The Credit Rating Agencies and Their Role in the Financial System

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Abstract

Despite extensive criticism, the major credit rating agencies (CRAs) – Moody’s, Standard & Poor’s, and Fitch – remain as central entities in the financial markets of the U.S. and Europe, especially with respect to bonds and similar financial instruments. This chapter provides a discussion of the role that the CRAs continue to play in the financial system and how and why they play that role. After a brief overview of the CRAs as providers of information that lessens the problems of asymmetric information in lending/borrowing markets, the chapter discusses the expanded use of the CRAs’ ratings in the prudential regulation of financial institutions and the problems that contributed to the financial crisis of 2008. The chapter concludes with a discussion of the likely direction of the CRAs and their regulation.

Keywords: credit rating agency (CRA); nationally recognized statistical rating organization (NRSRO); asymmetric information; creditworthiness; bond markets; financial regulation; Moody’s; Standard & Poor’s; Fitch; prudential regulation

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1. Introduction.¹

Prior to the middle of the decade of the 2000s, few individuals outside of the financial sector paid much attention to the major credit rating agencies (CRAs); most individuals may well have been unaware of their existence. The CRAs were part of the infrastructure of the financial system: part of the “plumbing”. They attracted little attention because they appeared to be functioning reasonably well – “doing their job”.

This relative invisibility came to a sharp end in the U.S. around 2007,² when the role of the three major CRAs – Moody’s, Standard & Poor’s (S&P), and Fitch – in encouraging the financing of sub-prime residential mortgage-backed securities (RMBS) became more prominent, and then the collapse of the sub-prime RMBS market helped precipitate the financial crisis of 2008. In Europe, the precipitating events were the major CRAs’ downgrades of sovereign debt, starting in 2009 and especially applying to the weaker economies of south and southeast Europe, although downgrades of northern European sovereign issues also drew media and political attention.

As of mid 2018 the major CRAs are not in the headlines in the way that they were a decade ago. However, they remain important; and they are considerably more heavily regulated than they were a decade ago. Despite the heavier regulation, critical observers often wonder why the CRAs aren’t even more heavily regulated – and especially why there have been no regulation-forced changes in their core business model: Their primary sources of revenue for

¹ Greater detail on much of the information in this chapter can be found in White (2013, 2016).
² There was a brief flurry of public and media attention in 2001-2002, when it was discovered that the major CRAs had maintained “investment grade” ratings on the bonds that had been issued by the Enron Corporation until five days before Enron’s bankruptcy in November 2001. Although the public and media attention faded, the CRAs continued to receive Congressional attention, which eventually led to the Credit Rating Agency Reform Act (CRARA) of 2006 and the first substantive regulation of the CRAs by the U.S. Securities and Exchange Commission (SEC).
their ratings continue to come in the form of fees that are paid by the bond issuers whose bond issuances the CRAs are rating; this has come to be known as the “issuer-pays” business model. In addition, some critics – especially those within the political sphere – ask why these non-governmental entities should be making creditworthiness judgments about governmental debt obligations.

This chapter will expand on these themes and thus place the CRAs in the context of the international economic governance and market regulation that is the theme of this book. Specifically, this chapter will proceed as follows: Section 2 will provide some background: Who the CRAs are; their role in the financial system; a brief history; and an explanation of how the CRAs and their ratings came to be involved in the prudential regulation of financial institutions in the U.S. Section 3 will discuss the financial crisis of 2008, the major CRAs’ contributions to the crisis, and the regulation of the CRAs that followed. Section 4 will shift the focus to jurisdictions outside the U.S. and provide a similar summary of the regulation of the CRAs and their involvement in the prudential regulation of financial institutions in that broader context.

Section 5 returns to the basic issuer-pays business model of the CRAs and offers some insights from “industrial organization” economics to help explain why the model “blew up” in the area of residential mortgage-backed securities (RMBS) in the 2000s but also why this same model hasn’t “blown up” in the ratings of corporate bonds and of other, more traditional debt securities over a substantially longer time period. Section 6 asks why governments haven’t supplanted the CRAs through the direct dissemination of creditworthiness information. And Section 7 will conclude with some thoughts on the prospects for the CRAs and their regulation.
2. Some background.

For the non-specialist, some background is in order.

2.1. Who they are.

Most of the attention that has been paid to the CRAs over the past decade has been focused on the three largest CRAs: Moody’s, S&P, and Fitch. As the data in Tables 1-4 indicate, this focus is no accident, and it is appropriate: The three largest CRAs clearly do dominate the bond ratings in the U.S. and in Europe – whether the metric is number of ratings, revenue from ratings, or credit analysts and supervisors that are employed.\(^3\)

But Tables 1-4 also indicate another important stylized fact: that there are other credit rating entities in addition to the three largest. The U.S. data that are shown in Tables 1 and 2 are more restrictive, because the data include only those firms that have successfully registered as a “nationally recognized statistical rating organization” (NRSRO) with the U.S. Securities and Exchange Commission (SEC). As will be discussed below, there are other, smaller firms that perform the same function and provide the same kinds of information as do the large CRAs, even though those smaller firms are not registered as NRSROs.

The European data are more inclusive; but again, there are other firms that are not listed but that perform the same function and provide the same kinds of information. And, of course, there are CRAs (and similar-type firms) that are located elsewhere in the world and that focus on the debt markets of those countries – especially in Asia – that do not appear in either the U.S. or the European listings. There is no worldwide official data-gathering entity that provides a census

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\(^3\) The longitudinal ratings share data that have been published by the SEC and by the European Securities and Markets Authority (ESMA) for the past few years show only small changes in the shares of the three largest CRAs. The data in Tables 1-4 for 2015 are typical for the past few years.
of CRAs and similar firms. But informal estimates typically place the number at levels that are above 100.

Although all of the three large CRAs have extensive worldwide operations, all three have their headquarters in the U.S. and thus are considered U.S. firms. Again, this is no accident: These firms’ primary business is in rating bonds and similar debt instruments; and historically, the U.S. developed thick bond markets much earlier than did most other countries (where banks were the traditional lenders to industrial and governmental borrowers). And, for the reasons that are discussed below, bond markets would be more likely to need third-party creditworthiness advisory services than would bank-mediated lending markets. Hence, the historic head-start of the U.S. in developing bond markets translated readily into a head-start in developing CRAs.

