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RESEARCH ARTICLE



Driving Global Convergence in Green Financial Policies: China as Policy Pioneer and the EU as Standard Setter

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Abstract

Although policies for green financial systems are proliferating across the globe, the dynamics shaping such policies remain inadequately understood. With China and the EU at the global forefront of green financial policies, this paper demonstrates how they each influence global policy norms through their distinct policy models. This contributes to the literature, first, by improving our understanding of the global green financial policy processes and, second, by challenging current expectations from the literature. Analysing three central policy areas (information disclosure, taxonomies, and central banking) from an institutional approach, the paper, first, finds that green financial policies are both proliferating and converging globally. Second, the paper finds that China pioneered policy types around 2015, creating an Overton Window. Subsequently, since 2018, the EU has been standardising policy contents within the policy types that China pioneered. The findings suggest that China acts as a policy pioneer through its top-down policy approach, whereas the EU acts as a standard setter through its bottom-up approach. Although this confirms the literature's expectation that the EU creates global standards, it challenges the expectation that China is both primarily a recipient of policy practice and too unique for other countries to learn from directly. In the broader context, the findings imply that the current global situation of competing political models may be an advantage as countries complement each other through both competition and collaboration. Efforts to align financial systems with sustainable development have moved from industry-led initiatives to state-led green financial policies, which are now proliferating and converging across the globe. China and the EU are the most influential actors in shaping how countries across the world use green financial policy because China acts as a policy pioneer based on its top-down policymaking model and the EU acts as a standard setter based on its bottom-up model. Although China and the EU have competing governance and policymaking models, their differences may have been an advantage to scaling up green financial policies as they complement each other through different roles. Awareness of their roles and different approaches should inform future China-EU policy coordination because harmonisation of practice remains a barrier to mainstreaming green finance. Other countries can benefit from awareness of policy developments in the EU and China to support their own policy development in terms of future scope and contents.

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1 | INTRODUCTION: UNDERSTANDING THE RISE OF GREEN FINANCIAL POLICIES ACROSS THE GLOBE

Today, green finance is a key topic in policymaking across the world. Such efforts aim to align financial systems with the UN's Sustainable Development Goals (SDGs) and are intended to contribute toward closing the SDG annual financing gap that currently stands at approximately US\$2.5 trillion (Gaspar et al., 2019; OECD, 2020). This emphasis has accelerated, in particular, because China initiated a G20 working group on the topic in 2016 with strong support from the EU. The G20 working group meant that green finance went from being a private-sector-driven and voluntary issue to a key issue in policymaking and intergovernmental coordination. Today, we see a gradual mainstreaming of green financial practices by government bodies across the world, and much of this follows the practice seen in China and the EU. However, based on their different economic models, they have influenced this process differently and in ways not predicted by current literature in policy studies.

This paper intends to contribute to the literature in two concrete ways. First, the paper improves our understanding of green financial policymaking. It does so by comparing three central green financial policy areas, namely, information disclosure, taxonomies, and central banking. This provides key insights for both researchers and policymakers to understand the dynamics of the policy field. Such understanding is critical to the successful green transformation of financial markets because a central obstacle today is a lack of cross-country coordination and harmonisation. Second, the paper tests and challenges expectations in the literature regarding the roles of the EU and China in shaping global policy practices, as well as whether and how countries' policies and policy models are converging. This advances the academic field by using green finance as a case to understand broader phenomena regarding policy formation.

In terms of methods, the paper takes a qualitative analytical approach. Although green finance is a relatively new topic in global policymaking with only 5 years of history, green financial policies have existed at national levels for another 10 years before that. This means that there is now enough empirical material to start analysing the dynamics. In terms of data input, the paper relies on both primary and secondary material. The first primary data input is participant observation by the author from 2016 to 2020 with involvement in working groups, committees, and informal meetings organised by government bodies in Beijing, including participation in the China-EU working group on harmonising green financial standards (EIB & GFCC, 2017, 2018). The second primary data input is 20 semi-structured

Policy Implications

- Efforts to align financial systems with sustainable development have moved from industry-led initiatives to states' green financial policies.
- China and the EU are the most influential actors in shaping how countries across the world use green financial policy.
- China acts as a policy pioneer based on its top-down policymaking model and the EU as a standard setter based on its bottom-up model.
- Global convergence on green financial policies happened as China pioneered policies around 2015 and next when the EU began setting standards from 2018 onwards.
- Although China and the EU have competing governance and policymaking models, their differences may have been an advantage in scaling up green financial policies because they complement each other through different roles.

and unstructured interviews that were carried out with Chinese and international policymakers, regulators, financial institutions, and research organisations in Beijing between 2016 and 2020. Secondary material includes global databases of green financial policy documents, official statements by officials including from financial system regulators and central banks, as well as statements and opinion articles from key stakeholders such as financial institutions.

