

“Glossy Green” Banks

The Disconnect Between Sustainability Disclosures and Lending Activities

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The opinions in this presentation are those of the authors and do not necessarily reflect the views of the European Central Bank or the Eurosystem.

This Paper

- Banks increasingly emphasize their env. activities in their investors' reports and voluntary disclosures
 - Many benefits: better ESG ratings, more loyal customers, lower cost of capital

But are banks environmentally-themed disclosures credible or just contain unsubstantiated claims to symbolically comply with new institutional demands?

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This Paper

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1. Use annual and sustainability reports to analyze environmental disclosures of European banks
2. Examine the relation between environmental disclosures and bank lending to firms
 - To brown and green industries
 - To borrowers with different level of emissions
 - To borrowers that describe their business as green, based on the EU taxonomy

Main Findings

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European banks' environmental disclosures

- Positively associated with a country's env. risk and social activism, regulation and bank ESG rating
- Banks with more environmental disclosures are more involved in green bond issuance

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- Banks that stress more the environment in their disclosures **lend more to high-emission borrowers**
- No evidence that their loans are funding the **transition loans** to green technologies
- Banks lend to the **weakest borrowers** in brown industries, especially if they have **low capital adequacy**

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- No evidence that their loans are funding the **transition loans** to green technologies
- Banks lend to the **weakest borrowers** in brown industries, especially if they have **low capital adequacy**

⇒ Banks overemphasize their climate goals while continuing their relationships with polluting borrowers

Data and Methodology

Data

Loan-level credit registry: AnaCredit by ECB

- Harmonized loan-level data on all Eurozone commercial loans outstanding
- Loan size, interest rate, maturity
- Sample of newly issued loans 2014–2020, by 553 banks

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Green and Brown Loans

- **Industry-level:** Greenhouse gas emission data by country, industry (NACE-2) and year Standardized by industry value added. Source: Eurostat
- **Firm-level data :** Firm-level Scope 1 and Scope 2 emission intensities Source: Urgentem **(for large borrowers)** and textual analysis of business descriptions based on the EU taxonomy

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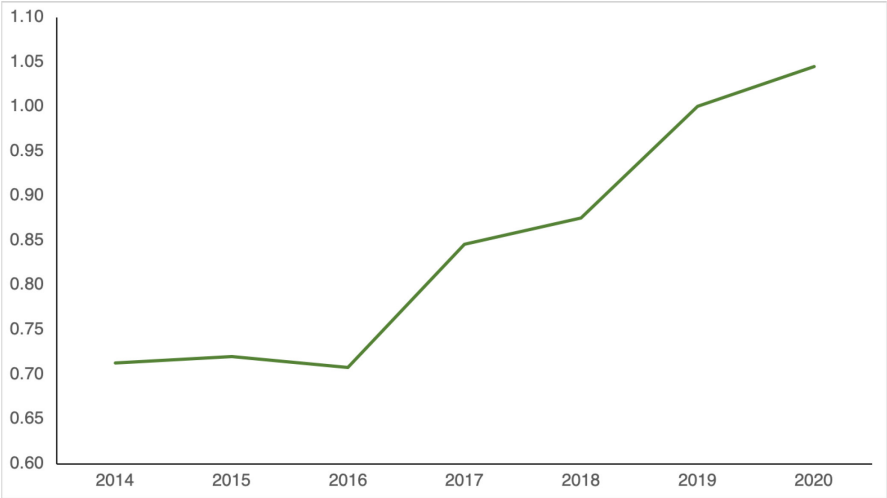
Additional data

- Orbis: Firm size, ROA, R&D, Investment, Sales, EBIT etc.
- Science Based Targets initiative (SBTi): Emission reduction targets by firms
- FINREP: Supervisory banking information

Environmental disclosures

- We process 1,397 documents to construct our proxy for banks' environmental disclosures
 - 623 annual reports, 273 sustainability reports, 57 integrated reports, and 61 nonfinancial reports
 - Other more tailored disclosures (383 documents) that banks use to communicate their sustainability efforts and performance (e.g., sustainability facts and figures, climate change report, report on greenhouse gas emissions, impact report, responsible investments report)
- We develop our own dictionary based on
 - Our reading of 50 bank reports
 - RepRisk' relevant environmental topics
 - The materiality map of the Sustainability Accounting Standards Board (SASB)
- Our dictionary includes words and bigrams related to
 - **energy management** (e.g., "oil", "renewables", "natural gas", "coal")
 - **emissions** (e.g., "CO2", "carbon", "emission")
 - **biodiversity** (e.g., "biodiversity", "forest", "coral")
 - **activities commonly consider to affect pollution** (e.g., "car", "building certificate", "pollute", "waste")
- **Environmental disclosures** is the ratio of environmental keywords to total number of words in the reports (excl. stopwords).

