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## Do Commercial Ties Influence ESG Ratings? Evidence from Moody's and S&P

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### ABSTRACT

We provide the first evidence that conflicts of interest arising from commercial ties lead to bias in environmental, social, and governance (ESG) ratings. Using the acquisitions of Vigeo Eiris and RobecoSAM by Moody's and S&P as shocks to the commercial ties between ESG rating agencies and their rated firms, we show that, after their acquisitions by the credit rating agencies (CRAs), ESG rating agencies issue higher ratings to existing paying clients of the CRAs. This effect is greater for firms that have more intensive business relationships with the CRAs, but weaker for firms with more transparent ESG

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disclosures or higher long-term institutional ownership. The upwardly biased ESG ratings help client firms issue more green bonds and enable the CRAs to maintain credit rating business. Finally, the upwardly biased ESG ratings are less informative of future ESG news. Overall, the business incentives of rating providers appear to engender ESG rating bias.

**JEL codes:** G20, G24, G28, M48

**Keywords:** ESG; conflicts of interest; rating agencies; sustainability; commercial ties; disclosure

“The giant firms that audit the books, rate the bonds, advise on proxy voting and categorize the world’s companies are spending billions to boost their climate-related operations. That could accelerate the shift away from fossil fuels but could also create a new set of conflicts of interest for industries that struggled to manage them in the past.”

(The Wall Street Journal [2022])

## 1. Introduction

In recent years, regulators and academics alike have raised significant concerns about the reliability of environment, social, and governance (ESG) ratings (e.g., IOSCO [2021], Berg, Kölbel, and Rigobon [2022], Christensen, Serafeim, and Sikochi [2022], NGFS [2022]). For example, in his 2021 letter to the European Commission, Steven Majoor, then Chair of the European Securities and Markets Authority (ESMA), highlighted the issues of inconsistency and opacity in ESG rating methodologies and potential conflicts of interest that may arise in the business models of the ESG rating agencies (ESMA [2021a]). Independent and impartial assessment of corporate ESG performance is critical not only for sustainable investing in the financial market but also for the sustainable growth of the real economy (e.g., Hartzmark and Sussman [2019], Pástor, Stambaugh, and Taylor [2021], Edmans, Levit, and Schneemeier [2023]). In this study, we examine whether conflicts of interest engendered by commercial ties influence the quality of ESG ratings.

The exponential growth in sustainable investing has motivated many traditional financial services firms to expand their business into the ESG rating arena (Eaglesham [2022]). From 2017 to 2019, there were 11 acquisitions of ESG rating agencies; the acquirers included ISS, Morningstar, Moody’s, S&P, MSCI, Sustainalytics, and Thomson Reuters (SustainAbility [2020]). Although these financial services firms may be able to leverage their financial and informational resources to produce better-quality ESG ratings, their multiple business lines can also create a hotbed of potential conflicts of interest. Thus, we take advantage of the consolidations in the ESG rating space as potential shocks to commercial ties and examine how such ties affect ESG ratings.

Specifically, we focus on Moody's and S&P's acquisitions of ESG rating agencies Vigeo Eiris and RobecoSAM. Most credit rating agencies (CRAs), including Moody's and S&P, use the so-called issuer-pay business model and generate most of their revenue from bond issuers. This compensation arrangement creates incentives for CRAs to cater to the preferences of bond issuers.<sup>1</sup> Although ESG rating agencies currently obtain revenue from investors or other users of ESG ratings, the acquisition of ESG rating agencies by CRAs represents a shock to the commercial ties between ESG rating agencies and certain rated firms (i.e., CRAs' credit rating clients). After the acquisitions, the existing credit rating clients of the CRAs become "indirect clients" of the ESG rating agencies via their parent companies. As a result, the ESG rating agencies may experience pressure from the parent companies to issue favorable ESG ratings to their credit rating clients that desire higher ESG ratings.<sup>2</sup> Essentially, the CRAs' conflict-of-interest problem spills over to their ESG rating subsidiaries. The spillover may take the form of explicit directives from the parent CRAs, or it can work more subtly via the "tone at the top" or a corporate culture of currying favor with clients. Moreover, the substantial discretion in the ESG rating process facilitates favoritism toward CRAs' clients.<sup>3</sup> Overall, we predict that after being acquired by Moody's and S&P, ESG rating agencies issue higher ESG ratings to the existing credit rating clients of these CRAs, relative to non-clients.

CRAs often respond to criticisms of potential conflicts of interest by stating their incentives to maintain reputational capital (e.g., Pittman [2008]). However, a substantial body of empirical evidence on credit rating inflation suggests that reputation concerns do not eliminate conflicts of interest (e.g., Becker and Milbourn [2011]). Although the reputational and regulatory costs of credit rating inflation have increased substantially since the financial crisis,<sup>4</sup> the cost of ESG rating inflation likely remains considerably lower because the ESG rating industry is currently unregulated and experiences severe rating disagreement. Moreover, relative to credit ratings, which can be verified by future default events and disciplined by the market for credit risk (e.g., Piccolo and Shapiro [2022]), ESG ratings are much less verifiable, and there is currently no market for ESG risks. Nevertheless, establishing a strong reputation from the outset is imperative for capturing

<sup>1</sup> Prior literature has documented mounting evidence that conflicts of interest arising from the issuer-pay model lead to optimistically biased credit ratings (e.g., Jiang, Stanford, and Xie [2012], Bonsall [2014], Baghai and Becker [2018], Cornaggia, Cornaggia, and Israelsen [2023]).

<sup>2</sup> Investors tend to pay a premium for shares of firms with high ESG ratings (Ramkumar [2022]).

<sup>3</sup> ESG rating agencies could either use their discretion within the existing methodologies or adjust the rating methodologies to favor their credit rating clients. While examining the exact means of generating biased ESG ratings is beyond the scope of this study, the anecdotal evidence is more consistent with the former in our setting.

<sup>4</sup> See, for example, Bolton, Freixas, and Shapiro [2012], Bongaerts, Cremers, and Goetzmann [2012], Dimitrov, Palia, and Tang [2015], and DeHaan [2017].

market share in the rapidly expanding ESG ratings market. To the extent that the CRAs perceive that the long-run reputational cost of ESG rating inflation outweighs the economic benefit, we may not observe an increase in ESG ratings for the clients of CRAs after the acquisitions.

We use a stacked difference-in-differences (DiD) regression to estimate the treatment effect across the two acquisition events (e.g., Gormley and Matsa [2011], Cengiz et al. [2019]). Specifically, we define the treated group as firms that have either entity-level or security-level credit ratings issued by Moody's or S&P before the acquisitions of Vigeo Eiris and RobecoSAM. Prior to the acquisitions, there were no business relationships between the ESG rating agencies and the treated firms. After the acquisitions, the treated firms were commercially connected to the ESG rating agencies through their credit rating business with Moody's or S&P. The change in commercial ties is likely exogenous to individual rated firms because the acquisitions are driven largely by the CRAs' strategic expansion into the ESG rating space, rather than the characteristics of individual rated firms. The control group consists of firms that receive ESG ratings from Moody's or S&P but do not have any credit rating business with Moody's or S&P throughout the sample period.

One potential concern regarding our DiD design is that changes in the actual ESG performance or unobservable characteristics of the treated firms relative to those of control firms could confound our results. To alleviate this concern, we adopt two design features. First, we use the relative ESG rating as the dependent variable. Using the relative ESG rating allows us to hold firm-year constant and compare Moody's (S&P) ESG rating against a consensus ESG rating. Specifically, we subtract the average of Refinitiv, MSCI, and Sustainalytics ESG ratings from Moody's or S&P ESG ratings and use the difference as our dependent variable. The identification assumption is that any change in actual ESG performance should have a similar effect on ratings from different rating agencies for the same firm.<sup>5</sup> Second, we include event  $\times$  firm, event  $\times$  country  $\times$  year, and event  $\times$  industry  $\times$  year fixed effects, which control for unobserved time-invariant firm, time-variant country, and time-variant industry factors. We allow these fixed effects to vary by event to capture any differential fixed differences across the events.

Consistent with our prediction, we find that after ESG rating agencies are acquired by Moody's and S&P, they issue higher ESG ratings to the treated firms than to the control firms. Specifically, after the acquisitions, the ESG ratings of existing credit rating clients of Moody's and S&P increase by 17.16% of the standard deviation of the relative ESG ratings. Our dynamic analysis suggests that our results are unlikely to be driven by different trends in ESG ratings between the treated and control firms before the

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<sup>5</sup> Although the assumption might appear strong, we only require that any potential discrepancies in ratings do not vary systematically with the treated status of the sample firms.

acquisitions. In cross-sectional analyses, we find that the increase in ESG ratings after the acquisitions is more pronounced for treated firms with more intensive business relationships with Moody's or S&P, which suggests that CRAs are more likely to cater to important clients (e.g., Bolton, Freixas, and Shapiro [2012]). In addition, we show that the treatment effect is weaker for firms with more transparent ESG disclosures, which suggests that transparent ESG disclosures facilitate the evaluation of actual ESG performance and the detection of ESG rating inflation by external stakeholders. Moreover, the result is weaker for firms with higher long-term institutional holdings, consistent with long-term institutional investors' strong monitoring role in constraining ESG rating inflation. Collectively, these results provide further credence to the conflict-of-interest interpretation of our main findings.

We next explore the potential benefits of ESG rating inflation to the client firms and the CRAs. First, we find that the changes in treated firms' ESG ratings are positively associated with the changes in the number and amount of green bonds issued after the acquisitions (relative to pre-acquisitions). This finding suggests that client firms benefit from the inflated ESG ratings in terms of successful issuances of green bonds. Second, using new bonds issued over our sample period, we find that after the acquisitions, the bonds issued by treated firms with higher Moody's or S&P ESG ratings are more likely to have credit ratings from Moody's or S&P. This result suggests that favorable ESG ratings help Moody's and S&P maintain their credit rating business. Overall, it appears that favorable ESG ratings benefit both CRAs and their clients.

Commercial ties also allow ESG rating agencies to get better access to private information and the management team of the rated firms (Mehran and Stulz [2007]). Therefore, an important alternative explanation of our findings is that the private information obtained through commercial ties leads to higher ESG ratings if such information tends to be positive. Arguably, the private information should also improve the informativeness of ESG ratings. Thus, to explore the alternative explanation, we examine whether the informativeness of ESG ratings increases or decreases after the consolidation of credit rating and ESG rating businesses. Using ESG news data from Truvalue Labs and RepRisk, we find that the ESG ratings of treated firms become less informative in predicting subsequent ESG news during the post-acquisition period. We find similar results using greenhouse gas emissions as a proxy for future ESG performance. These findings suggest that the quality of ESG ratings declines, which is less consistent with the private-information interpretation of our main results.

Our study contributes to the nascent academic literature on how the economic incentives of rating providers affect the quality of ESG ratings. This literature is important because ESG ratings are directing trillions of dollars of fund flows, and "investors are paying a record premium for shares of companies with the best ESG scores over the ones with the worst ratings" (Ramkumar [2022]). Earlier studies have documented disagreements

in ESG ratings, as well as the determinants and consequences of such disagreements.<sup>6</sup> However, evidence on rating disagreements does not speak directly to the quality of ESG ratings. Berg, Kölbel, and Rigobon [2022] call for research on the sources of rating disagreements, particularly the economic incentives of raters to adjust ESG ratings. More recent studies have begun to explore economic incentives that lead to ESG rating bias, which is a clear indicator of ESG rating quality (e.g., Agrawal et al. [2023], Tang, Yan, and Yao [2023]). Our study complements this line of research by showing that the economic incentives arising from commercial ties lead to ESG rating bias. Moreover, our findings suggest that rating bias driven by economic incentives likely represents a significant source of ESG rating divergence.

Our results have implications for regulators. We provide the first evidence on the existence of commercial tie–driven conflicts of interest in the ESG rating space, confirming the concerns of regulators and academics. In its recommendations for securities regulators, the International Organization of Securities Commissions (IOSCO) suggests that the identification, management, and mitigation of conflicts of interest are essential to ensure the production of high-quality ESG ratings (IOSCO [2021]). In March 2023, the UK government also proposed regulating ESG rating providers, citing potential conflicts of interest arising from business relationships as an important reason for the proposed regulation (HM Treasury [2023]). These recommendations and proposals are largely based on anecdotal evidence and survey findings. In contrast, our systematic and plausibly causal evidence on the effect of conflicts of interest on ESG ratings offers more scientific inputs to regulatory decisions on whether and how to regulate ESG rating providers (Leuz and Wysocki [2016]). Moreover, although we focus on CRAs' acquisitions of ESG rating agencies, the implications of our findings extend to a broad set of financial services firms that are buying their way into the ESG rating industry while maintaining their traditional business relationships.