The paper's central findings are that green financial policies are both proliferating and converging across the world and that China and the EU play different roles in this process. The paper finds that the first step in the convergence process was when China pioneered policies around 2015. The second step has been underway since 2018 as the EU sets standards in the same policy areas that China pioneered. The findings suggest that China acts as a policy pioneer through its top-down policy approach, whereas the EU acts as a standard setter through its bottom-up approach. Although this confirms the literature's expectation that the EU creates standards, it challenges the expectation that China is both primarily a recipient of policy practice and too unique for other countries to learn from directly. As China and the EU compete and learn from each other, this finding implies that the current global situation of competing policy models may be an advantage as countries complement each other through both competition and collaboration.

The structure of the paper is as follows: after this introduction, the second section outlines the institutional

approach taken by the paper and distils key arguments in the existing literature to demonstrate how the paper uses and challenges these. Third, the main analytical section considers three aspects of global green financial policies, assessing global policy developments and dissecting the roles of China and the EU. Fourth, the discussion and concluding section approaches how China's and the EU's roles can be conceptualised and what this means for our understanding of global policymaking.

2 | COMPARING GOVERNANCE MODELS AND ESTIMATING POLICY CONVERGENCE IN GREEN FINANCE

This paper takes an institutional approach to analysing global policymaking. Within this approach, authors have been concerned with so-called norm diffusion for decades. Applied to how policy types and contents are diffused between states at the global level, the approach focusses on how institutionalised norms, rules, principles, and models shape the behaviour of organisations, including states (DiMaggio & Powell, 1983; Meyer & Bromley, 2013). When such norms are institutionalised, it creates 'isomorphic' pressures on countries to follow a certain practice embedded in the overarching global environment. Green financial policymaking as a field, as well as China and the EU as organisations, can be viewed through this lens to analyse how norms around states change. The expectation from this literature would be that green financial policies should proliferate and converge if norms are institutionalised in the global policy environment. In comparison, alternative theoretical approaches, in turn, would have their own explanations for policy convergence: a realist and rational choice approach would see countries competing for influence through green financial policies, whereas a Marxist-inspired world-systems approach would see green financial policies cementing core-periphery dependencies between states. In practical terms, the institutional approach means that the analysis below focusses on how green financial policy norms are created, developed, shaped by different actors, and diffused globally.

While concentrating on explaining the institutionalisation of green financial policies across the world, this paper analyses the roles of China and the EU. Although China and the EU differ as countries and intergovernmental organisations, and in their authoritarian and democratic approaches to governing, this paper argues that they can be compared. This is, most critically, because they are recognised as the most influential actors in green financial policymaking (ICMA, 2021). This influence is, in part, because China and the EU are the most active in using governmental tools to green

financial systems, as measured by stated ambitions, the number of policies, and approximate effects (Barnes & Livingstone, 2021; GFP, 2022). That can be contrasted with the US where, so far, the government has taken a hands-off approach to governing the financial system in a green direction (Lund Larsen, 2021). The influence is also the result of broader factors, such as being among the world's largest economies and largest greenhouse gas emitters, as well representing the global North and South. Furthermore, they are comparable as policymaking organs because the central Chinese government and the EU are the main organisers of green financial policies in their jurisdictions, which are subsequently further implemented at the provincial or member-state levels, respectively. That means that, from very different viewpoints, both agree that the state apparatus should play a key role in aligning the financial system with the Paris Agreement. They also agree that international coordination is key to achieving this objective, as financial systems are increasingly global. This is cemented in EU-China joint communiques (European Council, 2019) and the concrete efforts at harmonising green bond standards through white papers in 2017 and 2018 (EIB & GFCC, 2017, 2018).

To understand how China and the EU shape global green financial policy, the paper uses existing literature on comparative politics and policy studies. This allows the paper to use conceptualisations of each party's policy model and determine how this influences global norms and, ultimately, policymaking. Regarding policy models, China is identified as simultaneously having the traits of being a developmental state, state capitalist, or authoritarian capitalist (Rethel & Thurbon, 2020). Recent literature on the Chinese political economy suggests a slowdown of both economic and political liberal reform, with a resurgence of the state and the party (Fingar & Oi, 2020). This emerging political economy model can be characterised as party-state capitalism (Pearson et al., 2020). This indicates a clear top-down approach to economic governance, with the state taking an active role in steering and directing the economy. This approach is also seen in green finance (Wang, 2018). Although scholars disagree on the challenges of EU integration (Bohle, 2018) or democratic deficits (Fawley & Neely, 2013), they agree that the fundamental EU governance model is that of multilevel liberal democracy. This approach is also seen in green finance, where the EU takes a bottom-up approach with extensive market consultations and continuous dialogue through the policymaking process (Lund Larsen, 2021).

Regarding policymaking in the global context, China is often viewed as a 'special case' and the EU as a 'best practice'. In terms of shaping policy practice internationally, China is seen by many authors as combining three characteristics: focusing on learning from the economic and governance policies of other countries

(Musiałkowska & Dąbrowski, 2018), promoting a global governance system that lets countries tailor policies to their own circumstances (Gruin et al., 2018), and given the uniqueness of China, other countries can learn from China only indirectly rather than directly copying policies (Zeng, 2015). In fact, what other countries could learn from China may not be the policies themselves but the principles behind them, such as flexibility, experimentation, and policy learning (Korsnes, 2014). As such, the literature would expect China to experiment with unique policies based on its special top-down approach. On the contrary, the EU is often seen as a standard setter. For example, using the term ‘the Brussels effect’, Bradford (2020) argues that the EU sets standards globally through market forces without a need for coercion. This includes environmental issues (Peeters, 2013). Therefore, for green finance, the literature would expect the EU to set standards through its bottom-up approach.