Environmental Disclosures Over Time



Validation

	Environmental disclosures						
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Activism	3.680*** (0.498)						
Socioeconomic beliefs	0.016 (0.401)						
High environmental risk country	0.353** (0.130)						
GRI standards		0.185*** (0.052)	0.162*** (0.060)	0.114* (0.068)	0.136** (0.062)	0.186*** (0.053)	0.178*** (0.052)
Integrated reporting		0.242* (0.126)	0.048 (0.103)	0.148 (0.124)	0.043 (0.083)	0.261** (0.126)	0.213* (0.128)
Leverage		2.414 (1.532)	4.493*** (1.565)	4.049** (1.982)	3.212** (1.584)	2.477 (1.503)	2.357 (1.472)
ROA		2.101* (1.114)	1.187 (1.649)	1.584 (2.696)	-2.122 (1.448)	2.069* (1.076)	2.160* (1.130)
Total assets		0.051* (0.029)	0.023 (0.031)	0.004 (0.031)	-0.023 (0.030)	0.042 (0.028)	0.060** (0.030)
Tier 1 capital		1.139 (1.031)	2.529*** (0.746)	2.569*** (0.735)	1.081 (1.021)	1.202 (1.029)	1.184 (1.021)
MSCI environmental score			0.033* (0.018)				
Sustainalytics Env score				0.004* (0.003)			
Bloomberg Env score					0.012*** (0.003)		
ESG Corporate Knights						0.242*** (0.085)	
Green bond issuance							0.570*** (0.165)
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Country FE	No	Yes	Yes	Yes	Yes	Yes	Yes
Obs.	471	660	487	452	365	660	660
R ²	0.23	0.44	0.46	0.44	0.43	0.45	0.45

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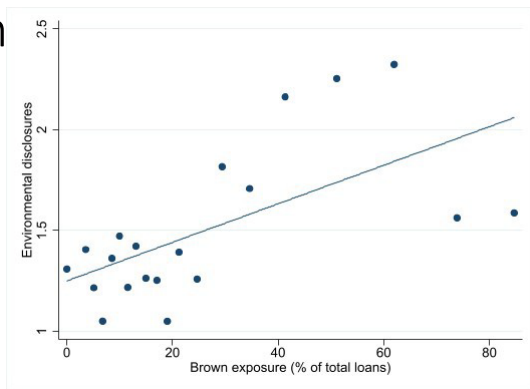
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Environmental disclosures and banks' exposure to brown in



Banks with more extensive environ. disclosures have a larger proportion of loans to brown industries

Methodology

$$\text{LoanAmount}_{f,b,i,c,t} = \alpha_b + \alpha_{i,c,t} + \beta_1(\text{Brown}_{i,c,t} \times \text{High Env. Reporter}_{b,t}) + \beta_2 \text{High Env. Reporter}_{b,t} + \gamma X_{b,t} + \epsilon_{f,b,i,c,t}$$

- **Loan Amount** $_{f,b,i,c,t}$: log amount of newly issued credit to firm f in industry i , country c by bank b in year t
- **Brown** $_{i,c,t} = 1$ if the ratio of carbon emissions to gva of industry i in country c ranks in the top quintile
- **High Environmental Reporter** $_{b,t} = 1$ if bank's b environmental disclosures rank in the top quintile in year t
- **Control for demand for credit**: industry-country-time FE or firm-time FE
- **Control for bank characteristics**: bank FE, bank controls (size, leverage, Tier 1 capital) or bank-time FE

