NATIONAL BANK OF ROMANIA

Supervisory Challenges and Green Transition in Post-pandemic Environment
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Are green loans less risky? Micro-evidence from an European Emerging Economy

Florin Dragu, Florian Neagu, Amalia Stamate, Luminita Tatarici

Note: The opinions expressed in this presentation are those of the authors and do not necessarily reflect the views of the National Bank of Romania

Agenda

1. Context
2. Introduction and approach
3. Data and methodology
4. Results
5. Conclusions

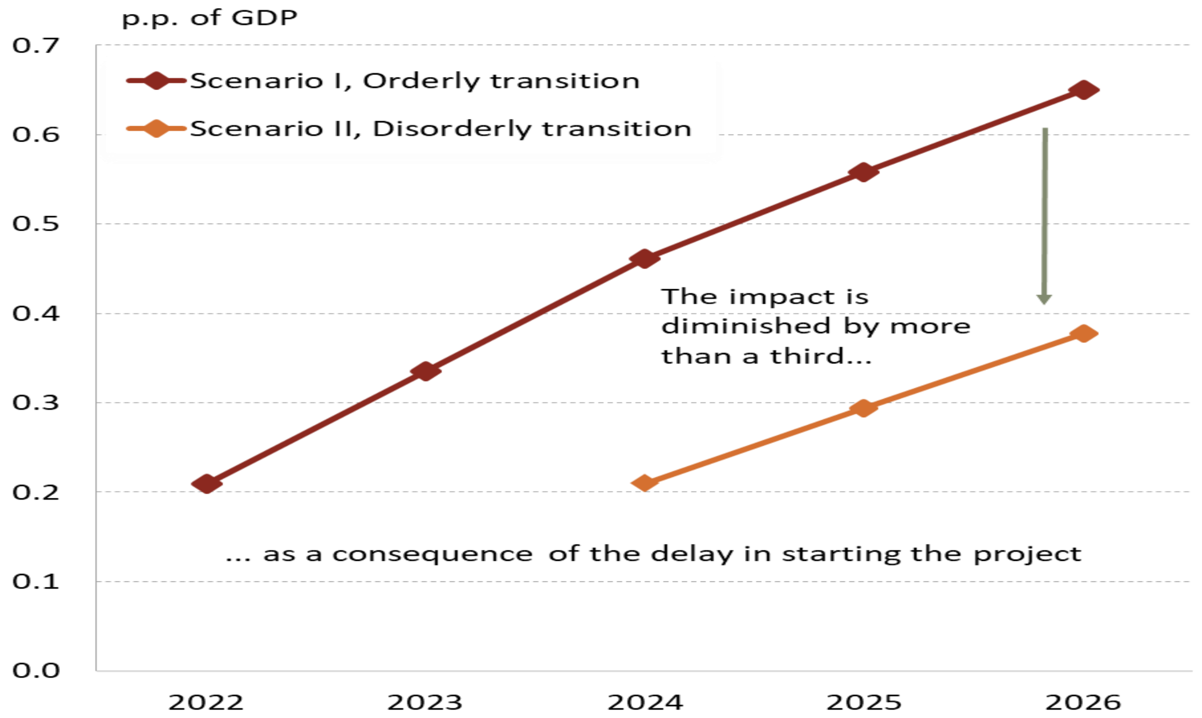
1. Context

- First analysis of banks' exposures to transition risk and the assessment of a carbon tax scenario (the second FSR edition, 2019)
- NBR became part of NGFS starting September 2020
- NBR (fall 2020) carried out a questionnaire regarding climate risk, mandatory for OSIIs
- At end October 2020, the National Committee for Macroprudential Oversight (NCMO) set up a Working Group to support green finance, coordinated by NBR.
  - The WG activity was focused on the following topics: (i) climate change implications for the real economy and the financial system; (ii) the structural change in the economy required by the climate change agenda; (iii) transparency and EU taxonomy and (iv) green financing via banking sector, IFISs, capital markets or green bonds.
  - The WG proposed 16 recommendations, approved by NCMO, for relevant authorities in the green transition (central bank, FSA, relevant ministries)

1. Context

The stakes of climate change and green investment for the Romanian economy are high in terms of both opportunities and costs

