

Non-rating revenue and conflicts of interest

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ABSTRACT. Rating agencies produce ratings used by investors, but obtain most of their revenue from issuers, both as ratings fees and as payment for other services. This leads to a potential conflict of interest. We employ a detailed panel data set on the use of non-rating services as well as payment flows between issuers and rating agencies in India to test if this conflict affects credit ratings. Rating agencies rate securities issued by companies that also hire them for non-rating services 0.3 notches higher (than agencies that are not paid for such services by the issuer). This effect is increasing in the revenue generated. We also find that, within rating categories, default rates are higher for firms that have paid for non-rating services. This suggests that the better rating that such firms receive does not reflect lower credit risk.

Keywords: Credit ratings, agency problems, issuer-pays

JEL Codes: G20, G24, G28

I. Introduction

“I mean come on we pay you to rate our deals, and the better the rating the more money we make?!?! What’s up with that? How are you possibly supposed to be impartial????” (Internal S&P email from United States of America v. McGraw-Hill Companies Inc., et al.)

“Separate ratings from consulting – just as accountants were compromised by their consulting assignments, ratings firms have similar issues.” (Letter from Sean J. Egan and W. Bruce Jones, Egan-Jones Ratings Company, to Jonathan G. Katz, Secretary, SEC, November 10, 2002.)

Credit rating agencies are important information providers in credit markets, and the quality of the ratings they provide is important to the functioning of the financial system, for example by underlying a range of financial contracts.¹ Flawed ratings were critical to the recent financial crisis, when large losses on securities that had received overly optimistic ratings at issue contributed to destabilizing the financial system (Benmelech and Dlugosz 2009). Aggressive competition for revenue may have contributed to deteriorating credit standards. For example, rating agencies had made recommendations to securitization arrangers on how to structure products to receive a desired credit rating and, subsequently, issued a rating on the same securities.²

Fundamentally, the concerns with the ratings system are related to the conflict of interest generated by the rating agencies’ “issuer-pays” business model. Rating agencies are mainly paid by the companies whose securities they rate. These companies benefit from favorable (high) ratings on them or their securities. Therefore, the compensation arrangement leads to a conflict of interest between producers of ratings (the agencies) and users of ratings (such as investors). The heart of the problem is the flow of money from issuers to raters.

¹ Examples of the use of credit ratings include investment mandates, loan contracts (covenants), and financial regulation.

² “The Role and Impact of Credit Rating Agencies in the Subprime Credit Markets”, Senate Hearing 110-931, September 26th, 2007. See also the lawsuit filed by the US Department of Justice against S&P in 2013 asserting that S&P’s ratings had been influenced by S&P’s business relationships with investment banks that issued structured securities. The lawsuit was settled for \$1.375 billion in February 2015.

The commercial ties between issuers and raters have two components: first, rating agencies perform rating services, usually charging according to a standardized price list; second, agencies perform a variety of non-rating services (we use the term “consulting services” interchangeably). One example of consulting services is “ratings assessment services”, which encompass pre-rating analyses as well as assessments of the potential effect of a hypothetical transaction, such as a merger, spin-off, or share repurchase, on an issuer or security credit rating. Referring to such services, then Fitch CEO Robin Monro-Davies stated in 2001 that “(w)e looked at doing it and we saw the potential conflicts. If you guarantee a ‘triple-A’ [rating] to a company, it becomes more difficult to change your mind afterwards”.³ Other non-rating services offered to issuers include risk management consulting, debt restructuring consulting, regulatory advice, and monitoring services.

In this paper, we study the relationship between issuers and raters and examine whether these commercial ties are correlated with differential ratings treatment. We exploit a recent change in regulation in India, which required Indian rating agencies (including local subsidiaries of S&P, Moody’s, and Fitch) to disclose important details about their compensation arrangements with issuers of debt securities. These disclosures permit us to determine whether a given issuer pays a given rating agency for non-rating services, and, if so, the amount of fees paid. In the tests, we make use of the fact that many issuers receive ratings from multiple agencies, allowing us to control for issuer-year fixed effects. That is, we can identify the effect of a commercial relationship by comparing the rating assigned by an agency that has a deeper commercial relationship with the issuer to the rating assigned (to the same issuer) by another agency. This identification strategy alleviates concerns of selection bias stemming from the non-random assignment of the provision of non-rating services to different types of issuers.

First, we find that rating agencies that perform consulting services for an issuer on average provide higher ratings (that is, ratings designating lower default risk) to that issuer than other agencies. Additionally, we examine the amount paid for consulting. We find that issuers tend to

³ “Credit-rating agencies: New interests, new conflicts”, *The Economist*, April 12th, 2001. S&P has been offering its “Ratings Evaluation Service” since 1997; Moody’s and Fitch began offering their comparable “Rating Assessment Service” in 2000 and 2002, respectively.

obtain higher ratings the more (non-rating) revenue they generate for an agency. The strong apparent role for non-rating revenues may reflect that this business and the associated payment terms are quite fungible, that the amount can easily adjust in scope over time, and that non-rating services are quite profitable for the raters.

Finally, we study defaults. If higher ratings assigned by agencies to those issuers that pay for non-rating services are warranted, then default frequencies should be similar for firms within a given rating category, whether or not these firms have a consulting relationship with the rating agency. If such issuers instead are treated more favorably, their ex-post default frequency would be higher than for other issuers with the same rating. We find support for the latter case: within a given rating category, firms that pay for non-rating services have higher one-year default rates than other firms. This is our third finding: default rates are too high for non-rating services to be a sign (or a cause) of lower credit risk. The fact that issuers that obtain non-rating services have higher ratings but higher default rates is most consistent with a conflict of interest interpretation.

Our findings point to the importance of understanding the entire commercial relationship between raters and rated firms (issuers). Given that non-ratings activities are important, this relationship likely cannot be understood without looking at the payments for such services as well. For example, Moody's reported in 2014 that Moody's Investor Services generated \$2.4 billion in ratings-related revenues, while the group's other division, Moody's Analytics, generated \$1.1 billion from selling services for *"measuring and managing risk"*.⁴ Moody's non-rating services are quite profitable, with an operating margin of 20% in 2014. Non-rating profits grew 28% from 2013 to 2014, compared to 15% profit growth in the ratings division. Regulators have expressed concerns with regard to potential conflicts of interest that may occur when raters provide consulting services to issuers they rate. According to the SEC (2003), *"in the case of ratings assessment services, there are concerns that, to the extent a rating agency has already 'promised' a certain rating to an issuer's hypothetical scenario, pressure to match the actual rating to the promised rating is likely to be forceful, even if the ultimate analysis otherwise might not have supported the rating."* More

⁴ This includes services marketed to fixed income investors, not just issuers. However, it is worth noting that many of these investors are themselves large issuers of fixed income securities.

generally, a recent report to Congress by the SEC described the potential conflicts of interest involving non-rating services as follows: “[...] an NRSRO might issue a more favorable than warranted credit rating to an issuer or other party in order to obtain ancillary services business from them, or an issuer that purchases a large amount of ancillary services could pressure the NRSRO to issue a more favorable than warranted rating on that issuer.”⁵

Our results likely constitute a conservative estimate of the scope of the agency problem we study, because the methodology centers on contemporaneous payment flows. Issuers and rating agencies have long-term relationships, and past or future business, rents or cash flows may be as important as those that are contemporaneous. Given the short time series dimension of our data, this cannot be investigated in great detail. We do find that the association between ratings and non-rating fees does hold with a one-year lag.

Our sample concerns firms in India. Are they likely to be representative of financial markets more broadly? First, we believe the results may indicate the relevance of the same issues elsewhere. India is English-speaking, its commercial law is influenced by UK law, and its financial institutions are relatively similar to those found in the OECD (La Porta, Lopez-de-Silanes, Shleifer, and Vishny 1998). Rating agencies have substantial consulting activities in many markets. Furthermore, the role of ratings in India is similar to their role elsewhere (although public placements of corporate bonds are less important than in the US or Europe), and indeed, the leading Indian rating agencies are majority-owned by S&P, Moody’s, and Fitch. As in the US, firewalls are in place between the ratings and non-ratings business; non-rating services are provided by dedicated subsidiaries of the raters. Indian accounting and financial data are generally of good quality. Finally, we believe that Indian credit markets are of interest in themselves. With a \$2.2 trillion GDP in 2014, India is the seventh largest economy in the world;

⁵ The quote is from the “Report to Congress - Credit Rating Agency Independence Study”, November 2013, Securities and Exchange Commission. Similarly, the European Commission describes the resulting problem as follows: “Should these non-rating services give rise to significant, high-margin revenues from a rated client, a CRA has a clear incentive to continue this lucrative relationship and look more favourably at the client’s creditworthiness for rating purposes.” (Commission Staff Working Document accompanying the Proposal for a Regulation of the European Parliament and of the Council on Credit Rating Agencies; COM(2008) 704 final).

its stock market capitalization was \$1.7 trillion in the same year (compared to, for example, \$1.5 trillion for Germany).⁶

Our study constitutes some of the most direct evidence on conflicts of interest in ratings to date. Several findings in the academic literature also reinforce the impression that commercial interests impact credit ratings. For example, large issuers (He, Qian, and Strahan 2012) and issuers that provide more securitization business to rating agencies (Efung and Hau 2014) receive higher ratings. Other indirect evidence of the conflict of interest comes from the impact of competition on ratings (Becker and Milbourn 2011), and the finding that investor-paid ratings are more precise (Jian, Stanford, Xie 2012; Cornaggia and Cornaggia 2013). Our findings are consistent with the broad thrust of this literature, pointing to the basic conflict of interest when ratings are paid for by issuers.⁷

The conflict of interest stemming from the provision of non-rating services is similar in nature to that of accounting firms offering non-audit services to their audit clients.⁸ However, in contrast to accounting firms, rating agencies have not been subject to significant regulatory restrictions with regard to the provision of consulting.⁹ Rating agencies have firewalls separating the ratings business from the non-ratings business. It is not clear that such organizational measures are

⁶ Data sources: market capitalization of listed domestic companies (% of GDP) from The World Bank's World Development Indicators; GDP from the World Economic Outlook Database prepared by the International Monetary Fund.

