Taxonomy Talks, Credit Walks: The EU's Climate Disclosure Framework and Bank Lending*

Karolin Kirschenmann†, Felicitas Koch‡, Marie-Theres von Schickfus§, and Christa Hainz¶

April 2026

Abstract

We study how mandatory climate-related disclosure affects bank lending using the phased introduction of the EU Taxonomy Regulation. Exploiting the staggered development and implementation of the regulation, we distinguish banks' responses to anticipated disclosure requirements from their responses to realized firm-level sustainability information. Using syndicated loan data from 2016 to 2025 and a loan-level difference-in-differences design, we show that banks adjust lending to regulated firms with greater Taxonomy-eligible exposure following the 2019 announcement, reallocating credit toward similarly exposed non-regulated firms. Once firms report alignment, higher alignment is associated with larger loan volumes. We further show that banks adjust contractual terms to manage transition risk.

Keywords: Green Finance, Climate Regulation, Sustainability Disclosure, Bank Lending

JEL: G18, G21, G32, E43, Q51

*We thank Ralph de Haas, Tobias Kruse, Steven Ongena, Thorsten Sellhorn, Carola Theunisz, and seminar participants at DIW Berlin, ifo Institute, LMU Munich, and ZEW Mannheim for valuable comments and suggestions. Alejandra Paramo Pascual, Tabea Kreuziger, and Luis Nollenberger provided excellent research assistance. The authors gratefully acknowledge funding by the INTERACT project under the Sustainable Finance and Climate Protection (SFCP) initiative by the German Federal Ministry of Research, Technology and Space (Grant No. 01LA2213). Kirschenmann additionally acknowledges funding by the Leibniz Association under their Women Professors' Program, Project ID: P151/2023.

†ZEW Leibniz Centre for European Economic Research Mannheim and Johannes Gutenberg University Mainz, e-mail: karolin.kirschenmann@zew.de

‡ifo Institute - Leibniz Institute for Economic Research at the University of Munich and Ludwig-Maximilians-Universität München (LMU), email: felicitas.koch@ifo.de

§ifo Institute - Leibniz Institute for Economic Research at the University of Munich, Ludwig-Maximilians-Universität München (LMU), and CESifo, e-mail: vonschickfus@ifo.de

¶ifo Institute - Leibniz Institute for Economic Research at the University of Munich, e-mail: hainz@ifo.de

1 Introduction

Banks increasingly face the task of assessing borrowers' exposure to climate-related risks. Such risks are difficult to observe, slow to materialize, and tightly linked to future regulation and technological change. In the absence of standardized information, banks must rely on imperfect signals when pricing and allocating credit to firms whose business models may become more or less viable as climate policies evolve. Recent disclosure regulations aim to reduce these information frictions by standardizing how firms report their exposure to environmentally relevant activities. Whether and how banks incorporate such newly mandated information into their lending decisions, however, remains an open empirical question.

The EU Taxonomy Regulation (EU TR) provides a particularly well-suited setting to study this question. The regulation introduces a harmonized classification of environmentally relevant economic activities and mandates disclosure of Taxonomy-eligibility and -alignment for companies subject to the Non-Financial Reporting Directive (NFRD) (and, subsequently, the Corporate Sustainability Reporting Directive (CSRD)). Under the EU TR, Taxonomy-eligibility and -alignment capture distinct aspects of firms' activities. Eligibility reflects whether a firm operates in economic activities that are covered by the Taxonomy and are considered environmentally relevant, many of which are relatively emission-intensive but exhibit substantial potential for emission reductions. By contrast, Taxonomy-alignment measures the share of a firm's activities that meet the detailed technical screening criteria required to be classified as environmentally sustainable. As a result, eligibility primarily captures exposure to transition-relevant activities. Alignment, by contrast, provides a more direct indicator of realized environmental performance. Importantly for identification, the EU TR was developed and implemented in stages, generating a clearly dated information shock before any firm-level disclosures occurred and allowing anticipation effects to be separated from the arrival of verified sustainability information.

Our empirical strategy exploits these two stages. First, we examine banks' lending responses to the July 2019 publication of the Technical Expert Group on Sustainable Finance (TEG)'s recommendations, which for the first time clarified which economic activities would be considered Taxonomy-eligible. This announcement provided banks with a new, harmonized classification of transition-relevant activities, but no information about firms' actual environmental performance. Second, we study lending responses once regulated firms begin reporting their Taxonomy-alignment shares in 2023, when comparable and verifiable performance information becomes available. This staggered

rollout allows us to distinguish how banks adjust credit supply when sustainability information is expected from when it is realized.

To estimate the causal effect of the EU TR on credit supply, we use loan-level syndicated lending data from 2016 to 2025 and implement a difference-in-differences design that compares lending to firms subject to mandatory sustainability reporting with lending to otherwise similar firms outside the regulation's scope. We exploit cross-sectional variation in firms' Taxonomy-eligible revenue shares as a continuous measure of exposure to the regulation. Our specifications include fixed effects at the country, year and industry levels, as well as at the industry-by-time, lender-by-time and borrower levels to isolate credit supply from demand and absorb time-varying confounders. We further enhance comparability between treated and control firms using matching techniques. In addition, we exploit heterogeneity in banks' own climate-related reporting practices to examine whether differences in information processing or reputational exposure shape their lending responses to the Taxonomy.

The EU TR may affect bank lending through several channels. The initial announcement may generate an uncertainty shock for regulated firms, as banks anticipate future disclosures whose implications for transition and reputational risk are initially unclear. Alternatively, eligibility may serve as a signal of heightened transition exposure, leading banks to rebalance credit away from more exposed firms. Finally, once alignment information becomes available, the Taxonomy may improve banks' ability to incorporate transition risk. Our empirical design allows us to test these channels by exploiting variation across regulatory status, eligibility intensity, bank characteristics, and regulatory phases, and by examining how banks adjust not only loan volumes but also contractual terms that condition credit on future improvements in environmental performance.

We find that banks adjust credit supply in anticipation of mandatory disclosure. Following the 2019 announcement, lending to regulated firms with higher Taxonomy-eligible revenue shares declines significantly, while lending to similarly exposed but non-regulated firms increases, consistent with a reallocation of credit rather than an aggregate contraction. These effects are stronger for banks with more extensive prior climate-related reporting, suggesting that differences in banks' information processing or reputational concerns shape their responses. Once firms begin reporting alignment, regulated firms with stronger environmental performance receive higher loan volumes, indicating that verified disclosures mitigate uncertainty and are rewarded by lenders. Importantly, reduced lending to highly exposed firms does not imply a withdrawal of financing from the transition. Using novel text-based evidence from remarks of syndicated loan contracts, we show that banks

increasingly employ sustainability-linked contract provisions that condition credit on environmental performance improvements. These contractual features are most prevalent for carbon-intensive and highly eligible firms and in syndicates more engaged in climate reporting, consistent with banks managing transition risk through contract design rather than indiscriminate credit rationing.

This paper contributes to several strands of the literature on bank lending, climate finance, and sustainability disclosure.

First, we relate to a growing literature examining how banks incorporate climate considerations into lending decisions. Several studies document that banks characterized as "greener" tend to provide more favorable credit terms to environmentally friendly firms and to reduce lending to more carbon-intensive borrowers, particularly after the Paris Agreement (Degryse et al., 2023; Martini et al., 2025; Reghezza et al., 2022). However, these effects are heterogeneous across institutional settings, with local policy stringency and regulatory environments shaping banks' responses (Mueller and Sfrappini, 2022; Benincasa et al., 2024). Our paper complements this work by focusing not on banks' environmental preferences per se, but on how a standardized regulatory classification of economic activities affects credit supply through information and anticipation effects.

Second, our analysis relates to the literature on voluntary climate commitments and reporting by banks. The evidence in this area is mixed. Giannetti et al. (2023) find no causal link between more extensive voluntary environmental reporting by banks and improved credit conditions for greener borrowers. Also Hale et al. (2024) document no differential lending behavior toward emission-intensive industries between banks with and without voluntary climate commitments. In contrast, firm-level evidence from Kacperczyk and Peydro (2021) suggests that climate-committed banks reduce lending to higher-emission firms, pointing to within-industry reallocation rather than aggregate credit contraction. Our findings add to this literature by showing that mandatory disclosure interacts with banks' voluntary reporting practices: banks with greater exposure to climate-related reporting respond more strongly to regulatory information, even when firm-level disclosures are not yet available.

Third, we contribute to the more limited literature on mandatory climate-related reporting. Wang (2023) studies how mandatory disclosure requirements for banks affect their activities outside their home markets, highlighting cross-border spillovers. Other studies analyze the effects of monetary, supervisory, or prudential climate policies on banks' balance sheets and risk-taking (Diluiso et al., 2021; Dafermos and Nikolaidi, 2021; Giovanardi et al., 2023), but do not address disclosure regulation. In contrast, the literature on mandatory sustainability reporting at the firm level has

primarily focused on capital market outcomes, finding that stock markets often react negatively to the introduction of disclosure mandates, while firms with stronger prior ESG practices experience more muted effects (Grewal et al., 2019; Wang et al., 2023). We complement this work by providing causal evidence on how mandatory firm-level sustainability disclosure affects bank credit supply rather than equity market outcomes.

Our paper is also closely related to recent work on the EU Taxonomy. Sautner et al. (2025) show that firms' exposure to Taxonomy-eligible activities was already priced in the syndicated loan market prior to the formal introduction of the Taxonomy, with higher eligibility associated with lower loan spreads between 2005 and 2018. This finding is consistent with our evidence that eligibility, in isolation, is not penalized by lenders. We extend this literature by showing that the regulatory use of the Taxonomy, through mandatory reporting and its staged implementation, induces differential lending responses across regulated and non-regulated firms and over time, highlighting the role of regulatory anticipation and disclosure.

Finally, our results speak to the emerging literature on transition finance and the real effects of climate-related financial intermediation. A growing body of work suggests that value-aligned investing or banking has had limited direct effects on firms' environmental performance (De Angelis et al., 2023; Gourdel, 2025). Related evidence shows that reductions in credit to carbon-intensive firms may lead to lower investment without corresponding improvements in emission efficiency (Kacperczyk and Peydro, 2021), a mechanism also emphasized in theoretical work by Haas and Kempa (2023). Against this background, our findings contribute novel evidence that banks do not merely respond to climate-related risks by rationing credit, but increasingly rely on contractual design to condition lending on improvements in environmental performance. This highlights an important role for banks in facilitating firm-level adjustment during the transition, rather than simply reallocating capital away from exposed activities.

2 Institutional background

The EU has several climate targets and goals in place: this includes the reduction of net emissions by at least 55% by 2030 and by 90% by 2040 relative to 1990, respectively, and becoming climate-neutral by 2050. The transition towards a climate-neutral economy requires a redirection of capital flows towards sustainable investments. Mirroring the Paris Agreement's commitment to align finance flows with climate goals, the European Union (EU)'s Sustainable Finance Framework aims to support this alignment. A key part of the framework consists of transparency rules: information on which

firms and economic activities can be considered sustainable.

2.1 The EU Taxonomy Regulation

The EU TR provides a standardized classification system for environmentally sustainable economic activities and serves as the cornerstone for the broader architecture of the EU's sustainable finance regulation. By providing a common language and set of criteria, it aims to streamline reporting and enhance comparability. The complete EU TR consists of six environmental objectives: (1) climate change mitigation, (2) climate change adaptation, (3) protection of water and marine resources, (4) strengthening the circular economy, (5) reducing pollution, and (6) protecting biodiversity. In our analysis, we refer to the first objective of climate change mitigation as outlined in the Delegated Act "Climate".

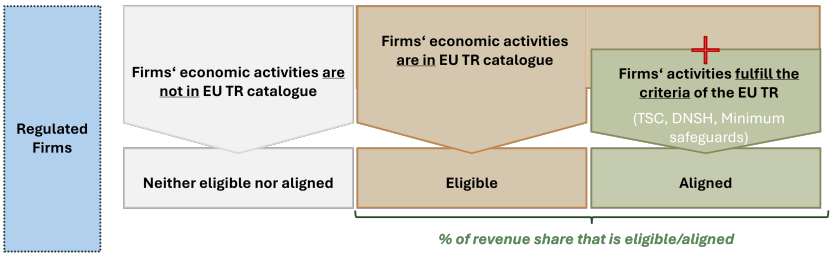


Figure 1: The EU Taxonomy Regulation

Notes: This figure shows the workings of the EU TR. Eligibility is based on whether firms' economic activities are listed in the EU TR. Alignment is determined by whether these activities fulfill the sectoral Technical Screening Criteria (TSC), the Do-No-Significant-Harm (DNSH) criteria and the minimum safeguards outlined in the regulation.

As outlined in Figure 1, a regulated firm must first determine for each of its economic activities whether it is Taxonomy-eligible, i.e., the activity is listed in the EU TR or the associated delegated acts. If an activity is eligible, the firm must assess whether the activity is aligned: i.e. it makes a "substantial contribution" to climate mitigation without significantly undermining the other objectives (Do-No-Significant-Harm (DNSH)). This assessment must be based on Technical Screening Criteria (TSC) set out in the delegated acts, for example, CO_2 emission intensity thresholds for aluminum production or maximum energy consumption per cubic meter of water in drinking water facilities. Finally, the firm must verify that it meets minimum social standards ("minimum safeguards"), such as those set forth in the International Charter of Human Rights. An economic activity is considered Taxonomy-aligned and thus sustainable under the EU Taxonomy only if all these criteria are met.

The EU TR currently covers economic activities in the energy, industry, buildings, transport, water, communications, and agriculture sectors, which are responsible for around 80 percent of

direct greenhouse gas (GHG) emissions in the EU.[1] Consequently, Taxonomy-eligible firms are generally those with a high mitigation potential but potentially high current CO_2 intensity. Taxonomy-alignment follows a best-in-class approach, highlighting the relative sustainability of a firm operating in CO_2-intensive activities.

2.2 The EU sustainability reporting regulations

Since 2014, large EU-based companies of public interest, i.e., listed companies, banks, insurance companies and other entities designated as such by Member States because of their significant public relevance, with more than 500 employees have been required to report on their non-financial information under the NFRD to increase transparency and accountability regarding social and environmental issues.[2] The CSRD, which entered into force in January 2023, was intended to revise and substantially expand the scope of the NFRD. However, under the European Commission's Omnibus package, the phased extension of mandatory sustainability reporting has been delayed and its scope narrowed, with implementation for newly covered firms postponed and thresholds under revision. Therefore, within our observation period, mandatory sustainability reporting remained confined to firms that had already been subject to the NFRD. For these firms, the EU TR clarifies that they must report on their EU Taxonomy-eligible and -aligned revenue shares.

3 Data and estimation sample

We estimate the effect of the EU TR on bank lending, taking into account heterogeneity among borrowers in terms of reporting obligations and Taxonomy-eligibility as well as heterogeneity among banks in terms of their green reporting. Prior research suggests that European banks reallocated credit away from firms with higher pollution following the Paris Agreement (Reghezza et al., 2022), which was announced in December 2015. To avoid convoluting our estimates with the effect of the Paris Agreement, we restrict our sample to loans issued between January 2016 and July 2025. Our empirical strategy links granular syndicated loan data with balance sheet information, environmental data and Taxonomy-related information of borrowers and balance sheet information and annual and ESG reports of banks. Appendix Table C1 contains variable definitions and data sources.

[1] As defined in the TEG final report (technical annex), these sectors are either considered "high-emitting NACE macro sectors, with substantial contribution potential" and so-called "enabling sectors" (such as information or communication) that may enable emission reductions in other sectors.

[2] In addition, several voluntary reporting frameworks, such as those from the Task Force on Climate-related Financial Disclosures (TCFD), have emerged to help companies disclose their climate-related risks and opportunities.

3.1 Loan data

We use granular data on syndicated loans at the tranche-level from LPC DealScan.[3] The loan data comprises information on the loan (e.g., loan amount, interest rate spread, loan type, maturity, date of issuance, loan remark) and on the borrower (e.g., industry, size, country) as well as the bank (parent, country). We focus in the analysis on lead banks in each syndicate, because, in syndicated lending, the lead banks are in charge of establishing and maintaining a relationship with the borrower, gathering information on the borrower and deciding on loan conditions. In line with the literature, we follow Ivashina (2009) and define the lead arrangers as those that are considered (i) an administrative agent of the syndicate or, if unavailable, (ii) agents, (mandated or coordinated) arrangers, bookrunners, (mandated) lead arrangers, lead banks or managers. The loan data in the sample includes both refinanced and newly issued loans.

3.2 Firm and bank balance sheet information

We combine DealScan's syndicated loan data with indicators for borrowers' and lenders' financial performance using balance sheet data from Orbis (Bureau van Dijk). While DealScan provides for approximately 65 percent of borrowers the Legal Entity Identifier (LEI) as identifier, no identifiers exist for banks. We thus rely on Orbis' Batch Search using the names of both borrowers and lenders without identifiers in DealScan to retrieve missing identifiers where available. To ensure accuracy of the returned search results, we investigate each match by performing both a fuzzy name matching and a manual comparison. In case of ambiguous search results, we proceed to investigate them manually in detail.

3.3 EU Taxonomy and environmental data

We obtain firm-level information on Taxonomy-eligible revenue shares from Trucost. The dataset covers the period 2005 to 2024 and contains granular revenue information for 14,586 individual companies, 10.26 % of which are located in the EU. If a firm is diversified across multiple economic activities, Trucost reports separate information for the multiple revenues generated in the different industries. For each year, we first map the revenue generated in each industry (6-digit NAICS) to the economic activities classified as Taxonomy-eligible. In practice, the underlying set of Taxonomy-eligible sectors has become progressively richer over time. Our measure of Taxonomy-eligible rev-

[3] A tranche loan allows a loan to be divided into multiple segments or tranches, where each tranche may have its own purpose, credit terms, conditions or maturity. While the analysis focuses on tranches, we use the terms *tranche* and *loan* interchangeably throughout the paper.

enue follows the evolving regulatory and technical definition of "eligible" activities rather than an ex-post harmonized benchmark.[4] For each firm-year, we calculate the Taxonomy-eligible revenue share as a fraction of total revenue. In essence, this information was what market participants had to rely on before the actual reporting under the EU TR started in 2022. While Trucost contains regulated firms' self-reported Taxonomy-eligible shares after this year, the number of observations is very limited, both because non-regulated firms do not have to report and because of missings among regulated firms. We thus rely on calculated Taxonomy-eligible revenue shares throughout our analysis. We provide more information in Appendix A. However, we use the self-reported Taxonomy-aligned revenue shares as there is no other source of information on firms' Taxonomy-alignment.

