Journal of European Public Policy

ISSN: 1350-1763 (Print) 1466-4429 (Online) Journal homepage: www.tandfonline.com/journals/rjpp20

Legitimising green monetary policies: market liberalism, layered central banking, and the ECB's ongoing discursive shift from environmental risks to price stability

Nicolás Aguila & Joscha Wullweber

To cite this article: Nicolás Aguila & Joscha Wullweber (2025) Legitimising green monetary policies: market liberalism, layered central banking, and the ECB's ongoing discursive shift from environmental risks to price stability, Journal of European Public Policy, 32:3, 665-696, DOI: 10.1080/13501763.2024.2317969

To link to this article: https://doi.org/10.1080/13501763.2024.2317969

JOURNAL OF EUROPEAN PUBLIC POLICY
2025, VOL. 32, NO. 3, 665–696
https://doi.org/10.1080/13501763.2024.2317969

Routledge
Taylor & Francis Group

OPEN ACCESS Check for updates

Legitimising green monetary policies: market liberalism, layered central banking, and the ECB's ongoing discursive shift from environmental risks to price stability

Nicolás Aguila and Joscha Wullweber

Department of Philosophy, Politics, and Economics, University of Witten/Herdecke, Witten, Germany

ABSTRACT

Through the analysis of ECB Executive Board member speeches, we have identified three main narratives about the consequences of the environmental crisis in the monetary authority's spheres of influence: The first emphasises environmental phenomena as financial risks; the second highlights the green investment or financing gap; and the third focuses on the impacts of climate change on price stability. These narratives lead to different forms of legitimisation in terms of why and how the central bank should intervene to tackle climate change. We show that the third narrative is displacing the first as the dominant discourse around ECB climate policy. The shift in focus from the central bank's duties to maintain financial stability to its responsibilities regarding price stability under the primary mandate could lead to far-reaching green monetary policies. However, based on the concept of layered structures, we argue that this change does not signal a departure from market liberal central banking but rather a shift within the prevailing system. What we are witnessing is a new form of market liberalism adapted to climate change, or market liberalism in climate crisis mode.

ARTICLE HISTORY Received 27 April 2023; Accepted 6 February 2024

KEYWORDS European Central Bank; green monetary policy; climate crisis; environmental and climate risks; price stability; market liberalism

Introduction

As the climate crisis escalates, central bankers are publicly voicing growing concern over the challenges to the economy and the financial sector posed by changing environmental conditions. Former Governor of the Bank of England (BoE) and Chair of the Financial Stability Board (FSB) Mark Carney

CONTACT Nicolás Aguila Nicolas.Aguila@uni-wh.de Department of Philosophy, Politics, and Economics, University of Witten/Herdecke, Alfred-Herrhausen-Straße 50, Witten 58448, Germany

(2015) led the way in this regard with an often-quoted speech in which he called for decisive action to 'break the tragedy of the horizon'. At the European Central Bank (ECB), climate concerns were absent from policy discourse prior to 2018 or only mentioned in passing as a contemporary social challenge on the same footing as demographic aging or digitalisation (Deyris, 2023). Since then, however, ECB Executive Board members have increasingly tackled the issue of the role the central bank should play in the crisis.

Although the topic has increasingly been recognised as important for the ECB, the measures adopted so far are surprisingly modest considering the magnitude of the challenges faced, focusing mainly on voluntary disclosure and climate stress testing. This is acknowledged by central bankers themselves: '[O]ur current actions in relation to climate change […] are still falling short of the Paris objectives' (Schnabel, 2023, p. 4). Despite the existence of several alternative proposals, strong monetary instruments to address the climate crisis are not on the agenda (Dafermos et al., 2020, 2021; Dziwok & Jäger, 2021; Langley & Morris, 2020). In this article we explore the disconnect between the growing attention that the climate crisis is receiving at the ECB and the failure on its part to implement more ambitious policies.

We show that the explanation is partly related to how ECB board members seek to legitimise green action. Based on an analysis of the 126 ECB board member speeches from January 2018 to December 2022 in which climate issues are discussed, we identify three main narratives about the consequences of the environmental crisis in the areas of monetary authority influence. The first emphasises environmental phenomena as financial risks to be addressed under the financial stability mandate; the second highlights the green investment or financing gap; and the third focuses on the impacts of climate change on price stability and therefore falls under the primary mandate.

In addition, we show in quantitative terms that since 2021, the third narrative has surpassed the first in dominance. Regarding the legitimacy of endeavours in support of green monetary policy measures, the shift in rhetoric at the ECB from 'not our business' to 'financial risk' to 'part of our primary mandate' is not just a lingual change but a development with potentially significant policy implications. This is because the different narratives, while not contradictory, lead to different forms of legitimisation in terms of why and how the central bank should intervene to tackle climate change. From the first narrative, it follows that environmental and climate-related financial risks justify mostly, although not exclusively, a financial regulatory role for central banks to prevent financial instability (DiLeo, 2023). This framing, which was dominant until 2021, significantly constrains the scope for green action, limiting policies to soft supervisory measures such as disclosure and stress tests (Chenet et al., 2021; Christophers, 2017; Quorning, 2023; Thiemann et al., 2023). According to the second narrative, the central bank should adopt measures to bridge the financing gap. This, however, could lead to very different approaches. For ECB board members, this has largely taken the form of advocacy efforts to bring about the banking union and capital markets union. The first two narratives are accordingly important in paving the way for the argumentative turn but not very powerful from the angle of the ECB's mandate. By referring to the ECB's primary mandate, the third narrative opens up a corridor for the shaping of more far-reaching green monetary policies in the near future. To date, however, the new narrative has not been matched with new policy proposals. Moreover, the ECB board members whose statements more clearly align with the third narrative have been careful to reject instruments that go beyond financial supervision.

To explain why the growing focus on inflation and the primary mandate has yet to be translated into more ambitious monetary policy proposals, we develop the concept of layered structures. Layers are political and socio-economic structures created as a result of discursive struggles over what policies are appropriate and legitimate to achieve certain goals (Bertramsen et al., 1991; Laclau, 1990, 2005; Wæver, 2005). Through discursive processes, certain views or specific political programmes prevail and become hegemonic (Laclau & Mouffe, 1985). The result of these struggles, which may take place over a long period of time, is a stratified social and politico-economic structure consisting of different discursive layers that are sedimented to varying degrees. We conceptualise the market liberal paradigm at the ECB as a tripartite layered structure consisting of accepted goals, policies, and institutional characteristics. In this structure, the most deeply rooted layers are the most depoliticised and therefore the hardest to transform (the mandate of price stability, independence, and interest rate management as the main tool). Those that are the least firmly rooted (the goal of supporting EU policies, market neutrality, and unconventional monetary policies) are more susceptible to change.

At the outset of the debate over climate change, ECB board members sought to legitimise green action by framing the issue as falling within the remit of the financial stability mandate. Several scholars (Christophers, 2017; Konings, 2016; Langley & Morris, 2020) show that the framing of climate change as financial risk limits green central banking to market-based approaches. Thiemann et al. (2023) identify three layers in central bank discourse on climate change: First, climate change as a financial stability risk (aligning financial markets with climate change); second, central banks as responsible investors (greening of central banks own portfolios); and third, a change in monetary policy (greening of central bank interventions in financial markets). We argue instead that these three layers constitute an evolutionary process within the same narrative 'climate risks as financial risks'. While building on the insights of Thiemann et al. regarding the evolution of the central banking discourse, we expand the classification to include two further narratives.

