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Paper by invitation

Credit Rating Agencies and Moral Hazard

Summary: The failure of credit rating agencies to properly assess risks of complex financial securities was instrumental in setting off the global financial crisis. This paper studies the incentives of companies and rating agencies and argues that the way the current rating market is organized may provide agencies with intrinsic disincentives to accurately report credit risk of securities they rate. Informational inefficiency is only enhanced when rating agencies function as an oligopoly or when they rate structured products. We discuss possible market and regulatory solutions to these problems.

Key words: Credit rating agencies, Solicited and unsolicited ratings, Moral hazard.

JEL: D43, G14, G15, G24.

A credit rating is an estimate of the credit quality of a company or a financial security. Historically, credit ratings have been most commonly issued in case of public debt issued by corporations. In that case, credit rating is based on the credit history of the borrower, its assets and liabilities, and its total business activity. The informational role of credit ratings is crucial for the functioning of modern financial markets. On one hand, the borrowers can improve conditions for raising capital and the overall perception of the market if they have good credit ratings. On the other hand, investors can use the ratings to assess the likelihood of repayment, which is crucial for pricing of securities. Thus, credit rating agencies provide signals to market participants on the credit quality of financial securities, both new and already existing in the market. As such, they are the first line of defense of investors against unnecessary credit risk exposure. This is especially true for those investors for whom it is too costly to perform their own credit analysis of available public securities.

Onset of financial globalization and increased dependence of financial institutions on wholesale funding made credit ratings issued by major Credit Rating Agencies (CRAs) an indispensible part of the investment process. Increasingly, such rat-

ings are used for regulatory purposes throughout the financial industry. For example, current capital adequacy rules issued by the Basel Committee on Banking Supervision, informally known as Basel II, determine capital requirements based on the ratings assigned by the credit rating agencies (Bank for International Settlements 2006). The amount of available capital and the way it is allocated thus critically depends on the good quality of credit ratings.

Given such an important role that CRAs play in the market, it is paramount to understand the structure of incentives that determines the behavior of CRAs and their interaction with investors, security issuers, and regulators. This is increasingly significant now after the most reputable CRAs not only failed to forewarn unsuspecting investors against risks that subprime mortgage-backed securities had posed, but, also, because of their direct involvement in structuring such deals. In particular, it is not an exaggeration to say that in helping design AAA tranches of the so-called collateralized debt obligations (CDOs), top rating agencies such as Standard & Poor's, Moody's and Fitch certified that these securities are of similar risk as, say, U.S. government bonds. This, essentially, made these securities look like a very good deal to conservative, yet ill advised, institutional investors throughout the world. In a financing model in which banks and other financial institutions increasingly depend on market to obtain necessary funds, global spread of these securities, with the significant help of CRAs, had a significant role in global spreading of the financial crisis beginning in 2007.

More recent episodes of failures of the CRAs are related to sovereign debt crisis in Europe, which started in 2010. This was particularly obvious in the case of Greece. The credit spread of Greek government bonds increased weeks before the agencies downgraded Greek sovereign credit rating. Again, the reasons were sought in a combination between the conflict of interest and the objective of rating agencies to maintain stability of ratings across markets and business cycles. As suggested by Edward I. Altman and Herbert A. Rijken (2004), the CRAs adjust the credit grades they assign slowly, since the ratings are constructed to capture default risk over longer time horizons. The reason is that most credit rating systems are moving along with the business cycle and macroeconomic variables, rather than following daily changes in the market variables. However, the cycles are considered as exogenous, and some authors, such as Phillip A. O'Hara (2011), pointed that endogenous cycles should be taken into account as well when considering any changes in the current credit rating methods. As a result, is it commonplace occurrence that credit rating of a security is downgraded only after the security sustained a significant loss.

In this paper, we analyze the mechanisms that could lead to inaccurate reporting of credit risk by the CRAs. We focus, primarily, on conflict of interest of CRAs and other market participants as well as on the role of both solicited and unsolicited ratings. In case of solicited ratings, companies pay a rating agency to be rated upon their request, while in case of unsolicited ratings, CRAs rate a security on their own volition (and using publicly available information). In a nutshell, solicited ratings make firms shop for good credit grades. This leads to a selection bias and credit ratings that are lower on average with respect to unsolicited ratings. Such understatement of credit risk, in turn, increases demand of firms to be rated, and the cycle con-

tinues. This profoundly influences the incentives for profit-maximizing rating agencies. In this way the CRAs actually face the tradeoff between increased profit on one hand, and increased reputational costs on the other. Such problems are only enhanced when CRAs act in an oligopolistic setup.

