



## Measuring the engagement in climate-related financial policymaking: the climate-related financial policy index

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*JEL codes: E50, E58, Q54*

*Keywords: Climate-related financial policies; Climate risks; Low-carbon transition; Financial stability; Composite index*

*The research presented in this policy brief summarizes the main findings of the research described in D'Orazio and Thole 2022. The paper presents a methodology developed to design a statistical measure, i.e., the climate-related financial policy index (CRFPI). The method is based on unique and novel data obtained to assess international engagement at the global level. The proposed index aims to promote awareness about countries' global engagement and identify gaps in climate-related financial policy. Using the proposed standardized metric, researchers and policymakers can rely on the CRFPI to compare international commitment to climate-related financial policymaking. The analysis shows that emerging economies are the most engaged in green financial policymaking, although they report the highest within-group variability, indicating no standard or general approach to "greening" the financial system. The index demonstrates a location effect, as most jurisdictions with high CRFPIs are in Asia-Pacific and North Europe. Brazil, China, France, Indonesia, and South Korea scored the highest values among G20 countries.*

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## Introduction

Although central banks and financial regulators' policies cannot replace climate policy, it is now commonly recognized that they must contribute to scaling up green financing and developing regulations to address climate-related financial risks (Carney, 2015). Their action is motivated by the evidence that climate change affects monetary policy and financial regulation (Batten et al., 2016; Coeuré, 2018), and financial actors play an essential role in the global economy (Krogstrup and Oman, 2019).

Regarding their green finance action, central banks and financial regulators can redirect financial flows towards activities that protect natural capital and positively affect the environment.

Concerning the action taken to tackle climate risks, the efforts of central banks and financial regulators are crucial. Climate change poses threats to the conduct of monetary policy because of its effects on supply price shocks, market volatility, and economic growth, which are related to inflation through credit spreads, saving rates, and real interest rates (Coeuré, 2018; Schnabel, 2020).

Consequently, climate-related financial risks can cause credit, market, liquidity, and insurance risks (Bolton et al., 2020) because of financial losses, destruction of production capital, the decline in profitability of exposed firms, and stranding of assets related to climate-relevant sectors such as, e.g., fossil fuels and mining. Central banks and regulators are thus required to assess financial institutions' performance, report how they account for environmental and social issues and provide guidance and requirements regarding how financial institutions impact.

International engagement in climate-related financial policymaking has increased in the past decades, although to different extents (Dikau and Ryan-Collins, 2017; D'Orazio and Popoyan, 2019; D'Orazio, 2022). However, comparing countries' performances globally is hard, considering that different criteria are usually used to assess the "greenness" of a financial system, central bank and/or financial regulator behavior.

Against this backdrop, D'Orazio and Thole 2022 develop a methodology to build a composite index utilizing the data acquired in a novel database, thus allowing researchers and policymakers to evaluate global engagement in climate-related financial policies.

## Methodology and data

Relying on existing literature (Krogstrup and Oman 2019; D'Orazio 2021; D'Orazio 2022) , the investigation considers policies addressing the financial sector aimed at:

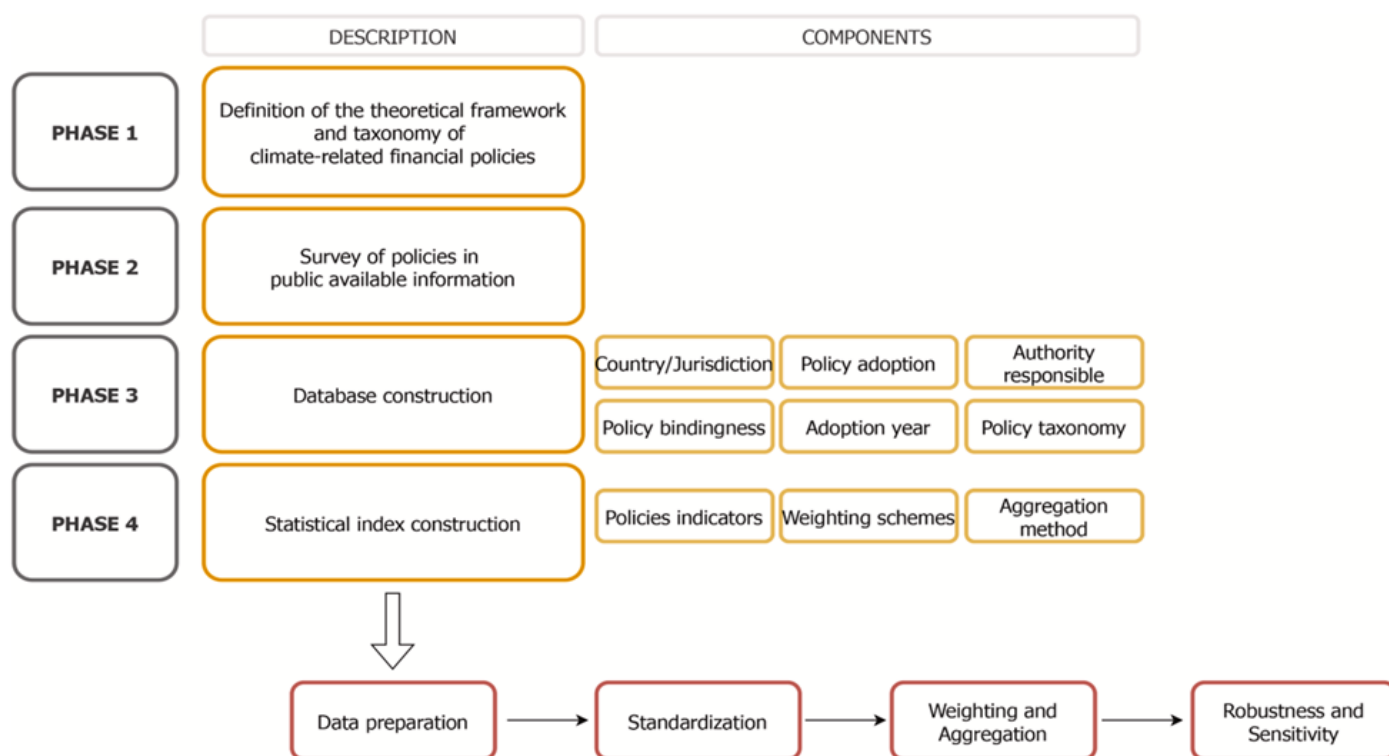
- i. identifying threats to - and safeguarding - financial stability in the presence of climate-related financial risks; labeled as *green prudential regulations* (GPP).
- ii. promoting green lending and investments through credit allocation and/or lending limits; labeled as *green credit allocation policies* (GCA).
- iii. promoting the creation of green or climate-aligned financial markets; labeled as *green financial principles* (GFG).

- iv. promoting the public disclosure of climate-related financial risks; labeled as *other disclosure requirements* (OGD), e.g.; climate-related disclosure requirements aimed at non-financial institutions such as insurance companies and pension funds.
- v. promoting green lending through green bonds; labeled as *green bonds taxonomy and issuing* (GB).

Official documents by central banks, financial supervisory authorities, governments, and banking associations were extensively surveyed by relying on the publicly available information from 2000 to 2020. Data is collected for 74 countries, for which relevant information on the identified five policy areas has been reported and publicly disclosed. After collecting the information, it was classified into the five categories noted above. Moreover, which policy has been adopted and the corresponding year for each country has been recorded, creating a panel database comprising 7770 country-year observations (five policy areas for 74 countries over 21 years are considered). Information on the policy bindingness and assess each policy’s strength in the jurisdictions has been also collected.

The database comprises 74 countries, of which 39 are advanced economies, 20 emerging, and 15 developing and covers the period between 2000 and 2020.

