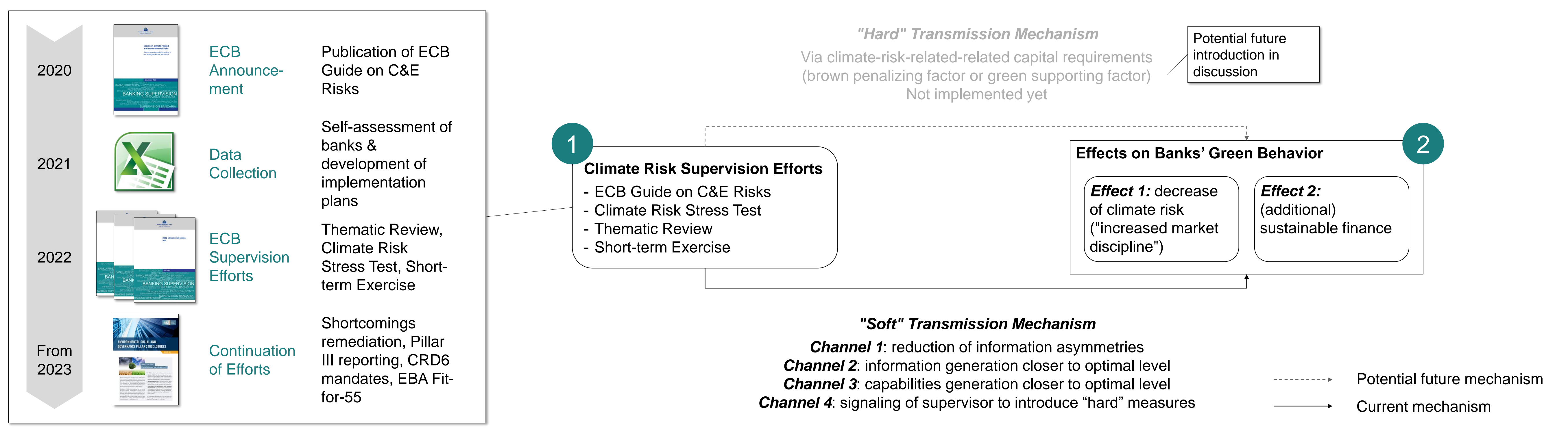


Impacts of ECB Banking Supervision on Climate Risk and Sustainable Finance

Lena Schreiner, Andreas Beyer

“Does the introduction of climate-risk related supervision efforts change the supervised banks’ actual green behavior?”



Key Results and Policy Implications

The ECB's climate-risk-related supervision efforts have a statistically significant effect on (A) banks' reduction of climate risk and on (B) an increase in banks' sustainable finance.

Data coverage, quality¹, standardization, and granularity² are currently still at an expandable level.

- Since the climate-risk-related supervisory efforts show a positive impact on both climate risk reduction and sustainable finance, supervisory authorities should continue the exercise. It is important to announce the continuation of the supervision early on, since the expectation of the climate-risk-related supervisory efforts leads to positive effects.
- Policy makers, regulators and supervisory authorities should focus on an improvement of climate-risk-related data availability, data quality, and a standardization of indicators. This will significantly reduce information asymmetries and improve insights regarding the effectiveness and efficiency of the introduction of policies, regulations, and supervisory efforts.

1. Mainly due to self-reporting in combination with limited auditing currently only for big companies and resulting greenwashing. 2. E.g., no distinct measurement of the climate risk impact, exposure, management, and unmanaged risk.

Methodology: Diff-in-Diff Analysis

Climate Risk Supervision: 4 Proxies

- Effect A: Climate Risk**
 - A.1 E-Score² * Disclosure
- Effect B: Sustainable Finance**
 - B.1 Green Bonds Issuance
 - B.2 ESG Assets Under Management
 - B.3 "Green Credit"² Bloomberg Environmental Score

$$Y_{i,t} = \beta_0 + \beta_1 treat_{i,t} + \beta_2 post_{i,t} + \beta_3 treat_{i,t} \times post_{i,t} + X_{i,t} \gamma + \alpha_i + \varepsilon_t$$

Start of treatment in 2020; test of lead and lagged effects (1 and 2 periods lagged)

Fixed effects (bank- and country-level fixed effects, time fixed effects)

Control variables

- Macroeconomic**
 - YY GDP growth
 - YY inflation
 - [carbon prices]
 - Policy & Regulation**
 - SFDR³
 - Bank-specific**
 - Environmental controversies
 - Debtor-specific (only green credit)**
 - Debtor sector
 - Debtor size
3. Sustainable Finance Disclosure Regulation

Treatment group: eurozone's significant institutions (SIs) (113 #, total assets average: 3.48 * 10¹³ EUR)
Control group I: eurozone's Less Significant Institutions (LSIs) (~3,400 #, total assets average: 3.54 * 10¹² EUR)
Control group II: banks headquartered in the EU outside the eurozone (~150 #, total assets av.: 4.33 * 10¹² EUR)