Banks' environmental disclosures and new loans to **brown** industries

	Loan Amount				
	(1)	(2)	(3)	(4)	(5)
High environmental reporter	-0.112** (0.0488)	-0.0843** (0.0367)		-0.0451 (0.0400)	
Brown	-0.212*** (0.0257)				
High environmental reporter × Brown	0.128*** (0.0411)	0.0558 (0.0375)	0.0744*** (0.0223)	0.0388* (0.0220)	0.0363* (0.0217)
Bank controls	Yes	Yes	-	Yes	-
Bank FE	Yes	Yes	-	Yes	-
Firm FE	Yes	No	No	-	-
Time FE	Yes	-	-	-	-
Industry-Country-Time FE	No	Yes	Yes	-	-
Firm-Time FE	No	No	No	Yes	Yes
Bank-Time FE	No	No	Yes	No	Yes
N	2,822,338	3,740,323	3,740,250	828,689	828,074
R ²	0.705	0.200	0.207	0.792	0.797

High environmental reporters extend 3.6% more credit to firms in brown industries compared to other banks.

Banks' environmental disclosures and new loans to **green** industries

	Loan Amount				
	(1)	(2)	(3)	(4)	(5)
High environmental reporter	-0.0785*	-0.0647*		-0.0268	
	(0.0443)	(0.0331)		(0.0340)	
Green	-0.0614				
	(0.0459)				
High environmental reporter × Green	-0.0697	-0.0493	-0.0196	-0.0463	-0.0172
	(0.0571)	(0.0324)	(0.0247)	(0.0484)	(0.0436)
Bank controls	Yes	Yes	-	Yes	-
Bank FE	Yes	Yes	-	Yes	-
Firm FE	Yes	No	No	-	-
Time FE	Yes	-	-	-	-
Industry-Country-Time FE	No	Yes	Yes	-	-
Firm-Time FE	No	No	No	Yes	Yes
Bank-Time FE	No	No	Yes	No	Yes
N	2,822,338	3,740,323	3,740,250	828,689	828,074
R ²	0.704	0.200	0.207	0.792	0.797

- No evidence that emphasizing the environment in public reporting is associated with greener lending
- Banks do not appear to compensate their brown loans by lending to firms in green industries

Measuring borrower-level emissions

	Loan Amount				
	(1)	(2)	(3)	(4)	(5)
High environmental reporter	-0.0704 (0.0945)	-0.0347 (0.138)		-0.0774 (0.123)	
GHG emissions	-0.195* (0.103)	0.0422 (0.0299)	0.0355 (0.0316)		
High environmental reporter × GHG emissions	-0.217 (0.213)	0.290** (0.135)	0.305** (0.134)	0.0495 (0.128)	0.0393 (0.125)
Bank controls	Yes	Yes	-	Yes	-
Bank FE	Yes	Yes	-	Yes	-
Firm FE	Yes	No	No	-	-
Time FE	Yes	-	-	-	-
Industry-Country-Time FE	No	Yes	Yes	-	-
Firm-Time FE	No	No	No	Yes	Yes
Bank-Time FE	No	No	Yes	No	Yes
N	3,765	3,637	3,454	2,989	2,786
R ²	0.652	0.540	0.577	0.790	0.807

Using granular emission data available for larger firms (Urgentem):

- We do **not observe any statistically significant differences** in lending to firms with high emissions by banks with extensive environmental disclosures when controlling for credit demand using interactions of **firm and year FEs**
- **High environmental disclosures are far from being associated with greener, or less brown, lending policies**

Channels

Funding of transition to greener technologies

Brown lending of banks with extensive environmental disclosures may not indicate greenwashing if banks lend to brown firms to finance **transition to technologies with lower emissions**

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Data challenges:

- Short time period to see the impact on GHG emissions

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Data challenges:

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Our approach:

1. **Switching to greener technologies requires high investment and R&D**
 - Test whether high environmental reporters lend more to brown borrowers that invest more and make more R&D than other firms in their industries

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Our approach:

1. **Switching to greener technologies requires high investment and R&D**
 - Test whether high environmental reporters lend more to brown borrowers that invest more and make more R&D than other firms in their industries
2. **Firms can set science-based targets with a clearly-defined commitment path to reduce emissions**
 - Test whether high environmental reporters lend more to brown borrowers who are SBTi signatories

