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## Article

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## Uncoordinated Climate Policies: Implications for Cross-Border Lending

### KEY MESSAGES

- **There are substantial differences across countries regarding climate policy stringency**
- **Banks react to a stricter climate policy at home by increasing their cross-border lending to countries with laxer climate policies**
- **The evidence is consistent with the adverse effect of transitional climate risks on firms, possibly reducing banks' domestic loan portfolio performance**
- **Global coordination in climate policies is needed to prevent race-to-the-bottom behavior**

The dire effects of climate change call for urgent and effective measures, posing challenges for financial markets and the economy. Many policy institutions across the world have recognized the global nature of these challenges and have been discussing how to update their mandates accordingly. For example, President Biden recently issued an “Executive Order on Tackling the Climate Crisis at Home and Abroad” where he stressed that “domestic action must go hand in hand with United States international leadership, aimed at significantly enhancing global action.”<sup>1</sup> Even though climate change entails global coordination and cooperation, there are still significant differences across countries regarding climate policy stringency.<sup>2</sup> This difference can make the fight against

climate change more difficult if it starts a “race to the bottom” (Benincasa, Kabas and Ongena 2022).

A stricter climate policy may have two possible yet diverging implications in the domestic lending market: On the one hand, it may increase firms' demand for funds for innovation and green technologies. Since banks are the primary funding source for firms, stricter climate policy can increase demand for bank lending. To the extent that banks meet this demand, stricter climate policy can increase domestic lending. Due to limited lending capacity, banks may balance the increase in domestic lending by decreasing their cross-border lending. On the other hand, banks may consider a stricter climate policy a threat to their domestic loan portfolios. This can happen, for example, if the needed innovation and green technologies lower firm profitability. Lower profitability, in turn, may adversely affect loan portfolios, discouraging banks from domestic lending. Under this scenario, banks may increase their cross-border lending, especially to countries with laxer climate policies. These two opposing mechanisms make the effect of domestic climate policy stringency on cross-border lending an empirical question.

In this article, we study this question and contribute to the understanding of the link between domestic climate policy stringency and cross-border bank lending. Specifically, we investigate whether banks use cross-border lending to react to a change in climate policy stringency in their home country. To this aim, we leverage two main data sources: syndicated loans in the period 2007–2017 and a global measure for climate policy, the Climate Change Performance Index (CCPI). Results suggest that banks react to stricter climate policy in their home country by increasing their cross-border lending. To better understand the size of this effect, consider a hypothetical example of a cross-border syndicated loan where one lender is located in Germany, the other lender is in the U.S., and the borrower is in a third country, say, Poland. Our results indicate that Germany's six index points stricter climate policy in 2015 led the bank in Germany to have a 6 percent higher loan share in this loan compared to the bank in the United States. We show that banks shift their cross-border lending to countries with laxer climate policies, which indicates that this effect is driven by banks' aim to protect their loan portfolio from the risks entailed by stricter domestic climate policy.

<sup>1</sup> For more details, see <https://www.whitehouse.gov/briefing-room/presidential-actions/2021/01/27/executive-order-on-tackling-the-climate-crisis-at-home-and-abroad/>.

<sup>2</sup> For instance, Germany has introduced financial aid to support research on technologies for decarbonizing heavy industry. In contrast, the U.S. Senate did not pass the Build Back Better Act due to the provisions it would have introduced related to climate change.



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## A MEASURE FOR CLIMATE POLICY STRINGENCY

We measure climate policy stringency using the Climate Change Performance Index (CCPI). The CCPI is an index constructed by Germanwatch, a non-governmental environmental and development organization. Germanwatch updates the index annually with the purpose of enhancing transparency in countries' climate protection action (Burck et al. 2016).<sup>3</sup> The index, which is published annually, covers 57 countries outside and within the European Union and takes values between 0 and 100, where a higher value corresponds to a stricter climate policy. The index is constructed by using fifteen measures with four main categories. These categories are Greenhouse Gas (GHG) Emissions (60 percent), Renewable Energy (10 percent), Energy Efficiency (10 percent), and Climate Policy (20 percent). GHG Emission considers countries' emission levels, and Renewable Energy assesses the share of renewable energies used by a country to achieve an effective emission reduction. Energy Efficiency measures the reduction of energy use needed for products and services. The Climate Policy category is based on assessments made by 300 experts and non-governmental organizations, and it considers the measures taken by national governments to reduce greenhouse gases. Importantly, the category results from a research study conducted by researchers and organizations that are not (in any way) connected to their national governments. This aspect of independence makes this category unique.

