The Determinants of ESG Ratings: Rater Ownership Matters*

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Keywords: ESG, Rating agencies, Conflicts of interest, Ownership structure
JEL classification: G32, L32, M14

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Abstract

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1. Introduction

Investors and regulators are increasingly concerned about the environmental, social, and governance (ESG) performance of corporate issuers, which are commonly measured by ESG ratings. Based on Google search trends, Figure 1 shows the surge of interest in ESG ratings in recent years, which contrasts starkly with the stable public interest in credit ratings. A recent large-scale survey of fund managers reports that third-party ESG ratings are as important as shareholder proposals, formal valuation models, and hedging as a tool for institutional investors to manage climate risk (Krüger, Sautner, and Starks, 2020). Trillions of dollars are invested according to ESG ratings, and the trend has accelerated after the outbreak of COVID-19. Moreover, a burgeoning literature derives empirical conclusions from ESG ratings.[1] Notwithstanding their widespread use, little is known about the determinants and objectivity of ESG ratings. In this study, we take the first step to fill this gap in the literature.

[Insert Figure 1 here]

A good understanding of ESG rating quality is critical for the further development of sustainable investing. Avramov, Cheng, Lioui, and Tarelli (2021) show that ESG rating uncertainty can discourage investment in good projects beneficial to society. Asset owners and funds care about the ESG ratings of their investee firms. They are also influential to ESG rating agencies from a practical standpoint. According to a survey conducted by Opimas, ESG rating agencies derive their income primarily from asset owners and asset managers.[2] Morningstar, the prominent fund rating firm, has actively expanded its services of ESG rating and prompted mutual funds to the importance of ESG measurement.

It is warranted to examine whether ESG ratings truly reflect corporate ESG quality. Facebook, Volkswagen, and Wirecard all had good ratings from major ESG raters before their negative ESG incidents were uncovered. The Chairman of the U.S. Securities and Exchanges Commission (SEC) publicly questioned the quality of ESG ratings and criticized their precision; and the European Commission is looking into ways to improve the oversight of ESG ratings.[3]

[1] Gibson, Glossner, Krüger, Matos, and Steffen (2020) provide an overview of sustainable investing around the world. Such an investment trend accelerates through the COVID-19 period. Recent examples relating asset prices to ESG ratings include, among others, Engle, Giglio, Kelly, Lee, and Stroebel (2020), Pedersen, Fitzgibbons, and Pomorski (2020), and Cao, Titman, Zhan, and Zhang (2020). Matos (2020) critically reviews the literature.
[2] See the website: http://www.opimas.com/research/547/detail/.
[3] See "SEC chair warns of risks tied to ESG ratings", *Financial Times*, May 28, 2020 and Question 20 of Section 1.3 on page 13 of "Consultation on the Renewed Sustainable Finance Strategy" of the European Commission: https://ec.europa.eu/info/sites/info/files/business_economy_euro/banking_and_finance/documents/2020-sustainable-finance-strategy-consultation-document_en.pdf.

Besides regulators, investors and issuers themselves care about the outcomes and quality of ESG ratings too. Hartzmark and Sussman (2019) show that investors direct more capital into funds with the best ESG portfolios while redeeming from the worst ESG funds. Therefore, ESG ratings can play a paramount role in capital allocation. Companies even sue rating agencies for allegedly unfounded ratings, raising substantial concerns among practitioners about the accuracy of ESG ratings.[4]

We empirically examine the determinants of ESG ratings with a focus on potential conflicts of interest. Our empirical analysis is guided by incentive-based theoretical predictions. Rating agencies have incentives to provide accurate ratings in order to establish or maintain a good reputation. However, there are also incentives for rating agencies to purposefully provide inaccurate, either inflated or deflated, ratings (see, e.g., Bolton, Freixas, and Shapiro, 2012; Goldstein and Huang, 2020). The extant literature on credit ratings provide evidence for inaccurate ratings, especially around the 2008 credit crisis. We have a relatively good understanding of credit ratings from market practices and academic research. In contrast, ESG ratings are new phenomena and less scrutinized than credit ratings. There lack objective measures or external benchmarks of ESG performance.

We compile a large data set to uncover the determinants and integrity of ESG ratings, with implications to investors that rely on ESG metrics in their decision making. We first document that ESG ratings are more explicable by firm characteristics in recent years than in the early years. For example, large firms receive higher ESG ratings in the post-2010 period, and firm size is the most statistically significant (i.e., largest *t*-statistic) explanatory variable in the multivariate regressions of ESG ratings. More importantly, we show that companies owned by the same institutional investors as their ESG rater ("sister firms") receive higher ESG ratings. The finding of higher ratings for sister firms is robust to the control for firm characteristics such as firm size. It is also robust to alternative measures of sister firms, control group, and estimation approaches.

We recognize the potential endogeneity in firm ownership and take a meticulous approache to making causal inference. Our identification for the common-owner effect on ESG ratings comes from exogenous changes in rater ownership, which happened during corporate

[4] In March 2020, Isra Vision, a German manufacturer of camera technology, sued ISS ESG, a well-established ESG rating agency, for assigning it the lowest "D-" ESG rating. Consequently, the Munich District Court banned ISS ESG from rating the ESG of Isra Vision. This is the first known lawsuit based on poor ESG ratings, see, e.g., "Heavy flows into ESG funds raise questions over ratings" by Billy Nauman, *Financial Times,* March 4, 2020.

mergers and acquisitions. Prior to 2009, KLD, the most widely used ESG data source for academic studies and among the most popular for practitoners, was a privately held company mostly owned by its founders and employees. Through a couple of acquisitions, it became part of a publicly listed company, which has major shareholders identified from SEC mandatory disclosures. We show that the newly created sister firms through the acquisition received higher ESG ratings than before. Moreover, ESG ratings increased only for newly added sisters, not for other unrelated firms. The results from such a pseudo natural experiment of acquisition lend support for a causal interpretation of our main finding.

We find that the ESG rating favoritism for sister firms is more pronounced when the common institutional investor is dedicated (i.e., with a longer holding horizon), owns a large equity stake in the rater's holding company, and is more active in terms of management style. Therefore, the effect of rater ownership on ESG rating depends on owner characteristics in a logical way. Such findings are consistent with theoretical prediction that active large shareholders extract private benefit from firms rather than assume their monitoring role (e.g., Goldman and Wang, 2021).

Why does the rating agency inflate ESG ratings for their sister firms? One possible answer is to increase rating agency's own credibility to its major blockholders. If the blockholders care about the ESG rating and pick portfolio companies accordingly, assigning high ESG ratings to sister firms can increase owners' homophily with and confidence in the ESG rater. However, for investors with expertise in ESG, there is less benefit for the rater to boost ESG rating for portfolio companies to gain perceived credibility. Some institutional investors are more sincere in the pursuit and knowledgeable of ESG than others. An increasing number of investors become signatories of the United Nations Principles for Responsible Investment (UNPRI). In contrast to the average rating inflation for the whole sample, we find that the sister effect is weaker if the common owner is a UNPRI signatory. Moreover, the longer the owner has signed up for UNPRI, the weaker the rating inflation effect. This finding suggests that committed ESG investors with more in-house expertise are less interested in gaining higher ESG ratings for their portfolio firms through their influence on the rating agency.

We partition the ESG ratings by the financial materiality of the specific ESG issues according to the classifications of the Sustainability Accounting Standards Boards (SASB). We find that the ESG rating inflation induced by ownership connection is driven by the immaterial part of ESG ratings instead of the material part of ESG rating. Drilling down the specific

constructs of ESG ratings, we show different rating inflation for strengths and concerns components. Specifically, the rating agency tends not to inflate the material part of ESG concerns. Therefore, the rating agency seems strategic in choosing the specific ESG item to inflate. As markets tend to pay more attention to ESG concerns than strengths (Krüger, 2015), inflating the strengths would not be so alarming. We also benchmark the KLD ratings against ratings from Refinitiv (previously part of Thomson Reuters) and find qualitatively the same results: KLD give higher ratings to its sister firms relative to Refinitiv. Moreover, we find little evidence of the convergence towards ratings not subject to ownership influence. In other words, the other rater (Refinitiv) does not adjust up its rating for those sisters even in subsequent years.

As an out-of-sample test for rating inflation, we use future ESG incidents to evaluate the accuracy of initial ESG ratings. Specifically, RepRisk collects negative news about firms' ESG activities on a real-time basis (Li and Wu, 2020). The coverage is widespread with both local and nonlocal, minor and major news. We find that, all else equal, sister firms tend to have more future negative ESG news than non-sister firms. This ESG underperformance by sister firms is significant after controlling for the initial ESG rating, especially the concern aspects. Therefore, the inflated ratings to sister firms are revealed by their ex-post poor ESG performance.

The findings in this study have implications for the increasingly mainstream ESG rating-based investing. Low-quality ESG information can foster greenwashing (Wu, Zhang, and Xie, 2020). This paper is among the first to scrutinize the integrity of ESG ratings and identify problems related to conflicts of interest. Our study shows that the large shareholder effect on credit ratings documented by Kedia, Rajgopal, and Zhou (2017) is also prevalent for ESG ratings. However, ESG ratings are different from credit ratings as ESG ratings are not paid by issuers, so the "issuer pay" concern that plagued credit ratings is not the driver for conflicts of interest for ESG ratings. Nevertheless, once institutional investors gain influence over ESG rating agencies through their blockholdings, their portfolio companies can receive favorable ratings, via suasion from the investor, catering by rater, or other channels.[5]

This study of conflicts of interest inherent for ESG rating agencies is related to prior work on other information intermediaries such as corporate governance advisors studied by Li (2018). He finds that the voting recommendation advisor, Institutional Shareholder Service (ISS), tends

[5] Our study is also related to studies on the impacts of common ownership on product market competition such as Azar, Schmalz, and Tecu (2018). In our setting, the ESG rating firm and its sister firms are in different industries, and there is little competition between them.

to make voting recommendations favorable for management. Such a bias for the management is driven by ISS's revenue from consultation fees paid by the firms. Daines, Gow, and Larcker (2010) question the quality of commercial governance ratings. Cohen, Gurun, and Nguyen (2020) also demonstrate ESG rating deficiency in the energy sector, in which firms producing most green patents receive lower ESG ratings. The empirical findings on conflicts of interest in this paper are consistent with theoretical predictions from Mehran and Stulz (2007), and Goldstein and Huang (2020), which address rating inflation and the verifiability of ratings.

This study documents a new determinant of ESG rating: rater subjectivity, which played a role for CDO credit ratings leading up to the 2008 crisis (see, e.g., Griffin and Tang, 2012). It is widely documented in both academic studies and public commentaries that ESG ratings on the same firm can be very different across rating agencies. Berg, Koelbel, and Rigobon (2020), Christensen, Serafeim, and Sikochi (2021), and Gibson, Krüger, and Schmidt (2021) document evidence of rating disagreements and show that the correlations between different ESG ratings are generally low. Our study provides an underpinning for such a rater effect through the ownership of the rater. The rating disagreements are neither random nor innocuous. Different rating agencies are controlled by different owners, who then exert their own influence on ESG ratings. One implication of our study is that ESG rating agencies should be regulated like other information intermediaries.

The rest of the paper is organized as follows. We introduce the ESG rating industry and form the testable hypotheses in Section 2. Section 3 describes our data and empirical setting. The effect of sisterhood via common ownership on ESG rating is presented in Section 4. Section 5 discusses the channels and mechanisms for the sister firm effect. Section 6 concludes.

2. Institutional Background on ESG Ratings and Hypothesis Development

In this section, we first introduce the institutional background of ESG ratings, especially market practices. We then discuss relevant literature and form testable hypotheses for our empirical analyses. ESG ratings resemble some similarities with other ratings, but they have their own unique features and prominent roles.

2.1. ESG ratings

Sustainable Finance. Sustainable finance originated around early 1990s to foster social and environmental developments. However, such investments need specific metrics. Hence, social and governance ratings were created for practitioners. The phrase "ESG" was first coined in 2004 by combining environmental, social, and governance issues together. United Nations (UN) has been a strong promoter of ESG market development. Many large institutional investors worldwide integrate ESG factors into their portfolio analysis, equity screening, or quantitative research. Amundi, the largest asset manager in Europe in terms of total asset under management, pledged 100% ESG integration for their active funds and 100% integration of ESG in voting by 2021.[6] A considerable number of banks in 37 countries have also adopted the Equator Principle, committing to consider borrowers' environmental and social policies during their lending process.[7] To gain access to external financing at lower costs, firms have incentives to improve their ESG profiles. Hong and Kacperczyk (2009) document that irresponsible firms are eschewed by institutional investors and analysts, thus face higher cost of equity. Kim, Wan, Wang, and Yang (2019) show that institutional investors play an important role in shaping corporate ESG performance. One influential example is BlackRock, which sends "Dear CEO" letters to portfolio companies on a yearly basis to remind them about ESG issues starting in 2018 (Pawliczek, Skinner, and Wellman, 2021).