Funding of transition to greener technologies

$$\text{LoanAmount}_{f,b,i,c,t} = \alpha_{b,t} + \alpha_{f,t} + \beta_1(\text{Brown}_{i,c,t} \times \text{High Env. Reporter}_{b,t}) + \beta_2(\text{Brown}_{i,c,t} \times \text{Proxy}_{f,t}) + \beta_3(\text{High Env. Reporter}_{b,t} \times \text{Brown}_{i,c,t} \times \text{Proxy}_{f,t}) + \epsilon_{f,b,i,c,t}$$

	Loan Amount							
	R&D		Intangibles		Investment		SBTi	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
High env. reporter × Brown	0.0734*** (0.0211)	0.0442* (0.0245)	0.0778*** (0.0218)	0.0508** (0.0228)	0.0533** (0.0219)	0.0354 (0.0310)	-0.0160 (0.0740)	0.126*** (0.0451)
High env. reporter × Proxy	0.167 (0.314)	0.240 (0.162)	0.148*** (0.0486)	0.00129 (0.0241)	0.0487 (0.0484)	0.00494 (0.0152)	0.756** (0.300)	0.165 (0.407)
High env. reporter × Brown × Proxy	-0.480 (0.624)	-0.590*** (0.210)	-0.00472 (0.0367)	-0.0338 (0.0358)	0.0625 (0.0464)	0.0368 (0.0547)	-0.794 (0.796)	0.600 (1.027)
Industry-Country-Time FE	Yes	-	Yes	-	Yes	-	Yes	-
Firm-Time FE	No	Yes	No	Yes	No	Yes	No	Yes
Bank-Time FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
N	2,218,763	683,941	2,200,842	682,215	2,084,272	667,548	453,020	151,116
R ²	0.208	0.792	0.207	0.792	0.210	0.791	0.299	0.801

No evidence that high environmental reporters are more likely to support transition financing

Green Businesses within Brown Industries—using the EU Taxonomy and Business Descriptions

	Loan Amount				
	(1)	(2)	(3)	(4)	(5)
High env. reporter	-0.0675 (0.0615)	-0.0767 (0.0571)		-0.0346 (0.0652)	
Brown business		0.163** (0.0307)	0.165** (0.0308)		
High env. reporter x Brown business	0.0765 (0.0836)	0.329** (0.0655)	0.310** (0.0536)	0.0169 (0.0718)	0.0235 (0.0681)
Bank controls	Yes	Yes	-	Yes	-
Bank FE	Yes	Yes	-	Yes	-
Firm FE	Yes	No	No	-	-
Time FE	Yes	-	-	-	-
Industry-Country-Time FE	No	Yes	Yes	-	-
Firm-Time FE	No	No	No	Yes	Yes
Bank-Time FE	No	No	Yes	No	Yes
N	145,882	248,422	248,321	81,858	81,696
R ²	0.809	0.340	0.345	0.822	0.825

New relationships

$$\text{Entry}_{f,b,i,c,t} = \alpha_b + \alpha_{i,c,t} + \beta_1(\text{Brown}_{i,c,t} \times \text{High Env. Reporter}_{b,t}) + \beta_2 \text{High Env. Reporter}_{b,t} + \epsilon_{f,b,i,c,t}$$

New relationships

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	Entry				
	(1)	(2)	(3)	(4)	(5)
High environmental reporter	0.122 (0.0903)	0.0928 (0.0822)		0.129 (0.0967)	
Brown	-0.000316 (0.0123)				
High environmental reporter × Brown	0.00712 (0.0186)	0.00857 (0.0123)	-0.0219** (0.00862)	0.00866 (0.0219)	-0.0337** (0.0151)
Bank controls	Yes	Yes	-	Yes	-
Bank FE	Yes	Yes	-	Yes	-
Firm FE	Yes	No	No	-	-
Time FE	Yes	-	-	-	-
Industry-Country-Time FE	No	Yes	Yes	-	-
Firm-Time FE	No	No	No	Yes	Yes
Bank-Time FE	No	No	Yes	No	Yes
N	340,664	344,817	344,669	339,288	339,050
R ²	0.0694	0.0266	0.0652	0.0890	0.142

Some evidence that high environmental reporters try to reduce new lending exposures to brown borrowers