We furthermore use firms' emission intensity (scope 1 emissions in thousand tonnes per USD million revenue in a given year) as provided by Trucost on the firm-year level to account for borrowers' climate-related transition risk.

3.4 Banks' green reporting

We capture banks' green reporting by analyzing their climate-related reporting with the help of textual analysis methods. For these analyses, we restrict our sample to public banks as they are required to publish annual reports, in addition to voluntary ESG reports. Out of the lead banks in our loan data sample, we identify 362 public entities. We restrict the report language to English and download the available annual and ESG reports from Refinitiv Eikon for the years 2016 to 2023. Overall, we obtain for 303 unique entities at least one report.

Due to the large size of banks' reports, we first apply a tailored dictionary approach and keep only paragraphs broadly related to sustainability. For this, we manually review around 20 sustainability and annual reports and extract general climate- and sustainability-related words and phrases in paragraphs that are related to sustainability, shown in Table B1. We then apply ClimateBERT's *Climate Detector* (Webersinke et al., 2022),[5] a Large Language Model (LLM) that classifies each retained paragraph as climate-related or not based on contextual word representations. After re-

[4] We implement a time-varying definition of Taxonomy-eligible economic activities. For loans issued up until 2022, we rely on the Excel mapping tool released alongside the Technical Expert Group's (TEG) final report on the EU Taxonomy in March 2020, which links the initial climate-mitigation and adaptation activities to NACE and other industry classifications as announced in 2019. Starting in 2022, we switch to the EU Taxonomy NACE alternate classification mapping prepared by the Platform on Sustainable Finance, which aligns the activity list and NACE references with the EU Taxonomy Climate Delegated Act and offers a more systematic crosswalk to several industry taxonomies. From 2023 onwards, we use the updated version (June 2023) of the same mapping, which incorporates the expansion of the Taxonomy through the Environmental Delegated Act and amendments to the Climate Delegated Act, thereby extending sector coverage to new activities (e.g., additional manufacturing, agriculture and food production, circular-economy and repair services, pollution control, and biodiversity-related activities). Our approach is in line with the assumption that banks had the same information and classifications available at the time.

[5] See Huggingface: ClimateBERT - Base Climate Detector.

moving stopwords, we compute three bank-year measures: (i) the general climate-related reporting ratio as the share of words in climate-related paragraphs over total words across all available reports; (ii) the climate-specific reporting ratio following the Cheap Talk Index (CTI) of Bingler et al. (2024) using ClimateBERT's *Climate Specificity* module, defined as the share of words in climate-related, specific paragraphs over total words;[6] and (iii) the net-zero lending reporting ratio, i.e. the share of words in paragraphs on net-zero lending within lending-related paragraphs. We provide more detailed information on our approach in Appendix B.

3.5 Estimation sample and descriptive statistics

The total sample downloaded for the time period of January 2016 to July 2025 consists of 1,007,571 observations at the bank-borrower-level (202,514 tranches). We then drop all observations at the bank-borrower-level where the bank is not identified as lead arranger and exclude observations from countries that have no more than a total of 20 observations in the sample, leaving us with 493,354 bank-borrower-level observations. Adding information on borrowers' Taxonomy-eligibility and environmental characteristics from Trucost reduces the sample to 91,458 observations at the bank-borrower-level (27,352 tranches). Both syndicate and borrower characteristics are available for 15,892 tranches. After performing the sample balancing described below using Mahalanobis Distance Matching (MDM), our final estimation sample consists of 10,110 tranches with 697 unique lender parents, 1,688 unique lenders and 2,960 unique borrowers.

While identification does not require treated and control firms to be similar in levels, large differences could raise concerns that estimates are driven by outliers. To assess balance in observables, Appendix Table E1 reports normalized differences in means between treated (loans to NFRD borrowers) and control (loans to non-NFRD borrowers) observations, defined following Imbens and Wooldridge (2009). Normalized differences below 0.25 in absolute value are commonly interpreted as indicating sufficiently similar distributions.

Although most normalized differences fall below this threshold, we further mitigate potential outlier concerns by applying a matching procedure that restricts the analysis to firms with common support. Specifically, we use MDM to match each treated observation to similar control observations, matching exactly on industry (1-digit SIC code) and loan origination year while balancing continuous covariates through the distance metric. Matching covariates include key syndicate char-

[6] ClimateBERT's *Climate Specificity* module is fine-tuned to distinguish specific climate-related statements (containing concrete, firm-relevant information such as quantified targets, measures, timelines, or exposures) from non-specific statements (generic or boilerplate climate language).

acteristics (ROA, equity-to-assets ratio, prior bank–firm interactions) and borrower characteristics (revenue and Taxonomy-eligible revenue share). Appendix Table E2 shows that this procedure improves balance across observables.

Table 1: Summary Statistics: Main Sample After Balancing

	Min	Max	Mean	Std.Dev.	Obs
Bank characteristics (syndicate average):					
Equity-to-assets	0.03	0.56	0.07	0.02	10110
ROA	-1.79	20.32	0.56	0.44	10110
Tier 1 Capital Ratio	7.51	169.67	17.80	15.37	10007
Total assets	0.00	6688643.50	1042225.27	1021138.23	9522
Prior Interactions (bank-firm)	0.00	33.00	3.32	4.24	10110
Prior Interactions (bank-industry)	0.00	1132.00	43.23	77.54	10110
% of Europe-based banks	0.00	1.00	0.48	0.42	10110
Tranche characteristics:					
Number of lead banks	1.00	58.00	5.19	6.44	10110
Amount	3.33	6000.00	615.57	894.47	9920
Loan maturity	1.00	360.00	49.54	27.27	9759
Covenants	0.00	1.00	0.12	0.33	10110
Refinancing	0.00	1.00	0.59	0.49	10110
Secured	0.00	1.00	0.24	0.42	10110
Loan origination year	2016	2025	2020.87	2.62	10110
Has remark	0.00	1.00	0.77	0.42	10110
Borrower characteristics:					
EligibleRev	0.00	100.00	16.11	33.13	10110
Revenue	0.08	344877.00	12055.90	26047.12	10110
Carbon Intensity	0.00	4.46	0.18	0.50	10110
Unique borrower occurances	1.00	43.00	5.00	5.05	10110

Notes: Sample (tranche level) is after balancing using MDM. At the syndicate level, equity-to-assets, ROA, Tier 1 capital ratio and total assets (USD millions) refer to individual lead banks' values lagged by one year, from which we then take the average value of the syndicate. The share of Europe-based banks in the syndicate refers to the headquarter of the lender parent, as defined in DealScan. Spread values are subject to limited coverage and should therefore be interpreted with caution. Tranche amount and spread are trimmed at the top and bottom percentile. EligibleRev is a borrowers' Taxonomy-eligible revenue share from the previous financial year. Similarly, borrowers revenue (USD millions) and carbon intensity (thousand tonnes per USD million) are lagged by one year.

The summary statistics reported in Table 1 show that borrowers in the final sample have, on average, a Taxonomy-eligible revenue share (*EligibleRev)* of 16.11 percent. Figure D1 illustrates that most of the variation in *EligibleRev* is cross-sectional, while there is little within-borrower variation. The banks in our sample are large with average total assets of more than 1 bn. USD and have an average Tier 1 Capital Ratio of 17.80 percent. Around half of the sample banks are headquartered in Europe. As expected in syndicated lending, the loan tranches are large (average amount of around 615 mil. USD) and long-term (average maturity of around 50 months). 77 percent of the loans carry a remark which often documents loan purpose, pricing features, and specific conditions that syndicates impose on borrowers. Such remarks may also relate to sustainability goals and will help us identify green financing purposes.

4 EU TR announcement, borrowers' Eligibility and lending to firms

4.1 Identification and empirical strategy

Figure 2 summarizes the development of the EU TR and highlights the key dates underlying our identification strategy. The regulation was developed over several years, gradually revealing its content to market participants. For the first part of our analysis, the central event is the July 2019 publication of the TEG's recommendations, which for the first time specified the set of economic activities classified as Taxonomy-eligible.[7]

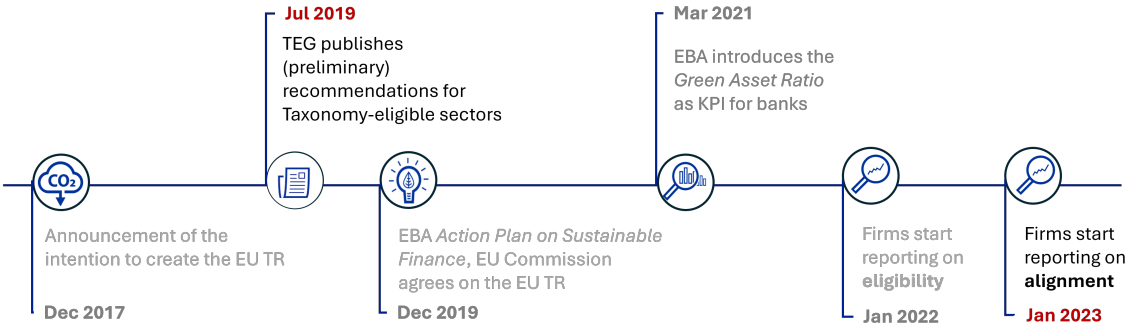


Figure 2: Timeline of EU TR developments

Notes: This figure shows the most important dates in the timeline of the developments of the EU TR. Highlighted in red are the events used in our empirical analysis.

We exploit this announcement as an exogenous information shock that provided banks with a harmonized classification of transition-relevant activities, well before any firm-level sustainability disclosures became available. Following the announcement, banks could infer firms' approximate exposure to Taxonomy-eligible activities based on revenue composition, but had little information about future Taxonomy-alignment outcomes. Our difference-in-differences design compares lending to firms subject to mandatory sustainability reporting under the NFRD (treated firms) with lending to otherwise similar firms not subject to mandatory reporting (control firms), while exploiting cross-sectional variation in firms' Taxonomy-eligibility shares as a measure of treatment intensity.[8]

Actual reporting under the EU TR followed with a lag. Firms subject to the NFRD were first required to disclose Taxonomy-eligibility shares in 2022 for the financial year 2021, and to report Taxonomy-alignment starting in 2023 for the financial year 2022. Accordingly, we construct firms' eligibility exposure using Trucost revenue data prior to mandatory reporting, as described in Sec-

[7] The TEG, a group of 35 members from civil society, academia, business and the finance sector, as well as additional members and observers from EU and international public bodies had been set up by the European Commission to help develop the EU TR and make recommendations of Taxonomy-eligible economic activities.

[8] Because syndicated lending primarily involves large borrowers, firms subject to the NFRD are almost exclusively large EU-based companies in our sample.

tion 3. In Section 5, we exploit realized alignment disclosures to study how verified sustainability information affects bank lending.

Identification relies on the assumption that, conditional on a rich set of fixed effects and control variables, lending to regulated and non-regulated firms would have followed parallel trends in the absence of the July 2019 announcement. We provide supporting evidence for this assumption by documenting the absence of differential pre-trends in lending volumes prior to the announcement.

The July 2019 announcement may affect bank lending through three channels. First, it may generate an uncertainty shock for regulated firms: while banks learn which activities fall under the Taxonomy, higher eligibility exposure increases uncertainty about future alignment disclosures and associated transition or reputational risks, leading to reduced lending to highly exposed regulated firms. Second, eligibility may signal aggregate transition risk within the EU, implying lower lending to EU firms with greater exposure regardless of firm-level reporting uncertainty. Third, the Taxonomy may serve as a standardized classification of transition risk that improves banks' ability to assess exposure across firms, potentially affecting lending to eligible firms independent of regulatory status.

To gauge the effect of the July 2019 announcement on lending volumes, we estimate:

$$\begin{aligned} Amount_{s,f,l,t} = \alpha &+ \beta_1 EligibleRev_{f,t-1} + \beta_2 Post2019_t + \beta_3 NFRD_{f,t} + \beta_4 EligibleRev_{f,t-1} \\ &\times Post2019_t + \beta_5 EligibleRev_{f,t-1} \times NFRD_{f,t} + \beta_6 Post2019_t \times NFRD_{f,t} \\ &+ \boldsymbol{\beta_7} EligibleRev_{f,t-1} \times Post2019_t \times NFRD_{f,t} + \gamma X_{s,f,l,t-1} + FE_{f,l,t} + \varepsilon_{sflt} \end{aligned} \tag{1}$$

where subscripts s, f, l, t stand for syndicate, firm, loan tranche, and time, respectively. The dependent variable $Amount_{s,f,l,t}$ is the size of loan l in millions of USD (log) issued by syndicate s to firm f at time t and captures the intensive margin effect of the announcement of the Taxonomy-eligible economic activities.

The dummy $Post2019_t$ indicates whether the loan was issued after the first announcement of the eligible sectors in July 2019. $NFRD_{f,t}$ is an indicator equal to one if borrower f is subject to mandatory reporting under the NFRD, and hence the EU TR. $EligibleRev_{f,t-1}$ is the borrower's Taxonomy-eligible revenue share (in percent), constructed from revenue share information provided by Trucost.[9]

$FE_{f,l,t}$ contains different sets of fixed effects. In all regressions, we include loan purpose and loan type fixed effects to isolate their unobserved, time-invariant effects on the lending supply. In the baseline, time- and country-of-borrower-fixed effects account for differences across years and

[9] In unreported regressions, we use $EligibleStd_{f,t-1}$, i.e. the borrower's standardized deviation from the industry mean of $EligibleRev_{f,t-1}$, to exploit relative sector performance and transition risk variation. Results (available upon request) are very similar and our conclusions remain unchanged.

geographical characteristics of the borrower which might affect the loan conditions. Industry-fixed effects absorb cross-sectional level differences in lending conditions between different industries, while the Taxonomy-eligible revenue share is identified from within-industry variation. Depending on the specification, we introduce industry-year-fixed effects absorbing all time-varying unobserved heterogeneity across industries, such as variation in industrial cycles or specific carbon pricing shocks. In addition to the baseline analyses on the tranche level, we estimate regressions on the lead-arranger-level, allowing us to employ additional meaningful fixed effects. Lender-year-fixed effects limit identifying variation to comparisons of different borrowers of the same lender in each time period. Finally, borrower fixed effects absorb all time-invariant, unobserved differences between borrowers, focusing identification on within-firm variation over time.

To mitigate lingering concerns about omitted variable bias, we add a vector $X_{s,f,l,t-1}$ of time-varying loan tranche characteristics (log of loan maturity in months, number of lead banks, whether non-bank is among lead banks, covenants, secured, loan refinancing, origination status, loan has a remark), borrower characteristics (log of revenue size in Mil. USD, opaqueness, carbon intensity over revenue,[10] all lagged by one year, as well as current ESG Rating) and lender characteristics (log of total assets in Mil. USD, Return on Assets (ROA), Tier 1 Capital Ratio, Equity-to-Assets ratio, all lagged by one year, and number of interactions between lender and borrower as well as between lender and industry (2-digit SIC) prior to loan origination). For the analysis on the tranche-level, we use the average of the syndicate's lead bank controls.

The coefficient of interest in equation 1 is β_7 which captures how the post-announcement change in lending to regulated firms compared to non-regulated firms varies with their Taxonomy-eligible revenue share, which we interpret as a continuous measure of treatment intensity. We expect $\beta_7 < 0$ if banks indeed lowered their lending volume to borrowers with higher eligibility shares after the announcement of the EU TR.

4.2 Baseline results

Table 2 shows the resulting estimates of equation (1). The estimates indicate that borrowers with higher eligibility shares receive significantly lower credit volumes after the announcement of the EU TR in 2019 – but only if they are required to report under the NFRD. In column (1), a ten percent higher eligibility share translates for NFRD-regulated borrowers into a ten percent decrease in loan volume, i.e. 62 USD million less credit received on average. For non-NFRD reporters, in

[10] Results are qualitatively unchanged when we instead control for lagged total scope 1 carbon emissions.

contrast, the announcement of the EU TR had a significantly positive effect on loan amounts (*EligibleRev x Post2019*). This suggests that banks – taking future informational and / or transition risks into account – have shifted lending (within broader industries) across jurisdictions: while reducing exposure to high-eligibility firms subject to regulation, they increased this exposure in case of firms outside regulatory scope. The results also suggest that banks did not use the EU TR classification as a common metric to assess firms' transition risk beyond the EU. The effects are similar across all specifications; only the inclusion of borrower fixed effects renders coefficients insignificant, which may be explained by the limited within-borrower variation of Taxonomy-eligible revenue shares (see Figure D1).

Table 2: Regulated Borrowers' Eligibility Shares and Loan Volumes

Difference-in-Differences estimation using a high-dimensional fixed effects model. The variable of interest, borrower's *EligibleRev*, is measured as percentage, derived from annual revenue shares provided by Trucost. *NFRD* indicates whether the borrower is subject to mandatory reporting under the EU TR. All specifications include loan- (*loan maturity, number of lead banks, covenants, non-bank, secured, refinancing, origination, remark*), firm- (*borrower opaqueness, revenue, carbon intensity, ESG Rating*) and syndicate- (*ROA, Tier 1 Capital Ratio, Total Assets, Equity-to-Assets, Prior interactions (lender-firm), prior interactions (lender-industry)*) controls as defined in Appendix C1. Subsample is balanced using MDM. Robust standard errors are reported in parentheses and clustered at the borrower level. The 1%, 5% and 10% significance levels are denoted by ***, **, *, respectively. Fixed effects included as shown, "-" implies that FE is nested within higher order FE. Industry refers to 2-digit SIC classification.