Time amplification of the effects generated by the absorption of EU funds dedicated to green projects (cumulated impact)



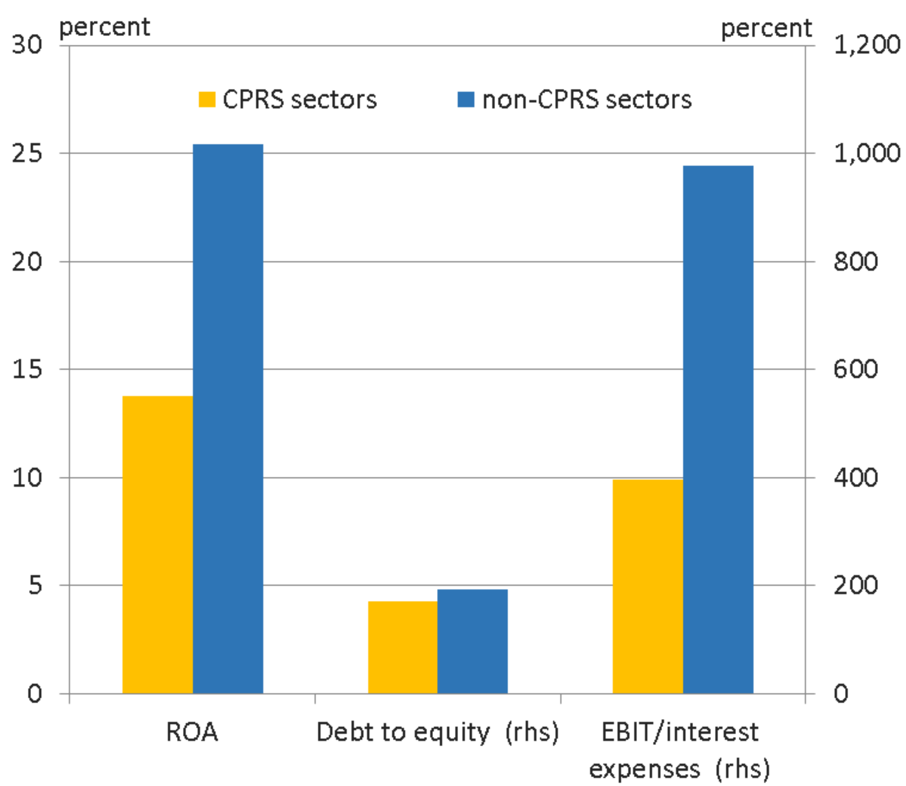
Source: NBR calculations

[*NCMO Report on supporting green finance*]

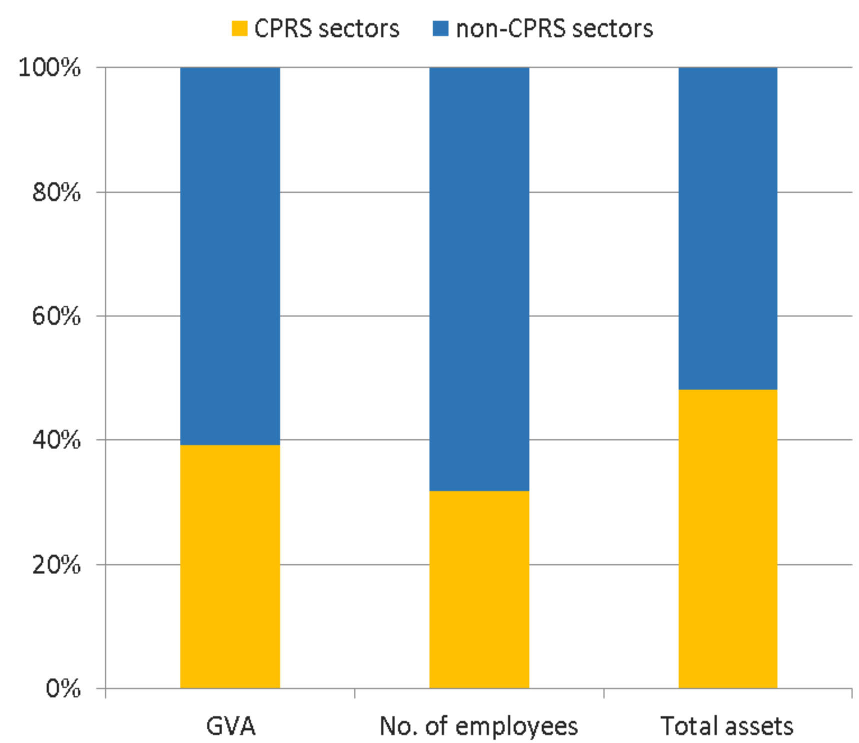
1. Context

Carbon-intensive companies have a significant share of the Romanian economy. They also hold the majority of assets, increasing the risk of stranded assets