Following these analyses, and based on the concept of layered structures, we argue that the progression in the framing of environmental concerns from a risk to financial stability towards a threat to price stability far from signals a shift away from market liberal policies. The change in narrative can rather be interpreted as an attempt to legitimise environmental issues as falling within the scope of the mandate which is rooted in the deepest layer. Although we find that the new narrative does indeed have the potential to reframe what is legitimate under the ECB's mandate and therefore to open doors for new monetary policies in the process, it is limited in its capacity to create new green monetary policies effective in tackling the environmental causes of inflation because it remains embedded in the tripartite hegemonic structure. This implies that any new policies will continue to stay firmly entrenched in the market liberal paradigm. The change, albeit potentially groundbreaking, is taking place entirely within the scope of market liberal central banking. In this sense, what we are presently witnessing is a new form of market liberalism adapted to climate change, or market liberalism in climate crisis mode.

The remainder of the paper is organised as follows: In Section 2 we introduce the concept of 'layered social structures' to illustrate the process of change within continuity. In the third section, we apply quantitative text analysis to demonstrate the increasing relevance of climate issues at the ECB. This is followed in the fourth section by an in-depth analysis of ECB speeches in which we identify three main narratives within the discourse of green central banking, after which we relate these narratives to the ECB's mandate and policy instruments and show how their relative importance has evolved over time. Section 5 explores the ECB's actual green policies. The final section draws conclusions and elaborates on a paradox that emerges from the narratives in the climate monetary policy discourse.

The layers of market liberal monetary policy

In order to assess the significance and extent of current changes in climate policy at the ECB, we use the concept of layered social structures. Based on Laclau's political theory (1990, 2005), the concept has been further developed by several other scholars (Bertramsen et al., 1991; Wæver, 2005; Wullweber, 2015, 2019). Layers, or strata as referred to by Deleuze (1999), are political and socio-economic structures created as a result of historical developments and events. These formations are the outcome of discursive struggles over what policies are appropriate and legitimate to achieve social, political, or economic goals, or to overcome a social or economic problem or crisis (Wullweber, 2016). When certain views or programmes become institutionalised and universalised, they are no longer seen as specific and interest-driven, but as universal solutions corresponding to the common good of society (Laclau, 2000). The lower a layer is situated, that is, the more sedimented it has become, the less it is politically questioned (Laclau, 1990). In the resulting stratified structure, each layer selectively affects the formation of the specific texture of the other layers. Overall, the layered structure privileges 'some actors, some identities, some strategies, some spatial and temporal horizons, some actions over others' (Jessop, 2001, p. 285). This model enables the visualisation of changes at different levels: 'Change is not an either-or question, because we are not operating at one level only' (Wæver, 2005, p. 36). It becomes possible to 'specify change within continuity' (Wæver, 2005, p. 36). In non-crisis times, this structure remains largely unpoliticised and unquestioned. Change happens slowly. Crises, however, can cause one or more layers to become dislocated in a relatively short period of time (Laclau, 1990). Usually, the institutional response consists of attempts to make mere 'surface changes' (Wæver, 2005, p. 37). However, major crises can also lead to the politicisation and possible change in more deeply sedimented layers, or even of the entire political and socio-economic structure. This would then result in profound institutional transformation (Howarth et al., 2000).

In reference to central banking, it is possible to identify different layers of accepted goals, institutional characteristics, and policies that come together to form the market liberal paradigm dominant since the 1980s. The overall approach is based on the idea of a dichotomy between the state and the market where the state is generally supposed to refrain from interfering in market processes which, left to themselves, are supposed to achieve the socially optimal outcome, and where only under certain exceptional circumstances such as market failures or crises, is temporary intervention on the part of the state considered to be justified. Market liberal governance assumes that the financial market 'will itself entail precisely its own self-curbing and self-regulation' (Foucault, 2009, pp. 41–42). This implies governing 'at a distance' (Miller & Rose, 1990, p. 18) and accomplishing 'policy objectives through markets' (Krippner, 2007, p. 478).

According to this framework, one especially relevant distortion of the economy is considered to be inflation, which is viewed as resulting from the excessive issuance of money, in particular as a consequence of demands made by incumbent populist fiscal authorities who are seeking re-election. In terms of mandate, this approach accordingly argues that central banks should be concerned primarily, if not exclusively, with price stability (DiLeo et al., 2023; Saad-Filho, 2018; Wray, 2007). Since the Great Financial Crisis of 2007–9, many central banks also include financial stability as part of their objectives (DiLeo, 2023; McPhilemy & Moschella, 2019; Thiemann et al., 2021). From the current trend of increasing interest rates, however, it is evident that the financial stability mandate remains subordinate to the main goal of price stability.

In the case of the ECB, Article 127 (1) of the Treaty on the Functioning of the European Union (TFEU) sets out the objectives and tasks of the European System of Central Banks (ESCB). According to this article: 'The primary objective of the European System of Central Banks […] shall be to maintain price stability.' This means that price stability takes precedence over all other tasks and issues. With regard to economic stability, often referred to as a secondary mandate, the article reads as follows: 'Without prejudice to the objective of price stability, the ESCB shall support the general economic policies in the Union […].' The ECB's role as financial regulator is even less clearly defined (Mersch, 2018b). In this respect, Article 127 (5) provides that 'The ESCB shall contribute to the smooth conduct of policies pursued by the competent authorities relating to the prudential supervision of credit institutions and the stability of the financial system', while pursuant to Article 127 (6) 'The Council […] may […] confer specific tasks upon the European Central Bank concerning policies relating to the prudential supervision of credit institutions and other financial institutions […].'

At an institutional level, the market liberal central banking approach holds that keeping independent central bankers shielded from the pressure of politicians is the best way to pursue the objective of price stability (DiLeo et al., 2023; Goodhart & Lastra, 2023; McNamara, 2002). Similarly, central banks are not supposed to coordinate with fiscal authorities (Conti-Brown, 2016; Goodhart, 2011; Hall, 2008). What is more, central bankers are expected to follow the principle of market neutrality. In other words, their operations are supposed to reflect market forces rather than 'distorting' them by picking winners and losers (van 't Klooster & Fontan, 2020). Nevertheless, market neutrality is not enshrined in primary law, and on several occasions the ECB has deviated from the principle (Schnabel, 2021c).

Finally, at a policy level, interest rate management has been the central bank tool of preference (Saad-Filho, 2018; Wray, 2007). Under no circumstances are central banks supposed to engage in government financing (Conti-Brown, 2016; Goodhart, 2011; Hall, 2008). Since the Great Financial Crisis of 2007–2009, central banks have also deployed financial tools for regulatory and supervisory purposes (McPhilemy & Moschella, 2019; Thiemann et al., 2021). Moreover, they have engaged in so-called unconventional monetary policies such as asset purchase programmes. However, such measures are seen as temporary crisis interventions that should be scaled down as quickly as possible.

Based on this analysis, it is possible to identify a tripartite layered structure of accepted goals, institutional characteristics, and policies within the ECB (see Figure 1). The positioning of the different layers in our model indicates the degree to which each is recognised as a boundary for intervention and a foundation of central bank operations. The farther down a layer is located in the model, the more stable and less questioned it is. This institutional setting favours certain policy approaches over others. The decision-making process for implementing monetary policy takes place on an uneven and pre-structured terrain where market liberal approaches have a strong advantage.

It is these layers of principles which form the basis of concrete monetary policy. Departure therefrom is generally not considered legitimate (Schmidt, 2022). Even in times of crisis, when the central bank has little choice but to deviate from convention, any exceptional measures are viewed very critically (Lombardi & Moschella, 2016). Notwithstanding some interventions such as quantitative easing, which can remain in place for quite a long time, the expectation is that procedures will return to normal as soon as possible (Weidmann, 2018).