Assessing climate policy strictness with an index has two main advantages. First, an index is a transparent measure which is independent of researchers' subjective choices. Second, an index makes global comparison in countries' climate policy possible and easy, as there are different policies across countries.

Figure 1 shows the average CCPI for each country in our sample. The map plots the average climate policy strictness in shaded colors, where darker colors proxy a strict climate policy country. We can see that the climate policy strictness varies across countries with European countries having a stricter climate policy compared to emerging economies, and Anglo-Saxon and Asian countries. As expected, Scandinavian countries outperform in their climate performance, on average.

## SYNDICATED LOANS TO STUDY CROSS-BORDER LENDING

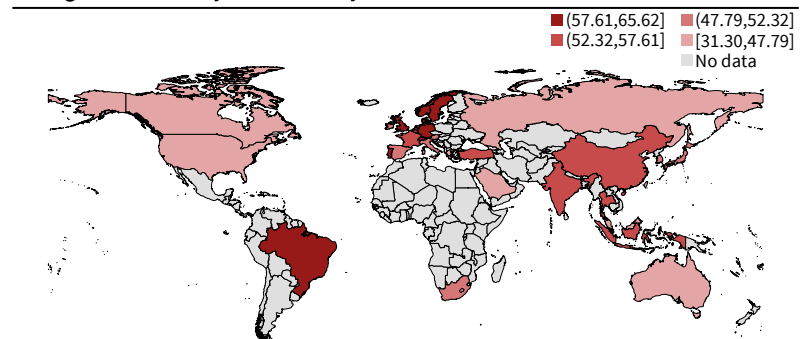
To measure cross-border lending we use syndicated loans from LPC DealScan database. LPC DealScan provides comprehensive loan-deal information on a global level. We restrict the analysis to the sample of

loans originated between 2007 and 2017 due to availability of the climate policy data.<sup>4</sup>

Our sample comprises a total of 399 banks of which 276 are parent banks located in 32 countries. We hand-match the loan-level data with bank balance sheet data from Bureau van Dyck Bankscope. Importantly, we leverage this hand-match exercise to gather information on the location of our sample banks, for which we use the country where they are located. The dependent variable of our analysis is lender share, which is the share of a lender in a cross-border syndicated loan. We define a loan as cross-border on a locational basis, whereby the lender and borrower are located in different countries (De Haas and Van Horen 2013). Our cleaned and final estimation sample comprises 27,086 loan shares, of which 12,478 are cross-border. The average value of cross-border loan shares is 7.72 percent with a standard deviation of 7.98.

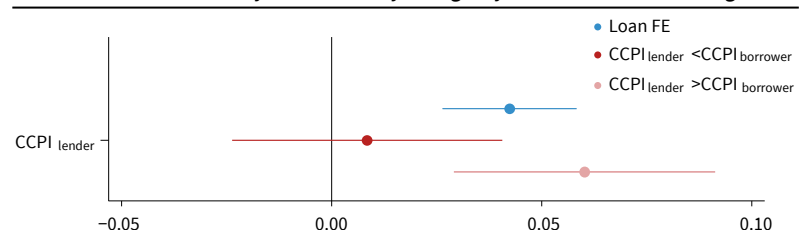
<sup>4</sup> Our study focuses on loans to non-financial firms by commercial, savings, cooperative, and investment banks. In addition, we follow Doerr and Schaz (2021) and consider as a bank all lenders defined in DealScan as Commercial Banks, Finance Companies, Investment banks, Mortgage Banks, Thrift/S&L, and Trust Companies.