2.2. What they do.

At the heart of any lender-borrower relationship is a problem of asymmetric information: Beforehand, the lender will want to know about the absolute and relative creditworthiness of the potential borrowers to whom the lender might lend; but, a priori, the borrowers are more likely to know about the likelihoods that they will repay a loan than will the lender (and hence the phrase “asymmetric information”). And, even after the lender has made a loan, the lender may be concerned that an otherwise creditworthy borrower may be taking actions (or unluckily falling into circumstances) that reduce the likelihood that repayment will occur – which, again, the borrower is likely to know more about than is the lender.

Enter the role of information: In such circumstances, the lender will want to collect information beforehand that will help the lender form judgments about the creditworthiness of

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4 This is true even of Fitch, which had its origins in the U.S. but is now owned by a European diversified financial services firm.
5 The only other country to have early thick bond markets was Great Britain. It remains an unaddressed historical question as to why Britain did not develop its own set of CRAs.
prospective borrowers; and the lender will want to monitor the borrower during the duration of
the loan – and to include terms in the loan contract that discourage behavior that jeopardizes the
repayment of the loan. Equally important, creditworthy prospective and actual borrowers will
want to “stand out” and provide credible information about their creditworthiness.

In this context, it is important to remember that the issuance of a bond involves the
creation of a lender/borrower relationship: The bond purchaser or investor is lending funds to
the bond issuer – and any subsequent buyer of already-issued bonds effectively becomes the
lender to the bond issuer. In essence, a bond is a loan instrument that is negotiable: It can be
bought and sold among investors; and any holder/owner/investor effectively become the lender
to the borrower.

Since the gathering and processing of information are activities that seem to have
substantial economies of scale, large lenders – i.e., those that make large numbers of loans
and/or loans for large amounts – and lenders that have been in business for a longer period
(which, again, means that they have made more loans) are likely to have an advantage with
respect to making these creditworthiness assessments. Such lenders are more likely to collect the
information and make the judgments – “do the research” – as an internal/“in-house”/vertically
integrated function. Lenders in this category would include the larger financial institutions in the
following categories that directly make loans and/or purchase bonds: banks (and similar
depository institutions); insurance companies; pension funds; hedge funds; mutual funds; etc.

By contrast, smaller lenders – whether individuals/households or small financial
institutions – are less likely to have the scale or history or expertise (innate or acquired) to gather
the information and make the judgments based on that data-gathering.

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6 There are also likely to be vertical-integration advantages to gathering/processing the information and being the lender.
Now enter the CRAs: CRAs gather information about an important category of prospective and ongoing borrowers – specifically bond issuers (such as corporations; local, state, and national governments; and the special financial vehicles that are associated with asset-backed securities, such as mortgage bonds, credit-card bonds, etc.) – and form judgments\(^7\) about their creditworthiness. The judgments are typically in the form of a letter grade – e.g., AAA; B; CC; etc.\(^8\) – that translate into a relative statement about the creditworthiness of the bond issuer.\(^9\)

In essence, the CRAs provide creditworthiness advisory services with respect to bonds. In that context, it is immediately important to recognize that the three major CRAs are not the only sources of such information. First, as is indicated in Tables 1-4, there are other, smaller CRAs that provide similar services. Second, there are other, smaller firms that may not call themselves “credit rating agencies” but that provide similar creditworthiness information (but not in a letter grade form, etc.). Third, most securities firms have a staff of “fixed income analysts” who provide creditworthiness information to the clients of the securities firms, as well as to those firms’ traders and market makers.\(^10\)

Since the CRAs engage in the same kinds of data gathering and assessment that were described above for in-house creditworthiness judgments, scale and history/experience are again going to be an important factor for the CRAs themselves and thus should encourage larger (and

\(^7\) The CRAs prefer – for legal reasons – to describe these as “opinions”.

\(^8\) Different CRAs may have different letter symbols and/or use different symbols for different categories of debt. For example, the Moody’s symbology is slightly different from that which is used by all of the other CRAs; and all of the CRAs apply different symbols to commercial paper issuances (which are very short-term bond issuances) than they apply to longer-term bonds. Also, the progress of time – and technological improvements in data gathering and data analysis – has led to increasing amounts of embellishments on the simple letters: e.g., the use of pluses and minuses, and the use of statements about near-term outlook, etc.

\(^9\) Creditworthiness can be expressed as a simple statement about the probability that the borrower will default over some time horizon; or it can also include an estimate of the likely amount that the bond holder will recover from the borrower in the event of default.

\(^10\) That these fixed-income analysts can have an influence on the bond markets is demonstrated by Johnston et al. (2009).
fewer) CRAs – although the continued existence of the smaller and younger creditworthiness advisory firms indicates that scale and history aren’t the entire story.

Who are likely to be the users of the CRAs’ ratings? The bond markets are largely a “wholesale” market: The buyers of/investors in bonds strongly tend to be financial institutions (and not households).\textsuperscript{11} Given the discussion above about which kinds of financial institutions would tend to do their own research, the major users of the CRAs’ ratings – in the absence of regulation to the contrary – would tend to be the smaller financial institutions.

\subsection*{2.3. Some history}

As Sylla (2002) has documented, the U.S. in the 19\textsuperscript{th} century had a number of important data-gathering and creditworthiness advisory services. As the U.S. bond markets grew in the latter half of the 19\textsuperscript{th} century, more of this information focused on bonds.

Only in 1909, however, did John Moody’s firm issue the first publicly available ratings on bonds. In that year Moody issued a thick “ratings manual” that provided extensive financial information and ratings on dozens of bonds that had been issued by U.S. railroad companies.\textsuperscript{12} Moody’s innovation was followed the Poor’s Publishing Company in 1916; the Standard Statistics Company in 1922;\textsuperscript{13} and the Fitch Publishing Company in 1924. Since all of these companies were publishing books of financial information, they all naturally adopted the standard model for earning revenue from books: selling the ratings manuals to buyers (in this case, bond investors). In modern parlance, theirs was an “investor-pays” business model for generating a revenue stream that would pay for the ratings.

\textsuperscript{11} The relevant data can be found in White (2013). Only for U.S. municipal bonds are U.S. households important investors, accounting for about half of outstanding “muni” bonds. For all other categories of bonds, households account for a sixth or less of holdings.

\textsuperscript{12} At the time, railroad companies were among the larger companies in the U.S. and needed large amounts of capital for building the railroads and acquiring rolling stock.

\textsuperscript{13} Poor’s and Standard merged in 1941 to form S&P.
In the late 1960s and early 1970s, however, this revenue stream/business model changed to what it is today: an “issuer-pays” model, whereby the issuer of the bonds pays the CRA for rating the bonds. This change occurred in the form of a scattered pattern across the major CRAs and even across the various categories of bonds. There was no uniform or concerted pattern in how and when the CRAs changed to the issuer-pays model.