**Figure 1: The conceptual framework for developing the CRFP index.**

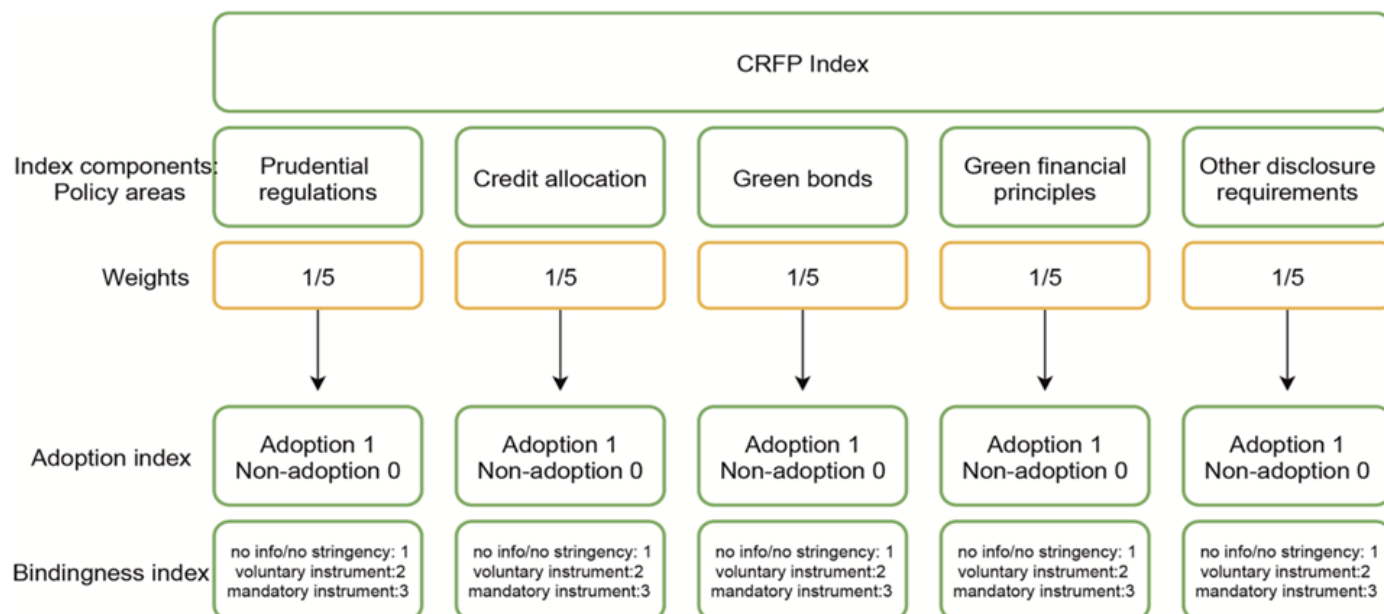


Source: D’Orazio and Thole, 2022

Following a standard statistical-methodological approach for constructing composite indices (see, e.g., OECD, 2008), the proposed CRFP index is built by relying on four main steps involving (i) definition of the individual indicators, (ii) normalization, (iii) weighting, and (iv) aggregation of the five components. The design of the index is illustrated in Figures 1 and 2.

In the benchmark setting, an equal weighting scheme I considered so that the weight takes the value of 1/5 for all the five policy indicators described above. Other aggregation methods and weighting schemes could be conceived: three additional settings are designed to experiment with alternative weighting assumptions and illustrate how sensitive the proposed index is to changes in the steps followed to construct it<sup>2</sup>.