ESG Rating. An ESG rating is an assessment of a firm's performance in the natural environment, social conditions, and governance practices. Institutional investors and regulators refer to ESG ratings when evaluating a firm's ESG profile. The first major ESG rating agency is Kinder, Lydenberg, Domini & Co. ("KLD Research & Analytics", hereafter "KLD"). KLD was founded in 1988 in Boston as a privately owned research firm. It became the most widely used ESG data vendor since the mid-1990s. In 2007, 33 out of 50 institutional investors worldwide were using its research to integrate ESG factors into their investment decisions.[8] Its rating is the primary data source for academic studies. KLD was acquired by a public firm in 2010. Apart from KLD, Refinitiv/Asset4 is another major ESG rating provider with a data history back to 2002.[9] Refinitiv was one of the major divisions of Thomson Reuters and is now owned by Blackstone and the London Stock Exchange. The lack of reporting standards is a

[6] See Responsible Investment Amundi's Ambition 2021.
[7] See the website: https://equator-principles.com.
[8] http://web.archive.org/web/20070524034938/http://www.kld.com:80/about/index.html.
[9] Berg, Fabisik, and Sautner (2020) find inconsistent records of ESG ratings from Refinitiv over time.

main hurdle for the practical use of ESG information. The ESG rating industry has experienced rapid expansion and consolidation in recent years. Some examples include Bloomberg acquiring New Energy Finance, Morningstar acquiring Sustainalytics, Standard and Poor's acquiring TruCost and RobecoSAM ESG Ratings, and Moody's acquiring Vigeo Eiris. Bloomberg used to provide ESG ratings from third-party data sources since 2012. It launched its own ESG scores in August 2020 to improve the transparency of ESG scores and data so that investors can make informed decisions.

Rater Ownership. After KLD became part of a publicly listed company in 2010, its major shareholders can be identified from regulatory filings. Large investment managers, including several mutual funds and hedge funds, own a big stake in the rating agency. Some of the owners hold concentrated portfolios and also seem to be mindful of ESG issues. Their investment strategies allow them to micro-manage their investees, such as sitting on the board of portfolio companies. For example, ValueAct Capital usually holds a dozen public companies. It also makes it public about its holdings, such as investment in Microsoft in 2013. It appears that most, if not all, major institutional investors of the parent firm of the rater are conscious of the ESG ratings of their portfolio companies. Dyck, Lins, Roth, and Wagner (2019) show that institutional investors push for stronger firm-level ESG (they focus on E&S) performance around the world motivated by financial returns. It is possible that they also push rating agencies for higher ESG ratings. Investors can push for the certain ESG profile to justify their investments in those companies.

Regulations on ESG Ratings. Despite the increasingly important role of ESG ratings in the capital markets, the ESG rating industry is little studied. Various concerns emerge along the way. First, the ESG assessments are prone to subjectivity, interpretation, and hypocrisy. As SEC Commissioner Hester M. Peirce highlighted, in her speech to the American Enterprise Institute on June 18, 2019: [10]

> "… *the ambiguity and breadth of ESG allow ESG experts great latitude to improve their own judgments, which may be rooted in nothing at all other than their own preferences. Not surprisingly then, there are many different scorecards and standards out there, each of which embodies the maker's judgments about any issues it chooses to classify as ESG.*"

[10] See Scarlet Letters: Remarks before the American Enterprise Institute by Commissioner Hester M. Peirce on June 18, 2019 (https://www.sec.gov/news/speech/speech-peirce-061819).

The above quote also leads to the second major concern on ESG ratings —the lack of transparency on how information is assessed. The issue of the "limited transparency" in the ESG rating processes spans from indicators, algorithms, to qualitative proprietary assessment techniques applied. Third, as many of the major ESG raters cover thousands of firms using hundreds of indicators, the completion of the unmanageable amount of the work may be at the cost of the quality of the ratings. All these tendencies add to the concern regarding the trustworthiness of ESG ratings.

ESG rating agencies are part of the ecosystem of sustainable investing. The overarching framework is the Sustainable Development Goals (SDGs) put forth by the United Nations in 2015. ESG has also become an important element of the UN Global Compact, Principles of Responsible Investing (PRI), and the Sustainability Accounting Standards Board (SASB) standards. Therefore, it is important to understand the determinants of ESG ratings and whether they are prone to conflicts of interest, which investors need to be informed of. However, ESG ratings or rating agencies are unregulated. Although they play similar functions as other information intermediaries such as credit rating agencies, financial analyst recommendations, and even auditors, ESG rating agencies are not subject to any securities law in any market. More research is needed to uncover important findings in practice.

2.2. Testable hypotheses

Rating agencies, as information intermediaries, have incentives to provide accurate ratings in order to establish a good reputation for long-lasting business. Bolton, Freixas, and Shapiro (2012) provide a reputation-based model for credit rating agencies. In their model, credit rating agencies are disciplined by their reputational concerns. Oftentimes, rating agencies issue unbiased ratings given their information set. However, rating inflation does occur under certain conditions. Goldstein and Huang (2020) further show that rating inflation can be an equilibrium outcome when credit ratings have feedback effects and affect corporate financing and investments. Key to Goldstein and Huang (2020) model is the verifiability of credit rating. Inflation occurs when ratings are only partially verifiable.

ESG ratings resemble credit ratings in some ways. However, there are also remarkable differences. One is that ESG ratings are harder to be verified. Accordingly, there is room for the rater to exert her own subjective views. Such subjectivity and opaqueness are a hotbed for conflicts of interest to become consequential (see, e.g., Mehran and Stulz, 2007). The potential conflicts of interest can originate from, among others, customers and shareholders of the rating

agencies. Some may dismiss the conflicts of interest arising from customers because ESG ratings are not paid by the companies that are being rated. Nevertheless, the major shareholder of the rating agencies can exert influence towards their favorable directions when they can gain from higher ratings for their portfolio companies.

Kedia, Rajgopal, and Zhou (2017) provide empirical evidence in supporting rating inflation for related companies for credit ratings. Specifically, they find that Moody's give higher ratings (relative to S&P) to companies that are held by the same institutional investors (e.g., Berkshire Hathaway and Davis Selected Advisers). Further, they suggest that raters' bias toward the economic interests of their significant shareholders are more severe for opaque and complex issues, such as structured finance products. Their findings are consistent with the view that large shareholders can exert real influence on the firm, such as takeover and managerial turnover, so that to reap private benefits for themselves (Edmans, 2014).[11] We hypothesize that the same can happen for ESG ratings.

Hypothesis 1 (Rating Inflation): *ESG raters assign higher ESG ratings to their sister firms which are owned by the same blockholders than non-connected firms.*

Some argue that information and reports for ESG ratings are read and analyzed by machines, and thus, rating assessments may not be prone to subjectivity and human adjudgments. Unlike credit ratings, which are regulated and tend to be governed by specific triggers such as a firm breaching a certain level of leverage, ESG ratings are less regulated and monitored and lack clear metrics to guide measurements, which makes rating inflation more plausible. If credit ratings are subject to conflicts of interest, then ESG ratings are likely to be influenced by subjectivity as well.

If larger shareholders could influence the ESG rating process, it is natural to expect that the ESG rater should treat its key large shareholders more favorably than other large shareholders. The ESG rater has incentives to cater to key institutional shareholders because their "voice" or "exit" can have real consequences on or pose real threats to the ESG rater itself. In a similar vein, the ESG rater is more inclined to cater to major sister firms, in which their large shareholders have large stakes. Therefore, the key sister firms are likely to obtain even higher ESG ratings than other sister firms. In other words, the closeness between an ESG rater

[11] See Edmans (2014) for a detailed literature review of theoretical and empirical studies on the mechanisms through which large shareholders can influence corporate governance. See McCahery, Sautner, and Starks (2016) for a comprehensive survey of corporate governance channels that institutional investors prefer to adopt.

and its large shareholders, and the connectedness between large shareholders and sister firms, have positive effects on rating inflation. Many ESG raters embarked on the ESG rating business through acquiring the existing ESG rating business. The sister firms of an ESG rater may enjoy private benefits on ESG ratings after the acquisition of the ESG business by the rater.

Hypothesis 2 (Institutional Influence): *The effect of sister firms on ESG rating is more pronounced when the institution owners can and are willing to exert a stronger influence on the rater.*

Institutional investors have different mandates and objectives. Therefore, they may have different demands for ESG rating inflation even when they are equally capable of influencing the rating agencies. Some investors aim to obtain authentic ESG ratings for their portfolio companies. Generation Investment Management is such an example.[12] Generation Investment Management was one of the few founding signatories of UNPRI in 2006. It is likely that Generation Investment Management has a different view and policy on ESG than other investors. Dyck, Lins, Roth, and Wagner (2019) also emphasize the role of UNPRI signatories. In contrast to UNPRI signatories, other institutional investors may have a stronger demand for ESG rating inflation.

Not all ESG components are equally important, or "material". Investors and the public may pay less attention to such financially immaterial aspects of ESG than others. Moreover, rating inflation on immaterial aspects of ESG is innocuous as it is inconsequential. It is possible that the rating agency has more leeway to inflate immaterial ESG scores for its sister firms. However, such rating inflation may eventually be revealed in the future.

3. Data and Summary Statistics

In this section, we first describe three main datasets used in the paper, including the ESG ratings data, Compustat corporate fundamentals data, 13F institutional holding data. We then describe our model specifications.

[12] Generation Investment Management, an equity hedge fund with a focus on sustainability established in 2004 by former U.S. Vice President Al Gore with $20 billion assets under management as of 2020, was the largest shareholder of the parent firm of the rater in 2013Q4 with a holding of 7.87% and in 2014Q3 with a holding of 8.45%.

3.1. ESG rating data

The ESG rating data is provided by the KLD database. In the existing literature, the ESG ratings are most commonly used to evaluate a firm's ESG performance.[13] The KLD ESG rating data is one of the longest ESG data time series available. The dataset covers S&P 500 firms from 1991 to 2000. Its coverage extends to Russell 1000 components and Russell 3000 component firms in 2001 and 2003, respectively. It measures the ESG strength and the ESG concern indicators for seven ESG categories: environment, community, employee relations, diversity, product, humanity, and governance. If a firm meets (or fails to meet) the evaluation criteria for an indicator, it gets one (zero) for that indicator. Each year, we add one point for each strength (concern) to have an aggregate strength (concern) for a given firm. We then take the difference between the strengths and the concerns across seven categories to calculate ESG ratings. The higher ratings indicate more strengths and or fewer concerns and vice versa.

Founded as a private company in 1988 and acquired in 2010 by a public firm, KLD Research & Analytics experienced the change of the ownership structure from a privately owned firm to a publicly traded firm. Our analysis focus on the ESG ratings post acquisition from 2010 to 2015. Table 1 presents summary statistics. In Panel A, the mean of the ESG strengths is 1.61 while the mean of the ESG concerns is 1.47. The average of the ESG ratings is 0.13 and the median of the ESG ratings is 0, with a standard deviation of 2.74. We have 11,145 firm-year observations in the sample.

[Insert Table 1 here]

3.2. Identifying shareholders and sister firms

We obtain ownership structure information from the Thomson Reuters Institutional Holdings 13F database (formerly known as CDA/Spectrum), which contains ownership information on all institutional investors who manage portfolios of at least $100 million under discretionary management. Common stock positions larger than 10,000 shares or $0.2 million must be disclosed and institutional managers file reports of their stock ownership quarterly (13-F filings) to the SEC. An institutional investor is defined as a large shareholder if it owns at least 5% of shares of the parent firm of the rater in a given year.[14] In our sample period of 2010

[13] See e.g., Hong and Kostovetsky (2012), Hong, Kubik, and Scheinkman (2012), DiGiuli and Kostovetsky (2014), Cheng, Hong, and Shue (2016), Khan, Serafeim, and Yoon (2016), and Chen, Dong and Lin (2020).

[14] The ESG rating data in a given year is released in the second quarter of the subsequent year (i.e., around June). For example, the rating data for 2010 was published in the second quarter of 2011. The ESG ratings for 2010 are

to 2015, the investments by large shareholders can be as high as more than 10%; the investment horizon ranges from about two to six years; some of those large institutional investors are mainly active owners while the others are largely passive owners in term of management style. We will discuss in the next section how the investment horizon, stake, and management style of large institutional investors can have impacts on the ESG ratings of their holding firms.

We define an investee firm as a sister if it composes at least 0.25% of the investment portfolio of one of those large shareholders in a given year.[15] Panel B of Table 1 makes various comparisons between sister firms and the rest of the firms. The average of the ESG ratings on sister firms is 2.70 and the corresponding average on the other firms is -0.07, with the differences between the two averages being 2.77 at the 1% significance. Similarly, the median of the ESG ratings on sister firms is 2.00 and the corresponding median on non-sister firms is 0.00. The difference test in medians is statistically significant at the 1% level.

Does the significant difference in the ESG ratings between sisters and non-sisters hold across the sample of firms? Figure 2 depicts the ESG ratings for sisters and non-sisters, respectively, via a histogram of the distribution. The visual inspection shows that, in general, the frequencies of positive (negative) ESG ratings for sister firms are higher (lower) than those for non-sisters. This distribution plot indeed confirms that the ESG ratings on sister firms are higher than those on non-sisters across the sample of firms. Further, we turn to a formal test, that is, the Kolmogorov-Smirnov test, to compare two distributions. We find that the null hypothesis that the two distributions of the ESG ratings on sisters and non-sisters are identical was rejected, with the Kolmogorov-Smirnov statistic being 0.3748 (p-value = 0.0000). Nevertheless, significant differences may be driven by a number of different factors at the firm level and institution level. To address this possibility, we will perform regression tests to control for a bunch of potential factors.

[Insert Figure 2 here]

matched with the institutional holding data from the third quarter of 2010 to the second quarter of 2011. Given that the ESG database is acquired in June 2010, this study analyzes the ESG rating data from 2010 to 2015, which are matched with the institutional holding data from the third quarter of 2010 to the second quarter of 2016.