⁷ See, e.g., Bolton, Freixas, and Shapiro (2012) and Sangiorgi and Spatt (2011), for models of this agency problem.

⁸ For a recent review of studies on how the provision of non-audit services affects audit quality, see Tepalagul and Lin (2015). A similar conflict of interest also arises in sell-side research, where analysts may publish more optimistic research about corporate clients in order to increase investment banking revenue (see, e.g., Ljungqvist, Marston, Starks, Wei, and Yan 2007; Hong and Kacperczyk 2010).

⁹ To the best of our knowledge, the only *prohibition* with regard to the provision of non-rating services is paragraph (c)(5) of Rule 17g-5 of the Securities Exchange Act, an amendment passed in April 2009. In short, this rule forbids a rating agency from rating its own work or that of an affiliate; for example, it would be prohibited from rating a structured product that was developed after consultations with the same rating agency. It is unclear how much this rule ultimately affects the rating process, as it may be quite difficult to separate inadmissible communications from acceptable feedback during the ratings process. The SEC recognizes that providing certain "*information during the rating process allows the person seeking the rating to make adjustments in response to the information provided by the NRSRO.*" But the "*alternative—restricting the flow of information—would make the rating process more opaque.*" (Amendments to Rule 17g-5, SEC Release No. 34-59342; File No. S7-13-08)

effective at containing agency conflicts. For example, in the case of the ratings assessment services, the same ratings analysts who generate ratings also carry out the ancillary assessments (SEC 2003). In SEC testimony regarding the role of raters in financial markets, a director of a large US financial services corporation stated that she was aware of at least one instance in which rating analysts themselves were soliciting non-rating services.¹⁰

In terms of policy implications, our empirical findings imply that there may be scope to better manage the inherent conflict of interest that partially compromises the quality of third party ratings, and handle the particular complication posed by raters offering consulting services to ratings clients. Mandating issuer disclosure of non-rating services purchased, as well as information on rating fees and other payments to rating agencies could help mitigate these agency problems (similar to a suggestion by Sangiorgi and Spatt 2011). A similar regulatory requirement exists for accounting firms, which have to disclose their accounting and consulting fees (separately) in 10-K statements to the SEC. Alternatively, rating agencies could be asked to disclose detailed fees and other revenues for individual issuers.

The rest of the paper is organized as follows. Section II discusses the institutional background. Section III discusses the data sources and describes the variable construction. We present the results in Section IV. Finally, Section V concludes.

II. Institutional Background

A. The Corporate Debt Market in India

The Indian corporate debt market has experienced considerable growth in recent years: the 2008-2012 compound annual growth rate in the corporate credit-to-GDP ratio amounted to 18.4% (China: 22.6%, Korea: 8.5%, Singapore: 7.3%; Deutsche Bank Research 2014). The ratio of non-financial corporate debt to GDP was 49.6% in India in 2012 (Deutsche Bank Research 2014), while in the US it amounted to 66.7% (BIS and World Bank data). While bank-intermediated credit remains the main source of corporate debt finance in India, the Indian corporate bond market has

¹⁰ SEC Hearing on the “Current Role and Function of the Credit Rating Agencies in the Operation of the Securities Markets”, November 15, 2002, testimony by Cynthia L. Strauss.

considerably grown in recent years. From 2004 to 2013, corporate bond issuance increased by 62% to 1.7% of GDP, which is less than in the US, but more than in many OECD countries.¹¹ As of December 2015, the total volume of outstanding corporate bonds in the Indian bond market amounted to approximately \$287bn.¹²

The vast majority of Indian corporate bond issues are privately placed (94% in 2012; SEBI 2013). One reason for the dearth of public corporate bond issues are the stricter regulatory requirements and the associated costs compared to privately placed bonds.¹³ The secondary market for corporate debt securities in India is relatively thin. Total corporate debt turnover in the secondary market amounted to Rs7,386bn in 2012-2013; to put these numbers into perspective, total turnover on Indian stock exchanges amounted to Rs32,617bn (SEBI 2013, Tables NY1 and 11).

B. Ratings and Credit Rating Agencies in India

In India as in other economies, credit ratings are important for private contracting as well as regulation. For example, according to rules specified by the Insurance Regulatory and Development Authority in 2013, insurers in the pension and annuity business can invest at most 60% of assets in corporate bonds, which have to be rated AA or higher.¹⁴ Mutual funds can invest in debt securities up to a BBB rating.

Six agencies are currently recognized and regulated in India: CRISIL Limited, incorporated in 1987; India Ratings & Research (INDRA), incorporated originally as Duff and Phelps Credit

¹¹ According to the figures for 2013, corporate bond issuance in India is less than in Germany (2.6%), UK (4.5%), and USA (4.6%), but exceeds corporate bond issuance of several OECD economies such as Turkey (1.0%), Austria (1.3%), and Denmark (1.4%); all figures are from IOSCO (2014).

¹² Retrieved from SEBI corporate bond statistics at http://www.sebi.gov.in/cms/sebi_data/statistics/corporate_bonds/outstandingcorpdata.html

¹³ In an effort to hasten the development of the primary market for corporate bonds in India, the relevant SEBI Disclosure and Investor Protection Guidelines were amended in 2007. Following these amendments, public debt issues require credit ratings only from one rating agency, not from two as before. Further, public debt issues below investment grade have since then been permitted, and certain structural restrictions previously placed on debt instruments such as those on maturity and option features have been removed.

¹⁴ At least 40% of assets have to be held in government securities or other approved securities (such as state bonds and state guaranteed loans).

Rating India Private Limited in 1996; ICRA Limited, incorporated in 1991; Credit Analysis & Research Ltd. (CARE), incorporated in 1993; Brickwork Ratings India Private Limited, incorporated in 2007; and SME Rating Agency of India Ltd. (SMERA), incorporated in 2005. In terms of revenue, CRISIL is India's largest rating agency, followed by ICRA and CARE.

Two features of Indian rating agencies are worth pointing out. First, several Indian agencies are owned by the large international agencies. As of September 2014, McGraw Hill Financial, the parent company of Standard & Poor's Ratings Services, owns 67% of CRISIL; Moody's Corporation owns 50% of ICRA; and INDRA is a wholly owned subsidiary of Fitch Ratings Inc. Second, aside from rating debt instruments, Indian rating agencies provide a variety of non-rating services, such as risk management services, industry analysis, business and marketing analytics, business process IT services, and management consulting. Firewalls are in place to separate the rating and non-rating business. For example, CRISIL's Firewall Policy aims to *“(i) ensure that Ratings Analysts and Research/Advisory Analysts have the freedom to express their respective opinions free from the improper influence of other CRISIL employees and free from the influence of the commercial relationships between CRISIL and third parties and (ii) protect the confidentiality of information given to Ratings analysts in connection with the rating process.”*¹⁵ Non-rating services are provided through specialized subsidiaries. As is the case for the global raters, non-rating business has grown in importance in India. For example, in the case of CRISIL (ICRA), the fraction of total revenue generated by rating services decreased from 40% (63%) in fiscal 2010 to 36% (54%) in fiscal 2013. These figures show that non-rating revenue accounts for a major and increasing part of these rating agencies' revenues.

C. Regulation of Rating Agencies

The Securities and Exchange Board of India (SEBI) was established in 1992 with the goal of promoting the development of and regulating the Indian securities markets. SEBI issued the first regulations related to rating agencies in 1999: the “SEBI (Credit Rating Agencies) Regulations,

¹⁵ Retrieved from <https://www.crisil.com/pdf/ratings/CRISILs-analytic-firewalls-policy.pdf>

1999” created the regulatory framework for the establishment, operation, and supervision of rating agencies.

Regulation was significantly tightened in May 2010 through the “Circular CIR/MIRSD/CRA/6/2010”, which introduced additional transparency and disclosure requirements for rating agencies. These rules relate to the documentation and record keeping of certain aspects of the rating process; publication of detailed default studies to document the performance of assigned credit ratings; formulation of policies and internal guidelines for dealing with conflicts of interests; additional disclosures and duties for rating agencies that issue ratings of structured products; rules related to the assignment of unsolicited credit ratings; public disclosure of rating procedures, credit rating histories and default rates. Finally, and most importantly for the purposes of this paper, Section 6.3 of the Circular covers disclosure requirements related to rating agency revenue:

“6.3 Income

[...]

