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AN ASSESSMENT OF THE CREDIT RATING AGENCIES
Background, Analysis, and Policy

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Abstract

The major credit rating agencies (CRAs)—Moody's, Standard & Poor's (S&P), and Fitch—continue to attract considerable media and public-policy attention; most recently S&P was the target of a lawsuit by the US government. This essay will provide an overview and assessment of the CRAs: what they are; what they do; why they have been so central to the bond markets; their role in the financial crisis of 2008–2009; and the appropriate public-policy measures for them going forward.

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An Assessment of the Credit Rating Agencies: Background, Analysis, and Policy

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I. Introduction

In February 2013 the US government brought a lawsuit against Standard & Poor's (S&P), charging S&P with fraud in its ratings of mortgage-related securities (bonds) in 2004–2007. The suit was a fresh reminder of the continuing policy and media attention that the large credit rating agencies (CRAs)—specifically, S&P, Moody's, and Fitch—have received since the beginning of the financial crisis of 2008–2009.

Why and how did the CRAs gain such importance? What functions do they serve? What was their role in the financial crisis? What policy measures make sense going forward? These are among the issues that this paper will address as it provides an overview and assessment of the CRAs.

There are three important and related themes that will run through this paper. First, the importance of the CRAs to modern bond markets is not accidental or due to mere happenstance. Beginning with banks in 1936, and expanding since then, the major CRAs' ratings have been woven into government prudential regulation of US financial institutions. This has guaranteed an attentive audience for these ratings. Second, the large CRAs played a central role in the financial crisis of 2008–2009. Third, rather than expanding the regulation of the CRAs themselves, a better response to the failings of the CRAs that were exposed during the crisis would be to reduce the CRAs' role in prudential regulation and thereby expose them to more competition from other, smaller providers of similar creditworthiness-advisory services. These providers would offer more "voices" in the information process and could well be sources of innovation: new ideas, new methodologies, new technologies, and perhaps even new business models.

Specifically, this paper is organized as follows: In the next section I address the issue of where the CRAs fit within the larger structure of the financial markets. In section III I provide a brief description of the three major CRAs—their current sizes and structures—as well as describing some of the smaller CRAs. Section IV offers a historical summary of the important milestones in the development of the CRA industry. Section V discusses the major CRAs' role in the financial crisis. Drawing on the previous sections, section VI then addresses the major questions and policy issues that continue to swirl around these institutions. Section VII offers a brief conclusion.[1]

II. Where Do the CRAs Fit within the Larger World of Finance?

Whenever a prospective lender is considering the possibility of making a loan to a prospective borrower, there is a natural and fundamental question that the lender will surely ask: Will I get paid back? This will be true regardless of whether the borrower is a company, a government, or an individual.

To address this question, the lender—among other things—will want to collect information about the borrower. The lender will want information about the prospective borrower's current financial position and financial prospects, the borrower's history with respect to repayment of past loans and other financial commitments, and the value of the collateral (if

[1] This paper draws heavily on White (2002, 2010). Other broad discussions of the credit-rating industry can be found in Cantor and Packer (1995); Partnoy (1999); Levich, Reinhart, and Majnoni (2002); Sinclair (2005); H. Langohr and P. Langohr (2008); Garcia Alcubilla and Ruiz del Pozo (2012); and Lagner and Knyphausen-Aufsess (2012). The focus of this paper will be largely on the US industry and US policies and policy choices. For a broader discussion of the credit rating industry outside the United States, see H. Langohr and P. Langohr (2008) and Garcia Alcubilla and Ruiz del Pozo (2012).

the loan is collateralized) that the borrower would be posting as security. The lender seeks to collect all this information in order to avoid the potential problems of "adverse selection."[2]

Further, after a lender has made a loan, the lender will want to monitor the borrower—again gathering information—so as to be reassured that the borrower's repayment prospects have not worsened;[3] or, if they have worsened, to find this out early, so as to be able to intervene while some or all of the owed amount can be salvaged. Much of this monitoring would be in the form of updates on the borrower's financial position and prospects.

Some financial institutions—for example, banks,[4] insurance companies (as lenders), finance companies, and investment companies (such as bond mutual funds)—often have the scale and the expertise to be able to collect and analyze the requisite information themselves with respect to prospective and ongoing borrowers; these institutions do their own "credit analysis." However, with the development of large digital databases about individuals' financial histories and current financial positions (e.g., as collected by the Fair Isaac Company, which was the developer of the "FICO score"), even these specialized lending institutions have increasingly turned to third-party vendors for this standardized information, which then becomes an input into their credit analyses of certain kinds of loans (e.g., loans to individuals or even to small businesses).

Some financial institutions, especially if they are relatively small, may not have the scale to gather and analyze the requisite information about certain categories of loans on their own. This seems to be the case with respect to smaller institutions' investments in bonds. (Recall that

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[2] See, for example, Stiglitz and Weiss (1981). Adverse selection refers to the phenomenon whereby one side of a market or transaction has superior knowledge (usually about its own characteristics) that will adversely affect the other side. In this case, without the protections that are mentioned in the text, the lender would likely be swamped—adversely selected against—by a high percentage of borrowers who would be unlikely to repay their loans.

[3] To the extent that the borrower's own actions could influence the borrower's prospects for repayment, this ongoing monitoring represents efforts by the borrowers to address the problems of "moral hazard."

[4] By "banks" I generally mean depository institutions—i.e., commercial banks, savings banks, and credit unions—unless otherwise indicated.

a bond indenture is a loan to the issuing entity, and thus a bond "investor" is in essence a lender to the bond issuer.) The same is surely true of most individuals when they act as bond investors. Accordingly, these categories of lenders are likely to turn to third parties to gather and analyze the requisite information about bond issuers. These third-party entities—who can muster the needed scale and specialized expertise—could thus be considered providers of creditworthiness-advisory services.

It is worth noting that the asymmetric information that lenders face with respect to borrowers is also a problem for more creditworthy potential borrowers: they would like to be able to convince lenders of their relative creditworthiness and thus separate themselves from less creditworthy potential borrowers. Accordingly, an accurate provider of creditworthiness-advisory services is providing useful services for both sides of the market: for creditworthy borrowers as well as for lenders.[5]

The major CRAs are clearly one important category of providers of such creditworthiness-advisory services. They collect information about the bond issuers and their bond issuances, and the CRAs publish "ratings" on the bonds: assessments of the prospects for repayment of the bonds.[6] All the major CRAs use alphabet-oriented scales that express their judgments about the relative creditworthiness of the bond that is being rated. S&P, for example, uses AAA, AA, A, BBB, BB, and so on, down to C, and then D, with pluses and minuses for all the grades from AA through CCC.[7] S&P describes AAA as indicating that the issuer has an

[5] In this sense, the provision of creditworthiness-advisory services is a "two-sided" market, where both lenders and borrowers are beneficiaries of the services that are being provided. For a more general discussion of two-sided markets, see, e.g., Rysman (2009).

[6] For S&P the rating is an indicator of the probability of default: the probability that the lender will experience some loss. For Moody's and Fitch, the rating also encompasses the expected loss given default. See SEC (2012a).

[7] All the CRAs use a separate "symbology" for their ratings of commercial paper (i.e., short-term corporate debt obligations); and they use yet different sets of symbols for other categories of ratings (e.g., for the ratings of banks, insurance companies, and mutual funds). See SEC (2012a).

"extremely strong capacity to meet financial commitments"; a D indicates that there has been a "payments default on financial commitments."

Within the continuum of creditworthiness assessments that are represented by any of the CRAs' rating scales, an important distinction has grown over time between bonds that are "investment grade" and bonds that are "speculative."[8] In the S&P continuum, bonds that are rated BBB− or better are considered investment grade; those that are BB+ or below are considered speculative. (Since the 1980s this latter category has also come to be described as "junk bonds.") The importance of this specific categorization will be discussed in subsequent sections.

Although the major CRAs are clearly important providers of creditworthiness-advisory services, they are not the only entities available to bond investors who seek third-party advice. Other categories include

- Smaller advisory services that describe themselves as CRAs and that have been certified (along with Moody's, S&P, and Fitch) as "nationally recognized statistical rating organizations" (NRSROs) by the US Securities and Exchange Commission (SEC).[9] As of early 2013 there were seven of these smaller CRAs.[10]
- Other creditworthiness advisory firms that have not been certified by the SEC and that may or may not describe themselves as "credit rating agencies" but that essentially are

[8] See Fons (2004).
[9] The NRSRO system has been in existence since 1975. The system will be discussed at greater length in subsequent sections.
[10] These seven will be discussed in section III. It is worth noting that in 2009 the European Union began a similar system of registration and certification of CRAs, based on registration by member states. The European Securities and Markets Agency (ESMA) reported that, as of 2013, registrants included the three large US-based CRAs, three of the smaller US NRSROs, and 13 additional Europe-based CRAs. A longer list of CRAs can be found in Garcia Alcubilla and Ruiz del Pozo (2012, 10–11); a yet longer list of CRAs worldwide can be found at http://www.default risk.com/rating_agencies.htm.

providing similar services: advising clients as to the creditworthiness of various bond issuers and their bond issuances.[11]

- Certain personnel, present at almost all securities firms, who are usually called "fixed-income analysts." Although generally less well known than these firms' "equity analysts," these fixed-income analysts provide the same kinds of creditworthiness-advisory information (although it may be packaged with a "buy," "hold," or "sell" recommendation) as do CRAs, but for the clients of their securities firms (as well as for those firms' securities traders).[12]

The existence of these alternatives to the major CRAs—as an indication that the major CRAs are not "the only game in town"—is an important phenomenon that will enter the discussion in subsequent sections.

III. A Brief Description of the CRAs

This section will provide a brief description of each of the three major CRAs, as well as some information on the seven smaller CRAs certified as NRSROs. The readily available quantitative information on these ten CRAs can be found in table 1 (see page 67), which is derived largely from the annual NRSRO registration information ("Form NRSRO") that each firm must provide. Additional information, derived from company annual reports, is also included below.

[11] Some examples of these smaller, noncertified firms in the United States include CreditSights; R&R Consulting; Rapid Ratings International; PF2 Securities Evaluations, Inc.; Weiss Ratings; and Institutional Risk Analytics.
[12] Fixed-income analysts have a professional membership organization—the Fixed Income Analysts Society, Inc. (see www.fiasi.org)—and even a "Fixed Income Hall of Fame" (see http://www.fiasi.org/fixed-income-hall-of-fame). Evidence that these fixed-income analysts' judgments are noticed by the financial markets can be found in Johnston, Markov, and Ramnath (2009).

A. Moody's Investors Service, Inc.

Moody's is the only one of the three major CRAs that is a freestanding, publicly traded company. It was the originator of publicly available ratings, which was an innovation by John Moody in 1909. Dun & Bradstreet absorbed Moody's in an acquisition in 1962, but spun it off as a freestanding company in 2000. Approximately 70 percent of its revenues are derived from ratings (as of 2012, as shown in its annual report). In calendar year 2012, Moody's had aggregate sales of $2.8 billion, assets of $4.0 billion, and profits ("operating income") of $1.1 billion. Its employees numbered approximately 6,800. Moody's is an international company: it has offices in 28 countries, and it provides ratings for issuers that are located in more than 110 countries. In 2012, almost 60 percent of its rating revenues came from its ratings of US issuers; the remainder came from issuers that were located outside the United States.

As can be seen in table 1, Moody's maintained ratings on almost 1 million bond issuances in 2011, with a staff of analysts and supervisors that numbered around 1,250. Among the reasons why the ratio of rated bonds to rating staff can be so high is that some issuers—such as governments—issue many different series of bonds; but the credit rating essentially pertains to the issuer, so that a single rating (and a single analytical effort) pertains to all the bonds of that issuer.

B. Standard & Poor's Ratings Services

The rating business of S&P is embedded in the larger S&P financial-information enterprise, which, among other things, compiles and publishes widely used financial instrument indexes such as the "S&P 500" index. S&P, in turn, is a major part of McGraw-Hill Financial Inc.[13]

[13] Until March 2013, McGraw-Hill encompassed both the S&P financial products and services business and a major publishing business. In March 2013 it sold the publishing business to Apollo Global Management LLC.

The Poor's Publishing Company, founded by Henry Varnum Poor in the 19th century, entered the rating business in 1916 (seven years after Moody began his innovation); the Standard Statistics Company, founded by Luther Blake in 1906, followed in 1922. The two companies merged to form S&P in 1941; and S&P was acquired by McGraw-Hill in 1966.

Because S&P's rating activities have been embedded in the much larger McGraw-Hill company structure, much less information is available about S&P Ratings Services as a standalone unit than is available about Moody's. S&P's ratings unit in 2012 (as shown in the McGraw-Hill Annual Report for 2012) had aggregate revenues of $2.0 billion and an operating profit of $850 million. Similarly to Moody's, S&P has a major international presence, with offices in over 20 countries and issuers in over 125 countries. Over half (54 percent) of its 2012 revenues came from its ratings of US issuers; the remainder came from outside the United States.

As can be seen in table 1, S&P is approximately the same size as Moody's when measured in terms of ratings outstanding and rating personnel.

C. Fitch Ratings

Fitch Ratings is part of the Fitch Group, a financial-information company, which in turn is a jointly owned subsidiary of French financial-services company Fimilac, SA, and the Hearst Corporation. Consequently, as in the case of S&P's ratings unit, little financial information is available about Fitch Ratings as a freestanding unit. Fitch's revenues from ratings in 2011 were $732 million. Fitch is somewhat more internationally oriented than the two other major CRAs: of its 2010 revenues, only 41.9 percent came from North America. Fitch has 50 offices worldwide and rates bonds from over 150 countries.

Fitch (which was founded in 1913 by John Knowles Fitch) entered the rating business in 1924. It was absorbed by a British rating firm, IBCA, Ltd., in 1997. Because IBCA was already a subsidiary of Fimilac (having been acquired in 1992), Fitch effectively became a subsidiary of Fimilac as well. The Hearst Corporation bought a 20 percent stake in Fitch in 2006 and expanded that stake to 40 percent in 2009.

As table 1 shows, Fitch is roughly one-third the size of Moody's or S&P when ratings outstanding is the metric, although Fitch has only a modestly smaller number of rating personnel.

D. The Seven Smaller NRSROs

As can be seen in table 1, the seven remaining NRSROs are considerably smaller than the three major CRAs.[14] If the metric used is their share of outstanding ratings, the seven account for only about 3.5 percent of the total, with Dominion Rating Bond Service (DBRS) accounting for over half of the smaller CRAs' ratings; however, the low participation by the smaller firms in the large categories of government securities and asset-backed securities is an important reason for their small overall share. The seven smaller NRSROs are more prominent (a range of 10–25 percent) in the first three categories in table 1: financial institutions, insurance companies, and corporate issuers. If rating personnel is the metric, the seven smaller CRAs account for about 10 percent of the total.

A few distinctive characteristics of the seven smaller CRAs are worth noting:

- A.M. Best Company Inc. is known as a specialist in rating insurance companies.
- Dominion Bond Rating Services Inc. (DBRS) is a Canada-based CRA.

[14] An additional smaller NRSRO—Rating and Investment Information Inc. (R&I), which is a Japan-based CRA—had been certified by the SEC in 2007, but it withdrew from NRSRO registration at the end of 2011.