[15] We adopt 0.25% as the cutoff because 0.25% is the 75th percentile holding weight in Thomson Reuters. 13F universe during the sample period. For robustness, we also use alternative definitions of *Sister* and find that the results are qualitatively similar, as shown in the next section.

3.3. Empirical model specification

The control variables include the following firm-level variables that may potentially account for variations in ESG ratings as documented in prior literature, including total assets, book-to-market ratio, firm age, sales per employee, ROA, prior-year return, capital expenditure, R&D, R&D missing dummy, dividends, cash holding, leverage, advertising intensity, institutional ownership, analyst coverage, and blue state dummy.[16] The stock price information is obtained from the Center for Research in Security Prices (CRSP); accounting variables come from the Compustat Fundamentals Annual database; analyst information is downloaded from the IBES detail file. Appendix Table 1 provides detailed variable definitions.

We begin by exploring the determinants of the ESG ratings pre- and post-acquisition of the acquisition of the ESG data business to test whether explanatory factors of the ESG ratings are time-variant. We regress the ESG ratings on all control variables defined in the previous section, with industry times year fixed effects included. In Table 2, column (1) reports the results for the whole sample period of 2003-2015; column (2) presents the results for the pre-acquisition period of 2003-2009; column (3) shows the results for the post-acquisition period of 2010-2015. An interesting observation arises: The estimated coefficient on firm size (i.e., total assets) is insignificant pre-acquisition, whereas it is positive and significant post-acquisition. It implies that big firms outperform small firms in terms of the ESG ratings post acquisition of the ESG data business, but this is not the case pre-acquisition. In other words, this observation pinpoints the fact that the size effect on the ESG ratings exists only post-acquisition.

[Insert Table 2 here]

Looking at other explanatory variables, firm age, financial constraints measures (i.e., cash holdings, dividends, and leverage), advertising intensity, analyst coverage, and blue state dummy explain ESG ratings consistently across time. The coefficients on cash holdings and dividends are positive and significant, whereas the coefficient on leverage is negative and significant, in line with the financial constraint hypothesis (i.e., firms do good when they do

[16] See Di Giuli and Kostovetsky (2014) on total assets, book-to-market ratio, and firm age; Dimson, Karakas, and Li (2015) on sales per employee, ROA, and stock return; Jensen and Meckling (1976) on capital expenditure, R&D, and R&D missing; Hong, Kubik, and Scheinkman (2012) on dividends, cash holding, and leverage; Servaes and Tamayo (2013) on advertising intensity; Dyck, Lins, Roth, and Wagner (2019), Gibson, Glossner, Krüeger, Matos, and Steffen (2020), and Chen, Dong, and Lin (2020) on total institutional ownership; Hong and Kacperczyk (2009) on analyst coverage; Hong and Kostovetsky (2012), and Di Giuli and Kostovetsky (2014) on political values.

well) (Hong, Kubik, and Scheinkman, 2012). The loading on advertising intensity is positive and significant, consistent with the view that advertising spending strengthens the relation between CSR and firm value (Servaes and Tamayo, 2013). The negative coefficient on institutional ownership echoes the agency motives behind ESG spending (Cheng, Hong, and Shue, 2016). The loadings on the blue state dummy are positive and significant, which is in line with the blue and red effects that firms have higher ESG ratings when they are headquartered in Democratic rather than Republican-leaning states (Di Giuli and Kostovetsky (2014)).

Panel B of Table 1 presents the univariate analysis of firm characteristics of the sisters and non-sisters. Compared with non-sister firms, sister firms are larger, more profitable, and mature, have more growth opportunities and higher institutional ownership, spend more on advertising, followed by more analysts, and are more likely to have headquarters in the blue states. In the univariate analysis, the difference tests on those firm characteristics are all statistically significant. For example, the average of the logarithm of total assets of sister firms is 9.28 and the counterpart of non-sister firms is 7.13, with the difference being 2.15 at the 1% significance level. For the blue-state dummy, the average of percentage of sister firms with header-quarters being in democratic-leaning states is 0.68, which is statistically significant from the counterpart for non-sister firms, 0.60.

4. Sister Firms and ESG Ratings

The transition from a privately-owned firm to a publicly listed firm implies that shareholders' interests have become the important driver of corporate actions and thus may bring significant changes to the ESG ratings post-acquisition. In other words, those large shareholders may extract private benefits. Most large shareholders are investment firms and as such are not assigned an ESG rating.[17] However, through the acquisition, the rater "adopts" many sister firms that are connected with these large shareholders. Would those sister firms receive higher ESG ratings for the sake of institutional shareholders' interests? Or is this not

[17] Despite most large shareholders of the rater being not assigned with ESG ratings, in our sample, we are able to identify one firm, one of the top 3 large shareholders, a public firm and an S&P 500 component, which has ESG ratings available. This firm receives 9 notches higher ESG rating one year after the rater was acquired, compared with one year before.

the case because of machine involvements or reputational concerns in repeated games? In this section, we will bring those questions to the data.

4.1. ESG rating and sister firms

To answer those question, we begin with examining the relationship between the ESG ratings and the status of being a sister firm as the following specification:

$$\text{ESG rating}_{it} = \alpha_0 + \alpha_1 \text{Sister}_{it} + \alpha_2 X_{it} + e_{it}, \quad (1)$$

where the dummy variable, Sister, equals one if a firm is a large investee owned by a large shareholder of the rater's parent firm and zero otherwise; X_{it} is a vector of firm-level characteristics including total assets, book-to-market ratio, firm age, sales per employee, ROA, prior-year return, capital expenditure, R&D, R&D missing dummy, dividends, cash holding, leverage, advertising intensity, institutional ownership, analyst coverage, and blue state dummy.

As shown in Table 3, in column (1), we include the Sister dummy variable only without any control variables, and the regression is akin to the univariate analysis. The coefficient on the Sister dummy, 2.775 with a *t*-statistic of 10.38, is positive and statistically significant, indicating a positive relation between the ESG ratings and the status of being a sister. In column (2), we include total assets as the only independent variable, consistent with the size effect on the ESG ratings that we document before, the estimated coefficient on total assets, 0.799 with a *t*-statistic of 24.33, is positive and significant at the 1% level. In column (3), we include the Sister dummy and total assets as two only independent variables. The coefficient on the Sister dummy is 1.199 with a *t*-statistic of 4.97, implying that Sister still can significantly explain ESG ratings with the control of firm size. Nevertheless, omitted firm characteristics could bias this finding. In column (4), we include all firm-level control variables and a state dummy, and control for industry and year fixed effects to examine whether the status of being a sister remains a key determinant of ESG ratings. The coefficient on the Sister dummy, 0.795 with a *t*-statistic of 3.78, is positive and significant at the 1% level, indicating that adding firm-level controls and industry and year fixed effects does not qualitatively affect the results.

[Insert Table 3 here]

All the findings suggest that those sister firms are assigned with higher ESG ratings, supporting our null hypothesis that sister firms are obtained favorable treatment compared with

non-sister firms. This finding is consistent with the "partial verifiability constraint" view of Goldstein and Huang (2020), as the validity of ESG ratings may be difficult to verify. Consequently, the ambiguity and breadth of ESG ratings leave ESG raters with scope and discretion to treat their favorites favorably.

4.2. Robustness tests

In this subsection, we examine the robustness of our main findings by constructing various alternative measures and using an alternative estimation method.

4.2.1. Large Shareholders. We consider an alternative definition of large shareholders. We define an institutional investor as a large shareholder of the rater if it owns at least 4 % of shares of the rater, instead of 5% as defined in the previous subsection. The idea is that an institutional investor is required to file Schedule13D/13G with the SEC when acquiring more than 5% of a voting class of equity securities of a publicly-traded company.[18] To avoid public disclosure, the institutional investor may intentionally manage its holding positions, just below 5%, though still being able to influence management team due to its significant stakes. The results are reported in column (1) of Table 4. While all control variables in our baseline test are still included in the new test as well as in the rest of the table(s), we only report the coefficients of the Sister dummy (and any newly added variables) for the sake of brevity. Using the alternative cutoff to define a large shareholder leads to similar findings. The coefficient on the Sister dummy, 0.712 with a *t*-statistic of 3.94, is positive and significant at the 1% level, which has a similar magnitude with the baseline result, 0.795 with a *t*-statistic of 3.78 in column (4) of Table 3.

[Insert Table 4 here]

4.2.2. Sister Firm Definition. We explore whether our results are robust to alternative definitions of sister firms. The amount of monitoring effort allocated by institutional investors to an investee firm depends on the relative importance of the investee firm's stock in their portfolios (Fich, Harford, and Tran, 2015). In other words, we would expect that the larger stakes those blockholders hold in those investee firms, the more preferential treatments the investee firms receive from the rater. In our previous analysis, we define a firm as a sister firm if it accounts for at least 0.25% of the portfolio of one of the rater's large shareholders. Like

[18] Please see https://www.sec.gov/fast-answers/answersshed13htm.html.

Fich, Harford, and Tran (2015), we now use a stricter cutoff of 5%. Specifically, we define a firm as a sister if it accounts for at least 5% of the portfolio of one of the rater's large shareholders. We tabulate the results in column (2) of Table 4. Column (2) reveals that the coefficient on the Sister dummy (1.773) is twice larger than that of our baseline model results (0.795 in column (4) of Table 3).

In a similar spirit, we would expect to see the impacts of being a sister firm on rating inflation becomes greater as institutional ownership cutoffs for sister firms go up. Figure 3 plots the coefficients on the Sister dummy that are estimated from our baseline model. We define a firm as a sister firm if it accounts for 1% to 5% of the portfolio of one of the rater's large shareholders. Indeed, the coefficients on the Sister dummy increase monotonically as the cutoffs rise from 1% to 5%. The results not only confirm that our findings are robust to various alternative definitions of sisters but show that the bigger stake that a large shareholder invests in a sister firm, the higher the ESG ratings assigned to the sister firm.

[Insert Figure 3 here]

4.2.3. Continuous Measure of Connection. We use an alternative continuous measure to quantify the stakes that large shareholders invest in those sister firms. The continuous measure is the size of ownership, which is defined as the average of the large shareholders' portfolio weights on a sister firm in a given year. The results are reported in columns (3) in Table 4. The estimated coefficient on the continuous measure, 0.272 with a *t*-statistic of 3.14, is positive and significant. Using alternative continuous measure provides further confirmative evidence that sister firms are more likely to receive favorable treatments when large shareholders take larger stakes in those sister firms.[19]

4.2.4. Matched Sample. We implement propensity score matching to address one particular concern about nonlinearity. The treatment group includes those sister firms and the untreated group is comprised of those remaining firms that are rated by the same rater but are not its sister firms. To control observable differences in attributes between the treatment and control groups, we use the propensity score matching procedure. This matching approach is suitable in our setting because we have more candidates of potential matches in the untreated group than

[19] We also test whether ESG ratings increase with the length that large shareholders invest in those sister firms. The length of the relationship between a large shareholder and a sister firm is defined as the number of quarters that large shareholders hold those sister firms. We find that rating inflation is positively related to the duration of ownership.

the treated group and it increases the possibility of identifying appropriate matches for sister firms from non-sister firms. The matching technique we employ is a one-to-one nearest-neighbor matching with replacement since it can reduce the bias of regression estimators.

We begin the matching with a logit regression where the dependent variable equals one if a firm is a sister firm and is zero otherwise. Since independent variables need to influence a firm's ESG rating and institutional investors' block holding choices simultaneously, we use the firm characteristics in our baseline regression to match a sister firm with another firm whose firm attributes are statistically closest to it. To alleviate the concern of imperfect matching, we also control the same covariates in the regression analysis. Column (4) of Table 4 reports the results based on the propensity score matching. The coefficient on Sister, 0.666 with a *t*-statistic of 2.47, remains positive and statistically significant. The matching analyses provide further supportive evidence of our main findings.

4.3. Identification

Despite the various precautions taken in the previous subsection, our findings may still be spurious due to potential endogeneity problems. Omitted variables may be the drivers behind the association between the status of being sisters and favorable ESG ratings obtained from the rater. First, it is possible that large shareholders may hold both the rater and rater's sisters due to their common unobservable characteristics. Second, our findings may be confounded by the fact that the rater and its large shareholders are capable of identifying firms with better ESG performance. In other words, specific firm characteristics not only may attract large shareholders to take large stakes in those firms, but also make the rater assign high ratings. To identify the causal relationship between the status of being sisters and firms' ESG rating inflation, we use the acquisition of the ESG business as an exogenous shock to examine ESG ratings of those sister firms pre- and post the acquisition of the ESG business in 2010. If higher ESG ratings towards sister firms are due to private benefits from corporate control, instead of unobservable common criteria, then the higher ESG ratings assigned to sister firms should not exist before the takeover of the ESG business.

We begin by computing the average of the ESG ratings on those sister firms and non-sister firms post the acquisition of the ESG business. Further, we define pseudo sisters pre-acquisition as those firms held by the same set of large shareholders prior to them being classified as large shareholders post-acqusition, and pseudo non-sisters as the rest of firms pre-acquisition. We

calculate the average of the ESG ratings on pseudo (non) sisters before the acquisition. We plot the averages of the ratings for (non) sisters and as those for pseudo (non) sisters in Figure 4. Two interesting observations arise. First, the average of the ESG ratings on pseudo sisters is negative pre-acquisition, while the average of the ESG ratings on sisters is positive and has risen to above 1 post-acquisition. Second, the average of the ESG ratings on pseudo non-sisters is negative pre-acquisition and the average of the ESG ratings on non-sisters is still negative post-acquisition. The visual inspection pinpoints large differences in ESG ratings on pseudo sisters pre-acquisition and sisters post-acquisition, despite little differences in ESG ratings between pseudo non-sisters and non-sisters.