6.3.3 A CRA shall disclose annually

6.3.3.1 its total receipt from rating services and non-rating services,

6.3.3.2 issuer wise percentage share of non-rating income of the CRA and its subsidiary to the total revenue of the CRA and its subsidiary from that issuer, and

6.3.3.3 names of the rated issuers who along with their associates contribute 10% or more of total revenue of the CRA and its subsidiaries.”

The disclosures under point 6.3.3.2 of the Circular permit us to identify the issuers that generate non-rating revenue in addition to ratings revenue for the rating agency. While not required, some agencies provide additional voluntary revenue disclosures. For example, CRISIL not only discloses the proportion of non-rating revenue to the total revenue from an issuer (as required by Section 6.3.3.2), but it also annually discloses the proportion of non-rating revenue from an issuer to *CRISIL’s total revenue*. Similarly, in 2010 and 2011, ICRA reported the share of total revenue from an issuer to the total revenue of the ICRA Group, provided the issuer obtained non-rating services. ICRA discontinued this voluntary reporting after 2011.

III. Data

Our sample spans the years 2010-2015. First, we obtain data on credit ratings and firms' industry classifications from the CMIE's Prowess database (September 2015 vintage). This source of high-quality corporate data has been used in several recent studies (e.g., Visaria 2009; von Lilienfeld-Toal, Mookherjee, and Visaria 2012; Vig 2013). Credit ratings are available for CRISIL, ICRA, CARE, Brickwork, and INDRA and are reported for each firm at the debt security level.¹⁶ While specific debt instruments do not carry individual identifiers in the database, they are classified into instrument categories such as debentures, long-term loans, and term loans. We focus on non-structured instruments that are assigned medium- or long-term credit ratings by the agencies. Further, we retain only the ten most common instrument categories. The resulting sample consists of ten debt instrument categories (category designations are from CMIE Prowess): cash; cash credit; debentures / bonds / notes/ bills; debt; fixed rate unsecured non-convertible debentures; fund based financial facility/instrument; long term loans; non-fund-based financial facility/instrument; term loans; and working capital loans. We verified that results are not sensitive to these sample selection procedures: results are similar if we include all non-structured instrument types with medium or long-term ratings in the sample.

Ratings are based on the following alphanumeric scale: AAA (highest creditworthiness), AA, A, BBB, BB, B, C, D (default); for the symbols "AA" to "C" the modifiers "+" and "-" are used to indicate the relative strength within the rating categories concerned.¹⁷ The variable *Issuer Rating* exhibits variation at the issuer-rater-year level and is defined as follows. We first assign numerical values to the alphanumeric debt instrument ratings, with a value of one denoting the highest

¹⁶ We treat instances where information in the fields *rating date*, *rating agency*, *issuer*, *rating*, *status*, and *issue amount* is identical as duplicates and in such cases keep only one such entry. Results are similar if we keep all entries. We also drop entries where the rating status is "withdrawn".

¹⁷ While all agencies' alphanumeric ratings can be unambiguously mapped into this scale, the specific rating symbols differ in some cases across rating agencies and over time. For example, until 2011, ICRA denoted long term ratings with the symbols "LAAA", "LAA+", "LAA" etc., while CRISIL used "AAA", "AA+", "AA" etc. Furthermore, following the 2011 SEBI Circular "Standardization of Rating Symbols and Definitions," rating agencies unified the ratings symbols. For example, CRISIL changed the long term rating symbols from "AAA", "AA+" etc. to "CRISIL AAA", "CRISIL AA+" etc. However, all these ratings are based on a 20 notch rating scale.

credit rating “AAA” and the value 19 denoting “C-“. For each issuer, rating agency, and year, we average over the instruments’ ratings to obtain an issuer-level credit rating; we verified that taking the median or the maximum does not significantly change our results. To reduce the possible impact of outliers, we exclude nine firm-years from the sample in which the difference between the *Issuer Rating* from one agency and the average *Issuer Rating* assigned by the other rating agencies in that year is ten notches or higher in absolute terms.¹⁸

In Section IV.C, we study defaults. The variable *Default in t+1* is defined at the firm-year level and takes the value of one in year t if a given issuer has a debt instrument on which it defaults in year $t+1$ (irrespective of which agency rates that instrument); the variable takes a value of zero otherwise.

We obtain information on rating agencies’ non-rating clients as well as issuer-specific revenue from the “Regulatory Disclosures” sections of the agencies’ websites.¹⁹ The rating agencies only make current disclosures available on their websites. We obtain historical disclosures by contacting the rating agencies or use past records of the relevant sections of the agencies’ websites as maintained on The Internet Archive.²⁰ Based on these compulsory disclosures, we find that ICRA, CRISIL, and CARE provided compensated non-rating services to Indian issuers, while Brickwork and INDRA did not. Furthermore, two of the rating agencies also voluntarily disclosed the ratio of (non-rating) revenue per issuer to total agency revenue: CRISIL reported this information for each of its fiscal years 2010-2014, while ICRA did so for fiscal years 2010 and 2011.

Non-rating Services is a dummy variable that takes the value of one if an issuer obtains non-rating services from a rating agency in a given year, zero otherwise. The relevant information is

¹⁸ Including these observations in the sample does not, however, alter our results in any significant way.

¹⁹ The relevant information is drawn from the disclosures related to SEBI’s circular CIR/MIRSD/CRA/6/2010. Of most interest to us are income disclosures referring to point 6.3.3 of the circular. See Section II.C for more details.

²⁰ CRISIL compliance made available all past disclosures to us. All past disclosures from ICRA could be obtained from The Internet Archive. For CARE we can retrieve the relevant disclosures for the fiscal years 2012/2013, 2013/2014, and 2014/2015; we cannot ascertain whether CARE provided non-rating services in prior years. Finally, to our knowledge, Brickwork and INDRA have not been providing non-rating services during our sample period.

available for the following agencies and sample years: years 2010 to 2014 for CRISIL; years 2010-2015 for ICRA, Brickwork, and INDRA; years 2013-2015 for CARE.²¹ The variable *Non-rating Issuer Revenue* denotes annual non-rating revenue from an issuer divided by the total revenue of the rating agency (in percent). For firms that do not obtain consulting services, this variable naturally takes a value of zero. For CRISIL-rated firms that obtain non-rating services from CRISIL, for the years 2010-2014, we also know the amount paid to CRISIL; furthermore, this information is available for ICRA-rated firms that obtain non-rating services from ICRA for the years 2010 and 2011.²²

We use the product-market based industry classification system developed by CMIE to assign firms to industries; there are 145 industries in our sample. We match the revenue information from the regulatory disclosure files to the ratings from Prowess using firm names.

IV. Results

A. Summary statistics

We report summary statistics for the analysis of ratings and the provision of non-rating services in Table 1. Each observation in our sample is a firm-agency-year. Panel A shows a frequency distribution of observations with non-rating services. Our sample spans the years 2010-2015 and covers 26,760 firm-agency-years. There are 7,083 firms in our sample, of which 473 obtain non-rating services at some point during the sample period, corresponding to 1,165 observations

²¹ CRISIL's fiscal year ends in December, so revenue information for the reporting period e.g. January 2010 to December 2010 is coded as year 2010 in our sample. The other agencies' fiscal years end in March, so revenue information for the reporting period e.g. April 2010 to March 2011 is coded as 2011 in our sample.

²² CRISIL discloses for the years 2010-2014 the "Contribution of Non Rating Income" (non-rating revenue from an issuer to total group revenue). The variable *Non-rating Issuer Revenue* is then Contribution $\times 100$. Note that Contribution is reported with a precision of four decimal places; therefore, in some instances, the variable *Non-rating Issuer Revenue* takes the value of zero, even if there are payment flows between issuer and rater for non-rating services. Our results are unchanged if we replace such cases with a small non-zero revenue figure to distinguish these observations from cases where issuers do not obtain any non-rating services. ICRA discloses in 2010 and 2011 the "Share of Non Rating Income to Total Income from Issuer" (SNRITII) and the "Share of Total Income from Issuer to Total Income of Group ICRA" (STIITIGI). The variable *Non-rating Issuer Revenue* is STIITIGI \times SNRITII $\times 100$ in the case of payments received by ICRA from issuers. We note that the variable *Non-rating Issuer Revenue* uses information from the voluntary revenue disclosures by CRISIL and ICRA.

(4.4% of the total) in our sample. The rest of the panel reports a breakdown by rating agency; for example, 7.9% of the sample observations with a CRISIL rating are associated with payments for non-rating services provided by CRISIL. Panel B shows the incidence of firms with multiple raters in our sample. 19% (5,141 observations) of the sample corresponds to firms that receive ratings from more than one rating agency in a given year. In Panel C, we report the mean, standard deviation, minimum and maximum of the variables *Issuer Rating*, *Non-rating Services*, and *Non-rating Issuer Revenue*. The average *Issuer Rating* in the sample is 9.04, which approximately corresponds to a BBB letter rating. For the average issuer that pays for non-rating services, *Non-rating Issuer Revenue* is 0.02% (the sample maximum is 0.51%). We highlight two important features of our data. First, we have complete information on which issuers pay for non-rating services (and in which year), because it is mandatory for raters to report this information in India; this information is reflected in the variable *Non-rating Services*. Second, we have information on the amount paid for non-rating services for 98.9% of the sample; considering only firms that pay for non-rating services, we have information on the amount paid for 75% (873 out of 1,165) of the observations (see Section III for more details).

