

DATA NOTE

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# A global database for climate-related financial policies

Paola D'Orazio<sup>1\*</sup>

## Abstract

**Objectives** This article introduces the Climate-related Financial Policies Database and provides statistics on its main indicators. The database records many aspects of green financial policymaking for 74 nations for the period 2000–2020 by financial (central banks, financial regulators, supervisors) and non-financial (ministries, banking organizations, governments, and others) entities. The database is crucial for identifying and evaluating present and future trends in green financial policies, as well as the role played by central banks and regulators in raising green financing and taming financial instability caused by climate change.

**Data description** The database captures various aspects of financial (central banks and financial regulators and supervisors) and non-financial institutions' (ministries, banking associations, governments, and others) green financial policymaking in the period 2000–2020. Information is collected for the following variables: country/jurisdiction, economic development level (as defined by the World Bank Indicators), year of policy adoption, measure adopted and its bindingness, and authority/ies responsible for its implementation. The database includes 74 countries, of which 39 are advanced economies, 20 are emerging, and 15 are developing economies. Open knowledge and data sharing encouraged by this article can support research in the developing field of financial policymaking related to climate change.

**Keywords** Climate-related financial policies, Climate risks, Climate change, Financial stability, Prudential regulations, Green financial policymaking, Database

## Objective

Extreme weather events can result in financial losses for non-financial businesses and increase their financial fragility, coupled with substantial economic costs [1]. Due to financial and economic losses, the destruction of production capital, the fall in profitability of exposed enterprises, and the stranding of assets associated with climate-relevant industries, climate-related financial risks can result in credit, market, liquidity, and insurance risks [2]. Policies must therefore be designed to reduce

the effects of financial sector fragility in the face of such threats; increasing our understanding of the policies used on a global scale would aid in this effort.

Our knowledge of what policies are used across countries and time, which the authorities responsible for their promotion and implementation, and the “bindingness” of the policy is, however, still quite limited, hindering our ability to understand the newly developed financial policies and institutions' reforms in the short and medium run, in response to climate change threats to the financial system stability.

The database aims to close the significant data gap related to climate-related financial policies (CRFPs) for academics and decision-makers, which currently hampers the assessment of the impact of the reforms fostered

\*Correspondence:

Paola D'Orazio

paola.dorazio@wirtschaft.tu-chemnitz.de

<sup>1</sup> Chair of Economics, Faculty of Economics and Business Administration, Technische Universität Chemnitz, Chemnitz, Germany



by central banks and financial regulators on climate-related risks.

The database permits the construction of the CRFP index to assess, quantify, and compare international engagement to climate-related financial policymaking in recent decades [3] and the analysis of pandemic and climate change threats in the prudential regulatory frameworks of G20 countries [4]. Moreover, the different indicators of Policy Areas contained in the database have been used to investigate whether these policies contribute to the reduction of CO2 emission in G20 countries [5], to study the empirical link between the climate-related financial policies and the central bank and/or financial regulators governance structure [6] and which factors influence the decision to adopt climate-related financial policies [7].