The reasons for this significant change in business model have never been thoroughly investigated. However, it seems most likely that it was the rise of the high-speed photocopying machine in the 1960s that led to CRA fears that the photocopy machine might have a strong negative effect on their information distribution business – analogous (although the CRAs could not have known it at the time) to the effect that the digital duplication of music had in the 1990s and 2000s on the recorded music business. In addition, the CRAs may have had a somewhat delayed realization that the issuers really did need – and would be willing to pay for – the CRAs’ ratings, because of changes in the prudential regulation of banks and other financial institutions that began in the 1930s (which will be discussed below).

In a similar spirit, as was noted above, not only are lenders interested in gaining creditworthiness information about potential borrowers, but also the more creditworthy borrowers should be interested in providing credible information about their creditworthiness to prospective lenders. Thus, in principle, both sides should be willing to pay for the services of a credible gatherer/analyst/transmitter of creditworthiness information. In essence, the CRAs (and similar entities) are the intermediaries (or “platforms”) in the middle of a “two-sided market”, where – depending on custom, history, technology, etc. – one or both sides might be expected to pay for the services that are provided.14

14 Familiar examples of other such two-sided markets include newspapers (which bring together advertisers and readers), credit card networks (which bring together merchants and consumers), cable TV systems (which bring
2.4. The consequences of changes in U.S. prudential regulation.

Until the 1930s, the CRAs were simply another set of information providers in the U.S. bond markets. This changed in the 1930s – especially in 1936 – with widening consequences since then.

Starting in the early 1930s, U.S. bank regulators began to use the ratings on the bonds that banks held in their portfolios as the basis for deciding on the accounting treatment that would be appropriate for those bonds. The big change, however, occurred in 1936: In that year, the bank regulators decided (as a matter of prudential regulation) that banks – if they were going to hold any bonds – could hold only “investment grade” bonds. But “investment grade” was a designation that was assigned by the CRAs in the first instance – not by the regulators.\textsuperscript{15}

Thus, the CRAs – as a consequence of this regulatory reliance on their ratings – had become part of the prudential regulatory system for banks. The CRAs were no longer just another provider of information to the participants in the bond markets. Banks needed to know the ratings on the bonds that they held and/or might consider buying. And even if the other participants in the bond markets weren’t similarly regulated prudentially, they would want to know what was applicable to the banks. Thus, the major CRAs now had a guaranteed market for their ratings; and bond issuers surely cared even more about obtaining ratings – and what those ratings were – than had been true before the 1930s.

During the 1940s and 1950s a somewhat similar involvement of the CRAs’ ratings occurred with respect to the prudential regulation of insurance companies (which are major holders of bonds) by their (state) regulators. And in the 1970s the U.S. Department of Labor, in

\textsuperscript{15} See, for example, Fons (2004). In the current S&P rating scale, investment grade bonds are those that have a rating of BBB- or better.
its prudential regulation of pension funds (which are also major holders of bonds), similarly expanded the use of the CRAs’ ratings into its regulatory regime.

This inclusion of ratings – and the CRAs – into the prudential regulation of financial institutions was further formalized in 1975 by the SEC. In that year the SEC decided – as part of its prudential regulation of broker-dealers – that it wanted to use the ratings on the bonds that broker-dealers held in their portfolios to determine the capital requirements for the broker-dealers. But the SEC was troubled by the vagueness that theretofore had been applied to the question of exactly which CRAs’ ratings should be the applicable ones for this prudential regulation.

To address this vagueness, the SEC created a new regulatory category – nationally recognized statistical credit rating organizations (NRSROs) – and declared that only the NRSROs’ ratings would matter for the SEC’s prudential regulation of broker-dealers. The SEC then immediately decided that Moody’s, S&P, and Fitch were NRSROs.

Over the next 25 years, as the use of the NRSROs’ ratings for prudential regulatory purposes was expanding, the SEC became a barrier to entry: It approved only four new CRAs as NRSROs during that period. But mergers among the new entrants and between them and Fitch meant that by year-end 2000 there were again only the three NRSROs – Moody’s, S&P, and Fitch – that had been designated in 1975.

As was noted above, the Congress became interested in the CRAs and the NRSRO system in the early 2000s. In response to Congressional pressures, by 2005 the SEC had designated two additional NRSROs. But continued Congressional dis-satisfaction with the

16 The other financial regulators that had been using ratings for prudential regulatory purposes soon followed the SEC’s lead and used only ratings by NRSROs for their purposes.
17 For example, in the early 1990s the SEC used the NRSROs’ ratings for its prudential regulation of money market mutual funds.
SEC’s procedures for designating NRSROs\textsuperscript{18} led to the Credit Rating Agency Reform Act (CRARA) of 2006. The Act required that the SEC establish clear criteria/qualifications for a CRA to become a NRSRO, a transparent approval process, annual reports by the NRSROs, and annual SEC assessments of the NRSROs. The SEC finally “got the message” and approved an additional number of NRSROs, so that their number today stands at the 10 that are shown in Tables 1 and 2.


As was noted above, the financial crisis of 2008 was a watershed for the major CRAs. It was clear that the CRAs had been excessively optimistic in their ratings of the sub-prime RMBS that were both a product of and a stimulant to the U.S. housing boom of the late 1990s and early 2000s. The CRAs’ excessively favorable ratings of the RMBS meant that these debt instruments carried relatively low interest rates, which meant that their underlying mortgages carried relatively low interest rates, and thus the housing boom was further stoked.

When housing prices ceased rising in mid-2006 and then began declining, mortgage defaults began to rise.\textsuperscript{19} With rising mortgage defaults, the CRAs’ optimistic views of sub-prime RMBS quickly changed: The CRAs began sharply downgrading the RMBS to which they had previously awarded high ratings. As mortgage defaults mounted and RMBS downgrades proceeded, the RMBS abruptly lost value. The financial institutions that were holding the RMBS suffered losses. Too many large financial institutions were too thinly capitalized to be

\textsuperscript{18} For example, the SEC had never established any formal criteria for evaluating the qualifications of a firm that wanted to be an NRSRO; had never retrospectively reviewed the qualifications of any of the existing NRSROs; and did not even have a formal application process for a firm that wanted to be an NRSRO.

