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Revisiting Central Bank Independence for the Climate Era: Insights from the People's Bank of China

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Abstract: Climate change has become a concern for central banks, at least rhetorically. Questioning whether the banks walk the talk, a proliferating research agenda covers mandates, motives, expertise, and independence. Yet, it remains unappreciated that the only central bank with actual green monetary policies is not independent, namely, the People's Bank of China (PBoC). Here, we explore the relation between independence and climate action through an in-depth, interview-based study of the PBoC, in comparison with the U.S. Federal Reserve, the European Central Bank, and the Bank of England. First, we find that Western central banks *indirectly promote* financial institutions to consider climate issues, whereas the PBoC, most centrally, *directly intervenes* through monetary policy. Second, by examining legal independence, mandates, and government influence, we find that *independence constrains* Western central banks, while *non-independence forces* the PBoC to act. From this, we discuss how the climate era requires revisiting central bank independence.

Keywords: China, finance, environment, governance, state

JEL classification: H110 Structure, Scope, and Performance of Government

Introduction

Climate change has become a concern for central banks, at least rhetorically. Mentions of the issue in speeches have increased rapidly in recent years (Feldkircher & Teliha, 2024) following Mark Carney's now infamous *Breaking the Tragedy of the Horizon* speech in 2015. In practice, central banks have conducted climate stress testing (Jackson and Bailey, 2023), set up knowledge-sharing networks (Helleiner et al., 2024), and issued climate guidance for banks (Dikau & Volz, 2018). This has seen climate change become reframed as a source of what is considered climate-related financial risks to economic stability (Dikau and Volz, 2018; Gupta et al., 2023; Jackson, 2024). But have these efforts translated into monetary policies of central banks to maintain the economic stability that the banks are tasked with preserving? The answer is that they, predominantly, have not. With one exception: the People's Bank of China (PBoC). This alone makes the PBoC a key case in the literature, although it has received markedly little attention (with the exceptions of Dikau & Volz, 2023, Dileo et al., 2025, and Macaire & Naef, 2021). However, what adds to the importance of the PBoC is that it is among the least independent of its peers. This begs the question that we explore here: How does independence, or lack thereof, shape central banks' ability to walk the climate talk?

As most central banks claim to be independent, the current literature on green central banking takes independence for granted as a precondition for sound economic governance (Dikau & Volz, 2021; Moschella, 2024). Independence, here, captures central banks' legal independence, institutional mandates, and potential avenues for direct government influence, often captured under the notion of 'central bank independence'. The current green central banking literature is concerned with, for example, economic stability mandates (Dikau & Volz, 2021), epistemic expertise (Helleiner, 2024), policy approaches and motivations (Baer et al., 2021), as well as communications (Feldkircher and Teliha, 2023). In the broader debate on the political economy of a green transition, green monetary policy is seen as a necessary tool (Gabor & Braun, 2025), with central banks seen as one of, if not the core planners of decarbonization (Jackson & Larsen, 2025). Tying together these strands of literature, we contribute to the debate by exploring how a commitment to independence might fundamentally limit the prospect of green central banking. Drawing on 93 interviews conducted in and around the PBoC, we focus on the PBoC while conducting a two-step comparative analysis of Western central banks. By

doing so, we compare the climate actions and independence dynamics of the PBoC, the Federal Reserve (the Fed), the European Central Bank (ECB), and the Bank of England (BoE).

In comparing climate policies, we first find that PBoC is the only central bank that conducts meaningful monetary policy that supports the green transition, such as through targeted green lending, green bonds in collateral frameworks, and differing interest rates on reserve requirements. Second, in comparing independence dynamics, we find that the initiative for green action originates in higher government bodies, which directly command the PBoC to act, while the PBoC retains a high degree of operational independence when executing these policies. On the other hand, legal independence, mandates, and other restricted avenues of government influence restrict the green action of the other central banks. As the literature on central banking develops, it has demonstrated that consensus on monetary policy moves in cycles, notably from a period of non-independence during the Great Inflationary period of the 1970s to the present state of independence following the Great Moderation (Best, 2025; Downey, 2024; Moschella, 2024). Indeed, before contemporary views of independence were commonplace, non-independent central banking was common in the post-war years across both democratic and undemocratic countries (Best, 2025; Moschella, 2024). From this, we argue that the climate era requires revisiting central bank independence. As a first step in this effort, the insights from the PBoC suggest that central banks can address the climate crisis through a setup that embraces what we term ‘government directing with operational independence.’ This suggests that future research on the topic needs to both place greater emphasis on the case of PBoC and explore how non-independence might work across the world.

Central Bank Independence and Climate Change

Within contemporary understandings of central banks and the monetary policies they oversee, there are several institutional norms to which they are expected to uphold and adhere to. The first is that they are expected to maintain price and financial stability through the regulation of the financial system, oriented around ensuring inflation rises at an annual rate of 2%. The second is that they are equipped with monetary policies to achieve these objectives, often considered to be the adjustment of interest rates, though in reality includes a variety of tools, including open-market operations (or OMOs, though now typically understood as quantitative easing, reserve ratio requirements, capital buffers, setting currency floors or ceilings and forward guidance to

name but a few (Wansleben, 2023; Jackson et al., 2024a). The third, and perhaps most universally accepted, feature is that central banks should be independent from their respective national government (Moschella, 2024). Indeed, since the swathe of mandates in the 1990s, which gave what is now commonly understood as central bank independence, establishing a clear delineation of power between fiscal and monetary institutions is considered a fundamental precondition of modern capitalist economies.