**Data description**

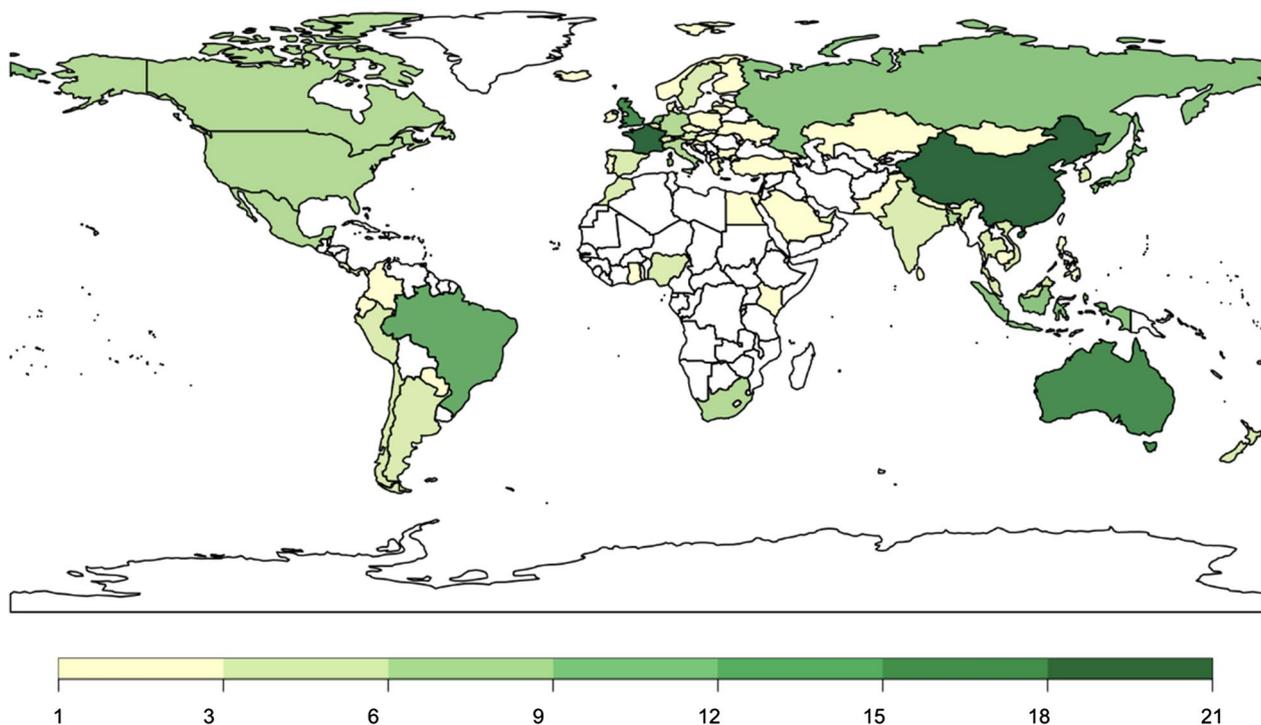
This research builds a collection of global CRFPs issued by multiple authorities from 2000 to 2020 by retrieving policy documents from official databases and websites. The database covers 74 countries, of which 39 are advanced, 20 are emerging, and 15 are developing economies (Fig. 1 [Data file 3] and Fig. 2 [Data file 4]).

Collected data shows that the number of policies adopted each year has risen over time, reflecting a greater

level of participation among nations. Evidence collected in the database shows that globally the financial sector has been more involved in integrating standards and policy efforts and promoting financial industry transparency and disclosure standards following an increased international engagement (Fig. 3 [Data file 5]).

Disclosure requirements for non-financial institutions and green financial policies are the most common and adopted by high-income countries. Upper-middle-income countries are characterized by high adoption of green-financial policies, followed by disclosure requirements and green prudential policies. Low-middle-income countries have been more active in promoting green bonds, followed by green prudential regulations and financial principles. Low-income countries account for the lowest share of overall adoption; a higher engagement in Policy Area I is instead reported for these countries (Fig. 4 [Data file 6]).

Regarding the policy bindingness, 43% of the measures in the database are mandatory, 42% are non-binding (or no information was obtained about the bindingness), and 14% are voluntary measures (Fig. 5 [Data file 7]). Governments and central banks represent the largest shares of the authorities responsible for the policy’s promotion and/or implementation, followed by financial supervisors and regulators (Fig. 6 [Data file 8]).



**Fig. 1** Spatial coverage of the database and the total number of policies adopted by each country as of December 2020. Source: author elaboration

High income Advanced economies	Upper-middle income Emerging economies	Lower-middle income Developing economies
Australia	Argentina	Bangladesh
Austria	Brazil	Cambodia
Bahrain	Bulgaria	Egypt
Belgium	China	Ghana
Canada	Colombia	India
Chile	Costa Rica	Kenya
Croatia	Ecuador	Mongolia
Cyprus	Fiji	Morocco
Czech Republic	Georgia	Nepal
Denmark	Indonesia	Nigeria
Finland	Kazakhstan	Pakistan
France	Lebanon	Philippines
Germany	Malaysia	Sri Lanka
Greece	Mexico	Ukraine
Hungary	Paraguay	Viet Nam
Iceland	Peru	
Ireland	Russia	
Israel	South Africa	
Italy	Thailand	
Japan	Turkey	
Latvia		
Lithuania		
Luxembourg		
Netherlands		
New Zealand		
Norway		
Panama		
Poland		
Portugal		
Saudi Arabia		
Seychelles		
Singapore		
South Korea		
Spain		
Sweden		
Switzerland		
United Arab Emirates		
United Kingdom		
United States of America		