3 | THE DYNAMICS OF THE CONVERGENCE OF GREEN FINANCIAL POLICIES GLOBALLY

The analysis below considers three key areas of green finance, namely, disclosure, taxonomies, and central banking. These are chosen for the following reasons: First, they all have a long enough history to see any development over time, as opposed to, for example, green loans. Second, they cover a broad area of financial system governance, from central banks to securities regulators and higher level governmental bodies. Lastly, they are the tools gaining the most attention and having a substantial concrete impact. The analysis of each of the three areas is carried out with the same structure for ease of comparison across the four stages of Table 1. Each section begins by defining the policy type and summarising the early stage of the policy area globally. Second, the section assesses and compares developments in China and the EU, relating them to their policy models conceptualised by existing literature. Third, it dissects the dynamics between the two.

Fourth, the analysis returns to the global level to see whether and how norms are institutionalised.

3.1 | Information disclosure

Across the world, we see a proliferation of measures on environmental information disclosure, beginning in the early 2000s and accelerating, particularly since 2015 (Figure 1). These policies refer to disclosures by companies and financial institutions on climate and environmental variables, such as their climate strategy or emissions of pollutants. Until recently, most have had a limited scope or a guiding nature, such as requiring listed companies to issue sustainability reports or requiring companies in heavy industries to disclose emissions. In all, these policies had a very limited impact.

Beginning the move toward comprehensive and mandatory disclosure, China pioneered this type of policy in 2017, requiring all listed companies to disclose environmental, social, and governance performance with a three-year gradual implementation timeline (UNEP FI, 2018). With limited discussion with market stakeholders, the policy was announced and caused surprise and concern among companies and financial institutions. This was experienced through participant observation in closed seminars in Beijing shortly after the launch of the policy.¹ The policy was to be completed by the end of 2020 but was postponed owing to COVID-19 and is now expected in 2022. So far, it has only been in place in Hong Kong since 2019, thus serving as a test site for the policy before rollout in mainland China. Although stock exchanges in different places have required companies to disclose environmental, social, and governance (ESG) variables, the Chinese policy is the first time it will cover all listed companies in a country, no matter the exchange. This information is critical for banks, which today collect material from NGO publications, news articles, and public databases to get environmental information on companies. This need for information and the consequential support from banks to mandate disclosure was expressed by an interview partner from one of China's largest banks.² This case

TABLE 1 Overview of policy practice on information disclosure across China, the EU, and globally (author's compilation)

	2000–2015	2015–2017	2018–2019	2020–2022
China		Issues world's first policy for mandatory disclosure		Begins gradual rollout in Hong Kong and the mainland
European Union			Announces plans for mandatory climate disclosure	Gradually requires disclosure depending on organisation type
Global trend	Only very limited or voluntary guidelines exist			Numerous countries announce plans to require disclosure along TCFD
Stage	Awareness raising	Policy pioneering	Setting standards	Global policy convergence

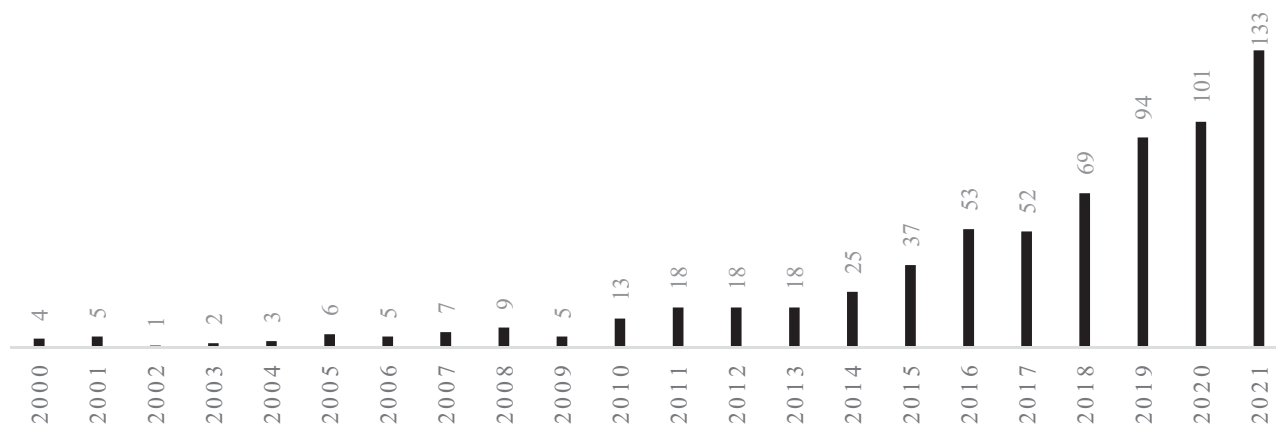


FIGURE 1 Global annual number of new policy measures on environmental information disclosure (author's compilation based on the Green Finance Platform's (2022) database).

exemplifies both China's top-down governance model as well as the gradually mandatory approach.