Table 2 reports summary statistics for the sample used for the analysis of defaults in Section IV.C. The sample is smaller because it ends in 2014 (using default information until September 2015, however), and because we require firms in this sample to have at least two consecutive years of data. Panel A classifies observations by coarse rating category and default status. Panel B reports summary statistics for the variables used in our tests on defaults. According to Panel B, the average one-year default rate across all rating categories during the sample period is 3.8%. Panel C reports separate summary statistics for investment grade and high yield firms. In the investment grade sub-sample, the average one-year default rate is 1.3%, while it is 8.3% for the high yield sub-sample. In comparison, Standard & Poor's (2015) reports a global high yield corporate default rate of 2.2% per annum (2010-2014 average).

B. Payment flows and credit ratings

Do issuers that pay a rating agency for non-rating services obtain better ratings from that rater? Figure 1 provides a first look at the relevant data. It plots the distribution of ratings for

issuers that obtain non-rating services and those that don't, after accounting for industry effects.²³ The figure shows that issuers that generate non-rating revenue for the rating agency indeed obtain a rating that is on average about three notches better.

The difference in ratings between firms that hire a rater for non-rating services and those that don't as documented in Figure 1 is likely to be driven by a number of different factors, some of which may be unobservable.²⁴ As a consequence, the simple correlation between *Issuer Rating* and *Non-rating Services* does not necessarily reflect biased ratings. In order to narrow down the set of possible explanations, the tests that follow rely on *within-firm* or *within-firm-year* variation of the demand for non-rating services. This helps rule out a number of alternative explanations involving selection (i.e., which firms tend to use credit rating agencies for non-rating services). We first estimate parameters from the following regression model:

$$(\text{Issuer Rating})_{i,j,t} = \alpha \cdot X_{i,j,t} + \beta_j + \gamma_i + \delta_t + \varepsilon_{i,j,t}$$

where i denotes the issuer, j the rating agency, and t the year. β , γ , and δ are fixed effects, and $X_{i,j,t}$ is a revenue measure. In all regressions, we report standard errors that are adjusted for within-firm clustering of the error terms $\varepsilon_{i,j,t}$. This specification exploits within-firm variation, which helps address many identification challenges. However, the concern remains that there may be time-varying firm-level omitted variables related to both credit quality and the propensity to use consulting services. Therefore, our main specification employs *within-firm-year* variation for identification, corresponding to the regression model:

$$(\text{Issuer Rating})_{i,j,t} = \alpha \cdot X_{i,j,t} + \beta_{j \times t} + \gamma_{i \times t} + \varepsilon_{i,j,t}$$

Here, $\gamma_{i \times t}$ represents fixed effects for each firm-year. This permits us to rule out that any firm-level omitted variables—even if time-varying—explain our results. We only need to assume that selection into the use of non-rating services does not affect ratings asymmetrically across rating

²³ Specifically, we plot the residuals from the following regression: $(\text{Issuer Rating})_{i,j,t} = \gamma_{i \rightarrow k} + \varepsilon_{i,j,t}$ where i denotes the firm, k the industry, j denotes a rating agency, t denotes the year, and $\gamma_{i \rightarrow k}$ are industry dummies.

²⁴ For example, larger firms are likely to have better ratings; they are also likely to have more complex capital structures and, therefore, may have more demand for non-rating services such as risk-management advice.

agencies. That is, we identify the effect of (for example) the payment for non-rating services on ratings through differences in the provision of such services *across* agencies *within* a given firm-year. Finally, to control for time-varying heterogeneity across raters and thereby rule out that differences across raters are driving our results, we saturate the regression model with *agency x year* fixed effects (β_{jxt}).

Controlling for *issuer x year* fixed effects alleviates concerns about selection bias stemming from the non-random demand for non-rating services by different types of issuers. However, identifying within issuer-year is only possible for firms that have more than one rating and that use non-rating services from some but not all agencies which rate them. These firms may differ from the overall population of firms (i.e., those obtaining no non-rating services or acquiring such services from all raters), for example in terms of how much they care about credit ratings, or how opaque they are to financial markets. This may affect the external validity of the results estimated using this specification. For example, it is conceivable that the quality of ratings is most impacted by payment flows to agencies for the set of firms that hire many agencies as consultants, but we cannot identify this using *issuer x year* fixed effects.²⁵

Table 3 reports results from tests with the dummy variable *Non-rating Services* as the explanatory variable. Specification 1 includes issuer, year, and agency dummies, while specification 2 employs *issuer x year* fixed effects in addition to agency fixed effects. Finally, specification 3 employs *agency x year* fixed effects instead of agency and year fixed effects. We find that the coefficients in all three specifications are significant at the 1% level and that they are of similar magnitude. According to these estimates, firms that pay a rating agency for non-rating services obtain a rating from that agency that is about 0.3 notches lower (that is, closer to triple-A) than the average rating obtained from the other agencies in that year. Next, we shed more light on the association between the amount paid for non-rating services and the rating issued. Does

²⁵ We also report results with issuer fixed effects only, and magnitudes are not very different in these specifications. These tests do not require multiple ratings per issuer for identification; within-issuer variation in the demand for consulting services over time suffices for this purpose.

paying more lead to a better rating? The conflict of interest hypothesis suggests that issuers that generate more financial value for a rating agency obtain better ratings.

We first explore this question graphically. For this purpose, it is useful to define the variable *Rating Difference*, which for a firm with multiple ratings in a given year, is the difference between the *Issuer Rating* from one rating agency minus the cross-sectional average of the ratings obtained from the other agencies. Figure 2 plots the *Rating Difference* against the *Non-rating Issuer Revenue* and fits a local polynomial smooth line. The figure shows that the more an issuer contributes to the total revenue of a rater, the better is the rating that the issuer receives from that agency, on average.²⁶

Table 4 sheds more light on the relationship between payment flows and ratings. We employ similar regressions as those reported in Table 3, but now *Non-rating Issuer Revenue* is the explanatory variable of interest. The specification reported in column 1 employs issuer, agency, and year fixed effects; specification 2 employs *issuer x year* and agency fixed effects; finally, specification 3 includes *issuer x year* and *agency x year* fixed effects. In all three specifications, we find negative coefficients on the variable *Non-rating Issuer Revenue*. The coefficients are significant at the 1% level. In terms of magnitude, according to the specification in column 2, conditional on being a consulting client of the rater, a one standard deviation increase in non-rating fees is associated with a 0.3 notch ratings improvement. Compared to the average effect of using non-rating services, estimated to be also 0.3 notches, this is large, suggesting that the amount paid is important.

Overall, we interpret these results as consistent with a fee-driven conflict of interest between rating agencies and security issuers: when an issuer is directly important to an agency through the fees it generates, then ratings are upward biased. What do the results imply about the role of non-rating services? One interpretation is that because non-rating fee payments are correlated with total fee payments, our results provide evidence in support of the conflict of interest

²⁶ The maximum *Non-rating Issuer Revenue* of firms with multiple ratings is 0.48%. This observation appears as an outlier in Figure 2. We ascertain that all our results are robust to the exclusion of this observation from our tests.

hypothesis that issuers that generate more financial value for a rater receive upward biased ratings.²⁷ This interpretation of the results does not necessarily imply any special role for non-rating services. However, it is also conceivable that payments for non-rating services are important in their own right, perhaps because rating fees are fixed and there is more leeway in pricing non-rating services. That would imply that using non-rating services is a more direct way of transferring rents to a rating agency, and thus the key variable for predicting biased ratings. Consistent with this interpretation, the dummy for using non-rating services is associated with higher ratings (see Table 3).

We focus on the contemporaneous relationship between ratings and payment flows in Table 4. However, if the relationship between issuer and agency is long-term, past payments may affect current ratings. The time-series dimension of our data is somewhat limited, but we explore this relationship between ratings and current and past payments in Table 5.²⁸ Column 1 reports a specification with firm, year, and agency fixed effects, while the regression underlying column 2 employs *issuer x year* as well as agency fixed effects; finally, column 3 employs *issuer x year* and *agency x year* fixed effects. The results suggest that while contemporaneous payments matter, it is primarily past payments that determine current ratings.

A considerable number of firms that purchase non-rating services are financial institutions.²⁹ While only 590 (2.2%) of the total observations in the sample correspond to banks, these financial institutions contribute 202 of the 1,165 observations (17%) associated with payments for non-rating services. As discussed in Section II, bank-intermediated debt plays an important role in the

²⁷ As discussed in Section III, there are 873 observations corresponding to issuers that pay for consulting services and for whom CRISIL and ICRA report the revenue received. For these observations, we have information on both total payments to raters as well as payments for non-rating services. The correlation between these two revenue measures is 0.68. We do not use total issuer revenue in the regressions (for example, in Table 4), as we do not have total revenue information for the issuers that do not obtain consulting services. We note that this problem does not exist for non-rating revenue, as the latter is zero for those issuers that do not obtain consulting services.