That central banks are, or should be, independent from their governments is often considered to be important to avoid governments utilizing monetary policies for electoral success, particularly since the advent of monetarism in the 1980s (Best, 2025; Jackson et al., 2024). Once given their mandate, central banks are often considered to be, and themselves maintain, that they are depoliticized, separated from the formal arena of politics to use their technocratic expertise to achieve their institutional function (van't Klooster and Fontan, 2019; Best, 2024). All central banks are, in essence, 'given' a mandate to achieve specific objectives set by a fiscal authority, with the ECB a noticeable exception. Independence thereafter is typically enshrined within law, albeit remaining accountable to governments in some fashion (see below). In carrying out their tasks, as outlined by Moschella (2024), central banks are expected to maintain political neutrality in both their words and their deeds to uphold their reputation as an independent institution of sound economic governance rather than electoral gain. Of course, the degree to which they are independent has been the site of contention, with institutionalists often maintaining they cannot do anything outside mandated responsibilities, for their technocratic expertise has been purposely honed to attend to the institutional matters at hand, nor should they be expected to do so (Fernandez-Albertos, 2015; Tucker, 2018). Conversely, constructivists say they can when political and popular pressure allows for, or even demands, they intervene in different ways, be that quantitative easing to stabilize the macroeconomy or providing credit facilities to governments and financial institutions to maintain liquidity (Moschella, 2024).

Outside of the technical debates as to what degree these mandates afford the central banks any significant degree of the agency has equally been criticized by scholars who see this institutionalized state-bank relationship as merely obscuring the political reality, namely that the banks are extensions of the state, designed to achieve economic objectives (van't Klooster and Fontan, 2019; Bateman and van't Klooster, 2023). As a result, the conventional view of

independence entails both a technical legal separation of powers between fiscal and monetary institutions, enriched in policy or in treaty. Underpinning this institutional formation is a normative ideational view that central banks should, even must, be independent, lest they do not conform to contemporary understandings of legitimacy and conventionality. However, these institutional norms are not fixed, but subject to exogenous features of the global political economy.

Greening Central Banking and the Climate Risks to Independence

The extent to which independence is observable, or indeed functional, has been posed anew in recent years as climate breakdown and the climate-related financial risks have become clear (Coombs and Thiemann, 2022). In recognition of the issue, a growing number of scholars have begun to forge the emergent research agenda of what has become ‘green central banking’ (Dikau and Volz, 2021; Bailey and Jackson, 2023; Best et al., 2025). Amidst the important contributions made to this emerging field of study, Sokol (2022) posits that the unparalleled monetary capacity of central banks provides the state with far greater economic capacity than it is often credited, constituting an important part of the state capitalism debate. Similarly, Jackson et al.’s (2024b) analysis of the BoE, often considered to be the leader or ‘green dove’ in the green central banking literature, argues that the bank’s insistence on maintaining their depoliticized image prevents them from meaningfully acting to avoid associated risks. When contending with their role in climate governance, central banks have therefore encountered ‘knowledge controversies’ that have made depoliticized look fragile (Best, 2024; 2025) despite words to the contrary.

As the financial risks of climate change, and to a lesser extent, nature and biodiversity loss, become ever clearer, the role of central banks becomes a more pronounced feature of the environmental politics literature (Bailey and Jackson, 2023; Best et al., 2025; Gupta et al., 2023). This is reflected in a renewed criticism of, and doubts over, the perceived (de)politicizing effects of independence for central banks (Wansleben, 2022; Best, 2025). Not least due to previous contributions’ findings of an inherent ‘carbon bias’ in the asset purchases undertaken by many central banks over the last decade (Jackson and Bailey, 2023; Deyris, 2024; DiLeo, 2024), as well as their proclivity to subject the assessment of climate risks to their traditional modeling techniques, with only limited acknowledgment of their limitations (Best et al., 2025). What is more, the advent of inflationary pressures driven by supply-side shocks to fossil fuel-dependent

energy markets or staple food inputs (duly referred to as fossilflation and/or climateflation) has only further intensified calls for central banks to better utilize monetary policy to eliminate such risks from manifesting in the future (Jackson, 2024).

What prevents central banks from assuming a great role in climate policy has been attributed to several technical aspects of monetary governance, from an overreliance on, and inadequacy of their Dynamic Stochastic General Equilibrium (DSGE) models to reflect attendant risks (Bailey and Jackson, 2024) to claims that sudden adjustments financial regulation would inflate ‘green bubbles’ (Chan et al., 2024). Previous contributions that have alighted upon these technical features have made significant contributions to the burgeoning green central banking literature. However, these features are indicative of a more fundamental issue that is more political. That is, central banks' insistence on their independence is by no means an apolitical statement seeking to merely describe an institutional separation between bank and state, but, paradoxically, an inherently political endeavor to avoid (re) politicization (Jackson et al., 2024). Whether this be considered a fear that intervening on climate might only reveal the limitations of their knowledge, delegitimizing the monetary epistemic community or that their policy toolkit is severely lacking (Best, 2024; Jackson, 2024), climate-related financial risks present a political terrain in which central banks seemingly do not want to enter.

Whatever the explanatory variable offered in the literature, they all ostensibly return to the same abiding problem that the contents of central bank mandates allow them to justify *not* acting. Although some might point to the growing list of central banks that have witnessed climate and environmental considerations being added to their mandates (Dikau and Volz, 2021), it remains the case that such elements are secondary to their primary objective of financial stability (Fontan and van't Klooster, 2019). Therein lies a tension as not only is the reproduction of carbon-intensive industries key to reproducing stable macrofinancial conditions in the short-term (Bailey and Jackson, 2023), but when they present challenges to stability the instinctive reaction of central banks to increase rates in a bid to ‘cool’ the economy disproportionately impacts smaller, greener industries (Jackson, 2024), thus perpetuating the problem at hand. So intransigent are central banks to the institutional ideal of independence that, as Christine Lagard’s (2025) recent speech reiterated, *even* when challenges to the macroeconomic rear their head, independence should remain a non-negotiable feature of contemporary economic governance, for, without it, the political and economic system would cease to be credible.

The extent to which independence presents barriers to climate action is inevitably a question that is contingent upon the political context rather than a homogeneous proposition (Best et al., 2025). And yet, despite many such important contributions alighting upon the associated issues of independence, it is still seemingly taken for granted in the literature that central banks are and should be independent. Far less attention has been paid to central banks that are not, nor make any such claim, of independence. Indicative of this conspicuous oversight is the dearth of analyses on the institutional function of the PBoC (See: Hsiao (2009 and Xiong (2012) for limited exceptions). Of the limited contributions to the field, Zheng and Wang (2021) refer to the PBoC as ‘autonomous without independence,’ as Gabor and Braun (2025) claim that non-independent central banking is a prerequisite for a big green state. Illustrative of this novel feature of the PBoC, Larsen (2023) shows that the *lack* of independence of the PBoC is a key characteristic that allows it to be a pioneer of green central banking policies. The case of the PBoC, therefore, not only presents problematic questions for the normative and analytical accounts for independence, but particularly in the context of climate change, when independence has routinely been found to be a, if not *the*, problematic issue.