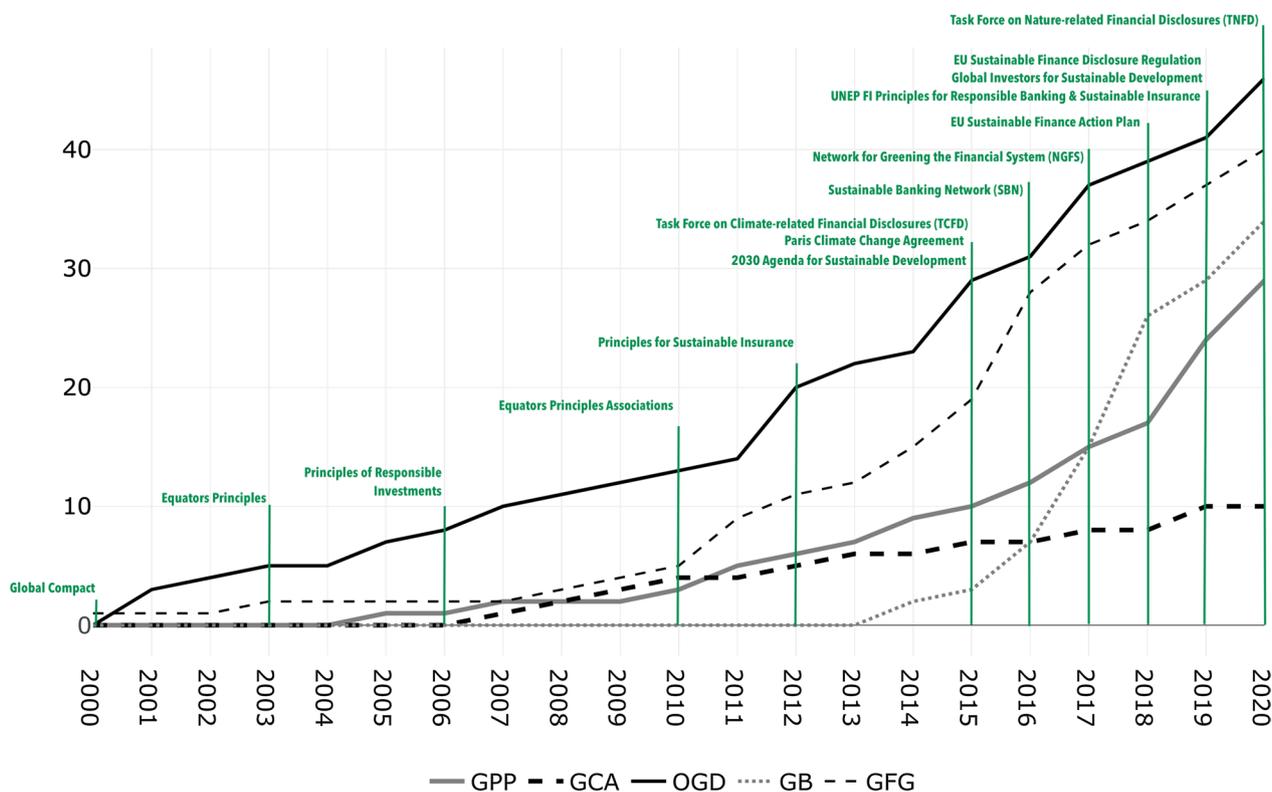
**Fig. 2** Countries classification by income group—World Bank classification