Financial soundness indicators



Importance in overall economy



Source: MF, NBR calculations

National Committee for Macroprudential Oversight has issued recommendations with a view to support green finance

http://www.cnsmro.ro/res/ups/Summary-Report-NCMO-green-finance.pdf

Objectives:

A. To sustainably enhance access to finance for projects on the climate change agenda

E.g.: Recommendations to banks and NBFIs to revisit (i) governance, (ii) strategy, (iii) risk management, (iv) scenario analysis and stress testing and (v) transparency, in order to take on board climate risk.

Institution responsible: NBR + Financial Supervisory Authority

B. To support the structural change of the economy towards one with a higher value added

E.g.: Develop an industrial policy focusing on the climate change agenda, phased in gradually until 2025, in correlation with the European Commission's New Industrial Strategy for Europe

Institution responsible: Government (Ministry of Economy)

C. To enhance transparency, improve the availability of information and raise awareness on the impact of climate change in society and the financial system

E.g.: Create a dashboard to monitor climate change risks to the banking sector; conduct annual stress tests on climate risk-related issues and publish the results

Institution responsible: NBR

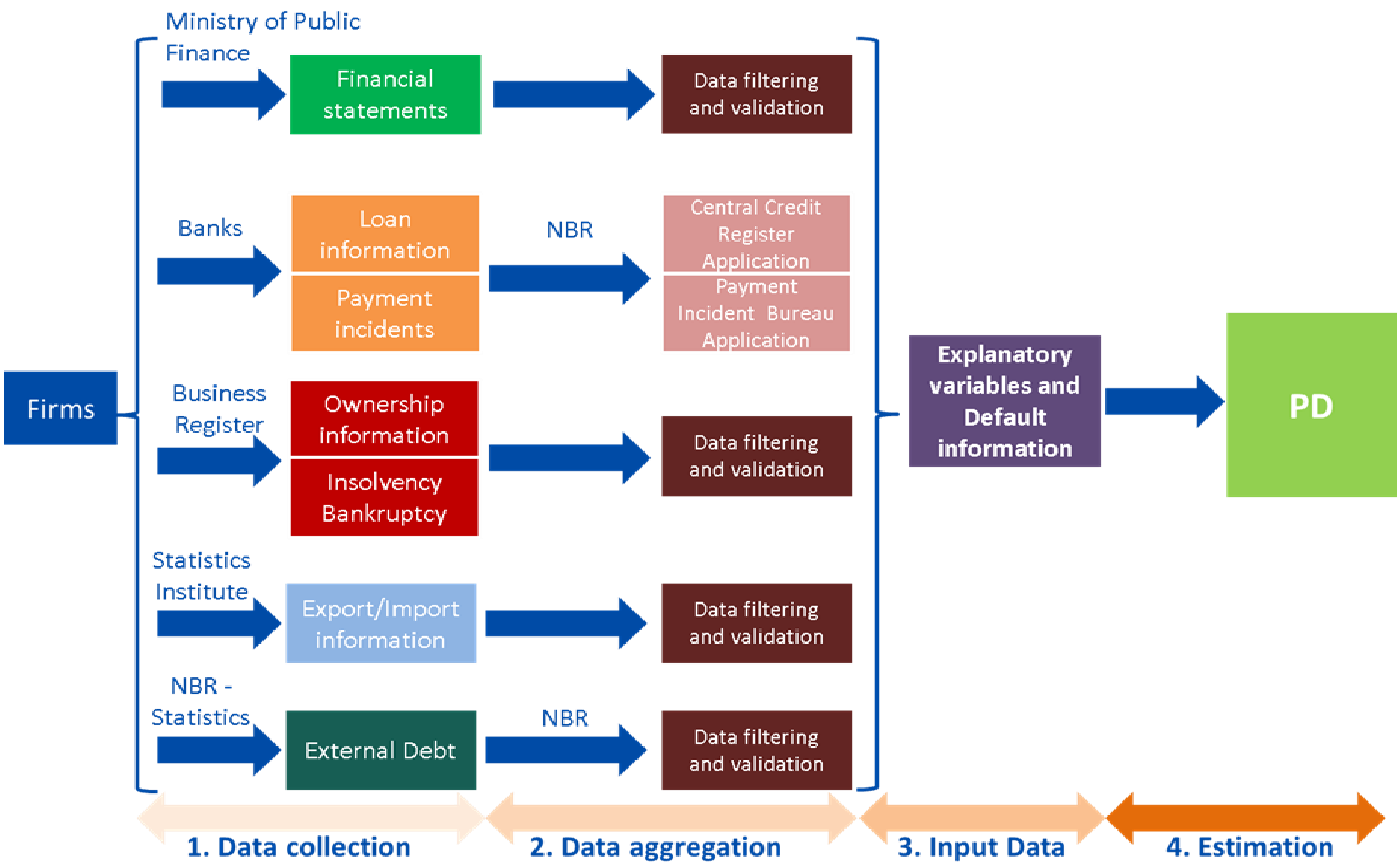
2. Introduction and approach

Motivation

- There is a broad agreement that finance should play an active role in fostering green transition
- Investors and governments are searching to increase green finance, while banks and other creditors are encouraged to expand their green exposures
- In such circumstances, a key question is about the level of credit risk from green finance compared with non-green portfolios
- From a policy perspective (micro or macroprudential), this question is even more important for those authorities planning to allow lower capital charges for banks green exposures