As a result, the case of the PBoC offers perhaps the most important, yet overlooked, case in the green central banking debate, save a few exceptions (Macaire & Naef, 2022; Dikau & Volz, 2023; DiLeo et al., 2025). The PBoC, as we show in the following analysis, is perhaps the most important case in the green central banking debate, for not only does it make no such claim to independence but, as recent events have shown, the Chinese economy is at the heart of global green finance policy innovation and proliferation (Larsen, 2024). This accordingly begs the question of whether it is a sheer coincidence that the PBoC is simultaneously the greenest as well as amongst the least independent of central banks. The implication of any such answer, in turn, might then pose the related question of how the absence of independence allows the PBoC to, as we show, not talk the talk, but ultimately walk the walk on climate governance. We therefore demonstrate how the PBoC presents difficult questions for conventional views of green central banking.

Research Design and Methodology

To explore the relationship between central bank independence and climate action, we conduct a comparative analysis. Our analysis focuses on the PBoC as the only non-independent central

bank and compares the bank with the Fed, the ECB, and the BoE. We do so in two steps, first analyzing the climate actions of the four central banks to assess their performance on the dimensions of rhetoric, monetary & credit policy, banking supervision, and research & advocacy. Covering these dimensions allows us to identify intentions behind actions and separate policies by their direct material impact on financial markets. Second, we compare how the bank's climate actions are shaped by its relations to governments across three parts of independence, namely legal independence, mandates, and government influence. This approach facilitates an exploration of how climate actions were facilitated or inhibited by the banks' institutional arrangements.

To conduct our analysis, we draw on primary data from 93 interviews conducted in China by the authors between 2023 and 2025. All interviews were concerned with how green finance works in China, exploring the role of a multitude of public and private actors within the state-capital relationship of China's political economy model. Consequently, the PBoC was a key actor discussed in all interviews. Organizations include government bodies, state-owned and private companies, state-owned and private financial institutions, as well as researchers in think tanks, NGOs, and universities. Five interviews were conducted with current and former PBoC staff members working on green finance. All interviews were conducted under the commitment of anonymity due to the political difficulties faced by many employees in both public and private organizations. Insights from interviews are used to inform the analysis of the PBoC and exemplified by quotes, as translated from Chinese to English by the authors.

We then draw from academic publications, research reports, and material from the banks themselves. For an initial comparison, we consult the Green Central Banking Scorecard, published and frequently updated by Positive Money (2022-2024), as a third-party overview of banks' policies. While Positive Money evaluates the banks' performance, we carry out an analysis of the policies' impacts independently with a different methodology. A central difference here is that while Positive Money labels some policies 'under discussion' or with a 'formal commitment' for implementation as 'high-impact,' we focus on the actual financial impacts of the policies. This allows us to separate rhetoric and intentions from actual, meaningful action. After all, we are interested in whether the banks walk the talk. The reason they may not do so might have to do with their independence. After establishing the broad comparative elements, we conduct a document analysis of policies and other official material from the banks

themselves, thereby relying on primary sources to ensure reliability and accuracy. From that, we use academic publications to account for the dynamics of the bank's policymaking and the impacts of its policies.

Green Central Banking in the Fed, ECB, BoE, and PBoC

Comparing Climate Policies: Climate considerations and interventions

	Federal Reserve	European Central Bank	Bank of England	People's Bank of China
Rhetoric	'I think [climate change] is just way beyond any plausible mandate that you could attribute to the Fed.' Powell (2025)	'We must incorporate climate change into everything we do' Lagarde (2022)	'risks to the economic outlook make climate change ... relevant factors for the conduct of monetary policy' Bailey (2021)	'Make utmost efforts to peak carbon emissions before 2030 and achieve carbon neutrality before 2060.' Yi (2023)
Monetary & credit policies	None	- Tilting reinvestments of maturing bonds from corporate se to purchase programme (CSPP) into 'greener' investment to reduce – discontinued in 2023	- Tilted 25% of corporate bond asset purchases (CBPS) between 2021-2022 - CBPS sales to have 'climate considerations'	- Green loans and bonds in collateral - Green indicators in macroprudential assessment - Green TLTROs
Banking supervision and guidance	- Alongside the FDIC and OCC, issued guidance on climate risk to board members - Conducted a pilot climate scenario analysis (CSA)	- Assessing commercial bank alignment with supervisory expectations - Conducting climate-related risk assessment (2024-2026) - Incorporating climate change into strategy in 2021	- Climate Biennial Exploitation Scenario (2021) - Annual Climate Transition Plan (CTP) - Published climate disclosures from 2022	- Window guidance - Credit allocation guidelines
Research & Advocacy	- Joined NGFS in 2019 (withdrew in 2025) - Established Climate-related Financial Risk Committee in 2021	- Joined the NGFS in 2018 - Established the Climate Change Centre in 2021 - Contributed to EU Extended Environmental Taxonomy	- Founding member of NGFS in 2017 - Established the Climate Financial Risk Forum in 2019 - Established the Climate Club in 2021	- Founding member of NGFS in 2017 - Stress testing - G20 activities - International taxonomy harmonization

Table 1: Summary of central banks' climate actions (authors' compilation)

The Fed has never taken meaningful action on climate change. Unlike its counterparts, who have jostled for the accolade of 'greenest' central bank in previous years, the Fed, which always

appeared reticent to properly engage with the subject proactively. This includes in climate issues, as expressed by the Governor of the Fed, Jerome Powell (Federal Reserve, 2025):

‘Think about nature-related risks and biodiversity, and things like that. In addition, the, the work of the NGFS is, is, in, in significant part, intended to—and this is a quote—“mobilize mainstream finance to support the transition toward a sustainable economy.” So we joined to get the benefit of understanding what other central banks were doing and seeing research and things like that. I think this is just way beyond any plausible mandate that you could attribute to the Fed, and so we have a quite narrow role, as I’ve—as I’ve said many times, and I think that, that the activities of the NGFS are not a good fit for the Fed, given our current mandate and authority.’