Regression Results

Effect A: Climate Risk

A.1 E-Score * Disclosure

VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
after	0.161*** (0.0482)	0.162*** (0.0454)	0.163*** (0.0509)	0.137*** (0.0486)	0.172** (0.0479)	0.0926 (0.0591)		0.0939 (0.0600)
treatment						0.0646* (0.0365)		
o.treatment								
treat_after	0.371*** (0.115)	0.369*** (0.114)	0.369*** (0.114)	0.368*** (0.114)	0.380*** (0.116)	0.381*** (0.105)	0.414*** (0.108)	
env_controv	-0.174 (0.128)	-0.163 (0.117)	-0.157 (0.117)	-0.177 (0.117)	-0.176 (0.119)	-0.169 (0.122)	-0.398*** (0.141)	
gdp_growth_YY	1.852** (0.426)	1.852** (0.394)	1.829** (0.383)	1.829** (0.379)	1.829** (0.379)	1.829** (0.379)	1.829** (0.379)	
o.gdp_growth_YY								
inflation_YY	1.406*** (0.341)	1.406*** (0.341)	1.406*** (0.341)	1.406*** (0.341)	1.406*** (0.341)	1.406*** (0.341)	1.406*** (0.341)	
o.inflation_YY								
log_CO2_price						0.0558*** (0.0148)	0.0562*** (0.0150)	0.0494*** (0.0143)
o.log_CO2_price								
sfdr								
Constant	0.0678*** (0.0201)	0.0747*** (0.0198)	0.0370 (0.0255)	0.0346 (0.0258)	-0.0798 (0.0263)	-0.0953 (0.0225)	-0.139*** (0.0338)	
Observations	680	680	680	680	680	680	680	
R-squared	0.622	0.623	0.617	0.643	0.643	0.644	0.251	

Effect B: Sustainable Finance

B.1 Green Bonds Issuance

VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)	(7)
after	0.000193 (0.000122)	0.000181 (0.000128)	0.000322** (0.000142)	-0.000360 (0.000554)	-0.000940 (0.000687)	-0.000962 (0.000648)	
treatment						0.00106 (0.000891)	
o.treatment							
treat_after	0.0272*** (0.0111)	0.0271*** (0.0111)	0.0271*** (0.0111)	0.0247*** (0.0106)	0.0247*** (0.0106)	0.0247*** (0.0107)	
env_controv	0.0126 (0.0415)	0.0127 (0.0414)	0.0128 (0.0414)	0.0125 (0.0414)	0.0125 (0.0414)	0.0246 (0.0221)	
gdp_growth_YY	0.0387* (0.0195)	0.0387* (0.0195)	0.0387* (0.0195)	0.0387* (0.0195)	0.0387* (0.0195)	0.0387* (0.0195)	
o.gdp_growth_YY							
inflation_YY	0.0232 (0.0185)	0.0232 (0.0185)	0.0232 (0.0185)	0.0175 (0.0174)	0.0175 (0.0174)	0.0185 (0.0178)	
o.inflation_YY							
SFDR							
Constant	0.000174 (0.00247)	0.000141 (0.00287)	-0.002257 (0.00359)	-0.004663 (0.00460)	-0.002020 (0.00403)	-0.003411 (0.00312)	
Observations	16,142	16,142	16,142	16,142	16,142	16,142	
R-squared	0.222	0.222	0.223	0.224	0.224	0.115	

B.2 ESG Assets Under Mgmt.

VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)	(7)
after	0.000133 (0.000133)	0.000103 (0.000148)	0.000545 (0.000353)	-0.00215* (0.00123)	-0.000864 (0.00227)	-0.00330* (0.00200)	
treatment						0.000473 (0.00105)	
o.treatment							
treat_after	0.0205*** (0.00960)	0.0205*** (0.00966)	0.0205*** (0.00967)	0.0205*** (0.00967)	0.0158** (0.00746)	0.0168** (0.00788)	
env_controv	0.00488 (0.00972)	0.00485 (0.00959)	0.00504 (0.00950)	0.00504 (0.0101)	0.00504 (0.0101)	0.0115 (0.00827)	
gdp_growth_YY	0.0409 (0.0279)	0.0409 (0.0279)	0.0409 (0.0279)	0.0409 (0.0279)	0.0409 (0.0279)	0.0409 (0.0279)	
o.gdp_growth_YY							
inflation_YY	0.0746* (0.0408)	0.0746* (0.0408)	0.0746* (0.0408)	0.0746* (0.0408)	0.0746* (0.0408)	0.0619* (0.0313)	
o.inflation_YY							
SFDR							
Constant	0.003505 (0.00177)	0.003209 (0.00170)	-0.004379 (0.00225)	-0.006054 (0.00173)	-0.003305 (0.00173)	-0.001168 (0.00196)	
Observations	999	999	999	999	999	999	
R-squared	0.311	0.311	0.313	0.314	0.316	0.061	

B.3 "Green Credit"

VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
after	-12.16*** (1.859)	-12.16*** (1.859)	-12.16*** (1.859)	-12.00*** (1.831)	-12.00*** (2.795)	-1.860 (2.431)	-0.737 (2.842)	-1.183 (2.719)	
treatment								-1.525 (6.000)	
o.treatment									
treat_after	19.41*** (8.027)	19.41*** (8.027)	19.41*** (8.028)	19.41*** (8.028)	19.41*** (8.028)	16.93** (8.348)	17.83** (8.814)	16.67** (8.572)	
o.treat_after									
env_controv									
gdp_growth_YY			1.425 (1.400)	1.741 (1.548)	2.016 (1.616)	1.178 (2.755)	5.132* (2.664)	-5.266 (3.556)	
o.gdp_growth_YY									
inflation_YY									
o.gdp_growth_YY									
gdp_growth_YY									
o.gdp_growth_YY									
inflation_YY									
o.inflation_YY									
CO2_price									
o.CO2_price									
Constant	12.04*** (0.657)	12.04*** (0.657)	12.04*** (0.656)	11.73*** (0.727)	11.84*** (0.743)	12.66*** (1.153)	0.418 (2.037)	-0.629 (2.141)	6.529*** (2.233)
Observations	22,320	22,320	22,320	22,320	22,320	22,320	22,320	22,320	
R-squared	0.194	0.194	0.194	0.194	0.194	0.199	0.203	0.016	