	Tranche Amount (log)			
	Tranche Level		Lead-Arranger Level	
	(1)	(2)	(3)	(4)
EligibleRev	-0.004*	-0.004	-0.009***	-0.004
	(0.002)	(0.002)	(0.003)	(0.004)
Post2019	-0.035	-0.059	-0.172**	-0.098
	(0.083)	(0.088)	(0.087)	(0.080)
EligibleRev × Post2019	0.005**	0.005*	0.011***	0.005
	(0.003)	(0.002)	(0.003)	(0.004)
NFRD	-0.198	-0.176	-0.365***	0.056
	(0.123)	(0.124)	(0.116)	(0.202)
EligibleRev × NFRD	0.011***	0.009**	0.017***	0.005
	(0.003)	(0.003)	(0.003)	(0.004)
Post2019 × NFRD	0.044	0.037	0.182**	0.078
	(0.074)	(0.077)	(0.080)	(0.085)
EligibleRev × Post2019 × NFRD	-0.010***	-0.009***	-0.018***	-0.005
	(0.003)	(0.003)	(0.004)	(0.004)
N	9,452	9,395	47,874	47,919
Adj. R^2	0.505	0.519	0.572	0.755
Mean dep. var.	625.250	622.689	816.011	822.750
Loan purpose FE	Yes	Yes	Yes	Yes
Loan type FE	Yes	Yes	Yes	Yes
Country-of-Borrower FE	Yes	Yes	Yes	-
Time FE	Yes	-	-	-
Industry FE	Yes	-	Yes	-
Industry-Year FE	No	Yes	No	No
Lender-Year FE	No	No	Yes	Yes
Borrower FE	No	No	No	Yes

Figure D2 in the Appendix presents the dynamic evolution of these effects for NFRD-borrowers

(red) and non-NFRD borrowers (blue). The specification is at the lead-arranger level and includes loan, firm and syndicate controls, loan type, loan purpose, country-of-borrower, industry and lender-year fixed effects, corresponding to column (3) of Table 2. While treatment effects are most pronounced in the immediate year after the 2019 announcement, they persist over our entire sample period, in particular the significant reduction in lending to NFRD-borrowers with high eligibility shares. The insignificant pre-event coefficients support the parallel trends assumption.

4.3 Banks' climate-related reporting and lending to firms

Not all banks incorporate climate-related considerations into their business models and lending decisions to the same extent. We therefore examine heterogeneity in banks' responses to the EU TR based on differences in their (non-mandatory) climate-related reporting. Banks that report more intensively on climate-related issues may place greater weight on transition or reputational risks, while banks with limited prior reporting may have been less exposed to such considerations.

Mandatory borrower-level disclosure under the EU TR could affect these two groups in different ways. On the one hand, the introduction of a standardized classification of transition-relevant activities may reduce heterogeneity in lending behavior if banks with limited prior climate focus adjust their decisions in response to the new information. On the other hand, banks with stronger prior climate-related reporting may react more strongly to the Taxonomy if they are more sensitive to transition risks or reputational concerns, leading to divergence in lending responses.

To capture banks' climate-related reporting, we construct textual measures of general climate reporting, specific climate reporting, and net-zero lending reporting, as described in Section 3. We classify a bank as a high green reporter if its reporting intensity lies in the top quintile of the respective distribution in year $t-1$. At the syndicate level, we then construct a continuous measure, $GRS^{i}_{s,t-1}$ (Green Reporting Syndicate), defined as the share of high green-reporting lead banks within a syndicate. i determines the type of reporting, i.e., either general climate, net zero lending or specific climate reporting. In addition, we partition syndicates into high and low $GRS^{i}_{s,t-1}$ groups, where high-reporting syndicates are those in the top quartile of the distribution and low-reporting syndicates comprise the remaining three quartiles. We interpret banks' climate-related reporting as capturing differences in exposure to, and attention paid to, climate-related risks rather than as a direct measure of environmental preferences.

Table 3 shows the regression results for low green reporting syndicates (*Low GRS*) in columns (1) to (4) and high green reporting syndicates (*High GRS*) in columns (5) to (8) when green reporting

refers to net-zero lending reporting. For both types of lending syndicates, the results from our main analysis hold: Borrowers with higher eligibility shares receive significantly lower credit volumes after the announcement of the EU TR in 2019 – but only if they are required to report under the NFRD. A ten percent higher eligibility revenue share for NFRD-regulated borrowers is associated with a 8 percent (55 USD millions) and 24 percent (115 USD millions) decrease in loan volume on the tranche level for low and high reporting GRS, respectively. For non-NFRD reporters, in contrast, the announcement of the EU TR had a significantly positive effect on loan amounts (*Post 2019 x EligibleRev*). However, the effects are economically larger for *High GRS* suggesting that these banks seem to be more concerned with the topic and the implied reputational or transition risk.[11]

4.4 Transition finance and green remarks

In this section, we complement our analysis with evidence on transition financing, which we define as lending to carbon-intensive or highly Taxonomy-eligible firms that is explicitly conditioned on improvements in environmental performance. To this end, we exploit qualitative information from DealScan's *remark* field, which frequently contains detailed information on loan purpose, pricing provisions, and borrower-specific conditions imposed by lending syndicates.[12] Using the list of climate-related keywords in Table E3, we classify a remark as a green remark if it contains at least one of these phrases.

Figure D3 shows the evolution of loans with a green remark over time. Both the share of green-remark loans in all loans and the share of green-remark loans among loans with any remark information peak around 2022, at roughly 20 and 30 percent, respectively. Table E4 provides summary statistics for the observable characteristics of green-remark loans and other remark loans. Syndicates that assign green remarks tend to be larger, both in terms of average balance-sheet size and number of lead banks, and have a greater prevalence of general climate and net-zero lending reporters. Green remarks are attached to tranches that are, on average, smaller and of longer maturity than

[11] Appendix Tables E5 and E6 show the respective results when green reporting is based on banks' general and specific climate reporting. The results are very similar to those based on net zero lending reporting.

[12] Remark examples:

- "Credit is used to refinance a Spanish commercial real estate portfolio that was acquired as part of a sale-and-lease-back transaction."
- "Credit refinances the EUR2bn RCF dated July 18, 2014. Sustainability-linked Facility. Pricing: linked to company's ambition to be fully climate neutral by 2025."
- "Credit is used to replace co.'s existing EUR3bn RCF. Sustainability-linked loan. Facility may be extended by up to two one-year periods. [...] Pricing on the multicurrency RCF is partly linked to a targeted reduction of emissions agreed with the banks. Co. has two key performance indicators covering specific net CO2 emissions per tonne of cement produced aiming for a reduction to 400 kilogrammes of CO2 per tonne by 2030 from a 565kg baseline in 2021; and a targeted 10 million tonnes of cumulative CO2 emissions avoided using carbon capture utilisation, and storage by the end of 2030. The targets are aligned with the EU taxonomy CO2 threshold."

their non-green-remark counterparts. The reported normalized differences show, however, that the distributions of these variables are reasonably similar in both sub-samples. In contrast, and in line with the purpose of transition financing and climate-related regulations in the EU, borrowers whose tranches carry a green remark exhibit significantly higher carbon intensities and Taxonomy-eligible revenue shares and are more likely to be based in the EU and thus subject to mandatory reporting. Also, syndicates lending to them have a significantly higher share of Europe-based institutions.

To investigate the drivers of green remarks more formally, we estimate the following logistic model on the subsample of loans with a non-missing remark ($Remark_l = 1$), so that the dependent variable $\Pr(GreenRemark_l = 1 \,|\, Remark_l = 1, X_l)$ is the probability that a remark is green conditional on the loan tranche having a remark:

$$\Pr(GreenRemark_l = 1 \,|\, Remark_l = 1, X_l) = \Phi(\alpha EligibleRev_{f,t-1} + X'_{s,f,l,t-1}\gamma + FE_{f,t}) \qquad (2)$$

Φ is the standard cumulative normal distribution, $X_{s,f,l,t-1}$ is the same vector of loan-, syndicate- and firm-level covariates as before. We include year fixed effects to account for macroeconomic conditions and general changes of receiving a green remark over time, as well as indicators for industry (1-digit SIC code) and region of the borrower.

Green loan remarks are discretionary contractual features and are not randomly assigned. Accordingly, our analysis does not interpret the presence of a green remark as an exogenous treatment with causal effects. Instead, we view green remarks as revealed indicators of how banks structure lending contracts in response to transition risk. Conditional on loan origination, and controlling for borrower, lender, and syndicate characteristics, we examine which types of firms and lending environments are more likely to be associated with the use of green contractual language.

Table 3: Regulated Borrowers' Eligibility Shares, Banks' Net Zero Lending Reporting and Loan Volumes: Sample Split

Difference-in-Differences estimation using a high-dimensional fixed effects model. The variable of interest, borrower's *EligibleRev*, is measured as percentage, derived from annual revenue shares provided by Trucost. *High GRS* is an indicator equal to one if the syndicate's *NZ lending reporting share*, $GRS^{NZ}_{s,t-1}$, lies in the top quartile of the sample distribution, and zero otherwise (Low GRS). *NFRD* indicates whether the borrower is subject to mandatory reporting under the EU TR. All specifications include loan- (*loan maturity, number of lead banks, covenants, non-bank, secured, refinancing, origination, remark*), firm- (*borrower opaqueness, revenue, carbon intensity, ESG Rating*) and syndicate- (*ROA, Tier 1 Capital Ratio, Total Assets, Equity-to-Assets, Prior interactions (lender-firm), prior interactions (lender-industry), share of EU lenders*) controls as defined in Appendix C1. Subsample is balanced using MDM. Robust standard errors are reported in parentheses and clustered at the borrower level. The 1%, 5% and 10% significance levels are denoted by ***, **, *, respectively. Fixed effects included as shown, "-" implies that FE is nested within higher order FE. Industry refers to 2-digit SIC classification.

	Tranche Amount (log)							
	Low GRS				High GRS			
	Tranche Level		Lead-Arranger Level		Tranche Level		Lead-Arranger Level	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
EligibleRev	-0.001	-0.002	-0.006*	-0.006	-0.013***	-0.013***	-0.006	0.003
	(0.002)	(0.002)	(0.003)	(0.005)	(0.004)	(0.005)	(0.006)	(0.004)
Post2019	-0.045	-0.130	-0.175*	-0.105	0.005	0.117	-0.133	-0.171
	(0.108)	(0.117)	(0.101)	(0.101)	(0.083)	(0.124)	(0.140)	(0.144)
Post2019 × EligibleRev	0.002	0.003	0.008***	0.008*	0.014***	0.013***	0.006	-0.002
	(0.002)	(0.002)	(0.003)	(0.004)	(0.005)	(0.005)	(0.006)	(0.004)
NFRD	-0.053	0.008	-0.269**	0.049	-0.232	-0.175	-0.280**	0.385
	(0.137)	(0.138)	(0.124)	(0.388)	(0.173)	(0.162)	(0.132)	(0.239)
EligibleRev × NFRD	0.007**	0.004	0.011***	0.007	0.022***	0.023***	0.019***	0.005
	(0.003)	(0.003)	(0.003)	(0.005)	(0.006)	(0.006)	(0.006)	(0.005)
Post2019 × NFRD	0.095	0.083	0.212**	0.096	-0.017	-0.007	0.145	0.014
	(0.090)	(0.090)	(0.096)	(0.106)	(0.129)	(0.125)	(0.116)	(0.127)
Post2019 × EligibleRev × NFRD	-0.007**	-0.005	-0.012***	-0.007	-0.021***	-0.022***	-0.019***	-0.005
	(0.003)	(0.003)	(0.004)	(0.005)	(0.006)	(0.006)	(0.006)	(0.005)
N	6,002	5,944	33,350	33,351	3,441	3,440	14,027	13,902
Adj. R^2	0.528	0.542	0.583	0.760	0.485	0.494	0.620	0.804
Mean dep. var.	677.855	674.220	848.909	859.105	533.505	533.561	732.190	730.236
Loan purpose FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Loan type FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Country-of-Borrower FE	Yes	Yes	Yes	-	Yes	Yes	Yes	-
Year FE	Yes	-	-	-	Yes	-	-	-
Industry FE	Yes	-	Yes	-	Yes	-	Yes	-
Industry-Year FE	No	Yes	No	No	No	Yes	No	No
Lender-Year FE	No	No	Yes	Yes	No	No	Yes	Yes
Borrower FE	No	No	No	Yes	No	No	No	Yes

We report the results in Table 4. Borrowers' Taxonomy-eligible revenue share is positively and significantly associated with the probability that a loan includes a green remark, indicating that such contractual features are more frequently used when lending to firms with greater transition exposure. Transforming the log odds coefficients into a meaningful economic measure reveals that a ten percentage point increase in eligible revenue is associated with a 0.6 percentage point increase in probability of a loan receiving a green remark; a one standard deviation increase corresponds to a 2.2 percentage point rise. Column (2) shows that this relationship is concentrated among NFRD-regulated borrowers, that is, firms directly subject to EU climate-related disclosure requirements: a one standard deviation increase in eligibility is associated with a 3.4 percentage point increase in the probability of receiving a green remark. Columns (3) to (6) further reveal heterogeneity across lending syndicates: from syndicates identified as high green reporting banks, regulated borrowers are more likely to receive loans with green remarks, indicating that these banks place greater weight on transition or reputational risks.

Additional results reinforce this interpretation. Firms with higher carbon intensity are more likely to receive loans with green remarks, and syndicates with greater prior lending experience in the borrower's industry (*Prior Interactions (bank–industry)*) are also more likely to employ such contractual features. At the bank level, green remarks are more common among smaller, less capitalized, and more profitable banks.

Taken together, these findings suggest that green loan remarks are primarily used as a transition-finance tool for highly exposed and carbon-intensive firms, particularly those subject to EU climate regulation. Their prevalence in syndicates with stronger climate-reporting profiles and greater industry-specific expertise highlights the role of both regulatory exposure and lender capability in shaping the contractual management of transition risk.

Table 4: Probability of loan having green remarks

Coefficient estimates for a logit regression estimating the probability of a loan having a *green remark* conditional on the loan having a remark. Borrower's *EligibleRev* is measured as percentage, derived from annual revenue shares provided by Trucost. *NFRD* indicates whether the borrower is subject to mandatory reporting under the EU TR. *High GRS* is an indicator equal to one if the syndicate's *NZ lending reporting share*, $GRS^{NZ}_{s,t-1}$, lies in the top quartile of the sample distribution, and zero otherwise (Low GRS). Not displayed but controlled for are *region of borrower, borrower opaqueness, industry of borrower (SIC 1-digit), year of loan issuance, loan type group, refinancing, covenant, number of lead arrangers, non-bank.* Robust standard errors in parentheses. The 1%, 5% and 10% significance levels are denoted by ***, **, *, respectively.

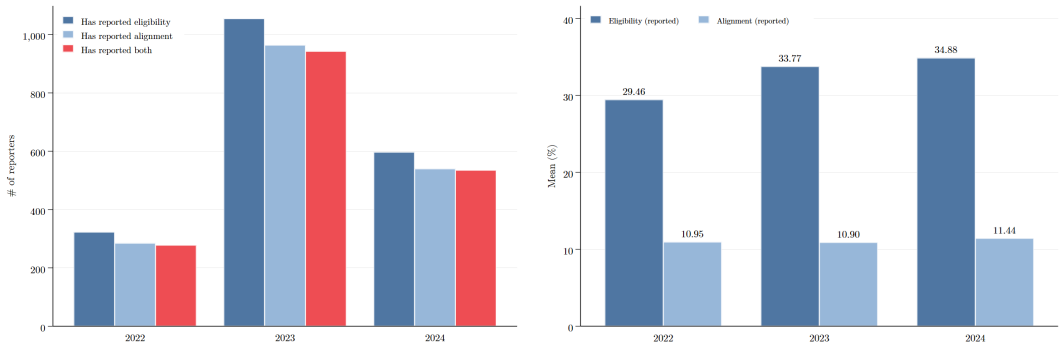
	Pr(Green Remark)					
	Baseline		Green reporting banks		Net-zero lending banks	
			Low	High	Low	High
	(1)	(2)	(3)	(4)	(5)	(6)
Syndicate characteristics						
ROA	0.090**	0.085**	0.086*	0.125	0.076**	0.316
	(0.041)	(0.043)	(0.045)	(0.086)	(0.039)	(0.256)
Tier 1 Capital Ratio	-0.016*	-0.017*	-0.020	0.003	-0.024	-0.012
	(0.010)	(0.010)	(0.012)	(0.031)	(0.016)	(0.029)
Total Assets	-0.118***	-0.117***	-0.219***	0.146*	-0.145***	-0.059
	(0.040)	(0.041)	(0.048)	(0.087)	(0.050)	(0.076)
Equity-to-Assets	2.355	2.231	-0.474	7.216*	2.836	2.693
	(2.046)	(2.050)	(2.579)	(3.990)	(2.476)	(3.641)
Prior Interactions (bank-firm)	0.002	0.003	-0.010	0.019**	-0.005	0.012
	(0.006)	(0.006)	(0.010)	(0.008)	(0.011)	(0.008)
Prior Interactions (bank-industry)	0.003***	0.002***	0.004***	0.001*	0.004***	0.002***
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Borrower characteristics						
Revenue	-0.048*	-0.056*	-0.019	-0.087*	-0.055	-0.060
	(0.029)	(0.029)	(0.037)	(0.050)	(0.039)	(0.044)
Carbon Intensity	0.233***	0.253***	0.161*	0.432***	0.299***	0.317***
	(0.069)	(0.070)	(0.089)	(0.111)	(0.100)	(0.103)
Loan characteristics						
Loan maturity	0.401***	0.401***	0.410***	0.545***	0.498***	0.491***
	(0.062)	(0.062)	(0.083)	(0.104)	(0.090)	(0.097)
Secured	-0.411***	-0.418***	-0.360***	-0.643***	-0.450***	-0.622***
	(0.099)	(0.099)	(0.126)	(0.183)	(0.130)	(0.171)
Amount	0.007	0.008	-0.005	-0.004	-0.024	0.018
	(0.033)	(0.033)	(0.044)	(0.055)	(0.047)	(0.050)
Tranche is Origination	0.480***	0.475***	0.610***	0.123	0.785***	-0.015
	(0.091)	(0.091)	(0.119)	(0.164)	(0.128)	(0.146)
Outcomes of interest						
EligibleRev	0.004***	0.001	0.002	-0.002	0.000	-0.001
	(0.001)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
NFRD		0.198	0.719**	-0.579*	0.416	-0.034
		(0.212)	(0.281)	(0.314)	(0.321)	(0.284)
EligibleRev × NFRD		0.005***	0.004	0.009***	0.004	0.010***
		(0.002)	(0.003)	(0.003)	(0.003)	(0.003)
N	6,023	6,023	3,905	2,100	3,741	2,248
Pseudo R^2	0.217	0.218	0.264	0.204	0.282	0.188
Mean dep. var.	0.242	0.242	0.247	0.237	0.235	0.258

5 EU TR reporting, borrowers' Taxonomy-alignment and lending to firms

5.1 Taxonomy-alignment disclosures

Taxonomy-eligibility captures firms' involvement in economic activities that are relatively emission-intensive but offer substantial potential for emission reductions, while providing limited information about firms' actual environmental performance. In contrast, Taxonomy-alignment, which is the share of a firm's activities that qualify as environmentally sustainable under the EU TR, offers a more direct and meaningful measure of the environmental performance of a firm's operations.

