



Who Should Pay for Credit Ratings and How?

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**ABSTRACT**

This paper analyzes a model where investors use a credit rating to decide whether to finance a firm. The rating quality depends on the unobservable effort exerted by a credit rating agency (CRA). We analyze optimal compensation schemes for the CRA that differ depending on whether a social planner, the firm, or investors order the rating. We find that rating errors are larger when the firm orders it than when investors do. However, investors ask for ratings inefficiently often. Which arrangement leads to a higher social surplus depends on the agents' prior beliefs about the project quality. We also show that competition among CRAs causes them to reduce their fees, put in less effort, and thus leads to less accurate ratings. Rating quality also tends to be lower for new securities. Finally, we find that optimal contracts that provide incentives for both initial ratings and their subsequent revisions can lead the CRA to be slow to acknowledge mistakes.

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# 1 Introduction

Virtually every government inquiry into the 2008 and 2009 financial crisis has assigned some blame to credit rating agencies. For example, the Financial Crisis Inquiry Commission (2011, p. xxv) concludes that “this crisis could not have happened without the rating agencies”. Likewise, the United States Senate Permanent Subcommittee on Investigations (2011, p. 6) states that “inaccurate AAA credit ratings introduced risk into the U.S. financial system and constituted a key cause of the financial crisis”. In announcing its lawsuit against S&P, the U.S. government claimed that “S&P played an important role in helping to bring our economy to the brink of collapse”. But the details of the indictments differ slightly across the analyses. For instance, the Senate report points to inadequate staffing as a critical factor, the Financial Crisis Inquiry Commission highlights the business model that had firms seeking to issue securities pay for ratings as a major contributor, while the Department of Justice lawsuit identifies the desire for increased revenue and market share as a critical factor.<sup>1</sup> In this paper we explore the role that these and other factors might play in creating inaccurate ratings.

We study a one-period environment where a firm is seeking funding for a project from investors. The project’s quality is unknown, and a credit rating agency can be hired to evaluate the project. That is, the rating agency creates value by generating information that can lead to more efficient financing decisions. The CRA must exert costly effort to acquire a signal about the quality of the project, and the higher the effort, the more informative the signal about the project’s quality is. The key friction is that the CRA’s effort is unobservable, so a compensation scheme must be designed to provide incentives to the CRA to exert it. We consider three settings, where we vary who orders a rating — a planner, the firm, or potential investors.

This simple framework makes it possible to directly address the claims made in the government reports. In particular, we can ask: how do you compensate the CRA to avoid

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<sup>1</sup>The United States Senate Permanent Subcommittee on Investigations (2011) reported that “factors responsible for the inaccurate ratings include rating models that failed to include relevant mortgage performance data, unclear and subjective criteria used to produce ratings, a failure to apply updated rating models to existing rated transactions, and a failure to provide adequate staffing to perform rating and surveillance services, despite record revenues”. Financial Crisis Inquiry Commission (2011) concluded that “the business model under which firms issuing securities paid for their ratings seriously undermined the quality and integrity of those ratings; the rating agencies placed market share and profit considerations above the quality and integrity of their ratings”. The United States Department of Justice Complaint (2013) states that because of “the desire to increase market share and profits, S&P issued inflated ratings on hundreds of billions of dollars’ worth of CDOs”.

shirking? Does the issuer-pays model generate more shirking than when the investors pay for ratings? In addition, in natural extensions of the basic model we can see whether a battle for market share would be expected to reduce ratings quality, or whether different types of securities create different incentives to shirk.

Our model explains five facts about the ratings business, documented in the next section, in a unified fashion. The first fact is that rating mistakes are in part due to insufficient effort by rating agencies. The second is that outcomes and accuracy of ratings do differ depending on which party pays for a rating. Third, increases in competition between rating agencies are accompanied by a reduction in the accuracy of ratings. Fourth, ratings mistakes are more common for newer securities with shorter histories that can be studied than for more established types of securities. Finally, revisions to ratings are slow.

We begin our analysis by characterizing the optimal compensation arrangement for the CRA. The need to provide incentives for effort requires setting the fees that are contingent on outcomes — the issued rating and the project’s performance —, which can be interpreted as rewarding the CRA for establishing a reputation for accuracy. Moreover, as is often the case in this kind of models, the problem of effort under-provision argues for giving the surplus from the investment project to the rating agency, so that the higher the CRA’s profits, the higher the effort it exerts.

We proceed by comparing the CRA’s effort and the total surplus in this model depending on who orders a rating. We find that under the issuer-pays model, the rating is acquired less often and is less informative (i.e., the CRA exerts less effort) than in the investor-pays model (or in the second best, where the planner asks for a rating). However, the total surplus in the issuer-pays model may be higher or lower than in the investor-pays model, depending on the agents’ prior beliefs about the quality of the project. The ambiguity about the total surplus arises because even though investors induce the CRA to exert more effort, they will ask for a rating even when the social planner would not. So the extra accuracy achieved by having investors pay is potentially dissipated by an excessive reliance on ratings.