**Figure 2: Design of the climate-related financial policy (CRFP) index.**



Source: D’Orazio and Thole, 2022

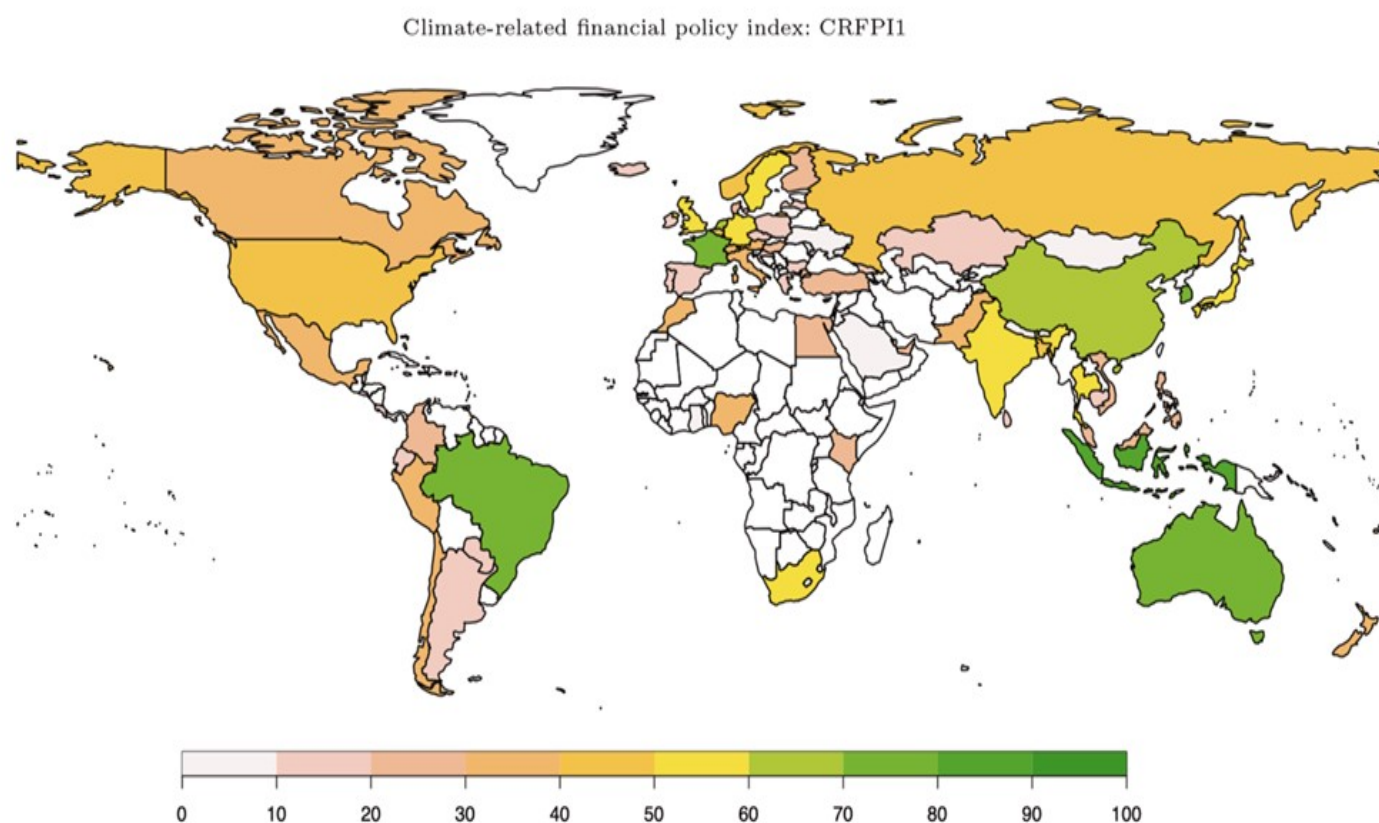
## Implementing the index

Figs. 3 and 4 report the results using the benchmark method and considering the distribution of the index for 2020 and the distribution of the sub-indices (i.e., the indicators of the different policy areas) over the period 2000–2020, respectively.

First, a high CRFPI characterizes very few countries: Australia, Brazil, China, France, Indonesia, the Netherlands, and South Korea, as highlighted in green in Fig. 5. The index allows us to identify the country with the lowest CRFPI. i.e., Saudi Arabia (highlighted in grey), followed by several countries with low performances, such as Argentina, Ecuador, Spain, Portugal, and Iran, highlighted in pink.