Relationship termination

$$\text{Exit}_{f,b,i,c,t} = \alpha_b + \alpha_{i,c,t} + \beta_1(\text{Brown}_{i,c,t} \times \text{High Env. Reporter}_{b,t}) + \beta_2 \text{High Env. Reporter}_{b,t} + \epsilon_{f,b,i,c,t}$$

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	Exit				
	(1)	(2)	(3)	(4)	(5)
High env. reporter	-0.00624 (0.00526)	-0.0273 (0.0230)		-0.0537** (0.0241)	
Brown	0.00124 (0.00217)				
High env. reporter × Brown	-0.00844** (0.00420)	-0.0235** (0.0116)	-0.00743*** (0.00278)	-0.0131* (0.00723)	-0.00747 (0.00942)
Bank controls	Yes	Yes	-	Yes	-
Bank FE	Yes	Yes	-	Yes	-
Firm FE	Yes	No	No	-	-
Time FE	Yes	-	-	-	-
Industry-Country-Time FE	No	Yes	Yes	-	-
Firm-Time FE	No	No	No	Yes	Yes
Bank-Time FE	No	No	Yes	No	Yes
N	506,186	913,794	913,766	222,283	222,143
R ²	0.469	0.0700	0.0752	0.504	0.509

Banks with extensive env. disclosures are less likely to terminate relationships with firms in brown industries

Green industries

Bank-level results

$$y_{b,i,c,t} = \alpha_{b,t} + \alpha_{i,t} + \alpha_{c,t} + \beta_1(\text{Brown}_{i,c,t} \times \text{High Env. Reporter}_{b,t}) + \beta_2 \text{High Env. Reporter}_{b,t} + \gamma X_{b,t} + \epsilon_{f,b,i,c,t}$$

Bank-level results

$$y_{b,i,c,t} = \alpha_{b,t} + \alpha_{i,t} + \alpha_{c,t} + \beta_1(\text{Brown}_{i,c,t} \times \text{High Env. Reporter}_{b,t}) + \beta_2 \text{High Env. Reporter}_{b,t} + \gamma X_{b,t} + \epsilon_{f,b,i,c,t}$$

	Loan Amount		Credit Share	
	(1)	(2)	(3)	(4)
High env. reporter	-0.144** (0.0559)		-0.000372 (0.00131)	
Brown	-0.104** (0.0432)	-0.109** (0.0439)	-0.000704 (0.00138)	-0.00129 (0.00131)
High env. reporter × Brown	0.257*** (0.0698)	0.267*** (0.0704)	0.0114*** (0.00355)	0.00936*** (0.00353)
Bank Controls	Yes	-	Yes	-
Bank FE	Yes	-	Yes	-
Country-Time FE	Yes	Yes	Yes	Yes
Industry-Time FE	Yes	Yes	Yes	Yes
Bank-Time FE	No	Yes	No	Yes
N	93,959	93,874	93,959	93,874
R ²	0.592	0.614	0.353	0.349

- Bank-level: high environmental reporters extend more credit to **brown** industries
- Overall: Banks on average make **unsubstantiated claims about their climate agenda**
- Environmental statements do not reflect their lending strategies across brown and green sectors

The environmental impact of bank relationships and zombie lending

The environmental impact of bank relationships and zombie lending

	Loan Amount							
	Exposure		Low ROA		Low Sales to employee		Low Int. Coverage Ratio	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
High env. reporter × Brown	0.00617 (0.0162)	0.0421* (0.0234)	0.0545*** (0.0146)	0.0394** (0.0178)	0.0321* (0.0166)	0.0298* (0.0181)	0.0666*** (0.0172)	0.0288 (0.0193)
High env. reporter × Proxy	0.0707*** (0.0105)	0.168*** (0.0235)	0.0547*** (0.00949)	0.0276* (0.0156)	0.0342*** (0.0106)	0.0336** (0.0153)	0.00222 (0.0108)	0.00794 (0.0136)
High env. reporter × Brown × Proxy	0.199*** (0.0212)	0.0502 (0.0531)	0.0545** (0.0234)	0.0107 (0.0392)	0.124*** (0.0277)	0.0772* (0.0416)	0.0192 (0.0283)	0.0622* (0.0373)
Industry-Country-Time FE	Yes	-	Yes	-	Yes	-	Yes	-
Firm-Time FE	No	Yes	No	Yes	No	Yes	No	Yes
Bank-Time FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
N	1,626,362	408,934	2,003,216	666,516	1,642,281	635,608	1,039,126	377,787
R ²	0.194	0.797	0.202	0.791	0.218	0.788	0.197	0.773