The remainder of the paper is organized as follows. In Section 1, we present a short review of empirical results on predictive ability of credit ratings. In Section 2, we analyze the moral hazard problem and discuss some additional issues, such as oligopolies and barriers to entry. Section 3 is a discussion of possible solutions to these problems, from both market and regulatory perspective. Finally, Section 4 concludes.

1. Predictive Ability of Credit Ratings

A number of empirical papers analyzed the effectiveness of CRAs and predictive ability of their ratings. Among the recent studies, one of the first to analyze this issue was paper by Frank Partnoy (2002). He studied the apparent paradox in which the decreasing informational value of credit ratings is followed by an increasing market capitalization of CRAs. He tried to explain this paradox through a dependence of Basel II regulatory capital requirements on credit ratings and recommends using of market-implied credit spreads instead of CRA-based ones.

Carmen M. Reinhart (2002) analyzed the ability of sovereign ratings to predict crises. Her empirical findings suggest that behavior of sovereign credit ratings have practically no predictive power vis-à-vis crises, and this result was robust. It then should be no surprise why CRAs failed to anticipate any of the crises – both major and minor ones – that happened after the paper was written. Her explanation on why this may be the case is related to the fundamentals used by the CRAs, which are dominated by financial ratios that are generally poor predictors of distress of sovereign debt.

Albert Metz, Richard Cantor, and Pamela Stumpp (2004) study the predictive ability of various indicators used in corporate debt ratings. They find that the anticipative power of corporate ratings varies with time. The results depend on the way the test samples on one hand, and the indicators on the other hand, are constructed and averaged.

Marc Piazolo (2006) related the poor predictive ability of credit ratings with the conflict of interest of the CRAs. His remarks were motivated by findings of Frederic S. Mishkin (1999), who noticed a similar problem in the banking industry. In the framework that Mishkin studied, the moral hazard induces the conflict between borrowers and lenders, leading to lending rates that are lower than optimal. Piazolo (2006) also pointed the crucial relationship between credit ratings and capital adequacy requirements.

Some recent papers, such as Leonard I. Nakamura and Kasper Roszbach (2010), find that internal ratings assigned by the Swedish banks outperform the external ones assigned by the credit bureau in terms of their predictive power. The public ratings, however, do display a satisfactory forecasting ability. The authors conclude that credit risk management and bank regulation should be based on methods that combine internal and external ratings.

2. The Moral Hazard Problem

Recent spectacular failures on part of rating agencies caused a flurry of activity to gain better understanding why that happens, and how to prevent similar mistakes to be repeated in the future. Much of the answers seem to boil down to the following: the very structure of the market of CRAs leads to serious moral hazard problems that are not easy to resolve. The purpose of this section is to shed some light on these important issues.

First of all, it is important to note that while investors and regulators are users of CRAs services, they do not pay for them. Instead, ratings are either unsolicited (performed by the rating agency without pay), or solicited, in which case they are paid for by the issuer of the security that is supposed to be rated. The fact that often times issuer of security pays for its rating does – in fact – create a potentially serious and obvious conflict of interest. Namely, a profit-maximizing CRA that issues a solicited credit rating may issue it in such a way as to inflate the rating in order to get a repeated business from the issuer. What prevents CRAs from doing this is their fear of losing reputation (see, for example, Bo Becker and Todd Milbourn 2010). Richard Cantor and Franck Packer (1994) note that, at least up to the point of the writing of that article, the fear of losing reputation (i.e. desire to prevent long-term loses) seemed to be more important than a desire to make short-term gains by inflating ratings. The focus in that article is on rating of corporate bonds. It was written before the famous Enron and Worldcom scandals in 2001-2002, which showed clear lack of capacity of the large CRAs to predict sudden deterioration of creditworthiness. This is true, in part, by design. Namely, both Standard & Poor's and Moody's aim to have consistent ratings that would stay stable across time and space, i.e. across business cycles and across different countries. For this reason, their ratings are designed to change infrequently and, as such, they are not a particularly good signaling tool if changes in company fundamentals are unexpected and sudden. Some spectacular failures notwithstanding, however, credit ratings of corporate bonds seemed, at least in the eyes of many investors, to have been a useful tool.