Even before its infamous withdrawal from the NGFS in 2025, the Fed had never engaged in any meaningful way. The Fed was not so indifferent to climate change as to overlook the significant risks to financial stability as they became a growing subject amongst financial institutions. However, Chair Powell has long maintained that the Fed was not, nor would it ever be, a ‘climate policymaker’ but has instead been more insistent than most that it was a sphere of policy only for governments (Fed, 2023; Gupta et al., 2023). On this basis, as Table 1 demonstrates, the Fed eschewed incorporating climate into monetary policies, with marginal adjustments to its wider array of functions. As such, notwithstanding the recent retrenchment, the Fed had never been deemed to have high-impact measures in the document analysis (Livingston et al., 2024) but always occupied a relatively low reputation despite high expectations. With a low ambition expressed rhetorically, the Fed’s words and actions are coherent.

In rhetoric, the ECB differs substantially by placing central emphasis on integrating climate issues into all actions of the bank, as expressed by ECB President Christine Lagarde (2022):

‘If we do not account for the impact of climate change on our economy, we risk missing a crucial part of the overall picture. This means that our job of preserving price stability must include further work on better understanding how climate change affects our role. We must incorporate climate change into everything we do: our models, data, projections and analyses.’

Ultimately, we need to ensure that our monetary policy accounts for the impact of climate change.'

Amidst the shifting macroeconomic context, the ECB has remained relatively consistent, if not continued to show greater ambitions. In part, this is driven by perceived 'green doves', including Isabel Schnabel, Frank Elderson, and Irene Heemskerk (Deyris, 2023). The document analysis subsequently revealed that the ECB has implemented a host of measures that can be deemed 'medium-impact' without anything of high-impact (Livingstone et al., 2024). It is entirely possible that such a broad suite of measures can have some impact on advancing the climate agenda inside the bank without necessarily instigating a substantial shift within the European economy. What is more, the ECB has maintained a relatively high ranking compared to other central banks, with only the Banca d'Italia, Banque de France, and the Bundesbank, all members of the ECB, rated above it. However, the only policy with a significant direct financial impact was the ECB's green tilting of its asset purchases, which ended in 2023. Ultimately, this leaves its direct impact highly questionable, especially considering its financial scale and centrality in the European economy. This shows a clear divergence between rhetoric and action.

Given that Mark Carney gave his seminal speech whilst governor at the BoE, the bank was perceived to be an early pioneer of green central banking (DiLeo, 2023). In 2021, the BoE Governor, Andrew Bailey (2021), expressed that:

'risks to the economic outlook make climate change and the transition to a net-zero economy also relevant factors for the conduct of monetary policy. The physical effects of climate change, such as rising sea levels and more frequent severe weather events, as well as the transition to a net-zero economy, through changes in government climate policy, technology and consumer preferences, create financial risks and economic consequences.'

As detailed by Jackson and Bailey (2023), the Bank received growing attention after its perceived 'environmental mandate' to facilitate the UK's transition to net zero in 2021. Yet, after making some early progress, it has since undergone arguably the most pronounced regression. Typifying this reversal was the Bank's decision to shift from claiming it was the leader in green central banking in 2021 to reducing its resources committed to climate change after the Treasury

removed the topic from its list of priorities (Jackson and Bailey, 2023; Livingston, 2024). As a result, the Bank has correspondingly fallen in the rating compared to other central banks, having been overtaken by Brazil and, notably, China. Whilst the document analysis suggests that, as things presently stand, the BoE has not fundamentally changed for the worse since 2021, it similarly does not suggest it has progressed either. Throughout this period, the BoE's only monetary policy with direct financial impacts was the tilting from 2021 and 2022.

The PBoC Walking the Talk

Unlike its counterparts, which tended to emphasize the risk of climate change, the rhetoric from the PBoC puts clear emphasis on a green transition. As expressed by the 2018-2023 Governor of the PBoC, Yi Gang (2023),

'we should study and implement Xi Jinping's thought on ecological conservation in an earnest and profound manner, and make utmost efforts to peak carbon emissions before 2030 and achieve carbon neutrality before 2060 (the "30-60" Decarbonization Goal). ... In this process, we've managed to give full play to the decisive role of market in allocating resources, and better leverage the role of government at the same time.'

In terms of monetary policies, the PBoC stands out in comparison to its counterparts. The PBoC has four such policies (Escalante et al., 2020; Larsen, 2023). First, the bank accepts green loans within the scope of prioritized sectors as collateral in the short-term standing lending facility (SLF). Second, the bank accepted green bonds with an AA rating or above as collateral in its medium-term lending facility (MLF). Third, commercial banks' green performance is included as a factor in the PBoC's macroprudential framework (MPA), which affects the interest rate given to a bank on its required reserves. Fourth, in 2021, the PBoC launched a green targeted longer-term re-lending operation (TLTRO) called the Carbon Emission Reduction Facility (CERF). This facility allows banks to lend at a highly subsidized interest rate of 1.75% compared to the approximate 3.65% benchmark loan prime rate for up to 60% of the loan principal for a green project. As of mid-2024, the CERF has supported financial institutions in lending USD 153 billion (Xue, 2024).

There is no question that these policies have played an important role in supporting green industries in the real economy. According to an interview with a central figure in green finance in the Industrial and Commercial Bank of China (the world's largest bank by asset value), the green TLTRO 'Has had a huge impact. It's both giving banks a signal to go in a green direct, and, in practice, also financial incentive for banks to do so.'¹ Furthermore, a former staff member of PBoC who played a key role in developing the green monetary policies explained that 'That tool is the main driver since of scaling up green loans.'² Problematically, in 2022 and 2023, a parallel TLTRO existed that targeted clean coal, which, in China, is defined as coal projects that control air pollution but do little to reduce CO2 emissions. As opposed to other central banks, the PBoC does not do quantitative easing, which means a 'green tilt' in discussion elsewhere is not relevant in China. Instead, the Chinese government has capitalized on several state-owned shareholding firms with the purpose of investing in financial stability and industrial upgrading. Such funds buy stocks and bonds either during times of downward pressure on capital market asset prices or depending on alignment with strategic sectors such as green industries (Chen & Rithmire, 2020).