On the EU side, based on the first part of the green taxonomy finalised in 2021, the EU is rolling out mandatory information disclosure. Under the Sustainable Finance Disclosure Regulation (SFDR), asset managers will have to label their products by sustainability levels and disclose accordingly; they must do their first reporting in 2022. The rollout of this policy is taking place in close dialogue with financial institutions. To accommodate the difficulties voiced by financial institutions, the policy rollout dates have been postponed several times. Starting in 2014, under the Non-Financial Reporting Directive (NFRD), the EU has required large companies to report on environmental and social performance, although these requirements are flexible. This policy will be replaced by the Corporate Sustainability Reporting Directive around 2023, which would cover all listed companies. The policy is currently under negotiation with broad stakeholder participation, and the level of requirements and strictness of disclosure metrics remain to be settled (EUR-Lex, 2021). The flexibility and changes to the policy rollout are examples of the EU's dialogue-based and bottom-up policy model.

It appears that China and the EU are making progress in tandem, with the EU NFRD as the earliest, although very limited, policy in 2014 and the Chinese with a comprehensive and mandatory policy in 2017. To harmonise such practice, Yi Gang, governor of the PBoC, has voiced his support for the development of a standardised international climate reporting framework (Hodgson & Nauman, 2021). Further, Chinese financial institutions currently recommend that China base its mandatory requirements on EU practices on environmental information disclosure (Zhou et al., 2021). That is in part the result of international investors requiring such information to expand their investments in China (Ng, 2021). This suggests that, although China is further in the process of making disclosure mandatory, it

intends to follow the standards of such disclosure being developed in the EU. This is further seen from participant observation of a Chinese committee on harmonising requirements inside China.³

The EU standards on disclosure are becoming the institutionalised global norm. For example, under the SFDR, if an asset manager outside the EU wants to sell products to EU investors, they must comply with EU regulations. This is the same mechanism we saw earlier with the global adoption of the EU's GDPR (Goddard, 2017). That means that businesses across the world will need to report on sustainability factors to be included in EU asset managers' portfolios (Mooney, 2021), particularly because 60% of European fund assets are outside the EU (Davis, 2021). These developments are also reflected globally, where we see an increasing number of countries making disclosure mandatory and emulating EU practices. As such, this norm is gradually being institutionalised. Key policies from several countries, including, for example, the French Article 173 from 2016 that requires institutional investors to disclose ESG performance, which was met with high hopes at its launch, but with its flexible application, it has not turned out to be as effective as many expected (Rust, 2019). Furthermore, in 2020, Swiss authorities expressed their intention to increase institutions' financial disclosure in accordance with the recommendations of the TCFD, although the policy is undergoing public consultation before decisions are made on its rollout (FINMA, 2020). In addition, the UK has launched a roadmap that makes TCFD-based disclosure mandatory for asset owners by 2022 (Treasury, 2020). Lastly, to meet investor demand for ESG information (Johnson, 2021), the US Securities and Exchange Commission started a dialogue with market participants in 2021 (Lee, 2021). As a sign that climate disclosure is both converging and entering the mainstream, Mark Carney, the former governor of the Bank of England, argues that the G20 should launch a

pathway to comprehensive and mandatory disclosure by the TCFD (Wang, 2021). With its coverage beyond the EU, it appears that such policies from non-EU countries will have to be compatible with EU regulations, which is the case with the TCFD used as standards by Switzerland and the UK. As more countries develop taxonomies and as leading authorities advocate them, we see the institutionalisation of a new norm that creates isomorphic pressure on states to follow suit.

3.2 | Taxonomies

Taxonomies that define what kind of projects qualify as green are being developed in countries across the world.⁴ Before the development of state-backed taxonomy, green taxonomies were either only used by a single organisation like the World Bank or provided by an NGO for voluntary use like the Climate Bonds Initiative. Green taxonomies are often used as the basis for other green financial policies, such as for allocating state financing or as a requirement for what capital raised by green bonds can be used for. As green financial policies become numerous, we see an increasing number of countries developing such taxonomies (Tables 2 and 3).

China was the first country to launch such taxonomies in 2014 and 2015. Key taxonomies include the China Banking Regulatory Commission's (2014) list of green industries on which banks have to file statistics, the PBoC's (2015) Green Bond Project Endorsed Catalogue, the National Development and Reform Commission's (NDRC; 2019) Green Industry Catalogue, and the PBoC, NDRC, and China Securities Regulatory Commission's (CSRC) updated and joint Green Bond Project Endorsed Catalogue (2021). Yet, although the taxonomies all come from governmental bodies, they do not include exactly the same project types and differ, for example, on the inclusion of nuclear power, clean coal, or passenger rail. This can be seen as an example of fragmented authoritarianism, which is an issue characteristic of the Chinese model of governance (Brødsgaard, 2017). With limited dialogue and transparency, China has developed taxonomies as the first country in the world through a top-down, ministry-driven approach.

