The Economic Consequences of Firms' Commitment to ESG Policies

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ABSTRACT

The largest U.S. banks have adopted, in a staggered manner, an environmental and social risk management framework called the Equator Principles. Utilizing this staggered adoption, we reveal a significant reduction in loan spreads for firms borrowing from banks that have adopted the framework. Importantly, we also provide direct evidence of the benefits of firms' commitment to mitigating ESG concerns by showing a significant incremental reduction in loan spreads among borrowers who actively switch to banks that adopted the framework. Additionally, the cost of equity declines for those borrowing from adopting banks. We also provide evidence for a specific commitment contracting mechanism by documenting a significant increase in the intensity of environmental protection provisions in the loan contracts. Finally, we document an improvement in the environmental performance of these borrowers. Taken together, our findings are consistent with firms being able to reduce their cost of capital by opting to commit to environmental protection through loan contracts.

***Keywords*: Cost of Debt, Cost of Equity, Credible Commitment, ESG, Equator Principles**

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1. Introduction

This study investigates the consequences and mechanism of firms' credible commitment to mitigating stakeholders' environmental, social, and governance (ESG) concerns through loan contracts. "ESG investing," "responsible investing," and "sustainable investing" are broad umbrella terms that refer to the incorporation of ESG considerations in investors' portfolio decisions. ESG equity and debt investors will seek to avoid or reduce their exposure to investments with ESG concerns (Matos, Barros, and Sarmento [2020]). This type of investing has been growing over the years, peaking at more than US$30 trillion worldwide in 2018 (Global Sustainable Investment Alliance [2019]). Given the significant portion of capital providers limiting their equity and debt investments in firms exposed to ESG concerns, the theoretical literature predicts that these firms will experience an increased cost of capital (e.g., Heinkel, Kraus, and Zechner [2001]).[1]

Consistent with theory, prior empirical literature provides evidence that a firm's exposure to ESG concerns, particularly environmental concerns, increases its cost of equity and debt (e.g., Chava [2014]; Goss and Roberts [2011]; Hoepner, Oikonomou, Sautner and Starks [2016]; Hong and Kacperczyk [2009]).[2] An important example is Chava [2014], who finds that investors demand significantly higher expected returns for firms excluded by

[1] This is in the spirit of the model of Merton [1987], and Heinkel, Kraus, and Zechner [2001], who predict that firms that are rejected by socially responsible investors suffer a reduction in risk-sharing in their investor base and thus higher costs of capital.

[2] There is a significant debate in the literature on whether ESG policies can improve a firm's value (See Matos et al. [2020] for a review).

environmental screens (such as hazardous chemicals, substantial emissions, and climate change concerns) than firms without such environmental concerns. In addition, lenders charge significantly higher interest rates on bank loans issued to firms with these concerns.

These findings suggest that firms can potentially reduce their cost of capital by mitigating their ESG concerns. However, given that addressing ESG concerns is costly, only partially evident to outsiders, and at times evident only after the external finance has been granted, it is unclear whether, in equilibrium, engaging in costly ESG mitigation policies is optimal. The information asymmetry between a firm and its investors may create incentives for the firm to mislead investors. In turn, investors cannot be easily persuaded that the firm has truly addressed their ESG concerns. Consistently, prior literature has indicated that firms frequently use greenwashing practices to mislead stakeholders into believing that they are genuinely addressing their ESG concerns (see Marquis, Toffel, and Zhou [2016] for a survey on greenwashing).[3] For example, the *New York Times* recently commented on the weak and limited commitments behind companies' sustainability reports.[4] More recently, Bolton and Kacperczyk [2021] provide evidence that firms' voluntary commitments to reducing carbon emissions have a small effect and are not sufficient for companies with larger amounts of carbon emissions. There is little evidence that voluntary engagement in policies designed to

[3] Greenwashing is defined as the "promotion of environmentally friendly programs to deflect attention from an organization's environmentally unfriendly or less savory activities" (Marquis and Toffel [2011]). Despite the greenwashing efforts, there is little evidence that firms are able to mislead investors. As in the earnings management literature, the fact that investors can see through misleading and costly behavior does not mean that it does not persist in equilibrium (e.g., Stein [1989]).

[4] https://www-nytimes-com.cdn.ampproject.org/c/s/www.nytimes.com/2021/02/22/business/energy-environment/corporations-climate-change.amp.html

mitigate ESG concerns can improve a firm's cost of capital. Prior literature shows that firms cannot reduce their cost of capital by joining a voluntary initiative to curb ESG concerns such as Ceres (https://www.ceres.org/) or by being an effective communicator of their ESG record (e.g., Chava [2014]; Fisher-Vanden and Thorburn [2011]).

It is not surprising that firms may not be able to reduce their cost of capital through voluntary efforts to alleviate ESG concerns. Given the information asymmetry problem discussed above, ESG investors are less likely to invest in these firms without a mechanism through which the firm can credibly commit to mitigating ESG concerns. Unfortunately, the lack of trust that investors have that firms will truly address their ESG concerns further reduces the incentive for firms to voluntarily engage in ESG mitigation activities. Nevertheless, in the case of ESG, legal institutions are not yet sufficiently developed so that firms can credibly commit to mitigating ESG concerns.[5] Therefore, private market arrangements could potentially develop endogenously to address the credible commitment to resolving the ESG problem.

Such a private market arrangement occurred when the world's largest banks adopted an environmental and social risk management framework called the Equator Principles (EP). According to this framework, banks agree to implement a set of standards that improve the environmental and social practices of certain borrowers and formalize some of the borrowers'

[5] To a certain extent, this credible commitment problem is similar to the investor protection problem. If a majority shareholder cannot credibly commit not to extract private benefits from the firm, then capital providers will require a higher cost of capital from the firm to compensate themselves, and some investors will avoid the firm altogether. Prior literature shows that strong investor protection rules help majority shareholders credibly commit not to extract private benefits, and therefore reduce the cost of capital. Recently, Bolton, Kacperczyk, Leuz, Ormazabal, Reichelstein and Schoenmaker [2021] recommended that a mandatory corporate carbon disclosure could contribute significantly towards a net zero economy.

commitment to mitigating environmental and social risks in the loan contract. The EP is a risk management framework for determining, assessing, and managing environmental and social risks in project finance. It is primarily designed to provide a minimum standard for due diligence and monitoring to support responsible decision-making about risk. Although designed primarily for project financing, the EP's social and environmental standards have been broadly applied to sustainable banking across product categories (including underwriting, commercial lending, and retail banking) and industries (Conley and Williams [2011]).

From 2003 to 2006, four of the largest U.S. banks adopted the EP: Citi (June 4, 2003), Bank of America (April 15, 2004), Wells Fargo (July 12, 2005), and JP Morgan (December 4, 2006). In this study, we utilize this staggered adoption of the EP in the United States to examine whether borrowers can use loan contracts to credibly commit to mitigating ESG concerns and the consequences, if any, of such commitment. [6]

Our research design is based on a large sample of borrowers who, between 2001 and 2007, meaning before and after the adoption period of 2003-2006, borrowed from banks that eventually adopted the EP.[7] Given that in our main analyses we exclude contracts with banks

[6] Several theories explain the banks' incentive to voluntarily adopt EP: a response to pressure from stakeholders and/or regulators, greenwashing efforts, meeting borrowers' demands, reducing exposure to firm-specific ESG risk, or even impacting systemic risk (e.g., Coffee [2021]). The theory suggested in Coffee [2021] as to why institutions pressure their clients to adopt ESG standards is appealing in the context of large banks. According to this theory, large banks, like the ones in our sample, have an incentive to pressure their borrowers to reduce ESG concerns about their firms because they have an interest in most of the economy. Hence, they can reduce systemic risk if they can influence their entire loan portfolio. Indeed, we observe that the largest banks have adopted the EP standards. In this study, we are indifferent as to the reason for the banks' adoption of the EP, as long as they enforce it.

[7] We stop at year 2007 because year 2008 is potentially affected by the financial crisis. Nevertheless, our main results remain unchanged when including 2008.

that have never adopted the EP, all of the contracts in our sample are from banks that adopted the EP during the sample period. According to the Dealscan Database, these EP adopters provided 65.17% of the loan transactions (86.28% of the loan amounts) during our sample period (2001-2007) for syndicated loans. As all of the banks in our sample are treated but in different years, we can compare them, reducing concerns about possible differences between treated and untreated banks.[8] The staggered adoption of EP allows us to use a difference-in-differences design (with endogenous selection into the treatment group) that follows prior literature (e.g., Bertrand and Mullainathan, 2003; Amiram et al., 2017).[9] The first difference comes from the difference between contracts signed with the same bank before versus after its adoption of the EP. The second difference comes from the difference between the contracts signed in the same period with banks that adopted the EP versus those that had not yet adopted them.[10] By limiting our sample to loans issued by all four banks that have adopted the EP, our design suffers less from the adverse selection problem whereby firms that take out loans from EP adopters vs. non-adopters are inherently different, as their lenders all adopted the EP at some point during 2003-2006.

[8] As reported and tabulated below (Table 2 Panel C), our inferences are unchanged when we keep all banks, including those who never adopted EP, in our sample.

[9] Our inferences are unchanged when we correct for the possible bias in staggered difference-in-differences estimators due to in the presence of treatment effect heterogeneity (Baker et al., [2021]).

[10] Similar to other studies using our research design, since we use only banks that have adopted EP, and the adoption was within four years, there is an implicit plausible assumption that the exact timing of the adoption is relatively random (i.e, the difference between adoption in one year compared to another year is not correlated with characteristics that are correlated with our results).