²⁸ While we have five years of revenue data for CRISIL, only two years of such data exist for ICRA. CARE does not report information on fee payments. Further, we observe a rating only in years in which new instruments are issued, or ratings are changed or re-affirmed.

²⁹ For the purposes of the following discussion, financial institutions are defined as firms that carry the industry designation “Banking services” in the CMIE Prowess database.

Indian economy. Banks may—directly or indirectly (through the firms they lend to)—have a large impact on rating agencies’ revenues, which may affect the interpretation of our findings.³⁰ For example, the prospect of rating large loan portfolios may imply that banks have considerable bargaining power over rating agencies, which may lead to the assignment of positively biased ratings on the banks and the debt securities they issue.³¹ At the same time, these unobserved sources of bargaining power could be correlated with the purchase of non-rating services. That is, whether or not a bank purchases non-rating services may just proxy for the depth of the commercial relationship it has with the rater, rather than indicating a special role for consulting payments *per se*.

To rule out that this effect is driving our results, we re-do the main tests but exclude financial institutions from the sample. Results are reported in Table 6; columns 1–3 investigate the role of payments for non-rating services at the extensive margin (explanatory variable “*Non-rating Services*”), while columns 4–6 focus on the intensive margin of these payments (explanatory variable “*Non-rating Issuer Revenue*”). We find that the results remain strongly supportive of a fee-driven conflict of interest and the special role played by non-rating services. The coefficients on the two revenue measures are statistically significant at the 1% level in all specifications except column 4, where the relevant coefficient is significant at the 5% level. Economic magnitudes are, overall, also similar to the estimates reported in Tables 3 and 4.³²

C. *Non-Rating Revenue, Ratings, and Defaults*

³⁰ We thank an anonymous reviewer for pointing this out.

³¹ To determine risk weights for capital adequacy purposes, banks have to purchase ratings from eligible rating agencies. According to the regulator (Reserve Bank of India), banks “should use the chosen credit rating agencies and their ratings consistently for each type of claim, for both risk weighting and risk management purposes. Banks will not be allowed to ‘cherry pick’ the assessments provided by different credit rating agencies.” This quote is from the RBI Master Circular “Prudential Guidelines on Capital Adequacy and Market Discipline - Implementation of the New Capital Adequacy Framework (NCAF)”; RBI/2008-09/68, DBOD.No.BP.BC. 11 /21.06.001/2008-09.

³² Another possible concern associated with banks’ bargaining power is the following. Issuers could be compelled by financial institutions to purchase non-rating services. This interpretation would imply that while raters still issue upward biased ratings to issuers that pay for non-rating services, the underlying reason why these payments are made is that banks want to lower capital charges on their loan portfolios. While we cannot rule out this explanation, we note that this observationally equivalent result would still be consistent with a fee-driven conflict of interest that operates through payments for non-rating services.

In the previous section, we found that an agency that receives non-rating revenue from a firm issues a better rating to that firm than other agencies. It is conceivable that these better ratings are warranted. To see if this is the case, we examine ex-post default rates.³⁴ If better ratings given by agencies to issuers that purchase non-rating services are warranted, default frequencies should be similar for firms within a given rating category, whether or not these firms have a consulting relationship with the rating agency. If such issuers instead get treated more favorably, their ex-post default frequency would be higher than for other issuers.

To examine this point, we use one-year default rates (variable *Default in t+1*; see Section III). Figure 3 shows one-year default rates by rating category. While there were no defaults in the categories AAA and AA during our sample period, the average one-year default rate across all rating categories was 3.8%. Table 2, Panel A, sheds more light on the defaults in the sample. The table reports that, for example, 23 of the 3,072 firms with an “A” rating in year t default in year $t+1$, while 248 of the 1,843 “B” rated firms do.

In Figure 4, we graphically examine the relationship between ratings, the payment for non-rating services, and defaults. As in the previous figure, we plot the one-year default rate on the vertical axis against broad rating categories on the horizontal axis; within each rating category, we now also separately report average one-year default rates for issuers that obtain non-rating services and for issuers that do not pay for such services. The figure shows that within each rating category, default rates are higher for firms that pay for non-rating services.

To formally test whether within-rating category differences in default rates between firms that pay for non-rating services and those that don't are jointly significant, we regress the variable *Default in t+1* on the variable *Non-rating Services*. We report the results in Table 7. Columns 1-4 control for the rating linearly by including the variable *Issuer Rating* as a regressor, while columns 5-8 include fixed effects for each of the 19 possible rating notches.³⁵ In addition to these controls

³⁴ We note that in a previous version of this paper (which is available from the authors upon request), we used default probabilities from the NUS-RMI Credit Research Initiative instead of actual defaults to address this question. We obtained similar results.

³⁵ As explained in Section III, the variable *Issuer Rating* is the average rating a firm receives for all instruments rated by a given agency in a given year; the variable is thus continuous. To be able to include rating fixed effects in columns 5-8 of Table 7, we round the variable *Issuer Rating* to whole numbers.

for the rating, columns 2 and 6 additionally include agency fixed effects; columns 3 and 7 additionally include agency, year, and industry fixed effects; and, finally, columns 4 and 8 additionally include *agency x year* and *industry x year* fixed effects. As the dependent variable exhibits variation at the issuer-year level only (as opposed to issuer-agency-year level as in the tests reported in Section IV.B), we cannot include *issuer x year* fixed effects in the default tests.

Table 7 shows that the coefficient on the variable *Non-rating Services* is positive and significant at the 1% level in all but one case; in column 5, the relevant coefficient is significant at the 10% level. Overall, the results suggest that on average, controlling for the rating, firms that pay for non-rating services have higher default rates. Based on the estimates with rating fixed effects (columns 5-8), we find that such firms have a one percentage point higher default rate. As the average default rate in the sample is 3.8%, this corresponds to a difference of about 26% between firms that pay for non-rating services and those that don't.

As is evident from Figure 3, the relationship between ratings and defaults is convex. Therefore, the association between the variables *Non-rating Services* and *Default in t+1* may be different in the sub-sample of investment and non-investment grade (i.e., high yield) firms, respectively. To shed some light on this, we split the sample along the investment grade threshold. Results are reported in Table 8. Panel A shows results for the investment grade sub-sample (a rating better than BBB-), while Panel B reports results for the high yield sub-sample (BB+ or worse rating). In Panel A, column 8, the coefficient on *Non-rating Services* is around 0.007, which suggests that the default rate of investment-grade firms that pay for non-rating services is about 0.7 percentage points higher than that of firms that don't. Given the relevant sample mean of 1.3% (see Table 2, Panel C), this implies a difference of about 54%. In the high yield sub-sample (Panel B of Table 8), the relevant coefficient is around 0.12, implying that high yield firms that pay for non-rating services have a 12 percentage point higher default rate. The average default rate in this sub-sample is 8.3%, suggesting a difference in the default likelihood of more than 100%. As a caveat, we note that the coefficients on the variable *Non-rating Services* reported in Panel B of Table 8 are significant only at the 10% level in most instances. Taken at face value, the results suggest that the importance of payments for non-rating services appears to be about twice as large in the high yield range.

In sum, the empirical analysis of ratings, default rates, and payments for non-rating services suggests that the better ratings assigned to issuers that pay rating agencies for non-rating services are not warranted: within a given rating category, firms that obtain non-rating services have higher one-year default rates than other firms. Furthermore, the association between the payment for non-rating services and defaults is quantitatively larger for high yield firms than for investment grade firms; however, the estimates in the non-investment grade sub-sample are less precise.

D. Discussion

The results on defaults discussed in the previous section alleviate a number of possible concerns related to our finding from Section IV.B that firms that pay for non-rating services receive better ratings. For example, one could argue that the provision of non-rating services enables a rater to obtain additional information about an issuer that is useful in assessing credit risk. This in itself cannot explain our results on ratings, as such information should not be positive—that is, implying lower credit risk—on average. However, it is conceivable that firms that have hidden qualities that imply low default risk obtain non-rating services in part to enable the rater to uncover such qualities. In this case, such firms should have lower default rates, which is the opposite of what we find.

Another possibility is that obtaining additional non-rating services (such as risk-management advice) reduces credit risk, but the improvement is discernible only by the rating agency providing such services, not by other raters, at least initially. This argument is also inconsistent with our findings on defaults, as such firms should have lower default risk.

Finally, the results on defaults also address a reverse causality concern: a relatively lenient rating (compared to the rating given by other agencies) could determine the subsequent demand for non-rating services by an issuer from the agency issuing that lenient rating. Our default results imply that firms would tend to obtain consulting advice and other non-rating services precisely from those rating agencies that tend to underestimate their default risk. While we cannot rule out this explanation, it does not appear to be plausible.

V. Conclusion

Issuer-paid credit ratings play an important role in Indian credit markets, as elsewhere. These ratings give investors access to a public signal that can be used for contracting and screening securities, without incurring fees. However, issuer-paid ratings involve a fundamental conflict of interest, since the paying party has an interest in upward biased ratings. There is mounting indirect evidence on where and how this conflict is important.³⁶ However, there is no evidence to date on whether actual payment flows relate to optimistic ratings. Do favored issuers generate more business? Pay higher fees per rating? Commit to their raters with longer contracts? Raters also receive revenues from consulting. Because these activities and the associated payment terms are likely to be quite fungible and scalable, and the business is quite profitable for the raters, it is conceivable that the provision of such non-rating services could further impair the objectivity and, in turn, the quality of credit ratings.

