In the Name of COVID-19: Is the ECB Fuelling the Climate Crisis?

Cojoianu, T.; Collins, E.; Hoepner, A., Magil, D.; O'Neill, T.; Schneider, F.

UCD Michael Smurfit
Graduate Business School

Introduction

"Where taxpayers' money is used to rescue businesses, it must be creating green jobs and sustainable and inclusive growth. It must not be bailing out outdated, polluting, carbon-intensive industries."

António Guterres

Secretary-General of the United Nations (The Guardian, 2020)

- Current global GHG emissions trajectory indicates that the world is likely to experience catastrophic consequences due to climate change, unless swift action is taken towards funding green solutions and the defunding of fossil fuel activities (IPCC 2018)

- Ambition of the EU to become a net zero carbon economy by 2050 (European Commission, 2019)

- Numerous calls to avoid the bailout and stimulus packages towards fossil fuel companies (Hepburn et al., 2020)

Existing Literature

- Links between environmental and fiscal policies and the low carbon energy transition (Aghion et al. 2016; Ambec et al. 2013; Cojoianu et al. 2020)

- Optimal environmental policies in times of economic downturns (van den Bijgaart and Smulders 2018)

- Role of central banks in promoting a green economic recovery and how monetary policy objectives interact with climate change mitigation objectives in the short and long term (Battiston and Monasterolo 2019; Matikainen et al. 2017)
  - Increasing awareness of the physical and transitional risks climate change poses to financial markets and financial stability
  - Financial regulators and central banks have largely focused on private sector disclosure and stress-testing to determine the magnitude of potential impacts of climate change

Policy Background: Climate Change and the ECB

- Pandemic emergency purchase programme (PEPP)

  - Temporary asset purchase programme of private and public sector securities initiated in March 2020

  - Total of €1,350 billion with maturing principal payments from securities purchased under the PEPP reinvested until at least the end of 2022

  - All asset categories eligible under the existing asset purchase programme (APP) are also eligible under the new programme, in addition, non-financial commercial paper is now eligible for purchases both under the PEPP and the corporate sector purchase programme (CSPP)

- ECB's asset purchasing program post-2008 crisis predominantly through bonds, shown to favour the incumbent fossil fuel industry:

  - 62% of ECB's corporate bond purchases (out of a total of €82 billion) are in GHG intensive sectors - though they make up only 18% of the Eurozone area economy and produce 59% of GHG emissions (Battiston and Monasterolo 2019; Matikainen et al. 2017)

Policy Background

- Many central banks remain of the view that interventions should be market-neutral and not discriminate between sectors in the low carbon energy transition (Matikainen et al. 2017)

  ➢ Aim not achievable in practice, as the implementation of ECB's post-2008 quantitative easing shows that assets purchased by central banks to stimulate overall economic growth are benefitting more from the policy than assets which are not purchased by the bank (Haldane et al. 2016; Matikainen et al. 2017)

- Choice of asset class through which asset purchasing programs are implemented matters

  ➢ Particularly important in the low carbon economy context: Fossil fuel energy sector largely financed through bonds and syndicated bank loans (Cojoianu etal. 2019), whereas much of the emerging clean technology companies are financed through private equity, equity issuances and asset financing (Cojoianu et al. 2020; Gaddy et al. 2017)

Data and Methodology

- Novel dataset of corporate bonds issued in the European energy sector between 01/01/20 and 19/06/20 in combination with the ECB's purchases under the Pandemic Emergency Purchase Programme(PEPP)

- BICS:
  - Power generation
  - Renewable energy
  - Integrated oil & gas companies
  - Oil & gas exploration and production
  - Oil & gas services and utilities

- Further robustness tests: Controlling for bond maturity, bond rating and interactions of key variables

$$ECB\ Bond_i = \beta_0 + \beta_1 * \text{Pro} - \text{Climate Lobbying Activities Score}_i + \beta_2 * GHG\ Emissions\ Intensity_i + \beta_3 * GHG\ Reporting\ Completeness_i + \beta_4 * Borrower\ Revenue_i + \beta_5 * Bond\ Issuance\ Amount_i + \beta_6 * Bond\ Coupon\ Rate_i + \varepsilon_i$$