\textsuperscript{19} Much of the mortgage lending of the early 2000s seems to have been premised on the belief that housing prices could only increase, so that a borrower’s ability to repay the mortgage loan from income or other sources was largely irrelevant: The borrower could always sell the house – at a higher price, since housing prices would always increase – and thereby repay the mortgage.
able to absorb the losses, and a serious financial crisis developed in the late summer and early autumn of 2008.20

The major CRAs’ excessively favorable initial ratings for sub-prime RMBS were clearly one of the major contributors to the crisis. In turn, the CRAs’ business model – whereby the issuers of the securities paid for the ratings – very likely did encourage the CRAs to accede (or cater) to the RMBS issuers’ desires to obtain higher ratings.21

The Dodd-Frank Wall Street Reform and Consumer Protection Act of 2010 was a broad effort to reform financial regulation in the U.S., so as to reduce substantially the likelihood of a similar financial crisis occurring. Included in the hundreds of pages of that legislation were two major sets of provisions that applied to the CRAs: One set instructed federal financial regulators to examine their regulatory reliance on ratings and, where feasible, to withdraw references to ratings in their regulations and to develop alternative means of achieving their prudential regulatory goals. The federal regulators subsequently moved slowly; but by early 2016 all of the U.S. bank regulators and the SEC had eliminated those references. However, the U.S. Department of Labor still relies on ratings for its prudential regulation of pension funds; and the 50 state regulators of insurance companies – which were not covered by the Dodd-Frank Act – have continued to rely on ratings as well.

The second set of provisions expanded the SEC’s regulatory powers vis-à-vis the CRAs: specifically, the 10 NRSROs. The SEC was instructed to increase its scrutiny of the NRSROs’ potential conflict-of-interest issues and to improve the NRSROs’ transparency with respect to

20 For this author’s perspective on the financial crisis, see White (2014). See also, for example, Acharya and Richardson (2009).
21 For the arguments and evidence that supports this position, see White (2013, 2016). For an interesting model that shows that just allowing the issuers to choose the raters can lead to inflated ratings – even if the raters do not cater to the issuers – see Skreta and Veldkamp (2009); see also Mathis et al. (2009) and Sangiorgi and Spatt (2017). For general critiques of the CRAs, see, for example, Sinclair (2005), Carruthers (2013, 2016), and Moosa (2017). For a critique of the CRAs’ ratings during the 1930s, see Flandreau, Gaillard, and Packer (2011).
what they do, how they do it, and what their long-run “track record” with respect to their ratings has been. This last goal is achieved through the NRSROs’ annual publication of their transition matrices of year-to-year changes in ratings.

The Dodd-Frank Act refrained from any regulatory provisions that would directly affect the ratings. In essence, the regulation is supposed to be about ratings processes and not about ratings outcomes.

The SEC has established procedures for enforcing these regulatory mandates, including annual examinations of the NRSROs. Each NRSRO is required to submit an annual report (“Form NRSRO”) to the SEC, which is available publicly through a link on the SEC’s website. The SEC’s Office of Credit Ratings issues annual reports on the activities of the NRSROs and on its annual examinations. If its examinations reveal serious problems, the agency can levy fines and ban the NRSRO from a specific rating category until the problem has been remedied. The SEC has indeed levied fines and imposed bans in specific instances.

4. The Experience outside of the U.S.

As was noted above, bond markets outside of the U.S. took much longer to develop. As they developed in the 1970s and afterward, the three major CRAs established regional offices and began rating those non-U.S. bonds. In turn, national prudential regulation of financial institutions began to include references to the CRAs’ ratings of the bonds in those institutions’ portfolios, much the way that such references had entered prudential regulation in the U.S. As a prominent example, the “Basel II” international accord on bank prudential regulation (which would be enforced by national regulators) – which was discussed in the 1990s and came into
force in 2004 – had an important link between banks’ capital requirements and the ratings (by “external credit assessment institutions”) on the bonds in the banks’ portfolios.

Until late in the decade of the 2000s the CRAs themselves were largely not regulated outside of the U.S. However, the financial crisis and its link to the major CRAs’ misjudgments with respect to RMBS began a process whereby the CRAs’ competency could be questioned. This was heightened in 2009 and after, by the CRAs’ sharp downgrades of sovereign debt that had been issued by countries in Southern Europe and by milder downgrades of Northern European countries’ bonds. Although the complaints about these CRA actions were quite different – for U.S. RMBS, the CRAs were initially too lenient; for European sovereign debt, the CRAs’ abrupt downgrades meant (to their critics) that they were being too tough too soon – nevertheless the CRAs’ actions provided the grounds for their regulation.

In Europe and elsewhere (e.g., Canada) regulation followed. For the European Union (EU), the European Securities and Markets Authority (ESMA) has assumed the primary regulatory authority. The patterns of regulation – requiring registration and focusing on conflicts of interest and on transparency – are roughly similar to what has developed in the U.S. And, as in the U.S., there have not been regulatory efforts to influence the levels of the ratings themselves.

However, in an effort to reduce the dominance of the three major CRAs, the ESMA has added one interesting requirement on issuers: If an issuer asks more than one CRA to rate its bond issuances, the ESMA encourages the issuer to employ at least one CRA that is not one of the three major CRAs. Nevertheless, as a comparison between Tables 3 and 4 reveals, the

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22 Discussions can be found in Kruck (2011); Garcia Alcubilla and Ruiz del Pozo (2012); Rousseau (2012); Gaillard (2012, 2014); Darbellay (2013); Mattarocci (2014); Paudyn (2014); and Hemraj (2015).
23 See ESMA (2016) for more details.
three major CRAs’ combined market shares for 2015 were roughly the same in the EU (92.8%) and in the U.S. (93.2%).

Finally, unlike in the U.S., prudential regulation of financial institutions remains largely reliant on the use of CRA ratings (on the bonds that are held in those financial institutions’ portfolios) for determining the capital adequacy of those institutions.

5. The Issuer-Pays Model: Some Insights from Industrial Organization Economics.

As has been noted above, the basic business model of the major CRAs – the issuer pays the CRA for its rating – contains a glaringly obvious potential conflict of interest: The immediate incentive would seem to be for the CRA to cater to the issuer – offer an unduly favorable rating of the issuer’s bonds – so as to win/keep the issuer’s business. And, when this aspect of the CRAs’ activities is discussed in the media and/or the political realm, this potential conflict (but the “potential” is usually not present in the discussion) is usually prominent.