In this paper, we use a unique data set based on agencies' reports of consulting relationships and the associated revenue from individual issuers to assess whether the provision of non-rating services and the amounts paid for such services are related to the level of ratings. We find that an agency which receives non-rating revenue from an issuer rates that issuer more positively than other agencies. The magnitude is modest: paying for non-rating services is associated with a 0.3 notch ratings improvement, and big payers only see a slightly more substantial ratings improvement. We also find that, within rating categories, default rates are higher for firms that have paid for non-rating services, which suggests that the better ratings that such firms receive are not a reflection of lower credit risk.

Our findings are consistent with two points of the literature: corporate credit ratings perform well and are less subject to bias than structured ratings (Cornaggia, Cornaggia, and Hund 2015 make an explicit comparison; see also Benmelech and Dlugosz 2009), but corporate ratings are not immune to bias (e.g., Becker and Milbourn 2011; Alp 2013; Baghai, Servaes, and Tamayo 2014;

³⁶ E.g., when competition is high (Becker and Milbourn 2011), when individual issuers represent large shares of total business (He, Qian, and Strahan 2012, and Efung and Hau 2014), and when the economy is strong (Bolton, Freixas, and Shapiro 2012).

Dimitrov, Palia, and Tang 2015). Our results add an important piece of evidence: the fundamental agency problem in ratings can operate through higher past and contemporaneous payment flows from issuers to raters, and especially through non-ratings fees.

Do our results point to any policies for maintaining the integrity of credit ratings? Reducing the opportunities for rating agencies to perform non-rating services for their clients seems like one possibility, since these revenues are especially associated with bias. Such activities could even be prohibited entirely. This may certainly have negative side effects, which we have not considered. As an alternative, increased disclosure may facilitate scrutiny by investors and outsiders of the role non-ratings fees play. If data of the type we use was routinely available for the large fixed income markets, there would be scope for outsiders to assess the risk of bias in individual ratings. For corporate issuers, who typically issue annual reports and other public accounting statements, disclosure of the type mandated for their relationships with accountants might prove a template.

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Table 1. Summary statistics – main sample

Panel A reports a frequency distribution of firm-agency-years with non-rating services, as well as a breakdown by rating agency. The sample spans the years 2010-2015. **Panel B** tabulates the incidence of firms with multiple ratings in our sample, reported separately for firms that purchase non-rating services and those that don't. **Panel C** reports the mean, standard deviation, minimum and maximum of the variables used in the study of ratings. *Issuer Rating* is defined as follows. We first assign numerical values to the alphanumeric instrument ratings, with a value of one denoting the highest credit rating "AAA" and the value 19 denoting "C-". For each issuer, rating agency, and year, we average over the instruments' ratings to obtain an issuer-level credit rating. *Non-rating Services* is a dummy variable that takes the value of one if an issuer pays for non-rating services from a given rating agency in a given year, zero otherwise. The relevant information is available for the following agencies and years: years 2010 to 2014 for CRISIL; years 2010-2015 for ICRA, Brickwork Ratings, and INDRA; years 2013-2015 for CARE. *Non-rating Issuer Revenue* is non-rating revenue from an issuer divided by the total revenue of the rating agency (in percent). We also report *Non-rating Issuer Revenue* conditional on issuers purchasing non-rating services.

Panel A

<i>Full sample</i>		
	Frequency	Percent
Non-rating Services = 0	25,595	95.65
Non-rating Services = 1	1,165	4.35
<i>Total</i>	26,760	100
<i>CRISIL only</i>		
	Frequency	Percent
Non-rating Services = 0	9,299	92.13
Non-rating Services = 1	794	7.87
<i>Total</i>	10,093	100
<i>ICRA only</i>		
	Frequency	Percent
Non-rating Services = 0	7,962	96.26
Non-rating Services = 1	309	3.74
<i>Total</i>	8,271	100
<i>CARE only</i>		
	Frequency	Percent
Non-rating Services = 0	5,071	98.79
Non-rating Services = 1	62	1.21
<i>Total</i>	5,133	100
<i>Brickwork Ratings only</i>		
	Frequency	Percent
Non-rating Services = 0	852	100
<i>INDRA only</i>		
	Frequency	Percent
Non-rating Services = 0	2,411	100

Panel B

Number of raters	Non-rating services		
	No	Yes	Total
1	21,016	603	21,619
2	3,809	307	4,116
3	577	182	759
4	169	67	236
5	24	6	30
<i>Total</i>	25,595	1,165	26,760

Panel C

Variable	Obs.	Mean	Std. Dev.	Min.	Max.
Issuer Rating	26,760	9.044	3.838	1.000	19.000
Non-rating Services	26,760	0.044	0.204	0.000	1.000
Non-rating Issuer Revenue (%)	26,468	0.001	0.008	0.000	0.510
Non-rating Issuer Revenue (%), where non-rating services are purchased	873	0.020	0.041	0.000	0.510

Table 2. Summary statistics – default sample

This table shows summary statistics for the variables used in the analysis of default rates in Section IV.C. The sample spans the years 2010-2014. **Panel A** reports the number of defaults by rating category. **Panel B** reports the mean, standard deviation, minimum and maximum of the variables used in the study of defaults. *Default in t+1* is defined at the firm-year level and takes the value of one in year *t* if a given company has a debt instrument on which the company defaults in year *t+1* (irrespective of which agency rates that instrument); the variable takes a value of zero otherwise. The other variables were defined in Table 1. **Panel C** reports summary statistics for the default sample, split along the investment grade threshold.

Panel A

	AAA	AA	A	BBB	BB	B	C	Total
Default in t+1 = 0	880	2,209	3,049	5,790	4,342	1,595	136	18,001
Default in t+1 = 1	0	0	23	135	249	248	51	706
<i>Total</i>	<i>880</i>	<i>2,209</i>	<i>3,072</i>	<i>5,925</i>	<i>4,591</i>	<i>1,843</i>	<i>187</i>	<i>18,707</i>

Panel B

	Obs.	Mean	Std. Dev.	Min	Max
Default in t+1	18,707	0.038	0.191	0.000	1.000
Issuer Rating	18,707	8.823	3.888	1.000	18.000
Non-rating Services	18,707	0.053	0.225	0.000	1.000

Panel C

Investment grade sub-sample

	Obs.	Mean	Std. Dev.	Min	Max
Default in t+1	12,086	0.013	0.114	0.000	1.000
Issuer Rating	12,086	6.654	2.912	1.000	10.000
Non-rating Services	12,086	0.079	0.269	0.000	1.000

High yield sub-sample

	Obs.	Mean	Std. Dev.	Min	Max
Default in t+1	6,621	0.083	0.276	0.000	1.000
Issuer Rating	6,621	12.783	1.719	10.100	18.000
Non-rating Services	6,621	0.007	0.083	0.000	1.000

Table 3. Ratings and the provision of non-rating services

This table reports the coefficients for regression models estimating the association between ratings and the provision of non-rating services. Each observation corresponds to an issuer-agency-year. The variables are defined in Table 1. Heteroskedasticity-robust standard errors, clustered by issuer, are reported below coefficients. * denotes estimates that are significantly different from zero at the 10% level, ** at the 5% level, and *** at the 1% level.

	(1)	(2)	(3)
	Issuer Rating		
Non-rating Services	-0.281*** (0.058)	-0.326*** (0.068)	-0.299*** (0.068)
Issuer F.E.	x		
Year F.E.	x		
Agency F.E.	x	x	
Issuer x Year F.E.		x	x
Agency x Year F.E.			x
Observations	26,760	26,760	26,760
Adjusted R-squared	0.937	0.994	0.994

Table 4. Ratings and payment for non-rating services

This table reports the coefficients for regression models estimating the association between ratings and revenue from issuers. Each observation corresponds to an issuer-agency-year. The variables are defined in Table 1. Heteroskedasticity-robust standard errors, clustered by issuer, are reported below coefficients. * denotes estimates that are significantly different from zero at the 10% level, ** at the 5% level, and *** at the 1% level.

	(1)	(2)	(3)
	Issuer Rating		
Non-rating Issuer Revenue	-5.728*** (1.580)	-8.281*** (1.150)	-7.211*** (1.186)
Issuer F.E.	x		
Year F.E.	x		
Agency F.E.	x	x	
Issuer x Year F.E.		x	x
Agency x Year F.E.			x
Observations	26,468	26,468	26,468
Adjusted R-squared	0.936	0.994	0.994

Table 5. Ratings and past payments for non-rating services

This table reports the coefficients for regression models estimating the association between ratings and non-rating revenue from issuers. Each observation corresponds to an issuer-agency-year. $Lag(\cdot)$ is the lag operator and denotes one-year lags of the relevant variable. The variables are defined in Table 1. Heteroskedasticity-robust standard errors, clustered by issuer, are reported below coefficients. * denotes estimates that are significantly different from zero at the 10% level, ** at the 5% level, and *** at the 1% level.