Banking supervision is outside the responsibilities of the PBoC and is instead carried out by the National Financial Regulatory Administration. Since 2007, this state body (and its predecessors) has provided guidance on green practices and collected green lending statistics from Chinese banks (Escalante et al., 2020). Even without formal supervision responsibilities, the PBoC conducts 'window guidance.' Analyzing policy reports of the PBoC from 2001-2020, Dikau & Volz (2023) show that green window guidance has taken place in most years while recognizing that the material impact of this practice is uncertain. Lastly, in terms of research and advocacy, the PBoC has been active across numerous activities. This includes active participation in international fora, such as taking part in founding the NGFS and the G20 Sustainable Finance Working Group. Internally, the PBoC has conducted stress tests and published material through its Research Bureau (Yue & Nedopil, 2025).

Several things stand out from the comparison of the four central banks. The first is that the Fed is an outlier in its lack of activity across all four categories. Second, the remaining three are all active in rhetoric, banking supervision & guidance, as well as research & advocacy. The most important insight from the comparison is that the PBoC is the only bank with directly and materially impactful monetary and credit policies. While the ECB and BoE talk about such

policies, they do not implement them in practice – the green tilting both did was limited in scale and stopped within a few years. That the BoE and ECB have failed to fundamentally implement green monetary policies raises important questions of a commitment to independence. In this sense, we find that Western central banks' climate policies *indirectly promote* financial institutions to consider climate issues, whereas the PBoC, most centrally, *directly intervenes* through monetary policy.

(Non)Independence and Climate Action

	Federal Reserve	European Central Bank	Bank of England	People's Bank of China
Legal independence	Independence to oversee the 'dual mandate' since the Federal Reserve Act of 1972	Independence stipulated in the Treaty on the Functioning of the European Union	Independent to oversee monetary policy since the Bank of England Act 1998, but subject to the Treasury	None. Governed by the CCP and the State Council
Mandate	Present since 1977	Subject to periodic review	Updated annually	Updated frequently
Government channels of influence	Board of Governors, central governing body of the bank and agency of the Federal government, reports to Congress.	Answerable to the European Parliament and the European Council who represent member states	Instructions for Monetary Policy Committee (MPC) and Financial Policy Committee (FPC)	Direct instructions, supervision, and accountability mechanisms from the State Council

Table 2: Dimensions of independence across central banks (authors' compilation)

Of the central banks examined here, the independence of the Fed is unique in that it has been the subject of the most extensive scholarly attention (Broz, 1999; Calomiris, 2019; Downey, 2024; Tucker, 2018; Moschella, 2024). Throughout its now more than century-long history, there have been many episodes to which scholars have pointed as revealing the Fed's lack of independence. In short, despite the Fed giving independence in 1972 to oversee a dual mandate of price stability and maximum employment, the Fed remains answerable to Congress, with its Board of Governors an agency of the Federal government (Binder and Spindel, 2017). Be it the dual mandate, one element is to support maximum employment, and the electoral benefit it brings (Tucker, 2018), or the Fed providing liquidity, in essence, monetary financing to the Treasury (Binder, and Spindel, 2017), many have raised doubts over what independence means deference to Congress. Against this institutional backdrop, the Fed's introversion to climate policy might then simply be considered indicative of the lack of ambition shown by successive governments (Livingston et al., 2024). What makes the Fed of equal importance is that it is seemingly the one that attempts to reinforce a sense of agency through routinely citing its mandated responsibilities

(Fed, 2023; 2025). As such, Fed Chair Jerome Powell has routinely pointed to its mandate as reason to not engage in climate action, famously stating that the bank *is* not and *will* not be a ‘climate policymaker’ (Fed, 2023). The case of the Fed thereby demonstrates that independence can legitimate central bank inaction by allowing them to defer simply to what their mandate sanctions them to do. Should climate change not be within this mandate, then they need not, even should not, act upon it.

Like the Fed, the ECB’s independence has similarly been the topic of significant attention (Zilioli, 2016; Fromarge and Dermine, 2019). Unlike the Fed, the ECB is comprised of the 11 European members who make equal claims of their independence. Similarly, the ECB has the least direct ties to a domestic financial institution that often brings perceived independence into disrepute, though they are answerable to associated central banks and thus, by extension, finance ministers across Europe (Whimster et al., 2018). As detailed in Table 2, the ECB’s mandate is typical of fellow central banks across the global political economy. It has a secondary mandate in which climate policy is explicitly present. We have already alluded to above that the ECB has arguably risen atop of the green central banking debate, in both rhetoric and frameworks. By extension, our data indicates that they make the least reference to their mandated responsibilities whilst making the most overt overtures to climate policy. It is therefore not coincidental that, following previous contributions deeming the ECB to enjoy comparative independence (Whimster et al., 2018), it appears to indulge in climate policymaking to a greater extent. However, what constitutes climate policies for the ECB is not redesigning its monetary policies but incorporating climate risks in modelling exercises, disclosure requirements, and risk assessment (ECB, 2022). Notwithstanding the modest and temporary adjustments to its corporate asset purchasing scheme, the ECB’s action on climate might reasonably be thought of as having considered the risks of climate change as opposed to intervening in the economy to avoid it. This, as demonstrated in the following section, stands the PBoC apart from the ECB.