Like most central banks, the ECB does not have an explicit mandate regarding sustainability and climate change (Dikau & Volz, 2021; NGFS, 2020). Changes in monetary policy geared to taking action against climate change therefore generally face accusations of exceeding central bank authority (Siderius, 2023). To legitimise their interventions, central bankers consequently need to demonstrate how such measures are related to their existing mandates (Thiemann et al., 2023). The question is, however, whether green policies can or even should follow from the aforementioned mandates. The legal framework leaves room for interpretation, leading to an ongoing discursive struggle over whether environmental concerns fall within the competence of the ECB, and if so, under which mandate (van 't Klooster & van Tilburg, 2020).

In the following sections, we examine which narratives are pursued within the ECB to legitimise climate-related monetary policy, how they affect its layered structure, and whether they could lead to a departure from the prevailing market liberal approach to central banking.[1]

The increasing relevance of climate issues at the ECB

To explore how ECB board members have aimed to legitimise climate issues, we analysed the ECB speeches dataset which includes all speeches and other documents issued by ECB board members from February 1997 to December

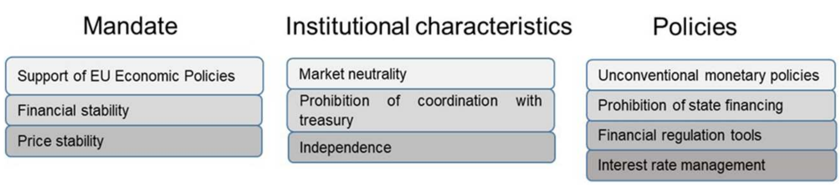

Figure 1. The ECB's tripartite layered structure of central bank operations.
Source: Authors' elaboration.

2022 (ECB, 2019).[2] Several scholars have recently used an analysis of speeches to understand how central banks are legitimising their greening strategies (Deyris, 2023; DiLeo, 2023; DiLeo et al., 2023; Șimandan et al., 2023). ECB documents, and in particular communication tools such as speeches, do not merely describe what the ECB has done or will do. They themselves constitute a set of monetary policy instruments (Holmes, 2014; Krippner, 2007). By announcing changes in monetary policy, such as an increase in key interest rates, the ECB can often trigger desired reactions in the financial markets (forward guidance). Similarly, by announcing green monetary policies such as the tilting of the corporate bond portfolio, the central bank could induce market responses such as the selling of dirty assets and the purchase of green assets. At the same time, the ECB also seeks to legitimise monetary policy through its communications. Especially when tackling new topics or tasks, the central bank is always open to the accusation of overreaching its competences. Since there is no direct democratic control over the ECB, its mandate is the parameter by which it must be guided (Dikau & Volz, 2021; Gnan et al., 2018; Lastra et al., 2020). For this reason, we were interested in identifying how the documents frame the issue of sustainability and climate change and in what way they legitimise the possible introduction of green monetary policy.

Following Deyris (2023), we filtered the dataset according to specific criteria in order to consider only those speeches in English which contain the lemmas (i.e., word roots formed following a dictionary approach) 'clima', 'sustain', 'carbon', 'green', and/or 'fossil'. We removed all references to the topic prior to 2018, considering that discussion before then did not deal with the impact of climate change as it relates to the ECB. Instead, environmental issues were referred to as a general social challenge with no implications for central banking. Through the filtering process, we retrieved 126 speeches held between 2018 and 2022 by ten members of ECB's Executive Board. We coded these speeches according to four criteria: (a) relevance; (b) framings of the consequences of climate issues and their bearing on the central bank's area of influence; (c) competences of the central bank to tackle climate issues; (d) policy, i.e., specific instruments proposed. The methodology is explained in more detail in the Appendix. Our analysis complements and expands upon that of Deyris (2023) by examining the relevance of environmental issues in the speeches and also, more importantly, by focusing on the frames and narratives. Moreover, whereas Deyris' dataset covers the period through 2021, by extending our analysis to 2022, we were able to clearly identify the development of important trends, including the increasing linking of climate change with inflation, that were only beginning to emerge in 2021.

We examined the speeches to determine whether climate issues were dealt with as the main topic, a secondary topic, or a minor topic. The

Table 1. Relevance of environmental issues in ECB Executive Board member speeches by year.

Year	Minor topic/Brief mention	Secondary topic	Main topic	Total
2018	3	1	2	6
2019	9	2	3	14
2020	13	5	3	21
2021	23	8	14	45
2022	19	10	11	40
Total	67	26	33	126

Source: Authors' elaboration based on ECB speeches dataset.

results indicate that since 2018, climate issues have received increasing mention in ECB board member speeches. The number of references to the topic rose from just 6 in 2018 to a total of 45 in 2021, and 40 in 2022. As Table 1 shows, while climate issues have gained increasing attention, they rarely figure as the main topic of any speech prior to 2021. It was only in 2021 and 2022 that the topic took centre stage, with more than 10 speeches during each of these two years focusing primarily on climate issues.

During the period under analysis, speeches related to environmental issues (see Table 2) were held by ten out of the twelve ECB board members (excepting Vítor Constâncio and Peter Praet). The three board members most active in this respect were Christine Lagarde (with a total of 40 speeches), Isabel Schnabel (with 22 speeches), and Frank Elderson (with 18 speeches). Speeches in which climate issues were the main topic, however, were only delivered by Lagarde on two occasions. For the most part (in 24 of her speeches) she mentioned the topic only once, generally in reference to a major challenge that Europe faces together with digitalisation. Elderson led the way by far with 16 speeches in which environmental issues were the main topic. This is hardly surprising, considering that from 2017 to 2022 he also chaired the Network for Greening the Financial System (NGFS), a group of 121 central banks and supervisors founded in

Table 2. Relevance of environmental issues in ECB Executive Board member speeches.

Executive Board Member	Minor topic/ Brief mention	Secondary topic	Main topic	Total
Benoît Cœuré (2012–2019)	8	1	1	10
Mario Draghi (2011–2019)	1	0	0	1
Frank Elderson (2023–2028)	1	1	16	18
Christine Lagarde (2019–2027)	24	14	2	40
Philip Lane (2019–2017)	4	1	0	5
Sabine Lautenschläger (2014–2019)	1	2	1	4
Yves Mersch (2012–2020)	2	0	1	3
Fabio Panetta (2020–2027)	8	2	2	12
Isabel Schnabel (2020–2027)	13	3	6	22
Luis de Guindos (2018–2026)	5	2	4	11
Total	68	26	33	126

Source: Authors' elaboration based on ECB speeches dataset and ECB website.

2017 to conduct research, facilitate coordination between its members, and define and promote best practices in terms of green central banking.

This purely quantitative analysis of the data confirms the trend identified in other studies, namely that the issue of climate and sustainability is gaining traction both in terms of the frequency with which it is mentioned as well as in the number of ECB board members who have commented on the topic (Deyris, 2023; DiLeo et al., 2023). This may indicate the beginning of a sedimentation process at the ECB with respect to the issue, i.e., that it has come to resonate with the ECB's decision-making bodies and is starting to have an impact on more deeply sedimented layers of central banking operations. To assess the validity of this conjecture, we conducted a qualitative analysis of the main narratives.

The ECB's three narratives on environmental issues

We identified three narratives in the dataset about the implications of environmental and especially climate-related problems as they concern the central bank's area of influence.[3] The relationship between climate issues and the central bank has been framed by ECB board members around three main categories: first, environmental and climate risks as financial risks; second, the existence of a green financing gap; and third, the impacts of environmental issues on price stability. It is worth highlighting the fact that these three approaches are not mutually exclusive. After all, since climate change does affect every dimension of the economy, it would be consistent to argue that green transition will affect financial and price stability and at the same time require more financing than is currently available. Moreover, there is no one-to-one correspondence between a specific narrative and a specific policy. Narrative frames function as alternative arguments for legitimising policy proposals and decisions. In other words, different narratives can be used to legitimize a single policy, such as the tilting of the corporate bond portfolio, and a single narrative can also be used to legitimise several different policies.