Our findings also echo the concerns recently raised by the Securities and Exchange Commission (SEC) regarding CRAs' non-credit rating products and services (SEC [2022]). Specifically, the SEC staff “identified the potential risk for conflicts of interest if an NRSRO offers [credit] ratings and non-rating ESG products and services” (SEC [2022]). The CRA literature focuses on the influence of conflicts of interest on the quality of *credit ratings*.<sup>7</sup> In contrast, our study explores how conflicts of interest affect CRAs' *non-credit rating business*, namely, ESG ratings. Our study indicates that credit

<sup>6</sup> See, for example, Chatterji et al. [2016], Gibson, Krueger, and Schmidt [2021], Avramov et al. [2022], Berg, Kölbel, and Rigobon [2022], Christensen, Serafeim, and Sikochi [2022], and Serafeim and Yoon [2023].

<sup>7</sup> See, for example, Jiang, Stanford, and Xie [2012], Bonsall [2014], Eling and Hau [2015], Kraft [2015], Baghai and Becker [2018], Beatty et al. [2019], Cornaggia, Cornaggia, and Israelsen [2023], and Bonsall et al. [2024].

rating business relationships could compromise the independence and impartiality of the ESG rating process by affiliates of major CRAs.

## 2. *Institutional Background*

### 2.1 CREDIT RATINGS VERSUS ESG RATINGS

A credit rating is an assessment of the creditworthiness of a firm or a debt security, ranging from AAA (the best rating) to C (the worst rating). It estimates the probability of default on debt obligations and the potential losses of debtholders in the event of default. Credit ratings play an important role in certifying the quality of debt obligations in the capital markets. Regulators and investors rely heavily on credit ratings. For example, many insurance companies and pension funds are allowed to hold only investment-grade debt securities (i.e., those with a rating of BBB or better). Similarly, ESG ratings provide a third-party assessment of firms' exposure to environmental, social, and governance risks, and investors increasingly use these assessments in their investment decisions. In a recent survey conducted by the CFA Institute, 63% of investment professionals responded that they used ESG ratings as part of their data analysis, and 73% of them expected that ESG ratings would have a greater influence on firms' cost of capital in the next five years (CFA Institute [2020]).

Despite their similarities, credit ratings and ESG ratings differ in at least three ways. First, the credit rating business is highly regulated and dominated by three players—Moody's, S&P, and Fitch. In contrast, the ESG rating business, which is still in its infancy, is unregulated. It also has many different players, such as MSCI, Refinitiv, Sustainalytics, Vigeo Eiris, and RobecoSAM, and they often give different ESG ratings to the same firm. For example, in 2018, Sustainalytics issued an average ESG score to General Motors Co. (GM), whereas MSCI rated GM at the very bottom. The discrepancy was driven by the different weights that Sustainalytics and MSCI assigned to GM's focus on low-fuel efficiency vehicles (Sindreu and Kent [2018]). In contrast, the disagreement among the three major CRAs tends to be smaller: both S&P and Fitch gave GM a BBB credit rating.

Second, the credit ratings provided by the three major rating agencies are paid for by the firms being rated, whereas ESG ratings are paid for by the investors who use them.<sup>8</sup> This difference in the rating fee model can lead to different incentives for credit rating and ESG rating agencies. On the one hand, CRAs need to maintain their reputation as information intermediaries that provide accurate assessments of the credit risk of firms or debt securities. On the other hand, they may cater to their client firms by providing favorable credit ratings, which helps reduce the firms' cost of

<sup>8</sup> Investor-paid credit rating agencies such as Egan-Jones Rating Company (EJR) have also attracted more attention since the 2007–2008 financial crisis. For example, Xia [2014] finds that S&P's credit ratings become more informative in response to the entry of EJR.



capital. For example, Cornaggia, Cornaggia, and Israelsen [2023] directly link credit rating fees to bond ratings and find strong evidence that municipal bond issuers who pay more for bond ratings receive higher ratings. In contrast, ESG ratings are paid for by the investors who use them, and ESG rating agencies do not receive rating revenue from the firms they rate.<sup>9</sup> As a result, ESG rating agencies may not have incentives to cater to the firms they rate, or such incentives may be less pronounced.

Third, although the quality of credit ratings is observable to the debt market, the quality of ESG ratings is difficult to verify. The informativeness of credit ratings can be measured through their relation to bond yields or credit default spreads and can be verified *ex post* by actual firm defaults (Becker and Milbourn [2011]). In contrast, it is difficult for investors to observe firms' actual performance on ESG issues such as employee satisfaction and relation to the community. Furthermore, as mentioned above, ESG rating agencies use different scopes, measurements, and weights of categories to calculate ESG ratings (Berg, Kölbl, and Rigobon [2022]), making it harder for investors to judge the quality of ESG ratings.

## 2.2 THE ACQUISITION OF ESG RATING AGENCIES BY CRAS

Since the launch of the United Nations Principles for Responsible Investment (PRI), the number of PRI signatories grew from 63 in 2006 to 3,826 in 2021, and their assets under management had increased from \$6.5 trillion to over \$121 trillion as of March 2021 (PRI [2021]). With the exponential growth in sustainable investing, the financial services industry recognizes that ESG ratings will be one of the highest-growth areas. For example, the annual growth rate of the market for ESG data was 28%, and the expected market value was US\$1.3 billion in 2022 (Opimas [2022]). Although the ESG ratings sector has traditionally been dominated by index providers such as MSCI, Moody's and S&P began moving aggressively into the market in 2019, looking to capitalize on increasing demand for ESG data. It is also important for the CRAs to demonstrate the systematic and transparent incorporation of material ESG issues into credit ratings.

On April 15, 2019, Moody's announced that it had acquired a majority stake in Vigeo Eiris, a leading international ESG rating agency. Vigeo Eiris was founded in 2002 and was one of the ten agencies that received ARISTA 3.0 certification, a voluntary European standard on the quality and transparency of methodologies and processes used by ESG rating agencies (Novethic [2014]). It offers a wide range of services for investors (decision-making support covering all sustainable and ethical investment approaches including ratings, databases, sector analyses, portfolio analyses, structured products, indices, and more) and for firms and organizations (supporting

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<sup>9</sup> However, ESG rating agencies could receive revenue from firms by providing non-rating services related to ESG issues. For example, Sustainalytics provides bond issuers with advice on the environmental and social benefits of green bonds and information on how to implement green bonds (Novethic [2014]).

the integration of ESG criteria into business functions and strategic operations).<sup>10,11</sup> According to Moody's press release, the acquisition of Vigeo Eiris helps promote global ESG standards and reflects the increasing relevance of ESG considerations to firms and investors (Moody's [2019]).<sup>12</sup> We focus on the ESG rating that Vigeo Eiris offers to investors, which measures the performance of firms based on 38 ESG issues in six fields (environment, human rights, human resources, community involvement, business behavior, and corporate governance). For each ESG issue, Vigeo Eiris collects information from various sources such as interviews with the rated firms and their stakeholders, and it reviews the firm's strategy and managerial processes in detail.

Following Moody's acquisition of Vigeo Eiris, S&P Global acquired the ESG rating arm of RobecoSAM on November 21, 2019, escalating an arms race with Moody's. According to S&P's press release, the acquisition is intended to enhance its ESG data services and maintain its leading position in response to more competition in the ESG data space (S&P Global [2019]). RobecoSAM was an asset management firm headquartered in Switzerland, and it offered equity and bond investment products with an emphasis on sustainable investing, quantitative analysis, and research-based approaches. S&P and RobecoSAM had already had a long relationship, since S&P's index arm used RobecoSAM data to create the Dow Jones Sustainability Index in 1999. However, the acquisition deal meant that S&P would be directly in charge of RobecoSAM's annual survey of corporate sustainability assessment (CSA) for the purpose of issuing ESG ratings.<sup>13</sup> The CSA is an important part of the RobecoSAM ESG rating process. It combines publicly disclosed information about firms' sustainability performance and firms' direct participation through 130 questions about general and industry-specific ESG topics. Materiality-weighted scores (0–100) are then assigned to each of these questions and grouped into 15–30 themes of the most consequential sustainability risks and opportunities within industries. This process results in scores for the environment (E), social (S), and governance (G) dimensions. Finally, these three dimension scores are aggregated to produce a single ESG score (S&P Global [2021]).<sup>14</sup>

<sup>10</sup> <https://events.eco-business.com/partners/vigeo-eiris#:~:text=Vigeo%20Eiris%20is%20an%20independent, strategy%20and%20operations%20of%20organizations>.

<sup>11</sup> It is possible that Vigeo Eiris issues ESG ratings at firms' request. However, even if there are additional potential ESG rating biases from other commercial ties, it would mean that our estimated ESG rating bias is the lower bound. More importantly, these other commercial ties are unlikely to coincide with the treated status in our research design.

<sup>12</sup> In addition to acquiring Vigeo Eiris, Moody's acquired Four Twenty Seven, a provider of climate data and risk analysis, as well as a minority stake in ESG and sustainability specialist SynTao Green Finance in China.

<sup>13</sup> After the acquisition, more than 20 RobecoSAM employees moved to S&P Global, but the asset management business remained within RobecoSAM. <https://citywireselector.com/news/over-20-staff-to-exit-robecosam-after-esg-rankings-sold-to-sandp/a1296808>.

<sup>14</sup> Each dimension has unique weightings, depending on the industry, that aggregate to 100%.

CRAs' acquisitions of ESG rating agencies could lead to synergies in the credit and ESG rating businesses given the similarity between CRAs' and ESG rating agencies' roles as information intermediaries.<sup>15</sup> For example, credit rating analysts conduct annual meetings with management, during which they may learn private information. Such information may include new product plans, the minutes of board meetings, and potential acquisition/merger plans (Jorion, Liu, and Shi [2005]), all of which would help CRAs make soft adjustments in assessing credit risk (Kraft [2015]). Some of the private information about management quality and governance structure could also be useful in evaluating firms' ESG performance and increasing the informativeness of ESG ratings. Conversely, firms' investment in ESG activities can facilitate their access to the bond market and affect the assessment of credit risk during a crisis period (Amiraslani et al. [2023]). Consistent with this view, Michalski and Low [2021] show that ESG variables are important determinants of credit ratings, particularly after the financial crisis of 2007–2008.

However, these acquisitions could also create potential conflicts of interest, as CRAs assign credit ratings and ESG ratings to the same firms. Given CRAs' strong incentives to cater to clients due to the issuer-pay model (Griffin, Nickerson, and Tang [2013], Kedia, Rajgopal, and Zhou [2014], Kraft [2015], Beatty et al. [2019]), they may favor their existing credit rating clients and pressure their ESG subsidiaries to assign higher ESG ratings to their clients after acquisitions. Such incentives could arise from CRAs' need to maintain or attract credit rating business from client firms. Furthermore, as discussed above, the unregulated nature of the ESG rating business, the disagreement in ESG ratings, and the less verifiable nature of ESG ratings also make the inflation of ESG ratings easier and less likely to be detected. In contrast, credit rating inflation is costly due to increasing regulatory pressure after the financial crisis (Cheng and Neamtiu [2009], DeHaan [2017]). As a result, the CRAs' conflict-of-interest problem can spill over to their ESG rating subsidiaries, through explicit directives from the parent CRAs, via the "tone at the top" channel, or through a corporate culture of currying favor with clients. We thus predict that after Moody's (S&P) acquires Vigeo Eiris (RobecoSAM), firms that have existing credit rating business with Moody's (S&P) receive higher ESG ratings.<sup>16</sup>

<sup>15</sup> In September 2021, Fitch Group also announced the launch of ESG rating products, but not via acquisitions: <https://www.fitchratings.com/research/banks/fitch-group-announces-creation-of-sustainable-fitch-launches-esg-ratings-products-15-09-2021>.

<sup>16</sup> The acquisitions by Moody's and S&P might also accelerate the consolidation of the ESG rating industry and affect the competition dynamic among ESG rating agencies. We leave this interesting question for future research.

### 3. Research Design and Data

#### 3.1 RESEARCH DESIGN

To examine the effect of credit rating ties on firms' ESG ratings, we estimate the following stacked DiD model that combines the Moody's and S&P acquisitions:

$$\begin{aligned}
 ESG\ Rating_{i,t} = & \beta_0 + \beta_1 Treat_i \times Post_t + \sum FirmControl_{i,t-1} + Event \\
 & \times Firm\ Fixed\ Effects + Event \times Country \times Year\ Fixed\ Effects \\
 & + Event \times Industry \times Year\ Fixed\ Effects + \varepsilon_{i,t}.
 \end{aligned} \tag{1}$$

The dependent variable is a firm's relative ESG rating score.<sup>17</sup> We use the average ESG ratings from Refinitiv, MSCI, and Sustainalytics (i.e., the "consensus ESG rating") as benchmarks to calculate relative ESG ratings. Specifically, we follow Berg, Kölbel, and Rigobon [2022] and normalize the ESG ratings from different rating agencies by subtracting them from the respective mean and dividing by the respective standard deviation. We then calculate the difference between the normalized Moody's (S&P) and the average of the normalized Refinitiv, MSCI, and Sustainalytics ESG ratings for the same firm and use it as the dependent variable. A higher relative ESG rating score indicates better as-rated ESG performance.