By virtue of the BoE’s longer history compared to the Fed and ECB, its independence has undergone significant shifts over time. From its inception in 1694 to finance British wars to nationalization in 1946 before being granted conventional independence in 1997, the bank has been imbricated into different state-business relations over time (Jackson et al., 2024b). By contemporary standards, as outlined in Table 2, because the Bank’s mandate is updated by the Treasury at the behest of the Chancellor of the Exchequer with far greater regularity than other

central banks, it is perceived to have ‘operational independence’ as opposed to what might be considered nominal independence of the ECB and the Fed (Jackson and Bailey, 2023). The extent to which the BoE is independent in overseeing monetary policy, within the mandate given to it annually, is an ongoing question for scholars (DiLeo, 2023; Jackson et al., 2024). This has been made only more obfuscated by the comments from Governor Andrew Bailey that they have ‘deprioritized’ climate following the UK government’s retrenchment on the issue. Therefore, despite the BoE emerging as an early leader on climate under the governorship of Mark Carney (Jackson and Bailey, 2023), it instead now claims it needs to stay in its ‘swim lane’ as outlined in its mandate (Bryan and Arnold, 2025). Like the Fed, the BoE therefore argues that climate action is for governments and not for central banks, which are independent of policymakers’ concerns.

‘Government-directing with operational independence.’ The PBoC as a Central Piece of China’s State-Capital Relationship

The PBoC is a unique feature of the green central banking literature, for it makes no claim of independence yet it has undertaken what we refer to as direct interventions. This concept refers to how, rather than promoting financial actors to simply consider climate risks (see above), the PBoC has designed monetary policies to channel green finance. This raises the inevitable question as to the relationship between the PBoC’s climate intervention and its lack of independence. We argue that the answer simply lies in the policies of the PBoC being given directly to them by the CCP and the central government. The essential decision-making body is the Central Financial Work Commission, which is a commission of the Central Committee of the CCP. In addition, according to the Chinese central banking law, the PBoC works under the guidance of the State Council. Still, within this institutional setup, Zheng & Wang (2021) show that the PBoC has a certain degree of policy discretion stemming from considerable de facto authority and autonomy. The central argument is that the primary expertise is within the PBoC rather than its governing party and state bodies, and, therefore, while the direction is set from above, the PBoC maintains maneuverability in terms of specific policies. This role was confirmed by numerous interviewees working in and around the PBoC.

The PBoC plays a specific role within the state-capital relationship that is embodied by China’s political economy model. China’s government’s overarching efforts for financializing economic governance as captured by the principle ‘market-driven, government-guided’

(shichang zhudao, zhengfu yindao) (State Council, 2014). This is the approach underlying China's efforts to accelerate a transition to a new growth model, including an emphasis on green technologies. As summarized by Beck & Larsen (2024, p. 3) 'The Chinese Communist Party believes fundamentally that the Party must guide, steer, and protect the economy, and the private sector's main purpose is to support the transformation towards political goals and priorities. In this sense, financialization of the Chinese state sector is a unique type of market-building reform that anticipates state-building.' The PBoC thereby gets its mandate and operates in coordination with other state-controlled organs, such as the fiscal authorities, commercial banks, government guidance funds, and state-owned enterprises, and thereby has a central role in directing capital in this system. As a recent example, PBoC Governor Pan Gongsheng (2025) explained that the PBoC had provided USD 250 billion in loans to two state-owned asset managers for them to buy shares in listed companies to support strategic industries and support share price values. Such asset managers and SOEs play a key role on the investment side of this state-led financialization (Li & Beck, 2025), including in venture capital markets (Xu, 2023). The central and powerful role in steering capital was elaborated upon in an interview with a former staff member of the PBoC's Bond Bureau: 'When the Ministry of Finance issues central government debt, it is the PBoC Bond Bureau that distributes quotas to the 21 central commercial banks to buy the debt. Sometimes they want to buy it and sometimes they have to be forced.'³

From the perspective of a green transition, what is most critical is that the PBoC's non-independence allows the Chinese government to direct the bank to conduct policies that support a green transition. This allows the PBoC to indulge in what Jackson and Larsen (2025) describe as 'green financial planning' in which the bank is channeling green finance towards those sectors identified by the Chinese state. From statements and documents of the PBoC, green actions are taken in response to decisions made by its governing party and state bodies. In addition to the above quote by 2018-2023 PBoC Governor Yi Gang on making utmost efforts to implement Xi Jinping's will, the Governor further highlights the role of government priorities in directing the PBoC's actions: 'Since the central government proposed strategic moves on the "30-60" Decarbonization Goal, the PBOC has resolutely prioritized the development of green finance.' (Yi, 2023). The CERF can be considered as a specific case exemplifying this relationship, as reflected in the PBoC's (2022) Monetary Policy Report: 'According to the decisions of the executive meetings of the State Council, the PBC launched the CERF to support three major

areas of carbon reduction, namely, clean energy, energy conservation, and environmental protection, and carbon reduction technology.’

Numerous interviews also confirm that the PBoC acted on climate issues because it was told by the higher-level government bodies to do so. Regarding how the PBoC’s green TLTRO came as a direct response to climate targets, a former staff member of the PBoC explained that ‘It’s the most important tool and came after the carbon neutrality goal in 2020. We had already done a lot, so we were ready for it and could roll out an ambitious tool very fast.’ He further expressed that ‘the State Council wants us to align with climate objectives. We then suggest these tools, and they give strong support. That’s why it’s feasible, because of their support and their guidance to align with national climate goals.’⁴ Regarding the first big green finance push in 2016, a current staff member of the PBoC working on green finance explained that ‘in 2016, China hosted the G20 and put green finance high on the agenda. It was the state council telling us to act at the same time.’⁵ Another current staff member of the PBoC working on green finance explained how the PBoC approaches green finance: ‘We have two motives. One is risk, because we see green assets as simply lower risk statistically. The second is following the government’s overarching strategy, which includes green.’⁶