	(1)	(2)	(3)
	Issuer Rating		
Non-rating Issuer Revenue	-3.152** (1.586)	-1.439 (1.879)	-1.082 (1.671)
Lag(Non-rating Issuer Revenue)	-4.882*** (1.431)	-5.666*** (1.744)	-5.509*** (1.613)
Issuer F.E.	x		
Year F.E.	x		
Agency F.E.	x	x	
Issuer x Year F.E.		x	x
Agency x Year F.E.			x
Observations	16,811	16,811	16,811
Adjusted R-squared	0.950	0.997	0.997

Table 6. Ratings and non-rating services – excluding banks

This table reports the coefficients for regression models estimating the association between ratings and the purchase of non-rating services by issuers. Each observation corresponds to an issuer-agency-year. The variables are defined in Table 1. This sample excludes firms designated as operating in “Banking services” according to CMIE Prowess. Heteroskedasticity-robust standard errors, clustered by issuer, are reported below coefficients. * denotes estimates that are significantly different from zero at the 10% level, ** at the 5% level, and *** at the 1% level.

	(1)	(2)	(3)	(4)	(5)	(6)
				Issuer Rating		
Non-rating Services	-0.186*** (0.059)	-0.224*** (0.076)	-0.215*** (0.075)			
Non-rating Issuer Revenue				-2.992** (1.396)	-9.751*** (0.980)	-8.266*** (1.093)
Issuer F.E.	x			x		
Year F.E.	x			x		
Agency F.E.	x	x		x	x	
Issuer x Year F.E.		x	x		x	x
Agency x Year F.E.			x			x
Observations	26,170	26,170	26,170	25,932	25,932	25,932
Adjusted R-squared	0.933	0.994	0.994	0.933	0.994	0.994

Table 7. Ratings, defaults, and the provision of non-rating services

This table reports the coefficients for regression models estimating the association between default rates and the provision of non-rating services. Each observation corresponds to an issuer-agency-year. The variables are defined in Tables 1 and 2. In specifications where we include issuer rating fixed effects (columns 5–8), we round the variable *Issuer Rating* to whole numbers and include one dummy variable per rating notch. Heteroskedasticity-robust standard errors, clustered by issuer, are reported below coefficients. * denotes estimates that are significantly different from zero at the 10% level, ** at the 5% level, and *** at the 1% level.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Default in t+1							
Non-rating Services	0.027*** (0.004)	0.034*** (0.005)	0.027*** (0.005)	0.029*** (0.005)	0.008* (0.004)	0.015*** (0.005)	0.014*** (0.005)	0.015*** (0.005)
Issuer Rating	0.010*** (0.000)	0.010*** (0.000)	0.011*** (0.001)	0.011*** (0.001)				
Constant	-0.053*** (0.003)							
Issuer Rating F.E.					x	x	x	x
Agency F.E.		x	x			x	x	
Year F.E.			x				x	
Industry F.E.			x				x	
Industry x Year F.E.				x				x
Agency x Year F.E.				x				x
Observations	18,707	18,707	18,707	18,707	18,707	18,707	18,707	18,707
Adjusted R-squared	0.039	0.042	0.054	0.056	0.060	0.062	0.073	0.076

Table 8. Ratings, defaults, and the provision of non-rating services: investment-grade versus high yield firms

This table reports the coefficients for regression models of credit ratings. Each observation corresponds to an issuer-agency-year. The variables are defined in Tables 1 and 2. **Panel A** shows results for the sample of investment-grade firms, while **Panel B** reports results for the high yield sub-sample. In specifications where we include issuer rating fixed effects (columns 5–8), we round the variable *Issuer Rating* to whole numbers and include one dummy variable per rating notch. Heteroskedasticity-robust standard errors, clustered by issuer, are reported below coefficients. * denotes estimates that are significantly different from zero at the 10% level, ** at the 5% level, and *** at the 1% level.

Panel A: Investment grade

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Default in t+1							
Non-rating Services	0.003 (0.003)	0.007*** (0.003)	0.008** (0.003)	0.008** (0.003)	0.002 (0.003)	0.006** (0.003)	0.006** (0.003)	0.007** (0.003)
Issuer Rating	0.003*** (0.000)	0.004*** (0.000)	0.003*** (0.000)	0.003*** (0.000)				
Constant	-0.010*** (0.002)							
Issuer Rating F.E.					x	x	x	x
Agency F.E.		x	x			x	x	
Year F.E.			x				x	
Industry F.E.			x				x	
Industry x Year F.E.				x				x
Agency x Year F.E.				x				x
Observations	12,086	12,086	12,086	12,086	12,086	12,086	12,086	12,086
Adjusted R-squared	0.007	0.009	0.014	0.016	0.008	0.009	0.015	0.016

Panel B: High yield

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Default in t+1							
Non-rating Services	0.126** (0.061)	0.127** (0.062)	0.109* (0.061)	0.124** (0.063)	0.120* (0.062)	0.121* (0.062)	0.103* (0.062)	0.118* (0.063)
Issuer Rating	0.028*** (0.003)	0.029*** (0.003)	0.029*** (0.003)	0.029*** (0.003)				
Constant	-0.281*** (0.032)							
Issuer Rating F.E.					x	x	x	x
Agency F.E.		x	x			x	x	
Year F.E.			x				x	
Industry F.E.			x				x	
Industry x Year F.E.				x				x
Agency x Year F.E.				x				x
Observations	6,621	6,621	6,621	6,621	6,621	6,621	6,621	6,621
Adjusted R-squared	0.032	0.037	0.069	0.086	0.038	0.042	0.073	0.090

Figure 1. Ratings of firms with and without non-rating services

This figure shows the distribution of issuer ratings for firms that obtain non-rating services and those that don't, after accounting for differences due to industry effects. Specifically, we plot the residuals from the following regression: $(\text{Issuer Rating})_{i,j,t} = \gamma_{i \rightarrow k} + \varepsilon_{i,j,t}$ where i denotes the firm, k the industry, j denotes a rating agency, t denotes the year, and $\gamma_{i \rightarrow k}$ are industry dummies.

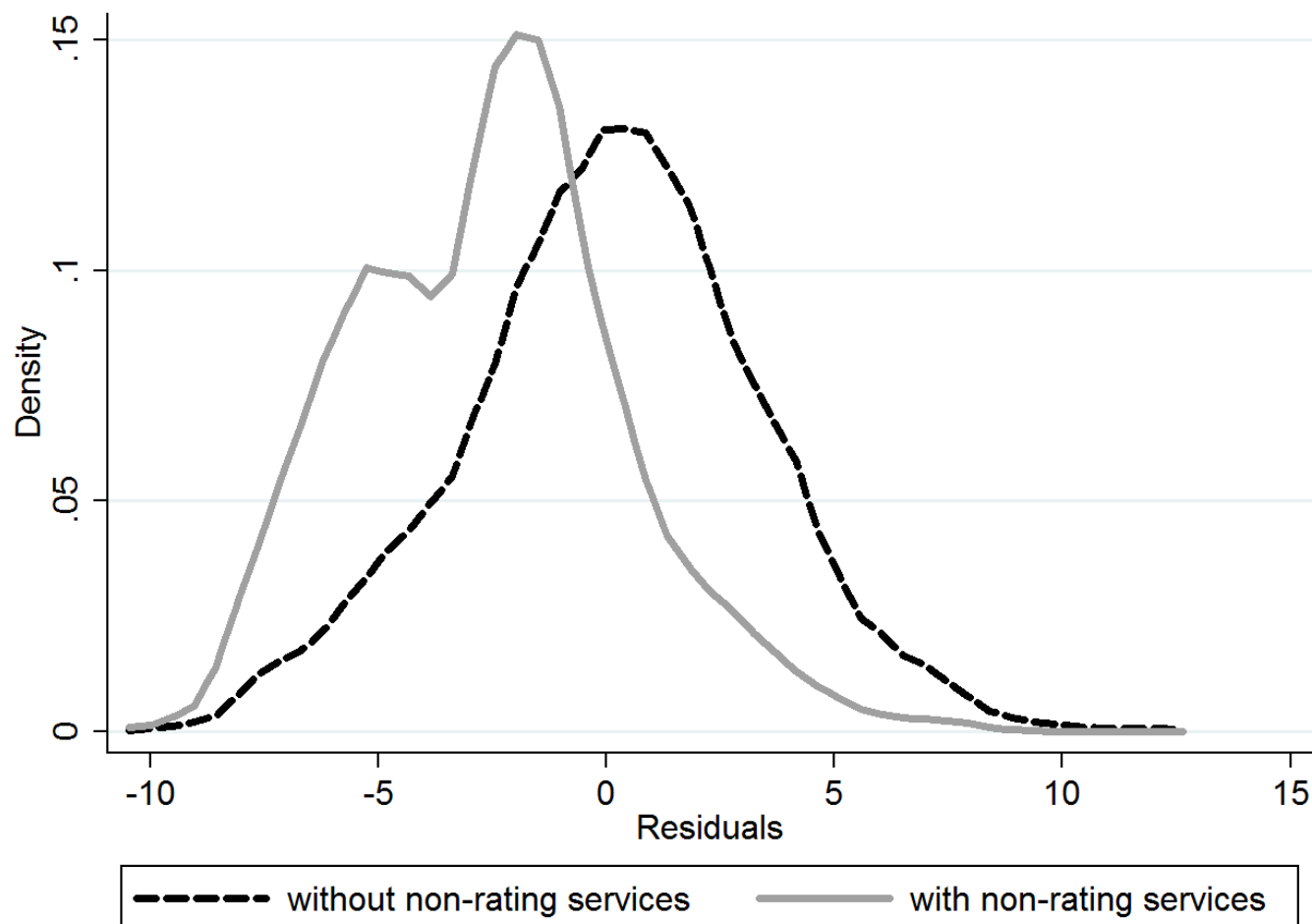


Figure 2. Non-rating revenue and ratings

This figure plots the *Rating Difference* (the difference between the *Issuer Rating* from one rating agency minus the cross-sectional average of the ratings obtained from the other agencies) against the variable *Non-rating Revenue* and fits a local polynomial smooth line. *Issuer Rating* and *Non-rating Revenue* are defined in Table 1.