- Egan-Jones is the only CRA that has maintained a business model based on charging fees only to investors ("subscribers") for the ratings that it issues; all the other certified CRAs are paid—at least partially, and in most cases wholly—by the issuers of the bonds that the CRA rates.[15]
- HR Ratings de Mexico is a Mexico-based CRA and the newest NRSRO registrant, having been certified by the SEC in November 2012.
- Japan Credit Rating Agency Ltd. (JCR) is a Japan-based CRA.
- Kroll Bond Rating Agency Inc. became a certified CRA by acquiring a small certified CRA (LACE Financial Corporation) in 2010.[16]
- Morningstar Credit Ratings, LLC, which is better known for its assessments and ratings of mutual funds, became a certified CRA by acquiring a small certified CRA (Realpoint LLC) in 2010.[17]

E. A Summary of the Data

The data in table 1 show that Moody's, S&P, and Fitch well deserve the summary description as "the Big Three" in the rating business. Moody's and S&P are roughly similar in size; Fitch is smaller, although how much smaller depends on the metric that is used; and the remaining seven NRSROs are considerably smaller than the three major CRAs.

[15] The topic of the business model for the CRAs will be discussed in subsequent sections.
[16] Lace's business model had been one of charging investors for its ratings, which was the initial goal of Kroll at the time of acquisition. However, as will be discussed below, Kroll has been moving away from the investor-pays model and toward the issuer-pays model.
[17] Like Lace, Realpoint's business model had been one of charging investors for its ratings. However, like Kroll, Morningstar has been moving toward the issuer-pays model.

IV. A Short History of the Credit-Rating Agencies

Information on "how we got here" is often useful for helping to determine "where we should go"; this is certainly the case with respect to the credit rating agencies. Consequently, this section will offer a short history of the credit rating industry.[18]

A. The Early Years

Although the earliest instance of "credit analysis" probably occurred in prehistoric times when the first lender considered the possibility of making a loan to the first borrower, it was only in 1909 that the first publicly available ratings on bonds came into existence.[19] In that year John Moody published a "rating manual" that contained his ratings of dozens of bonds that had been issued by railroad companies in the United States.[20] Moody sold his rating manuals to bond investors. Thus, in modern parlance, his business model was "investor pays."

Moody's example was followed by others: the Poor's Publishing Company entered in 1916, followed by the Standard Statistics Company in 1920 and by the Fitch Publishing Company in 1924.[21] In all instances, the entrants followed a business model of "investor pays."[22]

This pattern of entry—and the firms' continued presence in the bond-rating business—indicated that they were meeting a market test. It is not surprising that the financial markets

[18] A more extensive history can be found in Sylla (2002).
[19] As Sylla (2002) points out, during the nineteenth century there were local credit-reporting services, a specialized financial press, and the services of investment bankers that helped lenders assess the creditworthiness of potential and actual borrowers.
[20] That this happened first in the United States and not elsewhere was not accidental, since the US bond market was far larger than the bond markets in most other countries (where lending to companies and governments more often occurred through banks); and that Moody filled his manual with ratings on railroad bonds was also not accidental: railroads were among the largest companies in the United States, they were growing rapidly, and they were generally in need of borrowed funds.
[21] It was Fitch that apparently devised the rating symbology of AAA, AA, A, etc., which has since come to be widely used in the industry (except by Moody's, which has maintained its own, somewhat different symbology).
[22] This was a natural model for these companies at the time, since they all (including Moody) had been publishers of business information (which they sold to investors) before deciding to publish bond ratings.

found these ratings useful, in the sense that investors were willing to pay for them, because this was a period before the mandated financial disclosures that followed the establishment of the SEC in 1934. Voluntary disclosures by companies were more scanty in this pre-SEC period.[23] Consequently, bond investors—especially smaller financial institutions and individual investors—were more likely to turn to third-party sources of creditworthiness information for help in making their bond-investment decisions (and were willing to pay for information that they believed to be reliable).

B. The 1930s through the 1970s

The 1930s were an important turning point for the CRAs. On the one hand, the establishment of the SEC and its subsequent regulatory regime of mandatory disclosure of financial information by publicly traded companies should have reduced investors' demand for the CRAs' ratings. But an important change in the prudential regulation of banks had the opposite effect: it increased bond investors' demand for ratings.[24]

In the early 1930s, federal bank regulators began introducing the use of ratings for the required accounting practices of commercial banks. Bonds that commercial banks had bought and were holding in their portfolios had to be marked to market (i.e., valued at market prices)[25] if the bonds were rated as "speculative"; but the bonds could be valued at their original purchase cost if the bonds were rated as "investment grade."

However, the major regulatory action occurred in 1936, when federal bank regulators mandated that commercial banks—if they wanted to invest in bonds—could invest only in

[23] See, for example, Benston (1969).
[24] This discussion draws heavily on Hickman (1958) and Partnoy (1999).
[25] This would usually mean writing down the value of the bonds on the balance sheet and taking a loss on the operating statement.

investment grade bonds and could not invest in speculative bonds. The determination of what was investment grade and what was speculative would be according to "recognized rating manuals."[26] Apparently, in the "clubby" world of the 1930s, these recognized rating manuals were understood to mean those that were issued by Moody's, Poor's, Standard, and Fitch.[27]

This decision by federal bank regulators is understandable. A central regulatory function of bank regulation is "prudential regulation":[28] the regulatory effort to keep banks solvent. If a bank were to invest in bonds, the prudential regulator would want the bonds to be "safe" for the bank rather than "speculative" (i.e., high-risk), just as the prudential regulator would want the bank's other loans and investments to be safe rather than speculative. Apparently, the federal regulators believed that the major CRAs' ratings were reliable—and especially that their distinction between investment grade and speculative bonds was trustworthy. In this context, "outsourcing" this safety determination to the CRAs made sense and probably economized on the regulators' own resources, because these determinations wouldn't have to be made in-house by the regulators.

However, this regulatory decision marked an important watershed for the CRAs:[29] Before the 1930s, investor decisions about whether to buy the various CRAs' ratings were wholly voluntary; there was no mandate for any investor to use ratings for bond-investment decisions. As discussed above, the apparently sufficient numbers of investors that voluntarily chose to buy the CRAs' rating manuals meant that the CRAs were meeting a market test. But this outsourcing

[26] The regulation was first issued by the US Office of the Comptroller of the Currency (OCC): the federal regulator of nationally chartered commercial banks. The other federal bank regulators quickly followed.
[27] Because there were multiple "recognized" rating agencies, the OCC included the following language in its regulation: ". . . and where there is doubt as to the eligibility of the security for purchase, such eligibility must be supported by not less than two rating manuals."
[28] In the US this is often referred to as "safety-and-soundness regulation"; elsewhere, "prudential regulation" is by far the more common term.
[29] Also, since the 1930s federal bank regulators have considerably expanded their inclusion of CRAs' ratings in regulations. For recent summaries, see FDIC (2011); OCC (2011); and US Federal Reserve Board (2011).

of an important safety determination to these third-party rating agencies meant that the CRAs now had at least one category of guaranteed customers: commercial banks that held bonds or that were considering the possibility of buying bonds. Further, because commercial banks were important participants in the bond markets,[30] other participants—even if they did their own credit analyses—would want to know the CRAs' ratings of bonds, because this would tell them what one major category of participant could or could not buy. Consequently, the likely market for the CRAs' ratings was considerably wider than just the banks.

In an important sense, by outsourcing this safety determination and then using it for their regulatory purposes, *the federal bank regulators had imbued the CRAs' judgments with the force of law.*[31]

During the following decades, the state regulators of insurance companies[32] also began to incorporate the major CRAs' ratings into their prudential regulation of their respective insurance companies. Thus, the guaranteed market for the CRAs' ratings widened further. And in the mid-1970s, when the Employee Retirement Income Security Act (ERISA) of 1974 extended federal prudential regulation to corporations' defined-benefit pension plans, again the CRAs' ratings were put to use—and again the guaranteed market for the CRAs' ratings widened.

A major formalization of this federal use of CRAs' ratings for prudential-regulatory purposes occurred in 1975. In that year the SEC revised its "net capital" rule for broker-dealers (i.e., securities firms); this was, essentially, prudential regulation of these firms. In its revision,

[30] As of 1945 (the first year in the Federal Reserve's "Flow of Funds" database), banks held over a third of all outstanding bonds. If Treasury bonds are excluded, banks held over a fifth of the remaining bonds.
[31] Apparently, objections to this placement of authority in private-party hands were raised at the time, and in 1938 the language of "recognized rating manuals" was eliminated from the regulation (Hickman 1958, 145). But since the language of "speculative" and "investment grade" remained in the regulation, de facto the major CRAs' judgments remained as the standard for banks' bond purchases (Hickman 1958, 145).
[32] In the United States the regulation of insurance companies—prudential regulation as well as rate regulation—has been and continues to be wholly the domain of the individual states.

the SEC decided that it wanted a broker-dealer's capital level to be sensitive to the risks of the bonds that it held in its portfolio, which was similar to the approach of the state insurance regulators; and it wanted to use the CRAs' ratings, which the state insurance regulators also used, as indicators of those risks. However, the SEC was concerned about the vagueness of the references to ratings and the concomitant uncertainty about exactly which CRAs' ratings could be used for the purposes of the net capital rule.

Consequently, the SEC decided to create a wholly new regulatory category of rating firm—nationally recognized statistical rating organization (NRSRO)—for the purposes of designating which CRAs' ratings should be used by the broker-dealers in the determination of the riskiness of the bonds that they held and thus the levels of capital that they needed. The SEC immediately certified Moody's, S&P, and Fitch as NRSROs. The bank, insurance, and pension-fund regulators soon after adopted the NRSRO category as applicable for their use of ratings for prudential-regulatory purposes.

One other important set of events for the CRA industry occurred in the late 1960s and early 1970s. During those years the industry changed its basic business model from the "investor-pays" model that John Moody had established to an "issuer-pays" model. In this latter model (which continues to prevail today) a bond issuer is charged a fee for the rating of its bonds, and the CRA distributes the rating (as soon as it is finalized) to the general public with no associated fee.

The reasons for this switch to the issuer-pays model have never been thoroughly explored. However, two likely explanations stand out. First, the late 1960s were a period when the high-speed photocopier was coming into widespread use. The CRAs may well have feared that inexpensive photocopying and sharing of the content of their rating manuals would severely

undercut their ability to charge investors for the manuals, in a way that was similar to how digital copying undermined the recorded-music business three decades later. News reports at the time indicated that the CRAs felt constrained in their ability to raise sufficient revenues from their investor customers.

Second, recall that the provision of creditworthiness-advisory services operates in a two-sided market: Lenders *and* most borrowers[33] benefit from the information. The expanded use of ratings for prudential-regulatory purposes may have highlighted for the CRAs that bond *issuers* benefited from the widespread use of ratings—indeed, that the bond issuers *needed* the CRAs' ratings in order to have their bonds considered for purchase by banks and insurance companies—and therefore should be willing to pay for those ratings.[34]

It is clear—and it was clear at the time of the change[35]—that the issuer-pays business model introduced a potential conflict of interest that wasn't present in the investor-pays model: the issuer could threaten a candidate CRA that it would take its issuance business to a different CRA unless the first CRA gave some desired rating to the issuer's bonds. As somewhat of a counterweight to this, a CRA might also threaten an issuer that it would give an unfavorable "unsolicited"[36] rating of the issuer's bonds unless the issuer agreed to pay the CRA to rate its bonds.[37]

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[33] The exceptions are the least-creditworthy borrowers, who might prefer that less information be provided, so that they might masquerade as less risky.

[34] As a general matter in two-sided markets, the side from which the central "platform" (in this case, the provider of creditworthiness-advisory services) receives payment can be idiosyncratic. See, e.g., Rysman (2009).

[35] Evidence that the potential conflict was recognized at the time can be found in the following excerpt from a 1968 *New York Times* news story about S&P's decision to begin charging municipal bond issuers for their ratings: "Asked whether the payment of fees [by issuers] might create a conflict of interest, Brenton W. Harries, S&P vice president, said not" (Mooney, 1968).

[36] I.e., even though not engaged by the issuer, the CRA might nevertheless "as a public service" rate the issuer's bonds. For a model of issuer-pays CRAs that includes both solicited and unsolicited ratings, see Fulghieri, Strobl, and Xia (2012).

[37] Arguably, even in the context of the investor-pays business model, a CRA might attempt to extort some kind of payment from an issuer by threatening otherwise to issue an unfavorable rating (or, equivalently, by promising a more favorable rating in return for the payment); but the issuer-pays model would provide more natural opportunities for such negotiations.

C. The 1980s and 1990s

During the 1980s and 1990s the CRAs attracted little attention. Despite the potential conflicts of interest that the switch to the issuer-pays model created, there were no noticeable incidents of any CRAs' acceding to an issuer's pressures for a better rating. Indeed, the CRAs' reputation during this period was as "tough guys" that were to be feared, rather than as weak entities that could be swayed by issuers.[38] The following comment by journalist Thomas Friedman is illustrative:

> There are two superpowers in the world today in my opinion. There's the United States, and there's Moody's Bond Rating Service. The United States can destroy you by dropping bombs, and Moody's can destroy you by downgrading your bonds. And believe me, it's not clear sometimes who's more powerful.[39]

The NRSRO system also attracted little attention. Few individuals in Washington (except for employees of the SEC and the NRSROs themselves) appear to have been aware of it. However, regulatory use of it by bank regulators and by the SEC itself was expanding.[40]

In addition, during the 25 years that followed its creation of the NRSRO category, the SEC certified only four additional NRSROs. In an important sense, the SEC had become a serious barrier to entry for any firm that may have wanted to become a major provider of creditworthiness information:[41] Without the NRSRO designation, it would be hard for a would-be CRA to attract the attention of prudentially regulated financial institutions (in their roles as

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[38] See Blume, Lim, and MacKinlay (1998) and Baghai, Servaes, and Tamayo (2011) for evidence that, if anything, the CRAs' standards became more stringent (i.e., "tougher") from the 1970s through the first decade of the 21st century.

[39] Thomas L. Friedman, PBS *News Hour*, February 13, 1996.

[40] Notably, in the early 1990s, when the SEC decided that money-market mutual funds should hold predominantly high-quality short-term obligations as their assets, it was the NRSROs' determinations of quality to which the SEC turned. The SEC has also employed NRSRO ratings in other regulatory contexts. For an inventory, see SEC (2011). The bank regulators also considerably expanded their inclusion of CRAs' ratings in their regulations. For recent summaries, see FDIC (2011); OCC (2011); and US Federal Reserve Board (2011).

[41] In addition, the SEC was extraordinarily opaque in its administration of the NRSRO category. It never established formal criteria for what would qualify a firm to be approved to be a NRSRO; it never established a formal application and assessment process; and it never explained why it had awarded the NRSRO designation to some firms but not to others.

bond buyers); and without the attention of these bond buyers, it would be difficult for that would-be CRA to attract the attention of issuers (if the firm wanted to gain additional insight into the issuers' operations).

To make matters worse, the entrants merged among themselves and with Fitch. As a consequence, by year-end 2000 the number and identity of NRSROs was back to the original three that had been designated in 1975: Moody's, S&P, and Fitch.