We use this design to document several results. Our first result relates to the consequences of the borrowers' commitment embedded in the loan contract. We find that firms that borrowed from banks after the latter had adopted the EP standards experienced a significant reduction in loan spreads (compared to the change, or lack thereof, in spreads for firms that borrowed from banks before they adopted the EP). This result does not exist when assigning a random adoption date to banks as a placebo test. Moreover, the results are stronger for borrowers who actively switch to lenders that adopted the EP than for those that did not. This result is important as it provides direct evidence that the benefit is at least partially driven by the borrowers' active choice and commitment, not just the banks' choice to adopt the EP. Second, we find a significant decrease in the implied cost of equity for firms that borrowed from banks after they adopted the EP standards (compared to the change, or lack thereof, in the implied cost of equity for firms that borrowed from banks prior to EP adoption).[11]

Third, we turn to investigate a mechanism through which a commitment in the contract is likely to present itself. We report a significant increase in environmental covenant intensity in the loan contracts for firms that borrowed from our sample banks after they adopted the EP standards, compared to the change, or lack thereof, in these covenants for firms that borrowed from banks before they adopted the EP. We argue that these covenants, and the banks' monitoring of them, serve as a credible commitment mechanism to alleviate ESG concerns. Following recent literature on debt covenants (e.g., Murfin [2012]; Demerjian and Owens

[11] We acknowledge that, very much like the bonding literature, our tests examine the joint hypothesis of the commitment to mitigating ESG concerns and the effects of this commitment.

[2016]), the construct we aim to measure is the intensity of the environmental covenant rather than its presence. As the example in Appendix C for NCI Building Systems, Inc., which took out loans from Bank of America before and after the bank adopted the EP, illustrates, addressing environmental concerns in the contract is entirely different in the pre-and post-adoption period. Before the EP adoption, the loan contract had fewer specific provisions that dealt with environmental concerns. However, in the post-adoption contract, environmental concerns are dealt with at length and include environmental disclosure and/or action covenants. Although firms and banks could have agreed to intense ESG covenants before the EP, this is unlikely as banks had no standard practice, expertise, or experience in effectively designing and monitoring such intensive covenants until adopting the EP standards.

Finally, we document a significant decrease in partially observable noisy indicators (proxies) about unobservable environmental concerns for firms that borrowed from banks after they adopted the EP (compared to the change, or lack thereof, in these indicators for firms that borrowed from banks before they adopted the EP). This result suggests that either these observable indicators declined due to the firm's commitment to reducing ESG concerns or to greenwashing. By the nature of the information asymmetry problem, we cannot empirically investigate which of the two explanations is correct. However, given that the firm had already committed to the bank that monitors the ESG activity and experiences a reduction in the cost of capital, the decline in the environmental concern indicators is more likely due to an improvement in its environmental performance after borrowing from a bank that adopted the EP. Taken together, our findings are consistent with firms experiencing an improvement in

their costs of capital, both debt and equity, by opting to credibly commit to environmental protection through loan contracts as a mechanism.

Several features in our research design are worth mentioning. First, although selection bias usually presents a challenge to interpreting results when the treatment group selects into the treatment, the fact that in our setting, a borrower *chooses* to borrow from a lender that adopted the EP is exactly what we claim to be the driver of the results. Borrowers choose to credibly commit to reducing ESG concerns through loan covenants by either taking out a loan from a bank they have never borrowed from and is now an EP adopter, or choosing not to move from an EP adopter to another bank that has not yet adopted the EP. For example, in a different setting, a possible issue is that firms that have already decided to reduce their environmental concerns choose to take loans from EP adopters and take upon themselves the stricter environmental covenant. In our study, this behavior is consistent with our argument that borrowers choose EP lenders exactly because they have decided to deal with environmental concerns and, as a result, receive the cost of capital benefits associated with this choice.

A second feature is that we examine the cost of equity capital setting, not just within the debt setting. While borrowers and lenders negotiate the contract optimally to suit both parties, equity holders are not part of these negotiations, making them a relatively exogenous party to the contract. Third, as mentioned earlier, the EP standards were primarily designed for project financing. If these standards do not spill over to other types of lending, as suggested in prior literature (e.g., Conley and Williams [2011]), it is unlikely that there would be a change in the contracts, the cost of debt, the cost of equity, or a reduction in environmental concerns

in firms that borrowed from banks that adopted the EP. Given that we do observe these changes in the data, we also provide evidence consistent with the findings in prior literature that the EP standards spilled over to commercial lending.

We contribute to the literature in several dimensions. First, we add to the credible commitment and bonding literature. The importance of the credible commitment mechanism has been grounded in economic theory for years (e.g., Williamson [1983]), but very few applications have been explored empirically. One notable exception is the extant literature on bonding with the U.S. legal system to credibly commit not to expropriate from minority shareholders (e.g., Stulz [1999]; Coffee [1999]; Reese and Weisbach [2002]; and Doidge, Karolyi and Stulz [2004]) and in particular the literature that examines the effect of bonding on the cost of capital (e.g., Hail and Leuz [2009]). In the green bond market, Flammer [2021] documents a positive stock market reaction, while Lu [2020] reports a reduction in bond yields when firms issue green bonds. They argue that the positive market reaction is due to the firms' credible commitment to reducing environmental risk with green bonds. Although sharing some similar insights about the credible commitment mechanism, our commercial loan setting is different in several important ways. First, the green bond market applies only to firms that issue bonds for environmental purposes, while the commercial lending market includes commercial loans for all purposes. Relatedly, the green bond market includes only a limited number of firms and excludes many firms that do not have access to such a market. Flammer's [2021] sample consists of 194 bonds in the U.S. from 2013-2018, while Lu's [2020] includes 1,205 bonds for 132 firms, with almost half of the firms in the utilities and financial industries. In

contrast, our sample includes about 4,196 commercial loans for 1,764 non-financial U.S. firms. These discrepancies between the sample sizes imply that the credible commitment mechanism through borrowing from an EP bank is more common and relevant to a wide range of firms. Third, because prior literature documents that banks serve as effective delegated monitors (e.g., Diamond [1984]; Fama [1985]; James [1987]; Datta et al. [2000]; Bharath et al. [2008]; Altman et al. [2010]), lenders can strictly enforce the debt covenants, including the environmental covenants, thus making the firms' commitment more credible.

Second, we contribute to the debate about the effects of ESG commitments on a firm's value. On one hand, some have argued that ESG simply manifests agency problems inside the firm (see Tirole [2001]; Benabou and Tirole [2010]; Cheng, Hong, and Shue [2013]).[12] An alternative perspective holds that companies engage with stakeholders for value-enhancing purposes. We show that a credible commitment to mitigating ESG concerns can potentially increase a firm's value by reducing its cost of capital.[13] Third, we contribute to the literature on greenwashing (see Marquis et al. [2016]). We provide evidence that firms can commit to ESG through private market initiatives, not just through a mandatory legal framework.

[12] According to this line of thought, ESG primarily benefits managers who, at the expense of shareholders, earn a good reputation among key stakeholders such as local politicians, non-governmental organizations, or labor unions. These theories suggest that engaging in ESG practices reduces a firm's value.

[13] This view is sometimes referred to as "doing well by doing good." Dowell, Hart, and Yeung [2000], Derwall, Guenster, Bauer, and Koedijk [2005], Edmans [2011], Dimson, Karakas, and Li [2013], Flammer [2013] and Servaes and Tamayo [2013] provide examples of mechanisms through which ESG can enhance shareholder wealth. Under this value-enhancing view of ESG, managers engage with stakeholders simply because such projects are deemed to have positive net present value (NPV) and therefore increase a firm's value.

Fourth, we add to the literature on the role of banks as quasi-regulators (Conley and Williams [2011]; Shamir [2008]). This literature argues that banks acting in the role of screening and monitoring their clients for business purposes can also help achieve social goals such as ESG, anti-terrorism and money laundering, tax evasion enforcement, and fraud. Choy et al. [2021] report that intense public environmental enforcement is associated with higher banks' private monitoring that helps reduce toxic chemical releases. Our insights are significantly different from those of Choy et al. [2021] as we focus on borrowers' commitment to environmental protection through intensive covenants and the consequences of this commitment. In addition, the banks' role as quasi-regulators seems to be especially relevant, considering that the Securities and Exchange Commission (SEC) has recently enhanced its scrutiny of climate-related disclosures.[14]

2. Institutional Background and Predictions

2.1. The Equator Principles

The Equator Principles is a voluntary risk management framework created by a few leading international banks in 2003 to ensure that the operations they finance are not detrimental to society and the environment. The EP is a private attempt of the financial sector to unite the effort for environmental responsibility internationally. Banks that adopt the EP commit to granting loans only to projects that meet ten social and environmental principles.[15]

[14] https://www.thecorporatecounsel.net/blog/2021/03/enforcement-division-creates-climate-esg-task-force.html

[15] The ten principles include: 1. review and categorization; 2. environmental and social assessment; 3. applicable environmental and social standards; 4. environmental and social management system and Equator Principles'

With the adoption by 111 financial institutions in 37 countries as of November 2020, the EP has become a quasi-standard for banks. Overall, the EP is one of the most important ESG tools in the banking sector.

Although the EP provides merely a minimum standard for voluntary risk management, its implementation has changed the landscape of the environmental and social policies of the adopting banks. For example, having adopted the EP, JP Morgan established a dedicated environmental and social risk management group that reports directly to the bank-wide risk manager for reputation risk, with escalated cases reported to one of the bank's reputation risk committees.[16] Moreover, adopting banks report annually on the implementation of the EP.