The use of the relative ESG rating score is a unique advantage of our setting. It helps mitigate the concern that treated firms may improve their ESG performance more than control firms or experience time trends that differ from those of control firms. The identification assumption is thus that any change in actual ESG performance should have a similar effect on ratings from different rating agencies for the same firm. Moreover, this approach essentially controls for the effect from observable or unobservable time-varying firm factors on ESG ratings because any such effect will be largely captured by the consensus ESG rating.

It is worth noting that ESG rating agencies may differ in their objectives and approaches to measuring firms' ESG performance (Larcker et al. [2022]). For example, some ESG rating agencies focus on ESG risk mitigation and long-term value creation (e.g., MSCI), whereas others are interested in measuring firms' transparency and commitment to ESG (e.g., Refinitiv). Some ESG rating agencies consider ESG quality relative to industry peers, whereas others measure absolute ESG quality. The consensus ESG ratings might help mitigate the undue influence of rating divergence on our results (Berg, Kölbel, and Rigobon [2022]). Still, there is a possibility that the relative ESG ratings capture the deviations in Moody's (S&P's)

<sup>17</sup> We focus on the overall ESG rating because rating agencies likely have more discretion at the aggregate level. We do not have strong priors about which pillar—E (Environment), S (Society), or G (Governance)—is most likely to be manipulated by rating agencies. In the online appendix (table OA.1), we show that our results are also robust to using the raw ESG rating of Moody's/S&P as the dependent variable.

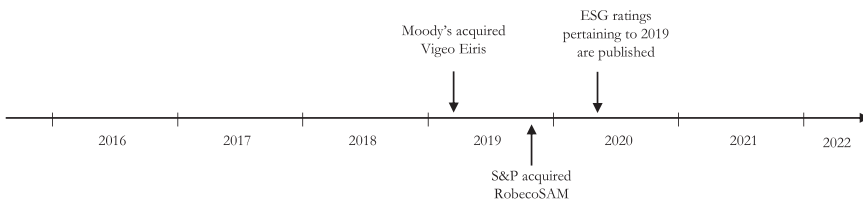


FIG. 1.—Timeline of Acquisition and ESG Rating Publication. This figure presents the timeline of Moody's (S&P's) acquisition of Vigeo Eiris (RobecoSAM) and the publication of the ESG ratings.

objectives and approaches from the consensus, although we do not have a clear expectation on how such deviations should change around the acquisition events.<sup>18</sup> Thus, we suggest readers interpret our results with this caveat in mind.

Capital market intermediaries (e.g., asset management companies and banks) often merge with each other for strategic reasons such as economies of scale in business operations or the expansion of financial product offerings. For example, Jayaraman, Khorana, and Nelling [2002] argue that across-family mutual fund mergers are likely driven by the acquiring fund's desire to increase the choice of funds and investment objectives for shareholders. The reasons for these mergers are thus unrelated to the fundamentals of firms in their portfolio holdings. Since Moody's (S&P's) acquisition reflects its strategic decision to expand to the ESG rating space, the acquisition can also be considered exogenous to individual firms rated by Moody's (S&P). As a result, existing clients of Moody's (S&P) experience an exogenous increase in commercial ties with Vigeo Eiris (RobecoSAM) due to the acquisition. *Treat* is an indicator that equals one for treated firms with Moody's (S&P) entity-level or security-level credit ratings prior to the acquisition, and zero for control firms without Moody's (S&P) credit ratings. *Post* equals one for ESG ratings issued after the acquisition. Although the acquisitions took place during 2019, the ESG ratings pertaining to 2019 were not issued until early 2020. Thus, we include ESG ratings pertaining to 2019 in the post-acquisition period.<sup>19</sup> We present the timeline of the acquisitions and ESG rating publication in figure 1.

<sup>18</sup> After the acquisitions of the ESG rating agencies, the CRAs might change their objectives to systematically focus on certain firm attributes, which could lead to higher ESG ratings for their clients. However, as we will discuss in section 4.3, this interpretation is not necessarily inconsistent with conflicts of interest. Moreover, according to Moody's (S&P), there are no changes in rating methodologies around the acquisitions.

<sup>19</sup> This approach is consistent with that of Christensen, Serafeim, and Sikochi [2022], who confirm that ESG rating variables are publicly released in year  $t + 1$  but pertain to firms' year  $t$  ESG performance (page 153, second paragraph). In the online appendix (table OA.2), we also show that our results are robust to excluding year 2019 and reclassifying year 2019 as a pre-year.

To the extent that credit rating is the dominant business of the parent company, and the parent company has a strong incentive to cater to its clients, it can pressure its ESG subsidiary to increase the ESG ratings of credit rating clients after the acquisition. We thus expect the coefficient on the interaction term  $Treat \times Post$  to be positive and significant.

We consider each acquisition as a separate event and create a dataset for each event. We then combine the acquisition-specific datasets and estimate the average treatment effect across the two acquisitions (Cengiz et al. [2019]). The key advantage of this stacked regression in our setting is that it is an efficient estimator. Specifically, it relies on ordinary least squares (OLS) to determine the weights and applies variance weighting to combine the treatment effects across events efficiently (Baker, Larcker, and Wang [2022]).<sup>20</sup> The stacked regression also allows us to include event  $\times$  firm, event  $\times$  country  $\times$  year, and event  $\times$  industry  $\times$  year fixed effects to control for unobserved time-invariant firm, time-variant country, and time-variant industry factors and allow these factors to vary by acquisition event (e.g., Gormley and Matsa [2011]).<sup>21</sup> This fixed effects structure mitigates the concern that our results are driven by time-invariant fundamental differences between treated and control firms or any industry-level or country-level confounding events.

We draw on prior literature to include control variables that affect ESG ratings (Di Giuli and Kostovetsky [2014], Dyck et al. [2019], Chen, Dong, and Lin [2020], Dai, Liang, and Ng [2021]). Specifically, we control for firm size and return on assets since large and profitable firms have more resources to engage in ESG activities. Similarly, we control for leverage, tangibility, cash holding, and dividend because firms with financial constraints have fewer resources for ESG activities. We include R&D expenditure and an R&D missing indicator as ESG investment is associated with discretionary spending. Furthermore, we control for sales growth and Tobin's Q as firms with high growth opportunities tend to care more about sustainability. We also include analyst following and institutional holdings as market participants such as analysts and institutional investors can actively influence firms' ESG activities (Dimson, Karakaş, and Li [2015], Chen, Dong, and Lin [2020]).<sup>22</sup> Detailed definitions of the variables are available in

<sup>20</sup> The stacked DiD regression is often used in settings when treatment events are staggered in time and there is treatment effect heterogeneity (Baker, Larcker, and Wang [2022], Barrios [2022]). However, in our case, the two treatment events occurred months apart in 2019.

<sup>21</sup> In untabulated analyses, we also interact the control variables with the event indicator. Our results still hold.

<sup>22</sup> We do not control for a firm's ESG disclosure in model (1) for two reasons. First, our research design inherently controls for a firm's ESG disclosure. Specifically, if the quality of ESG disclosure affects ESG ratings (e.g., Raghunandan and Rajgopal [2022]) and the effect can change over time, this (changing) effect should be similar across different rating agencies, and the effect will be differentiated away by benchmarking against the consensus ESG ratings. Second, a firm's ESG disclosure might be affected by the acquisition events, which can cause the "bad control problem" (e.g., Angrist and Pischke [2009], Whited et al. [2022]). On the one

appendix A. All continuous variables are winsorized at the 1% and 99% levels. We cluster the standard errors at the firm level.<sup>23</sup>

### 3.2 DATA

We obtain ESG ratings from Moody's VE Data Lab and S&P's website,<sup>24</sup> which cover international firms before and after Moody's (S&P) acquired Vigeo Eiris (RobecoSAM). Although S&P's ESG rating is issued annually, Moody's ESG rating is not issued every year. To maintain consistency with S&P's ESG rating, we annualize Moody's ESG rating by taking the most recent rating score for the firm. Specifically, if the ESG rating is missing for a given year, we consider the ESG rating unchanged from the most recent rating.<sup>25</sup> To facilitate the comparison of ESG ratings, we keep only the firms that have ESG ratings both before and after the acquisition over the period of 2016 to 2021. Thus, we exclude any firms that are dropped or added by ESG rating agencies after the acquisitions.<sup>26</sup> We also exclude observations without necessary financial information in Worldscope. We rely on Moody's Default & Recovery Database and Capital IQ S&P Credit Ratings to identify whether a firm has a credit rating issued by Moody's or S&P. To ensure that firms do not endogenously select the credit rating business relation, we exclude firms that begin or terminate credit rating relations after the acquisition. Nevertheless, in section 6.2, we show that our results are robust to including firms that switch credit rating relations. We further exclude countries with fewer than 10 observations and countries with only treated

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hand, it is possible that CRAs inform their clients about the necessary ESG disclosures to boost their ESG ratings, which leads to more ESG disclosures for client firms. On the other hand, it is in the interests of client firms to maintain a more opaque ESG information environment to help camouflage ESG rating inflation in the post-acquisition period. In an untabulated analysis, we find evidence that supports the latter prediction: CRAs' client firms (i.e., treated firms) reduce ESG disclosure after the acquisitions relative to non-client firms. Furthermore, we show that our results are robust to controlling for ESG disclosure in the online appendix (table OA.3).

<sup>23</sup> We do not cluster standard errors by firm and year because cluster-robust standard errors are downwardly biased when the number of clusters is small (Cameron, Gelbach, and Miller [2008], Angrist and Pischke [2009], Conley, Gonçalves, and Hansen [2018]). However, we show that our results are robust to clustering by firm and year in the online appendix (table OA.4). Our results are also robust to clustering by country or industry.

<sup>24</sup> We downloaded the Moody's and S&P ESG ratings at multiple points in time and found that their ratings are historically accurate.

<sup>25</sup> We consulted Moody's about the years without issued ratings and learned that the absence of a newly issued rating means that the rating remained unchanged from the most recently issued one. As long as Moody's updates its ESG ratings in response to new ESG incidents or events, the updated ESG ratings will be accurately reflected in our analysis.

<sup>26</sup> Both Moody's and S&P expanded their coverage of ESG ratings to small firms after the acquisitions. However, we do not find any evidence that firms that have credit rating business with Moody's (S&P) are more likely to be covered by the ESG rating subsidiaries after the acquisitions (untabulated). This could be because credit rating clients are generally large firms, which were already covered by the ESG rating agencies prior to the acquisitions. Thus, the increase in the coverage does not impact our inference.

**TABLE 1**  
*Sample Selection*

	Full Sample Obs.	Moody's Subsample Obs.	Moody's Subsample Firms	S&P Subsample Obs.	S&P Subsample Firms
Firms with ESG ratings pre- and post-acquisition from 2016 to 2021	56,796	30,229	5,391	26,567	4,971
Drop observations without necessary financial information from Worldscope	47,282	23,647	4,583	23,635	4,545
Drop observations without ESG ratings from Refinitiv, MSCI, or Sustainalytics	33,916	16,852	3,431	17,064	3,676
Drop firms without observations in either the pre- or post-acquisition period	29,431	15,077	2,731	14,354	2,589
Drop firms that change credit rating relation during the sample period	26,878	13,814	2,496	13,064	2,344
Drop countries with less than 10 observations	26,810	13,773	2,488	13,037	2,339
Drop countries with only treated or only control firms	26,730	13,761	2,486	12,969	2,326
Drop singleton observations within the group of event $\times$ firm, event $\times$ country $\times$ year, and event $\times$ industry $\times$ year fixed effects	25,137	12,977	2,352	12,160	2,185

This table presents the sample selection process.

or only control firms. Finally, we drop singleton observations because we include event  $\times$  firm, event  $\times$  country  $\times$  year, and event  $\times$  industry  $\times$  year fixed effects. The final full sample includes 25,137 observations: 12,977 of them belong to Moody's acquisition event, and 12,160 of them belong to the S&P acquisition event. Table 1 presents the sample selection process.

Table 2 presents the distribution of the sample by event and country/region. Unsurprisingly, the country with the largest number of observations is the United States, which accounts for 24% of the full sample. In robustness checks in section 6.2, we show that our results hold for both U.S. and non-U.S. firms.<sup>27</sup> In general, we observe a positive correlation between the raw ESG ratings of the Moody's and S&P subsamples at the country

<sup>27</sup> In an untabulated analysis, we also find that the results hold if we remove observations from Bermuda or Luxembourg.



