information on the default rates of mortgage-backed securities played that role (Gorton, 2008). There is still much to be learned about the dynamic path of the crisis. The data about credit ratings and downgrades are likely to prove useful in investigating this issue.

Some lessons for policy

The main point I wanted to make here is that much of what is commonly seen as a cause of the crisis – especially the opacity of structured financial products, the coarse and inaccurate (in retrospect) assessments of credit risk and the seeming indifference to the true value of the underlying collateral – may be rational, even essential for liquidity providing markets. In the light of this discussion, the causes of the ratings collapse that the paper is trying to explain may simply be a natural consequence of the drop in housing prices. There may be many fewer criminals than suspects.

The second message is that the potential value of opacity in good times should be kept in mind when new regulations are drawn up. Increased transparency is almost surely desirable in some arenas in light of what has just happened, but it would be a mistake to consider the crisis state the only state of relevance. Much more thought should go into regulating transparency. The market solutions we see are not as mindless as they appear.

The third lesson is that systemic risk is extremely hard to deal with in markets where the main instruments are designed to be information insensitive. In the picture above, movements in the underlying collateral when we are in the information insensitive region may have no discernible impact on the value of debt. This is consistent with the negligible movements in ratings. It also means that there is a significant externality in taking on systemic risk. Unlike stock markets where systemic risk is priced and paid for by each individual, in liquidity providing markets the opposite appears to be true: the market does not factor in much if any of the systemic risk (until it may be too late) and individual actors will therefore only consider the change in their own risk exposure without considering the increased exposure of the system as a whole.

These are thorny issues that require regulators to balance the tail risk induced by debt like instruments with the significant benefits of low information insensitivity that these instruments offer. We could avoid all financial crises by following the prescription of asset pricing: everyone should hold a share of the American pie. Unfortunately, that solution would have massive social costs as it would be entirely inadequate for liquidity services.

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