D. The First Decade of the 21st Century

The near-anonymity of the CRAs and the low profile of the NRSRO system did not last long into the first decade of the 21st century. The bankruptcy of the Enron Corporation in November 2001 attracted a considerable amount of media and congressional attention, partly because of that company's size and partly because it had been a prominent company before its bankruptcy. The media examination of the events that preceded the bankruptcy uncovered the fact that the major CRAs had rated Enron's bonds as "investment grade" until five days immediately before the bankruptcy. This discovery eventually led to congressional hearings, in which members of Congress asked CRA executives why they had waited so long to downgrade Enron and asked SEC personnel about the NRSRO system, how the SEC had managed it, why there were only three NRSROs, and why they hadn't performed very well.[42]

In response to these congressional pressures, the SEC designated a fourth NRSRO in 2003 and a fifth in 2005.[43] But the SEC did not alter its opaque administration of the system.

[42] See, for example, US Senate (2002). The Sarbanes-Oxley Act of 2002 instructed the SEC to conduct a study and send a report to Congress about the CRAs and the NRSRO system, which the SEC delivered in January 2003. See SEC (2003).
[43] These were, respectively, DBRS and A.M. Best.

Congress's continuing dissatisfaction with the SEC and its administration of the NRSRO system led to the passage of the Credit Rating Agency Reform Act (CRARA) of 2006. The CRARA required that the SEC establish a formal and transparent process for designating NRSROs, including criteria that the act specified for the SEC to use in its designations. The act also gave the SEC information-gathering powers and some oversight powers vis-à-vis the NRSROs. However, the CRARA specifically restricted the SEC from influencing the NRSROs' ratings or the NRSROs' business models.

In response, the SEC designated three additional NRSROs in 2007 (one of which withdrew from the designation at the end of 2011), two more in 2008, and one in 2012. As of mid-2013 there are thus the ten NRSROs described in section III.[44]

The first decade of the 21st century was also the period when the major CRAs became heavily involved in the rating of mortgage-related securities. This experience will be discussed in section V.

E. A Summing Up

The prominence of the three major CRAs has surely been enhanced by the US financial regulators' use of the CRAs' ratings for prudential-regulatory purposes, starting in the 1930s. The major CRAs' position was further solidified by the SEC's creation of the NRSRO system in 1975 and the SEC's subsequent maintenance of a high barrier to entry into the NRSRO category. Given that history, it is not surprising that the three major NRSROs are often seen as "the only game in town" with respect to bond ratings and creditworthiness information more generally. It is surely worth contemplating how the market for creditworthiness-advisory services might have

[44] That the new system mandated by the CRARA can still create barriers to entry is illustrated by Morgenson (2013).

evolved, and what it might look like today, if the CRAs' ratings had not been employed for regulatory purposes and if the SEC had not created the NRSRO system.

V. The Major CRAs' Role in the Financial Crisis of 2008–2009

The major CRAs played an important role in the run-up to the financial crisis of 2008–2009. To understand that role will require some background on the housing boom and bust that the US economy experienced in the late 1990s and the early years of the 21st century.

A. The Housing Boom

Beginning in the late 1990s, the US economy experienced a major housing boom—which, with the advantage of hindsight, we now recognize to have been a bubble. Between 1997 and 2006 the S&P/Case-Shiller national index of house prices rose by about 125 percent; by comparison, the US Consumer Price Index rose by only 28 percent during this same period. By the first few years of the 21st century there appeared to be a widespread belief by those who were involved in the housing market that house prices could only go up.

Helping to fuel this boom was the relatively new technology of residential-mortgage securitization and especially the spread of this technology to the securitization of residential mortgages by nongovernmental issuers.[45] Mortgage securitization involved the pooling of hundreds (or sometimes thousands) of mortgages into securities—*bonds*—that could be sold to investors, with the payments of interest and principal by the underlying mortgage borrowers

[45] Snowden (2010b) has described the securitization of farm mortgages (which included the farm house) in the American Midwest in the 1880s, and Goetzmann and Newman (2010) have documented that the securitization of *commercial* mortgages (which included some multifamily apartment buildings) began at least as early as the 1920s. There appear to have been some limited amounts of single-family residential securitizations during the 1920s as well (Goetzmann and Newman, 2010; Snowden, 2010a, 2010b). But the sustained securitization of single-family residential mortgages began only in the 1970s.

being passed through to the securities' investors. The first[46] residential-mortgage-backed securities (RMBS) were created and sold in 1970 by Ginnie Mae, which was an agency within the US Department of Housing and Urban Development. Freddie Mac, which was a "government-sponsored enterprise" (GSE),[47] followed with its RMBS in 1971. Fannie Mae, which was the other major housing-focused GSE, began its securitization program in 1981.[48] The importance of the RMBS process was that it opened housing finance to new sources of funding—as compared to the traditional form of housing finance, which had been largely channeled through commercial banks and savings and loan institutions (S&Ls).

Until the late 1990s almost all RMBS were issued by these governmental (Ginnie Mae) or quasi-governmental (Freddie Mac and Fannie Mae) entities. This was no accident: the investors in the RMBS needed assurances about the creditworthiness of the securities, because the bond investors could not usually investigate the creditworthiness of the hundreds (or thousands) of underlying mortgage borrowers. The three issuers each provided guarantees to the investors in their respective RMBS that, in the event that any of the underlying borrowers failed to pay their mortgages (i.e., defaulted), the bond investors would nevertheless receive the requisite payments—that is, the issuer would absorb the loss. The investors found these guarantees to be credible because of the governmental or quasi-governmental status of the issuers.

By contrast, residential-mortgage securitizations by nongovernmental packagers[49]—"private label" issuers (typically commercial banks or investment banks)—were more difficult to arrange. Again, the bond investors would need some assurance about payment. But direct

[46] As was noted above, there were efforts at RMBS during the 1920s, which did not survive past the 1920s.
[47] GSEs are enterprises that have a mixture of governmental and private elements in their governance. For example, although Fannie Mae and Freddie Mac have private shareholders (and their shares formerly traded on the New York Stock Exchange), their charters were created by Congress.
[48] For more background on Fannie Mae and Freddie Mac, see, e.g., Frame and White (2005) and Acharya et al. (2011); and for more background on residential-mortgage securitization generally, see Frame and White (2012).
[49] The SEC frequently describes these entities as "arrangers."

guarantees by the private-label issuers were infeasible for at least two reasons: first, investors were likely to find these private-issuer guarantees less credible than those of Ginnie Mae or the GSEs; and second, the private-label issuers were not interested in providing such guarantees in any event, since they did not want to maintain the capital levels that prudential regulators would have required to support such guarantees.

Before the late 1990s, the method private companies used for a limited number of securitizations was to obtain guarantees on the RMBS from specialized (and highly rated) bond insurers. Starting in the late 1990s, however, the private-label securitizers increasingly turned to a different securitizing structure that appeared to provide the necessary assurances: the RMBS were structured into "senior" and "junior" bonds (or "tranches"). All the cash flows from the payments by the underlying mortgage borrowers would go first to satisfy the claims of the senior bond holders, and only after these senior claims were satisfied would the junior bond holders be able to receive their payments. If some of the underlying mortgage borrowers failed to make their payments, it would be the junior bond holders that would bear the losses first. Only if the accumulated payment deficiencies were so large as to wipe out the claims of the junior bond holders would the senior bond holders suffer any losses.[50]

With this structure, the junior bondholders were thus providing a protective, loss-absorbing buffer for the senior bondholders of these RMBS. The latter thereby received an

[50] The cash flows among the tranches, with the senior tranches being the first to receive payments, etc., are often described as "waterfalls." The description in the text simplifies the process into only two tranches. In practice, RMBS were often divided into a dozen or more tranches, with gradated levels of seniority; but the principle that the most junior tranche would be the first to absorb any losses and thus that it protected all the tranches that were above it in seniority, and then the slightly-less-junior tranche would be the next to absorb the losses (after the most junior tranche had been wiped out), etc., was preserved. For examples, see Ashcraft and Schuermann (2008, 30) and FCIC (2011, 116). And yet more complex securities—such as "collateralized debt obligations" (CDOs)—were formed from the tranches of various mortgage-backed securities plus other kinds of collateralized debt, with the CDOs in turn being structured into tranches (and even additional CDOs being formed from the tranches of other CDOs, etc.). For a discussion, see, e.g., Coval, Jurek, and Stafford (2009). I will henceforth describe all residential mortgage-based securities as RMBS, unless otherwise indicated.

assurance that could be the rough equivalent of the guarantees that were provided by Ginnie Mae and the GSEs;[51] and the issuers would have to find investors who would be willing (in return for a suitable interest-rate premium) to accept the risks of investing in the junior tranches.

B. The Role of the Major CRAs in Private-Label Securitization

The three major CRAs—which, as of year-end 2000, were the only remaining NRSROs—were essential to the issuance of private-label RMBS, for at least two reasons. First, as was true for virtually all bonds,[52] prudentially regulated financial institutions could buy and hold the RMBS only if they were rated by the NRSROs. Banks in particular could only purchase bonds if the NRSROs rated them as investment grade. Second, the RMBS were generally more complex and more informationally opaque than was true of ordinary corporate debt or government bonds.[53] Again, the creditworthiness of the hundreds of underlying mortgage borrowers would matter; but so also would the details of the senior/junior arrangements.[54] Consequently, even if a financial institution wasn't prudentially regulated, unless it had special expertise in RMBS it was likely to look to a third-party specialist that did have this expertise.[55]

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[51] Changes in bank-capital regulation in 2002 recognized this equivalence, by setting the capital requirements for banks' holdings of private-label RMBS that were rated at levels of AA or better at the same level (1.6 percent) as applied to banks' holdings of the RMBS that were issued by the GSEs.

[52] The exceptions were bonds that were issued by the US government (which included Ginnie Mae RMBS) and by the GSEs.

[53] See Pagano and Volpe (2010, 410–12) for a description of this opaqueness.

[54] For example, as a general matter, the safer the underlying assets are, the smaller the junior tranche can be (and, concomitantly, the larger the senior tranche can be) while still promising a given (low) likelihood of loss to the senior tranche.

[55] Similarly, even before the era of tranching, when private-label RMBS relied on guarantees from specialist bond insurers, the prudentially regulated financial institutions would need the NRSROs' ratings; and other bond investors would want to know how financially secure the relevant bond insurer was and (unless they did their own research) would likely want to know the CRAs' ratings of that bond insurer.

C. The Rise—and Then the Collapse

Recall that by the first few years of the 21st century there was a widespread belief among the participants in the housing markets that house prices would only increase. There was an important corollary to this belief: if house prices could only increase, *then residential-mortgage loans would almost always be repaid!* Even if a mortgage borrower could not repay the mortgage because extraordinary circumstances had beset the household—unexpected unemployment, or a major debilitating illness or accident—the mortgage borrower could still sell the house at a profit and thereby pay off the mortgage, *because housing prices could only increase*. And there was then a corollary to this corollary: if mortgages would rarely fail to be repaid, *then RMBS that were based on these mortgages would be safe investments*.

In turn, there were further important implications. The traditional criteria for certifying the creditworthiness of mortgage borrowers were that the borrower had sufficient income to afford the monthly payments on the mortgage loan (and thus the typical monthly-payment amortization schedule itself was important); that the borrower had a good credit history; that the borrower had sufficient financial resources to be able to make a 20 percent down payment, and so on. These criteria came to be seen as largely irrelevant and unneeded to protect the lender in an environment where house prices could only increase and mortgages would rarely default. Accordingly, "subprime" mortgages were granted in increasing numbers to borrowers with flawed credit histories and/or inadequate incomes and/or incomplete documentation and/or small (or even nonexistent) down payments. And the initial experience with such loans when housing prices were indeed rising in the late 1990s and the first few years of the 21st century bore out the expectations: defaults were indeed few, and losses to lenders were small when those few defaults

did occur.[56] This experience seemed to confirm lenders' beliefs that subprime lending was not as risky as had previously been believed.

In this context, the major CRAs were prepared to assign high ratings to high percentages of the tranches of hundreds of billions of dollars of RMBS and related securities that were issued from the late 1990s through 2007. Unfortunately, these ratings proved to be quite optimistic, especially for the RMBS that were issued and rated during 2005–2007. These were the years when the housing-price increases were slowing and would become price decreases after mid-2006. Also in these years, the average quality of the mortgages (in terms of the creditworthiness of the borrower and the terms of the mortgage) that were being pooled into RMBS had deteriorated from even the loose standards of the first few years of the 21st century.[57]

Beginning in the summer of 2007, massive downgrades of RMBS—in numbers of issues, their aggregate values, and the extent of the downgrades—became widespread. The following data are illustrative: As of June 30, 2009, 90 percent of the collateralized debt obligations (CDOs) that were issued between 2005 and 2007 and that were rated AAA by S&P had been downgraded, with 80 percent being downgraded to levels that were below investment grade. Even of the more simple RMBS that were issued during those years and that originally received ratings of AAA, 63 percent had been downgraded, with 52 percent receiving downgrades that placed them below investment grade.[58]

[56] The credit losses that Fannie Mae experienced on its mortgage portfolio from 1999–2005 were only 1 basis point (0.01 percent) per year! The same was true for Freddie Mac for the years 2000–2006. Although the portfolios of the two GSEs consisted largely of prime mortgages at the time, these extremely low numbers were indicative of the apparent safety of residential mortgages during this era.

[57] See, for example, Ashcraft, Goldsmith-Pinkham, and Vickery (2010).

[58] See IMF (2009, 89, 93). For other data on the CRAs' subsequent downgrades of their previously high-rated mortgage-related securities, see Ashcraft and Schuermann (2008); Ashcraft, Goldsmith-Pinkham, and Vickery (2010); Benmelech and Dlugosz (2010); and US Senate (2011, ch. V).

The losses in value of the RMBS—which, of course, were ultimately caused by the actual and expected defaults on the underlying mortgages—had to be absorbed somewhere in the financial sector. In too many instances, the RMBS were in the portfolios of large, thinly capitalized financial institutions that did not have adequate capital to absorb these losses. This was the heart of the financial crisis of 2008–2009.[59] The three large CRAs' early, excessively optimistic ratings clearly played a role in these subsequent losses.[60] It is thus unsurprising that the three large CRAs have been seen as having played a major role in the financial crisis itself.[61]

VI. Some Important Questions with Regard to the CRAs

The preceding sections have provided background and context. We can now address the important questions and issues that currently swirl around the CRAs. It will be useful to divide these questions into two parts: characterization and policy.

A. Some Characterization Questions

1. Who are the "bond investors"? This question is important to ask, because the answer can help determine whether regulation of the CRAs (e.g., to try to deal with their conflict-of-interest problems and/or to increase their transparency) is really needed. If the preponderance of bond investors are financial institutions (i.e., banks, insurance companies, pension funds, mutual funds,

[59] See White (2011) for an expansion of this argument; see also Foote, Gerardi, and Willen (2012) for a similarly structured argument.