**TABLE 2**  
*Sample Distribution by Country/Region*

Country/Region	Full Sample Obs.	Moody's Subsample			S&P Subsample		
		Obs.	Raw ESG Rating	Pct. of Treated Firms	Obs.	Raw ESG Rating	Pct. of Treated Firms
Australia	1,289	621	34.711	0.316	668	35.864	0.302
Austria	114	60	38.842	0.567	54	37.074	0.426
Belgium	161	91	39.348	0.385	70	35.229	0.571
Bermuda	44	44	24.765	0.864			
Brazil	288	131	32.900	0.534	157	43.255	0.777
Canada	1,167	733	31.483	0.337	434	35.546	0.671
Chile	153	77	35.372	0.532	76	58.855	0.842
China	562	247	21.926	0.441	315	18.971	0.387
Colombia	94	47	34.225	0.617	47	64.426	0.489
Denmark	181	109	37.300	0.431	72	30.236	0.292
Egypt	16	8	25.219	0.500	8	19.250	0.500
Finland	198	118	45.317	0.441	80	56.200	0.375
France	656	357	53.510	0.541	299	57.064	0.779
Germany	549	317	42.455	0.495	232	48.418	0.582
Greece	40	22	31.424	0.455	18	32.500	0.667
Hong Kong	767	407	26.509	0.428	360	30.386	0.439
Hungary	24	12	25.528	0.500	12	27.917	0.500
India	553	304	32.069	0.342	249	35.687	0.201
Indonesia	258	121	25.273	0.388	137	20.555	0.226
Ireland	215	109	35.164	0.532	106	36.632	0.792
Israel	110	49	29.328	0.388	61	26.672	0.393
Italy	245	136	45.704	0.654	109	60.385	0.541
Japan	3,943	1,918	28.795	0.253	2,025	32.977	0.208
Korea (South)	638	295	25.182	0.464	343	38.898	0.356
Luxembourg	22	22	37.235	0.727			
Malaysia	450	224	28.661	0.420	226	27.898	0.204
Mexico	228	118	28.749	0.407	110	40.982	0.755
Netherlands	274	149	46.692	0.497	125	61.488	0.632
New Zealand	132	66	32.059	0.061	66	39.318	0.636
Norway	140	65	43.917	0.554	75	38.320	0.467
Philippines	227	110	25.621	0.218	117	26.957	0.094
Poland	196	101	29.164	0.475	95	22.274	0.316
Portugal	65	33	51.942	0.485	32	59.156	0.500
Qatar	95	37	17.414	0.459	58	13.414	0.638
Russian Federation	162	89	32.074	0.674	73	27.959	0.753
Singapore	279	137	33.276	0.423	142	37.289	0.282
South Africa	551	226	38.553	0.367	325	37.225	0.185
Spain	335	174	48.471	0.529	161	65.857	0.739
Sweden	286	169	40.070	0.314	117	43.923	0.684
Switzerland	514	288	35.849	0.403	226	46.792	0.473
Taiwan	886	436	28.554	0.161	450	39.731	0.427
Thailand	254	107	33.591	0.411	147	62.810	0.320

(Continued)

TABLE 2—(Continued)

Country/Region	Full Sample Obs.	Moody's Subsample			S&P Subsample		
		Obs.	Raw ESG Rating	Pct. of Treated Firms	Obs.	Raw ESG Rating	Pct. of Treated Firms
Turkey	233	129	32.185	0.636	104	33.067	0.404
United Arab Emirates	52	30	21.828	0.933	22	15.318	0.818
United Kingdom	1,345	850	39.838	0.320	495	45.881	0.535
United States	6,146	3,084	31.906	0.860	3,062	33.076	0.810

This table presents the sample distribution by country/region. The average of raw ESG ratings and percentage of treated firms for each country/region are reported.

level. For example, in the Moody's subsample, firms from the United Kingdom have significantly higher raw ESG ratings (39.838) than those from Australia (34.711). A similar pattern exists for the raw ESG ratings of firms from these two countries in the S&P subsample. The proportion of treated firms varies across countries. Consistent with its mature corporate bond market, the United States is among the countries/regions that have the highest fraction of treated firms in both subsamples: 86% (81%) of U.S. firms covered by Vigeo Eiris (RobecoSAM) have credit ratings issued by Moody's (S&P) prior to the acquisition.

Panel A of table 3 presents the summary statistics for the full sample. As we normalize the ESG ratings to obtain the relative ESG ratings, the mean of the relative ESG ratings is zero by construction. The standard deviation of the relative ESG ratings is 0.781. The sample consists of large firms with median total assets of about 10,456 million U.S. dollars (untabulated). On average, firms in the sample have a leverage ratio of 0.26. They are profitable and hold about 12% of total assets in cash and short-term investments. The average number of analysts following firms is about 16 (untabulated), and the average percentage of institutional holdings is 39.3%.

Panel B of table 3 compares the summary statistics of treated and control firms. The treated and control firms exhibit significant differences across various firm characteristics. For example, compared with control firms, treated firms tend to be larger and more leveraged, and they tend to have more tangible assets and higher institutional ownership. These patterns are consistent with the fact that firms usually request credit ratings when they access the bond market, and only large firms can afford the high fixed cost associated with bond issuance. We control for all these characteristics in our analyses. In robustness tests in section 6.2, we also use the entropy balancing method to reweight treated and control firms to ensure that they have the same mean, variance, and skewness across all covariates. Our results remain robust.

**TABLE 3**  
Summary Statistics

Panel A: Full Sample								
	<i>N</i>	<i>Mean</i>	<i>SD</i>	<i>p1</i>	<i>p25</i>	<i>p50</i>	<i>p75</i>	<i>p99</i>
<i>ESG Rating</i>	25,137	0.000	0.781	-1.581	-0.542	-0.069	0.468	2.078
<i>Size</i>	25,137	23.218	1.564	19.835	22.136	23.070	24.190	27.570
<i>Leverage</i>	25,137	0.260	0.176	0.000	0.122	0.246	0.373	0.749
<i>Tangibility</i>	25,137	0.292	0.264	0.001	0.062	0.225	0.465	0.939
<i>Tobin's Q</i>	25,137	1.826	1.431	0.695	1.028	1.305	1.987	9.200
<i>ROA</i>	25,137	0.072	0.075	-0.146	0.028	0.061	0.104	0.333
<i>Cash</i>	25,137	0.118	0.129	0.000	0.026	0.080	0.163	0.650
<i>Sales growth</i>	25,137	5.758	16.102	-36.795	-1.847	4.209	11.131	77.380
<i>R&amp;D missing</i>	25,137	0.575	0.494	0.000	0.000	1.000	1.000	1.000
<i>R&amp;D</i>	25,137	1.298	2.841	0.000	0.000	0.000	1.113	15.065
<i>Dividend</i>	25,137	2.414	3.080	0.000	0.438	1.475	3.066	16.847
<i>Analyst</i>	25,137	2.697	0.653	0.000	2.398	2.773	3.135	3.784
<i>Institution</i>	25,137	0.393	0.298	0.027	0.157	0.274	0.632	1.000

Panel B: Treated vs. Control Group							
	<i>Treated (N = 12,530)</i>			<i>Control (N = 12,607)</i>			<i>Mean</i>
	<i>Mean</i>	<i>p50</i>	<i>SD</i>	<i>Mean</i>	<i>p50</i>	<i>SD</i>	<i>Difference</i>
<i>Size</i>	24.055	23.907	1.402	22.386	22.335	1.240	1.668***
<i>Leverage</i>	0.297	0.285	0.164	0.224	0.198	0.179	0.074***
<i>Tangibility</i>	0.295	0.206	0.282	0.289	0.237	0.244	0.006*
<i>Tobin's Q</i>	1.605	1.251	1.024	2.046	1.375	1.715	-0.441***
<i>ROA</i>	0.063	0.055	0.067	0.080	0.068	0.082	-0.017***
<i>Cash</i>	0.088	0.058	0.104	0.148	0.105	0.144	-0.060***
<i>Sales growth</i>	4.887	3.538	15.432	6.624	4.940	16.698	-1.737***
<i>R&amp;D missing</i>	0.629	1.000	0.483	0.521	1.000	0.500	0.108***
<i>R&amp;D</i>	1.042	0.000	2.550	1.552	0.000	3.082	-0.510***
<i>Dividend</i>	2.054	1.336	2.480	2.772	1.594	3.541	-0.718***
<i>Analyst</i>	2.864	2.996	0.581	2.530	2.639	0.677	0.334***
<i>Institution</i>	0.501	0.436	0.323	0.285	0.219	0.224	0.216***

This table presents the summary statistics of our sample. Panel A reports the summary statistics for the full sample. Panel B reports the summary statistics of treatment and control firms separately. Detailed definitions of the variables are available in appendix A.

## 4. Main Results

### 4.1 BASELINE RESULTS

Table 4 shows the results of the DiD analysis. We report the results for the full sample in column 1. Throughout the analyses, we estimate the models using OLS. The coefficient on  $Treat \times Post$  is positive and significant at the 1% level. In terms of economic significance, an increase of 0.134 in the relative ESG ratings represents 17.16% of its standard deviation.<sup>28</sup> These

<sup>28</sup> The magnitude is 45.12% (0.134/0.297) if we compare it with the within-fixed-effects standard deviation of the dependent variable, i.e., the standard deviation of the residual of regressing the dependent variable on fixed effects (Dey and White [2021], Breuer and DeHaan [2024]).

**TABLE 4**  
*Commercial Ties and ESG Ratings: Main Results*

	(1) ESG Rating Full Sample	(2) ESG Rating Moody's Subsample	(3) ESG Rating S&P Subsample
<i>Treat</i> × <i>Post</i>	<b>0.134<sup>***</sup></b> (7.12)	<b>0.146<sup>***</sup></b> (6.03)	<b>0.122<sup>***</sup></b> (4.20)
<i>Size</i>	-0.023 (-0.84)	-0.101 <sup>***</sup> (-2.90)	0.059 (1.43)
<i>Leverage</i>	0.081 (1.11)	0.184 <sup>**</sup> (2.05)	-0.040 (-0.34)
<i>Tangibility</i>	-0.182 <sup>*</sup> (-1.66)	-0.220 (-1.59)	-0.128 (-0.74)
<i>Tobin's Q</i>	-0.002 (-0.20)	-0.005 (-0.46)	0.000 (0.04)
<i>ROA</i>	0.055 (0.58)	-0.069 (-0.58)	0.198 (1.31)
<i>Cash</i>	-0.208 <sup>**</sup> (-2.47)	-0.303 <sup>***</sup> (-2.90)	-0.115 (-0.87)
<i>Sales growth</i>	0.001 <sup>**</sup> (2.21)	0.001 <sup>**</sup> (2.13)	0.000 (1.15)
<i>R&amp;D missing</i>	-0.036 (-0.88)	-0.105 <sup>**</sup> (-1.97)	0.041 (0.67)
<i>R&amp;D</i>	0.000 (0.05)	-0.016 <sup>*</sup> (-1.74)	0.017 (1.27)
<i>Dividend</i>	-0.001 (-0.55)	-0.003 (-1.00)	0.000 (0.09)
<i>Analyst</i>	0.019 (0.81)	0.007 (0.23)	0.028 (0.80)
<i>Institution</i>	-0.127 (-1.16)	-0.214 (-1.54)	-0.020 (-0.12)
Event × firm FE	Yes	No	No
Event × country × year FE	Yes	No	No
Event × industry × year FE	Yes	No	No
Firm FE	No	Yes	Yes
Country × year FE	No	Yes	Yes
Industry × year FE	No	Yes	Yes
Observations	25,137	12,977	12,160
Adjusted <i>R</i> -squared	0.789	0.795	0.784

This table presents the regression results of the DiD analysis. The dependent variable *ESG Rating* is defined as the yearly normalized Moody's (S&P) ESG rating minus the average of yearly normalized Refinitiv, MSCI, and Sustainalytics ESG ratings. *Treat* is an indicator that equals one for treated firms with Moody's (S&P) credit ratings prior to the acquisition, and zero for control firms without Moody's (S&P) credit ratings prior to the acquisition. *Post* equals one for ESG ratings issued after the acquisition. Column 1 shows the results for the full sample. Columns 2 and 3 show the results for the Moody's subsample and the S&P subsample, respectively. Detailed definitions of the variables are available in appendix A. Constant is included but not reported. Standard errors are clustered at the firm level. \*\*\*, \*\*, and \* denote statistical significance at the 1%, 5%, and 10% levels, respectively.

results are consistent with Moody's (S&P) catering to existing credit rating clients by giving them higher ESG ratings. Furthermore, the estimated effect represents ESG rating bias over and above the consensus ESG rating. Therefore, our finding suggests that rating bias stemming from commer-

cial ties is an important source of the ESG rating divergence. Berg, Kölbel, and Rigobon [2022] decompose the ESG rating divergence and show that the measurement divergence is the main driver of ESG rating divergence, which is in turn driven by a “rater effect” or rating bias.<sup>29</sup> They point out that the rater effect is particularly problematic because, unlike noise, it cannot be eliminated by using consensus ratings, and they call for research on the economic incentives of rating agencies to adjust ESG ratings. Our study is one of the first efforts to identify the potential economic incentives driving rating bias (i.e., the most important source of rating divergence).