- Discrepancies between actual lending vs. environmental reporting is accentuated by banks' propensity to continue lending to **financially unhealthy brown borrowers**
- Terminating the zombie lending would force banks (1) to realize credit losses and (2) to discuss and explain their exposures to brown industries
 = ⇒ Relationships with zombie firms hinder bank ability to reduce their environmental impact

Cross-sectional differences in institutional and bank-specific characteristics

Cross-sectional differences in institutional and bank-specific characteristics

	Loan amount				
	Low Tier 1 capital				
	(1)	(2)	(3)	(4)	(5)
High env. reporter × Brown	0.0134 (0.0163)				
High env. reporter × Brown × Factor	0.0582** (0.0254)				
Firm-Time FE	Yes				
Bank-Time FE	Yes				
N	828,074				
R ²	0.797				

- Disconnect between env. disclosures and lending are most pronounced for **banks with low capitalizations**
- Undercapitalized banks that have particularly strong incentives to engage in zombie lending (Peek and Rosengren, 2005; Giannetti and Simonov, 2013)

Cross-sectional differences in institutional and bank-specific characteristics

	Loan amount				
	Low Tier 1 capital	Large bank	(3)	(4)	(5)
	(1)	(2)			
High env. reporter × Brown	0.0134 (0.0163)	-0.105* (0.0623)			
High env. reporter × Brown × Factor	0.0582** (0.0254)	0.142** (0.0619)			
Firm-Time FE	Yes	Yes			
Bank-Time FE	Yes	Yes			
N	828,074	828,070			
R ²	0.797	0.797			

- Large banks may be more subject to institutional pressures to integrate climate goals in their strategy
- Large banks may overemphasize their stewardship role to their investors without changing their lending

= ⇒ The credibility of env. disclosures and the extent to which these are reflected in loan portfolios may be hard to verify for market participants

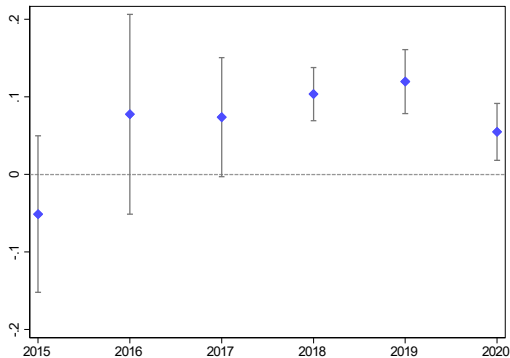
Cross-sectional differences in institutional and bank-specific characteristics

	Loan amount				
	Low Tier 1 capital	Large bank	Mandatory sustain. reporting	Post Paris agreement	Audited sustain. report
	(1)	(2)	(3)	(4)	(5)
High env. reporter × Brown	0.0134 (0.0163)	-0.105* (0.0623)	0.0989* (0.0597)	-0.0336 (0.0584)	0.0293 (0.0206)
High env. reporter × Brown × Factor	0.0582** (0.0254)	0.142** (0.0619)	-0.0616 (0.0613)	0.0737 (0.0600)	-0.00619 (0.0280)
Firm-Time FE	Yes	Yes	Yes	Yes	Yes
Bank-Time FE	Yes	Yes	Yes	Yes	Yes
N	828,074	828,070	828,074	828,074	828,074
R ²	0.797	0.797	0.797	0.797	0.797

Env. disclosures are hard to compare and standardize and thus cannot be easily regulated or verified by auditors

Banks' environmental disclosures and new loans to brown industries

$$\text{LoanAmount}_{f,b,i,c,t} = \alpha_{b,t} + \alpha_{i,c,t} + \beta_k(\text{Brown}_{i,c,t} \times \text{High Env. Reporter}_{b,t}) + \gamma X_{b,t} + \epsilon_{f,b,i,c,t}$$