[Insert Figure 4 here]

We then turn to formal tests by using regression-based analyses. Specifically, we extend our sample period to cover 2003 to 2015, including six-year before and after acquisition.[20] We augment our baseline regression by adding another dummy variable, Pseudo Sister, which is equal to one if a firm is a large investee firm of the same large shareholders prior to them being classified as large shareholders post-acquisition. If the rater loosened its standards for assigning ESG ratings only after the change of ownership, the coefficient of the Sister dummy should be positive and significant, while the coefficient of the Pseudo Sister dummy should not. Instead, if higher ratings assigned to those connected firms are due to common criteria, then both the coefficient of the Sister dummy and that of the Pseudo Sister dummy should be positive and significant. As can be seen in column (1) of Table 5, the coefficient of the Sister dummy (1.791 with a *t*-statistic of 8.28) is positive, whereas the coefficient on the Pseudo Sister dummy (-0.329 with a *t*-statistic of -2.62) is negative. This finding suggests that once being connected with the rater, those sisters get higher ratings, but this is not the case pre-acquisition. [21] Overall, we find little evidence to suggest that common criteria are the source of the favorable ratings by the rater towards its sister firms, as higher ratings exist only after the connection is established.

[Insert Table 5 here]

[20] The potential concern is that our findings may be contaminated by some confounding events that incurred during this long sample period. To address this issue, we re-estimate our results using a one-year (three-year) window before and after the acquisition. We find that the robustness check does not qualitatively change the results.

[21] To rule out the possible confounding effects due to macroeconomic or industry-level factors, we repeat the exercise except for replacing the dependent variable, ESG ratings, with relative ESG ratings defined in Section 5.4. Using relative ESG ratings does not qualitatively impact our results.

Our analyses above raise two interesting questions. First, would becoming a sister firm with the rater help upgrade a firm's ESG rating? Second, would changing status from being a sister firm with the rater to becoming an outsider lead to the downgrade of a firm's ESG rating? To answer the two questions, we create four dummy variables: Become Sister (Become Pseudo Sister) that takes the value of one if a firm becomes a sister firm with the rater in a year after (before) 2010 and is zero otherwise; Become Outsider (Become Pseudo Outsider) that takes the value of one if a firm is no longer a large investee of large shareholders of the rater in a year after (before) 2010 and zero otherwise.

As shown in column (2) of Table 5, the coefficient on the Become Sister dummy, 1.473 with a *t*-statistic of 8.25, is positive and significant, while the coefficient on the Become Pseudo Sister, 0.162 with a *t*-statistic of 0.83, is insignificant. The results answer the first question: becoming sister firms with the rater has little impact on ESG ratings pre-acquisition, but after the acquisition, becoming sisters post-acquisition results in favorable ESG ratings. As can be seen in column (3) of Table 5, the coefficient on the Become Outsider dummy (0.020 with a *t*-statistic of 0.14) is insignificant, suggesting that if a firm is no longer a sister post-acquisition, the rater does not downgrade them, which answers the second question. This finding may reflect "the once and forever club"—both the rater and their sisters have incentives to maintain their relationship once it is established.

5. Channels and Mechanisms

The section above shows that the rater tends to give preferential treatments to their sister firms by assigning higher ESG ratings. In this section, we explore channels and mechanisms that drive such rating inflation and the subsequent performance.

5.1. Owner style and influence

We begin with investigating how relationships with large shareholders affect the extent of rating inflation. First, we explore whether rating inflation is related to the closeness between the rater and its large shareholders. Does the duration that large shareholders hold the rater matter? Chen, Harford, and Li (2007) suggest that long-term and short-term large investors take different efforts in monitoring activities. Compared with short-term investors, long-term investors focus more on monitoring activities and less on short-term trading profits. McCahery, Sautner, and Starks (2016) document that long-term institutional investors intervene in their

portfolio firms more intensively, through "voice" or direct intervention, than short-term investors do. In this subsection, we examine any differences in ESG ratings on sister firms held by long-term vs. short-term large shareholders of the rater.

According to holding periods, we define an institutional investor as a dedicated (transient) large shareholder of the rater if it holds at least 5% of the rater's ownership for more than (less than or equal to) two years, following Chen, Harford, and Li (2007). In column (1) of Table 6, the dummy variable, Sister, is equal to one, if an investee firm is owned by a dedicated large shareholder of the rater and zero otherwise. As reported in column (1), when sister firms are held by dedicated large shareholders, the coefficient on the Sister dummy, 0.842 (*t*-statistic of 3.56), is positive and significant at the 1% level. In column (2), the dummy variable, Sister, is equal to one, if an investee firm is owned by a transient large shareholder of the rater, and zero otherwise. As shown in column (2), when sister firms are owned by transient large shareholders, the coefficient on the Sister dummy is insignificant. Our results suggest that ESG rating inflation is limited to sister firms held by dedicated instead of transient large shareholders.

Does the size of the stake in the rater held by large shareholders make any difference? We rank large shareholders based on their average ownership of the rater in a given year during our sample period. We define a dummy, Top (Bottom), to indicate if a sister firm is held by the rater's large shareholders that rank in the top (bottom) five to indicate their average quarterly stake in the rater. In column (3) of Table 6, the coefficient on the Top dummy, 1.098 with a *t*-statistic of 3.88, is positive and significant. The results show that when large shareholders take more stakes in the rater, those sister firms are more likely to receive preferential treatments from the rater.

[Insert Table 6 here]

Does the management style of those large institutions matter? If large shareholders are passive investors, they might not care about the ESG ratings of their holding firms. In other words, the sister firms held by passive shareholders may not be able to receive preferential treatments from the rater. To explore this possibility, we repeat our baseline test, but classify large shareholders into two categories, active and passive, respectively, and reexamine the status of being a sister within each category. Specifically, in column (5)/(6) of Table 6, Sister is a dummy variable that takes a value of one if a sister firm is held by a large shareholder who is an active/passive player in the fund industry and zero otherwise. As shown in column (5),

when sister firms are held by active institutional investors, the coefficient of the Sister dummy, 0.728 with a *t*-statistic of 3.71, is positive and significant. As shown in column (6), when sister firms are held by passive institutional investors, the coefficient of the Sister dummy is insignificant. Those results are consistent with our expectation that active institutional investors care more about the ESG ratings of their holding firms.

Our analyses show that ESG rating inflation for sister firms is more pronounced when the common owner is long-term investors, holds a large ownership stake, and is more active in terms of management style. The results suggest that common owner characteristics may be underlying forces behind our finding of ESG rating favoritism for sister firms.

5.2. UNPRI signatories

While we show that large institutional investors as a whole may require inflated ESG ratings, more recent studies suggest that certain institutional investors are the main driver for ESG performances.[22] Dyck, Lins, Roth, and Wagner (2019) find that institutional investors that are signatories to UN Principles for Responsible Investment (UNPRI) have more than double the average investor impact on firms' environmental and social performance. Similarly, Gibson, Glossner, Krüeger, Matos, and Steffen (2020) find that around the world, investors that are signatories to the UNPRI exhibit better portfolio-level ESG performance. UNPRI, which was launched in April 2006 and supported by the United Nations, is the world's leading proponent of ESG investments and operates as an industry-led network of the world's largest institutional investors. It started with less than 100 signatories, but the number of UNPRI signatory institutions has increased exponentially since the launch of the UNPRI in 2006. By the end of 2020, the UNPRI has 3038 signatories, including asset owners, investment managers, and service providers, with about over $103.4 trillion in assets under management.

The UNPRI provides guidance for signatories to commit ESG issues and put the six principles into practice.[23] Among the six principles that signatories commit to are, the first two—"Principle 1: We will incorporate ESG issues into investment analysis and decision-making processes; Principle 2: We will be active owners and incorporate ESG issues into our

[22] See, for example, Dimson, Karakas and Li (2015), Dyck, Lins, Roth, and Wagner (2019), Gibson, Glossner, Krüeger, Matos, and Steffen (2019), Starks, Venkat and Zhu (2019), and Chen, Dong and Lin (2020).
[23] More details about these six principles can be found at https://www.unpri.org/pri/what-are-the-principles-for-responsible-investment.

ownership policies and practices"—are most relevant to this study. UNPRI takes its signatories seriously. In September 2020, it ousted five asset managers or asset owners from the UNPRI signatory list, including BPE of France, for failing to meet minimum requirements. Those signatories had two years to meet the minimum requirements.

We examine how institutional investors with different sustainability pursuits drive ESG rating inflation by exploiting the public status of those large shareholders being UNPRI signatories. To explore, we define the UNPRI Signatory dummy, which is equal to one if a large shareholder is a signatory of UNPRI and zero otherwise. Being a signatory requires that an institutional investor genuinely cares about ESG performance by incorporating ESG issues into decision makings as active owners, individually and collectively. Therefore, we expect that if large shareholders are the UNPRI signatories, they are less likely to desire inflated ratings for their holding firms. In our sample period, about half of the large shareholders are UNPRI signatories. Among those institutions that are signatories, about one-third of them became signatories before the beginning of our sample period, while the rest two-thirds joined as signatories during our sample period. To capture the length of being a signatory, we define UNPRI Tenure as the number of years since a large shareholder becomes a signatory. We would expect that the longer an institutional investor becomes a signatory, the more the institutional investor commits to ESG performance rather than desiring ESG ratings *per se*. Further, we define two interaction terms, Sister × UNPRI Signatory and Sister × UNPRI Tenure, respectively. We augment the baseline test by adding those new independent variables. The results are reported in Table 7.

[Insert Table 7 here]

In column (1) of Table 7, we add the UNPRI Signatory dummy and the interaction term of Sister × UNPRI Signatory. The coefficient on the Sister dummy, 1.024 with a *t*-statistic of 4.48, remains positive and significant, while the coefficient on the Sister × UNPRI Signatory interaction term, -0.786 with a *t*-statistic of -2.88, is negative and significant. Those results suggest that those large institutional investors—that are UNPRI signatories–sincerely care about a firm's ESG performance *per se* instead of artificially inflating ESG ratings. In column (2), we add UNPRI Tenure and Sister × UNPRI Tenure. Similarly, the coefficient on the Sister × UNPRI Tenure, -0.384 with a *t*-statistic of -2.44, is negative and significant, indicating that those sisters held by UNPRI signatories with longer tenures are less interested in gaining higher ESG ratings for their holding firms. All the results suggest that large shareholders who are

signatories of UNPRI are more likely to adhere to those principles and commit real efforts for ESG improvements, and the rating inflation is weaker.

Among those large shareholders that are also UNPRI signatories in our sample, Generation Investment Management is one of the 68 founding signatories back 27 April 2006.[24] Generation Investment Management is not only a UNPRI signatory but the one with the longest tenure.[25] Generation Investment Management states that they construct portfolios of sustainable companies that "provides goods and services consistent with a low-carbon, prosperous, equitable, healthy and safe society". If Generation Investment Management genuinely cares about firms' ESG practices, they may be less likely to push for inflated ratings for those large investee firms in their portfolio. Indeed, when repeating the baseline regression for those sister firms held by Generation Investment Management, we find little evidence of rating inflation.

The institutional investors in our sample are mostly U.S.-based. Gibson, Glossner, Krüeger, Matos, and Steffen (2020) find no significant difference in sustainability footprint between UNPRI signatories and other institutions for U.S. institutions. They use RepRisk to measure actual ESG performance, which we discuss later. Our finding is encouraging: Although those UNPRI signatories may not have a seemingly superior ESG portfolio, they demand less rating inflation than non-signatories.

5.3. Materiality of ESG ratings

In this subsection, we pin down the potential implications of ESG rating inflation from an investor's viewpoint. ESG ratings are important metrics for investors to evaluate firms' ESG performance. While ESG issues can be financially material and immaterial, ESG issues that are financially material are far more important to investors. Among the first to study the implications of the materiality of ESG ratings, Khan, Serafeim, and Yoon (2016) show that ESG indicators that are financially material have predictive power over future stock returns, but this is not the case for the ESG indicators that are financial immaterial. They point out that

[24] For the list of the founding signatories, please refer to: https://www.unpri.org/pri/about-the-pri. For the complete list of signatories with detailed information on the account name and signature date, please refer to: https://www.unpri.org/signatories/signatory-resources/signatory-directory.

[25] In our sample, Generation Investment Management owns 5.08% of the rater's holding company on average and their stake is stable with an investment horizon of four years. 39 sister firms are identified through portfolio holdings of Generation Investment Management and on average each sister firm accounts for 3.88% in its portfolio holdings.

investors may *not* be able to distinguish material and immaterial ESG issues since materiality classifications are not available previously.

Related to our study, what are the implications of materiality in rating inflation? On the one hand, if rating inflation towards sister firms is limited to material issues, then it may cause negative consequences of shareholder values. On the other hand, if rating inflation is limited to immaterial issues, then it may not have detrimental effects on shareholder values, despite being harmful to other stakeholders. Unlike material ESG issues, which are followed by shareholders and closely monitored by regulators, immaterial ESG issues receive less attention and lack transparency, leaving raters with scope and discretion to give sister firms favorable ratings. Consistent with the "partial verifiability constraint" view of Goldstein and Huang (2020), the validity of immaterial ESG issues may be particularly difficult to verify, relative to material ESG issues. Accordingly, we would expect that rating inflation towards sister firms is mainly limited to immaterial ESG issues.