The EP applies mainly to four financial products: (1) project finance advisory services; (2) project finance; (3) project-related corporate loans; and (4) bridge loans. Nevertheless, it promotes the improvement of the overall environmental and social management practices of the adopting banks by providing a standard for due diligence and monitoring regarding environmental and social risks. According to Citi's report on their ESG framework, "the EP triggered tremendous positive industry change and momentum and led to a shift in how our industry perceives and manages environmental and social risk." In the same report, Citi mentioned that following the adoption of the EP, awareness of broader ESG issues grew, leading to Citi's comprehensive Environmental and Social Risk Management (ESRM) Policy. The ESRM is a company-wide policy that covers a group of institutional clients as well as

action plan; 5. stakeholder engagement; 6. grievance mechanism; 7. independent review; 8. covenants; 9. independent monitoring and reporting; and 10. reporting and transparency.

[16] https://www.jpmorganchase.com/impact/sustainability/equator-principles-report

medium-sized commercial clients in the field of global consumer banking, far beyond the purposes of project financing.[17] Consistently, Conley and Williams [2011] report that banks apply the EP's social and environmental standards for sustainable banking across product categories, including underwriting, commercial lending and retail banking, and across industries.

2.2. Predictions

The adoption of the EP standards may affect corporate loans, and borrowers may seek the potential benefits of committing to ESG. Therefore, if banks believe that their monitoring of their borrowers' ESG actions is effective and thus reduces ESG concerns, our first prediction is that the loan spreads will decrease in these loan contracts. In such situations, the banks have less need to incorporate the ESG risk into the loan spread. Second, if ESG equity investors believe that borrowers can credibly commit to mitigating their ESG concerns through obligations subject to bank monitoring, we predict that the cost of equity capital will decrease for borrowers that take out loans from banks after they have adopted the EP.

The banks' adoption of the EP standards gives rise to the possibility that firms requiring bank financing can use the loan contracts with the adopting banks to credibly commit to mitigating ESG concerns. One mechanism through which they can do so is by agreeing to loan covenants requiring them to address ESG concerns that will be enforced by the lender. Although firms and banks could have agreed to intense ESG covenants prior to the EP, this is

[17] https://www.citigroup.com/citi/sustainability/data/Environmental-and-Social-Policy-Framework.pdf

unlikely as banks had no standard practice, expertise, or experience in effectively designing and monitoring such intensive covenants, all of which developed with the adoption of the EP standards. Therefore, our third prediction is that the ESG related covenants will become more intensive in loan contracts signed after the EP adoption.

Our last prediction addresses the environmental and social implications of a firm's pledge to mitigate ESG concerns. Although ESG actions are not fully observable, we can observe a few noisy ex-post indicators ex-post for ESG actions. We predict that borrowers who sign a loan contract with a bank after EP adoption will experience an improvement in their environmental concern indicators, given their documented obligation to do so and given the bank's monitoring of the fulfillment of their obligation.

3. Sample Selection and Descriptive Statistics

3.1. Sample selection

We begin by searching for the EP adoption dates for financial institutions in the U.S. Since banks adopt the EP at the bank's holding company level, we aggregate the lenders in the Dealscan Database from the Loan Pricing Corporation to the bank's holding company level using Schwert's [2018] link table. From 2003 to 2006, four U.S. bank holding companies adopted the EP: Citi (June 4, 2003), Bank of America (April 15, 2004), Wells Fargo (July 12, 2005), and J.P. Morgan (December 4, 2006).[18] We include all loans from each of the four adopting banks between 2001 and 2007 in our sample. During the sample period, these banks

[18] https://equator-principles.com/members-reporting/

provided 65.17% of the loan transactions (86.28% of the loan amounts) in the Dealscan database. We follow Bharath, Dahiya, Saunders, and Srinivasan [2011] and classify a bank as a lead bank if a lender was identified as a lead lender. To merit this definition, it must meet one of the following criteria: (i) the lead arranger credit is "yes" and the lender role does not contain "participant;" (ii) the lender role contains "agent," "administrative agent," "arranger," "lead bank," or "lead manager;" or (iii) the lender is a sole lender. In the case of a loan deal with multiple lead banks, we use the earliest EP adoption date among the lead banks to determine the effect of EP adoption on the loan.

Next, we obtain information on the loan terms from the Dealscan database. Loan terms are reported at the facility level in Dealscan, where a package may include several facilities. We use the loan package as the unit of analysis because the lead lenders, the source of the EP effect, are identical for all facilities in a package. For each package, we use the facility with the longest maturity to capture the entire period influenced by the EP.

We then use the Dealscan-Compustat link table in Chava and Roberts [2008] to obtain information about the borrowers from Compustat. We exclude loans to non-U.S. firms and firms from financial sectors (the 4-digit Standard Industrial Classification codes between 6000 and 6999). Following Nini, Smith, and Sufi [2009], we download the credit agreements from the SEC's EDGAR database. After requiring firm controls and loan controls, we have a sample of 4,196 loans. Finally, we obtain information about the covenants by manually identifying the environmental covenants in the credit agreements. See Appendix B for the detailed procedure.

3.2. Descriptive statistics

Table 1 presents the descriptive statistics for the key variables in our study. Appendix A provides a detailed explanation of how we constructed these variables. All continuous variables are winsorized at the 1% and 99% levels to reduce the impact of outliers. The number of observations for each variable may vary between different analyses with a specific sample construction. For expositional convenience, the summary statistics of the variables at the firm- and loan-level are based on the loan spread analysis presented in Column (2) of Table 2 Panel A with 4,196 observations.

In Panel A, our main independent variable, *EP_Treat*, is an indicator variable that equals one for a loan taken out after the adoption of the EP by the lender and zero otherwise. We identified 2,448 out of the 4,196 loans as *EP_Treat*=1 (mean value: 0.583). We define the *Firm Characteristics* and *Loan Characteristics* as per Bharath, Dahiya, Saunders and Srinivasan [2011]. Specifically, *MVE* is the borrower's market value of equity in $million. *Leverage* is the ratio of the book value of total debt to the book value of total assets. *Book to Market* is the ratio of the book value of equity to the market value of equity. *Profitability* is the ratio of EBITDA to sales in the last fiscal year. All of the borrowers' characteristics are based on the last fiscal year prior to the loan contract date. The loan-specific characteristics include *Loan Spread*, *Loan Size*, *Maturity*, and *Collateral*. *Loan Spread* is the interest rate spread charged on the loan in basis points over the LIBOR for each dollar drawn. *Loan Size* is the loan amount in $million. *Maturity* is the loan maturity (duration) in months. *Collateral* is an indicator variable that equals one if the facility is secured, and zero otherwise. Our sample firm

size is $4,353 million on average (*MVE*). On average, the firms have a 0.263 leverage ratio (*Leverage*), a 0.038 book-to-market ratio (*Book to Market*), and a 0.193 profitability ratio (*Profitability*). On average, the loans in our sample have a spread of 175 basis points over the LIBOR for each dollar drawn (*Loan Spread*), on about $537 million (*Loan Size*), with a maturity of 49 months (*Maturity*), and a 63% likelihood of being secured (*Collateral*). All other variables presented in Table 1 are discussed later in the sections relevant to them.

4. Empirical Design and Results

4.1. The effect of a credible commitment to mitigating ESG concerns on loan spreads

To test our first prediction that loan spreads decrease in contracts signed following the lender's adoption of the EP standards, we estimate the following OLS regression model at the loan level, with standard errors clustered by firm:

$$Loan\ Spread = \beta_1 EP\_Treat + \beta_2 Firm\ Controls + \beta_3 Loan\ Controls + Year\ FE + Industry\ FE + Bank\ FE + Investment\ Grade\ FE + \varepsilon \quad (1)$$

where *Loan Spread* is the interest rate the borrower pays in basis points over the LIBOR for each dollar drawn down. Our *Firm Controls* include *Ln(MVE)*, *Leverage*, *Book to Market,* and *Profitability*. *Loan Controls* include *Loan Size*, *Maturity,* and *Collateral.* Both sets of controls are described in Section 3.2 and Appendix A. Finally, we include year, industry (based on 4-digit SIC code), and bank fixed effects to control for time trends and time-invariant industry and bank characteristics that might systematically affect loan covenants. We also control for investment grade fixed effects. *EP_Treat*, our key independent variable, is an indicator of loans taken out after the lender's adoption of the EP. The coefficient on *EP_Treat* ($\boldsymbol{\beta_1}$) captures the

change in *Loan Spread* between pre and post EP adoption for loans taken out from a lender that adopted the EP relative to the change in *Loan Spread* for loans from lenders that had not adopted the EP yet. As described in Amiram et al. [2017], this methodology, which follows Bertrand and Mullainathan [2003] and is used in prior studies that examine the effects of events on contracting loan terms (e.g., Sapienza [2002]; Valta [2012]), controls for fixed differences between contracts with banks that adopted the EP and those that did not via the bank fixed effects, and also controls for aggregate fluctuations via the year fixed effects. Here we expect $\boldsymbol{\beta_1}$ to be negative and significant.

The results from the loan spread regressions are reported in Table 2 Panel A. We first present the results from regressing *Loan Spread* on *EP_Treat* with no controls other than year, industry, bank and investment grade fixed effects in Column (1), and with controls in Column (2) of Table 2. The coefficient on *EP_Treat* in both specifications is significantly negative (coefficient -20.648 with a p-value < 1%; coefficient -14.402 with a p-value < 5%), indicating that loans taken out from lenders after they adopted the EP have lower spreads. The economic magnitude of the change in the loan spreads is not trivial. Specifically, the coefficient of -14.402 indicates an average decrease of 8.2% from the average *Loan Spread* in our sample. The sign and significance of the coefficients on the control variables are also consistent with our expectations. These results provide evidence supporting our first prediction that firms are able to credibly commit to ESG mitigation policies through covenants in their loan contracts and reduce their cost of debt as a result.