**Data construction**

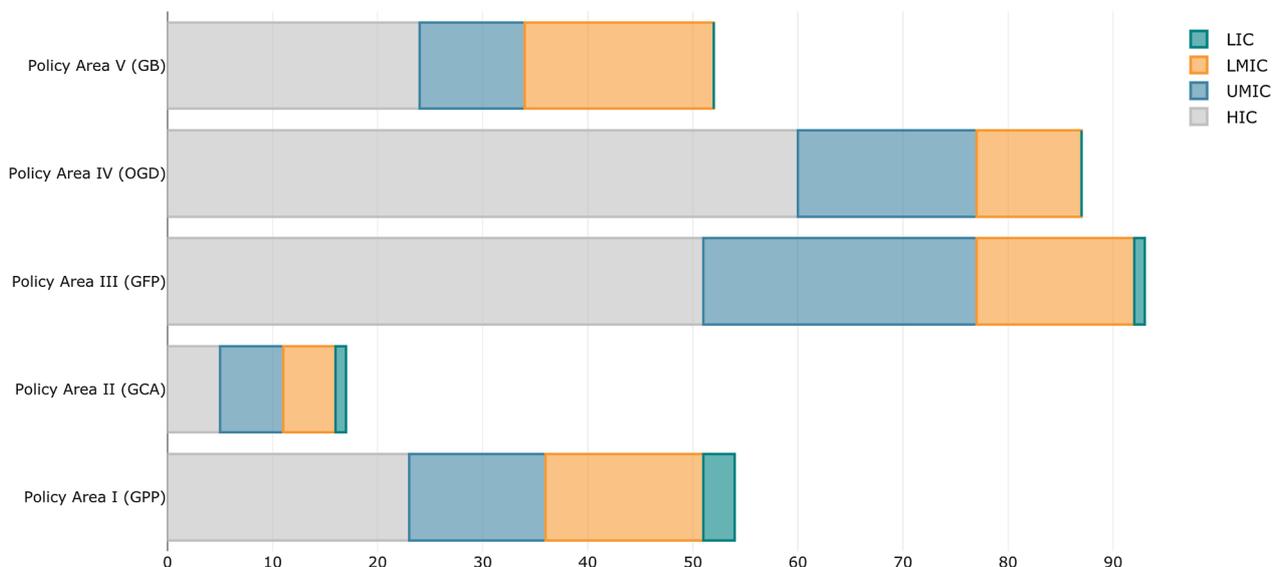
The methodology comprises three steps (Fig. 7 [Data file 9]).

First, a CRFPs taxonomy is developed (Fig. 8 [Data file 10]). Accordingly, the database covers five policy areas (PA):

- I—Green Prudential Regulations;
- II—Green Credit Allocation Policies;
- III—Green Financial Guidelines;
- IV—Other Green Disclosure Requirements;
- V—Green Bonds Taxonomy and Issuing.