[60] Arguably, if the CRAs had initially been more cautious, they would have assigned lower ratings—e.g., lower percentages of tranches would have received AAA ratings, etc.—which would have required higher interest payments to the RMBS investors overall. In turn, this would have required higher interest rates on mortgages, and fewer mortgages would have been issued, which would have dampened the housing boom somewhat and dampened the subsequent losses—although it seems highly unlikely that anything short of a massive increase in mortgage interest rates or sharp tightening of regulatory controls could have prevented a housing bubble of some magnitude, after the initial experience of rising prices took hold in the late 1990s and the first few years of the 21st century.

[61] For other discussions of the role of the major CRAs in the financial crisis, see, e.g., Dennis (2009), Hill (2010), FCIC (2011), and Senate (2011).

hedge funds, etc.), then the professional managers of these institutions should be able—or should be expected to be able—either to do their own research with respect to the creditworthiness of bonds *or at least to make their own assessments of the reliability of third-party creditworthiness-advisory services*. In this case the argument for regulation of CRAs is not strong.

By contrast, if the major participants in the bond markets are households, then the argument for regulation becomes much stronger: in general, households' analytical capabilities with respect to bonds—even for determining who is a reliable third-party advisor—are likely to be weak, and the dangers of fraud and chicanery by third-party advisors become greater, as does the argument for regulation of the CRAs.

Table 2 (see page 68) provides recent data on the holdings of the major categories of bonds, as of the end of the first quarter of 2013. As can be seen in the table, households own only a small percentage of the bonds in three of the four categories; the exception is municipal bonds, where households hold 44 percent of the category. If the aggregate of all bonds is considered, households own about a seventh of the total; even if US Treasury bonds are excluded, households still own about a sixth. By contrast, as the final column of table 2 indicates, households directly own almost 40 percent of corporate *equities*.

Accordingly, with the exception of municipal bonds, it is reasonable to describe the bond markets as largely institutional in nature. Thus, the typical bond investor (again, with the exception of municipal bonds) is an *institutional portfolio manager* and not an individual or household investor. This characterization will be important for the discussion of regulatory issues below.

2. Why have the major CRAs been so central for the bond markets? As was discussed in sections IV and V, the major CRAs have been and continue to be central entities for the bond markets. But, as was also discussed in section IV, at least part of the reason why the major CRAs have been so central has been the longstanding inclusion of their ratings in the prudential regulation of financial institutions.[62] This "regulatory reliance" of prudential regulation on the major CRAs' ratings has de jure forced the prudentially regulated financial institutions—and de facto most of the rest of the bond markets—to pay attention to the major CRAs' ratings and thus has ensured their centrality.[63]

It is conceivable that the market for creditworthiness-advisory services and the identities of the firms within it might well have developed differently if US prudential regulators had not embarked on this program of hardwiring the ratings into their regulation in the 1930s. Although this alternative possibility may be hard to imagine, given the actual path that has been followed, nevertheless this role that regulatory reliance has likely played in developing the major CRAs' prominence should not be forgotten in the discussion below.

3. Are there alternatives to the major CRAs? As the discussion in section III illustrated, there are alternatives to the major CRAs. These alternatives include the seven smaller NRSROs, as well as other (often smaller) firms in the United States that provide creditworthiness-advisory services and that may or may not describe themselves as rating agencies. In addition, as was

[62] As was discussed in section IV, this "regulatory reliance" began in the United States in the 1930s. Much more recently, other countries have included the CRAs' ratings in the prudential regulation of their financial institutions. See, for example, Sinclair (2005, 47–49); H. Langohr and P. Langohr (2008, 431–34); ECB (2009); BIS (2009); Coffee (2011); Garcia Alcubilla and Ruiz del Pozo (2012); and Rousseau (2012). Also, the Basel Capital Accord, which is an international agreement intended to harmonize the prudential regulation of financial institutions of its signatory countries, continues to employ ratings in the determination of some capital requirements.

[63] It is important to emphasize that this regulatory reliance does not excuse a financial institution from doing its own "due diligence" with respect to the creditworthiness of bonds that it chooses to buy. Nevertheless, the regulatory reliance has virtually assured the major CRAs of an audience for their ratings.

mentioned in section III, there are another 13 agencies that have been certified by the European Securities and Markets Agency (ESMA), and a yet larger number that appear to be present worldwide. Also, the fixed-income analysts at securities firms are another source of such information; and, if the barriers to entry were perceived to be less daunting, some of these analysts (plus, perhaps, their counterparts that offer such information in-house at large mutual funds and other large financial institutions) might decide to hang out their own shingles as freestanding providers of creditworthiness-advisory services.

4. What about the CRAs' "issuer-pays" business model? As discussed in section IV, in the late 1960s and early 1970s the major CRAs switched their business models from the investor-pays model, which had been in place since the origins of the industry in 1909, to an issuer-pays model, which continues to prevail today. Although there is a clear potential conflict of interest that is present in the issuer-pays model—that the issuer may be able to "shop around" for a favorable rating and thereby pressure any candidate CRA to provide a more favorable rating[64]—during the three decades that followed the major CRAs' switch to the issuer-pays model, the CRAs did *not* succumb to that potential conflict of interest in their ratings of corporate bonds, municipal bonds, and sovereign debt.[65] Even during the first decade of the 21st

[64] It is the shopping-around ability of the issuers that appears to be crucial. In the model that has been developed by Skreta and Veldkamp (2009), optimistically biased ratings can arise even in the absence of any "caving-in" bias by the CRAs, along the following lines: Suppose that the CRAs' ratings on average are accurate (thus there is no deliberate bias on the part of the CRAs) but also that there is a distribution of estimates around the average (i.e., the CRAs' estimates have a range of errors). Suppose also that the issuers can shop around among CRAs. Under those circumstances, the issuers each time will choose the CRA with the most optimistic rating, and those are the ratings that will be made public. Thus, in this approach, although the issuer-pays model still underlies the process, it is the combination of the ability of issuers to shop around and the existence of honest-but-less-than-perfect CRAs that drives the optimistically biased ratings outcome—not any deliberate caving-in to issuers by CRAs.

[65] The discussion in section IV also raised the possibility that a CRA might try to "extort" extra fees by threatening an issuer with an unfavorable rating. In the 1990s, there was one such allegation, against Moody's, by a municipality (Jefferson County School District, CO). The US Department of Justice looked into the allegation—as a possible antitrust violation (i.e., that this represented an effort by Moody's to exercise market power)—but declined to

century and more recently, there still have been no noticeable lapses with regard to these categories of bonds.

Each CRA's concern for its own long-run reputation serves as a counterbalance to the temptation to succumb to an issuer's requests for a better rating. If and when the CRA's cave-in to the issuer is eventually discovered by the financial markets, market participants will cease (or at least reduce) their trust in the reliability of that CRA's future ratings; as a result, future issuers will not want (or will be more reluctant) to engage such a CRA for future bond ratings. Accordingly, if the expected gains from maintaining a long-run reputation for accuracy exceed the expected gains from acceding to the requests for favoritism by one or more issuers, the CRA will strive to remain accurate and will resist those requests.[66]

But the concerns about an organization's long-run reputation can be overwhelmed by the prospects of sufficient short-run gains. And in the area of the RMBS ratings, it appears that these long-run concerns were overwhelmed. Strong anecdotal evidence suggests that "rating shopping" and pressures by issuers on the major CRAs were occurring during the 2005–2007 period.[67] Further, econometric studies indicate both that issuers did shop for preferable ratings and that this shopping did induce more favorable ratings for issuers.[68] Thus, although the widespread belief during the early and middle years of the first decade of the 21st century that housing prices

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prosecute; and the municipality's suit was dismissed on the grounds that Moody's unfavorable assessment of the municipality's bonds was protected by the First Amendment of the US Constitution; see *Jefferson County School District No. R-1 v. Moody's Investors Services, Inc.*, 175 F.3d 848 (1999). A similar allegation by Hannover Re (a German reinsurance company) in the late 1990s also never gained any results. The issue of First Amendment protection for the CRAs' ratings will be discussed below.

[66] This concern for long-run reputation is at the center of many models of credit-rating agencies. See, for example, Mathis, McAndrews, and Rochet (2009); Bolton, Freixas, and Shapiro (2012); Bar-Isaac and Shapiro (2013); Kartasheva and Yilmaz (2013); Kashyap and Kovrijnykh (2013); and C. Opp, M. Opp, and Harris, (2013). Much of this reputation modeling follows the pattern that was established by Klein and Leffler (1981). For a test of the reputation model for CRAs, see Covitz and Harrison (2003); see also Frost (2007).

[67] See, e.g., Adelson (2007) and US Senate (2011, ch. V).

[68] See, e.g., Morkotter and Westerfeld (2009); Ashcraft, Goldsmith-Pinkham, and Vickery (2010); Benmelech and Dlugosz (2010); He, Qian, and Strahan (2011); Griffin and Tang (2012), and Griffen, Nickerson, and Tang (2013).

could only increase would likely have meant optimistic ratings for RMBS by the CRAs in any event, it appears that the pressures from some issuers had an effect as well.

It is important to consider why the issuer-pays model has not resulted in such problems in the areas of ordinary corporate, municipal, and sovereign bonds. In these areas there are thousands of issuers; consequently, no single issuer would represent a significant fraction of the revenue of any major CRA. This would make it easier for a CRA to resist the threats by any issuer to take its business elsewhere. In addition, for these same categories of bonds there is usually an abundance of publicly available information about the issuer and the issuer's finances—whether this is the SEC-mandated financial information for corporations or government budgets and related documents for municipalities and sovereigns. Consequently, outside analysts might readily spot and trumpet any rating deviation that might appear to favor an issuer unduly.[69] A CRA's awareness of this external scrutiny and its consequences presumably strengthens the CRA's resistance to the entreaties or demands of an issuer for a better rating.

By contrast, the issuers of RMBS were far fewer: approximately a dozen issuers accounted for about 80–90 percent of the RMBS that were being issued and rated.[70] In addition, the profit margins on rating RMBS were higher than on rating traditional bonds, and the aggregate flows were large. As a consequence, the threat by one of the large RMBS issuers to take its business elsewhere would have been much more potent than such a threat by any single corporate, municipal, or sovereign issuer. Further, the information about the underlying collateral

[69] The legions of fixed-income analysts at the major securities firms would be potential "whistle-blowers" here (Johnston, Markov, and Ramnath 2009); and, for corporate bonds, the more-prominent equity analysts at these same firms would be added to the list of potential critics, because, as Fong et al. (2012) document, the presence of equity analysts at securities firms can be a disciplining force on the CRAs' ratings of corporate debt.
[70] See SEC (2008, 32).

for the RMBS was usually not available to the general public and was much more opaque than was the case for traditional bonds.[71] Moreover, much of the "shopping" by issuers was focused on the relative sizes of the AAA tranches that would be created within the RMBS, which was a yet more arcane issue for analysis. As a consequence, any "favors" that a CRA might do for an RMBS issuer would be less likely to be discovered; and this opaqueness could make the CRA more comfortable in acceding to an RMBS issuer's request for more favorable treatment.[72]

In sum, the market characteristics of the traditional areas of corporate, municipal, and sovereign bonds were (and are) such that the potential conflicts of interest of the issuer-pays model were (and are) unlikely to be converted into actual conflicts that would undermine the major CRAs' long-run reputations. But the market characteristics of the newer RMBS issuances were substantially different and were more conducive to a breach.[73]

5. Why do the CRAs tend to lag the financial markets in changing their ratings?

Academics as well as participants in the financial markets have noted that the major CRAs usually lag behind the markets in recognizing changes in the financial prospects of a bond issuer

[71] See Pagano and Volpe (2010, 410–12).

[72] This opaqueness and nonavailability also meant that a possible countervailing threat by a CRA that was discussed above—to issue a bad rating to an uncooperative issuer—would not be available in the case of RMBS. In reaction to the general problem of opaqueness and nonavailability, in 2009 the SEC mandated that structured-finance issuers that engage a NRSRO for a rating must make the underlying information available to other NRSROs as well; however, the SEC did not go so far as to mandate that the information be available to the general public. This latter mandate would be analogous to the requirement that publicly traded companies reveal extensive financial information publicly in the prospectus for a new securities issue. Pagano and Volpe (2010) recommend full public disclosure of the detailed loan-level data at the time of the issuance of the RMBS prospectus.

[73] In addition to the different market characteristics, the nature of the underlying assets that were being rated—and thus the necessary "technology" or methodology for rating them—was different as well. The major CRAs had had many decades of experience rating the bonds of corporate and governmental issuers. But RMBS were different, because they represented bundles of hundreds (or thousands) of individual mortgage obligations; and the bonds (e.g., CDOs) that were derived from the medium-level tranches of the RMBS represented a yet greater level of unfamiliar complexity. See, for example, Coval, Jurek, and Stafford (2009).

and then in changing their ratings.[74] Indeed, as was mentioned in section IV, it was the discovery that the major CRAs had maintained investment grade ratings on Enron's bonds until five days before Enron declared bankruptcy in November 2001 that first subjected the CRAs and the NRSRO system to widespread media and public-policy scrutiny shortly afterward. More recently, the major CRAs still had investment-grade ratings on the debt of Lehman Brothers on the morning that it declared bankruptcy in September 2008.

This sluggishness in changing ratings—especially the delays in downgrades—has been criticized as yet another manifestation of the conflicts of interest that accompany the major CRAs' issuer-pays model, since issuers would clearly prefer that the CRAs delay their downgrades for as long as possible.

This criticism is poorly aimed. The CRAs' sluggishness with respect to ratings extends back at least to the 1930s, far before the industry's changeover to the issuer-pays model in the late 1960s and early 1970s.[75] Instead, the industry's sluggishness is best understood as a cultural phenomenon: the major CRAs strongly believe that the appropriate approach for a rating is to "rate through the cycle." This means that CRAs ignore what they believe to be short-term variations in the issuer's financial circumstances that are likely to be reversed. The CRAs believe that this rating stability better serves bond investors, who do want accuracy but who also want to avoid the transaction costs of repeatedly buying and selling bonds on the basis of short-term changes in ratings.[76]

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[74] See, for example, Altman and Rijken (2004, 2006); Loffler (2004, 2005); Beaver, Shakespeare, and Soliman (2006); Cantor and Mann (2007); Frost (2007); Flandreau, Gaillard, and Packer (2009); Cheng and Neamtu (2009); J. Cornaggia and K. Cornaggia (2011, 2013); Bruno, J. Cornaggia, and K. Cornaggia (2013); and Xia (2013).
[75] See Flandreau, Gaillard, and Packer (2009).
[76] See, for example, Cantor and Mann (2007); see also Frost (2007).

However, a direct consequence of this approach is that the CRA will always have to wait to see whether any change in an issuer's financial position is short-run and likely to be reversed (and therefore should be ignored). But this delay means that the CRA inevitably will be late to change its ratings in those instances where the change in the issuer's financial circumstances is sustained and thus does warrant a change in the rating.[77]

In sum, a critic might question the wisdom of the major CRAs' "rate through the cycle" approach to rating and especially the "late to the party" consequences. But one should not associate these delays with the "caving in to issuers" critique that has been leveled at the issuer-pays model.