3. Data and methodology

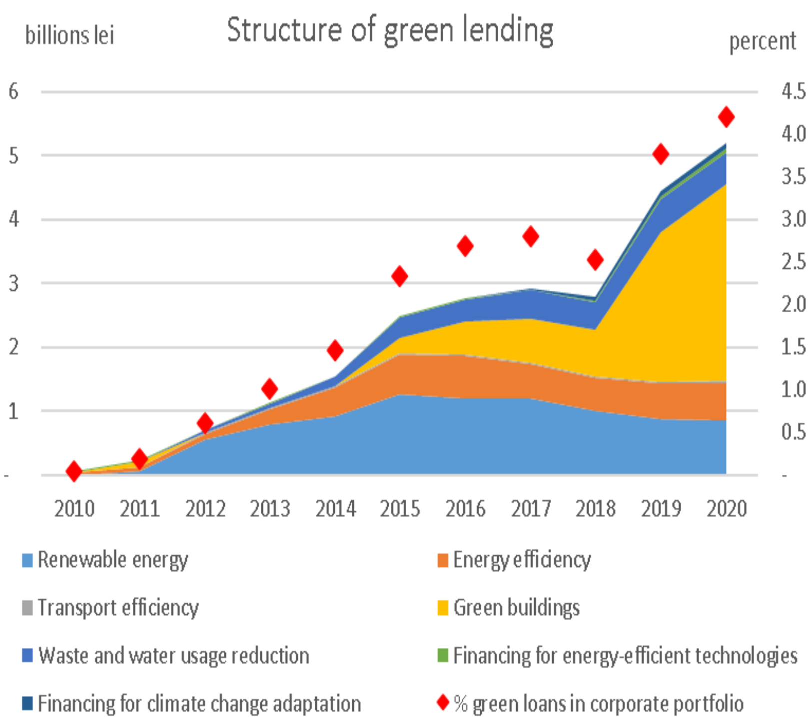
Sources of information



3. Data and methodology

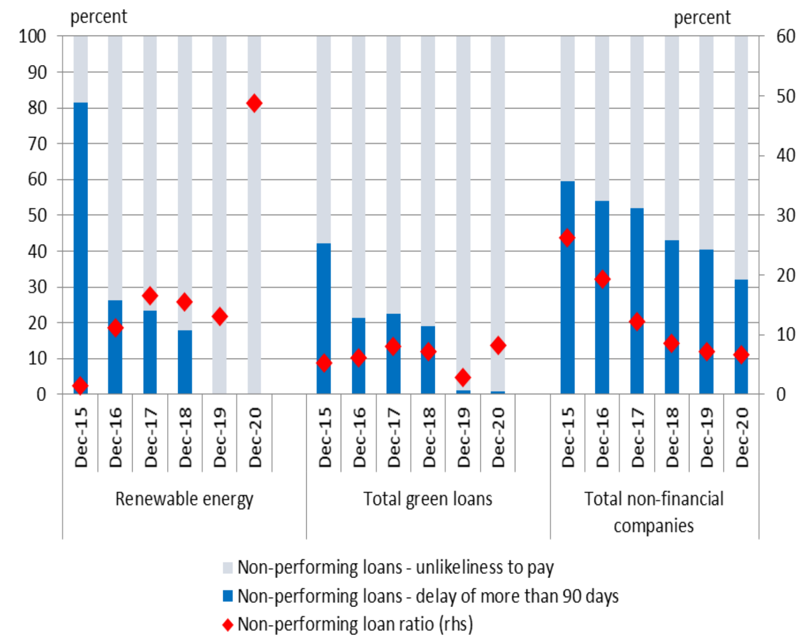
Stylized facts

Total green bank loans to non-financial companies



Source: NBR, authors' calculations

Non-performing loan ratio* of green loans

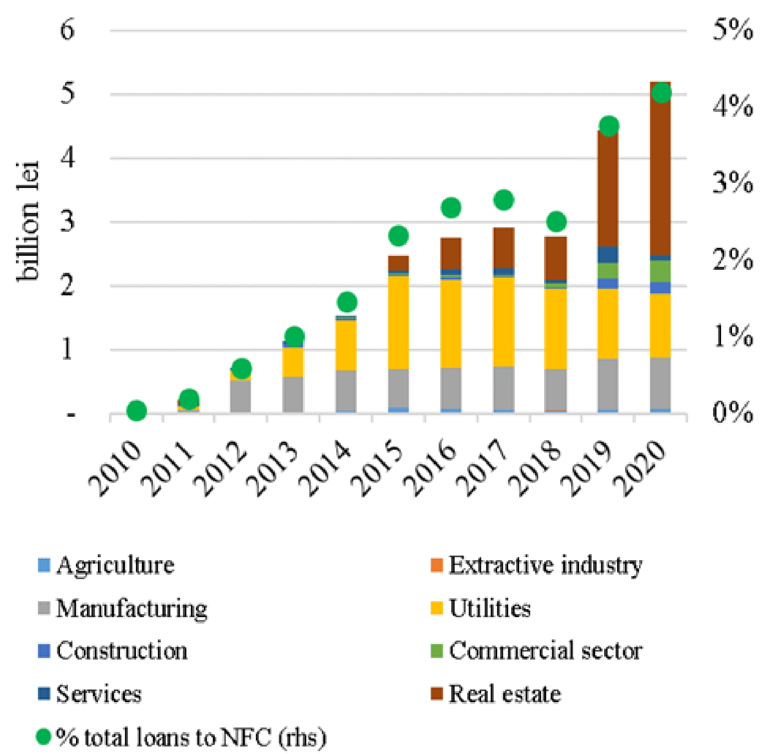


Source: NBR, authors' calculations
**according to EBA harmonised definition*

3. Data and methodology

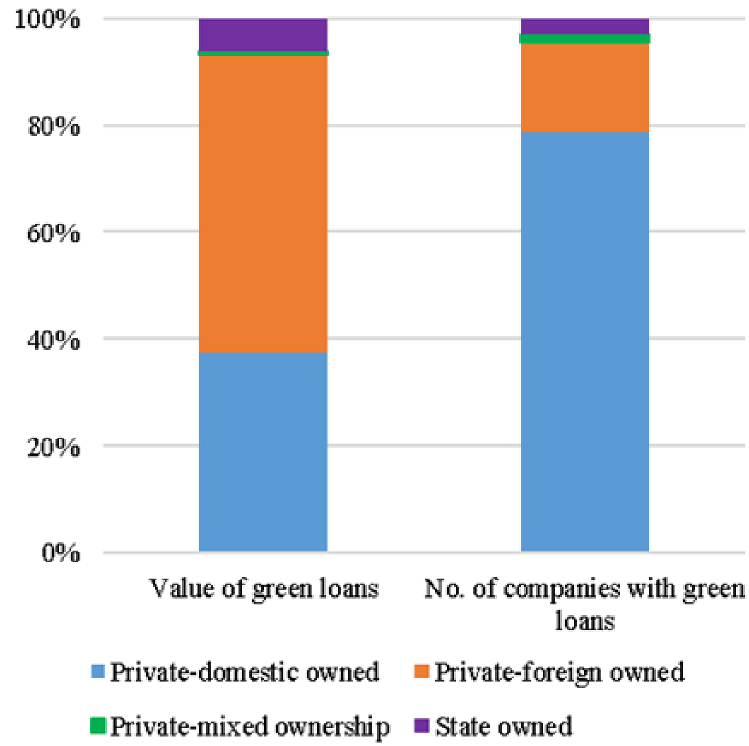
Stylized facts

The structure of green lending by economic sectors



Source: NBR, authors' calculations

Value of green loans and no. of companies, by ownership type

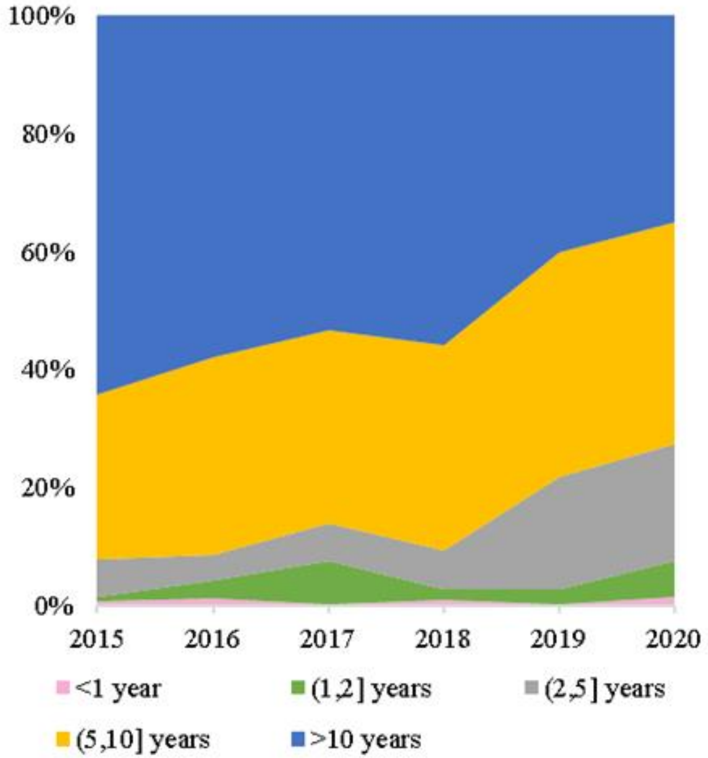


Source: NBR, authors' calculations

3. Data and methodology

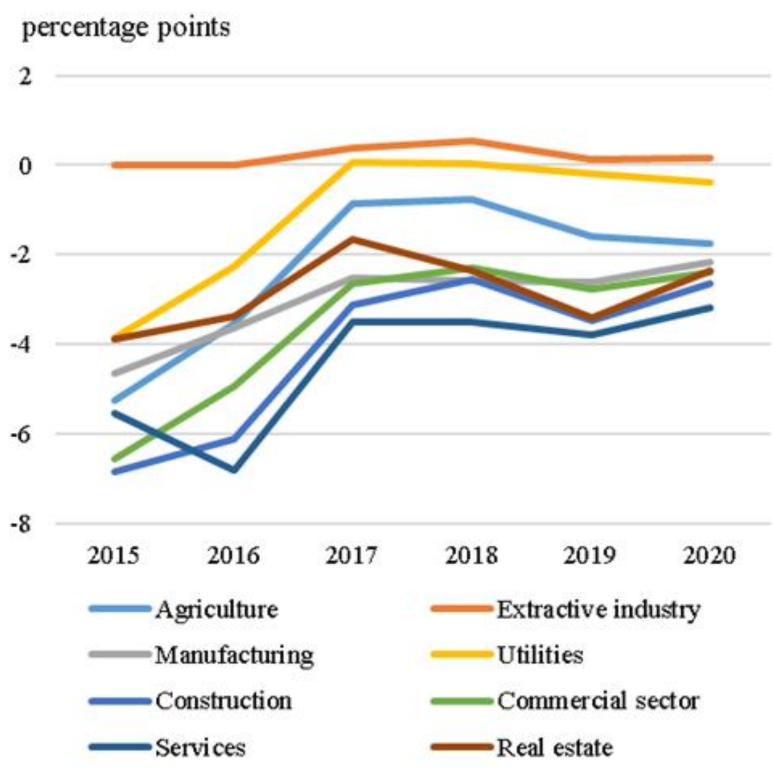
Stylized facts

Green portfolio structure by maturity



Source: NBR, authors' calculations

Borrowing costs (interest rate spread*), by sector



Source: NBR, authors' calculations