We conducted an additional analysis using only a balanced sample of borrowers who had loans both before and after the lender adopted the EP. We conducted this analysis to alleviate the concern that our results are driven by some firms that are very frequent borrowers or firms with loans only before or after the EP adoption. The results based on the balanced subsample, presented in Columns (3) and (4) of Table 2 Panel A, are qualitatively similar with slightly higher magnitude compared with those obtained from the entire sample (coefficients -29.881 and -26.344, respectively; p-values < 1%).[19]

To provide evidence of the trend in loan spreads on loans borrowed before and after the adoption of the Equator Principles, we examine the parallel trend around the EP adoption date in Table 2 Panel B. The results indicate that the loan spread is not significantly different for loans borrowed within the two years before the EP adoption date but is significantly different for loans borrowed within three years after the EP adoption date. In addition, the effect of the EP adoption increases from the first year to the third year. This test makes us confident that our results are unlikely to be driven by any omitted correlated variables that make the firms that borrow from EP adopters inherently different from firms that do not borrow from the EP adopters.[20]

[19] We conducted additional untabulated robustness checks on a sample including 2008 to allow two years before and after the adoption events from 2003-2006. Despite the fact that 2008 involves a global financial crisis, our results remained essentially the same.

[20] In addition, we assigned an earlier random adoption date to the banks as a placebo test to check if our results were driven by a predetermined expected trend. We don't find a similar effect after we incorrectly assigned an adoption date before the actual adoption date. Thus, we conclude that our results are not driven by a predetermined expected trend.

Our main result excludes non-EP adopters so we could compare similar banks. To confirm that the results are robust even when including non-EP adopters, we conduct a robustness analysis in Table 2 Panel C. Specifically, we match loans from EP adopters before and after the EP adoption date to loans from non-EP adopters based on the same industry, the same loan initiation year, and the closest borrower size.[21] *Treat* is an indicator variable that equals one if the loan is from EP adopters, and zero otherwise. *Post* is an indicator variable that equals one if the loan is taken after the EP adoption date, and zero otherwise. We assign the benchmark loans a pseudo EP adoption date according to the matched loan. The interaction term of *Treat*Post* captures the change in the loan spread of the loans from EP adopters before and after the EP adoption date relative to the change in the loan spread of the loans from non-EP adopters before and after the EP adoption date. The coefficient on *Treat*Post* is significant both before and after controlling for the firm's characteristics (coefficient -48.246 with a p-value < 1% and coefficient -23.580 with a p-value < 5%, respectively). In fact, it is materially larger than the effect documented in Table 2 Panel A when we do not include such non-EP adopters. [22]

[21] We drop the loans for which we could not find benchmark loans. Nevertheless, the results are robust to the inclusion of these loans.

[22] Regarding the potential biases of difference-in-differences (DID) analysis with staggered treatment timing discussed in Baker et al. [2021], we rerun our analysis by a stacked DID regression using a clean group of control firms not impacted by the EP during the estimation window. Our results are robust after correcting for such potential biases (untabulated).

Next, we examine whether the effect is stronger for firms that actively seek EP loans by switching from lenders that have not yet adopted the EP to lenders that have, using the following equation:

$$Loan\ Spread = \beta_1 Weak\ Relationship\ + \beta_2\ Non - EP\ Loan\ to\ EP\ Loan$$
$$+ \beta_3 Weak\ Relationship\ lender\ \times\ Non - EP\ Loan\ to\ EP\ Loan\ +$$
$$Control\ Variables\ + Year\ FE + Industry\ FE + Investment\ Grade\ FE + \varepsilon \quad (2)$$

We focus on a subsample where the borrower has at least two loans within one year so that the loans are taken out close together. We use this approach to better capture a firm's active seeking behavior. *Weak Relationship* equals 1- Rel(Amount), where Rel(Amount) is the ratio of the amount of the loans with the same lender relative to the total amount of the loans the firm took out in the past year. *Weak Relationship* ranges from 0 to 1. It equals 0 when the lender is the only lender for the firm within the past year, and equals 1 when the lender is a new lender, meaning the relationship is weak. *Non-EP Loan to EP Loan* is an indicator variable that equals one if the current loan comes from a bank that adopted the EP and the previous one came from a bank that had not yet adopted the EP, and zero otherwise. We capture the firms actively searching for EP adopters by the interaction term: *Weak Relationship*Non-EP Loan to EP Loan*, which is equal to one when the firm borrowed its previous loan from a non-EP lender and the current loan is from a new lender that has adopted the EP.

We present the estimation results of Equation (2) in Table 3. The coefficients on the *Weak Relationship*Non-EP Loan to EP Loan* interactions are significantly negative for the subsample of firms with at least two loans within one year (coefficient -79.929 with a p-value

< 1% without controls; coefficient -46.677 with p-values < 5% with controls). These results suggest that the EP's impact in reducing loan spreads is greater for firms that actively seek to make a credible commitment by switching lenders.[23]

4.2. The effect of a credible commitment to mitigating ESG concerns on the firm's cost of equity

Our analyses above provide a series of evidence that firms can credibly commit to ESG mitigation policies through covenants in their loan contracts and thus reduce their cost of debt. Next, we examine whether this commitment is also beneficial in the equity market. As detailed above, our third prediction is that there is a reduction in the cost of equity capital due to the firm's commitment to reduce environmental and social concerns if it borrows from a lender that adopts the EP. To test this prediction, we examine the borrowers' implied cost of equity capital in the three years preceding and three years after the date of the loan contract. To do so, we estimate the following regression:

$$Cost\ of\ Equity\ Capital = \beta_1 EP\_Treat + Firm\ Controls + Year\ FE + Firm\ FE + Bank\ FE + Investment\ Grade\ FE + \varepsilon \quad (3)$$

The dependent variable, *Cost of Equity Capital*, is measured interchangeably by r_{GLS}, r_{CT}, $r_{OJ,}$ and $r_{MPEG,}$ following Chen, Chen, and Wei [2011] and Hail and Leuz [2009], to account for the variation in assumptions in calculating the implied cost of equity capital. r_{GLS} is the implied cost of equity capital estimated following Gebhardt, Lee, and Swaminathan [2001]. r_{CT} is

[23] In untabulated analysis, we offer corroborating evidence that environmental covenant length is also higher for firms that actively seek to make a credible commitment by switching lenders.

estimated following Claus and Thomas [2001]. r_{OJ} is derived from analysts' forecasts, calculated based on Gode and Mohanram [2003] and Ohlson and Juettner-Nauroth [2005]. r_{MPEG} is the modified Price-Earnings-Growth (PEG) model of the implied cost of equity capital from analysts' forecasts, estimated based on Easton [2004].

Our key variable of interest, *EP_Treat*, is as defined above. Our controls are similar to those of Chen, Chen, and Wei [2011], including the firm's size (*Ln (MVE)*), the firm's leverage (*Leverage*), its book-to-market ratio (*Book to Market*), profitability (*Profitability*), and additional factors that correlate with the implied cost of equity capital: momentum (*Momentum*), the firm's beta (*Beta*), analysts' forecast errors (*Forecast Error*), analysts' long-term growth forecasts (*Growth Forecasts*), and loan spreads (*Loan Spread*). *Momentum* is measured by the natural logarithm of compounded returns over the 12 months preceding the month in which the cost of equity is calculated. *Beta* is the estimated market beta for each firm-year observation, calculated by regressing the monthly returns on the value-weighted market returns. *Forecast Error* is the analysts' forecast errors in the coming annual profits earnings, calculated as the actual EPS from I/B/E/S less the EPS forecasted by analysts, and scaled by the price in the month in which the cost of equity capital is calculated. We also include loan spreads in our regression model to control for potential confounding effects from a reduction in the cost of debt after the EP adoption. See Appendix A for a more detailed description of how we calculate the variables. Like the cost of capital measures, our firm control variables are measured for the three years before and after the loan initiation date. The regressions include year, firm, bank and investment grade fixed effects. If there is a decline in perceived

ESG risks for borrowers after borrowing from a bank that has adopted the EP, compared to a borrower from a bank that has not yet adopted these principles, we expect the coefficient on *EP_Treat* (β_1) to be negative.

Table 4 reports the results from estimating Equation (3). Consistent with our prediction, the coefficients on the *EP_Treat* are negative and significant across all specifications except for Column (1) for r_{GLS} without controls. The coefficients on *EP_Treat* in the regression of r_{GLS} without and with controls are in Columns (1) and (2) (-0.001 and -0.001; p-values > 10% and < 5%, respectively). As the other columns illustrate, the results are qualitatively similar and significant at the 1% level when using r_{CT}, r_{OJ}, and r_{MPEG}. The economic magnitude of the change in the cost of equity is not trivial. The findings indicate that equity investors require a 1.9% to 4.4% lower[24] cost of equity capital from firms that have borrowed from a lender that has adopted the EP, compared to firms that have borrowed from a bank that has not yet adopted these principles.