6. Are there alternatives to the issuer-pays business model? Since the issuer-pays model has its obvious potential conflict-of-interest problems, which were exposed in the aftermath of the financial crisis of 2008–2009, there has been considerable media and policy interest in other possible business models for the CRAs. Included in the provisions of the Dodd-Frank Wall Street Reform and Consumer Protection Act of 2010 was the mandate for the SEC to submit a report on alternative business models for CRAs.[78]

In the discussion that follows, one advantage of the issuer-pays model should be kept in mind: when the CRA decides on its rating of the issuer, that information is made available to the general public. Thus, all market participants have the opportunity, at the same time, to use this information in any way that they believe is appropriate. In that important sense, market efficiency is promoted. An alternative version of this argument, which leads to the same

[77] The CRAs are also sluggish in their upgrades, which is not consistent with a "placate-the-issuer" explanation.
[78] See SEC (2012d); see also GAO (2010, 2012). A larger number of potential CRA business models are analyzed in those reports than will be discussed here. See also Listokin and Taibleson (2010) and Coffee (2011).

conclusion, is to recognize that the prompt and widespread distribution of the rating information is a "public good."

The obvious alternative to the issuer-pays model is the original model that was pioneered by John Moody in 1909: the investor-pays model (which in today's terminology might be described as "subscriber pays"). This is the model that prevailed in the industry through the late 1960s and early 1970s, when the major CRAs changed to the issuer-pays model, probably for the reasons discussed in section IV. One of the smaller NRSROs (Egan-Jones) still uses the investor-pays model exclusively, and that model is standard for the smaller creditworthiness-advisory firms that are not NRSROs.

However, none of the other nine NRSROs—including the other six smaller NRSROs—has shown any inclination to move back toward that model; instead, the movement has been in the opposite direction. Two small NRSROs that had investor-pays models—LACE Financial and Realpoint—were acquired, respectively, by Kroll and by Morningstar in 2010. In both cases, the acquirers have been moving toward the issuer-pays model.[79]

It is important to note that the investor-pays model also carries potential conflicts of interest: a major investor-customer of a CRA might have a large investment position in one issuer's bonds and would be reluctant to see those bonds downgraded (and might threaten the CRA that it would take its subscription business elsewhere, for example). A similar pressure might be exerted by a major customer that wanted the higher yield of a riskier bond (which the markets recognized to be risky) but would want that higher risk to be masked (e.g., because of prudential regulation) by an inflated rating.[80] Or a major customer might want to buy a particular

[79] See SEC (2012b, 6).
[80] See, e.g., Calomiris (2009); Coffee (2011); and J. Cornaggia and K. Cornaggia (2011).

issuer's bonds "on the cheap" and thus would want the CRA to downgrade those bonds. Similar pressure could come from a major customer that had sold the bonds short.

In addition, a major drawback to the investor-pays model, from a market efficiency perspective, is that any rating information would first be released to that CRA's subscribers and then, only after a lag, would be released to the general public. The public-good aspect of information dissemination would be impaired by this delay.[81] And, finally, there is the question of whether—even with the use of passwords and identification security for electronic subscribers—the subscription model would be feasible for a major CRA or whether the problems of information leakages and free riding would thwart a major CRA's efforts to use it.

Another potential model could be an advertising-based CRA. Or, as a variant on this idea, a major disseminator of business information—such as a Bloomberg or a Thomson Reuters—might offer ratings as an additional service to its customers or even offer them to the general public as a "loss leader" to attract the public to its other fee-based business services. Thus far, however, this model has not attracted noticeable interest.

One potential model that has attracted considerable interest tries to keep the instantaneous-dissemination advantage of the issuer-pays model while removing the shopping-around aspect that yields the potential conflict of interest. This model would run as follows:[82] The selection of the first CRA to rate any bond for which an issuer wanted a rating[83] would be

[81] In July 2013 the attorney general for the State of New York induced Thomson Reuters to cease its practice of releasing important data earlier to some subscribers, claiming that "the early release of market-moving survey data undermines fair play in the markets." It is interesting to speculate whether the adoption of an investor-pays (subscription) model by Moody's or S&P might raise similar concerns.

[82] The basic idea that underlies this model appears to have been independently discovered at about the same time by Richardson and White (2009), Mathis, McAndrews, and Rochet (2009), and Raboy (2009).

[83] The Dodd-Frank Act limits the potential application of this model to structured finance issuances, such as RMBS; it would not apply to "plain-vanilla" corporate, municipal, or sovereign bonds. But, in principle, if one thought that the potential conflict-of-interest problems were severe enough in those areas, the idea would have applicability in those areas as well.

made by a board (or other organizational entity) designated by the SEC. The selection of the CRA would be made randomly from a list (which would be compiled by the board) of CRAs that were qualified to rate that category of bond. The selected CRA would be paid by the issuer. The issuer could also choose to hire additional CRAs of its own selection, and investor-pays CRAs could also rate the issuer.

Again, this model retains the advantage of instant dissemination of the rating information, while eliminating the shopping-around problem for at least the initial CRA. Partly because of these potential benefits, the provision of the Dodd-Frank Act that mandated the SEC report (and also the two GAO reports) on CRA business models specifically mentioned this model.

However, there are substantial potential drawbacks to this proposed model. First, the determination of the quality of the CRAs on the list and their appropriateness for rating a particular type of bond would be a major responsibility of the board; if the board was deficient in this respect, the rating process would suffer.[84] Next, as a related matter, the board would have to assess innovations in rating methodologies or technologies, as part of its decisions about which CRAs would qualify to be on which list; again, if the board were deficient, the rating process would suffer, and innovation might be discouraged. Further, if the board itself were to become politicized, CRAs would become focused on pleasing the board, and again the rating process (and possibly rating innovation) would suffer. Finally, because the issuer is not choosing that initial CRA at its own discretion, the board would have to determine the appropriate fee that would have to be paid by the issuer to the designated CRA. In that sense, the board would acquire the hallmarks (and the headaches) of a public-utility regulator.

[84] If the board were to restrict itself to NRSROs or to NRSROs that were certified by the SEC only for certain categories of bonds, then these same issues arise at the SEC certification level. See the discussion of NRSRO regulation below.

Still another possible model would be to have a governmental body as the CRA.[85] But all the standard problems of providing the appropriate incentives for efficient performance by a government agency would apply.

7. Do the major CRAs meet a market test? In the 1920s and earlier, it is clear that the CRAs met a market test: John Moody apparently was able to attract enough customers to his new product that he chose to stay in the business, and at least three entrants followed his lead. Their apparent success—they all stayed in the business—is not surprising, because this early period preceded the creation of the SEC in 1934 and its subsequent mandated disclosures of financial information by publicly traded companies.

Beginning with the 1930s, however, there is considerably more difficulty in trying to determine whether the CRAs have continued to meet a market test. As was discussed in section IV, the 1930s ushered in not only the SEC's mandated disclosures by publicly traded corporations but also the beginning of the use of the major CRAs' ratings for prudential-regulatory purposes—starting with federal bank regulators but then spreading to other regulators in subsequent decades, and being formalized by the SEC's creation of the NRSRO category in 1975. This regulatory use of ratings has meant that the major CRAs have had a guaranteed audience for their ratings—the prudentially regulated financial institutions—regardless of whether those institutions have believed that the CRAs' ratings provided useful information about the creditworthiness of the bonds that they might buy or sell. And even participants in the bond markets that are not prudentially regulated want to be aware of those ratings, because the

[85] See, e.g., Gudzowski (2010).

ratings will directly influence the decisions of their prudentially regulated trading partners in the bond markets.

Accordingly, with a mandated audience, any claim that the CRAs were providing useful information to the financial markets would require more evidence than just the fact that the CRAs were finding the continued issuance of ratings to have an audience and to be profitable.

The CRAs' defense of the value of their ratings is often to point to their track records: to the correlations between their ratings and the pattern of subsequent defaults. For example, here is Moody's statement in its *Annual Report 2008*: "The quality of Moody's long-term performance is illustrated by a simple measure: over the past 80 years across a broad range of asset classes, obligations with lower Moody's ratings have consistently defaulted at greater rates than those with higher ratings."[86] However, it is possible that this correlation could arise if Moody's (and the other major CRAs) first looked at the bonds' market spreads (i.e., their price or interest differential with respect to comparable-maturity Treasury obligations—which would be an indicator of the markets' beliefs about creditworthiness)[87] and then based their ratings on those spreads. If this were so, then the ratings would not be providing any "value added" for the financial markets.

A more nuanced approach, which has been applied for over 30 years,[88] is to determine whether the financial markets react when a CRA unexpectedly changes its rating on a bond. These types of research efforts are frequently described as "event studies."[89] If the markets do

[86] See Moody's (2009, 13).
[87] Spreads can also be indicators of other attributes of a bond, such as its liquidity in market trading. In addition to bond spreads, another related source of information about the riskiness or creditworthiness of bonds and their issuers would be credit-default swaps (CDSs), which are essentially insurance contracts that are written on the event of a bond issuer defaulting on its obligation. For a discussion of CDS premiums and their relationship to credit ratings, see Flannery, Houston, and Partnoy (2010).
[88] Summaries can be found in Jewell and Livingston (1999) and Creighton, Gower, and Richards (2007).
[89] For an overview, see Kothari and Warner (2007).

react, and in the direction that would be expected (e.g., an unanticipated downgrade causes a bond's price to fall), then the markets are learning something useful from the ratings. And the overwhelming evidence is that markets do move when ratings change.[90]

However, it is possible that the market movement might be entirely due to the changed regulatory status of the bond that the rating change has caused—and not to any new information about default probabilities. Here is a straightforward example: Suppose a CRA downgrades the bonds of the "XYZ Corporation" from BBB to BB—that is, the rating change moves the bonds from investment grade to speculative. In this case, US banks can no longer buy XYZ bonds and must sell their existing holdings, regardless of what they think about XYZ's creditworthiness. And thus the markets could be expected to react negatively to the rating change—*even if the belief in the markets is that there has been no real change in XYZ's financial circumstances*. Even if the rating doesn't move the bond across the regulatory "line" but simply moves it closer to or farther away from the line (changing the likelihood that a future regulatory change could cause the bond to move across the line), the markets would still be expected to react. Again, this reaction could be solely because of the *changed regulatory status* of the bond and not because the market participants have learned anything new about the default probability of the bond.[91]

[90] See Jewell and Livingston (1999) and Creighton, Gower, and Richards (2007) for summaries.

[91] The same kind of "line" and likely market reactions apply to the SEC's prudential regulation of money-market mutual funds' holdings of short-term obligations. For the instances where the agencies' prudential regulation is more nuanced—e.g., where capital requirements (and thus the cost to the institution of holding a bond) vary along a continuum, according to a bond's ratings—the likely reaction of the markets to only the *changed regulatory status* of the bond would be even clearer. Kisgen and Strahan (2010) provide supporting evidence in this regard: they show that the certification of DBRS as a NRSRO in 2003 made a difference in the extent to which the bond markets reacted to DBRS's ratings of corporate bonds.

Consequently, the question of what (if any) value the CRAs bring to the bond markets—whether they are meeting a market test—remains a difficult one to resolve, so long as their ratings continue to be used for prudential-regulatory purposes.[92]

8. What about the Europeans' criticisms of the major CRAs? Although the US experience is the primary focus of this essay, it is worth considering the criticisms that the major CRAs have recently received as a consequence of their ratings in Europe.

Beginning in 2009 and starting with Greece, a number of eurozone countries and their banks have experienced substantial financial difficulties. Because the lenders to these countries and banks have been worried about the prospects of being repaid (and, in the case of Greece, correctly so), the debt obligations of these countries and banks have declined in value. And the large CRAs—usually lagging behind the markets' initial declines (for the reasons that were discussed above)—have downgraded these debt obligations.

Not surprisingly, the governments of the countries that have been downgraded have publicly expressed substantial unhappiness about these rating downgrades and criticized the major CRAs. These downgrades are always newsworthy events, and there are usually further declines in these securities' market prices in the wake of the downgrades (because of the prudential-regulatory uses of ratings, as was also discussed above). However, these criticisms of the CRAs have been distinctly different from the criticisms in the United States that followed from the CRAs' role in the financial crisis of 2008–2009. Rather than claiming that the CRAs have been unduly favorable to the issuers, the eurozone criticism has been that the CRAs have

[92] A few studies—e.g., Jorion, Liu, and Shi (2005) and Creighton, Gower, and Richards (2007)—have tried to determine the informational value of rating changes, separate from the regulatory status change information; but it is not clear that they have corrected sufficiently for potentially confounding influences; see the discussion in White (2010, n. 8).

been too harsh and have acted too precipitously. (Note that almost all governments and all banks pay the CRAs for their ratings—i.e., the issuer-pays model applies to them as well).

B. Some Policy Questions

1. Is the mandatory use of CRAs' ratings ("regulatory reliance") necessary for the prudential regulation of financial institutions? The short answer is no. As was discussed in section II, in virtually all lending situations the lender will want to collect information about the borrower, and a prudential regulator will want its regulated institutions to have good information about prospective and actual borrowers (including, of course, bond issuers). But the major CRAs are not the only source of this type of information about bond issuers; and prudential regulation does not need to rely exclusively—or possibly at all—on the information that is provided in the CRAs' ratings.

Banks provide a good illustration of these points: most bank assets (which are primarily loans), liabilities (which are primarily deposits), and activities do not involve bonds and therefore do not involve the CRAs' bond ratings. Nevertheless, banks are subject to extensive processes of prudential regulation. Through a process that is often described as "examination and supervision," prudential regulators strive to keep banks in a "safe and sound" condition. At the center of this process are minimum-capital requirements and periodic examinations of a bank. The purpose of the examinations is to ascertain the bank's financial position and activities, so as to ensure that it is meeting its capital requirements and has not taken on risks that could threaten its prospective solvency, and to assess the bank's procedures and managerial competency, again so as to gain assurance that the bank's future solvency is not at risk.

The prudential regulation of a bank's bond portfolio is, of course, an integral part of this overall examination-and-supervision process. The regulatory reliance on the major CRAs' ratings of bonds has meant that banks (and examiners) essentially have needed only to "check the box" for prudential-regulatory purposes.

However, an alternative approach, which would integrate the assessment of a bank's bond portfolio into the broader assessment of the bank's overall safety and soundness, is possible. The regulatory onus would be on the bank, as is true of all the other parts of an examination, to demonstrate the suitability of its loan portfolio for that bank.[93] That suitability could be supported by research that the bank did itself (which would be subject to regulatory review) or by reliance on third-party creditworthiness-advisory services (and the basis for the choice of third-party provider would also be subject to regulatory review).[94] Such third-party advisory services could certainly include the major CRAs—but not on a mandatory basis—but could also (or instead) include other advisory firms.

This illustration has focused on the prudential regulation of banks; but the process that has been described could be applied to the prudential regulation of any financial institution and its bond holdings. This move away from the "check the box" approach toward the more encompassing safety-and-soundness examination process would entail more effort on the part of

[93] The approach that is suggested here is consistent with the approach that the Office of the Comptroller of the Currency (OCC) and the National Credit Union Administration (NCUA) have taken in replacing mandatory reliance on ratings with respect to the bond portfolios of nationally chartered banks, federally chartered savings associations, and credit unions. See *Federal Register*, vol. 77 (June 13, 2012), 35253–59; and *Federal Register*, vol. 77 (December 13, 2012), 74103–12.