In columns 2 and 3, we report the results for the Moody’s and S&P subsamples, respectively. The coefficients on  $Treat \times Post$  remain positive and significant in each subsample, suggesting that the higher ESG ratings hold in each acquisition. Since the dependent variable is the relative ESG rating, the interpretation of control variables is not comparable with that of prior research using the raw ESG rating as the dependent variable (e.g., Hong, Kubik, and Scheinkman [2012], Di Giuli and Kostovetsky [2014], Chen, Dong, and Lin [2020]). Most of the control variables are insignificant, consistent with the idea that the consensus ESG rating has already captured the underlying factors that affect ESG performance.

To explore the trend of ESG ratings of treated firms and control firms before and after the acquisition, we interact  $Treat$  with each year indicator (except for 2016 as the baseline year) and include these interaction terms in the regression. Specifically, we estimate the following dynamic DiD model:

$$\begin{aligned}
 ESG\ Rating_{i,t} = & \beta_0 + \beta_1 Treat_i \times Year17 + \beta_2 Treat_i \times Year18 + \beta_3 Treat_i \\
 & \times Year19 + \beta_4 Treat_i \times Year20 + \beta_5 Treat_i \times Year21 \\
 & + \sum Firm\ Control_{i,t-1} + Event \times Firm\ Fixed\ Effects \\
 & + Event \times Country \times Year\ Fixed\ Effects + Event \\
 & \times Industry \times Year\ Fixed\ Effects + \varepsilon_{i,t}.
 \end{aligned} \tag{2}$$

$Year17$ ,  $Year18$ ,  $Year19$ ,  $Year20$ , and  $Year21$  are indicators that equal one for ESG ratings pertaining to 2017, 2018, 2019, 2020, and 2021, respectively. We include the same set of control variables and fixed effects as in model (1). Table 5 shows the regression results. Throughout the full sample (column 1) and individual event subsamples (Moody’s in column 2 and S&P in column 3), the coefficients on  $Treat \times Year17$  and  $Treat \times Year18$  are insignificant, whereas the coefficients on  $Treat \times Year19$ ,  $Treat \times Year20$ , and  $Treat \times Year21$  are significantly positive. Taken together, these results suggest that the increase in treated firms’ ESG ratings happens after the acquisition, not before. Figure 2 presents the coefficient estimates graphically. As

<sup>29</sup> The “rater effect” is also known as the “halo effect.” It refers to the scenario in which a firm that receives a high score in one category is more likely to receive high scores in all the other categories from the same rater.

**TABLE 5**  
*Commercial Ties and ESG Ratings: Dynamic Analysis*

	(1) ESG Rating Full Sample	(2) ESG Rating Moody's Subsample	(3) ESG Rating S&P Subsample
<i>Treat</i> × <i>Year17</i>	−0.013 (−0.91)	0.000 (0.02)	−0.027 (−1.21)
<i>Treat</i> × <i>Year18</i>	−0.019 (−0.96)	−0.012 (−0.45)	−0.022 (−0.76)
<i>Treat</i> × <i>Year19</i>	0.077*** (3.27)	0.093*** (2.97)	0.064* (1.79)
<i>Treat</i> × <i>Year20</i>	0.134*** (5.25)	0.154*** (4.59)	0.117*** (3.01)
<i>Treat</i> × <i>Year21</i>	0.158*** (5.63)	0.181*** (4.95)	0.138*** (3.23)
Firm-level controls	Yes	Yes	Yes
Event × firm FE	Yes	No	No
Event × country × year FE	Yes	No	No
Event × industry × year FE	Yes	No	No
Firm FE	No	Yes	Yes
Country × year FE	No	Yes	Yes
Industry × year FE	No	Yes	Yes
Observations	25,137	12,977	12,160
Adjusted <i>R</i> -squared	0.789	0.796	0.784

This table presents the parallel trends results. The dependent variable *ESG Rating* is defined as the yearly normalized Moody's (S&P) ESG rating minus the average of yearly normalized Refinitiv, MSCI, and Sustainalytics ESG ratings. *Treat* is an indicator that equals one for treated firms with Moody's (S&P) credit ratings prior to the acquisition, and zero for control firms without Moody's (S&P) credit ratings prior to the acquisition. *Year17*, *Year18*, *Year19*, *Year20*, and *Year21* are indicators equal to one for observations in 2017, 2018, 2019, 2020, and 2021, respectively. The indicator for the baseline year 2016 is omitted. Column 1 shows the results for the full sample. Columns 2 and 3 show the results for the Moody's subsample and the S&P subsample, respectively. We include the same set of firm-level controls as in model (1). For brevity, we do not report their coefficients. Constant is also included but not reported. Standard errors are clustered at the firm level. \*\*\*, \*\*, and \* denote statistical significance at the 1%, 5%, and 10% levels, respectively.

in table 5, there are no discernible pre-acquisition trends in ESG ratings. A significant increase in ESG ratings has occurred since 2019 for the full sample (panel A) and individual event subsamples (panel B for the Moody's subsample and panel C for the S&P subsample). Thus, our stacked DiD analysis likely satisfies the parallel trends assumption.

#### 4.2 CROSS-SECTIONAL RESULTS

Bolton, Freixas, and Shapiro [2012] theoretically show that CRAs are more likely to inflate the credit ratings of firms when firms are more important to them, because of repeated or larger bond issues. This insight is supported by the empirical findings of He, Qian, and Strahan [2012], who show that CRAs rated large structured product issuers more favorably. If the increase in ESG ratings after the acquisition is due to Moody's (S&P's) incentive to cater to existing credit rating clients, we expect firms with more intensive credit rating relationships with Moody's (S&P) to benefit more and experience larger increases in ESG ratings. Client firms with frequent

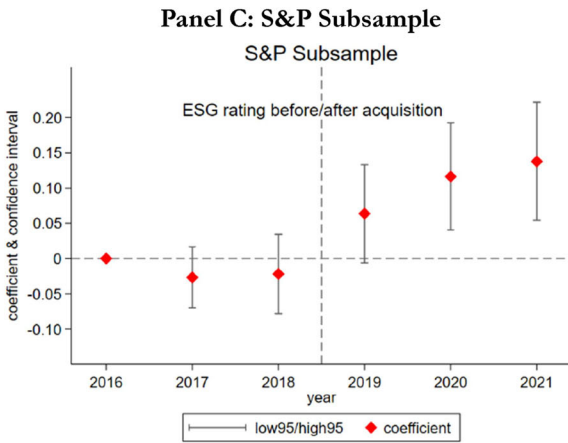
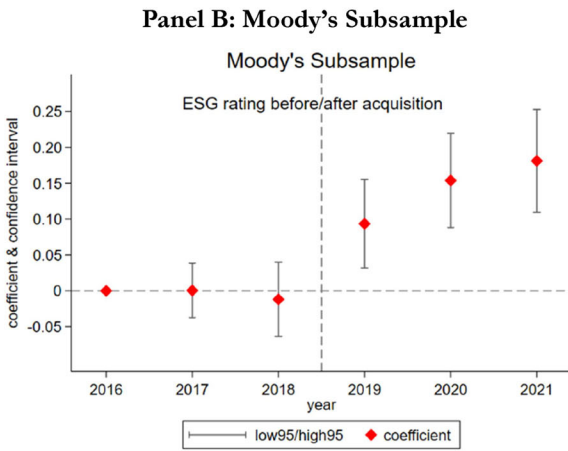
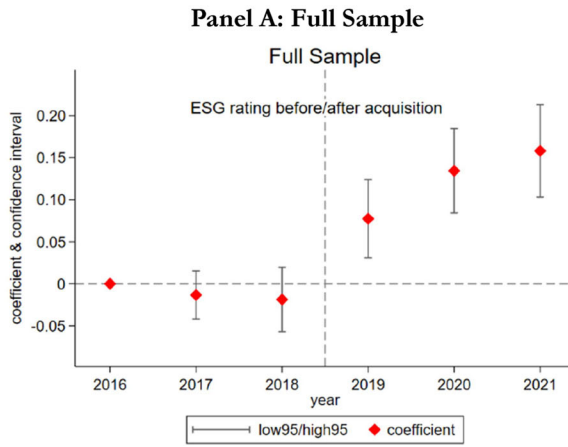


FIG. 2.—Moody's and S&P Acquisitions and ESG Ratings: Diff-in-diff Dynamics. This figure presents the estimation coefficients and 95% confidence intervals from the following regression:  $ESG\ Rating_{s,t} = \beta_0 + \beta_1 Treat_i \times Year17 + \beta_2 Treat_i \times Year18 + \beta_3 Treat_i \times Year19 + \beta_4 Treat_i \times Year20 + \beta_5 Treat_i \times Year21 + \Sigma FirmControl_{k,t+1} + Event \times Firm\ FE + Event \times Country \times Year\ FE + Event \times Industry \times Year\ FE + \varepsilon_{it}$ . *Treat* is an indicator that equals one for treated firms with Moody's (S&P) credit ratings prior to the acquisition, and zero for control firms without Moody's (S&P) credit ratings prior to the acquisition. *Year17*, *Year18*, *Year19*, *Year20*, and *Year21* are indicators equal to one for observations in 2017, 2018, 2019, 2020, and 2021, respectively. The indicator for the baseline year 2016 is omitted. Standard errors are clustered at the firm level. Panels A, B, and C show the results for the full sample, Moody's subsample, and S&P subsample, respectively.

credit rating relationships with CRAs generate more credit rating revenues. Thus, these clients have more bargaining power to pressure CRAs to assign higher ESG ratings, and CRAs have more to lose if they displease these clients. To test this prediction, we construct a measure capturing the intensity of the credit rating relationship: the number of security-level credit ratings. To avoid the potential concern that the acquisition also affects the number of security-level credit ratings, we measure it based on its average value prior to the acquisition. *Treat[High #Credit Rating]* (*Treat[Low #Credit Rating]*) is an indicator that equals one if the treated firm's number of security-level credit ratings is (is not) in the top tercile of the treatment group. Column 1 of table 6 reports the results. We find that the coefficient on *Treat [High #Credit Rating] × Post* is larger than that on *Treat [Low #Credit Rating] × Post*, and the difference in magnitude is significant at the 1% level.<sup>30</sup> These results suggest that the increase in ESG ratings after the acquisition concentrates among treated firms that have more business interaction with the CRAs, consistent with the conflict-of-interest hypothesis.

Inflating ESG ratings could lead to reputational costs and regulatory scrutiny for the rating agencies if the inflation is detected. We thus predict that inflation of ESG ratings is less likely to take place when the inflation is more likely to be detected. For example, when firms have a more transparent ESG information environment, outsiders know more about their actual ESG performance (Krueger et al. [2024]) and thus are more likely to detect inflation in ESG ratings. To test this prediction, we obtain ESG disclosure scores from Bloomberg. These scores capture information that firms disclose about their ESG activities in sustainability reports, annual reports, and corporate websites (Christensen, Serafeim, and Sikochi [2022]). The higher the score, the more transparent the ESG information environment. As before, we measure firms' ESG disclosure scores using the average values prior to the acquisition. *High ESG Disclosure* is an indicator that equals one if a firm's ESG disclosure score is in the top tercile of sample firms.

<sup>30</sup>The p-value pertaining to the difference between *Treat[High #Credit Rating] × Post* and *Treat[Low #Credit Rating] × Post* is 0.000 (untabulated). In addition, we find similar results if we use the duration of the credit rating relationship to proxy for the importance of the credit rating relationship to CRAs (untabulated).