4.3. A commitment mechanism - the effect of the Equator Principles on environmental covenants

A plausible mechanism through which firms can commit themselves to ESG mitigation policies is agreeing to covenants that require ESG mitigation policies. Therefore, we next examine whether, after EP adoption, the loan contracts signed with the adopting bank have more intense ESG covenants. Specifically, we test our third prediction that the ESG related

[24] The economic magnitude is calculated as the coefficient of *EP_Treat* on the average value of *Cost of Equity Capital* in Table 1. For example, for $r_{GLS,}$ the economic magnitude is 0.001/0.053=1.9%. This decrease is comparable to Chen, Chen and Wei [2011] and Chen, Li and Zou [2016].

covenants will become more intensive in loan contracts signed with EP banks after the EP adoption. To that end, we estimate the following regression specification:

$$Environmental\ Covenant\ Intensity = \beta_1 EP\_Treat + \beta_2 Firm\ Controls + \beta_3 Loan\ Controls + Year\ FE + Industry\ FE + Bank\ FE + Investment\ Grade\ FE + \varepsilon \quad (4)$$

Following recent literature on debt covenants (e.g., Murfin [2012]; Demerjian and Owens [2016]), the construct we aim to measure is the intensity of the environmental covenant rather than its presence as covenants could be present but not effective. The dependent variable, *Environmental Covenant Intensity*, is measured either by *Environmental Covenant Length* or *Number of Environmental Covenants*. *Environmental Covenant Length* is the number of words within the sentences or paragraphs that contain the words "environment" or "hazardous" in the affirmative covenant section. *Number of Environmental Covenants* is the number of environmental covenants contained in the affirmative covenant section (Choy et al. [2021]).[25] As indicated, we choose not to use the measure of the presence of covenants of Choy et al. [2021] but follow their measure of the number of covenants as it better captures our construct of covenant intensity. As the example in Appendix C for NCI Building Systems, Inc., which took out loans from Bank of America before and after the bank adopted the EP, illustrates, addressing environmental concerns in the contract is entirely different in the pre-and post-adoption period. Before the EP adoption, the loan contract had fewer specific provisions that

[25] We note that the two measures we use to capture environmental covenant intensity are not perfect because they don't measure the distance to violation.

dealt with environmental concerns. However, in the post-adoption contract, environmental concerns are dealt with at length and include environmental disclosure and/or action covenants.

Our two measures provide a helpful cross-check of the proxy's validity for two major reasons. First, the first measure was carefully hand-collected, and the second measure was generated using Python. The careful hand-collection helps to mitigate false positives or negatives in the machine generated measure. Second, they capture different dimensions of the strength of monitoring the mitigation of environmental issues. For example, the hand-collected measure captures more content other than the three types of environmental covenants (See Appendix B & C). It also captures the variations in length within one type of environmental covenants.

An average loan has 238 words in the environmental covenant and one out of the three types of environmental covenants (see Table 1 Panel A). A typical environmental covenant may include establishing environmental procedures to prevent a material adverse impact on the environment, notification of an action that has a legal risk involving the environment, an obligation to correct environmental non-compliance, and a requirement for environmental audits. These are monitoring mechanisms to mitigate environmental hazards, especially when combined with the regulatory role of the EP.

EP_Treat, our key independent variable, is an indicator of loans taken out after the lender's EP adoption. The coefficient on *EP_Treat* ($\boldsymbol{\beta_1}$) captures the change in *Environmental Covenant* between pre and post-EP adoption for loans taken out from a lender that adopted EP

relative to the change in *Environmental Covenant* for lenders that have not adopted EP yet. Our *Firm Controls* include *Ln(MVE)*, *Leverage*, *Book to Market*, and *Profitability*. *Loan Controls* include *Loan Spread, Loan Size*, *Maturity,* and *Collateral.* Table 5 reports the results from Equation (4) based on a reduced sample for which we can find raw loan contracts in the SEC's EDGAR database for the Dealscan loans. The coefficient on *EP_Treat* is positive and significant in both regressions of *Environmental Covenant Length* and *Number of Environmental Covenants*, as expected (coefficient 103.485 with a p-value < 5% and coefficient 0.288 with a p-value < 5%, respectively). This result is consistent with our third prediction that borrowers are more likely to accept more extensive environmental covenants after their lenders adopt the EP.

4.4. The effect of a credible commitment to mitigating ESG concerns on environmental performance

So far, our analyses suggest that borrowers benefit from a lower cost of capital by committing to mitigating ESG concerns. Our final test examines whether firms' credible commitment is effective in improving their ESG performance. To test our fourth prediction that firms have better ESG performance after borrowing from a bank that adopted the EP, we examine noisy indicators for borrowers' (partially observable) environmental performance in the three years before and after the loan contract date, using the following regression model:

$$Environment\ Related\ Performance = \beta_1 EP\_Treat + Firm\ Controls + Year\ FE + Firm\ FE + Bank\ FE + Investment\ Grade\ FE + \varepsilon \quad (5)$$

We measure *Environment Related Performance* using *Emission Performance* and *Environmental Performance. Emission Performance* is measured by the emission category score, which ranges between 0 and 100. It measures a company's commitment and efficiency in reducing environmental emissions in the production and operational processes. *Environmental Performance* is an environmental score that ranges between 0 and 100 and measures a company's environmental performance. The firm controls are *Ln (MVE)*, *Leverage*, *Book to Market*, and *Profitability* as defined above and in Appendix A. The regressions include year, firm, bank and investment grade fixed effects. If the borrowers' environmental performance does improve after borrowing from a bank that adopted the EP, we expect $\boldsymbol{\beta_1}$ to be positive and significant.

Table 6 reports the results from estimating Equation (5). Consistent with our prediction, the coefficient estimates of regressing *Environment Related Performance* on the *EP_Treat* are positive and significant. Column (1) shows a significantly positive coefficient when regressing *Emission Performance* on *EP_Treat* (6.541, p-value < 1%) with no controls other than year, firm, bank and investment grade fixed effects. Column (2) includes all of the controls and also shows a significantly positive coefficient on *EP_Treat* (5.721, p-value < 1%). As Columns (3) and (4) of Table 6 indicate, the results are qualitatively similar when we replace *Emission Performance* with *Environmental Performance*.

These results suggest that firms improved their environmental performance following their commitment to mitigating ESG concerns via a borrowing contract with an EP adopting bank. However, is it possible that these firms are engaging in greenwashing? The nature of the

information asymmetry problem makes it impossible to empirically investigate which of the two options is correct. Nevertheless, the fact that the firm has already committed to a bank that monitors their ESG activity, and the consequent reduction in the costs of capital, imply that the reduction in the environmental concern indicators is the result of an improvement in the firm's environmental performance.

Overall, our findings are consistent with firms experiencing an improvement in their costs of capital, both debt and equity, by opting to credibly commit to environmental protection through loan contracts as a mechanism.

5. Conclusion

ESG investing has become increasingly prevalent and relevant in recent years. A firm's exposure to ESG concerns, particularly environmental concerns, increases its costs of equity and debt. One primary reason is that a significant and growing subset of investors and financial institutions limit their investments in firms exposed to these concerns. The literature shows that firms cannot reduce their cost of capital by simply engaging in a voluntary initiative to curb ESG concerns. This is not surprising because mitigating ESG concerns is costly, and firms that seek to mitigate them need to credibly commit to costly mitigation actions.

We examine whether firms exposed to ESG concerns can reduce their debt and equity costs when choosing to raise funds from a bank that has adopted the Equator Principles, thereby reliably committing to ESG mitigation policies through debt covenants. We use banks' staggered adoption of the EP to document several results. We first reveal a significant reduction

in loan spreads for firms that raised loans from EP adopting banks. We show that the effect is stronger when the borrower actively switches to a lender that adopted EP, indicating that the results are at least partially driven by the borrowers, not the banks. Several robustness tests confirm that our results are not driven by a predetermined year trend or the inclusion of non-EP adopters. We also demonstrate that the cost of equity declines for borrowers from banks that adopted the framework. We then investigate a specific mechanism through which credible commitment to mitigating ESG concerns may occur and document a significant increase in environmental protection provisions in the loan contract for borrowers from banks that adopted the EP framework. Finally, we document an increase in noisy indicators of environmental performance for those borrowers after the contract. We conclude that a loan contract under the EP allows borrowers to reduce their cost of debt and cost of equity via the inclusion of a credible commitment to addressing ESG concerns in the form of environmental covenants monitored by the bank.

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Table 1: Summary statistics

Panel A presents the summary statistics for the loan-level sample in Table 2, Table 3 and Table 5. All of the borrowers' characteristics in Panel A are based on the last fiscal year before the loan contract date. Panel B presents the summary statistics for the firm-year-level sample in Table 4 and Table 6, which includes the borrowers' characteristics in the three years before and after the loan contract date. All variables are defined in Appendix A.

Panel A: Loan-level sample

	N	Mean	Std	P25	P50	P75
Loan Spread	4196	174.620	128.683	75	150	250
EP_Treat	4196	0.583	0.493	0	1	1
MVE (*in $ millions*)	4196	4352.776	9855.891	368.294	1163.066	3428.058
Leverage	4196	0.263	0.207	0.107	0.241	0.373
Book to Market	4196	0.038	3.950	0.258	0.435	0.665
Profitability	4196	0.193	0.196	0.081	0.145	0.244
Loan Size (in $ millions)	4196	536.769	1092.649	110	250	600
Maturity	4196	49.291	21.357	36	60	60
Collateral	4196	0.633	0.482	0	1	1
Environmental Covenant Length	797	237.927	286.210	58	146	316
Number of Environmental Covenants	797	0.985	0.972	0	1	2

Table 1: Continued

Panel B: Firm-year level sample

	N	Mean	Std	P25	P50	P75
Cost of equity tests						
r_{GLS}	17577	0.053	0.027	0.035	0.050	0.067
r_{CT}	17577	0.046	0.026	0.029	0.041	0.057
r_{OJ}	17577	0.068	0.029	0.048	0.061	0.080
r_{MPEG}	17577	0.072	0.043	0.045	0.061	0.087
MVE (*in $ millions*)	17577	6654	17214	748	1955	5383
Leverage	17577	0.248	0.158	0.133	0.243	0.352
Book to Market	17577	0.504	0.330	0.277	0.438	0.646
Profitability	17577	0.198	0.157	0.099	0.159	0.249
Momentum	17577	0.084	0.426	-0.137	0.110	0.335
Beta	17577	0.981	0.672	0.509	0.883	1.332
Forecast Error	17577	-0.009	0.038	-0.009	0	0.005
Growth Forecasts	17577	0.162	0.160	0.100	0.138	0.170
Performance tests						
Emission Performance	5796	44.851	25.250	28.180	38.100	62.500
Environmental Performance	5815	40.537	29.038	17.500	23.560	68.620

Table 2: The Effect of the Equator Principles on loan spreads

This table presents the results of OLS regressions investigating the impact of the Equator Principles on loan spreads. Our dependent variable, *Loan Spread,* is the amount the borrower pays in basis points over the LIBOR for each dollar drawn. The independent variable is *EP_Treat*, an indicator variable that equals one if the loan initiation date is later than the lending bank's EP adoption date and zero otherwise. Definitions of the variables are available in Appendix A. We include year, SIC 4-digit industry, bank and investment grade fixed effects. The standard errors are clustered by firm. *t*- statistics are shown in parentheses. Coefficients marked with *, **, and *** are significant at 10%, 5%, and 1%, respectively.