Conclusion

- Banks that stress more the environment in their disclosures lend more to high-emission borrowers
- No evidence that their loans may be favoring the transition to green technologies
- Close bank relationships and zombie lending limit the reliability of banks' environmental disclosures
- Regulating the contents of bank disclosures appears to be crucial

Additional Material

Bank-level results

$$y_{b,i,c,t} = \alpha_{b,t} + \alpha_{i,c,t} + \alpha_{c,t} + \beta_1 (\text{Brown}_{c,t} \times \text{High Env. Reporter}_{b,t}) + \beta_2 \text{High Env. Reporter}_{b,t} + \gamma X_{b,t} + \epsilon_{f,b,i,c,t}$$

Bank-level results

$$y_{b,i,c,t} = \alpha_{b,t} + \alpha_{i,c,t} + \beta_1 (\text{Brown}_{b,c,t} \times \text{High Env. Reporter}_{b,t}) + \beta_2 \text{High Env. Reporter}_{b,t} + \gamma X_{b,t} + \epsilon_{f,b,i,c,t}$$

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- Bank-level: high environmental reporters extend more credit to **brown** industries
- Overall: Banks on average make **unsubstantiated claims about their climate agenda**
- Environmental statements do not reflect their lending strategies across brown and green sectors

features: **Interest**

Rates

$$\text{InterestRate}_{f,b,i,c,t} = \alpha_b + \alpha_{i,c,t} + \beta_1(\text{Brown}_{i,c,t} \times \text{High Env. Reporter}_{b,t}) + \beta_2 \text{High Env. Reporter}_{b,t} + \gamma X_{b,t} + \epsilon_{f,b,i,c,t}$$

features: Interest Rates

$$\text{InterestRate}_{f,b,i,c,t} = \alpha_b + \alpha_{i,c,t} + \beta_1(\text{Brown}_{i,c,t} \times \text{High Env. Reporter}_{b,t}) + \beta_2 \text{High Env. Reporter}_{b,t} + \gamma X_{b,t} + \epsilon_{f,b,i,c,t}$$

	Interest rate				
	(1)	(2)	(3)	(4)	(5)
High env. reporter	-0.00149 (0.000924)	-0.000395 (0.000844)		0.000377 (0.000527)	
Brown	0.00176*** (0.000679)				
High env. reporter × Brown	0.000962 (0.000926)	-0.0000283 (0.000404)	-0.000323 (0.000409)	-0.000133 (0.000474)	-0.000206 (0.000524)
Bank controls	Yes	Yes	-	Yes	-
Bank FE	Yes	Yes	-	Yes	-
Firm FE	Yes	No	No	-	-
Time FE	Yes	-	-	-	-
Industry-Country-Time FE	No	Yes	Yes	-	-
Firm-Time FE	No	No	No	Yes	Yes
Bank-Time FE	No	No	Yes	No	Yes
N	671,120	1,201,352	1,201,282	359,679	359,427
R ²	0.721	0.378	0.392	0.737	0.741

Brown borrowers do not pay higher interest rates for loans from banks with extensive environmental disclosures

Loan contractual features: **Maturity**

$$\text{Maturity}_{f,t,i,c} = \alpha_t + \alpha_{c,t} + \beta_1(\text{Brown}_{c,t} \times \text{High Env. Reporter}_{b,t}) + \beta_2 \text{High Env. Reporter}_{b,t} + \gamma X_{b,t} + \epsilon_{f,b,i,c,t}$$

Loan contractual features: **Maturity**

$$Maturity_{f,t,i,c} = \gamma_t + \alpha_{b,t} + \beta_1(Brown)_{c,t} \times High\ Env.\ Reporter_{b,t} + \beta_2(High\ Env.\ Reporter)_{b,t} + \gamma X_{b,t} + \epsilon_{f,b,i,c,t}$$