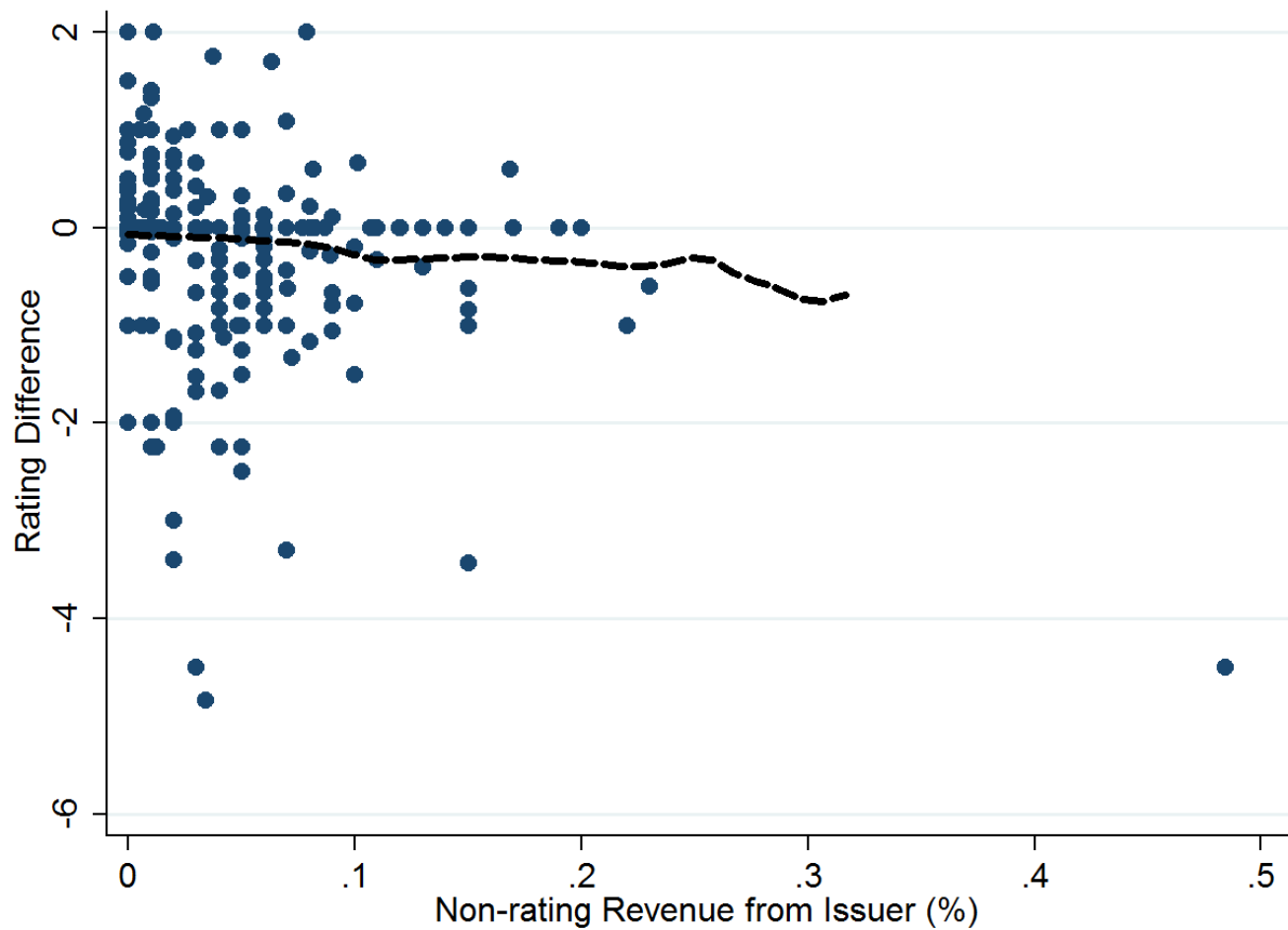


Figure 3. Ratings and default rates

The figure shows one-year default rates by rating category. Observations are divided into coarse *Issuer Rating* “buckets”. For each of the rating categories, the fraction of firms that default in the following year is shown on the vertical axis.

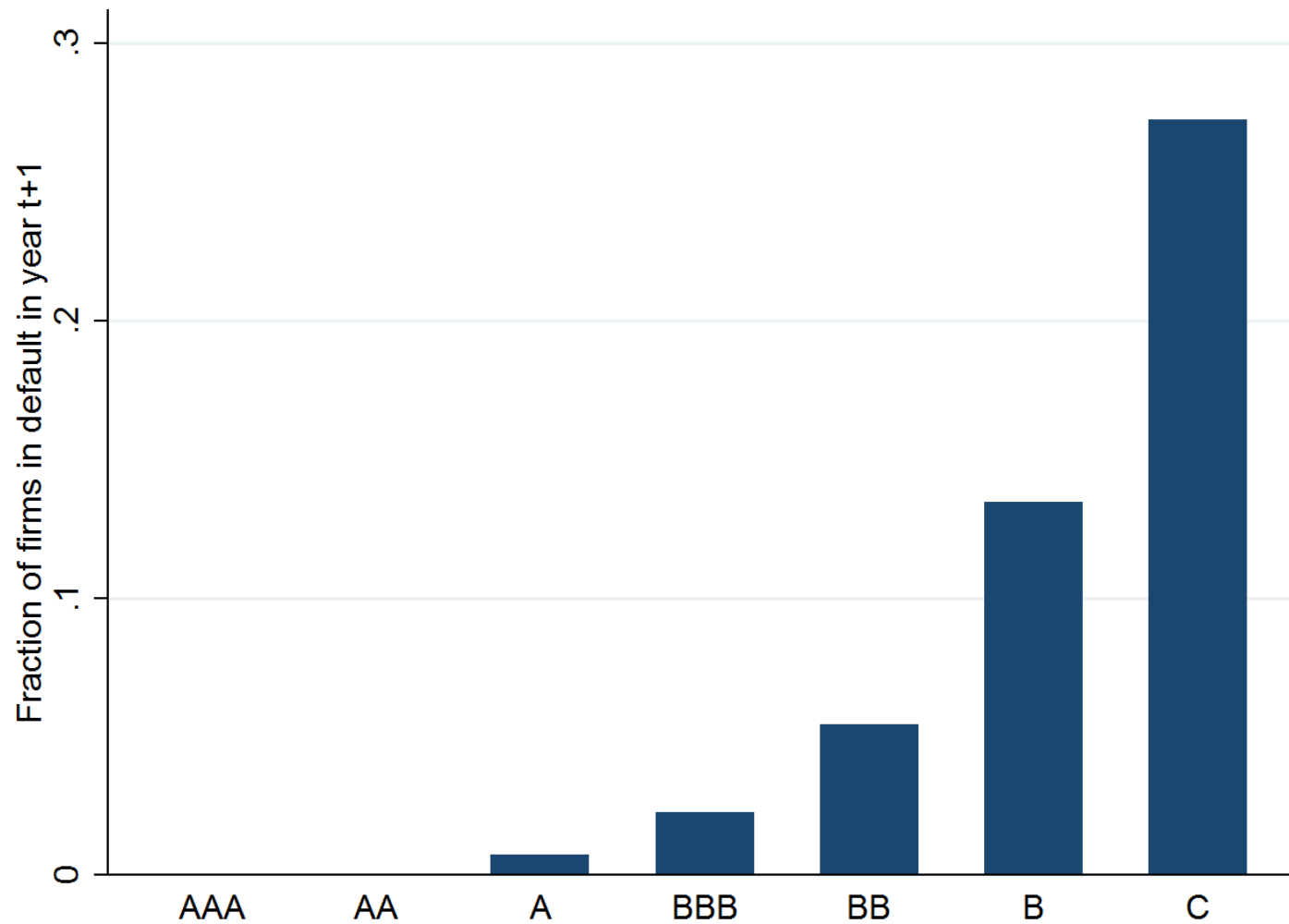


Figure 4. Ratings and default rates: the role of non-rating revenue

The figure shows one-year default rates by rating category; for each rating category, default rates are separately shown for firms that pay for non-rating services and those that don't.