What this “analysis” neglects, however, is a longer-run perspective: If the CRA expects to remain in business over a longer term, and if – sooner or later – the users of the CRA’s ratings (i.e., the bond market participants) realize that its ratings are biased in favor of the issuers, the users will cease paying heed to that CRA’s ratings – or, at least, discount them in relation to the perceived bias. At that point, the value of the CRA to issuers would be greatly diminished.

In essence, unless the short-run gains are overwhelming, the CRA ought to care about its long-run reputation as an accurate provider of ratings of issuers: in the first instance, so that the potential users of the CRA’s ratings will find valuable the information that is thereby provided; and, in turn, so that the issuers will find the rating services of the CRA valuable and be willing to pay for them. And, in turn, this means that the CRA should be willing to forgo modest short-run
gains – or, equivalently, to make commensurate investments – so as to preserve that long-run reputation.24

However, if the short-run gains are – or, at least, appear to be – large enough, the concern about the long-run may be overwhelmed. This does appear to have been the case with respect to the CRAs and the sub-prime RMBS in the decade of the 2000s. Understanding why this was so – and comparing those circumstances with the circumstances that surround the “plain vanilla” corporate bonds, municipal bonds, and sovereign debt that have been the traditional sources of income for the CRAs and where the same issuer-pays model has prevailed since the early 1970s but where there has not been a severe “catering” problem25 – can surely help provide a better perspective on appropriate public policy for the CRAs going forward.

There are at least five important differences in the characteristics of the RMBS ratings area and the “plain vanilla” areas that made more likely a “blowing up” of the long-run-reputation model in the former and its maintenance in the latter.26 As will be seen, these characteristics and their differences are inter-related. Further, these are characteristics that would be familiar to an economist who is trained in the “industrial organization” branch of microeconomics.

5.1 The numbers of issuers.

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24 This is the essence of the original Klein and Leffler (1981) model. When asked about these conflicts, senior managers of the major CRAs would respond that they recognized the potential conflicts but that these conflicts could be “managed” so as not to have the reputation consequences that would otherwise seem likely. In essence, they were enunciating the Klein-Leffler model.

25 However, there is a growing body of evidence that greater competition among CRAs for the rating business of even plain vanilla issuers does lead to some modest catering to issuers – but not the large-scale catering that occurred in rating RMBS. For summaries of this recent literature, see Flynn and Ghent (2018); Jankowitsch et al. (2017); Cornaggia et al. (2017); Bruno et al. (2016); and Cornaggia and Cornaggia (2013).

26 More detail on these points can be found in White (2013, 2016).
There are thousands of “plain vanilla” issuers; each issuer is only a tiny part of the revenue stream and profit-flow of a CRA. Consequently, an individual issuer’s plea for a better rating would likely be met with an implicit, “You’re not important enough for me to risk my long-run reputation”.

By contrast, there were only a relative handful of sub-prime RMBS issuers: The largest dozen accounted for 80-90% of RMBS issuances. And the volumes were large: Hundreds of billions of dollars in sub-prime RMBS were being issued annually during the 2000s. In this context, there was much greater potency to the threat by a RMBS issuer to take its business – the current bonds that needed to be rated, as well as the large volume of future bonds that could otherwise be expected – to a different CRA if its request for a more favorable rating on the current bonds was not granted.

5.2 The profit margins.

It was well known that the profit margins for RMBS ratings were substantially larger than was true on the “plain vanilla” ratings. This would have reinforced the possibility that a CRA would pay more attention to a “special request” from a RMBS issuer than from, say, a standard corporate bond issuer.

5.3 Information transparency/opaqueness.

The rating of “plain vanilla” bonds occurs in a context of large amounts of publicly available information: Corporations that issued bonds are publicly traded, so the SEC requires extensive quarterly and annual financial disclosures. Municipalities, state governments, and
national governments regularly issue annual budgets and projections and other public information.

By contrast, the RMBS issuers did not make publicly available the details on the hundreds of individual underlying mortgages that underlay an individual RMBS; often, only averages were available.

In this relative information context, it would be easier for financial analysts to detect that something was amiss if a CRA issued a rating for a “plain vanilla” bond that was inconsistent with the publicly available information than was true for a RMBS rating. In turn, that might make the CRA more inclined to take a chance on “doing a favor” for a RMBS issuer. Reinforcing this latter potential inclination was the fact that the RMBS were “structured” in multiple tranches and that the issuers’ requests largely focused on the percentage of the overall issuance – e.g., 83% versus 77% – that would receive the highest (AAA) rating. This was a yet more abstruse point that a potential critic might have difficulty in analyzing and criticizing.

5.4 The familiarity of the rating methodologies.

The methodologies for rating “plain vanilla” debt securities were well established. By contrast, the whole area of “structured finance” was relatively new, and the methodologies for trying to determine the creditworthiness of the various tranches of an overall debt obligation that was in turn dependent on the creditworthiness on hundreds of individual mortgages were new and untested. For the former, senior managers’ familiarity with the methodologies would help to keep any operational-level erratic behavior in check. By contrast, the newness of the latter might make the process more error-prone, as well as making it harder to maintain managerial oversight.
5.5 Easier manipulation by the issuers.

The financial situations of corporate or governmental bond issuers usually change slowly; there is usually little that the issuer can do in the short run to provide the pretext for a possible higher-than-deserved rating. By contrast, with an RMBS issuance being constituted by an indeterminate number (but in the hundreds) of underlying mortgages, it was possible for the issuer to manipulate the components and thus provide the basis (or at least the pretext) for a more favorable rating (or, really, a higher percentage of the issuance to be rated AAA). If nothing else, the relative inflexibility of a “plain vanilla” issuers financial situation meant that the credit quality of the plain vanilla bonds that were rated in a given category – say, BBB+ – would span whatever range the CRA had established for bonds that it considered to qualify for that category. By contrast, the RMBS issuer could readily adjust the underling components so that its BBB+ bond would just graze the bottom of the range that the CRA had established – which would make the security more susceptible to subsequent downgrades.

5.6 A summing up.

Despite the obvious potential conflict of interest that accompanies the major CRAs’ issuer-pays standard business model that has been in place since the early 1970s, the traditional “plain vanilla” ratings of the CRAs – for corporate bonds, municipal bonds, and sovereign debt – have not experienced a major “meltdown”. It seems likely that the CRAs’ concerns about their long-run reputations have been instrumental in their being able to deal effectively with this potential conflict. However, the CRAs’ ratings of RMBS securities did experience such a meltdown in the decade of the 2000s.
This section has employed the insights of industrial organization economics to help explain why the business model has been largely successful in the traditional areas but broke down in the RMBS area. Any public policy discussion of the CRAs and their business model should understand these outcomes and why they have occurred.\textsuperscript{27}

6. Why haven’t governments supplanted the CRAs as the suppliers of ratings?

As we argued earlier, the availability of creditworthiness information has broad benefits for the functioning of financial markets. An interesting question is why governments haven’t recognized this broad benefit and been providers of this creditworthiness information themselves.