Firms subject to mandatory disclosure under the EU TR were required to begin reporting their Taxonomy-alignment shares in 2023 for the financial year 2022. In practice, adoption has been gradual and disclosure remains incomplete, as illustrated in Figure 3a. Only one firm in our Trucost sample reports alignment figures for 2021, while 285 firms report for 2022 and 964 firms report for 2023. Reporting for 2024 is still incomplete as of November 2025, with alignment information available for 540 firms. Over this period, average Taxonomy-eligibility and -alignment remain relatively stable from 2022 onwards (Figure 3b). On average, reported alignment amounts to approximately 35–40 percent of reported eligibility.



(a) Total number of reporters

(b) Mean eligibility and alignment shares

Figure 3: Descriptives of alignment reporting

Notes: This figure shows in Panel A the total number of reporting companies, by category and financial year. Panel B reports the mean values of reporting firms' eligibility and alignment percentages, by financial year.

Table 5 shows that firms which report on Taxonomy-alignment are, on average, larger in terms of revenue and employees, and have a somewhat smaller carbon intensity. Not surprisingly, they are almost always headquartered in the EU, reflecting the scope of the EU TR. Eligibility and alignment shares also vary by industry and, therefore, geography.

Figure 4 plots the relationship between mean aligned and eligible revenue shares, scaled by the total number of eligibility reporting firms in each country. The figure shows that, for all countries,

Table 5: Difference-in-Means Test

	Alignment reporters		Alignment non-reporters		normalized Δ
	Mean	Std. Dev.	Mean	Std. Dev.	
Panel A: Firm characteristics					
EligibleRev	33.73	37.10	30.53	35.70	0.06
EU	0.74	0.44	0.10	0.30	1.20
Carbon Intensity	222.14	599.52	413.65	2429.42	-0.08
Revenue (USD, millions)	10791.99	28950.44	4594.24	16711.58	0.19
Employees	26049.99	61389.50	13537.61	50452.00	0.16

Notes: Difference-in-means between loans to firms that ever reported on alignment, and those that never reported on alignment. The normalized difference allows to measure the difference in distributions independent of scales and is defined as the difference in group means divided by the square root of the sum of the group-specific variances (Imbens and Wooldridge, 2009). As a rule of thumb, normalized differences below 0.25 in absolute value indicate sufficiently similar covariate distributions in the treated and control groups. EligibleRev is a borrowers' Taxonomy-eligible revenue share from the previous financial year. Similarly, borrowers revenue (USD millions), number of employees and carbon intensity are lagged by one year. Information refers to firms covered in Trucost's EU Taxonomy data set, which may not necessarily be included in the DealScan loan data sample.

average alignment ranges well below average eligibility, highlighting that the share of activities satisfying the Taxonomy's criteria for being considered as sustainable is below the share that is eligible in the first place. Large reporting jurisdictions such as Germany, France, Italy, Sweden or the Netherlands cluster in the middle of the distribution with eligibility around 30–40 percent and alignment around 8–15 percent, whereas most small markets are characterized by much lower eligibility and / or alignment shares. Overall, the figure highlights substantial cross-country differences in both eligibility levels and the extent to which eligible activities are aligned.[13]

5.2 Probability of Taxonomy-alignment reporting and lending to firms

5.2.1 Identification and empirical strategy

To examine the effect of Taxonomy-alignment on bank lending to firms, we restrict the sample to firms subject to mandatory sustainability reporting under the NFRD. We define, for each firm f, a binary indicator $Reporter_{f,t}$ that equals one in all periods t following the firm's initial disclosure of its Taxonomy-aligned revenue share and zero otherwise.

Because firms may non-randomly select into reporting their Taxonomy-alignment revenue shares, we adopt a matching-based approach to improve comparability between reporting and non-reporting firms who received a loan within the same year. Specifically, for each reporting firm we identify its first reporting year, T_f^{rep}, and construct a cross-section that contains (i) one observation per reporting firm in year T_f^{rep} and (ii) all NFRD firms that do not report in the same calendar year and never report. Within this cross-section, we estimate a propensity score model for the probability that a firm

[13] Appendix Figure D4 shows that the largest share of reporters falls within Industrials, followed by Consumer Discretionaries, Information Technology and Utilities. Moreover, the gap between industry means of eligibility and alignment is particularly large in Real Estate and Health Care, whereas in Utilities reported alignment is close to reported eligibility.

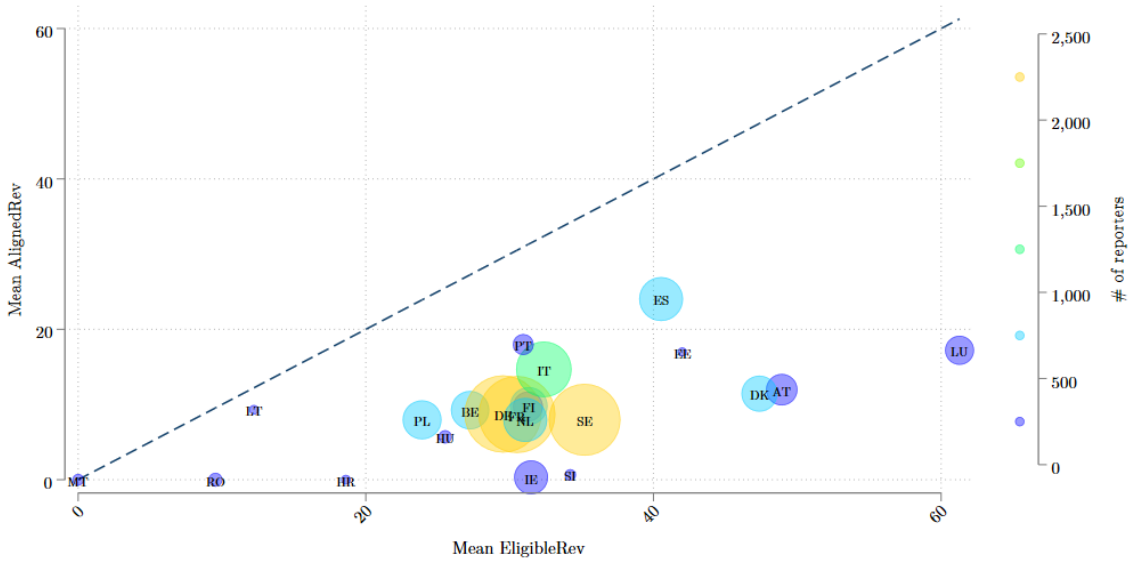


Figure 4: Relationship between Alignment and Eligibility

Notes: This figure shows the mean eligibility and alignment shares (self reported by firms) of firms in EU countries for 2021 to 2024. Underlying data is Trucost's EU Taxonomy data set. Circle size represents the total number of eligibility reporters per country for the whole time period. The dashed line indicates the 45°line, on which a country mean would be positioned if firms' mean alignment share would equal their mean eligibility revenue shares.

initiates Taxonomy-alignment reporting in year T_f^{rep}, conditional on firm characteristics measured in year $T_f^{\text{rep}} - 1$:

$$p_f \equiv \Pr(Reporter_{f,T_f^{\text{rep}}} = 1 \mid Z_{f,T_f^{\text{rep}}-1}) = \Phi(Z'_{f,T_f^{\text{rep}}-1}\gamma), \tag{3}$$

where $\Phi(\cdot)$ denotes the logit model employed. The vector $Z_{f,T_f^{\text{rep}}-1}$ includes firm characteristics that are expected to determine firms' self-selection into reporting. Given data availability, these include the firm's Taxonomy-eligible revenue share, carbon intensity, revenue, country and industry (1-digit SIC). We report the output from the logit approach in Table E7 and continue to use it to construct inverse-probability weights,[14] such that Alignment-reporting firms receive weight $w_f^{\text{T}} = 1$, while firms that never report alignment shares receive weight $w_f^{\text{C}} = \frac{\hat{p}_f}{1-\hat{p}_f}$.

We then use a difference-in-differences framework analogous to our earlier specifications to estimate how the initiation of Taxonomy-alignment reporting affects bank lending:

$$\begin{aligned} Amount_{s,f,l,t} = \alpha + \beta_1 EligibleRev_{f,t-1} + \beta_2 Reporter_{f,t} + \\ \beta_3 EligibleRev_{f,t-1} \times Reporter_{f,t} + \gamma X_{s,f,l,t-1} + FE_{f,l,t} + \varepsilon_{s,f,l,t}. \end{aligned} \tag{4}$$

As before, $\text{EligibleRev}_{f,t-1}$ denotes the firm's lagged share of Taxonomy-eligible revenues. In this

[14] Appendix Figure D5 shows the balancing statistics of the sample used for the alignment analysis after the propensity score weighting based on these inverse-probability weights.

setting, eligibility acts as a time-varying confounder: it directly affects loan size and also influences the likelihood that a firm initiates Taxonomy-alignment reporting. To address this dual role, we include eligibility as a covariate both in the propensity score model in equation (3) and in the difference-in-differences specification in equation (4). Conditioning on eligibility does not block the treatment effect, as eligibility is predetermined and not affected by alignment reporting in the short run. Instead, controlling for eligibility absorbs an important source of confounding variation, thereby improving comparability between treated and control firms and sharpening causal identification. $Reporter_{f,t}$ is an indicator that switches from zero to one in the first alignment reporting year of firm f and remains one thereafter. $X_{s,f,l,t-1}$ is the same vector of lagged syndicate-, firm- and current loan-level controls as used before. We estimate regression (4) using the inverse-probability weights w_f^T and w_f^C.

In this specification, the interaction term $EligibleRev_{f,t-1} \times Reporter_{f,t}$ captures how lending to firms with greater eligibility exposure changes once alignment reporting begins. Identification relies on differential changes in lending around the initiation of alignment reporting between reporting and non-reporting firms with similar eligibility exposure.

To examine heterogeneity in lending responses within the group of alignment-reporting firms, we next restrict the loan-level data set to firm-year observations of companies subject to mandatory reporting under the NFRD for which the Taxonomy-aligned revenue share is observed. Within this subsample, we estimate:

$$Amount_{s,f,l,t} = \alpha + \beta_1 AlignedRev_{f,t-1} + \gamma X_{s,f,l,t-1} + FE_{f,l,t} + \varepsilon_{sflt}. \tag{5}$$

Here, $AlignedRev_{f,t-1}$ denotes the firm's lagged share of Taxonomy-aligned revenues. As before, $X_{s,f,l,t-1}$ and $FE_{f,l,t}$ refer to the vector of lagged syndicate-, firm-, and loan-level controls and the set of high-dimensional fixed effects, respectively. Economically, the coefficient of interest, β_1, captures how – conditional on borrower, lender, sector, and macroeconomic conditions – variation in a firm's reported alignment is associated with changes in the loan volume it receives.

Lastly, to disentangle firms' potential to be aligned from their realized alignment, we introduce the variable $\Delta Eligible\text{-}Aligned_{f,t-1}$, defined as the difference between the borrower's estimated Taxonomy-eligible and self-reported Taxonomy-aligned revenue shares, measured in percentage points and bounded between 0 and 100. This measure allows us to examine whether lenders respond not only to realized alignment, but also to the gap between a firm's alignment potential and its actual alignment.

5.2.2 Results

Table 6 reports the estimates of becoming a Taxonomy-alignment reporter on syndicated loan volumes.

Table 6: Borrowers' self-reporting on alignment shares and loan volume

Difference-in-Differences estimation using a high-dimensional fixed effects model. Sample is restricted to firms subject to mandatory reporting under the EU TR, i.e. NFRD-regulated borrowers, starting in 2019. Borrower's *EligibleRev* is measured as percentage and is derived from annual revenue shares provided by Trucost. All specifications include loan (*loan maturity, number of lead banks, covenants, non-bank, secured, refinancing, origination, remark*), firm (*borrower opaqueness, revenue, carbon intensity, ESG Rating*) and syndicate (*ROA, Tier 1 Capital Ratio, Total Assets, Equity-to-Assets, Prior interactions (lender-firm), prior interactions (lender-industry)*) controls as defined in Appendix C1. Sample is weighted using propensity score weights. Robust standard errors are reported in parentheses and clustered at the borrower level. The 1%, 5% and 10% significance levels are denoted by ***, **, *, respectively. Fixed effects included as shown, "-" implies that FE is nested within higher order FE. Industry refers to 2-digit SIC. Loan-level analysis.

	Tranche Amount (log)							
	Baseline		Reporter × Eligibility		Reporter × general GRS		Reporter × NZ GRS	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Reporter	-0.085	-0.002	-0.017	-0.016	0.116	0.117	0.082	0.077
	(0.160)	(0.156)	(0.112)	(0.106)	(0.155)	(0.145)	(0.144)	(0.140)
EligibleRev	0.000	0.000	0.001	0.000	0.001	0.000	0.001	0.000
	(0.002)	(0.002)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Reporter × EligibleRev	0.001	-0.000						
	(0.002)	(0.002)						
General climate GRS					-0.053	-0.050		
					(0.149)	(0.138)		
Reporter × general climate GRS					-0.322	-0.295		
					(0.238)	(0.236)		
NZ lending GRS							-0.137	-0.139
							(0.148)	(0.128)
Reporter × NZ lending GRS							-0.321	-0.270
							(0.243)	(0.249)
N	2,215	2,171	2,215	2,171	2,215	2,171	2,215	2,171
Adj. R^2	0.652	0.683	0.652	0.683	0.653	0.683	0.653	0.684
Mean dep. var.	566.047	558.745	566.047	558.745	566.047	558.745	566.047	558.745
Loan purpose FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Loan type FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Country-of-Borrower FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	-	Yes	-	Yes	-	Yes	-
Industry FE	Yes	-	Yes	-	Yes	-	Yes	-
Industry-Year FE	No	Yes	No	Yes	No	Yes	No	Yes

Across all specifications, the coefficient on $Reporter_{f,t}$ is economically small and statistically insignificant: conditional on Taxonomy eligibility, borrower, loan and syndicate characteristics, and rich sets of fixed effects, we do not find evidence that NFRD-regulated firms that start reporting alignment receive systematically different loan amounts than comparable non-reporting peers. Similarly, the coefficient on $EligibleRev_{f,t-1}$ is close to zero, and the interaction term $Reporter_{f,t} \times EligibleRev_{f,t-1}$ is likewise insignificant, indicating that the results do not mask heterogeneous effects by firms' underlying Taxonomy eligibility. In columns (5)-(8), we further interact being an alignment reporter with the syndicate's general climate and net zero lending GRS, respec-

tively. Overall, the interaction terms $Reporter_{f,t} \times GRS^{i}_{s,t-1}$ are not statistically different from zero, suggesting no clear relationship between borrowers' decision to report Taxonomy alignment and credit volume also for syndicates with a perceived stronger climate focus.

Table 7: Borrowers' self-reported alignment shares and loan volume

Difference-in-Differences estimation using a high-dimensional fixed effects model. *AlignedRev* denotes borrowers' self-reported alignment share provided by Trucost. Δ *Eligible-Aligned* denotes the difference between a borrowers' estimated eligible and self-reported aligned revenue share in a given year, $\in [0, 100]$. All specifications include loan (*loan maturity, number of lead banks, covenants, non-bank, secured, refinancing, origination, remark*), firm (*borrower opaqueness, revenue, carbon intensity, ESG Rating*) and syndicate (*ROA, Tier 1 Capital Ratio, Total Assets, Equity-to-Assets, Prior interactions (lender-firm), prior interactions (lender-industry)*) controls as defined in Appendix C1. Robust standard errors are reported in parentheses and clustered at the borrower level. The 1%, 5% and 10% significance levels are denoted by ***, **, *, respectively. Fixed effects included as shown, "-" implies that FE is nested within higher order FE. Industry refers to 2-digit SIC.

	Tranche Amount (log)							
	Tranche Level		Lead-Arranger Level		Tranche Level		Lead-Arranger Level	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
AlignedRev	0.007***	0.008***	0.006**	-0.038				
	(0.002)	(0.003)	(0.003)	(0.028)				
Δ Eligible-Aligned					-0.003*	-0.004*	-0.003**	0.022
					(0.002)	(0.002)	(0.001)	(0.034)
N	659	644	3,206	3,196	614	596	2,914	2,906
Adj. R^2	0.696	0.707	0.781	0.885	0.690	0.705	0.787	0.897
Mean dep. var.	681.130	658.948	1192.770	1195.315	688.809	658.834	1226.780	1228.915
Loan purpose FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Loan type FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Country-of-Borrower FE	Yes	Yes	Yes	-	Yes	Yes	Yes	-
Year FE	Yes	-	-	-	Yes	-	-	-
Industry FE	Yes	-	Yes	-	Yes	-	Yes	-
Industry-Year FE	No	Yes	No	No	No	Yes	No	No
Lender-Year FE	No	No	Yes	Yes	No	No	Yes	Yes
Borrower FE	No	No	No	Yes	No	No	No	Yes

Table 7 then reports the heterogeneous effects within the group of alignment reporters on lending volumes from equation (5) in columns (1)-(4), and the results from the specification using $\Delta Eligible\text{-}Aligned_{f,t-1}$ in columns (5)-(8). In the tranche-level specifications in columns (1) and (2), a ten percentage point higher aligned revenue share is positively associated with an increase in tranche size of roughly 7 to 8 percent, or 47 to 52 USD millions. A similar association appears at the lead-arranger level in column (3), where we additionally include lender-time-FE. This pattern suggests that, on average, more highly aligned borrowers tend to obtain larger syndicated loans. The estimate in column (4), where we include borrower fixed effects, is insignificant likely due to the short sample period including loans issued between 2023 and 2025 and little within-firm variation in $AlignedRev_{f,t-1}$ as shown in Figure D1. Overall, we interpret our finding of a positive association between alignment and loan volumes to be largely driven by cross-sectional differences across bor-

rowers, i.e., firms that are structurally more aligned also tend to receive larger loans, while our short and sparse panel does not allow us to precisely estimate dynamic within-firm responses to changes in alignment.[15]

The specification in columns (5)–(8) focuses on the difference between eligible and aligned revenues, $\Delta Eligible\text{-}Aligned_{f,t-1}$. The results show that a 10 percentage point increase in the difference between eligible and aligned revenues is associated with roughly a 3 to 4 percent reduction in tranche size (20 to 26 USD millions), suggesting that, within the group of NFRD-regulated reporting firms, lenders tend to extend smaller tranches to firms that leave a larger share of their eligible activities unaligned. Again, the regression with borrower fixed effects renders insignificant results due to the limited sample and within-borrower variation in alignment shares.