We also extend the basic setup in four ways. The first extension explores the implications of allowing rating agencies to compete for business. An immediate implication of competition is a tendency to reduce fees in order to win business. But with lower fees comes lower effort on project evaluation. Hence, this framework predicts that competition tends to lead to less accurate ratings.

Second, we analyze the case when the CRA can misreport its information. We show

that although the optimal compensation scheme is different than without the possibility of misreporting, our other results extend to this case.

The third extension considers the accuracy of ratings on different types of securities. We suppose that some types of investment projects are inherently more difficult for the CRA to evaluate — presumably because they have a short track record that makes comparisons difficult. We demonstrate that in this case it is inevitable that the ratings will deteriorate.

Finally, we allow for a second period in the model and posit that investment is needed in each of the two periods, so that there is a role for ratings in both periods. The need to elicit effort in both periods poses a problem. The most powerful way to provide incentives for the accuracy of the initial rating requires paying the CRA only when it announces identical ratings in both periods and the project’s performance matches these ratings. Paying the CRA if it makes a ‘mistake’ in the initial rating (when a high rating is followed by the project’s failure) would be detrimental for the incentives in the first period’s effort. However, not paying to the CRA after a ‘mistake’ will result in zero effort in the second period, when the rating needs to be revised. Balancing this trade-off involves the fees in the second period after a ‘mistake’ being too low ex-post, which leads to the CRA being slow to acknowledge mistakes.

While we find that our simple model is very powerful in that it explains the five aforementioned facts using relatively few assumptions, our approach does come with several limitations. For instance, due to complexity, we do not study the problem when multiple ratings can be acquired in equilibrium. Thus we cannot address debates related to rating shopping — a common criticism of the issuer-pays model.<sup>2</sup> Also, we assume that the firm has the same knowledge about the project’s quality ex ante as everyone else. Without this assumption the analysis becomes much more complicated, since in addition to the moral hazard problem on the side of the CRA there is an adverse selection problem on the side of the firm. We do offer some cursory thoughts on this problem in our conclusions.

The remainder of the paper is organized as follows. The next section documents the empirical regularities that motivate our analysis, and compares our model to others in the literature. Section 3 introduces the baseline model. Section 4 presents our main results about the CRA compensation as well as comparison between the issuer-pays and investor-pays models. Section 5 covers the four extensions just described. Section 6 concludes, and proofs are given in the Appendix.

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<sup>2</sup>See the literature review below for discussion of papers that do generate rating shopping. Notice, however, that even without rating shopping we were able to identify problems with the issuer-pays model.

## 2 Motivating Facts and Literature Review

Given the intense interest in the causes of the financial crisis and the role that official accounts of the crisis ascribe to the ratings agencies, it is not surprising that there has an explosion of research on credit rating agencies. White (2010) offers a concise description of the rating industry and recounts its role in the crisis. To understand our contribution, we find it helpful to separate the recent literature into three sub-areas.

The first consists of the empirical studies that seek to document mistakes or perverse rating outcomes. There are so many of these papers that we cannot cover them all, but it is helpful to note that there are five facts that our analysis takes as given. So we will point to specific contributions that document these particular facts.

First, the question of who pays for a rating does seem to matter. The rating industry is currently dominated by Moody's, S&P, and Fitch Ratings which are each compensated by issuers. So comparisons of their recent performance does not speak to this issue. But Cornaggia and Cornaggia (2012) provide some evidence on this question by comparing Moody's ratings to those of Rapid Ratings, a small rating agency which is funded by subscription fees from investors. They find that Moody's ratings are slower to reflect bad news than those of Rapid Ratings.

Jiang, Stanford, and Xie (2012) provide complementary evidence by analyzing data from the 1970s when Moody's and S&P were using different compensation models. In particular, from 1971 until June 1974 S&P was charging investors for ratings, while Moody's was charging issuers. During this period the Moody's ratings systematically exceeded those of S&P. S&P adopted the issuer-pays model in June 1974, and from that point forward over the next three years their ratings essentially matched Moody's.

Second, as documented by Mason and Rosner (2007), most of the rating mistakes occurred for structured products that were primarily related to asset-backed securities. As Pagano and Volpin (2010) note, the volume of these new securities increased tenfold between 2001 and 2010. As Mason and Rosner emphasize, the mistakes that happened for these new products were not found for corporate bonds where CRAs had much more experience. In addition, Morgan (2002) argues that banks (and insurance companies) are inherently more opaque than other firms, and this opaqueness explains his finding that Moody's and S&P differ more in their ratings for these intermediaries than for non-banks.

Third, some of the mistakes in the structured products seem to be due to insufficient monitoring and effort on the part of the analysts. For example, Owusu-Ansah (2012)







































