Climate problems as financial risks

The narrative of environmental issues as financial risks is driven by an advocacy coalition of actors including financial professionals, think tank researchers specialised in green finance, and senior government officials at the national ministries of environment and finance who have strategically framed the issue so as to appeal to central bankers (Quorning, 2023). The framework gained prominence after the Breaking the Tragedy of the Horizon speech by former Bank of England Governor and Chairman of the Financial Stability Board Mark Carney (2015). In his speech, Carney warned that three types of environmental and climate-related risks (physical, transition, and liability risks) could lead to financial instability by triggering a collapse in asset prices and harming debtors' ability to repay their debts, thus exposing financial institutions to huge losses.

From the beginning, ECB board members have largely followed Carney's framework, according to which environmental problems were also conceptualised as financial risks that pose a potential threat to financial stability (de Guindos, 2019a, 2019b; Elderson, 2021a, 2021c, 2021b; Lautenschläger, 2018; Schnabel, 2020b). Perhaps the ECB's clearest exponent of this view is Frank Elderson, who has reiterated the perspective with statements such as: '[C]limate change is a source of financial risk' (Elderson, 2021c, p. 2), and 'The main message from this should be clear […] Climate-related and environmental risks are a source of financial risk. Even if the exact outcome is uncertain, a combination of physical and transition risks from the ongoing crises will materialise' (Elderson, 2022a, p. 2). ECB board members have meanwhile acknowledged that physical and transition risks are also present in the ECB's own balance sheet, particularly in its non-monetary policy asset portfolios (Schnabel, 2020b).

In addition to the physical and transition risks described by Carney, ECB board members emphasise that new financial products resulting from the growing green or sustainable finance market could pose a potential source of instability or even lead to price bubbles, 'the Ponzi risk of green finance' (Mersch, 2018a, p. 3).[4]

Following this framework, only one board member claims that climate concerns fall outside of the central bank's competences. Mersch (2018a, p. 1) states: 'By no means do I want to be the 'spirit, ever, that denies'. But in this concrete instance, the situation is clear: finding – or financing – the solution to the problems of climate change appears, at first glance, somewhat remote from the primary mandate of a central bank.'

The position taken by Mersch (2018a, p. 4) so aptly illustrates the argument initially brought by a number of governors that it warrants quoting him at length:

> Moreover, focusing purchases on green bonds would run counter to the requirement to respect the workings of an open market economy and be tantamount to industrial policy. The APP [Asset Purchase Programme] is a tool for macroeconomic stabilisation, not for microeconomic reallocation. Deviating from market neutrality and interfering with economic policy risks exposing the ECB to litigation. It is not up to the central bank but to elected governments to decide which industry is to be closed and when. As central bankers, we have to respect and implement legitimate decisions in this context. And the effectiveness of monetary policy has been bolstered by abstaining from normative judgments on the morality of markets and industries.

Increasingly, however, most ECB board members have come to see green measures as part of the ECB's tasks, especially in the promotion of financial stability. This perhaps explains why several ECB board members maintain that tackling climate change is not primarily the responsibility of central banks, but rather of elected governments and legislators (de Guindos, 2019a, 2021b; Elderson, 2022b; Mersch, 2018a). Consequently, the aim of policy proposals made by those who contend that climate issues should be conceptualised as risks to financial stability is not to transform central banks into agents directly responsible for tackling environmental problems, but rather to confine their activity to controlling the risks for banks within the ECB mandate. In the words of Elderson (2022c, p. 4):

> Do not expect us to act to regulate or enforce environmental policies. We will stick to our mandate. Our mandate is to keep under control the risks that banks and the financial system are facing, and in that capacity we have to look closely at the risks that are building up in the banking sector as a consequence of the climate crisis.

And later he emphasises: 'The ECB is not an environmental activist, but rather a prudent realist. It is our job to point out risks, whether they are macroeconomic, macroprudential, microprudential or related to litigation, and to ensure that the financial sector takes them duly into account.' On the one hand, this approach allowed the translation of climate concerns into the technocratic discourse of central banking, particularly to the macroprudential framework (DiLeo, 2023; Quorning, 2023; Thiemann et al., 2023). The underlying rationale is that the misallocation of capital away from green options to dirty activities results from market failures arising particularly from a lack of information that ultimately leads to the mispricing of assets (Christophers, 2017). This perspective holds that if sufficient information and appropriate data modelling techniques are available, prices will accurately reflect true risks, including those of an ecological nature, allowing the market mechanism to correctly allocate capital and become resilient to climate-related instability (Chenet et al., 2021; Langley & Morris, 2020; Thiemann et al., 2023). According to this reasoning, central banks should encourage and support the market in the process of internalising environmental costs. By successfully establishing a relationship between the climate crisis and financial stability as a common good, the ECB board member arguments in this respect serve as a convincing discursive strategy for locating climate issues within the realm of monetary authority and accordingly within the scope of the ECB mandates. In this way, the issue is becoming firmly embedded within the sedimented layers of the mandate structure.

On the other hand, framing the issue in this way significantly constrains the scope for green action (Langley & Morris, 2020; Quorning, 2023; Thiemann et al., 2023). Policy proposals are limited to instruments to improve financial regulation under what Elderson (2022d, p. 1) calls an 'immersive supervisory approach' to climate and environmental risks. This approach covers voluntary information disclosure, climate scenario analysis and stress tests, prudential supervisory measures, and monitoring of the growing sustainable finance market. Also included in this category are policies justified as a way to protect the ECB from climate risks in its portfolio – tilting the ECB's portfolio, for example (Schnabel, 2020b). The overall strategy was summarised by Elderson in a speech he held at an industry outreach event (2022d, p. 2), in which he limited the scope of the supervisory approach to urging banks to understand and manage the risks they face rather than obliging them to do so by virtue of credit guidance or control policies:

> To be clear, banks should not misconstrue the ECB's actions as an outright call for divesting from carbon-intensive activities or from geographical regions vulnerable to physical risk. Rather, we are asking banks to fully grasp the physical and transition risks and to actively start managing them, with the aim of making their portfolios more resilient to C&E risks.

The green financing gap

The second narrative frames the central bank as a catalyst for the development of financial markets in order to bridge the gap between investments needed for green transition and actual expenditures for green investments. This problem is seen as arising from investors basing their decisions on short-term horizons or not taking into account environmental risks (Lautenschläger, 2019).

In this category, ECB board member speeches often highlight the increase in green finance in the euro area (frequently in the context of green bond issuance, portraying the euro as the global currency of green finance, and to a lesser extent where the growth of ESG [Environmental, Social, and Governance] investment is concerned), while at the same time stressing both the insufficiency of such investments compared with the estimated need, as well as potential greenwashing risks due to unreliable or incomparable data and credit ratings (Lagarde, 2021d, 2021c; Schnabel, 2020b, 2020a). In most cases, however, the observations are not followed by discussion of the ECB's role in mobilising green finance or specific policy recommendations.

Instead of mentioning the central bank itself as a source of direct financing, board members tend to stress the need to support private markets. While recognising the importance of public investment, and highlighting the Next Generation EU fund established in February 2021, in part to assist Member States to achieve climate goals as a positive development, various ECB board members point out that these measures will not be enough, and that private investment will also be needed. In this context, they maintain that deepening the banking union and completing the capital markets union would favour this goal (de Guindos, 2022a). In particular, they focus on equity markets which they hold to be in a better position to provide the kind of financing needed, considering the nature of green projects as capital intensive, long-term, innovative, and risky (de Guindos, 2021a; Lagarde, 2021c; Schnabel, 2020a). In this regard, the fragmentation of national financial markets is depicted as a barrier to the financing of green investments, leading to calls for a 'green capital markets union' (Lagarde, 2021d).