To distinguish material and non-material ESG indicators, we make reference to the Sustainability Accounting Standards Board (SASB) standards. To alleviate the problems about the ambiguity of ESG ratings that investors and regulators face, SASB, founded in 2011, aims at providing a clear set of standards for reporting sustainability information that matters most to their investors. Because the SASB standards are designed from an investor viewpoint, financial materiality is the underpinning for the standard-setting process. The SASB standards focus on sector-specific sustainability factors that are likely to affect the financial conditions or operating performances of companies materially. Specifically, the SASB standards provide guidance for 11 sectors that include 77 industries.[26] For example, regarding the environmental issues, greenhouse house emissions are a material issue for the extractives & minerals processing sector but are immaterial for the finance sector. Take another example, among the social issues, data security is a material issue for the consumer goods sector, but not for the transportation sector.

We hand-map the firm-level ESG rating indicators with the SASB sector-specific standards to classify the ESG indicators into financially material and immaterial categories, respectively. We follow Khan, Serafeim, and Yoon (2016) to classify material or immaterial

[26] Please refer to: https://www.sasb.org/standards-overview/materiality-map/. The 11 sectors include consumer goods, extractive and mineral processing, financials, food and beverage, health care, infrastructure, renewable resources and alternative energy, resource transformation, services, technology and communications, transportation, and services.

within each sector according to the SASB's sector-specific standards. For example, Tesla, Inc., an American electric vehicle and clean energy company, is in the transportation sector. In 2011, Tesla obtained one strength under the ESG category of "Climate Change: Carbon emissions" which is mapped to the SASB topic of "Green House Emission" as a material issue in the transportation sector; Tesla receives one concern under the ESG category of "reporting quality" and "board diversity", respectively, which is however not classified as material issues in the transportation sector by the SASB standards. Once mapping SASB material topics to the ESG indicators across sectors, we then construct the material (immaterial) ESG ratings for each firm as the material (immaterial) strengths minus the material (immaterial) concerns.

We repeat the baseline model except for replacing the dependent variables with the material and immaterial ESG ratings, instead of the (overall) ESG ratings. The results are reported in Table 8. As shown in columns (1) and (2), when the material and immaterial ESG ratings are dependent variables, the coefficient on the Sister dummy is 0.157 (*t*-statistic of 1.63) and 0.638 (*t*-statistic of 3.58), respectively. Consistent with our expectations, the results indicate that preferential treatments towards sister firms are mainly present in the financially immaterial ESG issues from an investor's viewpoint. In the similar spirits of the verifiability view of Goldstein and Huang (2020), the validity of immaterial issues, relative to material issues, may not be easily verified. Rating inflations of immaterial ESG issues can harm other stakeholders rather than shareholders. That higher ratings assigned to sister firms may not destroy shareholder values are presumably under the assumption that investors are able to distinguish material ESG issues from immaterial ESG issues. This assumption may not be true as Khan, Serafeim, and Yoon (2016) provide the opposite evidence that investors may not be able to distinguish material and immaterial ESG issues. As such, inflation of immaterial issues can also be harmful to shareholders.

[Insert Table 8 here]

Next, we repeat the baseline test except for assessing the implications of materiality on ESG strengths and concerns separately. Columns (3) and (4) report the results for the ESG strengths. The coefficients of the Sister dummy are 0.213 (*t*-statistic of 2.66) and 1.222 (*t*-statistic of 6.69) for material and immaterial ratings, respectively, pinpointing to the rater's loosening standards towards its sisters more for immaterial issues than material issues. When immaterial concern ratings are the dependent variable in column (6), the coefficient of Sister

is 0.584 with a *t*-statistic of 6.02, which is less than half of the magnitude of the counterpart based on immaterial strength ratings (1.222 with a *t*-statistic of 6.69) in column (4).

5.4. Benchmark against alternative ESG ratings

Apart from various factors that we have considered so far, would any unobserved and omitted factors account for higher ratings towards sister firms? For example, some macroeconomic or industrial events may influence a firm's ESG performance, and consequently, the ESG rating assigned to it. To explore, we employ a difference-in-difference method to examine relative ESG ratings instead of absolute ESG ratings. The first difference can be viewed as the difference between the KLD rating and an alternative rating. The idea is that if a firm's ESG performance is affected by an industry shock, it should reflect in both the KLD ratings and alternative ESG ratings, but not in relative ratings. The second difference can be thought of as comparing the ratings of sister firms with those of non-sister firms.

We begin by benchmarking the KLD ratings to those by Refinitiv ESG ratings. Compared to KLD, Refinitiv ESG data have a relatively short and small coverage: It covers S&P 500 firms since 2003 and extends to Russell 1000 components and Russell 3000 components in 2011 and 2017, respectively. Nevertheless, Refinitiv ESG ratings are the second most popular ESG rating data used in the existing ESG literature. Refinitiv provides two kinds of ESG measures: an ESG score and an ESG combined score. The Refinitiv ESG rating considers merely the positive aspects of ESG, while the Refinitiv ESG combined score considers both negative and positive ESG news. We use the Refinitiv ESG combined score since it provides a more comprehensive evaluation of a firm's sustainable impact and behavior and also more comparable to the KLD ESG rating.

We begin by grouping all firms into 20 quantiles based on KLD ESG ratings and Refinitiv ESG ratings, respectively, based on the distribution of raw ratings in each year so that they are of comparable scales. We then apply ESG rankings – from 1 to 20 in the analysis. We construct the dependent variable, Benchmarked ESG, as the differences between KLD ESG rankings and Refinitiv ESG rankings. Specifically, we estimate the following model:

$$\text{Benchmarked ESG}_{it} = \alpha_0 + \alpha_1 \text{Sister}_{it} + \alpha_2 X_{it} + e_{it}, \quad (2)$$

where the specification in the model (2) resembles the specification in the model (1) except for the dependent variable being the relative ratings.

The regression estimation results are reported in Table 9. As shown in column (1), the estimated coefficient of the Sister dummy is 1.226 with a *t*-statistic of 2.88, indicating that compared to Refinitiv, KLD remains to assign higher ESG ratings to its sister firms. These results help alleviate the concern that our findings may be driven by unobserved and omitted factors regarding ESG ratings. Our findings echo with the well-documented rating divergence by both academic studies and public commentaries—ESG ratings on the same firm can vary significantly across rating agencies.[27] Berg, Koelbel, and Rigobon (2020) attribute the rating divergence to the rater effect or rater's subjective view of the firm. We show that firms that are connected with the rater tend to receive favorable treatments relative to the alternative rater, which provides an underpinning for the rater effect through the ownership structure of the rater.

[Insert Table 9 here]

Having shown the significant differences between KLD ESG ratings and alternative ESG ratings toward those sister firms, we next examine whether the KLD and its competitors may adjust their ratings and the ratings assigned by two raters may converge in subsequent years. The idea is that if rating inflation might reflect the information-driven timeliness of KLD's rating decisions, rather than ownership-driven leniency, then the ratings by two raters would eventually converge. To explore this possibility, we estimate the response of future Refinitiv ESG ratings on current KLD ratings assigned to sister firms. In columns (2) and (3), the dependent variable is future Refinitiv ESG rankings, that is, Refinitiv ESG rankings in Year $t + 1$ and $t + 2$, respectively. The independent variable includes the Sister dummy, ESG rankings, and the interaction between them (Sister × ESG). If alternative ratings towards sister firms converge towards those by the KLD, that is, alternative rater adjusts ratings upwards, we would expect that the coefficient on the interaction term is positive.

The results are reported in columns (2) and (3) in Table 9. In column (2), when the dependent variable is Refinitiv ESG rankings in Year $t + 1$, the coefficient on the interaction term of Sister × ESG is -0.012 with a *t*-statistic of -2.15. In column (3), we obtain similar results when the dependent variable is Refinitiv ESG rankings in Year $t + 2$. In other words, after KLD assigns higher ratings to its sister firms, Refinitiv ESG ratings are not adjusted upwards on those firms in subsequent years. The results provide little evidence that high ratings assigned by KLD towards its sister firms, compared with low ratings assigned by its competitor, are

[27] See e.g., Berg, Koelbel, and Rigobon (2019), Christensen, Serafeim and Sikochi (2020), and Gibson and Krüger, and Schmidt (2021).

driven by the information timeliness of KLD's rating decisions. Further, the negative coefficients of the interaction terms in columns (2) and (3) indicate that the ratings on those sister firms continue to diverge in the subsequent years.

5.5. Incentive alignment

Why do institutional investors care about the ESG ratings of their portfolio companies? Hartzmark and Sussman (2019) argue that signaling good ESG metrics aids funds to attract inflows from investors. Asset owners can prefer investments with higher ESG ratings (Bauer, Ruof, and Smeets, 2021). To investigate incentive alignment between the rater and large shareholders, we examine two possibilities. First, the rater may have more incentives to provide favorable treatments to sister firms held by multiple blockholders than those sisters held by single blockholders. Second, it may also be the case that if a large shareholder of the rater is powerful and influential in terms of asset under management, it may create more incentives to assign higher ratings to the large shareholder's holding firms. In any case, those large shareholders can derive greater benefits by obtaining easing ratings for those connected firms in their portfolios.

To examine the first possibility, we repeat the baseline analysis but distinguish whether a large investee is held by one or multiple large shareholders. We report the results in Table 10. Specifically, in column (1), the Sister dummy takes the value of one if it represents at least 0.25% of the portfolio of a large shareholder of the rater and is held by *multiple* large shareholders in a year, and zero otherwise; in column (2), the Sister dummy takes the value of one if it represents at least 0.25% of the portfolio of a large shareholder of the rater and is held by a *single* large shareholder in a year, and zero otherwise. The coefficient on the *Sister* dummy in column (1), 1.221 with a *t*-statistic of 2.96, is more than double the corresponding coefficient on the Sister dummy in column (2), 0.458 with a *t*-statistic of 2.36. This finding indicates that the more shareholders hold sister firms, the higher ratings sister firms receive.

[Insert Table 10 here]

To explore the second possibility, we redo the baseline analysis but distinguish those large shareholders by their assets under management. In column (3), the Sister dummy takes the value of one if a firm represents at least 0.25% of the rater's large shareholder's portfolio and the asset under management (AUM) of the large shareholder is above-median (i.e., high) of those of all large shareholders in a year, and zero otherwise. In column (4), the Sister dummy

is defined in a similar way, but the asset under management of the large shareholder of the rater is below the median (i.e., low) of those of all large shareholders in a year. The coefficient on the Sister dummy in column (3) is 1.038 with a *t*-statistic of 3.42, however, the corresponding coefficient in column (4) is insignificant. Those results suggest that, those sister firms held by *larger* blockholders tend to get better by more than one rating notch, and this relative easing in ESG ratings is both economically meaningful and statistically significant, while the other sisters held by *smaller* blockholders may not get higher ratings. In other words, those major large shareholders, by comparison with relatively small blockholders, may enjoy more benefits from easing in ESG ratings.

5.6. Future ESG performance

Finally, we examine whether higher ratings assigned to sister firms can be justified by their better ESG performances. In other words, that those sister firms receive higher ESG ratings may merely reflect on their good ESG performances being rewarded with high ratings. We use ESG incidents as a proxy for ESG performance to examine how ESG ratings are related to ESG performance. Unlike the ESG ratings, ESG incidents are less likely to be under direct managerial control. Even though it may be plausible for firms to self-promote positive news through public relations, it is considerably harder to cover negative ESG news as media outlets compete for audiences.

We retrieve negative ESG news from RepRisk, a comprehensive database on ESG and business conduct risk since 2007. The RepRisk dataset covers negative ESG news that can be harmful to a firm's reputation. Its data analysis is conducted in two steps. First, using machine learning algorithms based on 8 million labeled documents, RepRisk systematically screens over 500,000 documents for news items on ESG incidents from more than 90,000 public sources and stakeholders in 20 major business languages on a daily basis. Second, using their rules-based methodology, trained analysts conduct two-level analyses of each ESG incident to verify and then classify into 30 predefined ESG incidents (95 ESG factors), such as environmental degradation, overuse, and wasting of resources, and impacts on communities. This data set was previously used by, among others, Hummel and Schlick (2016), Kolbel, Busch, and Jancso (2017), and Li and Wu (2020).

We obtain firm-level incident counts from RepRisk and then merge them with our sample. We begin with plotting the number of ESG incidents to make comparisons between the sisters and non-sisters. Figure 5 plots the average count of ESG incidents on pseudo sisters and pseudo

non-sisters each quarter pre-acquisition of the ESG business from 2007 to 2009. The pseudo sisters face slightly more ESG incidents compared with pseudo non-sisters pre-acquisition. The figure also reports the mean of ESG incidents on sisters and non-sisters each quarter post acquisition from 2010 to 2015. If the ESG ratings reflect *true* ESG performance, then we should expect that the ESG incident counts for sister firms are smaller than the counterparts for non-sister firms in order to justify higher ratings on sister firms. What we find is the opposite. The average count of ESG incidents on sister firms is noticeably larger than the average count on non-sisters post acquisition. Having pinpointed to the significant discrepancy between ESG ratings and the ESG performance, the findings imply that higher ESG ratings on sister firms may not be justifiable by their better ESG performance. In similar spirits, Li and Wu (2020) also use RepRisk data to show that for the sake of shareholders' best interests, public firms, as opposed to private firms, show little real efforts on ESG performance.[28]

[Insert Figure 5 here]

The RepRisk data provide an external measure of actual ESG performance, which allows us to answer the following question: Do inflated ratings on sister firms have predictive power over subsequent ESG incidents? If the large shareholders care about ESG ratings on sister firms instead of their ESG performance *per se*, then we would not expect to see a significant reduction in the number of incidents next year rather than a positive relation between the status of being a sister and future ESG incidents.