**TABLE 6**  
Cross-Sectional Analyses

	(1)	(2)	(3)
	ESG Rating	ESG Rating	ESG Rating
<i>Treat</i> [ <i>High #Credit Rating</i> ] $\times$ <i>Post</i>	<b>0.214<sup>***</sup></b> (7.94)		
<i>Treat</i> [ <i>Low #Credit Rating</i> ] $\times$ <i>Post</i>	<b>0.108<sup>***</sup></b> (5.47)		
<i>Treat</i> $\times$ <i>Post</i> $\times$ <i>High ESG Disclosure</i>		<b>-0.075<sup>**</sup></b> (-2.04)	
<i>Post</i> $\times$ <i>High ESG Disclosure</i>		0.272 <sup>***</sup> (9.36)	
<i>Treat</i> $\times$ <i>Post</i> $\times$ <i>Long-Term Holding</i>			<b>-0.099<sup>***</sup></b> (-2.84)
<i>Post</i> $\times$ <i>Long-Term Holding</i>			0.139 <sup>***</sup> (5.19)
<i>Treat</i> $\times$ <i>Post</i>		0.112 <sup>***</sup> (4.94)	0.166 <sup>***</sup> (7.67)
Firm-level controls	Yes	Yes	Yes
Event $\times$ firm FE	Yes	Yes	Yes
Event $\times$ country $\times$ year FE	Yes	Yes	Yes
Event $\times$ industry $\times$ year FE	Yes	Yes	Yes
Observations	25,137	25,137	25,137
Adjusted <i>R</i> -squared	0.790	0.794	0.790

This table presents the results of the cross-sectional analyses. The dependent variable *ESG Rating* is defined as the yearly normalized Moody's (S&P) ESG rating minus the average of yearly normalized Refinitiv, MSCI, and Sustainalytics ESG ratings. *Treat* is an indicator that equals one for treated firms with Moody's (S&P) credit ratings prior to the acquisition, and zero for control firms without Moody's (S&P) credit ratings prior to the acquisition. *Post* equals one for ESG ratings issued after the acquisition. In column 1, *Treat* [*High #Credit Rating*] (*Treat* [*Low #Credit Rating*]) is an indicator that equals one if the treated firm's number of security-level credit ratings is (is not) in the top tercile of the treatment group. The number of security-level credit ratings is calculated as the average value prior to the acquisition. In column 2, *High ESG Disclosure* is an indicator that equals one if a firm's ESG disclosure score from Bloomberg is in the top tercile of sample firms, and zero otherwise. The ESG disclosure score is the average value prior to the acquisition. In column 3, *Long-Term Holding* is an indicator that equals one if the turnover of a firm's institutional holding is in the bottom tercile of sample firms, and zero otherwise. The turnover of institutional holding is the average value prior to the acquisition. Following Gaspar, Massa, and Matos [2005], we first calculate the churn rate of each institutional investor and then calculate the turnover of a firm's institutional holding as the weighted churn rate based on its institutional holdings. As we can calculate the number of security-level credit ratings only for treated firms, the regression specification is different in column 1 from columns 2 and 3. However, we include the same set of firm-level controls as in model (1) in all columns. For brevity, we do not report their coefficients. Constant is also included but not reported. Standard errors are clustered at the firm level. \*\*\*, \*\*, and \* denote statistical significance at the 1%, 5%, and 10% levels, respectively.

We then interact *High ESG Disclosure* with *Treat* $\times$ *Post*. We do not include the standalone variable *High ESG Disclosure* as it is absorbed by the event  $\times$  firm fixed effects. Note that the regression specification in this cross-sectional test is different from that in column 1 because we have information on ESG disclosures for both treated and control firms, whereas we can calculate the number of security-level credit ratings only for treated firms. Column 2 of table 6 reports the results. The coefficient on *Treat* $\times$ *Post* $\times$ *High ESG Disclosure* is significantly negative, suggesting that the inflation of ESG ratings due to the acquisitions is mitigated by the more transparent ESG disclosure environment.

Furthermore, prior literature argues that long-term institutional investors are ESG conscious and exert influence on firms' ESG activities (Dimson, Karakaş, and Li [2015], Dyck et al. [2019]). Chen, Dong, and Lin [2020] find that institutions with long-term investment horizons, such as quasi-index funds and passive mutual funds, are the main forces that drive firms' ESG improvements. Long-term investors care more about ESG issues because the benefits of ESG investment usually manifest in the long run (e.g., Edmans [2011], Deng, Kang, and Low [2013], Dyck et al. [2019]). To the extent that these institutional investors closely monitor firms' ESG performance, the likelihood of being detected in ESG rating inflation is higher and the effect of commercial ties on ESG rating inflation should be weaker for these firms. However, Michaely, Ordonez-Calafi, and Rubio [2021] show that some ESG funds strategically vote to cater to fund family preferences rather than meet the fiduciary responsibilities of the funds. Thus, it is unclear *ex ante* whether the effect of commercial ties on ESG rating inflation should be weaker for firms with higher long-term institutional ownership.

To explore the role of long-term institutional investors, we define *Long-Term Holding* as an indicator that equals one if the turnover of a firm's institutional holding is in the bottom tercile of sample firms. The turnover of institutional holding is calculated as the average value prior to the acquisition. Following Gaspar, Massa, and Matos [2005], we first calculate the churn rate of each institutional investor and then calculate the turnover of a firm's institutional holding as the weighted churn rate based on its institutional holdings. We then interact *Long-Term Holding* with *Treat* × *Post*. As in column 2, we do not include the standalone variable (here *Long-Term Holding*) as it is absorbed by the event × firm fixed effects. Column 3 of table 6 reports the results. The coefficient on *Treat* × *Post* × *Long-Term Holding* is negative and significant at the 1% level, suggesting that the inflation of ESG ratings due to the acquisitions is mitigated by the presence of long-term institutional investors.

Taken together, these results support our prediction that the increase in ESG ratings is weaker when the inflation of ESG ratings is more likely to be detected and thus the inflation cost is higher.

#### 4.3 HOW DO CRAS BIAS CLIENT FIRMS' ESG RATINGS?

Thus far, we have provided consistent evidence that CRAs curry favor with their client firms by assigning them higher ESG ratings. The natural question then becomes how exactly the CRAs bias their clients' ESG ratings. The most likely means is that CRAs use their discretion within the existing ESG rating methodology. Although no academic research examines the discretion of ESG rating analysts, Kraft [2015] shows that CRAs use their discretion within the existing methodology to cater to borrowers with credit rating-based performance-priced loan contracts.<sup>31</sup> They bias credit

<sup>31</sup> Credit rating-based performance-priced loan contracts trigger an interest rate increase or early payment of principal when a borrower's public credit rating decreases.

ratings through both quantitative adjustments for off-balance-sheet debt and qualitative adjustments for soft factors (e.g., management quality). For ESG ratings, although the ESG rating methodology prescribes the general scope, measurement, and weight, the ESG rating analysts decide whether and how to reflect ESG information in ESG ratings. For example, when an analyst finds information on a firm's workplace injuries, the analyst needs to decide whether it is material enough to incorporate it into the firm's ESG rating, and if so, how to adjust it. As long as the ESG rating is determined by human analysts, not purely by algorithm, there is room for discretion within the existing ESG rating methodology. This is consistent with the S&P's ESG rating process, during which the analysts play an active role in gathering information and reviewing firms' ESG performance (S&P Global [2022]). Furthermore, the substantial "rater effect" documented by Berg, Kölbl, and Rigobon [2022] suggests that analysts have discretion in the ESG rating process: When the rater makes a positive judgment in one category of a firm, the rater is also likely to make positive judgments in other categories of the same firm. They argue that the rater effect may be driven by ESG rating analysts specializing in firms rather than ESG indicators. Given the catering incentive, ESG rating analysts may exercise discretion and treat their credit rating clients more favorably by assigning them higher ESG ratings.

Another possibility is that CRAs may adjust their ESG rating methodologies so that their clients can obtain higher ESG ratings. For example, they could subtly change the ESG rating methodologies to favor their clients, and such changes may benefit firms with similar characteristics (e.g., similar size) as their clients. This explanation is unlikely to completely explain our results. First, according to our e-mail exchanges and meetings with representatives of Moody's and S&P, there was no significant change in ESG rating methodology during our sample period. Moody's kept the Vigeo Eiris brand until February 2022, and the ESG rating methodology remained the same until March 2022.<sup>32</sup> It is also unlikely that S&P changed the ESG rating methodologies significantly within a short span of time, as RobecoSAM's CSA is an established annual survey with more than 20 years' experience and is recognized as one of the most advanced ESG scoring methodologies. Second, in the online appendix (table OA.5), we interact *Post* with *Size dummy* and the dummies of other control variables. *Size dummy* equals one if a firm's size is above the sample median in the year prior to the acquisition, and zero otherwise. Dummies of other control variables are defined similarly. We find that the coefficient on *Size dummy*  $\times$  *Post* is positive and significant, consistent with the possibility that methodology changes favor CRA clients, which tend to be large firms. More importantly, our variable of interest, *Treat*  $\times$  *Post*, is still positive and significant after we

<sup>32</sup> According to Moody's e-mails to its subscribers, Moody's retired all affiliate brands including Vigeo Eiris in February 2022 and proposed enhancements to its methodology in March 2022.

control for these interaction terms. Thus, our results are not purely driven by methodology changes favoring clients; however, we cannot rigorously support or rule out this mechanism due to the unobservable nature of detailed ESG rating methodologies.<sup>33</sup>

## 5. *The Benefits of ESG Rating Inflation*

### 5.1 THE BENEFITS TO THE CRAS' CLIENTS: EVIDENCE FROM GREEN BOND ISSUANCE

For the catering incentive to work, ESG rating inflation needs to benefit client firms. In recent years, there has been a growing demand for green bonds in the financial market. Firms issue green bonds to enhance the credibility of their environmental commitments (Lu [2023]), and they appear to benefit from the issuance of green bonds (ESMA [2021b]). Tang and Zhang [2020] find that share prices increase significantly around firms' announcements of green bond issuance. After the green bond issuance, firms also experience increased institutional ownership and improved stock liquidity. To the extent that higher ESG ratings can facilitate the issuance of green bonds, we may observe more green bond issuance for firms with inflated ESG ratings.

To explore this possibility, we examine whether the change in ESG ratings for treated firms before and after the acquisitions is associated with an increase in the number and amount of green bonds issued. The intuition behind this test is that the change in ESG ratings is a proxy for the magnitude of catering to treated firms, and a positive association between the change in ESG ratings and the green bond issuance suggests that the catering benefits the credit rating clients. We obtain the green bond data from Refinitiv and match them with the treated firms in our sample. For each treated firm, we first calculate the average value of ESG ratings in the pre- and post-acquisition periods. We then define the change in ESG ratings ( $\Delta ESG\ Rating$ ) as the difference between these two average values of ESG ratings. We use the same control variables as in model (1) and calculate the changes in control variables from the pre- to post-acquisition periods. Since we calculate the change from the pre- to the post-acquisition period for each firm, the fixed effects structure in our main analysis in table 4 (event  $\times$  firm, event  $\times$  country  $\times$  year, and event  $\times$  industry  $\times$  year) is not applicable. Instead, we include event  $\times$  country and event  $\times$  industry fixed effects to account for any event-specific country- or industry-level factors.

<sup>33</sup> Another potential mechanism is that CRAs inform their clients about the necessary disclosures, which results in disproportionately higher ESG ratings for their clients. However, in an untabulated analysis, we find that CRA client firms (i.e., treated firms) reduce ESG disclosure after the acquisitions relative to non-client firms. This finding is consistent with the notion that a more opaque ESG disclosure environment helps camouflage ESG rating inflation after the acquisitions.

**TABLE 7**  
*ESG Ratings and Green Bond Issuance*

	(1)	(2)
	$\Delta$ Number of Green Bonds	$\Delta$ Amount of Green Bonds
$\Delta$ ESG Rating	<b>0.124<sup>***</sup></b> (3.11)	<b>0.900<sup>***</sup></b> (3.00)
$\Delta$ Firm-level controls	Yes	Yes
Event $\times$ country FE	Yes	Yes
Event $\times$ industry FE	Yes	Yes
Observations	2,057	2,057
Adjusted <i>R</i> -squared	0.075	0.023

This table presents the results on the changes in ESG ratings and green bond issuance. The sample consists of treated firms. For each firm, we first calculate the average value of ESG ratings and control variables in the pre- and post-acquisition periods separately, and then take the difference using the post-period average value minus the pre-period average value ( $\Delta$ ESG Rating and  $\Delta$ Firm-Level Controls). In column 1, the dependent variable is the number of green bonds issued in the post-period minus that in the pre-period. In column 2, the dependent variable is the log of one plus the amount of green bonds issued in the post-period minus log of one plus the amount of green bonds issued in the pre-period. We include the changes in firm-level controls from model (1). For brevity, we do not report their coefficients. Constant is also included but not reported. Standard errors are clustered at the event  $\times$  country and event  $\times$  industry levels. \*\*\*, \*\*, and \* denote statistical significance at the 1%, 5%, and 10% levels, respectively.

Table 7 presents the results. In column 1, the dependent variable is the number of green bonds issued in the post-period minus that in the pre-period. In column 2, we first take the logarithm of one plus the amount of green bonds issued in the pre- and post-period, respectively. We then define the dependent variable as the difference between the post-period and pre-period log-transformed amounts of green bonds issued. The coefficients on  $\Delta$ ESG Rating are positive and significant in both columns 1 and 2. These results corroborate the conflict-of-interest channel: the CRAs give higher ESG ratings to cater to client firms' capital market needs, and the client firms benefit from higher ESG ratings through more green bond issuance. Nevertheless, we caution that these results are not causal evidence; they simply provide corroborating evidence for our main finding. Furthermore, one might argue that there is a reverse causality problem in this test: firms planning to issue green bonds are likely to pressure their CRAs to give higher ESG ratings. However, even if this is true, it does not overturn the key message that higher ESG ratings are beneficial in terms of green bond issuance, or at least the client firms perceive that they are.<sup>34</sup>

## 5.2 THE BENEFITS TO THE CRAS: EVIDENCE FROM CREDIT RATING BUSINESS

So far, our evidence suggests that CRAs give higher ESG ratings to their credit rating clients, and these clients appear to benefit from the inflated

<sup>34</sup>In the online appendix (table OA.6), we use a sample of green bonds issued by treated firms in the post-acquisition period and find that higher ESG ratings are negatively associated with the green bond yields.

