Greening Monetary Policy: Evidence from the People's Bank of China

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Questions of "Green" Monetary Policy

- There are debates on the relevance of market neutrality when it comes to address "market failures" such as climate change (Schnabel, 2020)

- Christine Lagarde (2020):

  "In the face of what I call the market failures, it is a question that we have to ask ourselves as to whether market neutrality should be the actual principle that drives our monetary policy portfolio management."

- Literature shows that the ECB verbal interventions have an impact on green bond yields (Giovanardi, Kaldorf, Radke and Wicking 2021) and that the current portfolio of the ECB is probably not aligned with the European Union's targets (Oustry, Erkan, Svartzman and Weber 2020).

Why should we care about China?

China has a pioneering attitude when it comes to green finance

- China is the world's biggest producer of greenhouse gases (28% of world total in 2020); **carbon neutrality in 2060** will require a dramatic reshaping of the energy consumption model

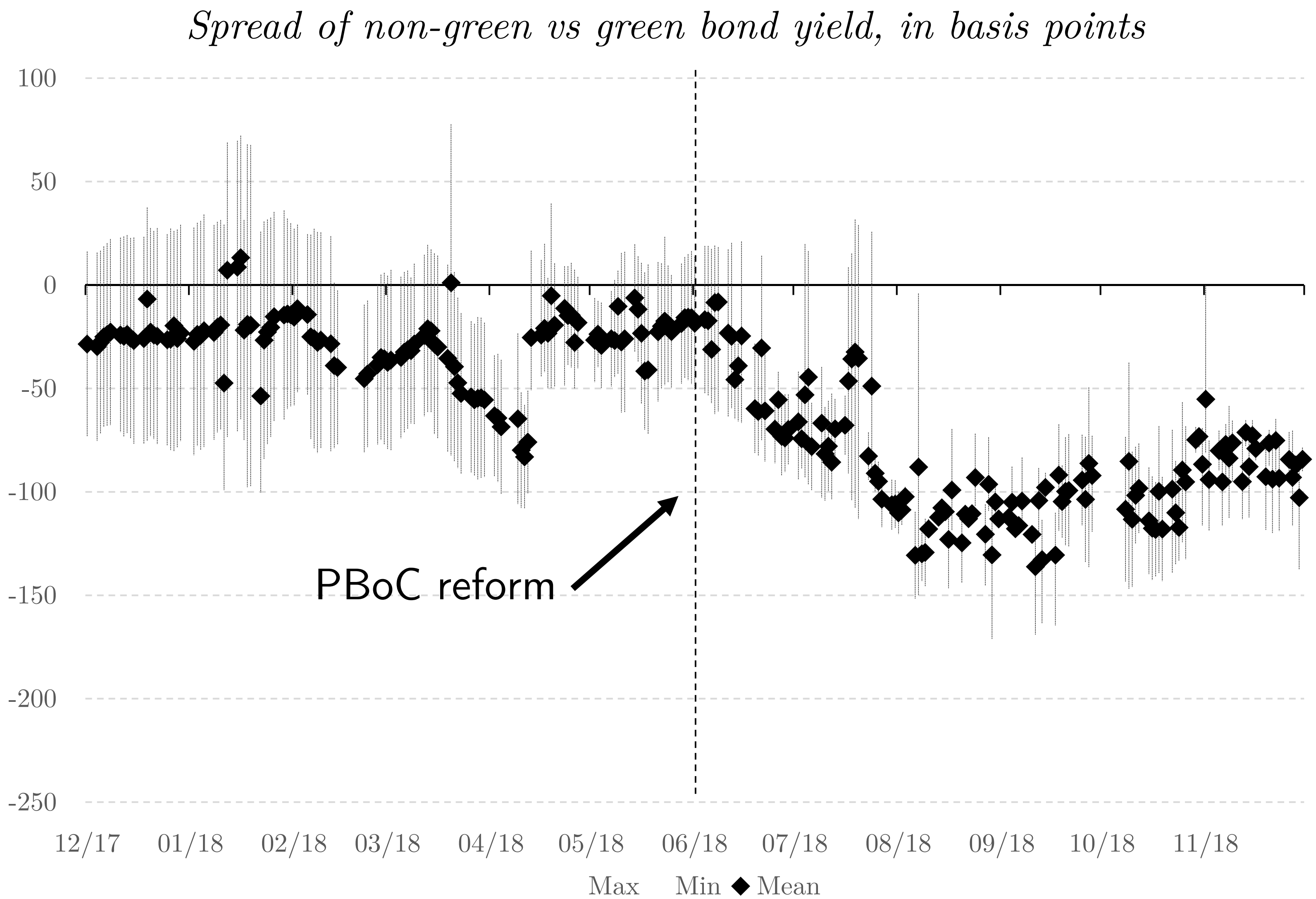
- Concrete action in supporting the development of green finance through official guidelines dates back a decade
  - Main breakthrough : **publication of Taxonomies in 2015** → led to more green bond emissions (China accounted for **12% of the global green bond emissions in 2019**, ranking second).