We begin by plotting the average numbers of future ESG incidents in the subsequent year, against the ranges of the ESG concerns for sisters (black bars) and non-sisters(grey bars), respectively. Figure 6 shows that for each range of the concerns, the number of future ESG incidents faced by the sister firms is generally higher than that faced by non-sister firms. For instance, for a given level of ESG concerns ranging from 9 to 11, sister firms stand up to more than 20 ESG incidents in the subsequent year, compared with less than 10 ESG incidents involved with non-sister firms. The results indicate that the lenient ratings on sister firms may not be able to be justified. We then turn to formal regression-based tests.

[28] Li and Wu (2020) suggest that the shareholder-stakeholder conflicts of interests are the important driver of decoupled ESG action. Having compared the ESG performances of public firms and private firms, they find that private firms tend to improve ESG performance as evidenced by the decrease of ESG incident levels, but this is not the case for public firms.

[Insert Figure 6 here]

We employ a count data model to examine whether there is a relationship between future ESG incidents and rating inflation. The primary independent variables of interest are the Sister dummy and the ESG rating; the dependent variable is the number of future ESG incidents in the following year. We assume that the number of the ESG incidents follows a Poisson distribution—the rate of distribution is assumed to be determined by the status of being a sister firm, firm characteristics, and industry year fixed effects. Columns (1) and (2) of Table 11 report the count data model estimation results. As shown in column (1), the coefficient on the Sister dummy is indeed positively related to the number of ESG risk incidents in the following year. In column (2), we add lagged one-year ESG concerns and the identical set of control variables included in other tables to control for past ESG performance and firm-level characteristics. We still find that the Sister dummy significantly positively predicts future ESG incidents.

[Insert Table 11 here]

For robustness, we also use a negative binomial distribution for the numbers of ESG incidents and re-estimate the count data model. Similarly, column (3) does not include past ESG ratings and various control variables, while column (4) does. Using alternative distribution generates qualitatively similar results. All the findings indicate that rating inflation is associated with more future negative ESG incidents.

6. Conclusion

ESG ratings have become increasingly important for investment and capital allocation. However, little is known about the determinants of ESG ratings, especially whether such ratings reflect actual quality. In this study, we find that the ownership of the rater plays a significant role in the determination of ESG ratings. Specifically, the rater tends to give higher ESG ratings to sister firms owned by the same large shareholders. Our findings are robust to different definitions of sister firms, alternative estimation methods, and benchmarking against ratings from alternative rater. To identify the causal effect, we use the exogenous change of ownership of the rater and find that sister firm results are indeed present only after the rater and sister firms are connected through the same owners.

We show that the rater sister effect is more pronounced when the large institutional investor is dedicated (e.g., with a longer holding horizon), holds a large ownership stake in the rater, and is more active in terms of management style. However, some large institutions, such as UNPRI signatories, sincerely care about ESG practices and more sophisticated about ESG practices, as opposed to requiring rating inflation, of their portfolio firms. To explore whether rating inflation towards those sister firms is justified, we find that those sister firms have more future negative ESG incidents.

To the best of our knowledge, this study is the first to provide evidence that the conflicts of interest in market practices can contaminate the integrity of the ESG ratings. Trillions of dollars are being invested in accordance with ESG ratings around the world. Rating inflation towards a certain group of firms can have significantly real and negative consequences in the capital markets. Our work raises the concern of the specific conflicts of interest in the validity of the ESG ratings, which should be taken into account in various decision- and policy-making. We support clearer and more transparent ESG metrics, which can make rating inflation more detectable. The European Commission recently proposed Corporate Sustainability Reporting Directive to produce more consistent and comparable information. It remains to be seen to what extent the implementation of those policies helps improve ESG rating quality.

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Appendix: Variable Definitions

Variable	Definition
ESG Data *(Source: KLD ESG, Refinitiv ESG, RepRisk and SASB)*	
ESG rating	ESG rating is the sum of ESG ratings across the environment, social, and governance categories
ESG strengths	The total number of strength scores under the category of the environment, social, and governance
ESG concerns	The total number of concern scores under the category of the environment, social, and governance
ESG ranking	20-quantile ranks converted from the original ESG rating
Refinitiv ESG ranking	20-quantile ranks converted from the Refinitiv ESG combined rating
ESG incident counts	The number of ESG incidents for a firm in a year
Severity	The level of the harshness of an ESG incident on a firm
Material	Financially material ESG issues classified by SASB
Immaterial	ESG issues which are not financial material according to SASB
Fundamental Data *(Source: Compustat and CRSP)*	
Advertising Intensity	The ratio of advertising expenditure to total sales
Blue state dummy	Equal to one if a firm's headquarter is located in a state whose voters predominantly support the Democratic Party
Book-to-market	The book value of equity divided by the market value of equity
Capital expenditure	A firm's capital expenditure scaled by total sales
Cash holdings	Cash balances scaled by total assets
Dividends	Cash dividends over book assets
Firm age	The number of years since the firm was first covered by the Compustat fundamental annual file
Leverage	The total debt divided by total assets
Total assets	The natural logarithm of total assets
Log SG&A expenses	The natural logarithm of SG&A expenses
Log (SG&A-advertising)	The natural logarithm of SG&A expenses minus advertising expenses
Net income	The fiscal period income or loss disclosed by a firm
R&D	R&D expenditures scaled by total assets
R&D dummy	Equal to one if the R&D expenditure is missing and zero otherwise
ROA	The ratio of income before extraordinary items to total assets
Prior-year return	Past one-year returns
Sales per employee	A firm's total sales scaled by its number of employees
SG&A	A firm's selling, general, and administrative expenses
SG&A/revenues	The SG&A expenses divided by revenues

Appendix: Variable Definitions — *Continued*

Variable	Definition
Institutional-level and Analyst Data *(Source: Thomson Reuters 13F, PRI and IBES)*	
Dedicated	Institutional investors with holding periods over for longer than two years
Transient	Institutional investors with holding periods over for less than two years
Top	Institutional investors which rank in the top five in terms of average ownership of the parent firm of the rater
Bottom	Institutional investors which rank in the bottom five in terms of average ownership of the parent firm of the rater
Active	A large shareholder who is an active player in the fund industry
Passive	A large shareholder who is a passive player in the fund industry
Sister	A dummy equals one if a firm is a large investee firm owned by the rater's large shareholder and zero otherwise
Closer Sister	Equal to one if a firm represents at least 5% of the rater's large shareholder's portfolio in a year and zero otherwise
Pseudo Sister	A dummy equals one for large investee firms of large shareholders before a rater was acquired and started to provide ESG ratings and zero otherwise
Become Sister	Equal to one if a firm becomes a sister firm in a year after 2009 and zero otherwise
Become Pseudo Sister	Equal to one if a firm becomes a sister firm in a year before 2009 and zero otherwise
Become Outsider	Equal to one if a firm is no longer a sister firm in a year after 2009 and zero otherwise
Become Pseudo Outsider	Equal to one if a firm is no longer a sister firm in a year before 2009 and zero otherwise
Institutional ownership	The average of a firm's total institutional ownership across a year
PRI Signatories	A dummy variable equal to one if a rater's blockholder is a signatory of Principles for Responsible Investment (PRI), zero otherwise
PRI tenure	The number of years that a blockholder joins PRI
Analyst coverage	The natural logarithm of (1+ the number of financial analysts following the firm)

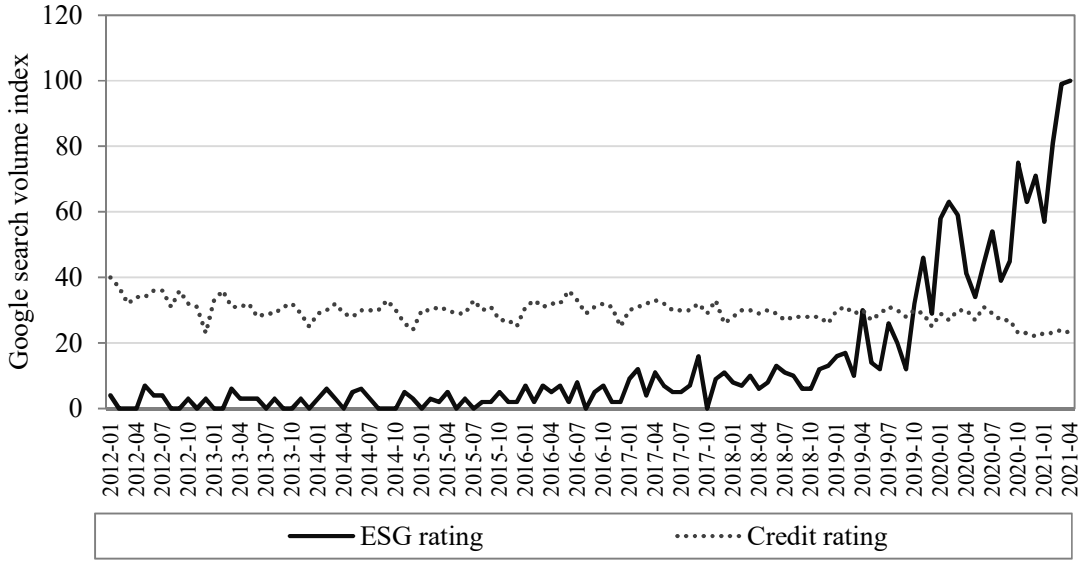

Figure 1: Google search volume index: ESG rating vs credit rating. This figure shows the monthly times series trends of the Google Search Volume Index of the keywords "ESG rating" and "Credit rating" from January 2012 to April 2021, reflecting people's attention on the corresponding issues.

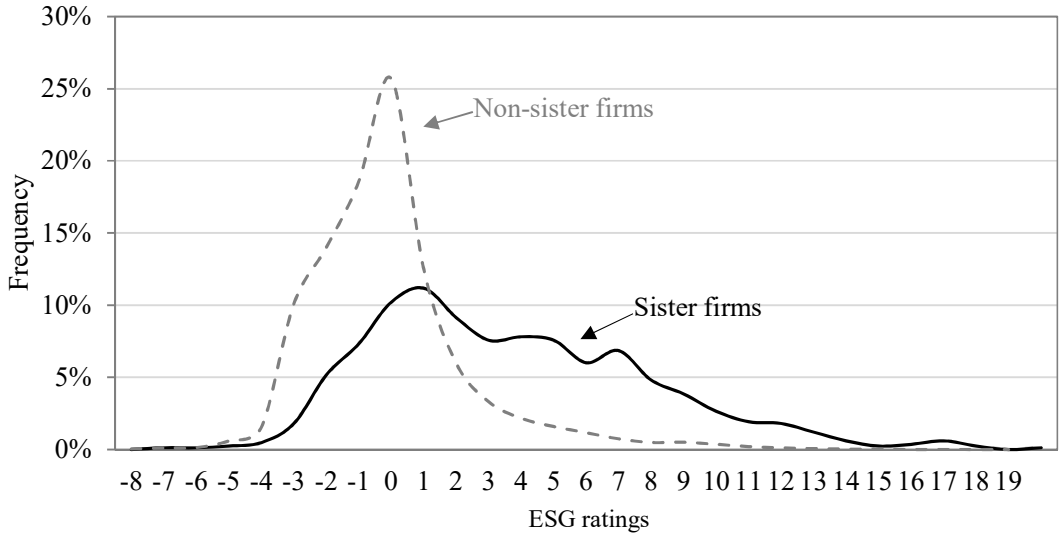

Figure 2: The ESG rating histogram: Sisters vs non-sisters. This figure shows the distributions of the ESG ratings for sisters and non-sisters after the ESG rater was acquired. The sample period is from 2010 to 2015. A sister firm is defined as a firm that is a large investee firm held by a rater's large shareholder. The black solid line represents sister firms while the grey broken line represents non-sister firms. The horizontal axis indicates the numerical values of the ESG ratings. The Kolmogorov-Smirnov test statistic is 0.3748, which is statistically significant at the 1% level.