[94] The regulatory review of the bank's own research or of its choice of third-party advisors is necessary because the bank may want to mask its desire to take on risk (or to "reach for yield") by skewing its research or skewing its choice of advisors; see, e.g., Calomiris (2009), Coffee (2011), and J. Cornaggia and K. Cornaggia (2011). Of course, if the advisor's business model embodies potential conflicts of interest, the regulator should be aware of those potential conflicts (as should the bank as well)—especially at times when those conflicts could be exacerbated (as appears to have been the case with respect to the major CRAs' ratings of RMBS in the first decade of the 21st century—see the discussion in section V).

the regulator. But the result would be a broader base of information on which the prudential-regulatory process could rely.

Finally, because there has been widespread misunderstanding, it is important to emphasize that a cessation of the *mandatory* use of the NRSROs' ratings in the prudential regulation of financial institutions' bond portfolios does not mean that the regulated institutions must do their own research—although they would be freed up to do so if they chose (subject to regulatory oversight)—nor would they be forbidden from using the services of the major CRAs for creditworthiness information. Instead, these institutions would no longer be mandated to heed only the NRSROs' judgments, which would open up the possibilities of other sources of information being used as supplements or substitutes.

2. Should the CRAs be regulated? In the aftermath of the financial crisis of 2008–2009, and due to the major CRAs' role in the crisis, the urge to regulate them is understandable. Many policymakers seem to want to grab them by the lapels, shake them, and shout, "Do a better job!" Not surprisingly, added regulation of the CRAs was mandated by the Dodd-Frank Act of 2010.[95]

If the CRAs' ratings remain hardwired into the prudential regulation of financial institutions, then some form of CRA regulation is clearly needed. Indeed, it was roughly this logic that drove the SEC in 1975 to create the NRSRO category. If ratings are to be used for regulatory purposes, then the government needs to specify *whose* ratings should be used. In turn, the criteria for a CRA's ratings being included within that regime should also be

[95] The European Union has moved in a similar direction; see Garcia Alcubilla and Ruiz del Pozo (2012).

specified. It would seem that the CRA's competency and accuracy in making judgments about the creditworthiness of various debt instruments should be high on the list of criteria.[96]

However, this has not been the nature of the regulatory regime that has surrounded the CRAs. As was discussed in section IV, from the SEC's 1975 creation of the NRSRO category until the passage of the CRARA in 2006, *the SEC never established any formal criteria for a CRA to be certified as a NRSRO, nor did the SEC ever undertake any retrospective evaluations of the CRAs that it had certified as NRSROs*. The CRARA did establish some rough competency requirements: that the CRA should have been in business for at least three years and that at least 20 issuers and/or institutional investors had used its services.[97] But the bulk of the SEC's regulation under the CRARA and under the expanded mandate of the Dodd-Frank Act has addressed the transparency of the NRSROs' rating methodologies and rating results and the NRSROs' potential conflicts of interests. Also, the CRARA has forbidden the SEC from directly influencing the content of the NRSROs' ratings as well as their methodologies. Similarly, the SEC cannot directly influence the business model of the CRAs.

In an important sense, this focus on transparency and on the potential for conflicts of interest represents a focus on *inputs* into the rating process rather than a focus on *outputs* (which would be an NRSRO's competency and accuracy in its creditworthiness evaluations of debt instruments).[98] This regulatory focus on inputs rather than on outputs is understandable: it is often the case that inputs are easier for the regulator to measure than are outputs;[99] and this is likely the case for the regulation of CRAs, since there can be multiple dimensions to measuring

[96] For discussions of various proposals for regulating the CRAs, see, for example, Hill (2004); Manns (2009); Partnoy (2009); Grundfest and Hochenberg (2009); Bai (2010); Crawford (2010); and Coffee (2011).
[97] But for an example of where even this last requirement poses a barrier to entry, see Morgenson (2013).
[98] Hill (2011) has similarly noted that Dodd-Frank's CRA regulatory provisions focus on "processes" rather than "results."
[99] For a more general discussion of this regulatory phenomenon, see White (2006).

competency and accuracy. Nevertheless, the focus on inputs rather than on outputs is, at best, an indirect way of achieving what is needed if the regulation of CRAs is to continue.

Further, regulation of this sort carries substantial risks that it will fall more heavily on the smaller CRAs, because many of the regulatory costs of compliance are fixed and thus don't vary with the size of the regulated entity. This will make it harder for the smaller CRAs to compete and will also discourage entry, since entry usually happens at a small scale.

In addition, such regulation is likely to discourage innovation—for example, innovation in rating methodologies, technologies, perhaps even business models—for at least three reasons. First, regulation often has difficulty dealing with innovative ideas: the ideas do not follow the traditional patterns of an industry, and the regulators have difficulty finding the "right box" for the new idea. Second, entry is often the vehicle for the implementation of a new idea, but, as was just discussed, such regulation tends to discourage entry. Third, excessive insistence on greater transparency might require the CRAs publicly to reveal proprietary information about their methodologies, which could allow low-cost copying by others and thereby discourage new investments in improved methodologies.

Thus, one ironic consequence of expanded regulation of the CRAs more generally is that it is likely to increase the dominance of the three major CRAs!

At base, however, is this fundamental question: Would regulation of the CRAs really be needed if ratings were not a mandatory part of the prudential-regulation process? The CRA provisions of the Dodd-Frank Act are somewhat two-minded on this issue: On the one hand, the act does expand the SEC's regulation of the NRSROs. But, on the other hand, the act also eliminates all references to NRSROs in existing legislation and instructs all federal regulatory agencies to review their references to NRSROs in their regulations and wherever possible to

replace those references—i.e., to replace the mandatory use of the NRSROs' ratings—with alternative means of achieving the same regulatory goals. As was argued above, this replacement is quite feasible with respect to the prudential regulation of financial institutions.

Unfortunately, as of early 2013, the responses of the important federal regulatory agencies have been mixed. Among the banking agencies, the Office of the Comptroller of the Currency (OCC) and the National Credit Union Association (NCUA) have achieved the most progress. They have substituted alternative approaches that are roughly along the lines of the approach that was suggested above: placing responsibility for investing in safe bonds directly on the financial institution. But the Federal Deposit Insurance Corporation (FDIC) and the Federal Reserve have lagged: They have proposed the appropriate regulations, but these agencies have not approved final versions. Similarly, the SEC has lagged: it proposed appropriate regulations and has finalized a few; but its most important regulations with respect to the mandated use of the NRSROs' ratings—by broker-dealers and by money market mutual funds—have yet to be approved in final form. Further, the Department of Labor (DOL), which regulates defined-benefit pension plans under the auspices of the Employee Retirement Income Security Act (ERISA) of 1974, has been slow in changing its regulations.

Finally, outside of federal regulation, the other major regulatory use of ratings is by the state prudential regulators of insurance companies; these regulators and their regulations are coordinated by the National Association of Insurance Commissioners (NAIC). The Dodd-Frank Act doesn't cover this category of regulatory mandates for the use of the NRSROs' ratings (by insurance companies in the determination of their capital requirements), and the

NAIC has shown only moderate interest in moving away from the pattern of regulatory reliance on the NRSROs.[100]

But suppose that mandatory use of ratings were eliminated from all prudential regulation of financial institutions, with regulators instead placing the responsibility for investing in safe bonds directly on the financial institution, as was suggested above. In that case, would the regulation of CRAs still be needed?

Since the bond markets are largely institutional markets (as is seen in table 2), there is a strong argument for eliminating the regulation of CRAs and concomitantly eliminating the NRSRO category. That argument runs as follows: The professional bond managers of financial institutions[101] should be expected to be able either to develop their own in-house expertise and information with respect to the creditworthiness of bonds or to rely on third-party advisory services. *Even if the bond manager doesn't have the capability (e.g., because of small size or limited resources or both) to develop in-house expertise for the detailed analyses of bonds, he or she should be expected to develop sufficient in-house expertise with respect to which third-party providers of creditworthiness-advisory services are reliable.* Of course, for the reasons that were discussed above, if the financial institution is prudentially regulated, the regulator should still be monitoring the institution's bond portfolio and "looking over the shoulder" of the institution's bond manager with respect to the manager's in-house analyses of bond information and decisions concerning the choice of third-party advisory services.

[100] See, for example Hunt (2011). In the fall of 2009, the NAIC hired the Pacific Investment Management Company (PIMCO) to develop an alternative risk-assessment methodology for the RMBS and commercial MBS that were held by insurance companies; but this seems to have been the NAIC's only deviation from regulatory reliance on the NRSROs' ratings.

[101] This would also encompass the managers of the bond holdings in the endowments of universities and other nonprofit institutions.

In this context, then, the types of regulation that have been applied to the NRSROs wouldn't be necessary. The professional bond managers that choose to use third-party advisory services would likely take into account the transparency and business model of an advisory service, as well as its track record, in their choices of which advisory service to use. And, with regulatory reliance abolished, there would be no need for the NRSRO category, and it could be abolished. Without this regulation of CRAs, there would be greater opportunities for smaller advisory services to establish themselves in the marketplace, and more opportunities for new ideas, new methodologies, new technologies, and perhaps even new business models for creditworthiness-advisory services to propagate.

Changes in the marketplace would likely be slow. The creditworthiness-advisory market is reputation-based; and, despite the major CRAs' faulty analyses of RMBS in the first decade of the 21st century, their rating reputations in the normal corporate, municipal, and sovereign bond areas have largely stayed intact. Nevertheless, the major CRAs would be truly subjected to a market test for the first time in almost four decades.

But what about individual (noninstitutional) bond investors? Although they are a small part of the overall bond market, individual investors hold almost half (44 percent) of outstanding municipal bonds. If the CRAs were not regulated, these individual bond investors—who would be the most likely to rely on third-party advisory services but who also would be less likely to be able to evaluate the reliability of these advisory services—would not have the SEC's certification of NRSROs and the accompanying quality regulation for support in their direct investments in bonds. Nevertheless, the possibility of investing in bond mutual funds (which are, of course, regulated by the SEC) always remains an option for such investors. Further, if they insist on investing directly in bonds, individuals would still be able to rely on advice from certified

investment advisors and securities brokers;[102] and perhaps other arrangements could be devised that would not require the regulation of CRAs.[103] In any event, the advantages of deregulating the CRAs are sufficiently important that the possible problems with respect to a minority of the overall bond market should not impede the progress that deregulation could bring.

3. Is more competition among the CRAs desirable? As was described in section III and is clearly demonstrated in table 1, the market for creditworthiness services is dominated by the three large CRAs: Moody's, S&P, and Fitch.[104] This level of seller concentration would usually be described as a concentrated oligopoly. In its annual reports on the NRSROs, the SEC presents concentration data in the form of the Herfindahl-Hirschman Index (HHI)[105] for the aggregate volume of ratings that are outstanding and for each major category that is found in table 1. For 2011, the HHI for the aggregate of ratings is 3,655 (where a monopoly would be 10,000 and an atomistic industry would be close to zero), which is just another representation of the high market shares (and thus the concentrated oligopoly) of the three major CRAs.[106]

A high level of seller concentration is usually associated with muted competition among the sellers (which occurs because of the sellers' mutual recognition of their interdependence), although there need not be a hard-and-fast relationship. And, indeed, there is a general pattern

[102] An investment advisor must register with either the SEC or a state securities regulator and has a fiduciary obligation vis-à-vis the investor; a securities broker must register with the SEC and has a "know your customer" obligation with respect to the investor.
[103] One possibility would be to limit an individual's ability to invest directly in bonds—except perhaps US Treasury obligations—to "accredited investors" (i.e., individuals with a net worth, excluding the value of a personal residence, that exceeds $1 million or an annual income that exceeds $200,000), as is done with respect to the ability of individuals to invest in hedge funds. I am indebted to Glenn Okun for his suggestion of this possibility.
[104] Although the data in table 1 cover only the NRSROs, it seems likely that the inclusion of the other categories of providers of creditworthiness-advisory services would not appreciably change this conclusion.
[105] The HHI is the sum of the squares of the market shares of each seller in a market.
[106] See SEC (2012b, 9–10). If three firms equally share a market (which would generally be considered a concentrated oligopoly), the HHI would be 3,333.

that the vigor of competition is inversely related to the level of seller concentration, especially where the barriers to entry and/or the difficulties of expansion by smaller firms are substantial.[107] A reduced vigor of competition is generally related to higher prices and worse-quality performance. Societal concerns about these adverse consequences of reduced competition serve as a basis for the enactment and enforcement of antitrust laws.

Further, as was discussed in section IV, the SEC had an unfortunate history of being a substantial barrier to entry after its creation of the NRSRO category in 1975, with the consequence that only the three major CRAs were present as NRSROs during the crucial early years of the first decade of the 21st century, when private-label securitization was expanding rapidly. One of the major goals of the passage of the CRARA in 2006 was to reduce the barriers that the SEC had created and to encourage more competition. But, even with the larger number of NRSROs, expansion by the smaller NRSROs has been modest, and seller concentration remains high—as would be expected in an industry where reputation is important and the building of reputation takes a considerable amount of time.

Despite the generally favorable consequences of competition, adverse effects from competition can arise if all the conditions required for competition to be beneficial—e.g., that buyers are knowledgeable—are not satisfied. For a market such as the market for creditworthiness-advisory services, models have been developed that show that, if investors are naïve (or credulous), or if they are mandated by regulation to rely on ratings, or if lax prudential regulation allows them to "reach for yield," more competition by more CRAs will offer more shopping-around opportunities for issuers and/or for investors and thus lead to higher (more

[107] See, for example, summaries in standard "industrial organization" textbooks, such as Carlton and Perloff (2005), Pepall, Richard, and Norman (2008), and V. Tremblay and C. Tremblay (2012); see also White (2008).

optimistic) ratings of the bonds.[108] And empirical evidence is increasingly showing that more competition among CRAs has led to higher ratings, even for "plain-vanilla" corporate bonds,[109] as well as for the RMBS issuances of the first decade of the 21st century.[110]

Although this drawback to competition among CRAs is worth noting, there are important caveats to this negative view. First, the empirical evidence shows only small (though statistically significant) upward effects on ratings from greater competition among CRAs, and not the kinds of large effects that clearly did arise in the major CRAs' ratings of RMBS in the first decade of the 21st century (for the reasons that were discussed above).[111] Second, though the directional effect of greater competition on ratings—upward—is clear, the empirical studies thus far have not been able to indicate whether this upward effect is leading to (modest) excessive optimism or instead is correcting for excessive pessimism that might prevail with less competition. Third, as was discussed above, if the system of regulatory reliance on ratings were unwound, and professional bond managers (with prudential-regulatory oversight, where appropriate) had more flexibility with respect to their choices of sources of creditworthiness information, the upward bias in ratings from competition might well cease.

Finally, the analyses of competition among CRAs—both theoretical and empirical—usually neglect the potential *dynamic* role that more competition—especially competition from new entrants—can play in encouraging innovation in creditworthiness-advisory services.