ESG ratings. We argue that CRAs have strong incentives to cater to clients due to the issuer-pay model (Griffin, Nickerson, and Tang [2013], Kedia, Rajgopal, and Zhou [2014], Kraft [2015], Beatty et al. [2019]). To provide direct evidence on the benefits CRAs experience by giving higher ESG ratings, we next explore whether the increase in ESG ratings helps maintain or even increase credit rating business for Moody's or S&P.

To conduct this analysis, we obtain new bond issuances for treated firms over the sample period of 2016–2021 from SDC. We do not include control firms in this analysis as credit ratings are not available for control firms by construction. We define the dependent variable *Have Credit Rating* as an indicator that equals one if the bond has a Moody's (S&P) credit rating for the Moody's (S&P) subsample. *ESG Rating* is the bond issuer's yearly normalized Moody's (S&P) ESG rating minus the average of yearly normalized Refinitiv, MSCI, and Sustainalytics ESG ratings. We interact *ESG Rating* with the *Post* indicator that captures the post-acquisition period. We control for factors that may affect credit ratings at the issuer level, including all firm-level control variables in model (1) and characteristics at the issue level such as bond issue size, years to maturity, and yield. Furthermore, to account for the existing firm-level credit rating relationships between Moody's (S&P) and treated firms, we include event  $\times$  firm fixed effects. We also control for event  $\times$  country  $\times$  year fixed effects and event  $\times$  industry  $\times$  year fixed effects as in model (1), and we cluster the standard errors at the firm level.

The results in columns 1 and 2 of table 8 show that the coefficient on the interaction term *ESG Rating* $\times$ *Post* is positive and significant at the 5% (1%) level without (with) issue-level controls. We find similar results when we include the issuer-level credit rating in column 3. These results suggest that higher ESG ratings in the post-acquisition period are associated with a higher likelihood of having new bond issues rated by the same credit rating agency that gives the ESG rating. In column 4, to capture a broader sample of firms that may change credit rating relations, we add firms that switch credit rating relations during the sample period and find similar results. In terms of economic magnitude (column 2), a one-standard-deviation increase in the relative ESG rating is associated with a 3.3% increase in the likelihood of having new bond issues rated by the same credit rating agency. The modest economic magnitude is not surprising, as the credit rating relationship between firms and CRAs tends to be sticky, and our sample period captures only the bonds issued by treated firms in recent years. It is possible that ESG ratings help attract more credit rating business in the long run.

Overall, we find a marginal increase in the credit rating business of Moody's (S&P) for firms with higher Moody's (S&P) ESG ratings in the post-acquisition period, which is consistent with CRAs' incentive to maintain or attract credit rating business by giving firms higher ESG ratings.

**TABLE 8**  
*ESG Ratings and Credit Rating Business*

	(1) Have Credit Rating	(2) Have Credit Rating	(3) Have Credit Rating	(4) Have Credit Rating
<i>ESG Rating</i> × <i>Post</i>	<b>0.036<sup>**</sup></b> (2.16)	<b>0.042<sup>***</sup></b> (2.62)	<b>0.041<sup>**</sup></b> (2.55)	<b>0.029<sup>**</sup></b> (1.99)
<i>ESG Rating</i>	-0.002 (-0.09)	-0.006 (-0.36)	-0.005 (-0.31)	-0.002 (-0.14)
<i>Issue size</i>		0.087 <sup>**</sup> (7.29)	0.088 <sup>***</sup> (7.30)	0.087 <sup>***</sup> (7.59)
<i>Yield</i>		0.000 (0.06)	0.001 (0.08)	-0.001 (-0.12)
<i>Maturity</i>		0.000 (0.06)	0.000 (0.04)	0.000 (0.10)
<i>Issuer credit rating</i>			0.009 <sup>*</sup> (1.96)	0.007 <sup>*</sup> (1.79)
Firm-level controls	Yes	Yes	Yes	Yes
Event × firm FE	Yes	Yes	Yes	Yes
Event × country × year FE	Yes	Yes	Yes	Yes
Event × industry × year FE	Yes	Yes	Yes	Yes
Observations	15,385	15,385	15,385	16,442
Adjusted <i>R</i> -squared	0.564	0.607	0.608	0.617

This table presents the results on ESG ratings and credit rating business. In columns 1–3, the sample consists of newly issued bonds of treated firms from 2016 to 2021. In column 4, we further include newly issued bonds of firms that change credit rating relations during the sample period. The dependent variable is an indicator that equals one if the bond has a Moody's (S&P) credit rating for the Moody's (S&P) subsample. *ESG Rating* is the bond issuer's yearly normalized Moody's (S&P) ESG rating minus the average of yearly normalized Refinitiv, MSCI, and Sustainalytics ESG ratings. *Post* equals one for ESG ratings issued after the acquisition. We include the firm-level controls as in model (1). For brevity, we do not report their coefficients. In addition, we include the bond issue size, bond yield, bond maturity, and the bond issuer credit rating. Constant is also included but not reported. Standard errors are clustered at the firm level. \*\*\*, \*\*, and \* denote statistical significance at the 1%, 5%, and 10% levels, respectively.

## 6. Alternative Explanation and Robustness Checks

### 6.1 PRIVATE INFORMATION AS AN ALTERNATIVE EXPLANATION

An important alternative explanation of our findings is that the private information obtained through commercial ties leads to higher ESG ratings if such information tends to be positive. If the private information obtained by Moody's (S&P) through interaction with existing credit rating clients facilitates the ESG rating process, we would expect an increase in the quality of ESG ratings for treated firms relative to control firms after the acquisition. However, if the increase in ESG ratings after the acquisition is driven by conflicts of interest and Moody's (S&P's) incentive to cater to its credit rating clients, we would expect the ESG rating quality to decline. We thus investigate the changes in ESG rating quality around the acquisition to differentiate these two explanations. We use the informativeness of the ESG rating for future ESG news to measure the ESG rating quality (e.g., Serafeim and Yoon [2023]). The acquisitions can weaken or strengthen the positive association between ESG rating and future ESG news, depending

on whether the conflict-of-interest or private-information channel dominates the effect of the acquisitions.

We obtain ESG news from FactSet's Truvalue Labs and RepRisk for our sample. Truvalue Labs uses artificial intelligence to analyze a variety of third-party information such as analyst reports, media coverage, and reports from advocacy groups and government regulators. Based on the analysis, it categorizes ESG news as positive or negative and constructs an insight score. The higher the score, the more positive the news. Similarly, RepRisk uses machine learning to collect daily negative ESG incidents from over 100,000 public sources, including print media, online media, social media, regulators, think tanks, and other online sources. We construct an indicator that equals one if a firm does not experience severe ESG risk incidents. We then estimate the following stacked DiD model:

$$\begin{aligned}
 ESG\ News_{i,t+1} = & \beta_0 + \beta_1 ESG\ Rating_{i,t} \times Treat_i \times Post_t + \beta_2 ESG\ Rating_{i,t} \\
 & \times Treat_i + \beta_3 ESG\ Rating_{i,t} \times Post_t + \beta_4 Treat_i \times Post_t + \beta_5 ESG\ Rating_{i,t} \\
 & + \sum FirmControl_{i,t-1} + Event \times Firm\ Fixed\ Effects + Event \\
 & \times Country \times Year\ Fixed\ Effects + Event \times Industry \\
 & \times Year\ Fixed\ Effects + \varepsilon_{i,t}.
 \end{aligned} \tag{3}$$

The dependent variable is the one-year-ahead ESG insight score (*ESG Insight Score<sub>t+1</sub>*) from Truvalue Labs or the indicator for not experiencing severe ESG risk incidents in the next year from RepRisk (*No Severe ESG Incident<sub>t+1</sub>*). We interact the relative ESG rating with *Treat*×*Post* (*ESG Rating*×*Treat*×*Post*). If the acquisitions weaken the informativeness of ESG ratings about treated firms' future ESG news, we expect a negative coefficient on *ESG Rating*×*Treat*×*Post*. We include the same set of control variables and fixed effects as in model (1).

Table 9 presents the results. In column 1, we use the one-year-ahead ESG insight score from Truvalue Labs (*ESG Insight Score<sub>t+1</sub>*) as the dependent variable. We find that the coefficient on *ESG Rating*×*Treat*×*Post* is significantly negative. In contrast, the coefficient on *ESG Rating*×*Treat* is positive. These results suggest that the association between ESG ratings and future ESG news weakens for treated firms after the acquisitions. In column 2, the dependent variable is the indicator for firms that do not experience severe ESG risk incidents in the next year according to RepRisk (*No Severe ESG Incident<sub>t+1</sub>*). The coefficient on *ESG Rating*×*Treat*×*Post* remains significantly negative. Overall, relative to the ESG ratings of control firms, those of treated firms are less informative of future ESG news after the acquisitions. To the extent that ESG news captures firms' future ESG performance, these results suggest that treated firms' ESG rating quality declines after the acquisitions.

One might argue that ESG news may not perfectly capture firms' future ESG performance. To mitigate this concern, we use a more objective albeit



**TABLE 9**  
*ESG Rating Informativeness*

	(1) ESG Insight Score <sub>t+1</sub>	(2) No Severe ESG Incident <sub>t+1</sub>	(3) Greenhouse Gas Emission <sub>t+1</sub>
<i>ESG Rating</i> × <i>Treat</i> × <i>Post</i>	<b>-0.923**</b> (-1.97)	<b>-0.031**</b> (-2.13)	<b>0.057**</b> (1.97)
<i>ESG Rating</i> × <i>Treat</i>	1.034* (1.85)	0.018 (1.03)	0.021 (0.62)
<i>ESG Rating</i> × <i>Post</i>	1.612*** (3.94)	0.013 (1.11)	-0.012 (-0.59)
<i>Treat</i> × <i>Post</i>	-1.142*** (-2.65)	0.074*** (6.01)	0.027 (1.13)
<i>ESG Rating</i>	-1.352*** (-2.87)	0.006 (0.43)	-0.018 (-0.79)
Firm-level controls	Yes	Yes	Yes
Event × firm FE	Yes	Yes	Yes
Event × country × year FE	Yes	Yes	Yes
Event × industry × year FE	Yes	Yes	Yes
Observations	17,918	24,879	20,561
Adjusted <i>R</i> -squared	0.731	0.529	0.953

This table presents the results on whether the acquisition affects the informativeness of ESG ratings. In column 1, the dependent variable is the one-year-ahead ESG insight score from Truvalue Labs. In column (2), the dependent variable is an indicator that equals one for firms that do not experience severe ESG risk incidents in the next year according to RepRisk. In column 3, the dependent variable is the natural logarithm of firms' greenhouse gas emissions from scopes 1, 2, and 3 in the next year according to Trucost. *ESG Rating* is defined as the yearly normalized Moody's (S&P) ESG rating minus the average of yearly normalized Refinitiv, MSCI, and Sustainalytics ESG ratings. *Treat* is an indicator that equals one for treated firms with Moody's (S&P) credit ratings prior to the acquisition, and zero for control firms without Moody's (S&P) credit ratings prior to the acquisition. *Post* equals one for ESG ratings issued after the acquisition. We include the same set of firm-level controls as in model (1). For brevity, we do not report their coefficients. Constant is also included but not reported. Standard errors are clustered at the firm level. \*\*\*, \*\*, and \* denote statistical significance at the 1%, 5%, and 10% levels, respectively.

narrower proxy for firms' future ESG performance: greenhouse gas emissions. We obtain the greenhouse gas emission data from Trucost and use the natural logarithm of firms' greenhouse gas emissions from scopes 1, 2, and 3 in the next year as the dependent variable. In column 3 of table 9, we show that higher ESG ratings are also associated with more future greenhouse gas emissions for CRAs' client firms after the acquisitions, consistent with declining ESG rating quality.

Taken together, these findings lend more support to the conflict-of-interest hypothesis than to the private-information interpretation of our main results. If the increased ESG ratings were driven by more information sharing between credit rating analysts and ESG rating analysts within Moody's (S&P), the ESG rating informativeness should have increased after the acquisition. Nevertheless, we acknowledge that we cannot completely rule out the private-information explanation. The positive synergy between the credit rating and ESG rating divisions via information sharing may oc-

cur gradually over time, improving the quality of ESG ratings in the long run.<sup>35</sup>

## 6.2 ROBUSTNESS TESTS

In this section, we present various robustness checks. Although we view the existence of an entity-level or security-level credit rating as a proxy for the existing commercial ties between a firm and the credit rating agency, many firms with credit ratings are also the ones that frequently access the bond market.<sup>36</sup> A potential concern is that firms that access the bond market are significantly different from those that do not, which could lead to significant differences in the treated and control firms along observable dimensions including their pretreatment ESG ratings. However, our use of relative ESG ratings helps control for the effects of both observable and unobservable firm characteristics on ESG ratings, because any such effects should largely be captured by the consensus ESG ratings.

