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Research paper

An experimental investigation of rating-market regulation[☆]

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ABSTRACT

We introduce a simple game-theoretical model that captures the main aspects of the repeated interaction between an issuer and a credit-rating agency. It involves up-front payments of issuer fees and direct publication of requested ratings. Due to pecuniary injuries for untruthful ratings, the credit-rating agency should always report truthfully in the subgame perfect equilibrium. Knowing this, the issuer should never request a rating. Conducting laboratory experiments, we find that behavior significantly deviates from the equilibrium prediction in favor of a cooperative solution: issuers frequently do request ratings, which is often reciprocated with untruthful good ratings.

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1. Introduction

Credit-rating agencies (CRAs) play an important role in generating and disseminating information about the creditworthiness of a firm, government, or bank, and in estimating a financial instruments' likelihood of default. The role of CRAs, however, has been questioned since highly rated structured finance products defaulted en masse during the U.S. subprime mortgage crisis in 2007/8 to 2009. According to the Financial Crisis Inquiry Commission (2011), the financial crisis would not have occurred if today's most famous CRAs Moody's, Standard&Poor's (S&P), and Fitch had performed duly. The poor performance of "The Big Three" in providing timely and accurate ratings can be seen as the result of conflicts of interest in the credit rating market, which have their roots in the history of CRAs, particularly in the early 1970s.

In October 1970, Moody's modified its compensation scheme from "investor-pays" to "issuer-pays", followed by S&P in July 1974 (e.g., Jiang et al., 2012). While this change was intended to prevent investors from free riding, it initiated other conflicts of interest in the rating market. The issuer-pays model is characterized by two main difficulties. First, a rating

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agency is paid only if an issuer asks for the publication of the rating; that is, issuers are able to observe the type of rating before making the buying decision (e.g., Securities and Exchange Commission, 2008). Second, CRAs receive over 90% of their revenues from issuer fees (e.g., Darcy 2009), creating a high dependency of CRAs on those fees and therefore, a strong bargaining power for (big) issuers.

Recent studies show that the issuer-pays model makes rating agencies offer (overly) optimistic ratings in order to attract business (e.g., White, 2010; Strobl and Xia, 2011; Jiang et al., 2012; Camanho et al., 2012; Bongaerts, 2014), a phenomenon which is also known as “ratings inflation”. Furthermore, the issuer-pays model leads to “ratings shopping” in that it allows issuers to solicit multiple ratings and choose the most favorable one (e.g., Skreta and Veldkamp, 2009; Deb and Murphy, 2009; White, 2010; Bolton et al., 2012).

A first attempt to regulate the issuer-pays compensation model was made in 2008 by Andrew Cuomo, then Attorney General and today’s governor of New York. Cuomo reached a three-year agreement with Moody’s, S&P, and Fitch, which required issuers of structured finance products to pay the issuer fee up front, before a CRA conducts its initial analysis (New York State Office of the Attorney General, 2008). The reform aimed for an increase in the overall accuracy of ratings by making CRAs less dependent on the question of receiving the rating fee or not.

The reform, however, is not free from critique. Bolton et al. (2012) present a theoretical rating-market model demonstrating the conflicts of interest between CRAs and issuers.[1] In the context of their model they argue that Cuomo’s agreement does not prevent issuers from ratings shopping. An issuer might consider up-front payments as sunk costs and thus be willing to pay, ex post, for an agreement with the CRA not to publish a bad rating. They claim that the first-best solution in their model would be a reform that prohibits rating shopping by enforcing CRAs to automatically disclose any rating paid for by an issuer.

While this solution is the result of logical, theoretical reasoning, we might expect the real behavior of agents to be different from the theoretical prediction, in particular when interaction is repeated. In highly concentrated markets, issuers and CRAs are likely to have an interest in a long-term cooperation: issuers are interested in good ratings, which CRAs might be willing to supply since they are interested in future rating requests.[2] If this is the case, Cuomo’s regulatory reform is unlikely to prevent CRAs from inflating ratings, even when rating shopping is impossible and rating disclosure is enforced.

The goal of our study is to throw light on this controversy by conducting a laboratory experiment. We design a simple game-theoretical model, inspired by the monopolistic rating-market model in Bolton et al. (2012). Our issuer-CRA rating game includes up-front payments of issuer fees (Cuomo’s agreement) and, as suggested by Bolton et al. (2012), direct publication of any rating that was requested by an issuer. In addition, we include (low and high) pecuniary injuries for inaccurate ratings, where any inaccuracy in ratings is perfectly assignable to the conscious decision of the CRA. We are not explicit about the nature of these costs; they could, for example, reflect reputational losses among investors or financial penalties.[3] The basic game is parameterized such that the subgame perfect equilibrium strategy for a CRA is to provide truthful ratings. Knowing this, the issuer should not request a rating. Conducting laboratory experiments on a repeated version of this game, we find that, irrespective of the level of the CRA’s pecuniary injuries for false ratings, ratings are requested. Furthermore, we frequently observe CRAs to be willing to falsely provide good ratings, except for the final period of the game. This leads us to the interpretation that both issuers and CRAs tend to show an interest in a long-term cooperation, which is of pure strategic nature (even though it is different from the subgame perfect equilibrium solution).

In the following Section 2 we present the experimental design. Section 3 provides the experimental results. Section 4 concludes the paper.

2. Experimental design

2.1. The game

We consider a repeated two-player game with asymmetric information, in which an issuer player and a CRA player interact over 20 periods. In each period, the issuer holds a (financial) product, whose quality is contingent upon the state of

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[1] The model involves an incentive for CRAs to provide overly optimistic ratings, which negatively correlates with expected reputation costs for untruthful ratings. Comparing a competitive to a monopolistic market the authors find, in keeping with the empirical observation by Becker and Milbourn (2011), that competition among CRAs potentially lowers the overall quality of ratings. According to Skreta and Veldkamp (2009), this is due to the opportunity for issuers to shop for ratings.

[2] Frenkel (2015) points at recent empirical studies by Ashcraft et al. (2010) and Griffin and Tang (2012) that provide evidence of rating inflation in markets for structured assets, such as mortgage-backed securities (MBSs) and collateralized debt obligations (CDOs). These markets are highly concentrated. Frenkel (2015) argues that CRAs have an incentive to build not only a public reputation among investors but also a second, private reputation for “leniency” or, in our words, a willingness to cooperate among issuers in order to attract future business. He demonstrates in a theoretical model that in markets with a small number of issuers this may lead to inflated ratings.

[3] Our model relates to the highly concentrated market model investigated by Frenkel (2015). The focus of our model is on the CRA’s reputation building process among issuers, while the concern for public reputation for credibility among investors is controlled for in the parameterization of the CRA’s low or high pecuniary injuries for inaccurate ratings.

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