The EU's overarching green financial policy, the Sustainable Finance Action Plan, includes a voluntary taxonomy. Although the taxonomy itself is voluntary, it will be the standard for green EU policies, which is a concern for several fossil fuel reliant Eastern European countries (Jessop & Abnett, 2021). To develop this taxonomy, the European Commission (EC) established a 'sustainable finance platform' as an expert group of 50 members to provide advice. Drafts of the taxonomy have been revised back and forth, increasing and lowering the threshold of what can be included. A contentious issue is that of gas as a transition fuel, for which the EC is under lobbying pressure to include, although environmental groups are against labelling any fossil fuel as green (Simon, 2021). As a sign of the importance attributed to the taxonomy, the EC received input from 45,000 respondents in its open consultation (Rust, 2021). The taxonomy is still not finalised with a first version of the green component released and with a social component to be negotiated in 2022. As such, it is clear that the EU has taken a dialogue- and consensus-based approach, although this has led to a postponement of the launch.

Judging by the historical succession of taxonomy policies in China and the EU, it appears that the two are learning from each other. In 2014, China demonstrated that mandatory policies give clarity to the market, as seen with green bonds, which is something investors across the world have seen as a key issue in green finance. This may have incited the EU to include taxonomy development in its 2018 Sustainable Finance Action Plan, although no publicly available material can confirm this. In the other direction, as it became clear that the EU was developing a taxonomy that would not include clean coal and that most international investors agreed with the exclusion, China then removed clean coal from its green bond taxonomy, although it still includes gas in certain cases (PBoC, 2021). Both interviews and participant observation reveal that Chinese policymakers were aware of the problems caused by clean coal's inclusion and therefore had it removed, in large part owing to external pressure.⁵ This suggests that policy content is converging. As part of this process, China and the EU have been working on harmonising green taxonomies since 2017 (EIB & GFCC, 2017), and

TABLE 2 Overview of policy practice on green taxonomies across China, the EU, and globally (author's compilation)

	2000–2015	2015–2017	2018–2019	2020–2022
China		Issues world's first state-backed green bond taxonomy		Removes clean coal from green bond taxonomy in line with EU
European Union			Announces plan to issue a sustainability taxonomy	Issues first version of green part of taxonomy
Global trend	Only voluntary taxonomies exist			Numerous countries issue guiding taxonomies most similar to the EU
Stage	Awareness raising	Policy pioneering	Standard setting	Global policy convergence

TABLE 3 Overview of taxonomy development stages by country (author's compilation based on UN-DESA and IPSF (2022))

	In use	In regulation	In draft	Under development	In discussion
Country	China, Japan, Bangladesh	EU, Malaysia, Mongolia	South Africa, Russia, South Korea, Colombia, New Zealand	Kazakhstan, India, Sri Lanka, ASEAN, Indonesia, Vietnam, Philippines, Singapore, Dominican Republic, the UK, Canada	Chile, Mexico, Australia

although they have been unsuccessful so far, the work continues. As expressed by an interview partner who is a senior Chinese official developing green taxonomies, developing a common or compatible taxonomy would be in the interest of both parties, and although both parties in practice agree on 95% of the content, the main obstacle for compatibility is finding agreement on industry categorisations.⁶ Furthermore, participant observation of a Chinese committee on harmonising green financial standards demonstrates that China intends to follow EU taxonomy as far as possible and consciously chooses areas of difference depending on national needs.⁷ This is why the most recent collaborative effort used an international baseline, the International Standard Industrial Classification of All Economic Activities (ISIC), to compare Chinese and EU taxonomies (IPSF, 2021).

Across the world, taxonomies have been strongly influenced by both China and the EU, according to the International Capital Market Association (ICMA; 2021). Furthermore, the Future of Sustainable Data Alliance finds that half of the countries developing taxonomies use the EU as a benchmark and the other half as inspiration (Gondijan & Merle, 2021). That is clear evidence of an increasingly institutionalised norm. For example, in December 2020, the Bangladeshi central bank launched a taxonomy based on the exact same principles and categories as the draft EU taxonomy (Bangladesh Bank, 2020). Furthermore, the National Treasury of South Africa is developing a taxonomy that applies the same principles as the EU taxonomy of 'do no harm' and 'make a significant contribution,' although it is expected to use the same categories with lower thresholds (NTRSA, 2020). A further clear example of another country converging on EU practice is Russia launching its green taxonomy in 2021 with the same threshold for using gas for electricity generation of 100 g CO₂e/kWh (CBI, 2021), demonstrating that, even before the EU taxonomy is finalised and adopted, other countries use it as a baseline. In fact, the EU may change this threshold, while Russia still uses it in its draft. As the only exception to this, the Financial Stability Commission of Mongolia launched a taxonomy in 2019 that mirrors the 2015 Chinese green bond taxonomy, both in categories and the inclusion of clean coal. It appears that China has pioneered how the state can use taxonomies, whereas the EU has mainstreamed the principles within such taxonomies. This demonstrates an emerging global norm around

taxonomies and that China is also subject to the pressure of removing clean coal from most taxonomies.