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[108] See, e.g., Skreta and Veldkamp (2009).
[109] See, e.g., Becker and Milbourn (2011); Bongaerts, Cremers, and Goetzmann (2012); and Jiang, Stanford, and Xie (2012); see also Strobl and Xia (2012).
[110] See, e.g., Morkotter and Westerfeld (2009); Ashcraft, Goldsmith-Pinkham, and Vickery (2010); Benmelech and Dlugosz (2010); He, Qian, and Strahan (2011); Griffin and Tang (2012); and Griffen, Nickerson, and Tang (2013).
[111] Also, as somewhat contrary evidence, Doherty, Kartasheva, and Phillips (2012) document that S&P's entry into insurance ratings caused A.M. Best to become more conservative. And Xia (2013) shows that rating competition from Egan-Jones (which employs the investor-pays business model) caused S&P (which employs the issuer-pays model) to become more conservative.

4. What should be the liability standard that applies to CRAs? CRAs are occasionally sued by aggrieved parties that believe that they have suffered damages as a consequence of erroneous ratings.[112] Since 2007 the plaintiffs have mostly been investors that have sued as a consequence of the major CRAs' faulty analyses of RMBS during the first decade of the 21st century; but the US government in early 2013 brought a suit against S&P.

The CRAs have traditionally claimed that their ratings represent "opinions" and that they are thus quite similar to newspaper publishers and are similarly protected by the US Constitution's First Amendment. The title of a *Cornell Law Review* article about CRA liability aptly summarizes this characterization of ratings as "the World's Shortest Editorials."[113] This protection has meant that a plaintiff would have to demonstrate that the CRA's erroneous rating was issued "with knowledge of its falsity or with reckless disregard of whether it was true or false" (*New York Times Co. v. Sullivan*, 376 U.S. 254 [1964]). This standard appears to mean that simple negligence or carelessness on the part of the CRA would not be a sufficient basis for a plaintiff to prevail over the CRA in such a lawsuit.[114]

The Dodd-Frank Act included language that attempts to change the liability standard that applies to CRAs, so as to make their liability more like that of accountants/auditors and financial advisors and less like that of newspaper publishers, who are protected by the First Amendment.

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[112] Although the plaintiffs in such lawsuits are usually aggrieved investors who have suffered losses, there has been at least one instance where the plaintiff was an issuer; see *Jefferson County School District No. R-1 v. Moody's Investors Services, Inc.*, 175 F.3d 848 (1999).

[113] See Husisian (1990).

[114] It is worth noting that the recent lawsuit by the US government against S&P has claimed fraudulent behavior by S&P and not negligence. This change of tactics may have been motivated by hopes that S&P would be less able to use the First Amendment in its defense against the lawsuit, although it may also have been driven by the fact that S&P's ratings were issued more than five years before the suit and thus would normally be exempt because of the five-year statute of limitations that would otherwise prevail; but the Government suit uses the losses that S&P's erroneous ratings caused to federally insured depository institutions as the grounds for its suit and thereby uses the Financial Institutions Reform, Recovery, and Enforcement Act (FIRREA) of 1989 as its basis. With FIRREA comes a 10-year statute of limitations but also the need to use fraudulent behavior as the charge.

This seems to be a sensible direction in which to move, since CRAs do seem to be substantially different from newspapers.[115] The intention of the act's proponents is that greater liability will make CRAs more careful in the future; however, greater liability could also make them more cautious, in which case they might provide less useful information to the marketplace. A difficult balance needs to be achieved, and there has thus far been too little experience to determine whether the act did achieve that correct balance. Moreover, in the end, the final decision about whether the First Amendment does or does not apply to CRAs—regardless of the language of the Dodd-Frank Act—is likely to be made by the courts in future lawsuits under the act, not by Congress.[116]

VII. Conclusion

After spending decades as a little-noticed part of the infrastructure of the bond markets in the United States, the major credit rating agencies—Moody's, Standard & Poor's, and Fitch—have received considerable media and public-policy attention during the past five years, and this attention is unlikely to dissipate any time soon. The US government's lawsuit against S&P in February 2013 is only the latest chapter.

Given the CRAs' faulty appraisals of hundreds of billions of dollars of RMBS during the first decade of the 21st century, this media and policy attention is not surprising. However, one of the outcomes of this attention—heightened regulation of the CRAs—has been unfortunate.

There is a better way. This path starts with the recognition that for almost eight decades prudential regulation of financial institutions has attempted to use the major CRAs' ratings to

[115] For example, although newspapers do receive payments from advertisers, about which the newspaper may also publish stories and/or report product reviews, the direct linkage between the receipt of payment and the development and release of information seems much tighter for CRAs than for newspapers.
[116] For some legal discussions of the First Amendment issues with respect to CRAs, see, for example, Husisian (1990); Partnoy (1999, 2006, 2009); Hill (2004); Coffee (2006, 2011); and Deats (2010).

ensure that safer bonds are in the portfolios of these financial institutions. That regulatory safety goal has been laudable. But it has had the unintended side effect of strengthening the centrality of the major CRAs and their ratings for the bond markets. The newly heightened regulation of the CRAs themselves is likely to exacerbate that centrality.

Consequently, the better way is to eliminate the mandated use of the CRAs' ratings for prudential regulation and to use alternative means for ensuring the safety of bonds in the portfolios of regulated financial institutions. Without a mandated regulatory role for ratings, the argument for regulation of the CRAs largely falls apart—especially because the bond markets are largely institutional in nature, so that the average bond investor (except in the case of municipal bonds) is overwhelmingly an institutional portfolio manager. These bond managers should be expected either to have the in-house capability to do the research and evaluate bonds or to rely on third-party providers of creditworthiness-advisory services, *and to have the ability to judge which are the reliable providers of such services*.[117] The extra efforts of regulatory agencies to certify which creditworthiness-advisory services these bond managers can employ should not be necessary.

When freed from the restrictions of regulation, the natural forces of market competition among the providers of creditworthiness-advisory services can be expected to take hold. This market would then be opened to new ideas, new methodologies, new technologies, and perhaps even new business models. Superior providers of these services are likely to succeed and prosper; inferior providers should fall by the wayside. That is the way that markets normally work. It is a reasonable target for this market as well.

[117] As is discussed above, prudential regulators of these financial institutions must still monitor the latter's bond portfolios *and* monitor their in-house research and/or decisions with respect to third-party advisors.

References

Acharya, Viral V., Matthew Richardson, Stijn Van Nieuwerburgh, and Lawrence J. White. 2011. *Guaranteed to Fail: Fannie Mae, Freddie Mac, and the Debacle of Mortgage Finance*. Princeton: Princeton University Press.

Adelson, Mark. 2007. "The Role of the Credit Rating Agencies in the Structured Finance Market." Testimony Before the Subcommittee on Capital Markets, Insurance and Government Sponsored Enterprises, Committee on Financial Services, US House of Representatives, September 27.

Altman, Edward I., and Herbert A. Rijken. 2004. "How Rating Agencies Achieve Rating Stability." *Journal of Banking & Finance* 28 (November): 2679–714.

———. 2006. "A Point-in-Time Perspective on Through-the-Cycle Ratings." *Financial Analysts Journal* 62 (January–February 2006): 54–70.

Ashcraft, Adam B., Paul Goldsmith-Pinkham, and James Vickery. 2010. "MBS Ratings and the Mortgage Credit Boom." Federal Reserve Bank of New York, Staff Report 449 (May).

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

Baghai, Ramin, Henri Servaes, and Ane Tamayo. 2011. "Have Rating Agencies become More Conservative? Implications for Capital Structures and Debt Pricing." CEPR Discussion Paper No. DP8446.

Bai, Lynn. 2010. "On Regulating Conflicts of Interest in the Credit Rating Industry." *Legislation and Public Policy* 13 (2): 253–313.

BIS (Bank for International Settlements), Basel Committee on Banking Supervision, Joint Forum. 2009. "Stocktaking on the Use of Credit Ratings." http://www.bis.org/publ /joint22.pdf.

Bar-Isaac, Heski, and Joel Shapiro. 2013 "Ratings Quality over the Business Cycle." *Journal of Financial Economics* 108 (April): 67–78.

Beaver, William H., Catherine Shakespeare, and Mark T. Soliman. 2006. "Differential Properties in the Ratings of Certified versus Non-certified Bond-Rating Agencies." *Journal of Accounting and Economics* 42 (December): 303–34.

Becker, Bo, and Todd Milbourn. 2011. "How Did Increased Competition Affect Credit Ratings?" *Journal of Financial Economics* 101 (September): 493–514.

Benmelech, Efraim, and Jennifer Dlugosz. 2010. "The Credit Rating Crisis." *NBER Macroeconomics Annual, 2009* 24: 161–207.

Benston, George J. 1969. “The Value of the SEC’s Accounting Disclosure Requirements.” *Accounting Review* 44 (July): 515–32.

Blume, Marshall E., Felix Lim, and A. Craig MacKinlay. 1998. “The Declining Credit Quality of US Corporate Debt: Myth or Reality?” *Journal of Finance* 53 (August): 1389–413.

Bolton, Patrick, Xavier Freixas, and Joel D. Shapiro. 2012. “The Credit Ratings Game.” *Journal of Finance*, 67 (February): 85–112.

Bongaerts, Dion, K. J. Martijn Cremers, and William N. Goetzmann. 2012. “Tiebreaker: Certification and Multiple Credit Ratings.” *Journal of Finance* 67 (February): 113–52.

Bruno, Valentina, Jess Cornaggia, and Kimberly J. Cornaggia. 2013. “Does Regulatory Certification Affect the Information Content of Ratings?” SSRN Working Paper No. 1962840.

Butler, Alexander W., and Kimberly J. Cornaggia. 2012. “Rating through the Relationship: Soft Information and Credit Ratings.” SSRN Working Paper No. 345860.

Calomiris, Charles W. 2009. “A Recipe for Ratings Reform.” *Economists’ Voice* 6 (11), art. 5.

Cantor, Richard, and Christopher Mann. 2007. “Analyzing the Tradeoff between Ratings Accuracy and Stability.” *Journal of Fixed Income* 16 (September): 60–68.

Cantor, Richard, and Frank Packer. 1995. “The Credit Rating Industry.” *Journal of Fixed Income* 5 (December): 10–34.

Carlton, Dennis W., and Jeffrey M. Perloff. 2005. *Modern Industrial Organization*. 4th edition. New York: Pearson.

Cheng, Mei, and Monica Neamtu. 2009. “An Empirical Analysis of Changes in Credit Rating Properties: Timeliness, Accuracy and Volatility.” *Journal of Accounting and Economics* 47 (March): 108–30.

Coffee, John C. Jr. 2006. *Gatekeepers: The Professions and Corporate Governance*. New York: Oxford University Press.

———. 2011. “Ratings Reform: The Good, the Bad, and the Ugly.” *Harvard Business Law Review* 1 (Spring): 231–78.

Cornaggia, Jess, and Kimberly J. Cornaggia. 2011. “Does the Bond Market Want Informative Credit Ratings?” Draft paper. http://isites.harvard.edu/fs/docs/icb.topic1060772.files /Cornaggia%20and%20Cornaggia%202011-05-02.pdf.

Cornaggia, Jess, and Kimberly J. Cornaggia. 2013. “Estimating the Costs of Issuer-Paid Credit Ratings.” *Review of Financial Studies* 26 (September): 2229–69.

Coval, Joshua, Jakub Jurek, and Erik Stafford. 2009. "The Economics of Structured Finance." *Journal of Economic Perspectives* 23 (Winter): 3–25.

Covitz, Daniel M., and Paul Harrison. 2003. "Testing Conflicts of Interest at Bond Rating Agencies with Market Anticipation: Evidence that Reputation Incentives Dominate." FEDS Working Paper #2003-68, Federal Reserve Board.

Crawford, John. 2010. "CDO Ratings and Systemic Instability: Causes and Cure." *New York University Journal of Law and Business* 7 (Fall): 1–45.

Creighton, Adam, Luke Gower, and Anthony J. Richards. 2007. "The Impact of Rating Changes in Australian Financial Markets." *Pacific-Basin Finance Journal* 15 (January): 1–17.

Deats, Caleb. 2010. "Talk That Isn't Cheap: Does the First Amendment Protect Credit Rating Agencies' Faulty Methodologies from Regulation?" *Columbia Law Review* 110 (November): 1818–64.

Dennis, Kia. 2009. "The Ratings Game: Explaining Rating Agency Failures in the Build Up to the Financial Crisis." *University of Miami Law Review* 63 (July): 1111–50.

Doherty, Neil A., Anastasia V. Kartasheva, and Richard D. Phillips. 2012. "Information Effect of Entry into Credit Ratings Market: The Case of Insurers' Ratings." *Journal of Financial Economics* 106 (November): 308–30.

ECB (European Central Bank). 2009. "Credit Rating Agencies: Developments and Policy Issues." *Monthly Bulletin* (May): 107–17.

Flandreau, Marc, Norbert Gaillard, and Frank Packer. 2009. "Ratings Performance, Regulation and the Great Depression: Lessons from Foreign Government Securities." CEPR Discussion Paper No. DP7328.

Flannery, Mark J., Joel F. Houston, and Frank Partnoy. 2010. "Credit Default Swaps as Viable Substitutes for Credit Ratings." *University of Pennsylvania Law Review* 158 (June): 2085–123.

Fong, Kingsley, Harrison Hong, Marcin Kacperczyk, and Jeffrey D. Kubik. 2012. "Do Security Analysts Discipline Credit Rating Agencies?" SSRN working paper.

Fons, Jerome S. 2004. "Tracing the Origins of 'Investment Grade.'" *Special Comment*. Moody's Investors Service, January.

Foote, Christopher L., Kristopher S. Gerardi, and Paul S. Willen. 2012. "Why Did So Many People Make So Many Ex Post Bad Decisions? The Causes of the Foreclosure Crisis." Public Policy Discussion Paper No. 12-2, Federal Reserve Bank of Boston.

Frame, W. Scott, and Lawrence J. White. 2005. "Fussing and Fuming at Fannie and Freddie: How Much Smoke, How Much Fire?" *Journal of Economic Perspectives* 19 (Spring 2005): 159–84.

———. 2012. “Industrial Organization of the US Residential Mortgage Market.” In *International Encyclopedia of Housing and Home*, edited by Susan J. Smith. Vol. 4, 37–48. Amsterdam: Elsevier.

Frost, Carol Ann. 2007. “Credit Rating Agencies in Capital Markets: A Review of Research Evidence on Selected Criticisms of the Agencies.” *Journal of Accounting, Auditing & Finance* 22 (July): 469–92.

Fulghieri, Paolo, Gunter Strobl, and Han Xia. 2012. “The Economics of Solicited and Unsolicited Ratings.” SSRN Working Paper No. 1572059.

Garcia Alcubilla, Raquel, and Javier Ruiz del Pozo. 2012. *Credit Rating Agencies on the Watch List: Analysis of European Regulation*. Oxford: Oxford University Press.

Goetzmann, William N., and Frank Newman. 2010. “Securitization in the 1920s.” NBER Working Paper No. 15650. http://cid.bcrp.gob.pe/biblio/Papers/NBER/2010/enero/w15650.pdf.

Griffin, John M., and Dragon Yongjun Tang. 2012. “Did Subjectivity Play a Role in CDO Credit Ratings?” *Journal of Finance* 67 (August): 1293–328.

Griffen, John M., Jordan Nickerson, and Dragon Yongjun Tang. 2013. “Rating Shopping or Catering? An Examination of the Response to Competitive Pressure for CDO Ratings.” *Review of Financial Studies* 23 (September): 2270–310.