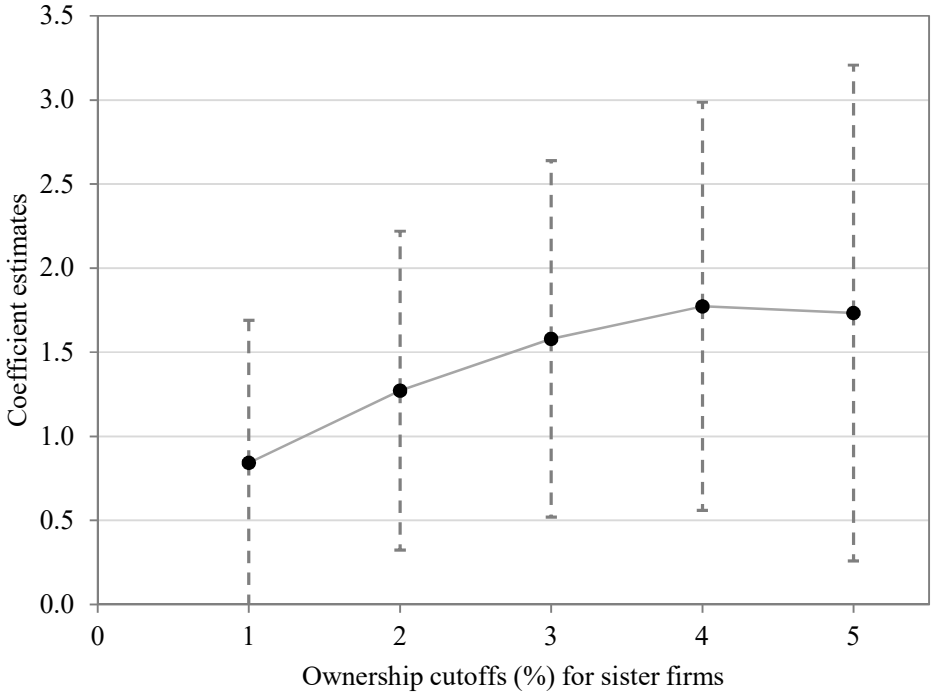

Figure 3. Coefficient estimates from different definitions of sisters. This figure plots the regression coefficients on the Sister dummy that are estimated from our baseline model. We define a firm as a sister firm if it accounts for 1% to 5% (as shown in the horizontal axis) of the portfolio of one of the rater's large shareholders. We plot the coefficients on the *Sister* dummy, which are the estimates representing the differences in trends in ratings between sister firms and other firms. The error bars use standard errors clustered at the firm level. All specifications include industry times year fixed effects.

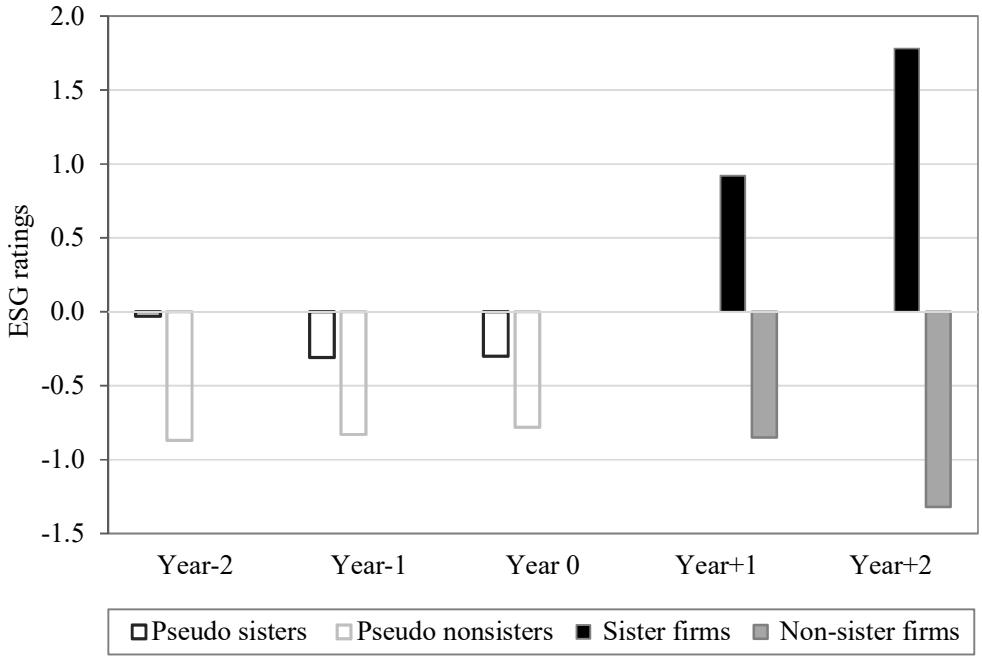

Figure 4. ESG ratings of sisters versus non-sisters. This figure displays the annual average of the ESG rating for sister firms and the average of the ESG rating for other firms after the ESG rater was acquired. A sister firm is defined as a firm that is a large investee firm held by the ESG rater's large shareholder. It also reports the annual average of the ESG rating for pseudo sisters and the annual average of the ESG ratings for the other firms before the rater was acquired. Pseudo sisters are those firms held by the same large shareholders pre-acquisition.

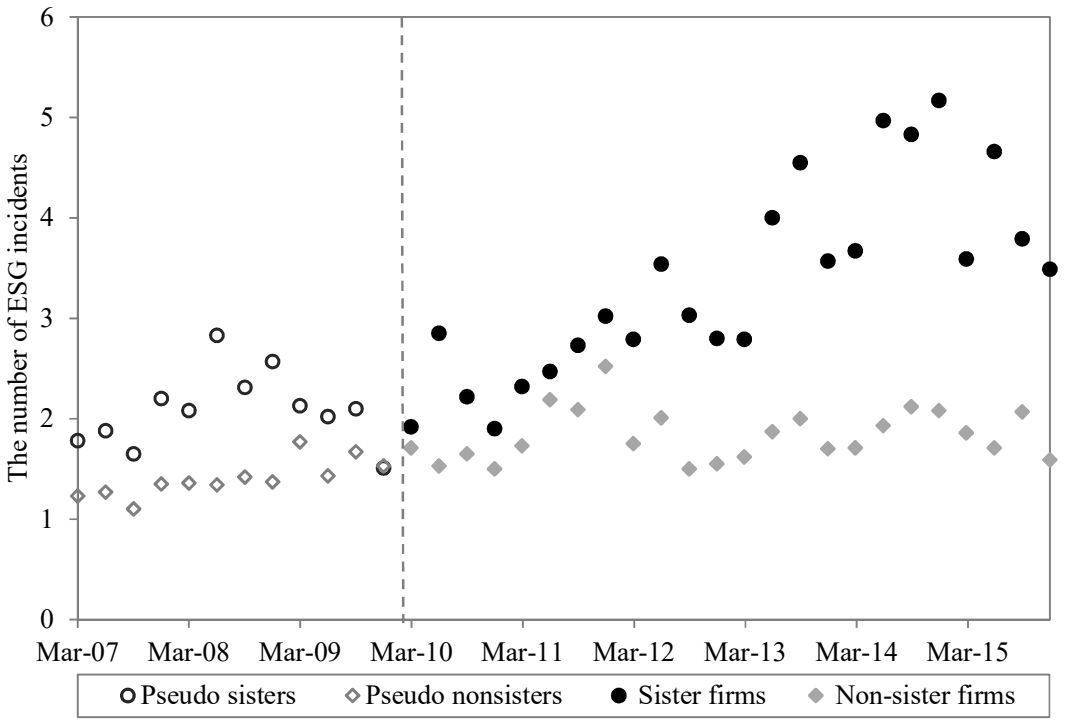

Figure 5. ESG incident counts: Sisters vs non-sisters. This figure plots the number of ESG incidents on sister firms and non-sister firms from 2010 to 2015. It also plots the number of ESG incidents on pseudo sister and non-sister firms from 2007 to 2009.

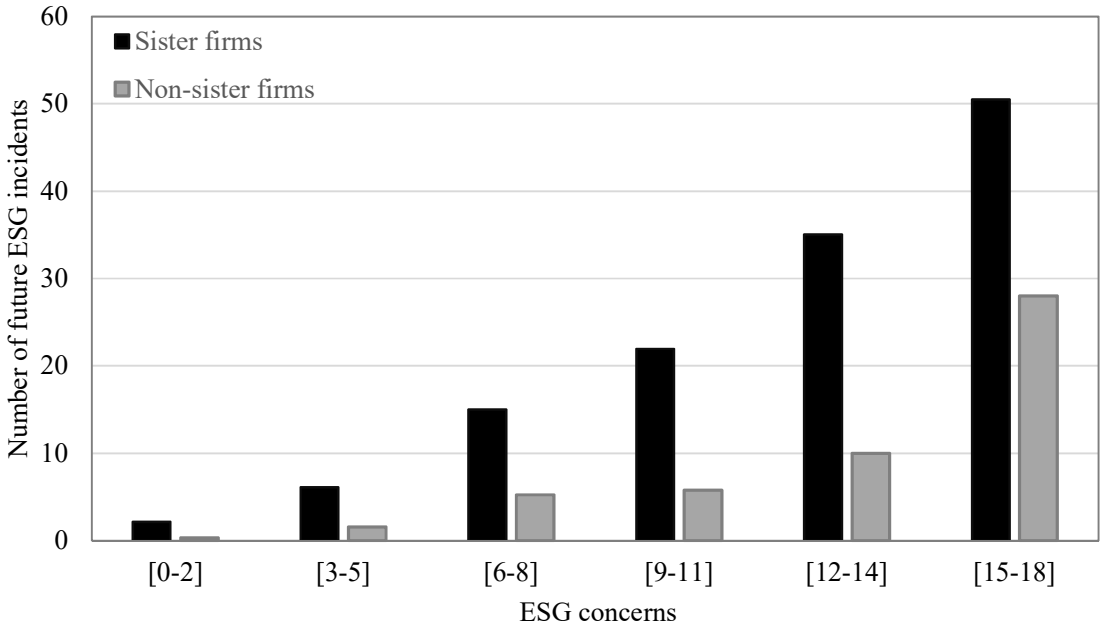

Figure 6. ESG concern ratings and ESG incident count: Sister vs non-sisters. This figure plots the average number of ESG incidents by prior-year ESG concern rating ranges. The sample period is from 2010 to 2015. A sister firm is defined as a firm that is a large investee firm held by the rater's large shareholder. The black bar represents sister firms whereas the grey bar represents non-sister firms.

Table 1: Summary statistics

This table reports summary statistics for the main ESG variables used in this study. Panel A presents the summary statistics of ESG ratings. The ESG rating is the sum of ratings across the environment, social, and governance categories, which is the number of ESG strengths minus ESG concerns. Panel B presents the results of univariate analysis of the ESG ratings and firm characteristics on sister and non-sister firms. A firm is defined as a sister firm if it represents at least 0.25% of the large shareholder's portfolio of the rater in a given year, while other firms represent all the other firms in the sample. The last column displays p-values from the mean difference tests of the two groups. The sample ranges from 2010 to 2015. ***, **, and * denote significance at the 1%, 5%, and 10% levels, respectively.

Panel A: ESG Measures

Characteristics	N	Mean	Median	Std	Min	Max
ESG strengths	11,145	1.61	0	2.79	0	22
ESG concerns	11,145	1.47	1	1.58	0	16
ESG rating	11,145	0.13	0	2.74	-8	19

Panel B: Sisters vs Non-sisters

	Sister	Non-sister	*t*-stat of the difference
ESG rating	2.70	-0.07	2.77***
Total assets	9.28	7.13	2.15***
Book-to-market	0.31	0.54	-0.23***
Firm age (in years)	3.33	2.98	0.35***
Sales per employee	0.57	0.45	0.12***
ROA	0.08	0.01	0.07***
Prior-year return	0.26	0.24	0.02
Capital expenditure	0.10	0.12	-0.02*
R&D	0.06	0.15	-0.09***
R&D missing dummy	0.26	0.38	-0.12***
Dividends	0.02	0.01	0.01***
Cash holdings	0.16	0.19	-0.03***
Leverage	0.22	0.21	0.01**
Advertising intensity	0.02	0.01	0.01***
Institutional ownership	0.70	0.67	0.03***
Analyst coverage	3.19	2.29	0.90***
Blue state dummy	0.68	0.60	0.08***

Table 2: Determinants of ESG Ratings

The table reports the coefficients for linear regression models estimating determinants of ESG ratings. The dependent variable is the ESG rating. The control variables are defined in the same way as Appendix Table 1. Standard errors are clustered at the firm level. *t*-statistics are in round brackets. The sample period is 2003-2015, 2003-2009, and 2010-2015 in columns (1), (2), and (3), respectively. ***, ** and * denote statistical significance at the 1%, 5% and 10% levels, respectively.

	Dependent Variable: ESG Ratings		
	2003-2015	2003-2009	2010-2015
	(1)	(2)	(3)
Total assets	0.350***	-0.018	0.834***
	(8.62)	(-0.40)	(16.32)
Book-to-market	-0.040	-0.018	-0.070
	(-0.96)	(-0.47)	(-1.22)
Firm age	0.175***	0.118**	0.288***
	(3.79)	(2.14)	(5.16)
Sales per employee	-0.164*	-0.197*	-0.132
	(-1.86)	(-1.81)	(-1.32)
ROA	0.371***	0.664***	-0.186
	(2.76)	(4.27)	(-0.96)
Prior-year return	-0.066***	-0.099***	-0.094***
	(-2.89)	(-3.40)	(-2.74)
Capital expenditure	0.309***	0.517***	-0.001
	(3.75)	(4.71)	(-0.01)
R&D	-0.002	-0.016	0.011
	(-0.06)	(-0.39)	(0.27)
R&D missing dummy	-0.219***	-0.131	-0.338***
	(-2.73)	(-1.33)	(-3.53)
Dividends	10.020***	8.413***	10.870***
	(6.94)	(4.69)	(6.60)
Cash holdings	0.762***	0.316*	1.277***
	(4.51)	(1.70)	(5.56)
Leverage	-0.544***	-0.580***	-0.799***
	(-3.05)	(-2.66)	(-3.73)
Advertising intensity	6.122***	6.486***	5.765***
	(4.60)	(4.21)	(3.58)
Institutional ownership	-0.723***	-0.497***	-0.654***
	(-4.98)	(-2.93)	(-3.75)
Analyst coverage	0.204***	0.125**	0.244***
	(4.20)	(2.58)	(3.17)
Blue state dummy	0.338***	0.389***	0.316***
	(4.96)	(4.90)	(3.88)
Industry × Year FE	Yes	Yes	Yes
Adjusted R^2	0.207	0.096	0.385
Observations	25,814	14,691	11,123

Table 3: Sister Firms and ESG Ratings

The table reports the coefficients for linear regression models estimating the association between ESG rating and being a sister firm. The dependent variable is the ESG rating. The *Sister* dummy is equal to one if a firm represents at least 0.25% of the portfolio of a large shareholder of the rater in a year and zero otherwise. An institutional investor is defined as a large shareholder if it owns at least 5% of the shares of the rater. Standard errors are clustered at the firm level. *t*-statistics are in round brackets. The sample period is 2010-2015. ***, ** and * denote statistical significance at the 1%, 5% and 10% levels, respectively.