ECB board members who mention the green financing gap in their speeches tend to view the ECB's role merely in an advisory capacity, advocating in European forums for European supervision of green financial products with official EU seals, integration of sustainability disclosures with financial data, harmonisation of tax treatment of investments in sustainable finance products, and convergence of national insolvency frameworks (Lagarde, 2021b, 2021d, 2021c).

Climate issues and price stability

The third narrative on the relationship between central banks and climate change frames climate events as a potential challenge to price stability. Lagarde (2020b, p. 3), for example, asserts that 'bringing climate change more fundamentally into our analysis and strategy is not 'mission creep': climate change is also a price stability risk'. Similarly, Schnabel (2020a, p. 12) states that 'Climate change, if not addressed swiftly, can be expected to affect the economy in a way that poses material risks to price stability in the medium to long term.'

Although our analysis did detect a few expressions of this narrative prior to 2020, for example in a speech held by Cœuré (2018), it only really gained traction in 2021 and especially 2022. In some cases, the argument stresses that physical and transition risks are not only risks to financial stability but also to price stability (Schnabel, 2021a).

Other speeches are more direct in pointing out the influence of climate change on price stability in an interesting break with the excess demand views used to explain inflation that otherwise guide central banking. Schnabel (2022a) presents the most comprehensive version of this approach in an examination of three different types of shock, grouped under the neologisms climateflation, fossilflation, and greenflation. She elaborates on how these risks emanate from the green transition and what impact they might have on prices. Climateflation, as she explains, refers to inflation from shocks related to the costs of climate change. Already in late 2018, Cœuré anticipated this argument when he claimed that climate change could 'complicate the correct identification of shocks relevant for the medium-term inflation outlook' (Cœuré, 2018, p. 1) citing droughts and heat waves that reduce crops and increase food prices; hurricanes and floods that destroy production capacity and raise prices; climate migration that affects labour supply and thus wages; and change in the energy mix that can impact relative prices and risk the destabilisation of inflation expectations. While recognising that the green transition might lead to increased commodity prices, ECB board members have been careful to point out that the effect is ambiguous as there are different demand and supply channels pushing fossil fuel and renewable energy prices in different directions (Panetta, 2022). Moreover, they highlight that current inflation is not the result of climateflation.

The second type of shock referred to by Schnabel (2022a) as fossilflation, or the inflationary cost of dependency on fossil fuels, highlights lack of progress on ecological transformation as a cause of inflation. According to Schnabel, an increase in oil and gas prices is inflationary among other things because of the lack of green alternatives. While seeing price increases as a potential incentive for change towards greener and cheaper sources of energy, she warns that the transition process could take a long time, the result being persistent inflation (Schnabel, 2022b).

Several ECB board members emphasise that the inflation rate for 2021 and 2022 was largely of this nature as it was driven by energy price increases resulting from the Russian invasion of Ukraine and Europe's dependence on fossil fuels (Panetta, 2022; Schnabel, 2022a). It merits mention, however, that this acknowledgment can be interpreted in two different ways. On the one hand, as some ECB members suggest, it can be seen as a trade-off between inflation and green policies, implying that inflation reduction requires an increase in the production of fossil fuels to lower their price (de Guindos, 2022b). In the view of other board members, on the other hand, there is a possibility of what they refer to as a 'divine coincidence' (Panetta, 2022) between decarbonisation and price stability – 'greener and cheaper' (Panetta, 2022) – considering that the shift to renewable energy could lead to both a greener economy and lower prices. Irrespective of interpretation, however, the issue is not seen as belonging to the remit of the central bank, but rather as a government responsibility to reduce the demand for fossil fuels and increase the production of cheap renewable energy via public investment, carbon taxes, and private sector incentives.

Lastly, what Schnabel calls greenflation refers to the potential inflationary effect that arises when production processes are adapted to lower their carbon footprint (Schnabel, 2022a). The production of electric vehicles or wind plants, for example, increases the demand for metals and minerals while limited supply increases their price.

Several governors share the view that these different types of shocks will occur in the future in one form or another and with varying degrees of severity. This means that many of them agree that climate change will have an impact on price stability. Following this narrative allows ECB board members to justify central bank intervention within the ambit of its primary mandate:

> The price of energy affects the cost of virtually everything we consume and produce. As a result, the cost-push shock from an increase in energy prices is felt throughout the economy. Given that the ECB's primary mandate is to preserve price stability, understanding the relationship between the transition to a greener economy and the price of energy is crucial. (Panetta, 2022, p. 2)

In a similar manner, Lagarde states: 'In short, climate change has consequences for us as a central bank pursuing our primary mandate of price stability, and our other areas of competence, including financial stability and banking supervision' (Lagarde, 2021b, p. 1).

Finally, in a speech in 2023, Schnabel sums up the discussion with a strong statement: 'As they ['climateflation' and 'fossilflation'] expose a potential dilemma directly relating to central banks' primary mandate of price stability, we cannot ignore them on legal grounds' (Schnabel, 2023).

ECB board members are nevertheless cautious not to put undue responsibility on the central bank, still arguing that the main responsibility lies elsewhere:

> Clearly, central banks are not the main actors when it comes to preventing global heating. Central banks are not responsible for climate policy and the most important tools that are needed lie outside of our mandate. But the fact that we are not in the driving seat does not mean that we can simply ignore climate change, or that we do not play a role in combating it. (Lagarde, 2021a, p. 1).

Schnabel expresses the same opinion when she says:

> […] the ECB cannot be transformed into an environmental agency conducting climate policies autonomously. This would also violate the principle of institutional balance. The ECB was created to maintain price stability in the euro area, and the mandate foresees a clear hierarchy of objectives, with price stability taking precedence over other objectives. (Schnabel, 2021b, p. 2)

Schnabel (2022a) considered a proposal for Green Targeted Longer-Term Refinancing Operations (TLTROs) (van 't Klooster & van Tilburg, 2020) but dismissed it due to the lack of data which she claimed would complicate its practical implementation. She also rejected the idea of increasing the inflation target and excluding energy prices from central bank measures of inflation. Instead, she argued that 'fiscal policy needs to remain in the driving seat when it comes to fighting climate change' (Schnabel, 2023, p. 3).

The narrative to conceptualise climate issues as a price stability issue could potentially justify the creation of policies to address the environmental drivers of inflation – credit guidance policies, for example, which could increase the funding and/or lower the borrowing costs for projects that seek, among other things, to expand the supply of renewable energy (Monnet & van 't Klooster, 2023). So far, however, it has not led to any new and concrete policy proposals. Instead the quotes above reflect how non-intervention has been explained. Proponents of the third narrative have been careful to dismiss alternatives.

The evolution and significance of the narratives

As Chart 1 shows, from the time when climate change first became an issue until 2021, the dominant discourse was the first narrative, which frames climate risks as financial risks. In this regard, ECB board members largely followed Carney's framework which later also served as the position that guided the NGFS (see, for example, NGFS, 2019). However, the third narrative, which highlights the impacts of climate change on price stability, gained traction in the course of the period, becoming dominant in 2022. High inflation in the euro area facilitated the articulation of the relation between the climate crisis and price stability. As we have shown, however, the narrative was already present before inflation began to surge. Accordingly, we assume that some central bankers point to high inflation as a reason to strengthen the legitimation of climate monetary policy. The second narrative, the green financing gap, recurs throughout the whole period but is never the chief narrative.