**Fig. 3** Cumulated adoption of climate-related financial policies. Source: author elaboration

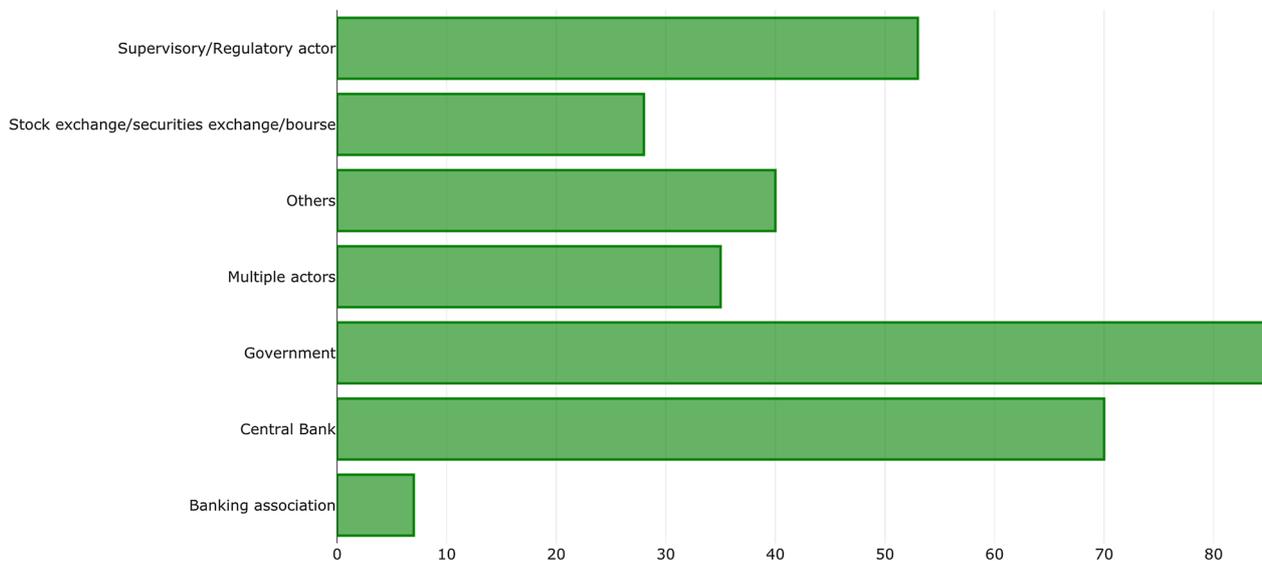


**Fig. 4** Measures—sorted by Policy Areas—adopted by different income groups. Source: author elaboration

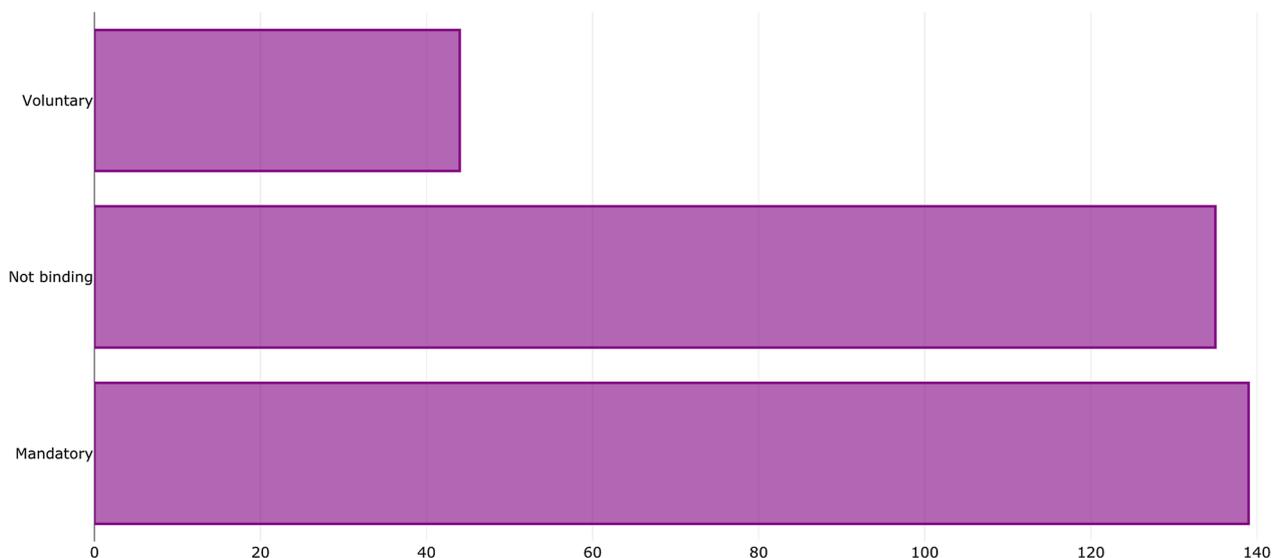
Second, the data collection was designed to gather information on the country/jurisdiction, the economic development level (as defined by the World Bank Indicators), the year of policy adoption, the measure adopted

and its bindingness, and the authority responsible for its implementation.

Third, after the information collection, documents relevant to climate-related regulation were sorted by



**Fig. 5** Distribution of policy adoption by bindingness. Source: author elaboration



**Fig. 6** Distribution of policy adoption by authority responsible for the policy’s formulation or promotion. Source: author elaboration