Grundfest, Joseph A., and Evgenia E. Hochenberg. 2009. “Investor Owned and Controlled Rating Agencies: A Summary Introduction.” Stanford University Law & Economics Olin Working Paper Series, No. 391.

Gudzowski, Milosz. 2010. “Mortgage Credit Ratings and the Financial Crisis: The Need for a State-Run Mortgage Security Rating Agency.” *Columbia Business Law Review* 10 (1): 245–80.

He, Jie, Jun Qian, and Philip E. Strahan. 2012. “Are All Ratings Created Equal? The Impact of Issuer Size on the Pricing of Mortgage-Backed Securities.” *Journal of Finance* 67 (December) 2097–137.

Hickman, W. Braddock. 1958. *Corporate Bond Quality and Investor Experience*. Princeton: Princeton University Press.

Hill, Claire A. 2004. “Regulating the Rating Agencies.” *Washington University Law Quarterly* 82 (2004): 43–94.

———. 2010. “Why Did Rating Agencies Do Such a Bad Job Rating Subprime Securities?” *University of Pittsburgh Law Review* 71 (Spring): 585–608.

———. 2011. “Limits of Dodd-Frank’s Rating Agency Reform.” *Chapman Law Review* 15 (Spring): 133–48.

Hunt, John Patrick. 2011. “Credit Ratings in Insurance Regulation: The Missing Piece of Financial Reform.” *Washington & Lee Law Review* 68 (Winter): 1667–97.

Husisian, Gregory. 1990. “Note: What Standard of Care Should Govern the World’s Shortest Editorials? An Analysis of Bond Rating Liability.” *Cornell Law Review* 75 (January): 411–60.

IMF (International Monetary Fund). 2009. “Global Financial Stability Report: Navigating the Financial Challenges Ahead.” International Monetary Fund. http://www.imf.org/external/pubs/ft/gfsr/2009/02/index.htm.

Jewell, Jeff, and Miles Livingston. 1999. “A Comparison of Bond Ratings from Moody’s S&P and Fitch IBCA.” *Financial Markets, Institutions, & Instruments* 8 (4): 1–45.

Jiang, John (Xuefeng), Mary Harris Stanford, and Yuan Xie. 2012. “Does It Matter Who Pays for Bond Ratings? Historical Evidence.” *Journal of Financial Economics* 105 (September): 607–21.

Johnston, Rick, Stanimir Markov, and Sundaresh Ramnath. 2009. “Sell-Side Debt Analysis.” *Journal of Accounting and Economics* 47 (March): 91–107.

Jorion, Philippe, Zhu Liu, and Charles Shi. 2005. “Informational Effects of Regulation FD: Evidence from Rating Agencies.” *Journal of Financial Economics* 76 (April): 309–30.

Kartasheva, Anastasia V., and Bilge Yilmaz. 2013. “Precision of Ratings.” SSRN Working Paper No. 2232998.

Kashyap, Anil K., and Natalia Kovrijnykh. 2013. “Who Should Pay for Credit Ratings and How?” NBER Working Paper No. 18923.

Kisgen, Darren J., and Philip E. Strahan. 2010. “Do Regulations Based on Credit Ratings Affect a Firm’s Cost of Capital?” *Review of Financial Studies* 23 (December): 4324–47.

Klein, Benjamin, and Keith B. Leffler. 1981. “The Role of Market Forces in Assuring Contractual Performance.” *Journal of Political Economy* 89 (August): 615–41.

Kothari, S. P., and Jerold B. Warner. 2007. “Econometrics of Event Studies.” In *Handbook of Corporate Finance: Empirical Corporate Finance*, edited by Espen Eckbo, 3–36. Amsterdam: Elsevier.

Lagner, Thomas, and Dodo zu Knyphausen-Aufsess. 2012. “Rating Agencies as Gatekeepers to the Capital Market: Practical Implications of 40 Years of Research.” *Financial Markets, Institutions & Instruments* 21 (3): 157–202.

Langohr, Herwig, and Patricia Langohr. 2008. *The Rating Agencies and Their Credit Ratings: What They Are, How They Work, and Why They Are Relevant*. Chichester: Wiley.

Levich, Richard M., Carmen Reinhart, and Giovanni Majnoni, eds. 2002. *Ratings, Rating Agencies, and the Global Financial System*. Boston: Kluwer.

Listokin, Yair, and Benjamin Taibleson. 2010. "If You Misrate, Then You Lose: Improving Credit Rating Accuracy through Incentive Compensation." *Yale Journal on Regulation* 27 (January): 91–113.

Loffler, Gunter. 2004. "An Anatomy of Rating through the Cycle." *Journal of Banking & Finance* 28 (March): 695–720.

———. 2005. "Avoiding the Rating Bounce: Why Rating Agencies Are Slow to React to New Information." *Journal of Economic Behavior & Organization* 56 (March): 365–81.

Manns, Jeffrey. 2009. "Rating Risk after the Subprime Mortgage Crisis: A User Fee Approach for Rating Agency Accountability." *North Carolina Law Review* 87 (May 2009): 1011–89.

Mathis, Jerome, James McAndrews, and Jean-Charles Rochet. 2009. "Rating the Raters: Are Reputation Concerns Powerful Enough to Discipline Rating Agencies?" *Journal of Monetary Economics* 56 (July): 657–74.

Moody's Corporation, 2009. *Annual Report 2008*. New York: Moody's.

Mooney, Richard E. 1968. "Bond Rating Fees to Be Introduced; Standard & Poor's Is Ending Free Listing of Municipals." *New York Times*, January 24, 57.

Morgenson, Gretchen. 2013. "On the Waiting List at the Debt-Rating Club." *New York Times*, February 9, BU–1.

Morkotter, Stefan, and Simone Westerfeld. 2009. "Rating Model Arbitrage in CDO Markets: An Empirical Analysis." *International Review of Financial Analysis* 18 (March): 21–33.

Opp, Christian C., Marcus M. Opp, and Milton Harris. 2013. "Rating Agencies in the Face of Regulation." *Journal of Financial Economics* 108 (April): 46–61.

Pagano, Marco, and Paolo Volpe. 2010. "Credit Ratings Failures and Policy Options." *Economic Policy* 25 (April): 403–31

Partnoy, Frank. 1999. "The Siskel and Ebert of Financial Markets: Two Thumbs Down for the Credit Rating Agencies." *Washington University Law Quarterly* 77 (3): 619–712.

———. 2006. "How and Why Credit Rating Agencies Are Not Like Other Gatekeepers." In *Financial Gatekeepers: Can They Protect Investors?* Edited by Yasuyuki Fuchita and Robert E. Litan, 59–99. Washington, DC: Brookings Institution.

———. 2009. "Rethinking Regulation of Credit Rating Agencies: An Institutional Investor Perspective." University of San Diego School of Law, Legal Studies Research Paper Series, No. 09-014.

Pepall, Lynne, Dan Richards, and George Norman. 2008. *Industrial Organization: Contemporary Theory and Empirical Applications*. 4th edition. Malden, MA: Blackwell, 2008.

Raboy, David. 2009. "Concept Paper on Credit Rating Incentives." Congressional Oversight Panel, January 9.

Richardson, Matthew C., and Lawrence J. White. 2009. "The Rating Agencies: Is Regulation the Answer?" In *Restoring Financial Stability: How to Repair a Failed System*, edited by Viral Acharya and Matthew C. Richardson, 101–15. New York: Wiley.

Rousseau, Stephane. 2012. "A Question of Credibility: Enhancing the Accountability and Effectiveness of Credit Rating Agencies." C.D. Howe Institute, commentary no. 356.

Rysman, Marc. 2009. "The Economics of Two-Sided Markets." *Journal of Economic Perspectives* 23 (Summer): 125–43.

Sinclair, Timothy J. 2005. *The New Masters of Capital: American Bond Rating Agencies and the Politics of Creditworthiness*. Ithaca: Cornell University Press.

Skreta, Vasiliki, and Laura Veldkamp. 2009. "Ratings Shopping and Asset Complexity: A Theory of Ratings Inflation." *Journal of Monetary Economics* 56 (July): 678–95.

Snowden, Kenneth A. 2010a. "The Anatomy of a Residential Mortgage Crisis: A Look Back to the 1930s." In *The Panic of 2008: Causes, Consequences, and Implications for Reform*, edited by Lawrence E. Mitchell and Arthur E. Wilmarth Jr., 51–74. Northampton, MA: Edward Elgar Publishing.

———. 2010b. "Covered Farm Mortgage Bonds in the Late Nineteenth Century US." *Journal of Economic History* 70 (December): 783–812.

Stiglitz, Joseph, and Andrew Weiss. 1981. "Credit Rationing in Markets with Imperfect Information." *American Economic Review* 71 (June): 393–410.

Strobl, Gunter, and Han Xia. 2012. "The Issuer-Pays Rating Model and Ratings Inflation: Evidence from Corporate Credit Ratings." SSRN Working Paper No. 2002186.

Sylla, Richard. 2002. "An Historical Primer on the Business of Credit Ratings." In *Ratings, Rating Agencies, and the Global Financial System*, edited by Richard M. Levich, Carmen Reinhart, and Giovanni Majnoni, 19–40. Boston: Kluwer, 2002.

Tremblay, Victor J., and Carol Horton Tremblay. 2012. *New Perspectives on Industrial Organization: With Contributions from Behavioral Economics and Game Theory*. New York: Springer.

US Federal Deposit Insurance Corporation (FDIC). 2011. "References to Credit Ratings in FDIC Regulations."

US Federal Reserve Board. 2011. “Report to the Congress on Credit Ratings.”

———. 2013. “Flow of Funds Accounts of the United States, First Quarter 2013.”

US Financial Crisis Inquiry Commission (FCIC). 2011. *The Financial Crisis Inquiry Report*. January 2011.

US Government Accountability Office (GAO). 2010. “Securities and Exchange Commission: Action Needed to Improve Rating Agency Registration Program and Performance-Related Disclosures.” GAO-10-782.

———. 2012. “Credit Rating Agencies: Alternative Compensation Models for Nationally Recognized Statistical Rating Organizations.” GAO-12-240.

US Office of the Comptroller of the Currency. 2011. “Testimony of David K. Wilson.” July 27.

US Securities and Exchange Commission (SEC). 2003. “Report on the Role and Function of Credit Rating Agencies in the Operation of the Securities Markets.”

———. 2008. “Summary Report of Issues Identified in the Commission Staff’s Examinations of Select Credit Rating Agencies.”

———. 2011. “Report on Review of Reliance on Credit Ratings.”

———. 2012a. “Credit Rating Standardization Study.”

———. 2012b. “2012 Summary Report of Commission Staff’s Examinations of Each Nationally Recognized Statistical Rating Organization.”

———. 2012c. “Annual Report on Nationally Recognized Statistical Rating Organizations.”

———. 2012d. “Assigned Credit Ratings.”

US Senate, Committee on Governmental Affairs. 2002. “Rating the Raters: Enron and the Credit Rating Agencies.” Hearing, March 20.

US Senate Committee on Homeland Security and Governmental Affairs, Permanent Subcommittee on Investigations. 2011. “Wall Street and the Financial Crisis: Anatomy of a Financial Collapse.” Majority and Minority Staff Report, April 13.

White, Lawrence J. 2002. “The Credit Rating Industry: An Industrial Organization Analysis.” In *Ratings, Rating Agencies, and the Global Financial System*, edited by Richard M. Levich, Carmen Reinhart, and Giovanni Majnoni, 41–63. Boston: Kluwer.

———. 2006. “Focusing More on Outputs and on Markets: What Financial Regulation Can Learn from Progress in Other Policy Areas.” Policy Brief #2006-PB-18, Networks Financial Institute, Indiana State University.

———. 2008. “Horizontal Merger Antitrust Enforcement: Some Historical Perspectives, Some Current Observations.” In *Corporate Mergers: Modern Approaches*, edited by P. L. Jayanthi Reddy, 88–99. Hyderabad, India: Icfai University Press.

———. 2010. “Markets: The Credit Rating Agencies.” *Journal of Economic Perspectives* 24 (Spring): 211–26.

———. 2011. “Preventing Bubbles: What Role for Financial Regulation?” *Cato Journal* 31 (Fall): 603–19.

Xia, Han. 2013. “Can Investor-Paid Credit Rating Agencies Improve the Information Quality of Issuer-Paid Rating Agencies?” SSRN Working Paper 1981516.

Table 1. Numbers of NRSRO Credit Ratings Outstanding and Credit Analysts and Credit Analyst Supervisors, 2011

NRSRO	Financial institutions	Insurance companies	Corporate issuers	Issuers of asset-backed securities	Issuers of government securities	Total ratings	Credit analysts	Credit analyst supervisors[a]
A.M. Best	N/R	4,826	1,910	56	N/R	6,792	82	41
DBRS	21,695	151	4,037	9,889	15,798	51,570	84	34
Egan-Jones	101	51	962	13	9	1,136	2	3
Fitch	54,586	4,010	14,427	58,315	217,198	348,536	758	338
HR Ratings[b]	N/A	N/A	N/A	N/A	58	58	19	8
JCR	163	27	478	N/R	54	722	24	33
Kroll	16,127	52	1,001	40	58	17,278	22	6
Moody's	56,486	3,953	30,439	93,913	814,087	998,878	1,124	128
Morningstar	N/R	N/R	N/R	16,070	N/R	16,070	26	10
S&P	60,700	7,800	45,400	108,400	948,300	1,170,600	1,172	244
Total	**209,858**	**20,870**	**98,654**	**286,696**	**1,995,562**	**2,611,640**	**3,313**	**845**

Notes: N/R indicates the NRSRO is not registered for that category of securities; N/A indicates that the data are not available.
[a] Some credit analyst supervisors may also have analytical responsibilities.
[b] HR Ratings de Mexico was certified as a NRSRO in November 2012; the ratings of the company were not included in the SEC report that compiled ratings for the NRSROs; the 58 government ratings are listed in its Form NRSRO, as are its number of analysts and supervisors.

Sources: SEC (2012b; 2012c).

Table 2. Direct Holdings (Ownership) of Securities by Broad Category, First Quarter of 2013 ($ billions)

	Bonds, by issuer						
Direct holder	US Treasury	GSEs and Ginnie Mae[a]	Corporate and foreign	Municipal[b]	Total	Total excl. US Treasury	Equities
Households	$1,229	$10	$2,454	$1,658	$5,351	$4,122	$11,243
Financial institutions	2,599	5,021	7,597	1,961	17,178	14,579	13,642
Other[c]	8,078	2,560	2,747	110	13,495	5,417	3,553
Total	**$11,906**	**$7,591**	**$12,798**	**$3,729**	**$36,024**	**$24,118**	**$28,438**
Households as % of total	**10.32%**	**0.13%**	**19.17%**	**44.46%**	**14.85%**	**17.09%**	**39.54%**

Notes:
[a] Includes MBS as well as straight debt; includes Federal Home Loan Banks, Farmers Home Administration, and Tennessee Valley Authority.
[b] Includes state, county, and other local-government debt.
[c] Includes governments, nonfinancial business, and rest of world.

Source: US Federal Reserve Board (2013).