This relation to the state council is the same in China’s financial regulators. This was by a leading figure in green bank regulations over the last three decades, in what is now the Financial Regulatory Administration (formerly the China Banking Regulatory Commission (CBRC): ‘It started in 2007 in the CBRC. It was based on the State Council saying they wanted to increase energy efficiency in the economy because energy prices were high. They required us to do it.’ Regarding the relation between the State Council and all state bodies working on the financial system, including the PBoC, he expressed that ‘the State Council issues a document, and each organization then responds directly. The State Council document might not be legally mandatory, but in practice it is. Because you report to the State Council, and they then respond. If they are not happy, they force you to do more.’⁷ This coordination through the State Council is clearly seen in the 2016 Guidelines for Greening the Financial System (PBoC, 2016), which is considered the starting point of state efforts on green finance in China. These Guidelines were launched by the State Council, jointly with seven ministry-level bodies, including the PBoC, assigning tasks and ensuring alignment in efforts for steering capital in a green direction. Only because the PBoC is not independent is it possible to organize such coordination of efforts across

the government. From that, both private and state-owned banks closely follow the guidance of the PBoC because it reflects state priorities, as expressed by a staff member of the PBoC: ‘The private banks are as active in green issues as the state-owned. They both listen to what the government says, as expressed through the PBoC, which says what they should do. But the banks also feel like they can make money doing it.’⁸

Within this non-independence, it was made clear by several PBoC staff members that the bank has operational independence. One explained that ‘They [the State Council] set the direction, but the policies we use are all driven by ourselves. The State Council monitors and coordinates. So, we have operational independence within the strategy of the government.’⁹ In fact, the PBoC takes pride in the innovative tools developed, as expressed by another staff member: ‘our specific tools are our own things that we came up with. The new things were our ideas, our own thoughts, and then we implemented them with government support.’¹⁰ Individuals in the PBoC and other financial regulators play a key role in this operational independence. Here, the leading figure in green banking said in an interview that ‘Some organizations take it [green finance] more seriously than others. It also depends on the specific people in the organizations.’¹¹ This suggests that while the PBoC may have had maneuverability in the specifics of the policy, it did not have enough maneuverability to initiate or reject such policies. This situation further adheres to arguments about the important role of the former head of the PBoC Research Bureau, Ma Jun, who played a key role in advancing green policies inside the bank and in international fora (DiLeo et al. 2025; Helleiner et al., 2024). From within the scope set by the party and state on the PBoC, Ma Jun had the maneuverability to promote the issue.

From the comparison of the four central banks on three dimensions of independence, several things stand out. First, similarly to the comparison of green actions above, the Fed shows little ability and interest in green policies, as limited by its independence and mandate. Second, in the case of the ECB and BoE, it appears that while both the banks and the governments are interested in expanding green policies, the banks’ commitment to independence supersedes the desire to implement climate policies that would call such independence into question. Third, it is clear beyond any doubt that the reason the PBoC conducts green policies is because the CCP and State Council instruct it to do so. In other words, it has been in the absence of independence that the greenest form of central banking has unfolded.

Concluding Discussion

Independence and Its Relation to Indirect Promotion vs Direct Intervention

Our analysis demonstrates that Western central banks' climate policies *indirectly promote* financial institutions to consider climate issues, whereas the PBoC predominantly *directly intervenes* through monetary policy. In relation to prudential and promotional motives behind green central banking policies (Baer et al., 2021; DiLeo et al., 2025), the interviews show that PBoC's policies are intended to support strategic industries, but only take place if they do not increase risks. It is thus predominantly a promotional motive, but only possible within prudential limits. Simultaneously, Western central banks' stated motivations are exclusively prudential through direct reference to risks.

We argue that whilst Western central banks have acted upon climate risks, they amount to what should be understood as only indirectly promoting financial institutions to consider climate issues. Notwithstanding the rare but temporary adjustments to asset purchases, these banks have instead sought to conduct a variety of exercises, including climate stress tests, explanatory scenarios, and disclosure requirements, aimed at providing more information on attendant climate risks (Best et al., 2025). In line with the public choice theoretical assumptions of independence, Western central banks assume that rational actors within the financial system will then respond to this information with their actions once they receive it (Downey, 2024; Jackson et al., 2024). By simply encouraging financial institutions to consider climate risks rather than intervene in the financial system, Western central banks seek to maintain their independence by avoiding the potentially (re)politicizing implications of climate action. Given the immense power of central banks and the urgency of the climate crisis, we argue that these policies do not amount to meaningful climate action. This stands in contrast to the often high rating of Western central banks' climate performance by the Green Central Banking Scorecard (Positive Money, 2024).

Our analysis thereby suggests that independence has constrained Western central banks' climate actions to mere indirect promotion by allowing them to position climate as a matter of financial regulation rather than monetary intervention (Gupta et al, 2023; Best et al, 2025). This stands in stark contrast to the PBoC where their lack of independence has been a prerequisite for PBoC's actions. This puts into question the compatibility of independence and climate action as central banks fear the potentially repoliticizing implications of acting in a manner thought not to

be aligned with the principle of independence (Binder and Spindel, 2017; Jackson, 2024; Best, 2025). Because independence is considered a pre-requisite for modern economic governance, it is perhaps the most defining aspect of the green central banking literature, yet has received markedly little attention given the profound institutional limitations it creates (Jackson et al, 2024). This is made all the more conspicuous given that it is increasingly clear that central banks are responsive to social and political pressures, both in general and specifically regarding climate issues (Moschella, 2024; Best et al, 2025). The independence of central banks can, consequently, be understood as a sliding scale, depending on case-specific factors around legal independence, mandate, and government channels of influence, but one that appears fundamentally limiting. That the three Western central banks have almost entirely failed to implement climate-related monetary policies with significant financial impacts begs the question whether their claims to independence are compatible with the kind of central banking needed for the climate era. In other words, rather than focusing on how climate action might be incorporated within mandates, as the green central banking literature has for some time (Dikau and Volz, 2018; Jackson and Bailey, 2023; Deyris, 2024), what has become clear is that independence legitimizes climate inaction.

In China, there is indeed no claim of independence of the legal setup, mandate, or avenues of government influence. It is therefore clear that it is in the *absence* of independence that we can observe the greatest green central banking. In this way, the PBoC is not independent by any means, as the bank is a central part of the Chinese government's financial policy toolbox. These details on PBoC non-independence confirms the expectations of existing literature on the policy toolbox of China's state-led financialization (Li & Beck, 2025; Yan, 2023). Whilst other central banks talk the talk on climate change, with little action beyond the mandates that define their independence, the fact that the PBoC walks the walk in the absence of independence presents a reality that suggests that central bank independence may not be compatible with the climate era. The appetite to intervene in the transition rather than merely consider it, we argue, is a reflection of the PBoC's *lack* of independence. Indeed, the interviews clearly show that the PBoC did not act on its own initiative but only in response to the central government directing it to act. While it was not the bank itself that drove its green ambitions, it was the bank itself that determined how to pursue such ambitions. Indeed, we find here that the PBoC maintains operational maneuverability in deciding specifically how to act – supporting the findings of DiLeo et al. (2025) and Helleiner et al. (2024) who also demonstrate such agency of the PBoC.