A few reasons can be advanced. First, in the 19\textsuperscript{th} century, as creditworthiness information began to be systematically collected and disseminated, this was seen as a private-sector function that supplemented private-sector lending markets. Formal government involvement in financial markets – especially in the U.S., which had relatively advanced financial markets – was not considered an appropriate governmental function, at least at the national level. It is worth remembering that only in 1913 did the U.S. create its first central bank (the Federal Reserve); and federal securities regulation arrived only in 1933 and 1934.

It was in this context that the CRAs initially developed in 1909 and the subsequent decade or so. And, recall that it was in the 1930s when the government first began to rely on the CRAs’ creditworthiness information (with respect to bond issuers) in the context of the prudential regulation of banks, and then subsequently of other financial institutions. In an important sense this may be an instance of “path dependence”: The CRAs had a head start at a

\textsuperscript{27} White (2016) provides suggestions for policy improvements by the SEC that would involve more information revelation by securities issuers and thus would likely strengthen the role of reputation in reducing “catering”.

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time when the dissemination of creditworthiness information wasn’t considered to be a governmental function. And then the government came to rely on the CRAs for that information.

Second, the dissemination of information – especially in a structured form, with gradations and rankings – is different from regulation; and government generally seems more comfortable with the latter than with the former. Product safety is a useful example: Establishing (through regulation) minimum acceptable quality or safety levels – whether for automobiles, toys, pharmaceuticals, food, airline travel, etc. – is a long-established governmental function. But rarely do we see governments providing rankings or ratings within the acceptable category. This seems to be largely left to the private sector.

As a related matter: Securities regulation in the U.S. (since the 1930s) has relied heavily on information revelation from the securities issuers themselves – with government regulation specifying the types and frequencies of the information revelation. This is the primary “culture” of the SEC. But developing comparative rankings and ratings of securities that might follow from this information has been left to the private sector. This has been true not only of creditworthiness information about bonds, where the CRAs had a head start, but also with respect to mutual funds, which grew in importance only after the 1940s.

The same phenomena appear to apply in Europe, where governmental regulation is widely accepted – but the government provision of rankings or ratings is considerably more sparse.

In sum, establishing minimum levels of quality or safety appears to be a well-established function of government. Providing rankings or ratings for products within the acceptable range –

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28 Indeed, it seems to have been a major “innovation” for Los Angeles County in the late 1990s to require the public posting of restaurant hygiene grades. See Jin and Leslie (2003); see also Filion and Powell (2009).
whether related to creditworthiness or to product quality more generally – seems to be considerably farther from the generally accepted views of the important functions of government.

7. Conclusion: Whither the CRAs and their Regulation?

As of mid 2018, the CRAs have largely receded into the semi-anonymity that described them prior to the financial crisis. Despite the continuing near-ubiquity of the CRAs’ issuer-pays business model, there have been no recent major revelations of new instances of the CRAs’ widespread catering to issuers and thereby initially issuing excessively favorable ratings that subsequently result in large downgrades; and there have been no recent major downgrades of sovereign debt.

Still, the CRAs are today regulated in many countries to an extent that was not present a decade ago. And there are always the possibilities of adverse political/economic events – perhaps the playing out of the UK’s exit from the EU, or the failures of un-bailed-out financial institutions in China – that could lead to downgrades by the major CRAs and then a renewal of criticisms of the CRAs and a questioning of why these entities should be allowed to rate sovereign debt in the first place.

Accordingly it is worth asking about the likely directions for the CRAs and their regulation over the near future. A number of conclusions can be drawn:

First, it seems highly likely that CRAs – or something like them – will continue to be a part of the bond markets: in the U.S. and globally. As was discussed in Section 2, the problems of asymmetric information between borrowers and lenders will continue to cause lenders to want to collect information about the creditworthiness of prospective and actual borrowers and also to
cause the more creditworthy prospective borrowers to want to distinguish themselves credibly from their less creditworthy rivals. Large lenders with accumulated expertise may be able to gather and assess the requisite information themselves; smaller lenders with less expertise will likely want to draw on the creditworthiness advisory services of third parties. CRAs – or something like them – will be among those third parties.

Second, although the basic ideas of economies of scale in the collection and analysis of information and in the development of reputation would lead to the expectation that CRAs would generally be relatively large firms, it is clear that the involvement of the U.S.-based CRAs in the prudential regulation of financial institutions – beginning in the 1930s – had consequences: The SEC’s subsequent creation of the NRSRO designation system in 1975 and then the SEC’s creation of a barrier to entry for the subsequent 25 years meant that the three large CRAs – Moody’s, S&P, and Fitch – were likely larger and better established than if they had faced more competition. This was an obvious advantage for them in the U.S. bond-information market and also subsequently in the nascent European bond-information markets.

Third, although a good argument can be made for abolishing – or, at least, greatly reducing – the regulation of the CRAs, it is likely that their regulation will continue. The regulatory regimes are in place and are functioning in the U.S. and Europe. Even the Trump Administration – despite calling for less financial regulation generally – has been silent on the topic of the regulation of the CRAs. Similarly, the main Republican legislative effort during 2016 and 2017 to roll back the Dodd-Frank Act – the Financial CHOICE Act – was largely silent

29 See White (2013, 2016).
on this topic. There appears to be even less interest in or appetite for reducing the regulation of CRAs in the EU.

Fourth, it is possible to eliminate the use of ratings in the prudential regulation of financial institutions. Doing so means that regulators must expend more resources, since the decision about the suitability of the bonds in a financial institution’s portfolio then requires a direct regulatory process – the prudential regulator’s placing the onus on the institution to justify its choice of bonds (just as the institution justifies to the regulator the institution’s choices of other, non-rated assets and activities) – rather than the simple delegation of that suitability decision to a third-party CRA. Nevertheless, the U.S. financial regulators – prodded by the Dodd-Frank Act – have moved substantially in that direction. The European regulators have not.