	Maturity				
	(1)	(2)	(3)	(4)	(5)
High env. reporter	-0.170*	-0.0795**		-0.0422	
	(0.101)	(0.0376)		(0.0444)	
Brown	-0.165***				
	(0.0337)				
High env. reporter × Brown	0.125	0.0388	0.0366*	0.0478	0.0162
	(0.0764)	(0.0384)	(0.0204)	(0.0316)	(0.0217)
Bank controls	Yes	Yes	-	Yes	-
Bank FE	Yes	Yes	-	Yes	-
Firm FE	Yes	No	No	-	-
Time FE	Yes	-	-	-	-
Industry-Country-Time FE	No	Yes	Yes	-	-
Firm-Time FE	No	No	No	Yes	Yes
Bank-Time FE	No	No	Yes	No	Yes
N	2,810,878	3,712,480	3,712,407	824,777	824,165
	0.519	0.250	0.268	0.656	0.665

Maturity of loans extended by high env. reporters to brown borrowers does not differ from that of other banks

Environmental disclosures: Details

Report type	Number of reports	Mean total wordcount	Mean environmental wordcount
Annual report	623	81,584	700
Integrated report	57	28,257	414
Nonfinancial report	61	17,411	466
Other	383	3,895	199
Sustainability report	273	17,199	509
Total	1,397	42,760	503

[Back](#)

New relationships (Green)

$$\text{Entry}_{f,b,i,c,t} = \alpha + \beta_1(\text{Green}_{i,c,t} \times \text{High Env. Reporter}_{b,t}) + \beta_2 \text{High Env. Reporter}_{b,t} + \epsilon_{f,b,i,c,t}$$

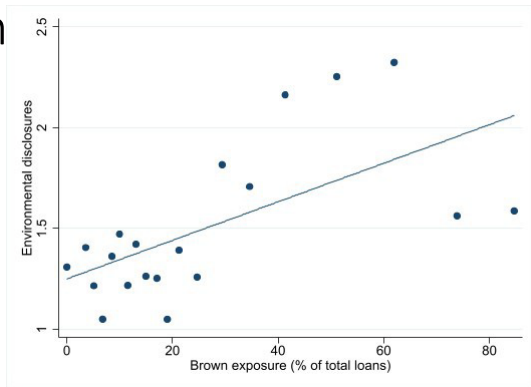
	Entry				
	(1)	(2)	(3)	(4)	(5)
High environmental reporter	0.116 (0.0856)	0.0893 (0.0779)		0.122 (0.0921)	
Brown	-0.0436 (0.0351)				
High environmental reporter × Brown	0.0249 (0.0279)	0.0151 (0.0250)	0.00433 (0.0119)	0.0253 (0.0291)	0.00485 (0.0138)
Bank controls	Yes	Yes	-	Yes	-
Bank FE	Yes	Yes	-	Yes	-
Firm FE	Yes	No	No	-	-
Time FE	Yes	-	-	-	-
Industry-Country-Time FE	No	Yes	Yes	-	-
Firm-Time FE	No	No	No	Yes	Yes
Bank-Time FE	No	No	Yes	No	Yes
N	340,664	344,817	344,669	339,288	339,050
R ²	0.0695	0.0266	0.0652	0.0891	0.142

Relationship termination (Green)

$$\text{Exit}_{f,b,i,c,t} = \alpha_b + \alpha_{f,c,t} + \beta_1 (\text{Green}_{i,c,t} \times \text{High Env. Reporter}_{b,t}) + \beta_2 \text{High Env. Reporter}_{b,t} + \epsilon_{f,b,i,c,t}$$

	Exit				
	(1)	(2)	(3)	(4)	(5)
High env. reporter	-0.00522 (0.00681)	-0.0284 (0.0236)		-0.0535** (0.0256)	
Brown	0.00308 (0.00506)				
High env. reporter × Brown	-0.00615 (0.00509)	-0.00630* (0.00372)	-0.00418** (0.00185)	-0.00750 (0.00712)	-0.00250 (0.00397)
Bank controls	Yes	Yes	-	Yes	-
Bank FE	Yes	Yes	-	Yes	-
Firm FE	Yes	No	No	-	-
Time FE	Yes	-	-	-	-
Industry-Country-Time FE	No	Yes	Yes	-	-
Firm-Time FE	No	No	No	Yes	Yes
Bank-Time FE	No	No	Yes	No	Yes
N	506,186	913,794	913,766	222,283	222,143
R ²	0.469	0.0700	0.0752	0.504	0.509

Environmental disclosures and banks' exposure to brown in



Banks with more extensive environ. disclosures have a larger proportion of loans to brown industries