Data and Methodology

- Large proportion of debt issued in April & May 2020

- Perhaps companies expected the liquidity gain and the lowering of their credit risk if their bonds are bought by the ECB

- For oil & gas sector: Largest proportion of its newly issued debt matures between 2030 and 2040 (c. €22 billion), 2020 -2030 and beyond 2040 periods accounting for c. €18 billion and €6.5 billion respectively

Figure 1: Bond issuance by European energy companies Jan – May 2020. Data from Bloomberg.
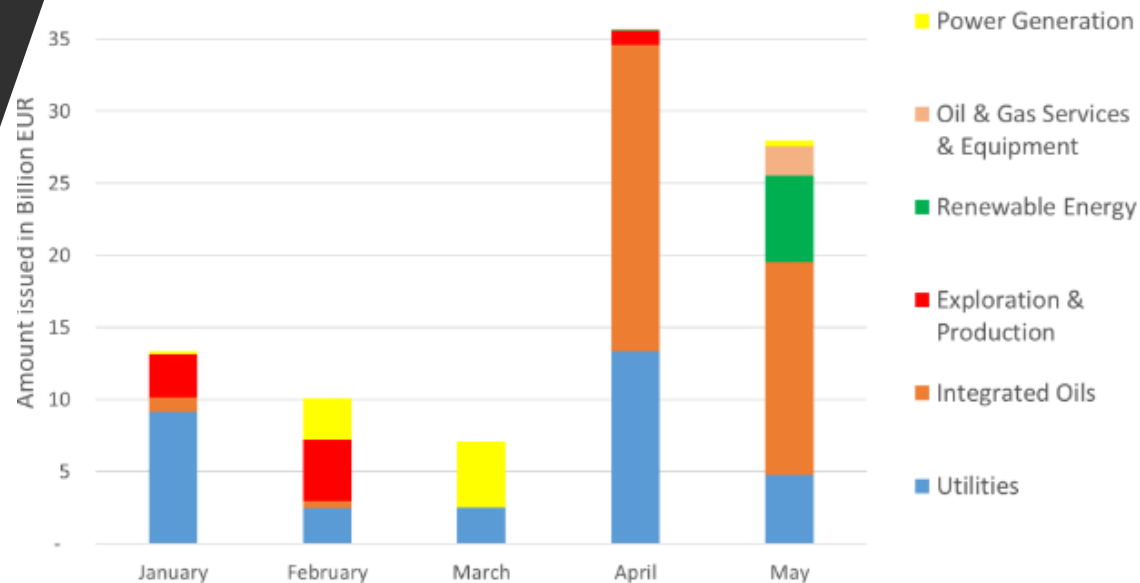
Results

Table 1: Main statistical models. Likelihood of bond issuance to be bought by ECB. Data from Bloomberg, ECB & InfluenceMap (Logit model).

Dependent variable: ECB = 1 (if bond is purchased by ECB) ECB = 0 (otherwise)	Model 1 Bond Denomination EUR	Model 2 Bond Denomination EUR	Model 3 Bond Denomination EUR	Model 4 Bond Denomination All currencies	Marginal Effects (at mean) Bond Denomination EUR	Shapley pseudo R-squared decomposition by factor
Pro-Climate Lobbying Activities Score			-0.475 (0.388)	-0.935** (0.455)	-0.101 (0.082)	10.92%
GHG Disclosure Completeness		-0.706 (0.857)	-0.820 (0.919)	-1.616*** (0.601)	-0.175 (0.188)	1.97%
GHG Intensity	0.983*** (0.281)	1.067*** (0.311)	0.907*** (0.292)	0.983*** (0.294)	0.193*** (0.067)	51.86%
Revenue	-0.608** (0.244)	-0.606** (0.246)	-0.750*** (0.264)	-0.702*** (0.204)	-0.160*** (0.053)	15.05%
Bond Issuance Amount	0.428 (0.584)	0.519 (0.647)	0.217 (0.700)	-0.217 (0.413)	0.046 (0.148)	3.21%
Bond Issuance Coupon Rate	-0.578 (0.444)	-0.643 (0.468)	-0.822 (0.514)	-1.523*** (0.444)	-0.175 (0.109)	16.99%
Constant	0.379 (0.321)	0.464 (0.363)	0.511 (0.380)	0.236 (0.362)		
Observations	52	52	49	68	49	49
Pseudo R-squared	0.163	0.169	0.177	0.348	0.177	0.177 (100%)
Log-likelihood	-28.56	-28.36	-26.04	-30.66	-26.04	-26.04