Fifth, and related to the two previous points, without a substantial reduction (or elimination) of reliance on ratings by financial regulators, the elimination of the direct regulation of the CRAs themselves isn’t sensible. So long as prudential regulators rely on ratings, then the crucial question – which CRAs’ ratings should be considered as suitable for this reliance? – has to be addressed; and then the accompanying regulatory issues of the appropriate criteria for determining the suitability of a CRA for inclusion in this regime follow directly. In turn, these issues imply that some form of regulatory regime for the CRAs whose ratings will be used for prudential regulation is needed.32

Sixth, in principle, this regulatory regime should be oriented toward “outputs”: the accuracy of a CRA’s ratings. But, as was described above, the current regulatory regimes focus on “inputs”: transparency and conflicts of interest. This orientation is understandable: The

31 For a discussion of the Financial CHOICE Act and comparisons to the Dodd-Frank Act, see Richardson et al. (2017).
32 The converse proposition – that with the reduction of regulatory reliance on ratings in the U.S., the argument for maintaining the NRSRO system is substantially weaker – has received little recognition in the U.S.
inputs are easier to define and measure; accuracy is harder to define and measure and requires longer time periods for measurement. And a focus on outputs might well invite – especially for ratings of sovereign debt – politically oriented influences on the outcomes.

Seventh, it should be recognized that any regulatory regime for the CRAs is likely to favor incumbents and discourage entrants and smaller firms generally. There are usually fixed costs in dealing with regulation, which bulk larger in a smaller firm’s efforts to attain profitability. Further, regulation tends to favor established categories and patterns; innovations with respect to creditworthiness methodologies may well be discouraged.

Eighth, the CRAs – unless forced to do otherwise – will continue to provide ratings for sovereign debt. This is a traditional activity for them. And, once their role as creditworthiness information providers is recognized, it is a natural activity for them. Only if one believes that the creditworthiness of governments should never be questioned does it then make sense to question the role of the CRAs in this arena. How to reconcile the national regulation of CRAs with their activity of rating the debt of the government that regulated them remains a difficult question.

Ninth, the major CRAs’ primary business model – that the bond issuers pay the raters – is likely to persist and will continue to attract media attention whenever a rating mistake is highlighted. The potential conflict of interest in that model is too obvious to overlook; and the major CRAs’ catering to issuers in the former’s ratings of RMBS in the 2000s does show that this potential can turn into an actuality. As was discussed in Section 5, what gets overlooked in these discussions is that – despite the same issuer-pays model’s applying to the CRAs’ ratings of “plain vanilla” corporate bonds, municipal bonds, and sovereign debt since the early 1970s –

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33 It is noteworthy that nine of the ten current NRSROs in the U.S. have this business model. It is also noteworthy that two “entrants” into the CRA area that acquired smaller NRSROs with the intention of maintaining an “investor-pays” model subsequently found that they could survive only by switching to the issuer-pays model.
there have not been the same widespread catering abuses in these traditional areas. More consideration for why this has been so would surely improve the quality of the discussion on this topic.

In sum, it appears that the CRAs – or something similar to them – are likely to remain as an important part of the infrastructure of modern financial systems. If their ratings continue to be used for the prudential regulation of financial institutions – as is clearly the case in Europe – then the regulation of the CRAs themselves is necessary. Even if there is reduced use of their ratings for prudential regulatory purposes – as is the case in the U.S. – the recent history of the CRAs’ actions seem to ensure that the regulatory regime that applies to them will continue. Debates about their role and their regulation will surely continue as well.

References.


European Securities and Markets Authority (2016) “Competition and Choice in the Credit Rating Industry”.

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Table 1: Number of NRSRO Credit Ratings Outstanding and Credit Analysts Employed ( Ranked by Total Ratings), 2015

<table>
<thead>
<tr>
<th>NRSRO</th>
<th>Total Ratings</th>
<th>Financial Institutions</th>
<th>Insurance Companies</th>
<th>Corporate Issuers</th>
<th>Asset-Backed Securities</th>
<th>Government Securities</th>
<th>Credit Analysts¹</th>
</tr>
</thead>
<tbody>
<tr>
<td>S&amp;P</td>
<td>1,146,932</td>
<td>60,005</td>
<td>6,896</td>
<td>51,105</td>
<td>64,222</td>
<td>964,704</td>
<td>1,453</td>
</tr>
<tr>
<td>Moody's</td>
<td>802,482</td>
<td>50,094</td>
<td>3,175</td>
<td>42,821</td>
<td>68,494</td>
<td>637,898</td>
<td>1,601</td>
</tr>
<tr>
<td>Fitch</td>
<td>303,501</td>
<td>43,798</td>
<td>3,077</td>
<td>16,734</td>
<td>41,517</td>
<td>198,375</td>
<td>1,100</td>
</tr>
<tr>
<td>DBRS</td>
<td>41,961</td>
<td>8,487</td>
<td>143</td>
<td>3,536</td>
<td>12,848</td>
<td>16,947</td>
<td>171</td>
</tr>
<tr>
<td>EJR</td>
<td>18,650</td>
<td>11,251</td>
<td>1,015</td>
<td>6,384</td>
<td>N/R</td>
<td>N/R</td>
<td>12</td>
</tr>
<tr>
<td>A.M. Best</td>
<td>9,173</td>
<td>N/R</td>
<td>7,710</td>
<td>1,445</td>
<td>18</td>
<td>N/R</td>
<td>125</td>
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<tr>
<td>KBRA</td>
<td>4,765</td>
<td>443</td>
<td>4</td>
<td>4</td>
<td>4,259</td>
<td>55</td>
<td>127</td>
</tr>
<tr>
<td>JCR</td>
<td>3,484</td>
<td>770</td>
<td>59</td>
<td>2,227</td>
<td>N/R</td>
<td>428</td>
<td>62</td>
</tr>
<tr>
<td>Morningstar</td>
<td>3,306</td>
<td>N/R</td>
<td>N/R</td>
<td>N/R</td>
<td>3,306</td>
<td>N/R</td>
<td>68</td>
</tr>
<tr>
<td>HR Ratings</td>
<td>347</td>
<td>N/R</td>
<td>N/R</td>
<td>N/R</td>
<td>N/R</td>
<td>347</td>
<td>44</td>
</tr>
<tr>
<td>Total</td>
<td>2,334,600</td>
<td>174,848</td>
<td>22,079</td>
<td>124,256</td>
<td>194,664</td>
<td>1,818,753</td>
<td>4,763</td>
</tr>
</tbody>
</table>

¹ Includes credit analyst supervisors.

² Not registered for that category of securities.

Sources: U.S. SEC (2016) and the various companies’ “Form NRSRO”.