Taken together, the results indicate that banks respond not to the act of disclosure itself, but to the content of the information disclosed. While the initiation of alignment reporting has no discernible effect on loan volumes, firms with stronger reported environmental performance receive larger loans. In particular, banks allocate more credit to firms that narrow the gap between Taxonomy-eligible activities and realized alignment.

6 Conclusion

This paper studies how banks adjust credit supply in response to mandatory sustainability disclosure, using the EU TR as a quasi-experimental setting. Exploiting the staggered development and implementation of the regulation, we distinguish banks' lending responses to anticipated disclosure requirements from their responses to realized, firm-level sustainability information. Using syndicated loan data and a difference-in-differences design, we show that banks reduce lending to regulated firms with greater exposure to Taxonomy-eligible activities already at the announcement stage, while reallocating credit toward similarly exposed but non-regulated firms. Once regulated firms begin reporting Taxonomy-alignment, banks base lending decisions on realized environmental performance, rewarding firms with stronger alignment.

Our findings highlight that disclosure regulation affects bank behavior not only through the information ultimately disclosed, but also through anticipation and uncertainty. The initial classification of eligible activities alters banks' risk assessments even before firm-level information becomes available, consistent with banks responding to heightened uncertainty or perceived transition exposure. While eligibility triggers a precautionary reallocation of credit in anticipation of regulatory

[15] We also run a specification including the syndicate's net zero lending reporting, i.e. $AlignedRev_{f,t-1} \times GRS^{i}_{s,t-1}$. But we do not find evidence that syndicates disclosing stronger ambitions regarding net zero lending differentially scale up lending to more aligned borrowers.

scrutiny, alignment disclosures allow banks to reallocate lending within the regulated firm group toward borrowers with stronger realized environmental performance.

Importantly, reduced lending to highly exposed regulated firms does not imply an indiscriminate withdrawal of credit, but is accompanied by increased use of contractual features that condition lending on improvements in environmental performance. We provide evidence that banks increasingly use contractual features such as sustainability-linked provisions documented in loan remarks to condition credit on improvements in environmental performance. These contractual provisions are most prevalent for carbon-intensive and highly eligible firms and in syndicates with stronger climate-reporting engagement, highlighting contract design as an important mechanism through which banks manage transition risk.

In this sense, the EU Taxonomy not only "talks" through classification and disclosure, but also reshapes how credit "walks", first through anticipation and reallocation, and later through performance-based differentiation and contract design. These results have implications for the design and evaluation of sustainability disclosure regimes. First, they suggest that the timing and sequencing of disclosure requirements matter: classification systems can affect financial decisions well before firm-level disclosures materialize. Second, the findings indicate that mandatory disclosure can reshape credit allocation through both quantity and contract terms, highlighting banks' role as intermediaries in the transition process. More broadly, our evidence underscores that disclosure regulation operates as an information shock with real effects on financial intermediation, an insight that may extend beyond the EU context to other regulatory initiatives that seek to standardize non-financial information. Future work could explore how disclosure-based regulation interacts with different financial systems and whether similar mechanisms operate in other regulatory contexts.

Bibliography

Benincasa, Emanuela, Gazi Kabaş, and Steven Ongena (2024). ""There Is No Planet B", but for Banks "There Are Countries B to Z": Domestic Climate Policy and Cross-Border Lending". In: *sfi Working Paper* 22–28.

Berg, Tobias, Anthony Saunders, and Sascha Steffen (2016). "The total cost of corporate borrowing in the loan market: Don't ignore the fees". In: *The Journal of Finance* 71.3, pp. 1357–1392.

Bingler, Julia Anna, Mathias Kraus, Markus Leippold, and Nicolas Webersinke (2024). "How cheap talk in climate disclosures relates to climate initiatives, corporate emissions, and reputation risk". In: *Journal of Banking & Finance* 164, p. 107191.

Dafermos, Yannis and Maria Nikolaidi (2021). "How Can Green Differentiated Capital Requirements Affect Climate Risks? A Dynamic Macrofinancial Analysis". In: *Journal of Financial Stability* 54, p. 100871. ISSN: 15723089. DOI: 10.1016/j.jfs.2021.100871.

De Angelis, Tiziano, Peter Tankov, and Olivier David Zerbib (2023). "Climate Impact Investing". In: *Management Science* 69.12, pp. 7669–7692. ISSN: 0025-1909, 1526-5501. DOI: 10.1287/mnsc.2022.4472.

Degryse, Hans, Roman Goncharenko, Carola Theunisz, and Tamas Vadasz (2023). "When Green Meets Green". In: *Journal of Corporate Finance* 78, p. 102355. ISSN: 0929-1199. DOI: 10.1016/j.jcorpfin.2023.102355.

Diluiso, Francesca, Barbara Annicchiarico, Matthias Kalkuhl, and Jan C. Minx (2021). "Climate Actions and Macro-Financial Stability: The Role of Central Banks". In: *Journal of Environmental Economics and Management* 110, p. 102548. ISSN: 00950696. DOI: 10.1016/j.jeem.2021.102548.

Giannetti, Mariassunta, Martina Jasova, Maria Loumioti, and Caterina Mendicino (2023). "'Glossy Green' Banks: The Disconnect Between Environmental Disclosures and Lending Activities". In: *SSRN Electronic Journal*. ISSN: 1556-5068. DOI: 10.2139/ssrn.4424081.

Giovanardi, Francesco, Matthias Kaldorf, Lucas Radke, and Florian Wicknig (2023). "The Preferential Treatment of Green Bonds". In: *Review of Economic Dynamics* 51, pp. 657–676. ISSN: 10942025. DOI: 10.1016/j.red.2023.06.006.

Gourdel, Régis (2025). *Credit and Climate Sentiments: The Decarbonization Frontier of Risk Pricing*. DOI: 10.2139/ssrn.5040367. Pre-published.

Grewal, Jody, Edward J. Riedl, and George Serafeim (2019). "Market Reaction to Mandatory Nonfinancial Disclosure". In: *Management Science* 65.7, pp. 3061–3084. ISSN: 0025-1909, 1526-5501. DOI: 10.1287/mnsc.2018.3099.

Haas, Christian and Karol Kempa (2023). "Low-Carbon Investment and Credit Rationing". In: *Environmental and Resource Economics* 86.1, pp. 109–145. ISSN: 1573-1502. DOI: 10.1007/s10640-023-00789-z.

Hale, Galina, Brigid Meisenbacher, and Fernanda Nechio (2024). "Industrial Composition of Syndicated Loans and Banks' Climate Commitments". In: *Federal Reserve Bank of San Francisco Working Paper* 2024.23, pp. 01–37. DOI: 10.24148/wp2024-23.

Imbens, Guido W and Jeffrey M Wooldridge (2009). "Recent developments in the econometrics of program evaluation". In: *Journal of economic literature* 47.1, pp. 5–86.

Ivashina, Victoria (2009). "Asymmetric Information Effects on Loan Spreads". In: *Journal of Financial Economics* 92.2, pp. 300–319. ISSN: 0304-405X. DOI: 10.1016/j.jfineco.2008.06.003.

Kacperczyk, Marcin T. and Jose-Luis Peydro (2021). "Carbon Emissions and the Bank-Lending Channel". In: *SSRN Electronic Journal*. ISSN: 1556-5068. DOI: 10.2139/ssrn.3915486.

Martini, Felix, Zacharias Sautner, Sascha Steffen, and Carola Theunisz (2025). *Climate Transition Risks of Banks: Evidence from Syndicated Loan Books*. DOI: 10.2139/ssrn.4551735. Social Science Research Network: 4551735. Pre-published.

Mueller, Isabella and Eleonora Sfrappini (2022). "Climate Change-Related Regulatory Risks and Bank Lending." In: *ECB Working Paper* 2670.

Reghezza, Alessio, Yener Altunbas, David Marques-Ibanez, Costanza Rodriguez d'Acri, and Martina Spaggiari (2022). "Do Banks Fuel Climate Change?" In: *Journal of Financial Stability* 62, p. 101049. ISSN: 1572-3089. DOI: 10.1016/j.jfs.2022.101049.

Sautner, Zacharias, Jing Yu, Rui Zhong, and Xiaoyan Zhou (2025). "The EU Taxonomy and the Syndicated Loan Market". In: *Journal of Financial Services Research*. ISSN: 1573-0735. DOI: 10.1007/s10693-024-00441-x.

Wang, Jiazhen, Xiaolu Hu, and Angel Zhong (2023). "Stock Market Reaction to Mandatory ESG Disclosure". In: *Finance Research Letters* 53, p. 103402. ISSN: 15446123. DOI: 10.1016/j.frl.2022.103402.

Wang, Lynn Linghuan (2023). "Transmission Effects of ESG Disclosure Regulations Through Bank Lending Networks". In: *Journal of Accounting Research* 61.3, pp. 935–978. ISSN: 0021-8456, 1475-679X. DOI: 10.1111/1475-679X.12478.

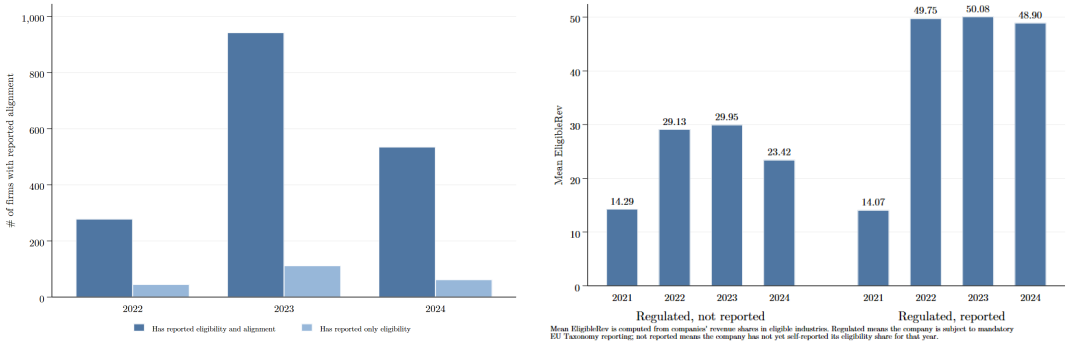
Webersinke, Nicolas, Mathias Kraus, Julia Bingler, and Markus Leippold (2022). "ClimateBERT: A Pretrained Language Model for Climate-Related Text". In: *Proceedings of AAAI 2022 Fall Symposium: The Role of AI in Responding to Climate Challenges*. DOI: https://doi.org/10.48550/arXiv.2212.13631.

A Firms' reporting under the EU Taxonomy Regulation

We construct firm–year Taxonomy-eligible revenues using Trucost's revenue decomposition by activity, which is based on Trucost-specific sector codes derived from NAICS. Revenue is mapped to EU TR activities in three steps. First, Trucost sector identifiers are standardized to their six-digit numeric NAICS core by removing vendor-specific letter suffixes. Second, these NAICS codes are linked to NACE using an official NACE–NAICS concordance and the European Commission's "alternate classification mapping" for Taxonomy activities related to climate change mitigation and adaptation. Third, revenue is classified as Taxonomy-eligible if the mapped activity is listed under the relevant climate objectives. In a complementary classification, we distinguish own-performance (transitional) activities from enabling activities.[16]

Firm–year Taxonomy-eligible revenue is obtained by summing the revenue shares associated with eligible activities; non-eligible turnover is defined residually. A practical caveat is that NAICS, NACE, and Trucost sector taxonomies are not perfectly isomorphic. Trucost frequently aggregates NAICS codes, and NACE–NAICS correspondences are many-to-many at varying digit lengths. To mitigate potential classification error, we prioritize exact six-digit matches where available and apply documented fallback rules when exact matches are not feasible.

Figure A1a illustrates the diffusion of Taxonomy-related reporting in our sample. The number of firms disclosing both Taxonomy eligibility and alignment increases sharply in 2022–2023, when reporting became mandatory for non-financial firms, and remains high thereafter. A smaller subset of firms reports only eligibility without alignment, consistent with firms phasing in DNSH and minimum-safeguards assessments later than initial activity tagging. Figure A1b further compares calculated eligibility shares between regulated firms that already report in a given year and those that do not. Calculated eligibility is systematically higher among reporting firms, indicating selection into disclosure: firms with a larger share of Taxonomy-eligible revenue tend to adopt reporting earlier, while non-reporters exhibit lower eligibility on average.



(a) Number of reporting firms, by year.

(b) Mean eligibility shares, by reporting type and year.

Figure A1: Descriptives of Taxonomy-reporting firms

Panel (a) shows the annual number of firms that reported on both eligibility and alignment, as well as those that reported only on eligibility. Panel (b) shows the mean eligibility of firms subject to mandatory EU Taxonomy reporting. Not reported means that the company has not self-reported its eligibility share for that year. Mean eligibility for both company groups refers to $EligibleRev$, and is derived from companies' revenue shares in eligible industries as provided by Trucost's revenue data.

[16] Own-performance or transitional activities plausibly entail different transition-risk profiles than enabling activities, which primarily facilitate mitigation or adaptation in other sectors.

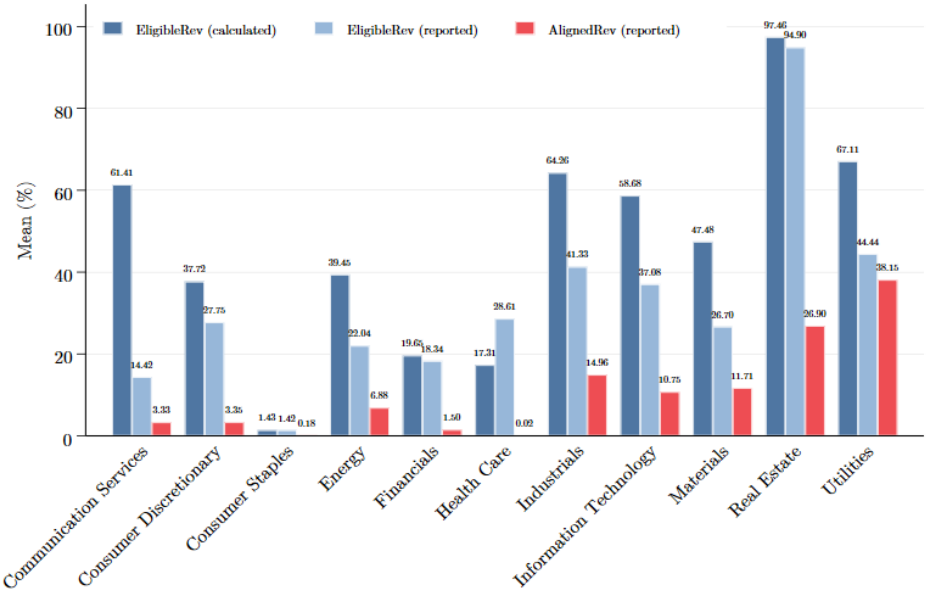


Figure A2: Taxonomy-relevant revenue shares of firms

This figure shows firms Taxonomy-relevant revenue shares across three dimensions. First, eligibility revenue shares derived from own calculations, $EligibleRev$, based on firm's sectoral revenue performance as provided by Trucost. Second, firm's self-reported eligibility revenue shares, as provided by Trucost. Third, firm's self-reported aligned revenue shares, $AlignedRev$, as provided by Trucost. Note that for descriptive reasons, we are showing here the mean of all companies in the Trucost sample for which all three indicators are available. Not all of these companies may show up in our DealScan sample used for the empirical analyses.

Figure A2 contrasts our calculated Taxonomy eligibility with firms' reported eligibility and alignment across GICS sectors. Real Estate exhibits very high eligibility, with reported averages approaching full coverage and closely matching our calculated measures. This pattern is consistent with the Taxonomy's "Acquisition and ownership of buildings" activity (NACE L68), which captures most landlords' turnover, although small discrepancies are expected because Trucost aggregates multiple NAICS codes into broader categories. Utilities similarly report high eligibility and substantial alignment, reflecting electricity generation, networks, and water-related activities covered by the climate objectives. Across most other sectors, calculated eligibility tends to exceed self-reported measures, likely because firms' disclosures rely on issuer-specific, asset-level detail (such as metered sub-lines or technology screening) that cannot be fully recovered by concordance-based mappings.[17]

[17]The high reported eligibility in Financials is driven by firms such as Worldline SA, a payment services provider classified in the financials sector that reports a large share of revenue from data processing, hosting, and related activities.

B Banks' green reporting

We extract available annual reports as well as ESG and CSR reports for the banks in our sample from Refinitiv Eikon. The reports are converted from PDF to XML format to preserve document structure, ensuring that paragraphs remain intact. We then analyze these paragraphs with respect to their climate-related content using *ClimateBERT*, a pre-trained LLM based on natural language processing techniques. ClimateBERT is trained on more than two million climate-related paragraphs drawn from research paper abstracts, corporate reports and news sources, and is designed to capture contextual and common language patterns that are often missed by traditional dictionary-based or bag-of-words approaches (Webersinke et al., 2022).