3.3 | Central banking

Central banks can play an important role in greening financial systems. They can do so, for example, by greening asset purchases, prioritising green assets in collateral frameworks, and through direct funding and refinancing schemes (Barnes & Livingstone, 2021). As climate issues became increasingly prioritised in the 2000s, pressure mounted for central banks to get involved. This came from both civil society and researchers publishing articles on how it would be possible for central banks to green their policies, as well as internally in many central banks where discussions centred on whether their mandates allowed for green action or not. This is reflected in the increasing membership of the Central Banks and Supervisors Network for Greening the Financial System (NGFS) (Figure 2). However, until 2020, this remained at the discussion level in most countries (Table 4).

The world's first green central banking policies appeared in China in 2015. In this regard, it is important to note that, in China, the central bank is not independent; instead, its policies are determined by the State Council (Escalante et al., 2020). This opens the space for using central banking to broaden the objectives of the Chinese government. From this outset, key central bank policies include the inclusion of green industries in the standing lending facility (SLF), accepting green bonds at AA rating and above as collateral in the medium-term lending facility (MLF), and including green performance as part of banks' macroprudential assessment (MPA;⁸ Escalante et al., 2020; Wang & Xu, 2020). In mid-2021, the PBoC also launched a green TLTRO lending facility. PBoC has no quantitative easing programme, although the Chinese government uses funds to purchase stocks with the same purpose of financial stability (Chen & Rithmire, 2020). There are no green concerns in this scheme either. The PBoC has also begun carrying out climate stress tests, although no results and methods have been made public (Hodgson & Nauman, 2021). These numerous policies, not seen anywhere else before, are practical examples of how China's top-down and unlimited mandate approach allows for policy experimentation.

In the EU, there has been ongoing discussion of whether and how the ECB can contribute to climate

TABLE 4 Overview of policy practice on central banking across China, the EU, and globally (author's compilation)

	2000–2015	2015–2017	2018–2019	2020–2022
China		Launches world's first green monetary policy instruments		Begins climate stress testing
European Union				ECB releases results and methods of climate stress testing
Global trend	Discussion of climate policies but no action		Netherlands, France, and the UK do stress testing	Numerous countries have begun or issued plans for climate stress testing
Stage	Awareness raising	Policy pioneering of policy type	Policy pioneering on specific policy	Standardisation and global policy convergence on stress testing

**FIGURE 2** Total members and observers of NGFS from 2017 to 2021 (author's compilation based on NGFS (2022) annual reports).

goals for several years. For example, Mersch (2018), a member of the executive board of the ECB, argues that climate issues, for now, are remote from the mandate of central banks because they interfere with the market, although not entirely excluding that they could be included in future. On the other hand, Lagarde (2021), president of the ECB, argues that the ECB must act together with other EU organisations on climate issues instead of the responsibility being passed around, resulting in inaction. Ultimately, the ECB has yet to roll out any green policies and remains unwilling to include green asset purchasing under quantitative easing (Arnold, 2021), although it has carried out climate stress tests, which means estimating how large a risk climate factors are for the financial system, and published results and methodology in October 2021 (ECB, 2021, 2021). This situation reveals how the limited and conflicting mandate of the ECB obstructs action on most policies beyond stress testing.

Globally, central banks have increased their green financial activities in recent years as this norm has been gradually institutionalised. Summarising the different levels of progress, the NGO Positive Money lists the Chinese central bank as the most advanced in green finance in the G20, followed by Brazil, France, the UK, and then ECB as number five (Barnes & Livingstone, 2021). A key area of attention in developed countries is stress testing. In this area, the Netherlands, France, and the UK carried out such tests before the ECB, beginning with the Netherlands in 2018 (DNB, 2018). Furthermore, at the end of 2020, both the Japanese and Korean financial regulators declared that they were preparing climate stress tests (Choi, 2020; Milburn, 2020). It is clear that, for stress testing, China and the EU have, so far, not been

at the forefront of development. This may be the result of the untransparent nature of the PBoC, which may indeed have done it before without disclosing details. It further reveals its non-independent nature, allowing it to roll out green policies without first proving the link to risk through stress testing. For the ECB, it demonstrates how its strictly controlled mandate slows policy development compared with the national central banks that successfully carried out stress testing. In this regard, although the national central banks that pioneered stress testing have similar mandates to the ECB in allowing for support for 'general economic policies', the ECB may have more conflicting objectives (Dikau & Volz, 2021). Still, as the ECB has disclosed its climate stress test framework and methodology, it is indeed likely to become the global standard, as we have seen in EU disclosure requirements and taxonomies. One area where a Chinese central bank policy is under consideration in the EU and elsewhere is green re-lending facilities, where the ECB is looking into greening its Targeted Longer-Term Refinancing Operations (TLTROs) programme (ECB, 2021).⁹ Although not formally in place, that the policy is in development is already a sign of convergence.