Panel A: Main test: The effect of the Equator Principles on loan spreads

Panel A reports the results of the OLS regressions investigating the impact of the Equator Principles on loan spreads. In the whole sample, we include all loans from each of the four adopting banks between 2001-2007. In the balanced sample, we use only the borrowers who had loans before as well as after the lender adopted the EP.

Dependent Variables: Loan Spread	Whole		Balanced	
	(1)	(2)	(3)	(4)
EP_Treat	-20.648***	-14.402**	-29.881***	-26.344***
	(-2.871)	(-2.289)	(-3.594)	(-3.512)
Ln(MVE)		-22.732***		-20.925***
		(-12.861)		(-8.113)
Leverage		70.434***		62.399***
		(6.086)		(4.249)
Book to Market		0.383		0.434
		(0.689)		(0.672)
Profitability		-58.545***		-77.901***
		(-4.394)		(-4.019)
Loan Size		0.004***		0.003
		(2.969)		(1.326)
Maturity		0.161		0.217
		(1.530)		(1.629)
Collateral		81.897***		84.587***
		(17.426)		(13.535)
Year FE	Y	Y	Y	Y
Industry FE	Y	Y	Y	Y
Bank FE	Y	Y	Y	Y
Investment Grade FE	Y	Y	Y	Y
Observations	4,196	4,196	2,556	2,556
Adjusted R2	0.309	0.519	0.343	0.533

Table 2: Continued

Panel B: Year trend around the EP adoption date

Panel B reports the effect of the Equator Principles on loan spreads for different periods before and after adopting the EP. *EP_Treat_Pre 2Year (EP_Treat_Pre 1Year)* is an indicator variable that equals one if the loan is taken out two years (one year) prior to the adoption date of the Equator Principles. *EP_Treat_Post 1Year (EP_Treat_Post 2Year/ EP_Treat_Post 3Year)* is an indicator variable that equals one if the loan is taken out within one year (two years/three years) after the adoption date of the Equator Principles. The benchmark group omitted from the regression is a loan taken out three years prior to the adoption date of the Equator Principles.

Dependent Variables: Loan Spread	(1)	(2)
EP_Treat_Pre 2Year	-9.787	-7.908
	(-1.173)	(-1.123)
EP_Treat_Pre 1Year	-5.416	-9.478
	(-0.624)	(-1.346)
EP_Treat_Post 1Year	-33.013***	-27.319***
	(-3.945)	(-3.936)
EP_Treat_Post 2Year	-61.614***	-44.918***
	(-7.774)	(-6.757)
EP_Treat_Post 3Year	-68.908***	-49.152***
	(-8.601)	(-7.241)
Ln(MVE)		-23.146***
		(-10.772)
Leverage		79.768***
		(5.741)
Book to Market		0.378
		(0.641)
Profitability		-64.477***
		(-3.861)
Loan Size		0.005**
		(2.289)
Maturity		0.177
		(1.541)
Collateral		81.578***
		(15.293)
Industry FE	Y	Y
Bank FE	Y	Y
Investment Grade FE	Y	Y
Observations	3,313	3,313
Adjusted R2	0.296	0.512

Table 2: Continued

Panel C: Including Non-EP adopters

Panel C reports the effect of the Equator Principles on loan spreads including the four EP adopters matched with loans from banks that never adopted the EP during 2001-2007 as benchmarks. *Treat* is an indicator variable that equals one if the loan is from EP adopters, and zero otherwise. *Post* is an indicator variable that equals one if the loan is taken after the EP adoption date, and zero otherwise. We match the benchmark loans based on the same industry, same loan initiation year, and closest borrower size and assign a pseudo EP adoption date according to the matched loan. We drop the loans for which we could not find benchmark loans. The results are robust to the inclusion of these loans.

Dependent Variables: Loan Spread	(1)	(2)
Treat	-27.061***	-8.662
	(-3.125)	(-1.301)
Post	-1.378	2.149
	(-0.119)	(0.251)
Treat_Post	-48.246***	-23.580**
	(-3.804)	(-2.456)
Ln(MVE)		-18.501***
		(-6.098)
Leverage		51.021***
		(3.001)
Book to Market		-5.169***
		(-3.578)
Profitability		-70.874***
		(-2.636)
Loan Size		-0.003
		(-1.204)
Maturity		0.607***
		(3.715)
Collateral		98.837***
		(13.758)
Year FE	Y	Y
Industry FE	Y	Y
Investment Grade FE	Y	Y
Observations	3,888	3,888
Adjusted R2	0.179	0.457

Table 3: The Effect of the Equator Principles on loan spreads, conditional on the firms' EP seeking behavior

Table 3 examines the effect of firms' credible commitment by switching to the EP lenders on the loan spread of the current loan. We focus on a subsample where the borrower has at least two loans within one year. *Weak Relationship* equals 1-Rel(Amount), where Rel(Amount) is the ratio of the amount of the loans with the same lender to the total amount of loans the firm took out in the past year. *Non-EP Loan to EP Loan* is an indicator variable that equals one if the current loan comes from a bank that has adopted the EP and the previous loan within one year is from a bank that has not yet adopted the EP, and zero otherwise. We capture the firms actively searching for EP adopters by the interaction term: *Weak Relationship * Non-EP Loan to EP Loan*, which equals 1 only when the borrower switches banks to obtain an EP loan. Control variables are the same as in Table 2. For brevity, we report the coefficients on the variables of interest only. We include year, SIC 4-digit industry and investment grade. The standard errors are clustered by firm. *t*-statistics are shown in parentheses. Coefficients marked with *, **, and *** are significant at 10%, 5%, and 1%, respectively.

Dependent Variables: *Loan Spread*	(1)	(2)
Weak Relationship	102.939***	58.780***
	(5.459)	(3.750)
Non-EP Loan to EP Loan	-103.769***	-61.457***
	(-3.822)	(-2.933)
*Weak Relationship * Non-EP Loan to EP Loan*	-79.929***	-46.677**
	(-2.904)	(-2.226)
Control Variables	N	Y
Year FE	Y	Y
Industry FE	Y	Y
Investment Grade FE	Y	Y
Observations	1,612	1,612
Adjusted R2	0.279	0.546

Table 4: The Effect of the Equator Principles on the cost of equity capital

This table presents the results of regressions examining the effect of the Equator Principles on the borrowers' cost of equity capital for the three years before and after the loan initiation date. The dependent variable in Columns (1) and (2) is the implied cost of equity capital estimated following Gebhardt, Lee, and Swaminathan (2001) (r_{GLS}). The dependent variable in Columns (3) and (4) is the implied cost of equity capital estimated following Claus and Thomas (2001) (r_{CT}). The dependent variable in Columns (5) and (6) is the implied cost of capital based on Ohlson and Juettner-Nauroth (2005) (r_{OJ}). The dependent variable in Columns (7) and (8) is the modified PEG model of the implied cost of equity capital estimated following Easton (2004) (r_{MPEG}). The independent variable is *EP_Treat*, an indicator variable that equals one if the loan initiation date is later than the lending bank's EP adoption date, and zero otherwise. Definitions of the variables are available in Appendix A. We include year, firm, bank and investment grade fixed effects. The standard errors are clustered by firm. *t*- statistics are shown in parentheses. Coefficients marked with *, **, and *** are significant at 10%, 5%, and 1%, respectively.