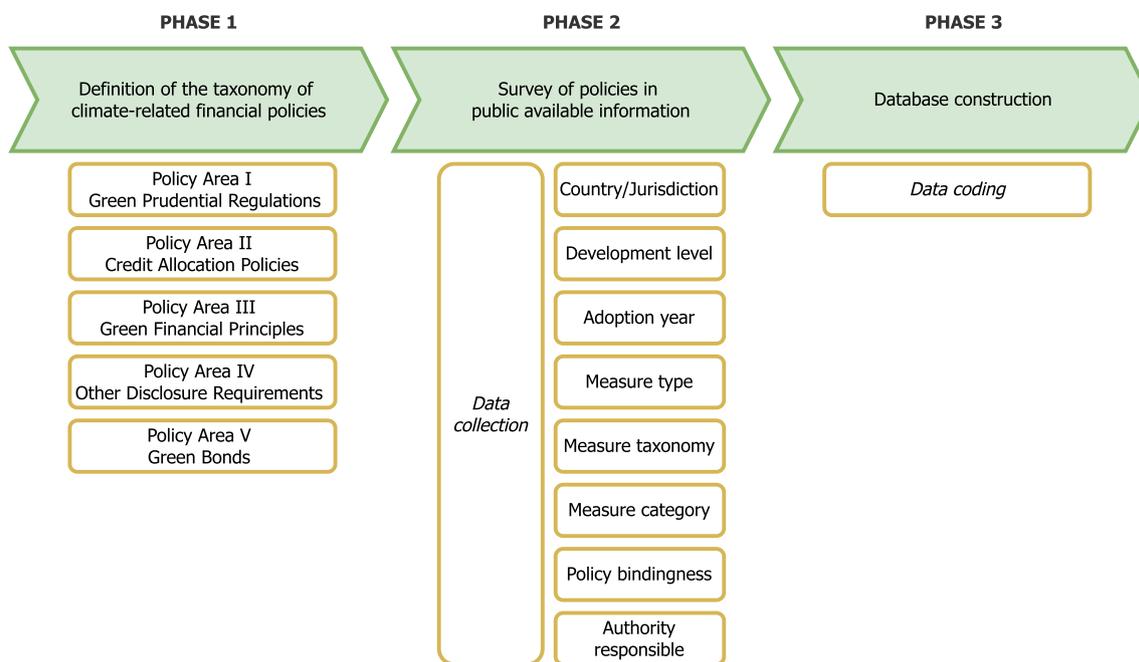
carefully reading the policy text, thus assuring the accuracy of the data collection. This procedure was carefully designed and executed to guarantee thorough coverage and accuracy in the data gathering; the methodology is described in Data file 11. The data has been sample-checked manually when integrated into the database, and each entry is manually validated so, e.g., there are no duplicated counts for each country on a given date.

Table 1 provides an overview of the project and the files available. The overall project is stored and described (Data file 2) in a GitHub repository [8] to allow for

regular updates and contributions. The CSV file (Data set 1) is in UTF-8 and comma separated; this allows to import of data into any software. The database is published under the CC BY license.

**Limitations**

Existing data do not allow for assessing the effectiveness of climate-related financial policies. D’Orazio and Dirks [5], have made the first contribution in this direction by examining whether the implementation of climate-related financial policies resulted in CO2 emissions



**Fig. 7** The conceptual framework for developing the global database for climate-related financial policies. Source: author elaboration

Financial Policy Area	Category	Objective	Instrument	Example	
POLICY AREA I (GPP) <b>Green Prudential Regulations:</b> to promote the development of green macroprudential frameworks	<i>Quality and level of capital</i>	Mitigate and prevent excessive credit growth and leverage	CAR with GSF/BPF CCyB Sectoral Leverage Ratios Sectoral Capital Requirements		
	<i>Risk management and supervision</i>	Evaluate effect of economic or financial shocks to the financial system	Climate-related stress test (macro)	UK, 2019, General Insurance Stress Tests (GIST) Cover Natural Catastrophe Scenarios and Climate Change Risks (Largest banks and insurers), Prudential Regulatory Authority	
	<b>Capital</b>	Assess exposure of banks' portfolios to carbon-intensive assets	Green Asset Ratio		
		Internal Process of Capital Adequacy Assessment: Include social and environmental risks when assessing their capital needs	ICAAP	Brazil, 2011, Circular No. 3.547/2011, Banco Central do Brazil	
	<i>Enhanced risk disclosure and market discipline</i>	Inform about concentration of carbon-intensive assets in the financial sector	Climate-related disclosure requirements	China, 2013, China's Green Credit Statistics System, China Banking Regulatory Commission (CBRC)	
	<b>Liquidity</b>	<i>Liquidity</i>	Mitigate and prevent market illiquidity and maturity mismatch	LCR NSFR	
POLICY AREA II (GCA) <b>Green Credit Allocation Policies:</b> to directly promote green credit measures and investments	<b>Large exposures</b>	<i>Lending limits</i>	Mitigate systemic risk by limiting the concentration of certain exposures	Large exposures limit	India, 2015, Priority Sector Lending, Reserve Bank of India
POLICY AREA III (GFP) <b>Green Financial Principles:</b> to create green financial markets				Australia, 2015, Environmental, Social, and Governance (ESG) Reporting Guide, Financial Services Council	
POLICY AREA IV (OGD) <b>Other disclosure requirements:</b> to promote the public disclosure of climate risks (also for non-financial institutions)				France, 2001, New economic regulations Act requires publicly traded companies to disclose environmental information, Government	
POLICY AREA V (GB) <b>Green bonds taxonomy and issuing:</b> to promote the development of green financial securities				Indonesia, 2017, Regulation on the Issuance and the Terms of Green Bond (No. 60/POJK.04/2017), Financial Services Authority of Indonesia (OJK)	