Significance levels: $p < 0.01$***, $p < 0.05$**, $p < 0.1$*. All variables are standardised (mean = 0 and standard deviation = 1), with the exception of GHG Disclosure Completeness, which takes the value 1 if Scope 1 GHG emissions reporting is transparently reported and 0 otherwise (based on the ES074 score compiled by Bloomberg). Hence the coefficients can be interpreted as a one standard deviation change in the independent variable is related to a β change in the log odds ratio (or e^{β} change in the odds ratio) of the dependent variable. The marginal effects show the coefficient at a one standard deviation increase around the mean of the specific independent variable (as variables are standardised). The Shapley R-squared decomposition shows the relative statistical explanatory power of each independent variable.

Results

- Only Euro-denominated bonds (Models 2&3):

    - GHG disclosure completeness and pro-climate lobbying are statistically insignificant, yet negative - suggests ECB may be likely to tilt its portfolio towards companies with poorer GHG emission disclosures and less responsible climate lobbying activities

- Bonds issued by European energy companies in denominations other than Euro (Model 4):

    - To account for potential sample selection bias due to the choice of energy companies to abstain from issuing Euro denominated bonds as they may have received discouraging signals from the ECB

    - ECB's portfolio tilted to companies which are less transparent on their GHG performance as well as those companies who are more likely to oppose progressive climate action

- Economic and statistical relevance (Brooks et al. 2019):

    - Economic Relevance: GHG intensity variable in model 3 largest marginal effects

    - Statistical relevance: GHG intensity largest Shapley R-squared value, contributing more than 50% to the overall explanatory power of model 3

Conclusions

"We clearly also have to include climate change imperatives in our investment operations "

Christine Lagarde,
President of the European
Central Bank (Dec19)

1. Given Ms. Lagarde's explicit support of green quantitative easing - **Why were fossil fuel firms eligible for the PEPP?**

2. While the ambition to keep employees and their families financially secure is laudable - **Did the employers or the employees deserve the direct financial support?**

3. And if one accepts that fossil fuel companies were eligible for PEPP - **Why was the ECB more likely to directly finance those fossil fuel firms that are more harmful to the planet** (i.e. have a higher GHG intensity)**?**

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Appendix

The criteria for the corporate bonds bought under the PEPP are that:

I.   the company must be incorporated in the Eurozone and its bond issuance denominated in Euro,
II.   the firm cannot be a financial corporation (or a credit institution supervised by the ECB),
III.   it cannot be a public entity,
IV.   the bond issuance has to be endorsed by one positive credit rating by an external credit assessment institution accepted within the Eurosystem credit assessment framework and
V.   have a maximum maturity of up to 31 years, and a minimum maturity of 6 months

Robustness

- See Online Appendix for:
    - Further robustness tests –controlling for bond maturity and bond rating
    - GHG intensity –revenue interaction effects robustness test
    - Marginal effects at mean for independent and control variables (logit model)
    - Shapley Pseudo R-squared decomposition by variable
    - InfluenceMap Methodology

Variables	Mean	St. Dev.	Min	Max	(1)	(2)	(3)	(4)	(5)	(6)
(1) Pro-Climate Lobbying Activities Score	57.7	14.7	32.04	89.62	1.000					
(2) GHG Disclosure Completeness	0.19	0.39	0	1	-0.145	1.000				
(3) GHG Intensity	20.11	29.78	0.001	119.78	-0.156	0.097	1.000			
(4) Revenue	281631	1371548	0	7659623	-0.261**	-0.088	-0.149	1.000		
(5) Bond Issuance Amount	781	435.96	5	2500	-0.406***	0.244**	0.261**	0.321***	1.000	
(6) Bond Issuance Coupon Rate	1.79	1.19	0	6.75	-0.304***	0.160	-0.051	0.263**	0.441***	1.000