- **On 1st June 2018, the PBoC** changed its collateral policy and **started to accept green financial bonds** (bonds issued by banks)

Data overview

- Data for 10 green and 10 non-green bonds, for the 01/12/2017 to 30/11/2018 timeframe (retrieved from Bloomberg)
- 7 issuing firms, with both green and non green bonds for each firm, allowing to control for fixed firm effects
- The main difference is the green status (and to some extent maturities)

Raw data – green vs non-green yield differential 2017-18 (daily data)



Results over the whole sample

Dependent variable: Bond yields

Intercept	4.45*** (0.024)
Treated dummy	-0.32** (0.11)
Post dummy	-0.41** (0.19)
Treated x Post	-0.46** (0.19)
Company fixed effects	YES
Adjusted R^2	0.69
Observations	2609

Standard errors rare clustered at the bond level. *** signifies statistically significant at the 1% level of significance; ** at the 5% level of significance; * at the 10% level of significance.

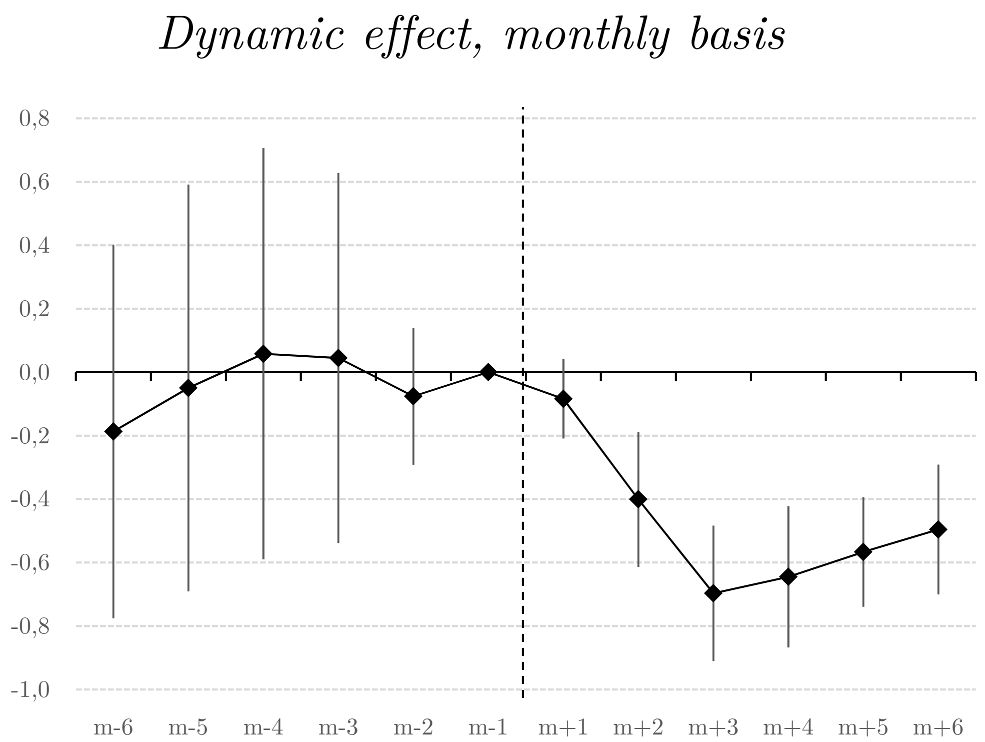
Using longer pre-trends in time series

- The part above showed that there is evidence that the reform implemented on June 1 2018 had a significant impact on the treated green bonds, compared to non-treated non-green bonds.
- Now, we use multiple time periods to generate a counterfactual policy change
- For periods prior to the policy change, the check act as a placebo test and allows us to examine the parallel trend assumption. For each periods after the policy change, it gives a view of the timeliness and persistency of the shock.

Previous DID $$Y_{it} = \alpha + \beta_1 T_i + \beta_2 P_t + \beta_3 (T_i \times P_t) + \gamma FE + \varepsilon_{it}$$

Counterfactual $$Y_{it} = \alpha + \beta'_1 T_i + \beta'_2 Test_{t'} + \beta'_3 (T_i \times Test_{t'}) + \gamma' FE + \varepsilon_{it'}$$

Monthly effect



Note: The perpendicular dotted line shows the policy change on 1 June 2018. The graph covers the period 01/12/2017 to 30/11/2018, hence 12 months. The 01/06/2018 shocks occurs in the beginning of m+1. Each point represents the coefficient of DID conducted between m-1 and the specific month. The vertical whisk around the point is the 95% confidence interval.

Policy implications and limitations

Policy Implications

- The PBoC was one of the first central banks to have a policy specifically targeting green bonds in 2018. Investigating the impact of the reform is an interesting case study for other central banks considering similar policies
- The reform happened in China as the green bond market was still nascent
  - Implications in terms of *Developmental Central Banking*
  - Also relevant for emerging countries

Limitations

- ECB already accepts green bonds so not applicable
- No measure of the effect on the real economy but see Giovanardi, Kaldorf, Radke and Wicking (2021) for a model on how this could impact the real economy

Conclusion

- We show that the policy by the PBoC reduced the spread between green bond and non green bond yields by **46 basis points on average**

- These findings can be interesting for other central banks considering similar policies, especially in emerging markets

- More research is needed to see if this impact on the secondary market also has an impact on the primary market, and on new green projects financed