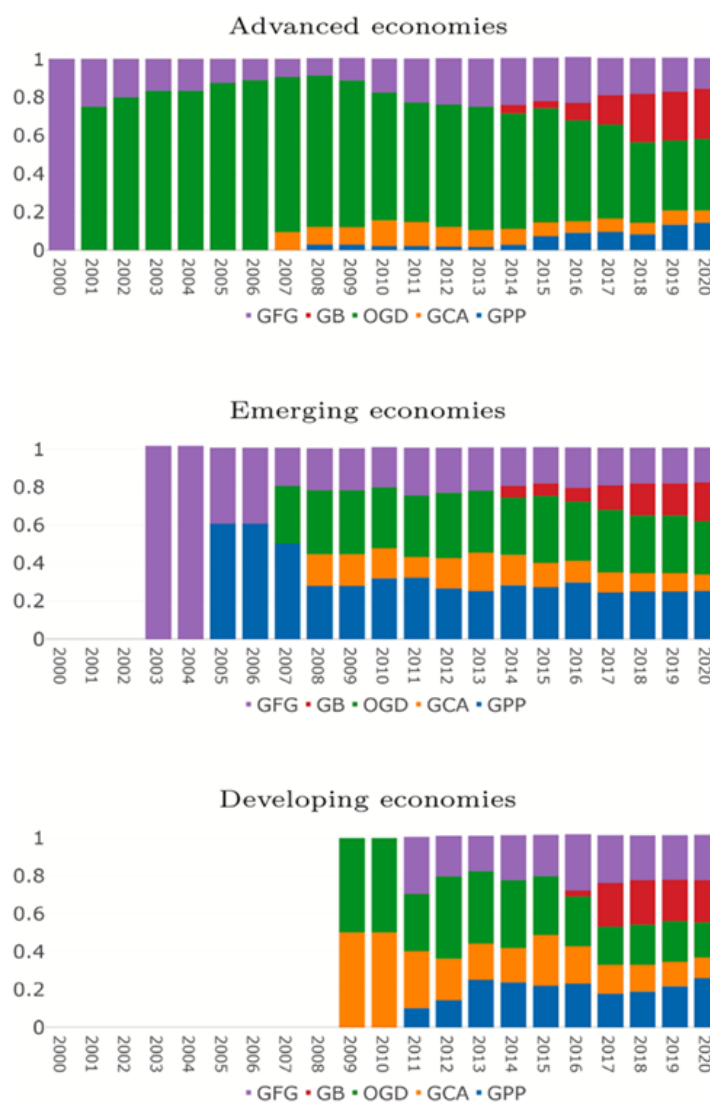
Second, a “location” or bandwagon effect is observed for South and East Asia and the Pacific countries. A similar effect is observed in Europe, where the leading actors are France and the Netherlands, followed by Germany, the UK, and Sweden (highlighted in yellow). Instead, in Latin America, there is only one leading country, i.e., Brazil, while other countries perform quite poorly, with below-average index values. In North America, the highest index is observed for the USA, but its green financial policymaking is not prominent compared to other global examples. Only a few cases are observed in the African continent; among them, the highest CRFPI is recorded in South Africa.

<sup>2</sup> In this policy brief, the results of the benchmark approach are reported. The interested reader is invited to read the full paper to learn about the results of the sensitivity analyses.

**Figure 3: Benchmark setting: the distribution of the CRFP index.**

Source: D’Orazio and Thole, 2022

The results observed for Australia, China, and Brazil, among others, are particularly interesting and show the potential of the proposed index. For these countries, the CRFP index highlights a high commitment to financial policymaking; it is, however, not aligned with the achievement of climate objectives at the national level. The scores reported for these countries seem to be at odds with the Australian economic and energy policy (consider, e.g., that it is the world’s biggest exporter of coal), the current debate on the high pollution levels reported in China and the approach of Bolsonaro’s government against environmental and sustainability goals in the past years. The rationale for this observed “inconsistency” can be twofold. On the one hand, when central banks and financial supervisors promote the policies, the independence of monetary policy and financial authorities from political power might allow them to pursue climate-related objectives irrespective of the national (i.e., government) engagement in climate policy. On the other hand, it could be interpreted as a misalignment or lack of coordination among policy actors, thus calling for closer cooperation to achieve important sustainability and climate mitigation objectives. The index thus proves useful to point out that an extraordinary engagement in climate-related financial policymaking does not always translate into environmentally or sustainable virtuous policy outputs. By dividing the sample into three income groups according to the World Bank classification, we can distinguish the differences across time for the different policy indicators.