The textual analysis proceeds in two steps. First, we restrict attention to report content plausibly related to sustainability by applying a tailored keyword dictionary constructed from a manual review of 20 bank sustainability reports. The dictionary includes both generic climate-related terms and expressions commonly used by banks in sustainability-related disclosures (see Table B1 below). We retain only paragraphs containing at least one dictionary term, which substantially reduces the computational burden. Second, we apply ClimateBERT to the filtered paragraphs and classify a paragraph as climate-related if the model's confidence score exceeds 0.8. Because ClimateBERT is optimized for paragraph-level context, we exclude single-sentence observations. Throughout the analysis, standard preprocessing steps such as stopword removal are applied.

On the filtered corpus, we apply ClimateBERT's *Climate Detector*, which assigns each paragraph a binary label indicating whether it contains climate-related content based on contextual language patterns. At the bank–year level (b, t), we construct three complementary measures that summarize (i) the overall intensity of climate-related disclosure, (ii) the degree of specificity within that disclosure following the Cheap Talk Index by Bingler et al. (2024), and (iii) the emphasis on net-zero objectives within lending-related text (see Table B2 below for the keywords used to identify lending-related paragraphs).

Let $\mathcal{P}_{b,t}$ denote the set of retained paragraphs for bank b in year t after the corpus filtering described above (dictionary screening and removal of single-sentence entries). For each paragraph $p \in \mathcal{P}_{b,t}$, let w_p denote the number of words in p. We then define

$$W^{i}_{b,t} = \sum_{p \in \mathcal{P}_{b,t}} w_p \tag{6}$$

where $i \in \{\text{all}, \text{climate}, \text{specific}, \text{lending}, \text{net-zero}\}$ denotes paragraph subsets identified by the corresponding ClimateBERT labels and keyword filters. The quantity $W^{i}_{b,t}$ sums words across all available report types (e.g., annual and ESG/sustainability reports) for the relevant subsets i.

Building on this, we define three bank-year green reporting ratios:

$$\text{GreenReporting}_{b,t} = \frac{W^{\text{climate}}_{b,t}}{W^{\text{all}}_{b,t}} \tag{7}$$

$$\text{ClimateSpecific}_{b,t} = \frac{W^{\text{specific}}_{b,t}}{W^{\text{all}}_{b,t}} \tag{8}$$

$$\text{NetZeroLending}_{b,t} = \frac{W^{\text{nz}}_{b,t}}{W^{\text{lending}}_{b,t}}. \tag{9}$$

Equation (7) captures the overall share of climate-related content in a bank's reporting, while Equation (8) follows the spirit of the Cheap Talk Index by focusing on more specific climate-related disclosure (Bingler et al., 2024). Equation (9) measures the prominence of net-zero lending within lending-related discourse. All ratios are computed after removing stopwords. If a denominator

equals zero, the corresponding ratio is set to missing and excluded from bank–year summaries. Results are aggregated across all report types available for (b, t).

We define an indicator $GreenReportingBank^{i}_{b,t}$ that equals one if a bank's reporting ratio i lies in the top quintile of the cross-sectional distribution in year t, and zero otherwise. At the syndicate level, we define the share of green-reporting banks as

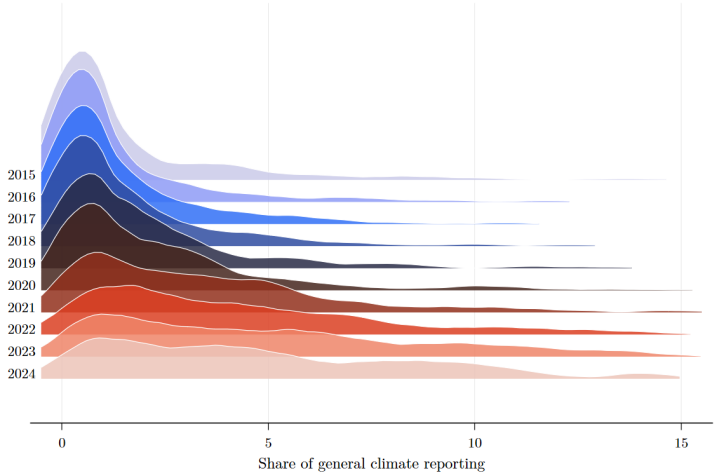
$$GRS^{i}_{s,t} = \frac{1}{N_{s,t}} \sum_{b=1}^{N_{s,t}} GreenReportingBank^{i}_{b,t} \tag{10}$$

where $N_{s,t}$ defines the number of lead arranging banks in the syndicate.

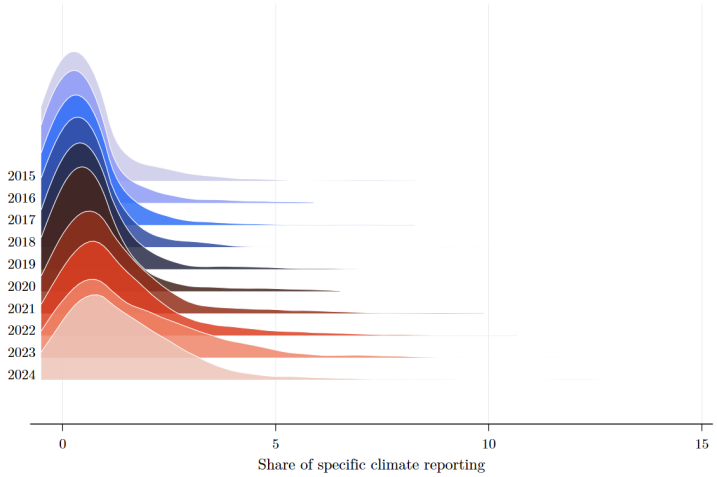
Figures B1–B3 document the evolution, syndicate composition, and geographic distribution of banks' climate-related reporting used to construct our green reporting measures. Figure **??** shows that general climate reporting, specific climate reporting and net-zero lending–related reporting increase steadily over time, consistent with banks gradually expanding the scope of their climate disclosures. Figure B2 illustrates substantial geographic heterogeneity: most reporting banks are located in Asia as well as Europe.

Figure B1: Banks' climate-related reporting

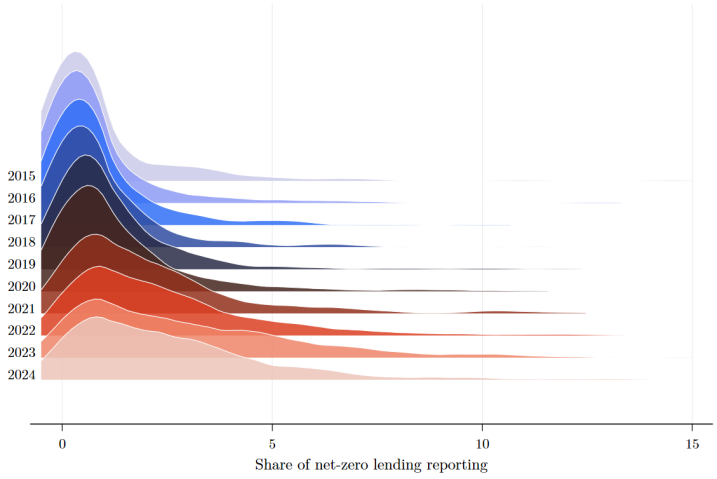
This figure shows the distribution of banks' climate-related reporting over the years covered in the analysis. Panel a presents banks' general climate reporting, as identified by ClimateBERT's *Climate Detector*. Similarly, Panels b and c present the distributions for banks' specific climate-related reporting as well as net-zero lending climate reporting.



(a) Panel A



(b) Panel B



(c) Panel C

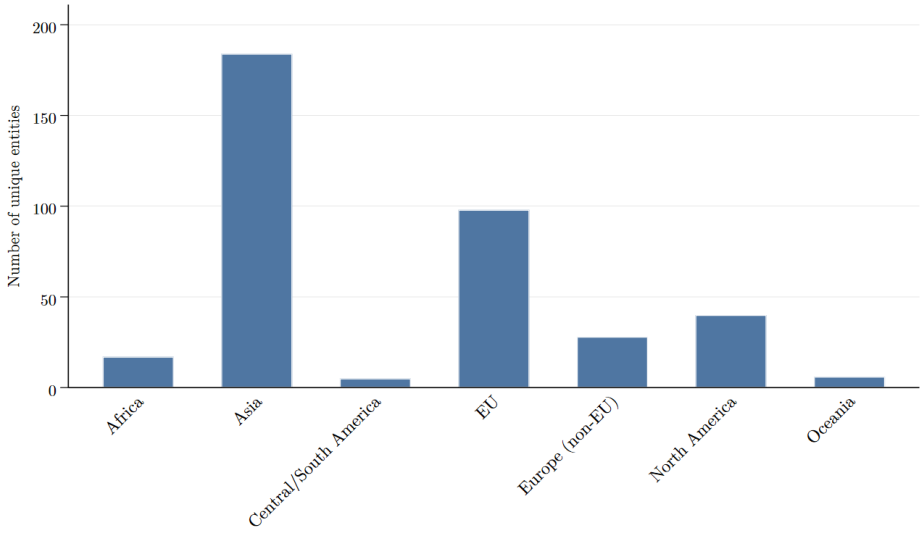
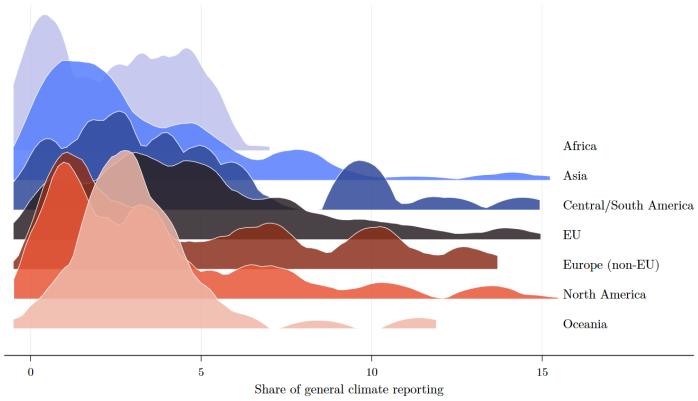


Figure B2: Reporters by region

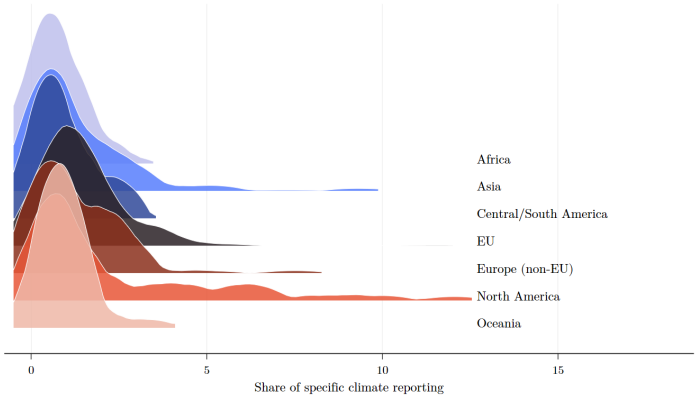
This figure shows the number of unique reporters in our sample of analyzed banks per geographical region. The total number of unique banks analyzed is 378.

Figure B3: Banks' climate-related reporting

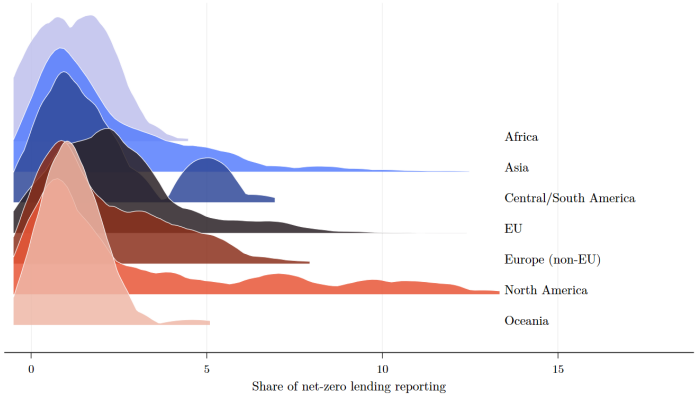
This figure shows the distribution of banks' climate-related reporting over the years covered in the analysis. Panel a presents banks' general climate reporting, as identified by ClimateBERT's *Climate Detector*. Similarly, Panels b and c present the distributions for banks' specific climate-related reporting as well as net-zero lending climate reporting.



(a) Panel A



(b) Panel B



(c) Panel C

Table B1: Environmental-related Keywords for Identifying Climate- and Sustainability-Related Paragraphs in Banks' Reporting.

(1)	sustainability	(32)	greenium	(63)	green loan
(2)	sustainability related	(33)	green growth	(64)	esg criteria
(3)	sustainability linked	(34)	greenhouse gas emission	(65)	esg linked
(4)	sustainable finance	(35)	ghg	(66)	esg target
(5)	sustainable growth	(36)	co2	(67)	environmentally friendly
(6)	sustainable	(37)	2 degree	(68)	nature related
(7)	corporate sustainability reporting directive	(38)	2°	(69)	biodiversity
(8)	sustainable business	(39)	carbon footprint	(70)	fossil fuel
(9)	sustainable financial product	(40)	carbon emission	(71)	physical risk
(10)	sustainable investment	(41)	co2 emissions	(72)	nature risk
(11)	climate footprint	(42)	1.5 degree	(73)	transition plan
(12)	climate risk	(43)	carbon intens	(74)	global warming
(13)	climate related	(44)	carbon price	(75)	human induced warming
(14)	climate target	(45)	carbon	(76)	paris climate
(15)	climate change	(46)	carbon neutral	(77)	paris compliant
(16)	climate stress test	(47)	decarbon	(78)	fit for paris
(17)	climate emergency	(48)	partnership for carbon accounting financials	(79)	paris agreement
(18)	climate catastrophe	(49)	net-zero banking alliance	(80)	carbon
(19)	climate neutral	(50)	nzba	(81)	road to paris
(20)	climate resilient	(51)	tcfd	(82)	un sdg
(21)	climate transition	(52)	net zero	(83)	unep fi
(22)	climate adaptation	(53)	emission target	(84)	eu taxonomy
(23)	climate performance	(54)	sbti	(85)	taxonomy regulation
(24)	green	(55)	principles for responsible banking	(86)	taxonomy eligible
(25)	green mortgage loan	(56)	circular economy	(87)	taxonomy aligned
(26)	green finance	(57)	renewable	(88)	non financial reporting directive
(27)	green transition	(58)	clean energy		
(28)	green investment	(59)	environmental		
(29)	green bond	(60)	environmental, social and governance		
(30)	green economy	(61)	esg		
(31)	green asset	(62)	esg bond		

Table B2: Lending-related Keywords for Identifying Credit-Related Paragraphs in Banks' Reporting.

(1)	loan	(5)	borrowing	(9)	debt financing
(2)	lending	(6)	mortgage	(10)	microcredit
(3)	credit	(7)	installment	(11)	lending portfolio
(4)	borrower	(8)	microloan	(12)	loan book

C Data

Table C1: Variable Definitions and Sources

Variable Name	Definition	Source
Main variables of interest:		
Amount	The tranche amount the borrower receives, in millions of USD; trimmed by the top and bottom 1 percent.	DealScan
EligibleRev	Borrower's Taxonomy-eligible revenue share, indicates the revenue generated from Taxonomy-eligible economic activities as percentage over the total revenue generated in a given year.	Trucost
EligibleStd	Borrower's standardized deviation of Taxonomy-eligible revenue share from the industry's (2-digit NAICS) mean eligibility share in a given year (z-score).	idem
AlignedRev	Borrower's Taxonomy-aligned revenue share, indicates the revenue generated from Taxonomy-aligned economic activities as percentage over the total revenue generated in a given year.	idem
NFRD	Dummy variable indicating whether the borrower regulated under the NFRD and thus subject to mandatory reporting under the EU TR.	Trucost
Lead arranger	We follow Ivashina (2009) and consider banks as a lead arranger if they are considered (i) the administrative agent of the syndicate, or if not available (ii) they are classified as agents, arrangers (mandated or coordinating), bookrunner, (mandated) lead arranger, lead bank or lead manager.	DealScan
Green Reporting Bank	Green lender proxy; dummy variable indicating whether the bank was in the top quintile of green reporters in the year prior to loan origination. Calculated separately for (i) general climate reporting, (ii) net zero lending reporting and (iii) specific climate reporting. For detailed information, see Appendix B.	Own calculations, based on reports from Refinitiv Eikon
GRS	Green reporting syndicate proxy; variable indicating the share of high green (either general climate of net zero lending) reporting banks among the lead arrangers of the syndicate. For detailed information, see Appendix B.	idem
High GRS	Green reporting syndicate dummy for sample split; dummy variable that takes on the value 1 if the share of high green (either general climate of net zero lending) reporting banks among the lead arrangers of the syndicate (GRS) is within the upper quartile of the respective distribution, and 0 if otherwise.	idem

(continued on next page)

Table C1: Variable Definitions and Sources (continued)

Variable Name	**Definition**	**Source**
Green Remark	Dummy variable that indicates whether a loan has been assigned a green remark, given that the loan has a general remark in the first place.	Own calculations, based on DealScan
Loan characteristics:		
Loan maturity	Maturity of the loan in months (log).	DealScan
Number of lead banks	Total number of lead banks in the loan-originating syndicate, as defined above.	idem
Covenants	Dummy variable, takes on the value 1 if the loan has covenants, and 0 if otherwise.	idem
Non-bank	Dummy variable, takes on the value 1 if the loan a non-bank among lead arrangers in the syndicate, and 0 if otherwise.	idem
Secured	Takes on the value 1 if the loan is secured, and 0 if otherwise.	idem
Refinancing	Takes on the value 1 if the loan a refinancing loan, and 0 if otherwise.	idem
Origination	Takes on the value 1 if the loan is an newly originated loan, and 0 if an amendment loan.	idem
Remark	Takes on the value 1 if the loan has a remark assigned to it, and 0 if otherwise.	idem
Loan purpose	Includes information on the purpose of the loan, e.g. Restructuring, Acquisition, Merger, General Purpose, Management Buyout, Project Finance, etc.	idem
Loan type	Categorical variable; definition after Berg et al. (2016) into three groups: (i) 364-Day Facility, Revolver Lines, (ii) Revolver Term Loans, Term Loans, Delay Draw Term Loans, (iii) remaining (e.g. Acquisition, Blended Loan, Export Credit, Mortgage).	idem
Bank characteristics:	*Lender-specific for lead-arranger level analysis, syndicate average of all lead banks for tranche level analysis*	
ROA	Return on assets over net income. Lagged by one year.	Orbis (Bureau van Dijk)
Tier 1 Capital Ratio	Average Tier 1 Capital Ratio of all lead banks in the syndicate. Lagged by one year.	idem
Total Assets	Amount of total assets, in millions USD (log). Lagged by one year.	idem
Equity-to-Assets	Equity-to-Assets ratio. Lagged by one year.	idem
Prior interactions (lender-firm)	Number of interactions between the lender and the borrower prior to loan origination.	Own calculations based on DealScan
Prior interactions (lender-industry)	Number of interactions between the bank and the industry (2-digit SIC) prior to loan origination.	idem

