

Are green loans less risky? Micro-evidence from an European Emerging Economy*

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Abstract

We investigate if green loans granted by banks bear less credit risk compared with non-green loans. We also explore if firms with sounder financial profile are more prone to have access to green loans. Using a novel micro database covering all green loans granted by Romanian banks over the period 2010-2020 and individual financial statements of debtors, we find that probability of default is 10 percent lower for companies with green loans compared with the rest of companies financed by banks. We also discuss possible policy implications from these findings.

Introduction

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, this question is even more important for those authorities planning to allow lower capital charges for banks green exposures
- The goal of the paper is to analyze whether the green loans to non-financial firms carry less risk than non-green loans
- The paper could have a role to inform future macroprudential policy measures aiming at supporting green finance

Methodology

We propose a three-step approach in order to assess the difference in credit risk between the green and non-green bank portfolios in a robust manner:

1. Probability of a firm to take a green loan

$$\text{Logit}(P_{st}(Y_{st} = 1 | x_1, x_2 \dots x_n)) = \alpha_x + x'_{st}\beta + \varepsilon_{st}$$

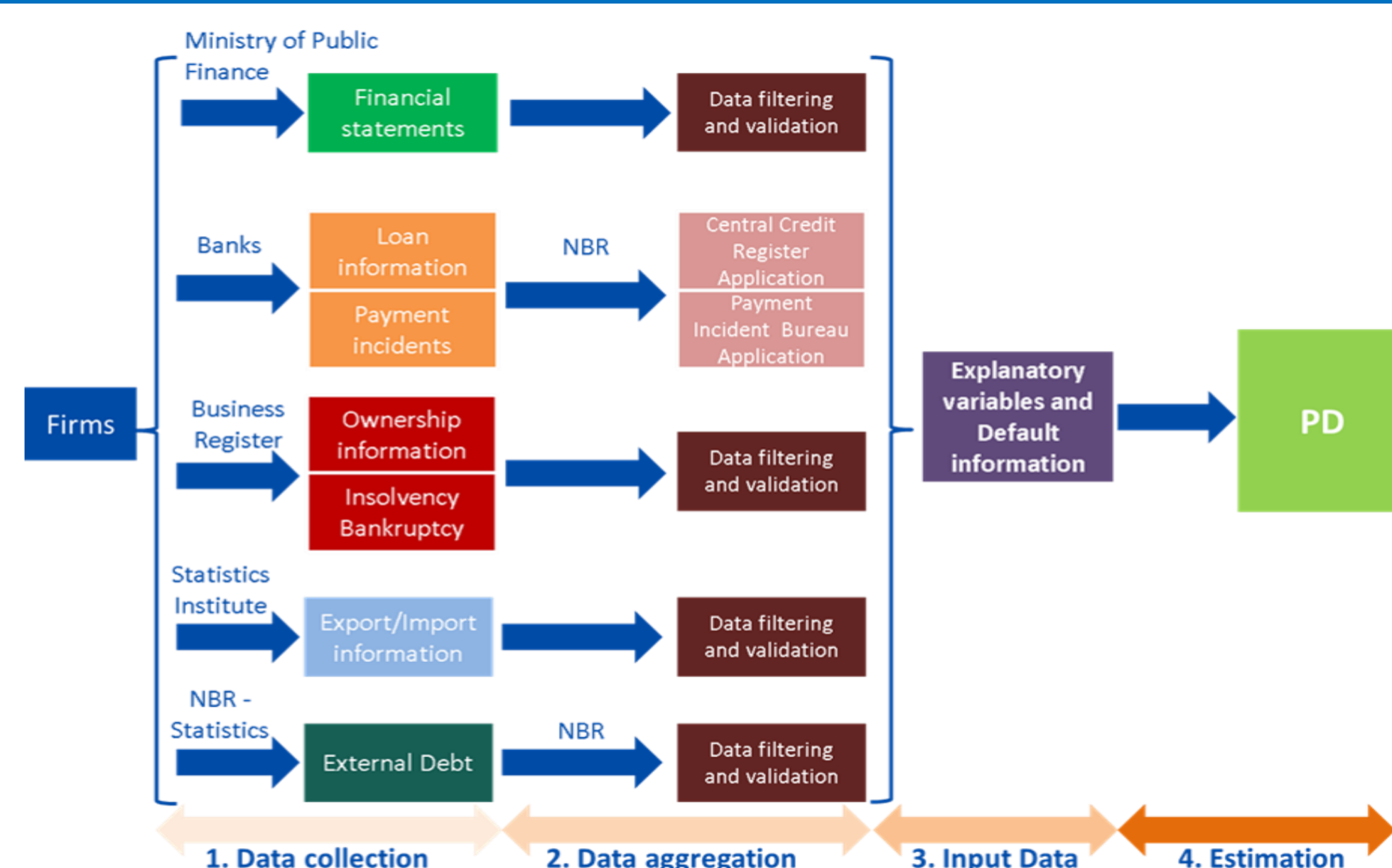
2. The role of green lending in reducing the probability of default