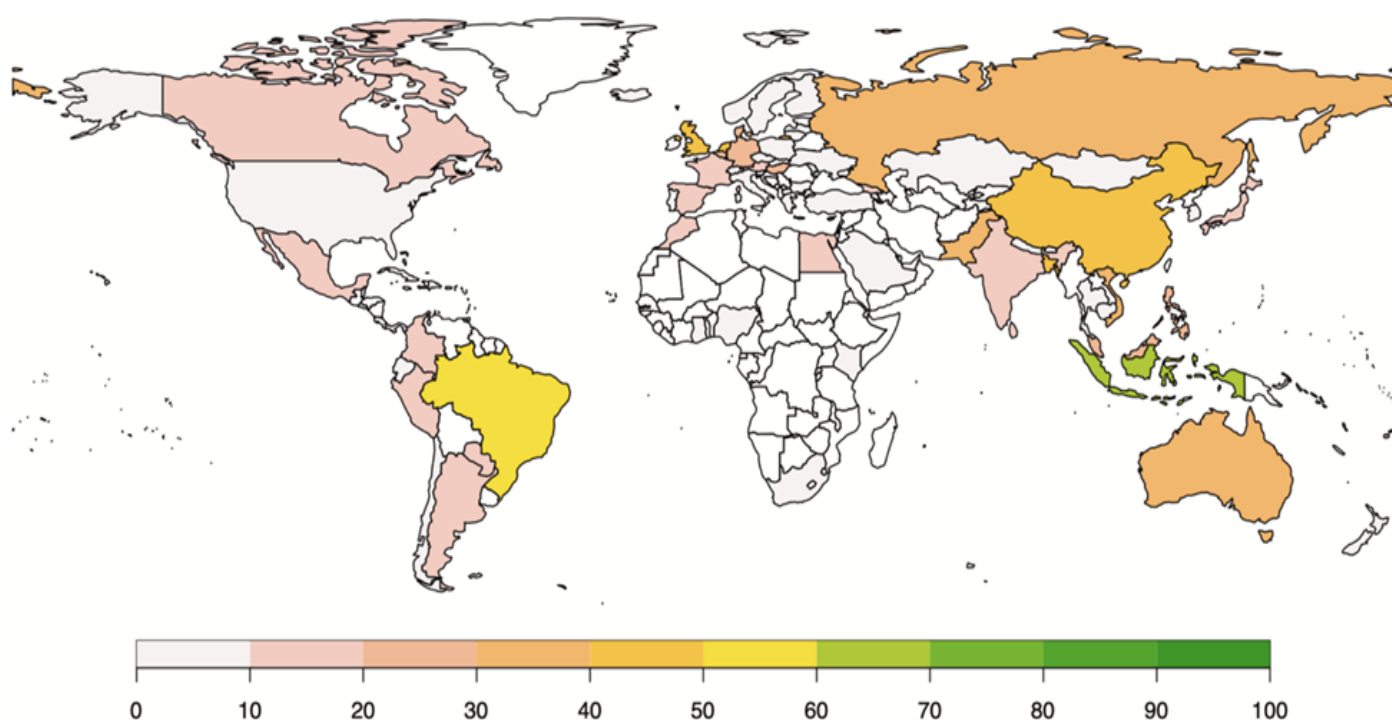
**Figure 4: Benchmark setting: the relative use of policies over time by income group.**


Notes. GPP: Green Prudential Policy; OGD: Other Green Disclosure Req.; GFG: Green Financial Guidelines; GB: Green Bonds; GCA: Green Capital Allocation. Source: D’Orazio and Thole, 2022

As shown in Fig. 4, advanced economies countries have been the most active across the whole policy spectrum since the early 2000s. The highest share over the 21 years covered in the analysis is allocated to other green disclosure requirements (green area in the graphs), followed by green financial principles. More recently, green bonds have started to gain importance because of investors’ increased attention to environmental investments. Similarly, green prudential regulations are becoming widespread, mostly because of the implementation of climate-related stress tests in several jurisdictions such as the UK, France, and the Netherlands. Concerning emerging economies, no policies were found until 2003. Overall, the shares of policies are different from advanced economies because a bigger role is played by green prudential policies (blue area in the graphs), followed by credit allocation measures (orange area).