The different narratives lead to different conclusions regarding the central bank's field of competence to tackle environmental issues. From the narrative

Chart 1. Narratives about the implications of environmental issues for the central bank in ECB Executive Board member speeches, 2018–2022.

Source: Authors' elaboration based on ECB speeches dataset.

of climate change as a financial risk, it follows that the ECB would be empowered to act in its role as financial regulator. The narrative of environmental problems as a cause of inflation provides the basis for climate action on the part of the ECB under its primary mandate of price stability. Depending on how the problem is framed, it is possible to construe an ECB mandate that is either weak or strong, or even to argue that no mandate at all exists. Given these considerations, we analysed the speeches to determine whether ECB board members explicitly consider that addressing environmental issues is part of their mandate. In those cases where we were able to identify mention of the mandate, we examined whether the speaker was referring to part of the ECB's primary mandate of price stability, its secondary mandate of supporting EU economic policies, its financial supervisory role, more than one of these categories, or whether the reference was unspecified.

In general, explicit mention to a mandate was rare, with only 54 specific references detected in 37 speeches. Often, as can be seen in Table 3, mention was made in an unspecified manner. Interestingly, until 2021 there was barely any mention at all of a mandate in connection with environmental issues. The only exception we detected was in an early debate that took place in 2018 between Mersch and Cœuré, when Mersch argued that environmental issues fell outside the remit of the central bank (Cœuré, 2018; Deyris, 2023; Mersch, 2018a). In 2021, the ECB's primary mandate of price stability and its financial stability responsibilities each received 5 mentions, while its secondary mandate was mentioned 4 times, with 3 references to more than one mandate. Again in 2022, the primary mandate and financial stability responsibilities received 5 mentions each, while references to other categories were fewer. Views on tackling climate issues accordingly fall more or less equally under considerations relating to the primary mandate and the financial stability competence, and to a lesser extent to the secondary mandate.

For the ECB's tripartite layered structure of central banking, this indicates that within just a few years, issues of climate change insofar as they pertain to the ECB's mandate have already reached the more deeply sedimented layers,

Table 3. Per annum mentions of climate issues in ECB Executive Board member speeches according to mandate.

Year	Unspecified	More than one mandate	Financial stability	No mandate	Secondary	Primary	Total
2017	0	0	0	0	0	0	0
2018	0	0	1	1	1	0	3
2019	2	0	0	0	0	0	2
2020	3	0	0	0	0	1	4
2021	11	3	5	0	4	5	28
2022	3	2	5	0	2	5	17
Total	19	5	11	1	7	11	54

Source: Authors' elaboration based on ECB speeches dataset.

progressing from no mandate to financial stability to the primary mandate of price stability. However, this represents a move within the existing structure, and not a dislocation thereof.

The ECB's green monetary policies

The three narratives lead to different understandings of the central bank's capacity to intervene, and the instruments it should use. A comparison of the narratives with actual policy implementation based on ECB reports, speeches by ECB board members, and other publications (including information posted on its website), shows that despite the growing relevance of the third narrative, the first – the framing of climate issues as financial risks – has clearly had the greatest impact so far.

Since 2018, the ECB has begun to implement climate measures. In line with its 2021 strategy review, which includes a four year climate-related action plan, the ECB has meanwhile expanded its range of instruments. For the most part, they have so far been restricted to data collection, research, and soft forms of financial supervision.

To begin with, the ECB has stepped up its efforts in data collection as well as in developing indicators and models, and in conducting research. It established the Climate Change Centre in January 2021 and published a list of climate change-related indicators in 2023. Moreover, it has included climate variables in its macroeconomic models.

Regarding supervision, in 2020 the ECB published a Guide on climate-related and environmental risks, which sets out 13 supervisory (but not binding) expectations specifying how institutions should incorporate climate-related and environmental risks into their business models and frameworks on governance, risk appetite, and risk management, and what information they should disclose in connection with climate-related financial risks and opportunities (ECB, 2020). In 2021, 112 financial institutions were asked to perform a self-assessment of how their practices compare with the expectations detailed in the Guide and to write action plans delineating the steps they should take to conform to the expectations. In an evaluation of the practices, the ECB found that most institutions were still far from meeting expectations (ECB, 2021). As a result, it has made the monitoring and mitigating of exposure to climate-related and environmental risks one of its banking supervision's strategic priorities for 2022–24. In 2022, to complement the assessment, the ECB published a thematic review indicating that although there has been some progress compared to 2021, much still needs to be done (ECB, 2022c). In particular, the lack of clarity and the absence of progress in implementing plans prompted the ECB to issue a 'Feedback statement' and draw up individual timelines for the supervised institutions according to which they all must be fully aligned with the supervisory expectations by the end of 2024. In addition, the ECB published a report on the good practices identified in the assessment to illustrate how banks might achieve greater progress toward meeting supervisory expectations (ECB, 2022b).

The policies have been complemented with stress test analysis. In 2021, the ECB conducted and published the results of an economy-wide stress test (Alogoskoufis et al., 2021). A year later, it also published the results of a stress test carried out to assess the physical and transition risks faced by banks and their level of preparedness to manage climate risk (ECB, 2022a). These activities constitute part of the ECB's changing approach to the supervision of climate-related and environmental risks, climate stress testing, and climate reporting.

With regard to monetary policy, progress has been slower. The ECB has been criticised on the grounds that its monetary policy asset portfolio is heavily weighted towards carbon-intensive companies, thus contributing to the provision of cheap financing for fossil fuel producers (Dafermos et al., 2020, 2021). In 2021, it responded to this problem by starting to accept sustainability-linked bonds as collateral, and justifying the move as a contribution to the development of green finance (Panetta, 2021). Then, in 2022, it took a much more decisive step by tilting its corporate bond purchase programme toward the gradual decarbonisation of its monetary policy portfolio. It would be possible to view this policy through the lens of the second narrative as a measure towards closing the green investment gap by lowering the cost of funding for green assets. Instead, however, the first narrative was employed with the argument that the tilting served to protect the ECB from climate risks in its portfolio (Schnabel, 2020b). Finally, the ECB has begun to develop plans to limit the share of assets issued by carbon-intensive entities that can be used as collateral (a measure that is expected to apply before the end of 2024). Additionally, it plans to accept only collateral and purchase assets from companies that comply with the Corporate Sustainability Reporting Directive (to apply from 2026), and to enforce minimum climate-related standards for in-house credit assessment systems and credit rating agencies (by the end of 2024).

As the foregoing analysis indicates, the policies implemented by the ECB have largely been legitimised with the first narrative. This is also reflected in the speeches in our dataset. We classified the instruments that ECB board members mentioned into four broad categories: monetary policy, financial regulation, the banking union and capital markets union, and miscellaneous. As can be seen in Chart 2, until 2020, the policies most often supported were those classified under miscellaneous, especially those related to the production of data, indicators, and research around environmental and climate-related risks. Since 2019, the number of policies in the financial regulation category has steadily grown, with the category gaining clear dominance in 2021 and 2022. These two categories align fully with the financial risk narrative. On the whole, more frequent mention has been made to instruments in these two categories than to monetary policy instruments, although references to the latter have increased since 2020. It might be assumed that references to monetary policy instruments derive from the third narrative, but this is not the case. For the most part, as pointed out above, the instruments referred to in this category are green asset purchase programmes and measures to green the collateral framework. Such measures are often also framed as ways to tackle financial instability. Finally, the banking union and capital markets union category is exclusively part of the second narrative and is therefore only infrequently mentioned during the period under examination.

As this indicates, despite the growing relevance of the third narrative and the increasing tendency on the part of ECB board members to depict central bank intervention for climate change mitigation as a matter falling within its primary mandate, policy proposals have remained confined to those already discussed under the first narrative without any direct form of intervention to tackle the environmental causes of inflation.