$$\text{Logit}(P_{it}(Y_{it} = 1 | z_1, z_2 \dots z_n)) = \Phi_i + \text{Fin ind}_{it}\beta_1 + \text{flag_green}_{it}\beta_2 + \varepsilon_{it}$$

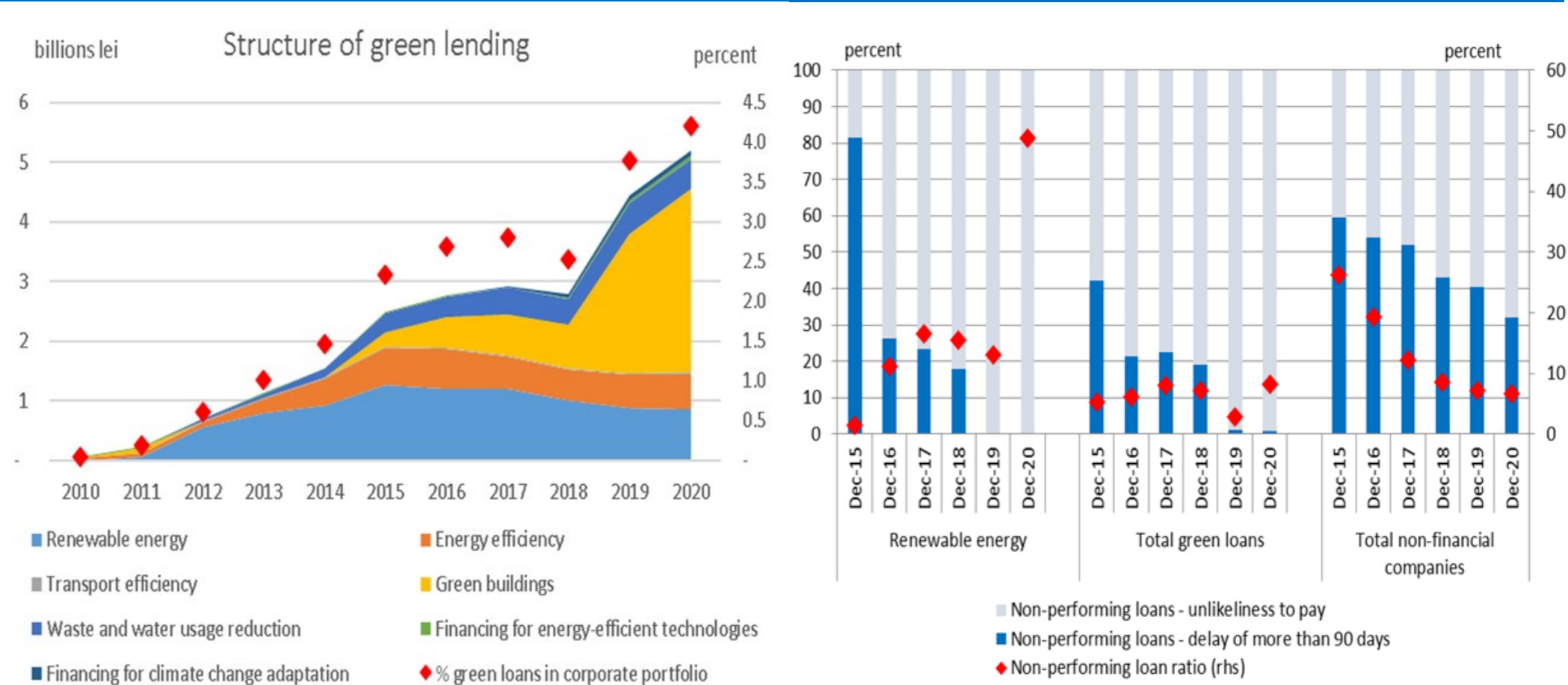
3. Average treatment effects specifications:

- propensity score matching
- inverse-probability-weighted regression adjustment (IPWRA)
- augmented inverse-probability weighted estimator (AIPW)

Data



Data descriptive



Results

Probability of default 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%

Average treatment effects

Method	Average treatment effect (ATE)		
	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