(continued on next page)

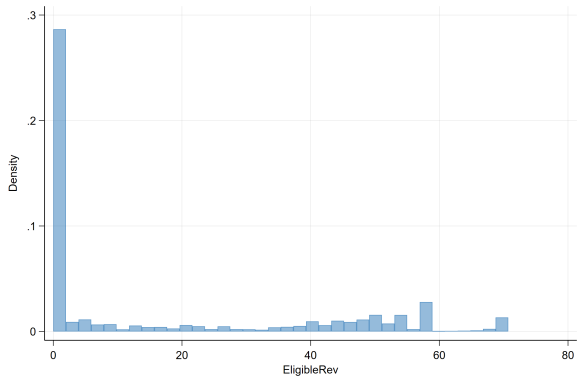
Table C1: Variable Definitions and Sources (continued)

Variable Name	**Definition**	**Source**
Share of Europe-based banks	Syndicate's share of lender parents that are headquartered in Europe.	idem
Borrower characteristics:		
Borrower opaqueness	Binary indicator equal to 1 if the main firm-level financial variables (return on assets, fixed assets, total assets, all lagged by one year) are available; 0 if otherwise. Serves as proxy for borrower's availability of financial information.	Orbis (Bureau van Dijk)
Revenue	Total revenue of the borrower, in million USD (log). Lagged by one year.	Trucost
Carbon Intensity	Borrower's carbon intensity (scope 1) in thousand tonnes of carbon emissions per USD million revenue in a given year. Lagged by one year.	idem
Δ Eligible-Aligned	Δ *Eligible-Aligned* denotes the difference between a borrowers' eligible (derived from Trucost revenue shares) and aligned revenue share in a given year, restricted to $\in [0, 100]$.	idem
Industry	Main industry in which the borrower is operating at time of loan origination. Depending on the specification in 1-digit or 2-digit SIC codes.	DealScan
ESG Rating	Refinitiv ESG Rating of the borrower at time of loan uptake. Categorical variable that ranges between *A+* and *D-*, with one group for missings.	idem
Region	Geographical location of borrower by region (Africa; Asia; Central and South America; EU; Europe (non-EU); North America; Oceania).	idem

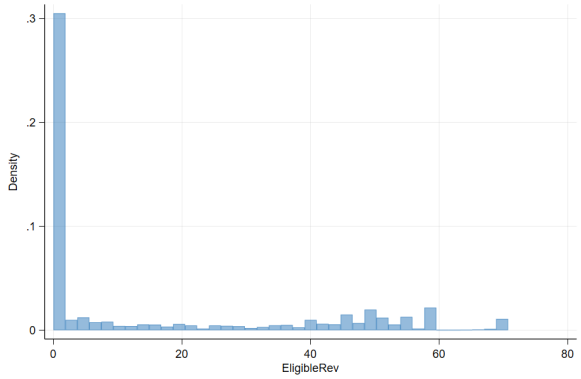
D Figures

Figure D1: Within-borrower variation

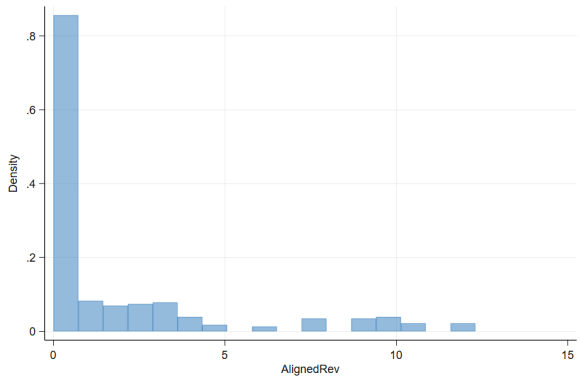
This figure shows the within-borrower variation of Taxonomy-eligible and -aligned revenue shares, as used in the analysis. Panel a presents borrowers' Taxonomy-eligibility, $EligibleRev$, for the observations in the balanced main sample from section 4. Similarly, Panels b and c present the within-borrower variation of borrowers Taxonomy-eligibility, $EligibleRev$, and Taxonomy-alignment, $AlignedRev$, for the observations in the sample used for the alignment analysis in section 5.



(a) Panel A



(b) Panel B



(c) Panel C

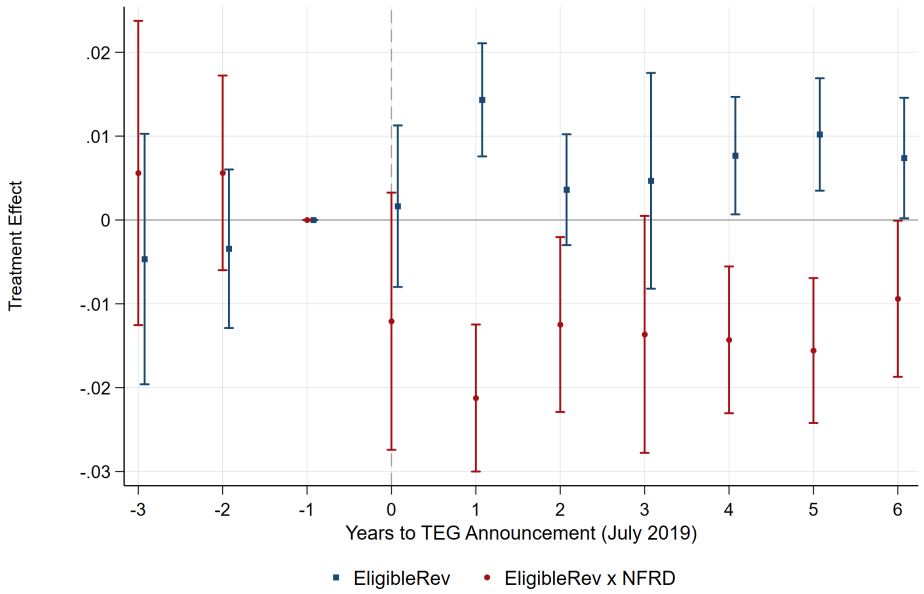


Figure D2: Regulated Borrowers' Eligibility Shares and Loan Volumes

This figure shows the heterogeneous dynamic treatment effects of eligible, regulated borrowers. The estimated specification refers to column (3) in Table 2, i.e. an analysis on the lead-arranger level including loan type, loan purpose, country-of-borrower, industry and lender-year fixed effects.

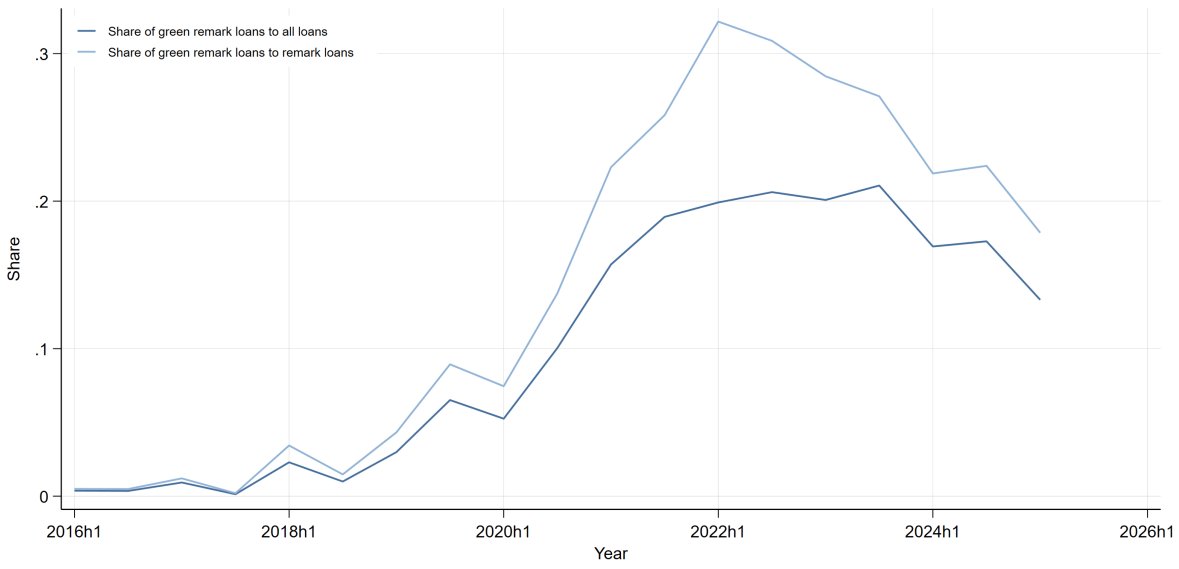
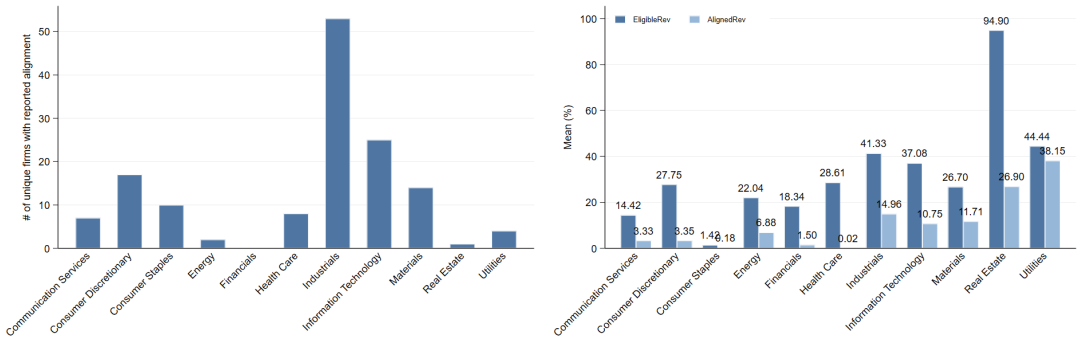


Figure D3: Development of green remarks

This figure shows the development of loans with green remarks assigned over time. Shown is both the share of loans with a green remark relative to all loans, as well as the share of loans with a green remark relative to loans that have in general a remark attached to them.



(a) Total number of reporters

(b) Mean eligibility and alignment shares

Figure D4: Taxonomy reporting descriptives

This figure shows the total number of alignment reporting companies and the mean percent of self-reported eligibility and alignment values as reported by Trucost, by industry (GICS).

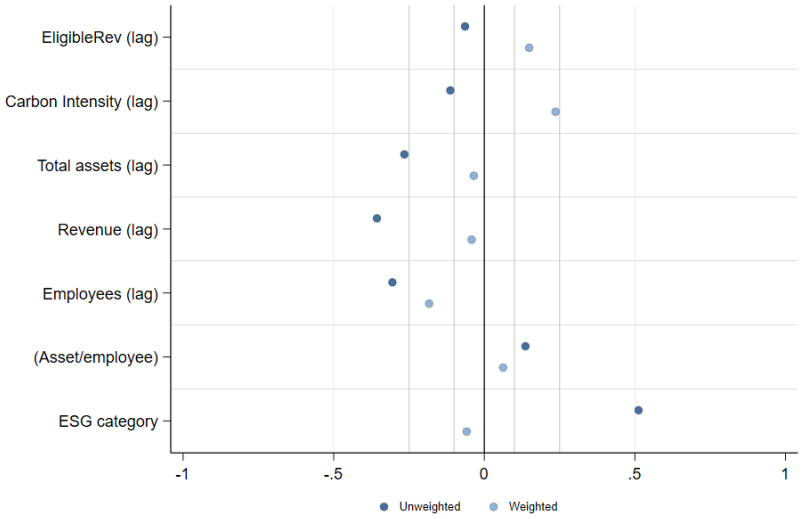


Figure D5: Alignment analysis: Propensity Score Weighting

This figure shows the balancing statistics of the sample used for alignment analysis in section 5.2 following propensity score weighting based on the inverse-probability weights following equation (3).

E Tables

Table E1: Difference-in-Means: Main Sample

	NFRD borrowers		non-NFRD borrowers		Normalized Δ
	Mean	Std. Dev.	Mean	Std. Dev.	
Panel A: Syndicate characteristics					
ROA	0.47	0.65	0.72	1.23	-0.18
Tier 1 Capital Ratio	16.80	8.93	18.98	19.09	-0.10
Total Assets (USD, log, lag)	13.06	1.73	12.82	2.98	0.07
Equity-to-Assets	0.06	0.02	0.08	0.03	-0.39
% of Europe-based banks	0.80	0.29	0.19	0.34	1.35
Prior Interactions (bank-firm)	3.10	3.81	4.52	6.65	-0.19
Prior Interactions (bank-industry)	40.43	76.35	47.06	76.93	-0.06
Panel B: Tranche characteristics					
Amount	511.55	854.76	752.14	984.97	-0.18
Loan maturity	55.38	31.03	46.42	25.25	0.22
Non-bank	1.00	0.04	1.00	0.07	-0.04
Number of lead banks	5.26	5.47	3.92	6.63	0.16
Covenants	0.05	0.23	0.20	0.40	-0.32
Secured	1.18	0.39	1.31	0.46	-0.22
Refinancing	1.52	0.50	1.64	0.48	-0.18
Panel C: Borrower characteristics					
Revenue	12142.74	27840.09	15766.24	36038.96	-0.08
Opaqueness	0.64	0.48	0.72	0.45	-0.12
Carbon Intensity	0.16	0.46	0.17	0.50	-0.02
EligibleRev	17.06	33.81	13.77	31.23	0.07

Notes: Difference-in-means between loans to EU TR-relevant, i.e. NFRD-regulated borrowers, and non-regulated borrowers prior to balancing using MDM. The normalized difference allows to measure the difference in distributions independent of scales and is defined as the difference in group means divided by the square root of the sum of the group-specific variances (Imbens and Wooldridge, 2009). As a rule of thumb, normalized differences below 0.25 in absolute value indicate sufficiently similar covariate distributions in the treated and control groups. On the syndicate level, equity-to-assets, ROA, Tier 1 capital ratio and total assets (USD millions) refer to individual lead banks' values lagged by one year, from which we then take the average value of the syndicate. The share of Europe-based banks in the syndicate refers to the headquarter of the lender parent, as defined in DealScan. EligibleRev is a borrowers' Taxonomy-eligible revenue share from the previous financial year. Similarly, borrowers revenue (USD millions) and carbon intensity are lagged by one year.

Table E2: Difference-in-Means: Main Sample after Balancing

	NFRD borrowers		non-NFRD borrowers		Normalized Δ
	Mean	Std. Dev.	Mean	Std. Dev.	
Panel A: Syndicate characteristics					
ROA	0.46	0.49	0.62	0.38	-0.26
Tier 1 Capital Ratio	16.76	8.73	18.48	18.41	-0.08
Total Assets (USD, log, lag)	13.19	0.94	13.33	1.26	-0.09
Equity-to-Assets	0.06	0.02	0.07	0.02	-0.34
% of Europe-based banks	0.82	0.26	0.26	0.36	1.26
Prior Interactions (bank-firm)	3.13	3.79	3.45	4.51	-0.05
Prior Interactions (bank-industry)	41.03	78.70	44.69	76.74	-0.03
Panel B: Tranche characteristics					
Amount	521.38	857.82	677.56	912.57	-0.12
Loan maturity	54.84	30.71	46.10	24.18	0.22
Non-bank	1.00	0.04	1.00	0.04	0.00
Number of lead banks	5.63	5.63	4.90	6.91	0.08
Covenants	0.05	0.22	0.17	0.38	-0.27
Secured	1.17	0.37	1.28	0.45	-0.19
Refinancing	1.53	0.50	1.64	0.48	-0.16
Panel C: Borrower characteristics					
Revenue	12168.20	27857.08	11981.90	24784.26	0.00
Opaqueness	0.64	0.48	0.76	0.43	-0.18
Carbon Intensity	0.16	0.46	0.19	0.52	-0.04
EligibleRev	17.77	34.37	15.02	32.25	0.06

Notes: Difference-in-means between loans to EU TR-relevant, i.e. NFRD-regulated borrowers, and non-regulated borrowers after balancing using MDM. The normalized difference allows to measure the difference in distributions independent of scales and is defined as the difference in group means divided by the square root of the sum of the group-specific variances (Imbens and Wooldridge, 2009). As a rule of thumb, normalized differences below 0.25 in absolute value indicate sufficiently similar covariate distributions in the treated and control groups. On the syndicate level, equity-to-assets, ROA, Tier 1 capital ratio and total assets (USD millions) refer to individual lead banks' values lagged by one year, from which we then take the average value of the syndicate. The share of Europe-based banks in the syndicate refers to the headquarter of the lender parent, as defined in DealScan. EligibleRev is a borrowers' Taxonomy-eligible revenue share from the previous financial year. Similarly, borrowers revenue (USD millions) and carbon intensity are lagged by one year.