These examples demonstrate that China brought green finance into the overall scope of central bank policies, after which other countries began policy experiments in the policy types most feasible for their circumstances. Stress testing was low-hanging fruit for other countries in this regard because it works as a prerequisite for launching green financial policies with direct financial impact, which may be implemented subsequently. At that stage, central banks across the world may put in place policies similar to the PBoC, which they are indeed discussing today. Although no other countries have implemented policies similar to China's SLF, MLF, and MPA, because China pilots these policies and gathers data on their effect, it may be possible to conclude with high certainty that including such green factors reduces financial risks. If China provides this conclusion, then green central banking policy is within the mandate of independent central banks whose limited mandate includes risk but not environmental goals. In this case, we see the formation of an abstract global norm that central banks should engage with green finance, but

less formalisation of how this should look in practice given the variety of existing policies.

4 | DISCUSSION AND CONCLUDING REMARKS

4.1 | Conceptualising roles: China as a policy pioneer and the EU as a standard setter

Across the three areas of green financial policy addressed above, it is clear that there has been substantial global proliferation and convergence and that China and the EU have shaped this process in different ways. This appears to be the result of their distinctly different policy models and underlying political systems. To conceptualise the situation, the cases suggest that, although both take a state-interventionist approach, the different models allow China to act as a policy pioneer for policy types whereas the EU acts as a global standard setter for policy contents (Table 5).

From the analysis, we can see the chronology of policy convergence. In the early situation, where industry-led standards and financial market participants were not mainstreaming green finance, China pioneered policy types by using a top-down model and a strong state to drive progress and move policies into the realm of what is accepted internationally. As such, the first step in global convergence is when China legitimises the use of different green financial policy types. This can be understood as moving a given policy from radical and unthinkable into the 'Overton Window' of acceptable and sensible policies (Robertson, 2018). Once that is the case, it is possible for the EU to launch its own policies through its bottom-up model. The next step in global convergence takes place when the policy content of EU policies becomes the global standard. In this sense, countries across the world have begun rolling out the policy types pioneered by China using the policy contents standardised by the EU. In other words, China shapes the green financial policy 'Overton Window', and the EU determines the contents. After the EU begins standard setting, countries across the world are exposed to isomorphic pressure and gradually start rolling out policies, either as guidelines or as voluntary, which

all converge on the institutionalised norms. At the global convergence stage, the evidence above also suggests that China picks up the EU's practice, for example, by excluding clean coal and beginning stress testing.

The analysis has revealed how China and the EU's roles depend on their policy models. In terms of pioneering, because China's financial market regulators are not bound by mandates and are independent of government policies, they can play a pioneering role in many green financial policy areas (Barnes & Livingstone, 2021; Escalante et al., 2020). As China tests these innovative policies, the world pays close attention and is ready to learn and adopt the lessons. This is, for example, demonstrated by participant observation in the Chinese-led Global Green Finance Leadership Platform, in which policymakers from the global South engage with Chinese experts to learn from China's experiences.¹⁰ Furthermore, China's approach of non-limited mandates of central banks and regulators allows China to pioneer certain policies that other countries can adopt later, as promoted by the World Bank IFC (2018). As expressed by an interview partner, who is a senior Chinese official involved in PBoC policymaking, China is well aware of this role and sees it as a strength and contribution of the Chinese model that should be taken advantage of.¹¹

In terms of setting standards, the EU practices on sustainable finance are likely to become the globally institutionalised norm. This is in large part because of its bottom-up policy model and political system, which is made up of a democratic mandate and broad industry participation. Although this slows down the process, it creates greater legitimacy than China's top-down approach. The EU further takes advantage of this ability by tying different areas of green finance together, driving other countries to conform to all parts of it, such as with the SFDR. The way this works is that the EU taxonomy is the basis for both the green bond standard and disclosure requirement so that, when companies across the world are asked by asset managers to disclose by EU taxonomy, they become accustomed to the EU taxonomy and are likely to use it as the benchmark for all green activities (Rasche, 2021). The transaction costs are simply lower when following EU standards rather than several at the same time. Simultaneously, with a closed capital account, Chinese standards are not likely to become global norms.

TABLE 5 Characteristics of China and the EU that shape their roles in global green financial practice

	China	European Union
Political model	Party-state capitalism	Liberal democracy
Policy model	Top-down market steering	Bottom-up market facilitating
Policy rollout method	Gradual: mandatory, with progressively increasing financial impact	Gradual: from voluntary to mandatory
Financial authority independence	Non-limited independence: e.g., PBoC controlled by State Council	Limited: e.g., ECB limited by mandate
Role in global green financial policymaking	Policy pioneer for policy types	Standard setter for policy content

4.2 | Implications for our understanding of policy convergence and competing policy models

From its institutional perspective, this paper has demonstrated how global norms have been created and shaped green financial policymaking. In this way, we experience Meyer & Bromley's (2013) idea of the expansion of worldwide 'organisation' through Dimaggio and Powell's (1983) ideas of isomorphism. A conscious limitation is that taking another theoretical standpoint would have identified other processes and mechanisms. Even with more data interviews or statistical data on policies, this would hold true. Thus, although the causal mechanisms depend on the theoretical perspective, what this paper demonstrates beyond doubt is that green financial policies are proliferating and converging, as well as that China pioneered policy types and the EU standardised policy contents.