	(1) r_{GLS}	(2) r_{GLS}	(3) r_{CT}	(4) r_{CT}	(5) r_{OJ}	(6) r_{OJ}	(7) r_{MPEG}	(8) r_{MPEG}
EP_Treat	-0.001	-0.001**	-0.002***	-0.002***	-0.003***	-0.002***	-0.004***	-0.002*
	(-1.367)	(-1.983)	(-3.502)	(-3.147)	(-5.216)	(-3.926)	(-3.952)	(-1.695)
Ln(MVE)		0.002**		-0.002**		-0.003***		-0.007***
		(2.342)		(-2.316)		(-3.368)		(-5.631)
Leverage		0.016***		0.026***		0.029***		0.042***
		(4.389)		(6.565)		(7.011)		(6.445)
Book to Market		0.024***		-0.002		0.005*		0.011***
		(13.151)		(-1.139)		(1.928)		(3.126)
Profitability		-0.010**		0.007		-0.020***		-0.059***
		(-2.349)		(1.203)		(-3.868)		(-6.768)
Momentum		-0.018***		-0.019***		-0.018***		-0.020***
		(-31.851)		(-24.792)		(-20.947)		(-16.091)
Beta		0.001*		0.001		-0.000		0.001
		(1.787)		(0.608)		(-0.026)		(0.963)
Forecast Error		-0.063***		-0.074***		-0.099***		-0.146***
		(-6.453)		(-4.842)		(-6.588)		(-6.365)
Growth Forecasts		0.002		0.026***		0.024***		0.014***
		(1.067)		(7.667)		(7.483)		(2.958)
Loan Spread (divided by 100)		0.000*		0.000		0.000		0.000**
		(1.848)		(0.287)		(1.604)		(2.248)
Year FE	Y	Y	Y	Y	Y	Y	Y	Y
Firm FE	Y	Y	Y	Y	Y	Y	Y	Y
Bank FE	Y	Y	Y	Y	Y	Y	Y	Y
Investment Grade FE	Y	Y	Y	Y	Y	Y	Y	Y
Observations	17,577	17,577	17,577	17,577	17,577	17,577	17,577	17,577
Adjusted R2	0.525	0.697	0.391	0.528	0.446	0.578	0.455	0.579

Table 5: The Effect of the Equator Principles on environmental covenant intensity

This table shows the results of OLS regressions investigating the impact of the Equator Principles on the intensity of environmental covenants. The dependent variable in Column (1) is the *Environmental Covenant Length*, which is the number of words within the sentences or paragraphs that contain the terms "environment" or "hazardous" in the affirmative covenant section. The dependent variable in Column (2) is the *Number of Environmental Covenants*, i.e., the number of environmental covenants contained in the affirmative covenant section (Choy et al., 2021). There are three types of such covenants in the affirmative covenants section: an environmental action covenant, environmental disclosure covenant or environmental audit covenant. The independent variable is *EP_Treat*, an indicator variable that equals one if the loan initiation date is later than the lending bank's EP adoption date, and zero otherwise. Definitions of the variables are available in Appendix A. We include year, SIC 4-digit industry, bank fixed and investment grade effects. The standard errors are clustered by firm. *t*- statistics are shown in parentheses. Coefficients marked with *, **, and *** are significant at 10%, 5%, and 1%, respectively.

Dependent Variables	(1) Environmental Covenant Length	(2) Number of Environmental Covenants
EP_Treat	103.485**	0.288**
	(2.109)	(1.998)
Ln(MVE)	-35.398**	-0.131***
	(-2.532)	(-3.182)
Leverage	-79.042	0.206
	(-0.923)	(0.761)
Book to Market	0.930	0.001
	(0.329)	(0.068)
Profitability	32.148	0.429
	(0.300)	(1.388)
Loan Spread	0.458***	0.000
	(2.720)	(0.736)
Loan Size	-0.003	-0.000*
	(-0.433)	(-1.820)
Maturity	2.336***	0.006**
	(2.922)	(2.170)
Collateral	37.347	0.322***
	(1.214)	(3.003)
Year FE	Y	Y
Industry FE	Y	Y
Bank FE	Y	Y
Investment Grade FE	Y	Y
Observations	797	797
Adjusted R2	0.251	0.281

Table 6: The Effect of the Equator Principles on the firm's environmental performance
This table presents the impact of the Equator Principles on the borrowers' environmental performance for the three years before and after the loan initiation date. The dependent variable in Columns (1) and (2) is *Emission Performance*, measured as the emission category score, which ranges between 0 and 100. It measures a firm's commitment and efficiency in reducing environmental emissions in production and operational processes. The dependent variable in Columns (3) and (4) is *Environmental Performance*, an environmental score that ranges between 0 and 100 and measures a company's environmental performance. Both variables are from the Asset4 Database. The definitions of the other variables are available in Appendix A. We include year, firm, bank and investment grade fixed effects. The standard errors are clustered by firm. *t*- statistics are shown in parentheses. Coefficients marked with *, **, and *** are significant at 10%, 5%, and 1%, respectively.

	(1) *Emission Performance*	(2) *Emission Performance*	(3) *Environmental Performance*	(4) *Environmental Performance*
EP_Treat	6.541***	5.721***	8.304***	7.427***
	(5.201)	(4.598)	(5.958)	(5.322)
Ln(MVE)		3.124***		3.445***
		(2.765)		(3.741)
Leverage		4.948		3.557
		(0.627)		(0.386)
Book to Market		0.325		1.489
		(0.384)		(1.282)
Profitability		1.166		2.735
		(0.293)		(0.802)
Year FE	Y	Y	Y	Y
Firm FE	Y	Y	Y	Y
Bank FE	Y	Y	Y	Y
Investment Grade FE	Y	Y	Y	Y
Observations	5,796	5,796	5,815	5,815
Adjusted R2	0.624	0.627	0.677	0.681

Appendix A: Definitions of the variables

Variables	Definitions
Main tests (Table 2 & Table 3; Source: Compustat, Dealscan)	
Loan Spread	The interest the borrower pays in basis points over the LIBOR for each dollar drawn down.
EP_Treat	An indicator variable that equals one if the loan initiation date is later than the lending bank's EP adoption date, and zero otherwise.
Ln (MVE)	The natural logarithm of a borrower's market value of equity. We report the unlogged value in Table 1 for the summary statistics.
Leverage	The ratio of the book value of long-term debt to the book value of total assets.
Book to Market	The ratio of the book value of equity to the market value of equity.
Profitability	The ratio of EBITDA to sales in the last fiscal year.
Loan size	The loan amount in $millions.
Maturity	The loan maturity in months.
Collateral	An indicator variable that equals one if the facility is secured and zero otherwise.
Cost of equity capital (Table 4; Source: Compustat, CRSP, I/B/E/S)	
r_{GLS}	The cost of equity capital estimated following Gebhardt, Lee, and Swaminathan (2001). We use a numerical approximation to solve for r that equates both sides of the equation within an error smaller than 10^{-6} and denote *r* as r_{GLS}: $$P_t = B_t + \sum_{i=1}^{T-1} \frac{[FROE_{t+i} - r] \times B_{t+i-1}}{(1+r)^i} + \frac{[FROE_{t+T} - r] \times B_{t+T-1}}{(1+r)^{T-1} r}$$ where P_t is the stock price at the end of month +4 after the most recent fiscal year end, scaled by $(1+r)^{4/12}$. B_t is the book value of equity from the most recent fiscal year-end. $FROE$ is the future return on equity, which we assume to decline linearly to an equilibrium *ROE* from the 4th year to the *T*th year. The equilibrium *ROE* is the industry-specific median *ROE* in the past 10 years. B_{t+i}, is the future book value of equity, calculated as $B_{t+i} = B_{t+i-1} + EPS_{t+i-1} - DPS_{t+i-1}$. EPS_{t+i-1} is the analysts' consensus forecast of earnings per share for the year *t+i-1*. DPS_{t+i-1} , the future dividend, is calculated as $DPS_{t+i-1} = EPS_{t+i-1} \times d.d$ is the dividend payout ratio, calculated as the dividends of the most recent fiscal year divided by the earnings of the year. *d* is winsorized between 0 and 1. We assume that T = 12.
r_{CT}	The cost of equity capital estimated following Claus and Thomas (2001). We use a numerical approximation to solve for *r* that

	equates both sides of the equation within an error smaller than 10^{-6} and denote r as r_{CT}: $P_t = B_t + \sum_{i=1}^{5} \frac{[FEPS_{t+i} - r \times B_{t+i-1}]}{(1+r)^i} + \frac{[FEPS_{t+5} - r \times B_{t+4}] \times (1+g_L)}{(r-g_L)(1+r)^5}$, where P_t, B_t, B_{t+i-1} and $FEPS_{t+i}$ are the same used in estimating r_{GLS}. g_L is defined as *Risk Free Rate* (the yield on 10-year Treasury bonds) minus 3%.
r_{OJ}	The cost of equity capital estimated following Gode and Mohanram (2003) and Ohlson and Juettner-Nauroth (2005). We use a numerical approximation to solve for r that equates both sides of the equation within an error smaller than 10^{-6} and denote r as r_{OJ}: $P_t = \frac{EPS_{t+1}}{r} + \frac{EPS_{t+1}(g_S - r(1-d))}{r(r-g_L)}$, where P_t, EPS_{t+1}, d and g_L are the same used in estimating r_{CT}. g_S is defined as the average of the short-term earnings growth determined by EPS_{t+1} and EPS_{t+2} and the analysts' forecasts of the long-term growth rate. The estimation of this model requires that $EPS_{t+2} > 0$ and $EPS_{t+1} > 0$.
r_{MPEG}	The modified PEG model of the cost of capital is estimated based on Easton (2004). We use a numerical approximation to solve for r that equates both sides of the model within an error smaller than 10^{-6} and denote r as r_{MPEG}: $P_t = \frac{EPS_{t+1}}{r} + \frac{EPS_{t+1}(g_S - r(1-d))}{r^2}$ The variables used in the estimation are the same used in estimating r_{OJ}.
Momentum	The natural logarithm of the compounded returns over the 12 months before the month when the cost of equity is calculated.
Beta	The market beta is estimated for each firm-year observation by regressing monthly returns on the value-weighted market returns. We use sixty monthly observations before the month when the cost of capital is calculated.
Forecast Error	The analysts' forecast error of the forthcoming annual earnings, defined as actual EPS from I/B/E/S minus the analysts' forecasted EPS used to calculate the cost of equity, scaled by the price in the month when the cost of capital is calculated. When the I/B/E/S actual EPS is missing, we use actual EPS adjusted for the stock split from Compustat.
Growth Forecasts	The analysts' forecast of the long-term growth rate. If missing, we use $EPS_{t+3} / EPS_{t+2} - 1$, where EPS_{t+3} and EPS_{t+2} are analysts' forecasts of earnings for year t+3 and t+2 at the end of month +4 after the most recent fiscal year-end.
Environmental covenant intensity (Table 5; Source: self-constructed from raw loan contracts)	
Environmental Covenant Length	The number of words within the sentences or paragraphs that contain "environment" or "hazardous" in the affirmative covenant section. See Appendix B for a detailed discussion.