**interest rate for green loans – general interest rate*

3. Data and methodology

Methodology

Steps taken

1. Probability of a firm to take a green loan — *Logit model*
2. Role of green lending in reducing the probability of default — *Logit model*
3. Control for identification bias — *Average treatment effects model*

Variables and models

- Step 1:
  - dependent variable: green loan dummy
  - explanatory variables: financial soundness indicators, arrears, economic sector
- Step 2:
  - dependent variable: default dummy
  - explanatory variables: financial soundness indicators, green loan dummy
- Step 3:
  1. Propensity score matching (PSM)
  2. Inverse-probability weighted regression adjustment (IPWRA)
  3. Augmented inverse-probability weighting (AIPW)

4. Results

Probability of default logit model

	Full sample (2010-2020)					2015-2020
	(1)	(2)	(3)	(4)	(5)	(6)
Fixed assets/ Total assets	-0.211*** (0.00)	-0.201*** (0.00)	-0.138*** (0.00)	0.070*** (0.00)	-0.079*** (0.00)	-0.140*** (0.00)
EBITDA/Sales	-0.435*** (0.00)	-0.349*** (0.00)	-0.201*** (0.00)	-0.274*** (0.00)	-0.130*** (0.00)	-0.161*** (0.00)
Debt/Total assets	-0.003* (0.05)	-0.006*** (0.01)	0.039*** (0.00)	0.053*** (0.00)	0.028*** (0.00)	0.036*** (0.00)
Flag green	-0.129** (0.00)	-0.144*** (0.00)	-0.136*** (0.00)	-0.134*** (0.00)	-0.064*** (0.00)	-0.098*** (0.01)
Arrears/Total assets	0.286*** (0.00)					
ROA		-0.203*** (0.00)				
Sales/Total assets			-0.191*** (0.00)		-0.098*** (0.00)	-0.178*** (0.00)
Economic sector fixed effects	No	No	No	Yes	No	No
Time fixed effects	No	No	No	No	Yes	Yes
No. obs	1,406,523	1,406,523	1,406,523	1,406,523	1,406,523	783,692
Log. Likelihood	- 465554.42	-474691.05	- 346779.10	-346779.10	- 328557.03	-126062.3
Pseudo R2	15.64%	13.99%	37.6%	29.73%	40.47%	33.35%
Accuracy ratio	60.28%	57.26%	80.22%	70.96%	82.64%	79.42%

4. Results

Average treatment effects

	Average treatment effect (ATE)		
Method	Propensity Score Matching	Inverse-probability-weighted regression adjustment	Augmented inverse-probability weighting
Flag green loan (1 vs. 0)	-0.0879*** (0.00666)	-0.126*** (0.0124)	-0.116*** (0.0103)

Note: p-values in parentheses
* p<0.10, ** p<0.05, *** p<0.01

5. Conclusions

- For the period analyzed, green loans bear less credit risk compared with non-green loans.
- More financially sound companies (displaying lower indebtedness and upper profit margin and liquidity) are more prone to take green loans
- Besides firms' financial characteristics, some other aspects specific for these firms with green projects are contribute to the lower probability of default: firms' governance or strategic planning for decarbonizing their activities
- Amendments in government plans regarding climate change policies might influence companies' ability to repay green loans
- From a financial stability perspective, microprudential supervision authorities are more equipped to react if material changes in legal framework for green projects would manifest. They could act via amendments to Pillar 2 requirements for green exposures, which ensures more flexible and timely reactions.

Thank you!