Another important issue related to the structure of the market of CRAs is whether or not issuers shop for better ratings. By that we mean that issuer decides on which company she wants to be rated by based on the expected rating level they are going to get. When there are more than one rating company on the market, as it is the case in the U.S. where there were two and now three prominent rating agencies, it is possible, at least in principle, that company decides not to be rated by a company that would offer her lower rating. Note, however, that traditionally both Standard & Poor's and Moody's rate most of the corporate bonds issued by the U.S. public companies. Prior to the appearance of Fitch as a serious market player (in the 1990ies), this effectively made implausible that issuers of corporate bonds would be able to shop for the rating. Moreover, as regulators frequently require more than one rating, both the Standard & Poor's and Moody's ratings were routinely disclosed. Furthermore, in the case of corporate bonds these ratings mostly agreed (see Cantor and Packer 1996).

The situation changed significantly with the appearance of Fitch as a significant market player. Contrary to common intuition, introduction of the third player

does not necessarily make the situation better. Namely, if a regulator demands that an issuer has two ratings, she may indeed select the highest two of the three possible ratings. This would deteriorate the quality of corporate bond ratings. There is yet another way in which an increased competition may deteriorate the quality of corporate bond ratings. Namely, it may reduce the expected long-term gains to the rating companies, thus reducing their efforts to provide quality rating. Recently, Becker and Milbourn (2011) performed a study that tries to determine the impact of increased competition in the CRA industry on the quality of corporate bond ratings. In particular, they find that adding another market player (namely, Fitch) into the existing duopoly was accompanied by a reduction of predictive power of corporate bond ratings by the CRAs. Moreover, they tested which of the two possible explanations for such phenomenon may be more reasonable. They found that, when it comes to corporate bond ratings, shopping for ratings might not explain their results. In contrast, their results seem to be consistent with the second explanation, namely that an increased competition reduces motivation of CRAs as it reduces their long-term rents.

In contrast to corporate bond rating, Asset-Backed Securities (ABS) are significantly more prone to shopping for rating. There are many ways in which ratings of ABSs differ from those of corporate bonds. First of all, the nature of risk is very different (see Adam B. Ashcraft and Til Schuermann 2008). While the primary risk facing a corporate bond investor is a company-specific risk, ABS is a portfolio of assets. Thus, the key risk is systematic risk affecting the entire portfolio. Second, issuers manipulate the pool structure through various credit-enhancing techniques. In addition, different tranches have very different risk profiles. Third, it is significantly more difficult to predict default, prepayment and their interaction in case of ABS, than it is to do so in case of corporate bonds. Fourth, at the time of security issuance, the issuer collaborates with a particular rating agency to structure the deal (agencies received hefty consulting fees for this additional service). Fifth, models used for pricing and risk assessment of these securities are quite complex and prone to mistakes. Due to all of this, most ABS deals have been rated by a single rating agency. In such circumstances, it is much easier to shop around for the most favorable rating, especially since such deals are opaque to most investors, except, perhaps, for the most sophisticated ones.

Patrick Bolton, Xavier Freixas, and Joel Shapiro (2009) develop a theoretical model that studies the rating game that aims to understand the interaction between CRAs, issuers and investors. In their model, CRAs charge an upfront fee as well as a fee when rating is issued. There is a tradeoff between short-term gains by CRAs through, say, rating inflation, on one hand, and long-term loses related to a diminished market reputation. While the model can be applied, in principle, to all situations in which credit ratings are issued, it is particularly well suited to understand problems related to rating of ABSs. In the model, naïve investors coexist with sophisticated ones, i.e. the ones that are able to understand how rating game is played. They find that CRAs are more likely to inflate ratings in situations when there is a larger fraction of naïve investors on the market. This can happen, in particular, when securities that are being rated are highly complex, such as MBSs and other structured products. The fraction of naïve investors is high, also, when investors do not invest

their own money and do not bear the brunt of negative consequences if they sustain losses. Most of the institutional investors, even the sophisticated ones, can behave as if they are naïve in that sense. Furthermore, the fraction of naïve investors is higher in times of prosperity and smaller in times of recession, when money is harder to come buy. The authors show that, in equilibrium, when a fraction of unsophisticated investors is sufficiently high, CRAs short-term gains can be higher than losses related to diminished reputation. In that situation, they would rationally inflate ratings during booms. In recessions, on the other hand, they would be more likely to report truthfully on the creditworthiness of an issuer.

Another important insight of the Bolton, Freixas, and Shapiro (2009) paper is that duopoly may not be better either from the total social welfare or from the investors' welfare point of view. Namely, starting from a monopoly setting and adding another CRA into the market makes issuers to shop around for the best rating. The social welfare is further reduced when tranching is allowed. To at least partially resolve the moral hazard problem they propose that there should be mandatory disclosure of all ratings.