**Fig. 8** Definition of the five Policy Areas, instruments and objectives of the climate-related policy measures. Source: author elaboration

reductions in G20 countries. However, more data and information, particularly for some nations, would be required to conduct a more thorough study of the amount of financial resources mobilized by the policies

included in the index. Further research in this field may be carried out in the future when more data become available.

**Table 1** Overview of data files/data sets

Label	Name of data file/data set	File types (file extension)	Data repository and identifier (DOI or accession number)
Data set 1	A global database for climate-related financial policies	CSV file	Zenodo <a href="https://doi.org/10.5281/zenodo.7567776">https://doi.org/10.5281/zenodo.7567776</a> [8]
Data file 2	README.dm	.dm	Zenodo <a href="https://doi.org/10.5281/zenodo.7567776">https://doi.org/10.5281/zenodo.7567776</a> [8]
Data file 3	Figure 1.png	.png	Zenodo <a href="https://doi.org/10.5281/zenodo.7567776">https://doi.org/10.5281/zenodo.7567776</a> [8]
Data file 4	Figure 2.png	.png	Zenodo <a href="https://doi.org/10.5281/zenodo.7567776">https://doi.org/10.5281/zenodo.7567776</a> [8]
Data file 5	Figure 3.png	.png	Zenodo <a href="https://doi.org/10.5281/zenodo.7567776">https://doi.org/10.5281/zenodo.7567776</a> [8]
Data file 6	Figure 4.png	.png	Zenodo <a href="https://doi.org/10.5281/zenodo.7567776">https://doi.org/10.5281/zenodo.7567776</a> [8]
Data file 6	Figure 5.pdf	.pdf	Zenodo <a href="https://doi.org/10.5281/zenodo.7567776">https://doi.org/10.5281/zenodo.7567776</a> [8]
Data file 7	Figure 6.png	.png	Zenodo <a href="https://doi.org/10.5281/zenodo.7567776">https://doi.org/10.5281/zenodo.7567776</a> [8]
Data file 8	Figure 7.png	.png	Zenodo <a href="https://doi.org/10.5281/zenodo.7567776">https://doi.org/10.5281/zenodo.7567776</a> [8]
Data file 9	Figure 8.png	.png	Zenodo <a href="https://doi.org/10.5281/zenodo.7567776">https://doi.org/10.5281/zenodo.7567776</a> [8]
Data file 10	Methodology.pdf	.pdf	Zenodo <a href="https://doi.org/10.5281/zenodo.7567776">https://doi.org/10.5281/zenodo.7567776</a> [8]

**Abbreviation**

CRFPs Climate-related financial policies

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**Author contributions**

PD has conceptualized the research, developed the methodology, curated the data, and validated it. She also wrote the main manuscript text, compiled the database, and prepared the data files, including the figures.

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**Availability of data and materials**

The data described in this Data note can be freely and openly accessed on GitHub under CRFPdata [8]. See Table 1 for details and links to the data.

**Declarations****Ethics approval and consent to participate**

Not applicable.

**Consent for publication**

Not applicable.

**Competing interests**

All authors declare no competing interests.

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