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Table 2: Percentage of NRSRO Credit Ratings Outstanding and Credit Analysts Employed (Ranked by Total Ratings), 2015

<table>
<thead>
<tr>
<th>NRSRO</th>
<th>Total Ratings</th>
<th>Financial Institutions</th>
<th>Insurance Companies</th>
<th>Corporate Issuers</th>
<th>Asset-Backed Securities</th>
<th>Government Securities</th>
<th>Credit Analysts*</th>
</tr>
</thead>
<tbody>
<tr>
<td>S&amp;P</td>
<td>49.1%</td>
<td>34.3%</td>
<td>31.2%</td>
<td>41.1%</td>
<td>33.0%</td>
<td>53.0%</td>
<td>30.5%</td>
</tr>
<tr>
<td>Moody’s</td>
<td>34.4%</td>
<td>28.7%</td>
<td>14.4%</td>
<td>34.5%</td>
<td>35.2%</td>
<td>35.1%</td>
<td>33.6%</td>
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<tr>
<td>Fitch</td>
<td>13.0%</td>
<td>25.0%</td>
<td>13.9%</td>
<td>13.5%</td>
<td>21.3%</td>
<td>10.9%</td>
<td>23.1%</td>
</tr>
<tr>
<td>DBRS</td>
<td>1.8%</td>
<td>4.9%</td>
<td>0.6%</td>
<td>2.8%</td>
<td>6.6%</td>
<td>0.9%</td>
<td>3.6%</td>
</tr>
<tr>
<td>EJR</td>
<td>0.8%</td>
<td>6.4%</td>
<td>4.6%</td>
<td>5.1%</td>
<td>N/R</td>
<td>N/R</td>
<td>0.3%</td>
</tr>
<tr>
<td>A.M. Best</td>
<td>0.4%</td>
<td>N/R b</td>
<td>34.9%</td>
<td>1.2%</td>
<td>&lt;0.1%</td>
<td>N/R</td>
<td>2.6%</td>
</tr>
<tr>
<td>KBRA</td>
<td>0.2%</td>
<td>0.3%</td>
<td>&lt;0.1%</td>
<td>&lt;0.1%</td>
<td>2.2%</td>
<td>&lt;0.1%</td>
<td>2.7%</td>
</tr>
<tr>
<td>JCR</td>
<td>0.1%</td>
<td>0.4%</td>
<td>0.3%</td>
<td>1.8%</td>
<td>N/R</td>
<td>&lt;0.1%</td>
<td>1.3%</td>
</tr>
<tr>
<td>Morningstar</td>
<td>0.1%</td>
<td>N/R</td>
<td>N/R</td>
<td>N/R</td>
<td>1.7%</td>
<td>N/R</td>
<td>1.4%</td>
</tr>
<tr>
<td>HR Ratings</td>
<td>&lt;0.1%</td>
<td>N/R</td>
<td>N/R</td>
<td>N/R</td>
<td>&lt;0.1%</td>
<td>N/R</td>
<td>&lt;0.1%</td>
</tr>
<tr>
<td>Total</td>
<td>100.0%</td>
<td>100.0%</td>
<td>100.0%</td>
<td>100.0%</td>
<td>100.0%</td>
<td>100.0%</td>
<td>100.0%</td>
</tr>
</tbody>
</table>

a Includes credit analyst supervisors.

b Not registered for that category of securities.

Source: U.S. SEC (2016) and the various companies’ “Form NRSRO”.
Table 3: U.S. NRSROs’ Revenue Shares, 2010-2015

<table>
<thead>
<tr>
<th>Fiscal year</th>
<th>Aggregate rating revenues ($B)</th>
<th>% share of S&amp;P, Moody’s, and Fitch</th>
<th>% share of all other NRSROs</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>2010</td>
<td>$4.2</td>
<td>94.6%</td>
<td>5.4%</td>
<td>100.0%</td>
</tr>
<tr>
<td>2011</td>
<td>4.3</td>
<td>94.0</td>
<td>6.0</td>
<td>100.0</td>
</tr>
<tr>
<td>2012</td>
<td>5.1</td>
<td>94.7</td>
<td>5.3</td>
<td>100.0</td>
</tr>
<tr>
<td>2013</td>
<td>5.4</td>
<td>94.5</td>
<td>5.5</td>
<td>100.0</td>
</tr>
<tr>
<td>2014</td>
<td>5.9</td>
<td>94.3</td>
<td>5.7</td>
<td>100.0</td>
</tr>
<tr>
<td>2015</td>
<td>5.9</td>
<td>93.2</td>
<td>6.8</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Source: USSEC (2016) and earlier reports.
Table 4: European CRAs’ Revenue Shares of Rating in Europe, 2015

<table>
<thead>
<tr>
<th>Registered credit rating agencies</th>
<th>Revenue share</th>
</tr>
</thead>
<tbody>
<tr>
<td>A.M. Best Europe Rating Services Ltd. (AMBERS)</td>
<td>0.93%</td>
</tr>
<tr>
<td>ARC Ratings, S.A.</td>
<td>0.03</td>
</tr>
<tr>
<td>ASSEKURATA Assekuranz Rating Agentur GmbH</td>
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</tr>
<tr>
<td>Axessor S.A.</td>
<td>0.05</td>
</tr>
<tr>
<td>BCRA Credit Rating Agency AD</td>
<td>0.02</td>
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<tr>
<td>Capital Intelligence (Cyprus) Ltd</td>
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<tr>
<td>CERVED Group S.p.A.</td>
<td>0.88</td>
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<tr>
<td>Creditreform Rating AG</td>
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<tr>
<td>CRIF S.p.A.</td>
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<tr>
<td>Dagong Europe Credit Rating Srl</td>
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<tr>
<td>DBRS Ratings Limited</td>
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<tr>
<td>The Economist Intelligence Unit Ltd</td>
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<td>Euler Hermes Rating GmbH</td>
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<td>European Rating Agency, a.s.</td>
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<td>EuroRating Sp. Zo.o.</td>
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<td>Feri EuroRating Services AG</td>
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<td>Fitch Group</td>
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<td>GBB Rating Geselleschaft fur Bonitatsbeurtelkung GmbH</td>
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<td>ICAP Group SA</td>
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<td>INC Rating Sp. Zo.o.</td>
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<tr>
<td>Rating-Agentur Expert RA GmbH</td>
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<td>Scope Ratings AG</td>
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<td>Spread Research SAS</td>
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<td>S&amp;P Group</td>
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<tr>
<td><strong>Total</strong></td>
<td><strong>100.00%</strong></td>
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Source: ESMA (2016).