In sum, while there have been significant changes regarding how climate action is considered in the mandate, the issue has not become more deeply sedimented in terms of concrete monetary policy. As yet there is no sign of any real progress toward comprehensive green monetary policy.

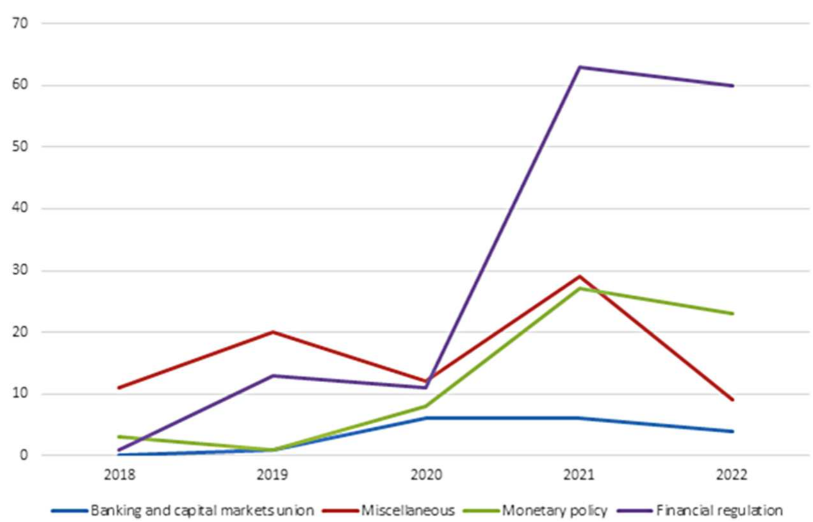

Chart 2. References in ECB Executive Board member speeches in support of policy instruments to tackle environmental issues, 2018–2022.

Source: Authors' elaboration based on ECB speeches dataset.

Conclusion: the dilemma of market liberal central banking

Environmental concerns have gained increased prominence in ECB speeches since 2018. Our analysis shows how the environmental crisis is being conceptualised by ECB Executive Board members while shedding light on the ongoing debate at the central bank over the legitimacy of the role that monetary authorities should assume in this respect. We identified three main narratives within the discourse on green central banking: environmenal and climate risks as financial risks; the green financing gap; and the impacts of climate issues on price stability. While each of the narratives could justify different forms of intervention, ECB board members have taken the first predominantly as leading to a financial regulatory role for central banks to prevent financial instability, the second as warranting advocacy for the capital markets union, and have remained ambiguous as to what policies are derived from the third.

We show that from the time the issue of climate change entered the debate at the ECB until 2021, the most frequently cited narrative was the first, after which the third narrative became dominant. In parallel to this development, price stability and financial stability have been the two most frequently mentioned responsibilities of the ECB. We argue that these shifts have the potential to significantly amplify the scope of ECB authority to shape green monetary policy, allowing the ECB to interpret its mandate in such a way as to permit the implementation of more far-reaching climate policy measures. This would indeed be a new situation that could bring about a change in the direction of ECB monetary policy. It merits mention in this connection that the development is supported by the entire Board of Governors, albeit to varying degrees.

We also show, however, that the growing focus on inflation and the primary mandate in ECB board member speeches concerning the role the central bank should play in helping to tackle the climate crisis has yet to be translated into new monetary policy proposals. Through the lens of layered structures it can be reasoned that such a policy change would require the deeper sedimentation of the third narrative within the layers of legitimate central banking, a development that has yet to happen. A recent speech in which Elderson argued for the possible future greening of targeted longer-term refinancing operations, points in this direction (Elderson, 2023). Hence, it is not unlikely that stronger monetary policies will be established in the future. Such a development can be clearly seen with respect to the first narrative around environmental phenomena as financial risks. This narrative, which became dominant in 2018, is already more deeply sedimented within the scope of legitimate central banking. Nevertheless, it took until 2020 for the first climate-related financial regulatory measures to be implemented. In a similar manner, it will likely take time before the sedimentation of the narrative around price stability translates into concrete policies. The currently shifting discourse may nevertheless be seen as a harbinger of change in monetary policy.

The question is whether these discursive processes will steer the ECB away from a market liberal monetary framework. In our opinion, it will not. We argue that it is rather the case that the shifting interpretation of central bank mandates and competences will remain deeply rooted in a market liberal framework. This also explains why the identification of the large financial gap for green investments has not led the ECB to develop a financing strategy, e.g., for the purchase of green bonds or the granting of loans or overdrafts for green investments and technologies. By contrast, the financial stability narrative has been relatively easy for the ECB to translate into concrete policies because measures such as disclosure or stress testing are fully in line with market-liberal monetary policy. Through the lens of the tripartite layered structures of the ECB (see again Figure 1), it becomes evident that the shifts we are observing only involve a process of adapting environmental concerns to the current structure rather than changing the structure itself. This process entails taking these concerns into account within the scope of the existing mandate while excluding any policies that would transcend the market liberal paradigm or transform the overall institutional structure of the ECB. Legitimate monetary policy today is firmly embedded in this tripartite-layered market liberal structure. Any deviation therefrom would pose a risk to the ECB's legitimacy. When faced with the choice between fighting inflation with higher policy rates or lowering policy rates to support sustainable transformation, the ECB opts for the former (Schnabel, 2023). Nonetheless, the fact remains that high policy rates are currently one of the chief problems facing governments, the private sector, and households in the financing of sustainable projects. All this indicates that even if the described trend does translate into new climate-related monetary policy, the market liberal framework is not in question. The layered structure of the ECB has changed only in certain areas and only on the least sedimented level. The firm and prevailing belief in market-based solutions will prevent the ECB from moving towards more encompassing climate policies. The ECB approach is still about governing and 'organizing circulation' (Foucault, 2009, p. 18) rather than restricting it. Market liberalism in climate crisis mode will necessarily enlarge the ECB's legitimate sphere of influence, but without abandoning either the market liberal approach to governance or the laissez-faire faith in financial markets. The goal of market liberalism is to keep investments that pose climate-related risks and increase greenhouse gas emissions 'within socially and economically acceptable limits' (Foucault, 2009, p. 5) and not 'the imposition of a law that says no to them' (Foucault, 2009, p. 66). The role of the central bank is not to intervene directly in the market, but only to monitor financial and price instability from a distance and to intervene only in case of necessity.

The dilemma of market liberal central banking involves the recognition by most central bankers that increasing climate change will require ever greater central bank intervention. Speeches therefore reinforce narratives that legitimise this intervention by linking it to the ECB's mandates and, in particular, to its primary mandate. At the same time, the ECB mandate to ensure price stability is embedded in a market liberal institutional structure that continues to believe in self-regulating markets and consequently limits the role of central banks (Goodhart & Lastra, 2023). Central bankers' insistence on adhering to the central bank mandate, which in their view only authorises measures involving the adaptation to climate-related risks that threaten financial and monetary stability, ultimately precludes the possibility of a truly effective and encompassing green monetary policy, in other words, one that would question the principle of market neutrality and demand coordination between monetary and fiscal policy, or even the financing of climate change-relevant government expenditures.

Notes

1. Our analytical framework enables us to identify and trace shifting narratives used by ECB Board members in their speeches to legitimise green action and policy proposals. Although the ECB dataset allows us to attribute each of the retrieved speeches to a specific speaker, the structural theoretical framework on which our study is based does not permit conjecture about individual strategies, motivations, or interests. It is rather the purpose of this study to differentiate among the content, and track the development of, the various narratives which have come to be used to legitimise certain forms of intervention.
2. In 1997, the ECB, was still called the European Monetary Institute.
3. This does not exclude the occasional possibility of other framing categories with no direct implications for the central bank. For example, ECB board members mentioned the increase in global temperatures as a problem, but without reference to any central bank role in the solution.
4. Lagarde framed the main risks as falling into three categories: 'risks stemming from disregard, from delay and from deficiency.' (Lagarde, 2020a, p. 1).