The findings suggest that China is more than a 'special case' in green financial policymaking. Instead, the paper demonstrates that China can be a policy pioneer with policy practices that can be replicated directly in other countries. This stands in contrast to the arguments of Musiałkowska & Dąbrowski (2018) and Zeng (2015) on the limits of other countries learning from China. That said, Musiałkowska & Dąbrowski (2018) acknowledge that there is potential for the EU to learn from China's policy practices. However, the finding does not go against the expectation of Gruin et al. (2018) that China will promote countries' rights to tailor policies but rather adds that China's role can go beyond that by pioneering policies that other countries, in turn, can tailor or use directly. China's insistence on using its own type of taxonomies, in fact, confirms the idea that China insists on tailoring policies to local circumstances.

Second, on the EU side, although the paper confirms the expectations that the EU can set standards, it raises an issue of where the EU gets policy inspiration from. An institutional approach would emphasise that this is not just from internal pressure and discussion but that China was an important source in creating new 'Overton Windows' in which the EU can formulate policy. This means that, without China's pioneering policies, EU green financial policies today might have been fewer, narrower, and less ambitious and, thus, that China's policies have played a role in making the EU more active in green finance. This suggests a need to add an element to Bradford's (2020) Brussels effect regarding where the EU gets its policy inspiration from in the first place. The findings of this paper would suggest that sources outside the EU should be emphasised because they create normative and mimetic pressures.

Furthermore, the findings suggest that the coexistence of different policy models may be an advantage for sustainable development. This challenges the commonly held assumption among both academics

and politicians that sustainable development is best achieved under a certain governance model that all countries should pursue. For example, the SDGs themselves, which are intended to be universally applicable, have targets (16.6 and 16.7) for transparent, inclusive, and participatory institutions. Unexpectedly, the findings suggest that China and the EU may, in fact, benefit the global development of green finance by using different approaches. Although they have competing governance models, the differing roles complement each other well, making sure that new policies are pioneered and subsequently mainstreamed. As such, the global coexistence of different approaches is not necessarily a disadvantage and rather speeds policy progress through different roles. Some constellations of different policy approaches may move the world more quickly toward the SDGs than a one-size-fits-all approach based on universal best practices. In this sense, if all countries took an approach similar to the EU's, green financial policy mainstreaming might develop more slowly because no country would be pioneering policies that the EU could build on.

Lastly, the findings provide policymakers with a better understanding of the global dynamics of green finance, which allows for better possibilities to coordinate efforts and ultimately launch and implement policies. The lack of such coordination and harmonisation is seen as a central problem of green finance today (Teer & Lund Larsen, 2019), as expressed by interviewed partners from both Chinese and EU organisations working on China-EU harmonisation.¹² This is particularly important China and the EU, who, despite the intention to coordinate efforts, so far have only informed each other of practices and discussed how to harmonise, but without carrying out these intentions in practice. If the two parties can collaborate and coordinate their efforts, this, in turn, might speed up global green financial development even further. Awareness of the different roles China and the EU can play also allows each party to focus efforts on where their role is the most significant. Beyond China and the EU, the findings support policymakers in identifying which practices could be followed when developing their own policies. Similarly, the findings can help financial institutions choose between hundreds of different sustainable financial practices, such as how to disclose climate risks or how to develop a green bond framework. Although more research is needed to make these myriad policies clear, this paper illuminates the debate on how the policies are formed.


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DATA AVAILABILITY STATEMENT

Data sharing is not applicable to this article as no new data were created or analyzed in this study.

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ENDNOTES

- Participant observation in several closed-door seminars with financial institutions and researchers, 2017, Beijing.
- Interview with a senior green financial manager at the Industrial and Commercial Bank of China, June, 2019, Beijing.
- Participant observation through participation in the inter-ministerial committee on green financial standards harmonization, October 2020, Beijing.
- Green taxonomies are lists of activities that qualify as green. For example, 'manufacturing of wind generators' is included under 'clean energy' in China's taxonomy for green bonds.
- Several interviews with Chinese policymakers and participant observation in Chinese government green financial working groups confirms the problem of clean coal and the motivation to remove it from the taxonomy, 2018–2020, Beijing.
- Interview with senior Chinese official working on harmonizing Chinese green taxonomies with international counterparts, January 2020, Beijing.
- Participant observation through participation in Chinese government committee on harmonizing green financial taxonomies, September 2020, Beijing.
- These MPA measures consider green performance as part of a bank's macroprudential assessment. They reduce the assessed risk of a bank if it is greener and therefore provide such banks with higher interest rates on the bank's mandatory deposits in the central bank.
- In November 2021, the PBoC launched a green lending facility, lending money to banks on an annual basis at an interest rate of 1.75%, compared with a one-year loan prime rate of 3.85%. This allows banks to lend at lower interest rates to green clients, ultimately lowering the cost of capital for green projects.
- Participant observation through participation in events under the Global Green Finance Leadership Program, 2018–2020, Beijing.
- Interview with senior Chinese official involved in PBoC policymaking, October 2019, Beijing.
- This point was raised in numerous interviews and meetings with both Chinese and EU green financial policymakers. The interviews and meetings took place between 2017 and 2020 in Beijing.

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