As Western counterparts defer to independence as a means *not* to act, the absence of any such excuse in China has seen the PBoC emerge at the forefront of the green central banking literature.

‘Government-Directing with Operational Independence’ for the Climate Era

If the currently emphasized independence of central banks is inadequate, what kind of relationship between governments and central banks is suitable for the climate crisis? Based on a single case study, we do not claim to be able to provide a clear answer. Instead, we argue that the key insight from the PBoC’s case is that a model entailing less independence is needed. From that, the case allows us to make further inferences towards what this model should entail.

To capture the setup of a central bank responsive to government priorities, we propose the concept of ‘government-directed with operational independence.’ This concept entails the ability of the state to set the general goals of central banks’ policies. Thereby, such goals can go beyond inflation, financial stability, and employment, and explicitly include climate goals. This can include abstract goals for developing a government-determined set of green industries, or more specific goals for scaling up certain technologies, such as within renewables. Within this, central banks can respond through both monetary and non-monetary policies and can include both prudential and promotional motives. Within this, the case of the PBoC suggests that operational independence is possible. Indeed, central banks possess technical expertise that makes them the most suitable actor in determining specifically what kind of policy combination best meets the directives of the government. This government-directed arrangement is also what is entailed concept of ‘big green state’, which entails fiscal-monetary coordination by the government for an effective green transition (Gabor & Braun, 2025), simultaneously requiring meticulous green financial planning (Jackson & Larsen, 2025).

Our suggestion does not imply replicating the Chinese fully non-independent system. We are not suggesting that all countries should adopt political economy models similar to China’s. Indeed, our findings do not suggest that authoritarian political institutions are a prerequisite for the PBoC’s actions, but that tying central bank actions to democratically determined state objectives is possible. We, therefore, do not suggest that other countries need to replicate the Chinese political and macrofinancial setup or that such a setup is the only way to green central banks. There may indeed be benefits of certain limits on government intervention in monetary

policy to avoid inflation and financial instability. In fact, having a non-independent central bank is not a feature of authoritarian political systems but a common global practice in democracies as recently as the 1990s (Binder and Spindel, 2017; Moschella, 2024). Indeed, by getting its mandate from an elected government, non-independent central banks in Western countries were and could again be more democratic than they are at present (Downey, 2024).

The way forward in research and practice

As the independence of Western central banks is already under pressure, the insights provided here contribute to the academic and policy debate on central banks. In the past, public pressure has led central banks to use unorthodox tools, such as quantitative easing, following the global financial crisis (Moschella, 2024). Such pressure is building again, as people and their elected leaders only want to support central bank independence if it serves them well, as seen in President Trump's stance regarding the Fed in 2025. The pressure on central banks to act on climate change is similarly increasing. While it has been shown that central banks act more on climate change if it is a central political priority, the assessment provided here makes it clear that these actions have next to no financial impact. As pressure to act on climate issues may mount, central banks might eventually cave in and use unorthodox tools, similarly to following the global financial crisis. The problem with that scenario is the urgency of the climate crisis. If central banks only act a decade from now, it may be too late to avoid irreversible damage. Hence, we advocate for a move towards government-directed central banking.

Most fundamentally, our findings suggest that the pursuit of central bank independence should be put into question. The broader implication of the PBoC for the research agenda on green central banking is that policymakers and scholars need to take seriously the possibility of changing the way independence works for the climate era (Jackson et al, 2024). We consequently contend that adequately addressing the risks of climate change requires moving towards a state of non-independence, which we refer to as 'government-directing with operational independence.' Should policymakers and scholars accept this position, as controversial or unconventional as it may seem, it represents only returning to what about commonplace before the 1990s (Sokol, 2022; Downey, 2024; Best, 2025). It is indeed imaginable that, just like current central bank mandates often cover inflation, employment, and financial risk, less independence would allow climate change to be added to this list of core mandates if, for nothing more than

avoiding the climate-related financial risks *to* economic stability, that central banks claim to want to uphold.

Returning to the perspective of the PBoC staff members, they expressed empathy with their Western counterparts. Recognizing how Western central banks are limited by independence in pursuing a narrow mandate, one expressed that ‘Western central banks can’t do green monetary policy, because they just say it’s not in their mandate to do it.’¹² Still, recognizing that independence is indeed not binary, another expressed that ‘Western central banks are also not *entirely* independent. It’s not black or white. Maybe they could become a bit less independent, so they can do more green finance.’¹³ In agreement with this, our analysis here suggests that a government-directed approach to central banking is needed for climate change to be taken seriously.

Notes

¹ Interview with a central figure in the Industrial and Commercial Bank of China. Beijing 2025

² Interview with former staff member of the PBoC Research Bureau. Beijing 2025

³ Interview with former staff member of the PBoC Bond Bureau. Beijing 2025

⁴ Interview with former staff member of the PBoC Research Bureau. Beijing 2025.

⁵ Interview with staff member 1 of the PBoC. Beijing 2025

⁶ Interview with staff member 2 of the PBoC. Beijing 2025

⁷ Interview with staff member of the National Financial Regulatory Administration. Beijing 2025

⁸ Interview with staff member 2 of the PBoC. Beijing 2025

⁹ Interview with staff member 1 of the PBoC. Beijing 2025

¹⁰ Interview with staff member 2 of the PBoC. Beijing 2025

¹¹ Interview with staff member of the National Financial Regulatory Administration. Beijing 2025

¹² Interview with staff member 2 of the PBoC. Beijing 2025

¹³ Interview with staff member 1 of the PBoC. Beijing 2025

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