Table E3: Climate- and Sustainability-Related Keywords for Identifying Green Remarks

(1)	(eu) taxonomy	(67)	environmental sustainability	(133)	renewable hydrogen
(2)	biofuels	(68)	environmental, social, and governance	(134)	renewable power
(3)	breeam environmental certifications	(69)	environmental, social, and governance (esg)	(135)	renewable resources
(4)	breeam-certified	(70)	environmentally friendly	(136)	renewable sources
(5)	carbon capture	(71)	esg (environmental, social, and governance)	(137)	renewables
(6)	carbon dioxide	(72)	esg loan	(138)	responsible investment
(7)	carbon dioxide emissions	(73)	esg reporting	(139)	science based targets
(8)	carbon emissions	(74)	esg-linked	(140)	science-based targets
(9)	carbon emissions reduction	(75)	esg-related	(141)	scope 1 and scope 2 emissions
(10)	carbon footprint	(76)	eu action plan	(142)	scope 1 emissions
(11)	carbon intensity	(77)	eu green taxonomy	(143)	scope 2 emissions
(12)	carbon neutral	(78)	eu taxonomy	(144)	solar and storage
(13)	carbon neutrality	(79)	european taxonomy	(145)	solar power
(14)	carbon neutrality commitments	(80)	eu's action plan	(146)	solar pv
(15)	carbon sequestering	(81)	fossil-free	(147)	sustainability
(16)	carbon-neutral	(82)	green bond	(148)	sustainability factors
(17)	carbon-neutrality	(83)	green breeam	(149)	sustainability indices
(18)	circular economy	(84)	green building	(150)	sustainability key performance indicators
(19)	clean energy	(85)	green buildings	(151)	sustainability kpi
(20)	clean transportation	(86)	green certified	(152)	sustainability performance target
(21)	climate action	(87)	green energy	(153)	sustainability performance targets
(22)	climate change	(88)	green finance	(154)	sustainability series bonds
(23)	climate change mitigation	(89)	green financing	(155)	sustainability targets
(24)	climate change-related	(90)	green hydrogen	(156)	sustainability-linked
(25)	climate footprint	(91)	green impact	(157)	sustainability-linked loan
(26)	climate impact	(92)	green loan	(158)	sustainability-linked targets
(27)	climate neutrality	(93)	green project	(159)	sustainable building
(28)	climate resilience	(94)	green repo	(160)	sustainable development
(29)	climate sustainability	(95)	green transformation	(161)	sustainable development goals
(30)	climate targets	(96)	green transition	(162)	sustainable energy
(31)	climate-focused	(97)	greenhouse	(163)	sustainable finance
(32)	climate-friendly	(98)	greenhouse emissions	(164)	sustainable financing
(33)	climate-related disclosure	(99)	greenhouse gas	(165)	sustainable goals
(34)	climate-related financial disclosure	(100)	greenhouse gas emissions	(166)	sustainable investment
(35)	climate-related financial targets	(101)	impact financing	(167)	sustainable materials
(36)	climate-related risk	(102)	impact reporting	(168)	sustainable projects
(37)	climate-related	(103)	low carbon	(169)	sustainable smes
(38)	csr-linked loan	(104)	low carbon construction	(170)	sustainable transition
(39)	co2	(105)	low carbon footprint	(171)	taxonomy aligned
(40)	co2 emissions	(106)	low-carbon	(172)	taxonomy alignment
(41)	co2-equivalent	(107)	low-carbon economy	(173)	taxonomy criteria
(42)	csrd	(108)	low-carbon mobility	(174)	taxonomy eligibility
(43)	decabonize	(109)	net carbon	(175)	taxonomy eligible
(44)	decarbonisation	(110)	net zero	(176)	taxonomy regulation
(45)	decarbonization	(111)	net-zero	(177)	taxonomy-aligned
(46)	eco-friendly	(112)	net-zero emissions	(178)	taxonomy-alignment
(47)	ecological	(113)	nfrd	(179)	taxonomy-eligibility
(48)	ecological agriculture	(114)	non-financial disclosure	(180)	taxonomy-eligible
(49)	eligible capex aligned	(115)	non-financial reporting	(181)	technical screening criteria
(50)	emission intensity	(116)	recycling plant	(182)	water usage
(51)	emission reduction	(117)	reducing emissions	(183)	wind energy
(52)	emissions trading	(118)	reducing scoop 3 greenhouse emissions	(184)	wind park
(53)	energy conservation	(119)	reducing waste	(185)	wind projects
(54)	energy efficiency	(120)	reduction of industrial	(186)	zero-carbon
(55)	energy efficient	(121)	reduction of scope 1	(187)	zero-carbon commitments
(56)	energy recovery unit	(122)	renewable electricity support scheme (ress)	(188)	zero-carbon
(57)	energy transition	(123)	renewable energy	(189)	zero-carbon commitments
(58)	energy-efficient	(124)	renewable generation	(190)	zero-carbon
(59)	energy-efficient housing	(125)	renewable hydrogen	(191)	zero-carbon commitments
(60)	environmental and social initiatives	(126)	renewable power	(192)	zero-carbon
(61)	environmental impact	(127)	renewable resources	(193)	zero-carbon commitments
(62)	environmental obligations	(128)	renewable sources	(194)	zero-carbon
(63)	environmental policy	(129)	renewables	(195)	zero-carbon commitments
(64)	environmental sustainability	(130)	responsible investment	(196)	zero-carbon
(65)	environmental sustainability	(131)	science based targets	(197)	zero-carbon commitments
(66)	environmental, social, and governance	(132)	science-based targets	(198)	zero-carbon

Table E4: Difference-in-Means: Green Remarks

	Green remark loans		non-green remark loans		Normalized Δ
	Mean	Std. Dev.	Mean	Std. Dev.	
Panel A: Syndicate characteristics					
ROA	0.58	0.67	0.62	1.21	-0.03
Tier 1 Capital Ratio	16.38	2.60	18.50	16.79	-0.12
Total Assets	13.13	1.43	12.80	2.73	0.11
Equity-to-Assets	0.07	0.03	0.07	0.03	-0.09
% of Europe-based banks	0.64	0.39	0.37	0.41	0.48
Prior Interactions (bank-firm)	4.02	5.11	3.89	5.87	0.02
Prior Interactions (bank-industry)	69.74	102.97	41.12	71.56	0.23
General climate GRS (%)	0.43	0.36	0.32	0.36	0.23
Specific climate GRS (%)	0.41	0.35	0.30	0.35	0.21
NZ lending GRS (%)	0.38	0.34	0.28	0.34	0.20
Panel B: Tranche characteristics					
Amount	589.18	933.34	709.32	975.07	-0.09
Loan maturity	53.46	30.61	49.75	27.89	0.09
Number of lead banks	7.12	9.17	4.71	6.50	0.21
Secured	1.19	0.39	1.32	0.47	-0.22
Refinancing	1.64	0.48	1.64	0.48	0.00
Panel C: Borrower characteristics					
Revenue	14002.93	35267.08	14063.30	32263.76	-0.00
Opaqueness	0.65	0.48	0.69	0.46	-0.07
Carbon Intensity	0.25	0.67	0.15	0.45	0.12
EligibleRev	24.68	38.81	13.87	31.26	0.22
Subject to NFRD	0.57	0.50	0.28	0.45	0.43
EU-based	0.58	0.49	0.29	0.45	0.43

Notes: Difference-in-means between loans with and without green remarks, conditional on having a remark. The normalized difference allows to measure the difference in distributions independent of scales and is defined as the difference in group means divided by the square root of the sum of the group-specific variances (Imbens and Wooldridge, 2009). As a rule of thumb, normalized differences below 0.25 in absolute value indicate sufficiently similar covariate distributions in the treated and control groups. On the syndicate level, equity-to-assets, ROA, Tier 1 capital ratio and total assets (USD millions) refer to individual lead banks' values lagged by one year, from which we then take the average value of the syndicate. The share of Europe-based banks in the syndicate refers to the headquarter of the lender parent, as defined in DealScan. EligibleRev is a borrowers' Taxonomy-eligible revenue share from the previous financial year. Similarly, borrowers revenue (USD millions) and carbon intensity are lagged by one year.

Table E5: Regulated Borrowers' Eligibility Shares, Banks' General Climate Reporting and Loan Volumes: Sample Split

Difference-in-Differences estimation using a high-dimensional fixed effects model. The variable of interest, borrower's *EligibleRev*, is measured as percentage, derived from annual revenue shares provided by Trucost. *High GRS* is an indicator equal to one if the syndicate's *General climate reporting share*, $GRS^{general}_{s,t-1}$, lies in the top quartile of the sample distribution, and zero otherwise. All specifications include loan- (*loan maturity, number of lead banks, covenants, non-bank, secured, refinancing, origination, remark*), firm- (*borrower opaqueness, revenue, carbon intensity, ESG Rating*) and syndicate- (*ROA, Tier 1 Capital Ratio, Total Assets, Equity-to-Assets, Prior interactions (lender-firm), prior interactions (lender-industry), share of EU lenders*) controls as defined in Appendix C1. Subsample is balanced using MDM. Robust standard errors are reported in parentheses and clustered at the borrower level. The 1%, 5% and 10% significance levels are denoted by ***, **, *, respectively. Fixed effects included as shown, "-" implies that FE is nested within higher order FE. Industry refers to 2-digit SIC classification.

	Tranche Amount (log)							
	Low GRS				High GRS			
	Tranche Level		Lead-Arranger Level		Tranche Level		Lead-Arranger Level	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
EligibleRev	-0.001	-0.002	-0.005**	-0.004	-0.012**	-0.012**	-0.011**	0.002
	(0.002)	(0.002)	(0.003)	(0.004)	(0.005)	(0.005)	(0.005)	(0.002)
Post2019	-0.062	-0.141	-0.203*	-0.120	0.020	0.075	-0.059	-0.039
	(0.096)	(0.103)	(0.104)	(0.113)	(0.083)	(0.148)	(0.128)	(0.132)
Post2019 × EligibleRev	0.002	0.003	0.008***	0.005	0.012***	0.013***	0.009	-0.002
	(0.002)	(0.002)	(0.003)	(0.004)	(0.005)	(0.005)	(0.005)	(0.002)
NFRD	-0.135	-0.127	-0.152		-0.141	-0.044	-0.335**	
	(0.131)	(0.134)	(0.158)		(0.189)	(0.171)	(0.136)	
EligibleRev × NFRD	0.007**	0.005	0.012***	0.007	0.022***	0.023***	0.022***	0.004
	(0.003)	(0.003)	(0.003)	(0.004)	(0.006)	(0.006)	(0.006)	(0.007)
Post2019 × NFRD	0.090	0.097	0.196**	0.114	-0.123	-0.169	-0.004	-0.161
	(0.085)	(0.084)	(0.093)	(0.100)	(0.126)	(0.122)	(0.104)	(0.114)
Post2019 × EligibleRev × NFRD	-0.007**	-0.006*	-0.014***	-0.007	-0.021***	-0.022***	-0.019***	-0.004
	(0.003)	(0.003)	(0.003)	(0.004)	(0.006)	(0.006)	(0.006)	(0.007)
N	6,158	6,102	28,038	27,978	3,287	3,287	11,995	11,858
Adj. R^2	0.536	0.550	0.600	0.766	0.467	0.478	0.620	0.803
Mean dep. var.	680.476	676.789	854.933	862.815	521.571	521.571	679.886	676.223
Loan purpose FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Loan type FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Country-of-Borrower FE	Yes	Yes	Yes	-	Yes	Yes	Yes	-
Year FE	Yes	-	-	-	Yes	-	-	-
Industry FE	Yes	-	Yes	-	Yes	-	Yes	-
Industry-Year FE	No	Yes	No	No	No	Yes	No	No
Lender-Year FE	No	No	Yes	Yes	No	No	Yes	Yes
Borrower FE	No	No	No	Yes	No	No	No	Yes

Table E6: Regulated Borrowers' Eligibility Shares, Banks' Specific Climate Reporting and Loan Volumes: Sample Split

Difference-in-Differences estimation using a high-dimensional fixed effects model. The variable of interest, borrower's *EligibleRev*, is measured as percentage, derived from annual revenue shares provided by Trucost. *High GRS* is an indicator equal to one if the syndicate's *Specific climate reporting share*, $GRS^{specific}_{s,t-1}$, lies in the top quartile of the sample distribution, and zero otherwise. All specifications include loan- (*loan maturity, number of lead banks, covenants, non-bank, secured, refinancing, origination, remark*), firm- (*borrower opaqueness, revenue, carbon intensity, ESG Rating*) and syndicate- (*ROA, Tier 1 Capital Ratio, Total Assets, Equity-to-Assets, Prior interactions (lender-firm), prior interactions (lender-industry), share of EU lenders*) controls as defined in Appendix C1. Subsample is balanced using MDM. Robust standard errors are reported in parentheses and clustered at the borrower level. The 1%, 5% and 10% significance levels are denoted by ***, **, *, respectively. Fixed effects included as shown, "-" implies that FE is nested within higher order FE. Industry refers to 2-digit SIC classification.

	Tranche Amount (log)							
	Low GRS				High GRS			
	Tranche Level		Lead-Arranger Level		Tranche Level		Lead-Arranger Level	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
EligibleRev	-0.001	-0.002	-0.005**	-0.005	-0.013***	-0.014***	-0.009	0.013
	(0.002)	(0.002)	(0.002)	(0.004)	(0.005)	(0.005)	(0.007)	(0.010)
Post2019	-0.067	-0.118	-0.145	-0.017	0.021	0.123	-0.157	0.103
	(0.100)	(0.109)	(0.101)	(0.100)	(0.084)	(0.140)	(0.142)	(0.143)
Post2019 × EligibleRev	0.002	0.002	0.009***	0.006	0.013***	0.014***	0.007	-0.013
	(0.002)	(0.002)	(0.003)	(0.004)	(0.005)	(0.005)	(0.007)	(0.010)
NFRD	-0.137	-0.123	-0.236		-0.191	-0.079	-0.057	0.450*
	(0.131)	(0.133)	(0.145)		(0.196)	(0.184)	(0.159)	(0.256)
EligibleRev × NFRD	0.008***	0.005	0.013***	0.007*	0.019***	0.021***	0.014*	-0.011
	(0.003)	(0.003)	(0.003)	(0.004)	(0.007)	(0.007)	(0.008)	(0.010)
Post2019 × NFRD	0.085	0.085	0.195**	0.138	-0.049	-0.085	-0.045	-0.265**
	(0.084)	(0.085)	(0.094)	(0.095)	(0.138)	(0.137)	(0.113)	(0.113)
Post2019 × EligibleRev × NFRD	-0.007**	-0.005*	-0.016***	-0.007*	-0.019***	-0.020***	-0.012	0.010
	(0.003)	(0.003)	(0.004)	(0.004)	(0.007)	(0.007)	(0.008)	(0.010)
N	6,193	6,130	27,946	27,894	3,254	3,253	14,025	13,859
Adj. R^2	0.534	0.548	0.601	0.766	0.474	0.485	0.598	0.793
Mean dep. var.	661.855	657.812	875.064	882.787	555.089	555.089	664.231	660.598
Loan purpose FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Loan type FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Country-of-Borrower FE	Yes	Yes	Yes	-	Yes	Yes	Yes	-
Year FE	Yes	-	-	-	Yes	-	-	-
Industry FE	Yes	-	Yes	-	Yes	-	Yes	-
Industry-Year FE	No	Yes	No	No	No	Yes	No	No
Lender-Year FE	No	No	Yes	Yes	No	No	Yes	Yes
Borrower FE	No	No	No	Yes	No	No	No	Yes

Table E7: Logit estimates: alignment reporters

Logit estimates from equation (3). The dependent variable *Reporter* equals 1 for first-time alignment reporters (the first alignment reporting year among firms that ever report), and 0 for never-reporters in years where at least one treated firm exists. Controls include borrowers' *eligibility revenue*, their *carbon intensity* as well as *revenue (in logs)*, all lagged by one year. Controlled for but not shown are country and industry (1-digit SIC classification) of the borrower.

	Reporter
	(1)
EligibleRev	0.000
	(0.003)
Carbon Intensity	0.246
	(0.398)
Revenue	0.348***
	(0.080)
N	426
Pseudo R^2	0.154

F Robustness

Table F8: Regulated Borrowers' Eligibility Shares and Loan Volumes

Difference-in-Differences estimation using a high-dimensional fixed effects model. The variable of interest, borrower's *EligibleRev*, is measured as percentage, derived from annual revenue shares provided by Trucost. *NFRD* indicates whether the borrower is subject to mandatory reporting under the EU TR. All specifications include loan- (*loan maturity, number of lead banks, covenants, non-bank, secured, refinancing, origination, remark*), firm- (*borrower opaqueness, revenue, carbon intensity, ESG Rating*) and syndicate- (*ROA, Tier 1 Capital Ratio, Total Assets, Equity-to-Assets, Prior interactions (lender-firm), prior interactions (lender-industry)*) controls as defined in Appendix C1. Subsample is balanced using MDM. Robust standard errors are reported in parentheses and clustered at the borrower level. The 1%, 5% and 10% significance levels are denoted by ***, **, *, respectively. Fixed effects included as shown, "-" implies that FE is nested within higher order FE. Industry refers to 2-digit SIC classification.

	Tranche Amount (log)							
	Tranche Level		Lead-Arranger Level		Tranche Level		Lead-Arranger Level	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Post2019	-0.091	-0.193	-0.108	-0.230	-0.033	-0.071	-0.188	-0.462
	(0.121)	(0.126)	(0.121)	(0.151)	(0.200)	(0.204)	(0.208)	(0.303)
High EligibleRev	0.309***	0.039	0.370***	0.070				
	(0.115)	(0.146)	(0.098)	(0.101)				
High EligibleRev × Post2019	-0.291**	-0.060	-0.382***	-0.064				
	(0.120)	(0.151)	(0.102)	(0.102)				
High EligibleStd					0.167	0.104	0.048	-0.144
					(0.103)	(0.096)	(0.097)	(0.146)
High EligibleStd × Post2019					-0.184	-0.134	-0.077	0.136
					(0.118)	(0.111)	(0.123)	(0.191)
N	3,270	3,210	17,534	17,536	2,061	2,058	11,267	11,265
Adj. ^2	0.620	0.636	0.697	0.806	0.634	0.643	0.718	0.822
Mean dep. var.	521.719	517.915	952.576	951.881	559.729	559.965	1056.925	1055.556
Loan purpose FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Loan type FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Country-of-Borrower FE	Yes	Yes	Yes	-	Yes	Yes	Yes	-
Time FE	Yes	-	-	-	Yes	-	-	-
Industry FE	Yes	-	Yes	-	Yes	-	Yes	-
Industry-Year FE	No	Yes	No	No	No	Yes	No	No
Lender-Year FE	No	No	Yes	Yes	No	No	Yes	Yes
Borrower FE	No	No	No	Yes	No	No	No	Yes