Number of Environmental Covenants	The number of environmental covenants contained in the affirmative covenant section (Choy et al., 2021). There are three types of covenants: environmental action covenant, environmental disclosure covenant and environmental audit covenant. See Appendix B for a detailed discussion.
Environmental performance (Table 6; Source: Asset4)	
Emission Performance	The emission category score, which ranges between 0 and 100. It measures a company's commitment and efficiency in reducing environmental emissions in the production and operational processes.
Environmental Performance	An environmental score that ranges between 0 and 100 and measures a company's environmental performance.

Appendix B: Discussion about the environmental covenant intensity measures

We have two measures for environmental covenant intensity: *Environmental Covenant Length* and *Number of Environmental Covenants*. To construct *Environmental Covenant Length*, we focus on the affirmative covenant section and carefully identify the paragraphs or sentences about environmental issues, containing keywords such as "environment" or "hazardous." Then we count the number of words within the related sentences or paragraphs. If the paragraph or subsection is not limited to environmental issues, we select only the sentences that describe the environmental issues to make this proxy less noisy.

In the first example below, since the whole paragraph or subsection is about environmental issues, we keep the whole paragraph. In the second example, we exclude part (a) that is unrelated to environmental issues and keep only parts (b) and (c).

Example 1:

> "Section 5.15. ENVIRONMENTAL COMPLIANCE.
> Each Company shall comply in all material respects with any and all Environmental Laws. Each Company shall furnish to the Lenders, within seven days after receipt thereof, a copy of any written notice such Company receives from any Governmental Authority or private Person that any material litigation or proceeding pertaining to any environmental, health or safety matter (except for accident claims filed under workers compensation statutes) shall have been filed or, to the knowledge of such Company shall be threatened against such Company, any real property in which such Company holds any interest or any past or present operation of such Company. No Company shall allow the release or disposal of hazardous waste or solid waste on, under or at any real property in which any Company holds any interest or performs any of its operations, in violation of any Environmental Law. As used in this Section, "litigation or proceeding" means any demand, claim, notice, suit in equity action, administrative action or investigation whether brought by any Governmental Authority or private Person or otherwise. Each Borrower shall defend, indemnify and hold Agent and the Lenders harmless against all costs, expenses, claims, damages, penalties and liabilities of every kind or nature whatsoever (including attorneys' fees) arising out of or resulting from the noncompliance of any Company with any Environmental Law. Such indemnification shall survive any termination of this Agreement."

Example 2:

> "9.3 COMPLIANCE WITH LAWS, REGULATIONS, Etc.
> (a) Borrower shall, and shall cause any Subsidiary to, at all times, comply in all material respects with all laws, rules, regulations, licenses, approvals, orders and other Permits applicable to it and duly observe all requirements of any foreign, Federal, State or local Governmental Authority.
> (b) Borrower shall give written notice to Agent immediately upon Borrower's receipt of any notice of, or Borrower's otherwise obtaining knowledge of, (i) the occurrence of any event involving the release, spill or discharge, threatened or actual, of any

Hazardous Material or (ii) any investigation, proceeding, complaint, order, directive, claims, citation or notice with respect to: (A) any non-compliance with or violation of any Environmental Law by Borrower or (B) the release, spill or discharge, threatened or actual, of any Hazardous Material other than in the ordinary course of business and other than as permitted under any applicable Environmental Law. Copies of all environmental surveys, audits, assessments, feasibility studies and results of remedial investigations shall be promptly furnished, or caused to be furnished, by Borrower to Agent. Borrower shall take prompt action to respond to any material non-compliance with any of the Environmental Laws and shall regularly report to Agent on such response.

(c) Without limiting the generality of the foregoing, whenever Agent reasonably determines that there is non-compliance, or any condition which requires any action by or on behalf of Borrower in order to avoid any non-compliance, with any Environmental Law, Borrower shall, at Agent's request and Borrower's expense: (i) cause an independent environmental engineer reasonably acceptable to Agent to conduct such tests of the site where non-compliance or alleged non-compliance with such Environmental Laws has occurred as to such non-compliance and prepare and deliver to Agent a report as to such non-compliance setting forth the results of such tests, a proposed plan for responding to any environmental problems described therein, and an estimate of the costs thereof and (ii) provide to Agent a supplemental report of such engineer whenever the scope of such non-compliance, or Borrower's response thereto or the estimated costs thereof, shall change in any material respect."

The second measure is the *Number of Environmental Covenants*. Following Choy et al. (2021), we count the number of environmental covenants in the affirmative covenant section and classify environmental covenants into three types: environmental action covenants, environmental disclosure covenants and environmental audit covenants. Specifically, the patterns are as follows, where "+ w/n" means searching within n characters. See Appendix C for examples of the second measure.

(1) Environmental action covenants: "conduct/take/complete/implement/ + w/250 +remed/clean/remov/abate/dispos/eliminat/corrective + w/250+environmental /hazard."

(2) Environmental disclosure covenants: "advise/notify/report/disclose/deliver/notice + w/500 +environmental/hazard."

(3) Environmental audit covenants: "conduct/provide/retain/hire/furnish +w/250 + environmental +w/250 + consultant/audit/engineering/consulting."

Appendix C: An example of changes in environmental covenants before and after the adoption of the Equator Principles

Bank of America adopted the Equator Principles on April 15, 2004. Before the bank adopted the Equator Principles, NCI Building Systems, Inc. borrowed $125 million from Bank of America on September 13, 2002.[26] The covenant section of the loan includes one type of environmental covenant. The related paragraphs are as follows:

> "6.02 CERTIFICATES; OTHER INFORMATION.
> Deliver to the Administrative Agent, in form and detail satisfactory to the Administrative Agent:
> (e) promptly after preparation, and no later than 30 days after the last day of each fiscal quarter of the Borrower, copies of all Phase I Environmental Site Assessments Reports obtained by the Borrower or any Subsidiary in connection with acquisitions of interests in real property (or Acquisitions of Persons owning interests in real property) closed during such fiscal quarter ***(Environmental disclosure covenant)***; and
>
> 6.03 NOTICES.
> Promptly notify the Administrative Agent (and, in any event, within five (5) Business Days) after any Responsible Officer of the Borrower knows or has reason to know:
> (b) of any matter that has resulted or could reasonably be expected to result in a Material Adverse Effect, including
> (iii) the commencement of, or any material development in, any litigation or proceeding affecting the Borrower or any Subsidiary, including pursuant to any applicable Environmental Laws that, individually or in the aggregate, has resulted or could reasonably be expected to result in a Material Adverse Effect; ***(Environmental disclosure covenant)*** "

After Bank of America adopted the Equator Principles, NCI Building Systems, Inc. borrowed $200 million from Bank of America on June 18, 2004.[27] The length of the environmental covenant in this loan is longer than that of the 2002 contract. In addition, the 2004 contract involves two types of environmental covenants. The related content is as follows:

> "61.NOTICES.
> Immediately after any Credit Party obtains actual knowledge thereof, give written notice to the Administrative Agent (which shall transmit such notice to each Lender as soon as practicable) of the occurrence of any Default or Event of Default, and promptly (but in no event later than two (2)Business Days after any Credit Party

[26] https://www.sec.gov/Archives/edgar/data/883902/000095013402011375/d99856exv4w1.txt

[27] https://www.sec.gov/Archives/edgar/data/883902/000095013404013642/d18421exv4w1.htm

obtains actual knowledge thereof) give written notice of the following to the Administrative Agent (which shall transmit such notice to each Lender as soon as practicable):

Any notice of any violation received by any Credit Party from any Governmental Authority including, without limitation, any notice of violation of Environmental Laws ,which violation could reasonably be expected to have a Material Adverse Effect (***Environmental disclosure covenant***);

62.ENVIRONMENTAL LAWS.

Comply in all material respects with all applicable Environmental Laws and obtain and comply in all material respects with and maintain any and all licenses, approvals, notifications, registrations or permits required by applicable Environmental Laws.

Conduct and complete all investigations, studies, sampling and testing, and all remedial, removal and other actions required under Environmental Laws (***Environmental action covenant***) and promptly comply in all material respects with all lawful orders and directives of all Governmental Authorities regarding Environmental Laws except to the extent that the same are being contested in good faith by appropriate proceedings and the pendency of such proceedings could not reasonably be expected to have a Material Adverse Effect.

Defend, indemnify and hold harmless the Administrative Agent and the Lenders, and their respective employees, agents, officers and directors, from and against any and all claims, demands, penalties, fines, liabilities, settlements, damages, costs and expenses of whatever kind or nature known or unknown, contingent or otherwise, arising out of, or in any way relating to the violation of, noncompliance with or liability under, any Environmental Law applicable to the operations of the Credit Parties or any of their properties, or any orders, requirements or demands of Governmental Authorities related thereto, including, without limitation, reasonable attorney and consultant fees , investigation and laboratory fees, response costs, court costs and litigation expenses, except to the extent that any of the foregoing arise out of the gross negligence or willful misconduct of the party seeking indemnification therefor. The agreements in this paragraph shall survive repayment of the Notes and all other amounts payable hereunder."