Nevertheless, to further alleviate the concern that firms with credit ratings are different from those without, we use the entropy balancing method. Specifically, for each firm, we take its last observation in the pre-period and then use the entropy balancing method to reweight treatment and control firms to ensure that they have the same mean, variance, and skewness across all covariates.<sup>37</sup> We then assign the weight of each firm in the regression sample. Panels A and B of table 10 show the summary statistics of treated and control firms before and after the entropy balancing. Although firms exhibit differences in various characteristics before the entropy balancing, such differences decline after the entropy balancing. Panel C of table 10 shows that our results remain robust to the entropy balancing method. However, entropy balancing also has limitations. For treated and control observations with significant differences in control variables, entropy balancing could allocate high weight to very few control firms and lead to unstable results (McMullin and Schonberger [2022]).

In table 11, we demonstrate the robustness of our results using different subsamples. As the United States provides the largest number of observations in our sample, we ensure that our results are not driven by U.S. firms. In columns 1 and 2, we show that our results hold for U.S. and non-U.S.

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<sup>35</sup> Another alternative explanation is that treated firms have stronger future growth and investment opportunities than control firms, which leads to differences in ESG performance and ESG ratings. In untabulated analyses, we find that our results are robust to controlling for the level of capital expenditure. Furthermore, we conduct a cross-sectional test based on the level of investment and find no evidence that the documented effect on ESG ratings varies with firms' investment levels.

<sup>36</sup> In our sample, 50.72% of treated firms have issued bonds in the past three years. In untabulated analyses, we show that our results are robust to controlling for firms' access to the bond market in the past three years. They are also robust to dropping firms that accessed the bond market in the past three years.

<sup>37</sup> In an untabulated analysis, we also show that our result is robust to using entropy balancing by including ESG disclosure as an additional covariate.

**TABLE 10**  
*Entropy Balancing*

	Treatment Firms			Control Firms		
	Mean	Variance	Skewness	Mean	Variance	Skewness
Panel A: Before Entropy Balancing						
<i>Size</i>	24.004	2.010	0.461	22.288	1.571	0.469
<i>Leverage</i>	0.295	0.027	0.536	0.210	0.031	0.809
<i>Tangibility</i>	0.291	0.080	0.744	0.281	0.060	0.922
<i>Tobin's Q</i>	1.635	0.911	3.025	2.145	3.001	2.443
<i>ROA</i>	0.069	0.004	1.034	0.087	0.007	0.521
<i>Cash</i>	0.088	0.011	2.206	0.152	0.022	1.524
<i>Sales growth</i>	8.630	209.923	1.860	9.201	304.550	1.493
<i>R&amp;D missing</i>	0.632	0.233	-0.548	0.522	0.250	-0.090
<i>R&amp;D</i>	1.020	6.197	3.411	1.611	10.395	2.643
<i>Dividend</i>	2.021	5.991	2.695	2.807	12.981	2.324
<i>Analyst</i>	2.884	0.353	-1.675	2.567	0.458	-1.231
<i>Institution</i>	0.504	0.105	0.135	0.286	0.051	1.588
Panel B: After Entropy Balancing						
<i>Size</i>	24.004	2.010	0.461	24.004	2.010	0.461
<i>Leverage</i>	0.295	0.027	0.536	0.295	0.027	0.536
<i>Tangibility</i>	0.291	0.080	0.744	0.291	0.080	0.744
<i>Tobin's Q</i>	1.635	0.911	3.025	1.635	0.911	3.025
<i>ROA</i>	0.069	0.004	1.034	0.069	0.004	1.034
<i>Cash</i>	0.088	0.011	2.206	0.088	0.011	2.206
<i>Sales growth</i>	8.630	209.923	1.860	8.630	209.923	1.860
<i>R&amp;D missing</i>	0.632	0.233	-0.548	0.632	0.233	-0.548
<i>R&amp;D</i>	1.020	6.197	3.411	1.020	6.197	3.411
<i>Dividend</i>	2.021	5.991	2.695	2.021	5.991	2.695
<i>Analyst</i>	2.884	0.353	-1.675	2.884	0.353	-1.675
<i>Institution</i>	0.504	0.105	0.135	0.504	0.105	0.135
Panel C: Regression Result after Entropy Balancing						
	ESG Rating					
<i>Treat</i> × <i>Post</i>	<b>0.107***</b>					
	<b>(4.02)</b>					
Firm-level controls	Yes					
Event × firm FE	Yes					
Event × country × year FE	Yes					
Event × industry × year FE	Yes					
Observations	25,137					
Adjusted <i>R</i> -squared	0.846					

This table presents the results of the robustness test of entropy balancing. Panels A and B show the summary statistics of treatment and control firms before and after the entropy balancing. For each firm, we take its last observation in the pre-period and then use the entropy balancing method to reweight treatment and control firms to ensure that they have the same mean, variance, and skewness across all covariates. Panel C shows the regression result after we use entropy balancing to reweight each firm. The dependent variable *ESG Rating* is defined as the yearly normalized Moody's (S&P) ESG rating minus the average of yearly normalized Refinitiv, MSCI, and Sustainalytics ESG ratings. *Treat* is an indicator that equals one for treated firms with Moody's (S&P) credit ratings prior to the acquisition, and zero for control firms without Moody's (S&P) credit ratings prior to the acquisition. *Post* equals one for ESG ratings issued after the acquisition. We include the same set of firm-level controls as in model (1). For brevity, we do not report their coefficients. Constant is also included but not reported. Standard errors are clustered at the firm level. \*\*\*, \*\*, and \* denote statistical significance at the 1%, 5%, and 10% levels, respectively.

**TABLE 11**  
*Robustness Tests*

	(1) ESG Rating U.S. Firms	(2) ESG Rating Non-U.S. Firms	(3) ESG Rating Drop Finance and Utility	(4) ESG Rating Keep Switching Firms
<i>Treat</i> × <i>Post</i>	<b>0.265***</b> (5.64)	<b>0.102***</b> (4.71)	<b>0.150***</b> (6.85)	<b>0.112***</b> (6.44)
Firm-level controls	Yes	Yes	Yes	Yes
Event × firm FE	Yes	Yes	Yes	Yes
Event × country × year FE	Yes	Yes	Yes	Yes
Event × industry × year FE	Yes	Yes	Yes	Yes
Observations	5,335	18,672	18,252	27,654
Adjusted <i>R</i> -squared	0.766	0.794	0.789	0.788

This table presents the results of other robustness tests. In columns 1 and 2, we divide the sample into U.S. firms and non-U.S. firms. The observations differ from those reported in table 2 (sample distribution by country/region) because additional singleton observations are dropped in the subsamples. In column 3, we drop firms in the finance and utility industries. In column 4, we keep firms that change credit rating relations during the sample period. The treatment and control statuses are defined based on the last year before the acquisition. The dependent variable *ESG Rating* is defined as the yearly normalized Moody's (S&P) ESG rating minus the average of yearly normalized Refinitiv, MSCI, and Sustainalytics ESG ratings. *Treat* is an indicator that equals one for treated firms with Moody's (S&P) credit ratings prior to the acquisition, and zero for control firms without Moody's (S&P) credit ratings prior to the acquisition. *Post* equals one for ESG ratings issued after the acquisition. We include the same set of firm-level controls as in model (1). For brevity, we do not report their coefficients. Constant is also included but not reported. Standard errors are clustered at the firm level. \*\*\*, \*\*, and \* denote statistical significance at the 1%, 5%, and 10% levels, respectively.

firms, respectively. Furthermore, given that sustainable investment is promoted across industries, including the finance and utilities industries, we have not excluded these industries from our analyses so far. However, as a robustness check, we show that our results remain similar when we exclude such industries from our sample in column 3. Finally, in column 4, we keep firms that switch credit rating relations during the sample period and define the treatment and control statuses based on the year prior to the acquisition. Our results still hold.

## 7. Conclusions

The push for green finance and sustainable investment has led to a high level of consolidation in the ESG rating industry. CRAs that traditionally suffer from conflicts of interest due to their issuer-pay model are expanding to the ESG rating industry by acquiring ESG rating providers. These acquisitions may give rise to new conflicts of interest: Do CRAs cater to their credit rating clients by giving them higher ESG ratings? In this paper, we use Moody's (S&P's) acquisition of Vigeo Eiris (RobecoSAM) as a shock to firms' commercial ties with the ESG rating agency. We find that after the acquisition, firms that have existing credit rating business with Moody's and S&P receive higher ESG ratings than those that do not. The increase in ESG ratings is more pronounced for firms that have more in-

tensive credit rating relationships with Moody's (S&P) but smaller for firms with more transparent ESG disclosures and higher long-term institutional holdings. The upwardly biased ESG ratings help client firms issue more green bonds and help Moody's and S&P maintain credit rating business. Finally, the ESG rating quality appears to deteriorate after the acquisitions. Taken together, the results are consistent with our hypothesis that conflicts of interest arising from commercial ties induce ESG rating biases. It is important for investors and regulators to be aware of these new conflicts of interest and their potential economic effects. Public awareness of the conflicts of interest and their negative consequences (i.e., biased ESG ratings) can have a deterrent effect on the behavior of the rating agencies. Regulators can also use the existing regulatory framework associated with CRAs to increase supervision over their newly acquired ESG rating business. Finally, financial services firms can mitigate the conflicts of interest by providing more disclosure and assurance of the independence of their ESG ratings from their other business lines.

Our study has at least two limitations. First, although we document that the results are consistent with CRAs catering to their clients by giving them higher ESG ratings, due to our data limitations, we are unable to provide direct evidence on how exactly rating agencies bias their clients' ESG ratings. We leave this important question for future research. Second, despite our best efforts, we cannot completely rule out the potential alternative explanations that private information or different ESG rating objectives drive our results. Thus, readers should interpret our findings with these caveats in mind.

#### APPENDIX A: VARIABLE DEFINITIONS

Variable	Definition
Main analyses:	
<i>ESG Rating</i>	Yearly normalized Moody's/S&P ESG rating minus the average of yearly normalized Refinitiv, MSCI, and Sustainalytics ESG ratings.
<i>Treat</i>	Indicator equal to one if the firm has Moody's / S&P credit rating prior to the acquisition.
<i>Post</i>	Indicator equal to one for ESG ratings issued after the acquisition.
<i>Size</i>	Log of total assets in U.S. dollars (WorldScope Item 7230).
<i>Leverage</i>	Total debt (WorldScope Item 3255) / Total assets (Worldscope Item 2999).
<i>Tangibility</i>	Property plant and equipment (WorldScope Item 2501) / Total assets (Worldscope Item 2999).
<i>Tobin's Q</i>	[Market value of common equity (Worldscope Item 8002) + Total assets (Worldscope Item 2999) – Book value of common equity (Worldscope Item 3501)] / Total assets (Worldscope Item 2999).

Variable	Definition
ROA	Earnings before interest and taxes (Worldscope Item 18191) / Total assets (Worldscope Item 2999).
Cash	Cash and short-term investments (Worldscope Item 2001) / Total assets (Worldscope Item 2999).
Sales growth	Net sales/revenues growth (Worldscope Item 8631).
R&D missing	Indicator equal to one for missing R&D expense (Worldscope Item 1201).
R&D	R&D expense (Worldscope Item 1201) / Total assets (Worldscope Item 2999) and then multiplied by 100.
Dividend	Cash dividends paid (Worldscope Item 4551) / Total assets (Worldscope Item 2999) and then multiplied by 100.
Analyst Institution	Log of one plus the number of analysts issuing a forecast.
Other analyses:	Percentage of institutional ownership.
$\Delta$ Number of Green Bonds	Post-period number of green bonds minus pre-period number of green bonds issued by the firm.
$\Delta$ Amount of Green Bonds	Log of one plus the amount of green bonds issued in the post-period minus log of one plus the amount of green bonds issued in the pre-period.
Have Credit Rating	Indicator equal to one if a newly issued bond has a Moody's (S&P) credit rating for the Moody's (S&P) subsample.
Issue size	Log of the value of a newly issued bond.
Yield	Offer yield to maturity of a newly issued bond.
Maturity	Years to maturity of a newly issued bond.
Issuer credit rating	Numerical value from 1 (lowest credit rating) to 20 (highest credit rating) to denote issuer credit rating.
ESG Insight Score	One-year-ahead ESG insight score from Truvalue Labs.
No Severe ESG Incident	Indicator equal to one for firms that do not experience severe ESG risk incidents in the next year according to RepRisk.
Greenhouse Gas Emission	Log of firms' greenhouse gas emissions from scopes 1, 2, and 3 in the next year according to Trucost.

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