It is important to note, however, that mandatory disclosure of ratings can in itself lead to another kind of problem. Namely, let us consider the case of unsolicited ratings. As we have mentioned before, Standard & Poor's and Moody's routinely provide ratings of corporate bonds issued by U.S. companies, whether companies solicit these ratings or not. In principle, there is no reason to believe that these ratings should be the same or that they should provide equally accurate analyses of creditworthiness of companies as solicited ratings. Namely, bulk of the information that CRAs uses for unsolicited ratings are publicly available. This is because issuers do not necessarily disclose private information to a rating agency unless they decide to solicit ratings. Having said that, there seems to be no evidence of serious discrepancy between unsolicited and solicited ratings when American CRAs rate American companies, as the results of Christina E. Bannier, Patrick Behr, and André Güttler (2007) imply. On the other hand, the authors show that the same is not the case when U.S. rating companies provide unsolicited ratings of foreign companies.[1] Namely, they find that in most cases unsolicited ratings of foreign companies have been lower than their subsequent solicited rating. Moreover, unsolicited ratings seemed to have been too low, i.e. they very frequently overestimated actual probability of default of rated companies, while the same have not been true in case of solicited ratings of foreign companies.

One possible explanation that the authors provide is that companies self-select. Those companies that are indeed of lower risk than the unsolicited rating would seem to suggest try to correct the market perception by soliciting their rating. For such companies, a more in-depth analysis would then prove that they are, indeed, of lower risk than the initial rating suggested. Thus, solicited ratings end up being higher than unsolicited ones. There is, however, another and more sinister possible explanation of the same phenomenon. Namely, the authors argue that the outcome could be obtained if rating companies deliberately target some foreign companies for a "black-

[1] In contrast to American companies, American CRAs do not automatically rate foreign companies.

mail". They issue lower unsolicited ratings on purpose in order to make companies more prone to ask for a solicited rating, in order to correct tarnished market perception of their creditworthiness. Interestingly, the empirical evidence seems to reject the first explanation in favor of the second. Thus, this seems to be yet another example of how CRAs game the system.

3. Possible Solutions

In this section we discuss various proposed solutions for regulation of the credit rating industry.

Bappaditya Mukhopadhyay (2004) considers an optimal contract between four players: CRA, investors, issuers, and regulators (the government). In contrast to the U.S. model that is based on issuer paying for the rating, in this model the government pays for the rating through collecting taxes from market participants. The author shows that the moral hazard problem can be eliminated by an appropriate contract design. Namely, it would be optimal to provide an incentive compensation for the CRA by linking it to performance of the rated debt (i.e. through an ex-post compensation).

Bolton, Freixas, and Shapiro (2009) study possible regulatory changes that would minimize the conflict of interest. In order to reduce the likelihood of shopping for the rating by an issuer, they propose a revision to the so-called Cuomo Plan.[2] In addition to the original proposal, in which an upfront fee is charged (i.e. the payment to a CRA is made *before* the rating is issued), the authors suggest an addition of mandatory disclosure of any rating produced by CRAs. On the other hand, they argue that this may not solve all of the problems since it may reduce profits of rating companies and make them less interested in providing good quality ratings.

The capital requirements of banks and other regulated financial institutions are also significantly affected by any wrong assessment of credit risk. The Basel II framework suggests that solicited ratings should be used for calculation of risk-weighted assets (Bank for International Settlements 2006).[3] Although the national regulators have discretion to allow the use of unsolicited ratings in the assessment of risk-weighted assets (RWA), most decide not to. The reason is that only solicited ratings are based on a due diligence process, while unsolicited use only publicly available information, leaving any company-specific details out of the final rating. However, as Bannier, Behr, and Güttler (2007) show, the unsolicited ratings are usually lower than the solicited ones. Hence, if regulatory capital requirements were based on unsolicited ratings, they will be higher on average, thus partly compensating for the lack of transparency.

Another potential problem when RWA calculations are based on unsolicited ratings is that this scheme may reduce the number of companies that are rated and promote regulatory arbitrage towards financially distressed borrowers that "look good on paper". One alternative would be to set up a government-sponsored agency

[2] The original Cuomo Plan is a result of an agreement between Andrew Cuomo, Attorney General of the New York State, and the three main credit rating agencies.
[3] See §108, Bank for International Settlements (2006).

with an exclusive right to provide ratings. These ratings would have to be used by financial institutions in their credit risk assessment and determination of capital charges. In fact, as Bolton, Freixas, and Shapiro (2009) show, a monopolistic CRA is certainly more efficient than a duopoly setup. Another alternative, proposed by Partnoy (2002), would be to use credit spreads on marketable instruments, such as sovereign and corporate bonds, to determine the RWA.