Regarding developing economies, climate-related financial policies have started to be adopted later compared to countries belonging to the other two income groups. The share of the different policy areas is similar to those observed in emerging economies in the past years. However, a slightly higher share is reported for the green prudential and credit allocation policies starting from 2015.

**Figure 5: The distribution of the CRFP index by considering policies promoted and implemented by central banks and financial regulators.**



Source: D’Orazio and Thole, 2022

Finally, the proposed approach allows to analyze and compare countries’ engagement using the developed methodology by focusing on the agent responsible for or promoting the policy; we thus consider the sub-sample of policies promoted and implemented exclusively by central banks and financial regulators. This investigation is particularly interesting considering the debate on green central banking. The distribution of the index shown in Fig. 5 highlights that Indonesia is the most committed country to green financial policymaking, followed by Brazil, China, and the UK. Thanks to this approach, it is possible to visualize that overall, the majority of the countries - and in this specific case, central banks and financial supervisors - have a policy performance below the average.

### Relevance of the analysis

As stated in Article 2 of the Paris Agreement, climate change is a historical issue for sustainable development that necessitates a global response, including adequate financial resources. In order to address physical and transition risks, all policymakers, central banks, and financial regulators must participate more actively. Climate change also poses a threat to financial stability and the conduct of monetary policy.

In light of this, some interesting conclusions can be drawn from computing the index suggested in the study carried out in D’Orazio and Thole, 2022.

First, emerging economies report the highest average CRFPI (in most aggregation settings); they thus emerge as the most engaged in climate-related financial policymaking according to all aggregation methods. However, they are characterized by the highest within-group variability, indicating no standard or general approach to greening the financial system.

Second, advanced economies also report an overall high average index value, with a slightly lower standard deviation than emerging economies. They also record the earliest engagement by adopting green disclosure requirements for non-financial institutions (NFI) since the early 2000s.

Third, the results obtained by focusing on the G20 economies show that the method developed in the paper is robust.

The index might be used to investigate whether there is an empirical relationship between climate-related financial policies and climate mitigation. The first contribution in this direction is provided by D’Orazio and Dirks (2022), which studied whether implementing climate-related financial policies resulted in CO<sub>2</sub> emissions reductions in G20 countries. The study uses panel quantile regression to show that the stock of policies adopted before 2015 has a larger impact on emissions in high emission countries, i.e., those at the top of the CO<sub>2</sub> emissions distribution. In countries with lower CO<sub>2</sub> emissions quantiles, recent policy actions have influenced CO<sub>2</sub> emission reduction. As a result, climate-related financial policies could play a role in mitigation efforts.

The index, however, does not allow for testing the effectiveness of climate-related financial policies in scaling up green financing or addressing climate risks due to a lack of data. Indeed, more data and information would be required, particularly for some countries, to perform a more thorough analysis of the financial resources mobilized (i. e., created) by the policies included in the index. Given the relevance of this topic, it will be studied further in the future.

## Conclusions

The research presented in this policy brief aimed to present a methodology developed to design a statistical measure, i.e., the climate-related financial policy index. The method is based on unique and novel data obtained to assess international engagement at the global level.

The analysis suggests that the proposed approach and resultant index could be used to shed light on countries’ engagement in climate-related financial planning and to highlight policy gaps in relevant policy sectors.

The index enables researchers to highlight that some jurisdictions at the bottom of the ranking, such as Saudi Arabia, Argentina, Turkey, Italy, Canada, Russia, and the United States, clearly require a stronger engagement in climate-related financial policymaking to be aligned with the Paris Agreement’s goals, as their scores are below average.

The information gathered by implementing the index is especially important because adopting climate-related financial policies can make it easier for governments to implement long-term climate policies that will improve our societies’ sustainability by contributing to stable economies and financial markets and providing additional resources for them the low-carbon transition. ■



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