Figure 1  
Average Home Country Climate Policy



Note: This map reports the average Climate Change Performance Index (CCPI) score per each country included in our sample over sample period 2007–2017. The shade in color proxies the average value – darker areas indicate higher average values (more stringent climate policy). Countries with no color shade are not part of our sample. Source: Germanwatch (2020). © ifo Institute

Figure 2  
The Effect of Home-country Climate Policy Stringency on Cross-border Lending



Note: This graph reports regressions coefficients (betas) from baseline specification. The dependent variable is Lender share and the main independent variable is CCPI (lender). The sample covers the period 2007–2017. All regressions include bank group level controls (net interest margin, Tier 1 capital ratio, log(total assets), log(customer deposits), and liquidity ratio). The blue line reports the coefficient estimate for this baseline regression when we include loan fixed effects. The green and red line reports the coefficient estimate when we saturate the model with loan fixed effects and split the sample in CCPI index of the lender's country higher/lower (above/below median sample) than the one of the borrowers' country. Standard errors are clustered at the lender's country-year level and shown in parentheses. \*\*\* p<0.01, \*\* p<0.05, \* p<0.1. Source: Authors' calculations (2022). © ifo Institute

<sup>3</sup> Germanwatch publishes the index in collaboration with the New Climate Institute and the Climate Action Network. The index is available starting from 2005 onwards.

### BANKS LOCATED IN COUNTRIES WITH STRICT CLIMATE POLICY INCREASE THEIR CROSS-BORDER CREDIT SUPPLY ABROAD TO LESS STRINGENT CLIMATE POLICY COUNTRIES

In this section, we discuss the main results when we study the effect of home-country climate policy on cross-border lending controlling for loan demand via saturation with loan fixed effects. Therefore, we compare lenders' shares in the same loan holding fixed borrowers and loan characteristics.

Figure 2 plots the estimated coefficients from our regression model. Specifically, we run a regression where the dependent variable is Lender share and the main independent variable of interest is CCPI (lender). Our regression is saturated with relevant bank-level controls and with a loan fixed effect to absorb credit demand drivers. In blue, we report the main estimated coefficient which suggest that banks react to higher climate policy strictness in their home country by increasing their cross-border lending: A one standard deviation higher climate policy strictness results in an average increase in the cross-border loan share of approximately almost one percentage point (pp), corresponding to a nine percent increase relative to the mean loan share (7.72 percent).

So far, our results show that a stricter climate policy leads to an increase in cross-border lending. We are left with the understanding of whether banks increase their cross-border credit supply abroad to countries with laxer climate policy. Research shows that when banks face stricter regulation in their home country, they shift their activities from their home country to countries with looser regulation (Karolyi and Taboada 2015; Houston, Lin and Ma 2012; Ongena, Popov and Udell 2013). We analyze this by splitting the sample into two in terms of the difference between CCPI of the lender and CCPI of the borrower. We find that CCPI of the lender has a positive and statistically significant coefficient (in green) when CCPI of the lender is higher than CCPI of the borrower. In contrast, it has an economically and statistically insignificant coefficient (in red) when CCPI of the lender is lower than CCPI of the borrower, which provides additional support to our conjecture.

### POLICY CONCLUSION

Both policymakers and academicians discuss climate change and policies to prevent it. Even though there is little doubt about the importance of the topic, large differences about the policies on climate change and their intensity exists. These differences can create ways for stakeholders to circumvent climate policies that would impact them negatively. In Benincasa et

al. 2022, we consider a specific stakeholder, banks, and investigate how banks adjust their cross-border lending as a reaction to stricter climate policies in their home country. Our work documents that banks increase their cross-border lending significantly after their home country increases the climate policy strictness. This finding is mainly driven by a race-to-the-bottom behavior since the increase in cross-border lending does not occur if the borrower's country has a stricter climate policy. In line with a race-to-the-bottom behavior, we also observe that as borrower countries adopt stricter climate policies, the incentive for banks to extend cross-border loans decreases.

Our work indicates one crucial missing element in the current climate policy framework. Due to a lack of global coordination among the countries, ways for banks to find loopholes within a fractured global policy network and avoid stricter climate rules exist. By increasing their cross-border lending to countries with laxer climate policies, the banks may ultimately reduce the effectiveness of these policies. Therefore, global coordination is needed to prevent such actions from happening.

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