	Dependent Variable: ESG Ratings			
	(1)	(2)	(3)	(4)
Sister	2.775***		1.199***	0.795***
	(10.38)		(4.97)	(3.78)
Total assets		0.799***	0.732***	0.783***
		(24.33)	(24.83)	(15.66)
Book-to-market				-0.054
				(-1.01)
Firm age				0.289***
				(5.25)
Sales per employee				-0.131
				(-1.32)
ROA				-0.217
				(-1.14)
Prior-year return				-0.101***
				(-2.91)
Capital expenditure				-0.002
				(-0.03)
R&D				0.009
				(0.23)
R&D missing dummy				-0.302***
				(-3.19)
Dividends				10.070***
				(6.33)
Cash holdings				1.217***
				(5.44)
Leverage				-0.700***
				(-3.32)
Advertising intensity				5.624***
				(3.56)
Institutional ownership				-0.629***
				(-3.66)
Analyst coverage				0.222***
				(2.89)
Blue state dummy				0.294***
				(3.62)
Industry × Year FE	No	No	No	Yes
Adjusted R^2	0.070	0.225	0.237	0.390
Observations	11,145	11,145	11,145	11,123

Table 4: Sister Firms and ESG Ratings — Robustness Checks

This table reports the results of the robustness tests on the relation between ESG rating and being a sister firm. The dependent variable is the ESG rating. In columns (1) to (4), the independent variable, *Sister*, is a dummy variable which equals one if a firm is a large investee firm held by a large shareholder of the rater and zero otherwise. In column (1), we adopt an alternative definition of large shareholder. An institutional investor is defined as a large shareholder if it owns at least 4% of shares of the rater. In column (2), we use an alternative definition of *Sister*, which is equal to one if a firm represents at least 5% of the portfolio of a large shareholder of the rater in a year and zero otherwise. In column (3), we define the variable, *Sister*, as the average portfolio holding of large shareholders for each of their investees over a year. In column (4), we adopt the propensity score matching with the logit model to find control firms for sister firms. Propensity score matching is performed one year before the observation year with replacement. Each treatment firm (i.e., a sister firm) is matched to a control firm using the nearest neighbor. Standard errors are clustered at the firm level. *t*-statistics are in parentheses below each estimate. The sample period from 2010 to 2015. ***, **, and * denote statistical significance at the 1%, 5%, and 10% levels, respectively.

	Dependent Variable: ESG Ratings			
	Alternative Large Shareholders	Alternative Sister Definitions	Continuous Measure of Connection	Propensity Score Matched Sample
	(1)	(2)	(3)	(4)
Sister	0.712***	1.773**	0.272***	0.666**
	(3.94)	(2.36)	(3.14)	(2.47)
Control variables	Yes	Yes	Yes	Yes
Industry × Year FE	Yes	Yes	Yes	Yes
Adjusted R^2	0.389	0.386	0.387	0.407
Observations	11,123	11,123	11,123	1,541

Table 5: Change in Sister Status

The dependent variable is the ESG rating. In column (1), the dummy variable, *Pseudo Sister*, is equal to one if a firm is a large investee firm of the rater's large shareholders before the rater was acquired. In column (2), *Become Sister* (*Become Pseudo Sister*) is equal to one if a firm becomes a sister firm in a year after (before) 2009 and zero otherwise. In column (3), *Become Outsider* (*Become Pseudo Outsider*) is equal to one if a firm is no longer a sister firm in a year after (before) 2009 and zero otherwise. The sample period is from 2003 to 2015. Standard errors are clustered at the firm level. The corresponding *t*-statistics are reported in round brackets below each coefficient. ***, **, and * denote statistical significance at the 1%, 5% and 10% levels, respectively.

	Dependent Variable: ESG Ratings		
	(1)	(2)	(3)
Sister	1.791***		
	(8.28)		
Pseudo Sister	-0.329**		
	(-2.62)		
Become Sister		1.473***	
		(8.25)	
Become Pseudo Sister		0.162	
		(0.83)	
Become Outsider			0.020
			(0.14)
Become Pseudo Outsider			-0.269
			(-1.58)
Control variables	Yes	Yes	Yes
Industry × Year FE	Yes	Yes	Yes
Adjusted R^2	0.235	0.246	0.218
Observations	23,735	23,735	23,735

Table 6: ESG Ratings and Relationship

This table reports the results of regressions of ESG ratings on different measures of the relation among the rater, its large shareholders, and its sister firms. Specifically, the dependent variable is the ESG rating. The *Sister* dummy is equal to one if a firm is a large investee firm held by a large shareholder of the rater and zero otherwise. An institutional investor is defined as a large shareholder if it owns at least 5% of the shares of the rater. In columns (1) and (2), *Sister* takes the value of one if a sister firm is owned by the rater's dedicated and transient large shareholders, respectively, and a value of zero otherwise. Dedicated and transient shareholders are those investors with holding periods over the rater for longer than and less than two years, respectively. In columns (3) and (4), *Sister* takes the value of one if a sister firm is held by the rater's large shareholders, which rank in top five and bottom five in terms of average ownership on the rater, respectively. In columns (5) and (6), *Sister* takes the value of one if a sister firm is held by a large shareholder who is active and passive players in the fund industry, respectively, zero otherwise. Standard errors are clustered at the firm level. *t*-statistics are in round brackets below each estimate. The sample period is from 2010 to 2015. ***, ** and * denote statistical significance at the 1%, 5% and 10% levels, respectively.

	Dependent Variable: ESG Ratings					
	Investment Horizon		Ownership Size		Management Style	
	Dedicated	Transient	Large	Small	Active	Passive
	(1)	(2)	(3)	(4)	(5)	(6)
Sister	0.842***	0.273	1.098***	0.347	0.728***	0.669
	(3.56)	(1.02)	(3.88)	(1.18)	(3.71)	(0.68)
Control variables	Yes	Yes	Yes	Yes	Yes	Yes
Industry × Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Adjusted R^2	0.389	0.385	0.390	0.385	0.383	0.385
Observations	11,123	11,123	11,123	11,123	11,123	11,123

Table 7: Sister firms and ESG-by Institutional Investor UNPRI Status

This table shows whether favorable ESG ratings of sister firms are more informative. The *Sister* dummy is equal to one if a firm is a large investee firm held by a large shareholder of the rater and zero otherwise. The dependent variable is the ESG rating. *UNPRI Signatory* is a dummy variable equal to one if a blockholder of the rater is a signatory of UN Principles for Responsible Investment (UNPRI) and zero otherwise. *UNPRI Tenure* is the number of years that a blockholder joins UNPRI. The sample period is from 2010 to 2015. Standard errors are clustered at the firm level and *t*-statistics are reported in parentheses. ∗∗∗, ∗∗, and ∗ indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

	Dependent Variable: ESG Ratings	
	(1)	(2)
Sister * UNPRI Signatory	-0.786***	
	(-2.88)	
Sister * UNPRI Tenure		-0.384**
		(-2.44)
Sister	1.024***	0.995***
	(4.48)	(4.35)
Control variables	Yes	Yes
Industry × Year FE	Yes	Yes
Adjusted R^2	0.390	0.390
Observations	11,123	11,123

Table 8: Sister and ESG Rating by ESG Materiality

This table shows the results of analyzing the effect of sister-firm status on material and immaterial ESG, respectively. The firm-level ESG rating indicators are mapped with the Sustainability Accounting Standards Board (SASB) sector-specific standards to classify the ESG indicators into financially material and immaterial categories. The SASB standards define sector-specific sustainability factors that are likely to materially affect the financial conditions or operating performances of companies. In column (1)-(2), (3)-(4), and (5)-(6), ESG, ESG strengths, and ESG concerns ratings are classified into material and immaterial types according to the SASB Materiality Map. The sample period is from 2010 to 2015. ∗∗∗, ∗∗, and ∗ indicate statistical significance at 1%, 5%, and 10%, respectively.

	ESG Ratings		ESG Strengths		ESG Concerns	
	Material	Immaterial	Material	Immaterial	Material	Immaterial
	(1)	(2)	(3)	(4)	(5)	(6)
Sister	0.157	0.638***	0.213***	1.222***	0.056	0.584***
	(1.63)	(3.58)	(2.66)	(6.69)	(0.91)	(6.02)
Control variables	Yes	Yes	Yes	Yes	Yes	Yes
Industry × Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Adjusted R^2	0.257	0.362	0.327	0.454	0.381	0.442
Observations	11,123	11,123	11,123	11,123	11,123	11,123

Table 9: Sister Firms and Benchmarked ESG Ratings

This table presents the results of employing alternative ESG ratings provided by Refinitiv, as benchmark ratings. In column (1), the dependent variable, Benchmarked ESG, is defined as KLD ESG rankings minus Refinitiv ESG rankings. In columns (2) and (3), dependent variables are alternative ESG rankings provided by Refinitiv in the subsequent first and second years, respectively. Standard errors are clustered at the firm level. *t*-statistics are in brackets below each estimate. The sample period is from 2010 to 2015. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

	Benchmarked ESG Year *t*	Alternative ESG Year *t* + 1	Alternative ESG Year *t* + 2
	(1)	(2)	(3)
Sister	1.226***	0.117	0.101
	(2.88)	(1.26)	(1.05)
ESG		0.031***	0.030***
		(10.28)	(9.71)
Sister × ESG		-0.012**	-0.012*
		(2.15)	(1.96)
Control variables	Yes	Yes	Yes
Industry × Year FE	Yes	Yes	Yes
Adjusted R^2	0.144	0.168	0.165
Observations	3,882	3,882	3,882

Table 10: Incentive Alignment with Owner

This table reports how the relation between ESG rating and sister firms varies with the number of large shareholders holding a sister firm as well as with total net assets of large shareholders. An institutional investor is defined as a large shareholder if it owns at least 5% of the shares of the rater. The dependent variable is the ESG rating. In column (1), the Sister dummy is equal to one if a firm represents at least 0.25% of the rater's large shareholder's portfolio and is held by *multiple* large shareholders in a year, and zero otherwise; in column (2), Sister is equal to one if a firm represents at least 0.25% of the rater's large shareholder's portfolio and is held by a *single* large shareholder in a year, and zero otherwise. In column (3), the Sister dummy takes the value of one if a firm represents at least 0.25% of the rater's large shareholder's portfolio and the asset under management (AUM) of the large shareholder is above-median (i.e., high) of those of all large shareholders in a year, and zero otherwise. In column (4), Sister takes the value of one if a firm represents at least 0.25% of the rater's large shareholder's portfolio and the asset under management of the large shareholder is below-median (i.e., low) of those of all large shareholders in a year, and zero otherwise. Standard errors are clustered at the firm level. The sample period is from 2010 to 2015. ***, ** and * denote statistical significance at the 1%, 5% and 10% levels, respectively.

	Dependent Variable: ESG ratings			
	Number of Large Shareholders		AUM of Large Shareholders	
	Multiple	Single	High	Low
	(1)	(2)	(3)	(4)
Sister	1.221***	0.458**	1.038***	0.259
	(2.96)	(2.36)	(3.42)	(1.16)
Control variables	Yes	Yes	Yes	Yes
Industry × Year FE	Yes	Yes	Yes	Yes
Adjusted R^2	0.388	0.386	0.388	0.385
Observations	11,123	11,123	11,123	11,123

Table 11: More Future ESG Incidents for Sister Firms

This table displays the count data model estimation results of the relationship between sister firms and future ESG risk incidents. The dependent variable is the count of ESG incidents for a firm in a year as captured by RepRisk. Poisson regressions and negative binomial regressions are estimated in columns (1) and (2), and columns (3) and (4), respectively. Standard errors are clustered at the firm level. The sample period is from 2010 to 2015. ∗∗∗, ∗∗, and ∗ indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

	Dependent Variable: ESG Incident Counts			
	Poisson Model		Negative Binomial Model	
	(1)	(2)	(3)	(4)
Sister	2.227***	0.189**	2.639***	0.206***
	(15.62)	(2.12)	(14.40)	(2.80)
ESG Concerns		0.178***		0.191***
		(12.02)		(12.16)
Control variables	No	Yes	No	Yes
Industry × Year FE	Yes	Yes	Yes	Yes
Log pseudolikelihood	-15384.24	-6900.07	-8377.10	-6122.72
Observations	10,255	9,921	10,225	9,921