Along the lines of introducing a government-backed agency in the rating game are the recent criticisms by EU government officials. After abrupt downgrades of Greece, Portugal and Spain by the major CRAs in 2010, some officials called for an "independent" European rating agency (*Financial Times Europe* 2010). In this way, they believe, moral hazard problems faced by the major CRAs may be avoided. In addition, an EU-based rating agency may act as a balance from negative influences that CRAs currently have on financial markets in Europe.

4. Conclusion

To conclude, in this paper we have discussed numerous important conflicts of interest inherent in the CRA industry. It is quite clear that, in order to protect public interest, there is a scope for market and regulatory solutions that can be applied individually or in combination. Given the complexity of issues at hand, and ambiguity of theoretical and empirical insights, one needs to thread carefully, however. It is a delicate matter and any mistakes may be critical for well being of financial markets and financial institutions.

References

Altman, Edward I., and Herbert A. Rijken. 2004. "How Rating Agencies Achieve Rating Stability." *Journal of Banking and Finance*, 28: 2679–2714.

Ashcraft, Adam B., and Til Schuermann. 2008. "Understanding the Securitization of Subprime Mortgage Credit." Federal Reserve Bank of New York Staff Reports 318.

Bank for International Settlements - BIS. 2006. *International Convergence of Capital Measurement and Capital Standards – A Revised Framework (Comprehensive Version).* Basel: BIS.

Bannier, Christina E., Patrick Behr, and André Güttler. 2007. "Why are Unsolicited Ratings Lower than Solicited Ratings? A Theoretical and Empirical Assessment." http://www.finance.uni-frankfurt.de/master/brown/181.pdf .

Becker, Bo, and Todd Milbourn. 2010. "Reputation and Competition: Evidence from the Credit Rating Industry." Harvard Business School Working Paper 09-051.

Becker, Bo, and Todd Milbourn. 2011. "How did Increased Competition Affect Credit Ratings?" Forthcoming. *Journal of Financial Economics*.

Bolton, Patrick, Xavier Freixas, and Joel Shapiro. 2009. "The Credit Ratings Game." NBER Working Paper 14712.

Cantor, Richard, and Frank Packer. 1994. "The Credit Rating Industry." *The Federal Reserve Bank of New York Quarterly Review*, 19(2): 1–26.

Cantor, Richard, and Frank Packer. 1996. "Multiple Ratings and Credit Standards: Differences of Opinion in the Credit Rating Industry." The Federal Reserve Bank of New York Staff Reports 12.

Financial Times Europe. 2010. "Rethink on Rating Agencies Urged," April 30, 4.

Library of Congress. 2010. "The Restoring American Financial Stability Act of 2010." Senate Report 111-176.

Metz, Albert, Richard Cantor, and Pamela Stumpp. 2004. "The Effectiveness of Credit Ratings as Indicators of Relative Industry Default Risk." Special Comment, Moody's Investor Service Global Credit Research.

Mishkin, Frederic S. 1999. **"**Global Financial Instability: Framework, Events, Issues." *Journal of Economic Perspectives*, 13: 3–20.

Mukhopadhyay, Bappaditya. 2004. "Moral Hazard with Rating Agency: An Incentive Contract Approach." *Annals of Economics and Finance,* 5: 313–333.

Nakamura, Leonard I., and Kasper Roszbach. 2010. "Credit Ratings and Bank Monitoring Ability." European Banking Center Discussion Paper 2010-10S.

O'Hara, Phillip A. 2011. "International Subprime Crisis and Recession: Emerging Macroprudential, Monetary, Fiscal and Global Governance." *Panoeconomicus*, 58(1): 1–17.

Partnoy, Frank. 2002. "The Paradox of Credit Ratings." In *Ratings, Rating Agencies and the Global Financial System,* ed. Richard M. Levich, Giovanni Majnoni, and Carmen Reinhart. Boston: Kluwer Academic Publishers.

Piazolo, Marc. 2006. "Why have Official Rating Agencies Failed in the Past, and Will They in the Future?" *Ekonomia*, 9(1): 3–20.

Reinhart, Carmen M. 2002. "Sovereign Credit Ratings Before and After Financial Crises." MPRA Working Paper 7410.

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