Acknowledgements

We are grateful to our colleagues at the research project 'Climate change and global finance at the crossroads: Policy challenges, politico-economic dynamics, and sustainable transformation' Riccardo Baioni, Jan Fichtner, Paula Haufe, Simon Schairer, and Janina Urban as well as the three anonymous reviewers for their nuanced and insightful comments and very detailed feedback on earlier versions of the paper.

Disclosure statement

No potential conflict of interest was reported by the author(s).

Funding

The research was funded by the German Research Foundation (DFG) under the Heisenberg Professorship Programme, reference WU 780/2-1, and the German Federal Ministry of Education and Research (BMBF) under the programme 'Climate Protection & Finance (KlimFi)', reference 01LA2207A.

Notes on contributors

Nicolás Aguila is Doctoral Research Assistant at the University of Witten/Herdecke.

Prof. Dr. Joscha Wullweber is Heisenberg Professor of Politics/ Political Economy, Transformation and Sustainability and Director of the International Center for Sustainable and Just Transformation [tra:ce] at the University of Witten/Herdecke.

ORCID

Nicolás Aguila http://orcid.org/0000-0003-0481-8419
Joscha Wullweber http://orcid.org/0000-0003-1928-1933

References

Alogoskoufis, S., Dunz, N., Emambakhsh, T., Hennig, T., Kaijser, M., Muñoz, M., Parisi, L., & Salleo, C. (2021). *ECB economy-wide climate stress test. Methodology and results*. ECB Occasional Paper, 281. https://www.ecb.europa.eu/pub/pdf/scpops/ecb.op281~05a7735b1c.en.pdf

Bertramsen, R., Frølund-Thomsen, J., & Torfing, J. (1991). *State, Economy and Society*. Unwin Hyman.

Carney, M. (2015). *Breaking the tragedy of the horizon – climate change and financial stability*. https://www.bankofengland.co.uk/speech/2015/breaking-the-tragedy-of-the-horizon-climate-change-and-financial-stability

Chenet, H., Ryan-Collins, J., & van Lerven, F. (2021). Finance, climate-change and radical uncertainty: Towards a precautionary approach to financial policy. *Ecological Economics*, *183*, 106957. https://doi.org/10.1016/j.ecolecon.2021.106957

Christophers, B. (2017). Climate change and financial instability: Risk disclosure and the problematics of neoliberal governance. *Annals of the American Association of Geographers*, *107*(5), 1108–1127. https://doi.org/10.1080/24694452.2017.1293502

Conti-Brown, P. (2016). *The power and independence of the federal reserve*. Princeton University Press.

Cœuré, B. (2018). *Monetary policy and climate change*. Conference on "Scaling Up Green Finance: The Role of Central Banks", Organised by the Network for Greening the Financial System, the Deutsche Bundesbank and the Council on Economic Policies, Berlin. https://www.ecb.europa.eu/press/key/date/2018/html/ecb.sp181108.en.html

Dafermos, Y., Gabor, D., Nikolaidi, M., Pawloff, A., & van Lerven, F. (2020). Decarbonising is easy—Beyond market neutrality in the ECB's corporate QE. *New Economics Foundation*. https://neweconomics.org/2020/10/decarbonising-is-easy

Dafermos, Y., Gabor, D., Nikolaidi, M., Pawloff, A., & Van Lerven, F. (2021). *Greening the Eurosystem collateral framework: How to decarbonise the ECB's monetary policy*. New Economics Foundation. https://neweconomics.org/2021/03/greening-the-eurosystem-collateral-framework.

de Guindos, L. (2019a). *Implications of the transition to a low-carbon economy for the euro area financial system*. European Savings and Retail Banking Group Conference, "Creating Sustainable Financial Structures by Putting Citizens First", Brussels. https://www.ecb.europa.eu/press/key/date/2019/html/ecb.sp191121_1~af63c4de7d.en.html

de Guindos, L. (2019b). *Speaking notes on climate-related risks*. Roundtable event on climate-related risks at Bloomberg, Washington, DC. https://www.ecb.europa.eu/press/key/date/2019/html/ecb.sp191017~8c8b08be0d.en.html

de Guindos, L. (2021a). *Climate change and financial integration*. Conference on "European Financial Integration and Stability", Frankfurt am Main. https://www.ecb.europa.eu/press/key/date/2021/html/ecb.sp210527~6500964615.en.html

de Guindos, L. (2021b). *Euro area banks in the recovery*. Frankfurt Euro Finance Summit, Frankfurt am Main. https://www.ecb.europa.eu/press/key/date/2021/html/ecb.sp210628_1~a91b7b3d4a.en.html

de Guindos, L. (2022a). *Presentation of the ECB Annual Report 2021 to the Committee on Economic and Monetary Affairs of the European Parliament*. ECON Committee of the European Parliament, Brussels. https://www.ecb.europa.eu/press/key/date/2022/html/ecb.sp220428~4e38b8ed52.en.html

de Guindos, L. (2022b). *The Euro area economy and the energy transition*. Energy prospectives event organised by IESE business school and naturgy foundation, Madrid. https://www.ecb.europa.eu/press/key/date/2022/html/ecb.sp221104~b1fcbec7e6.en.html

Deleuze, G. (1999). *Foucault*. Continuum.

Deyris, J. (2023). Too green to be true? Forging a climate consensus at the European Central Bank. *New Political Economy*, *28*(5), 713–730. https://doi.org/10.1080/13563467.2022.2162869

Dikau, S., & Volz, U. (2021). Central bank mandates, sustainability objectives and the promotion of green finance. *Ecological Economics*, *184*, 107022. https://doi.org/10.1016/j.ecolecon.2021.107022

DiLeo, M. (2023). Climate policy at the Bank of England: The possibilities and limits of green central banking. *Climate Policy*, *23*(6), 671–688. https://doi.org/10.1080/14693062.2023.2245790

DiLeo, M., Rudebusch, G. D., & van, J. (2023). *Why the Fed and ECB Parted ways on Climate Change: The Politics of Divergence in the Global Central Banking Community*. Hutchins Center Working Paper, 88. https://www.brookings.edu/articles/why-the-fed-and-ecb-parted-ways-on-climate-change-the-politics-of-divergence-in-the-global-central-banking-community/

Dziwok, E., & Jäger, J. (2021). A classification of different approaches to green finance and green monetary policy. *Sustainability*, *13*(21), 11902. https://doi.org/10.3390/su132111902

ECB. (2019). *Speeches dataset*. https://www.ecb.europa.eu/press/key/html/downloads.en.html

ECB. (2020). *Guide on climate-related and environmental risks. Supervisory expectations relating to risk management and disclosure*. https://www.bankingsupervision.europa.eu/ecb/pub/pdf/ssm.202011finalguideonclimate-relatedandenvironmentalrisks~58213f6564.en.pdf.

ECB. (2021). *The state of climate and environmental risk management in the banking sector: Report on the supervisory review of banks' approaches to manage climate and environmental risks*. https://www.bankingsupervision.europa.eu/ecb/pub/pdf/ssm.202111guideonclimate-relatedandenvironmentalrisks~4b25454055.en.pdf

ECB. (2022a). 2022 *climate risk stress test*. https://www.bankingsupervision.europa.eu/ecb/pub/pdf/ssm.climate_stress_test_report.20220708~2e3cc0999f.en.pdf

ECB. (2022b). *Good practices on climate-related and environmental risk management: Observatios from the 2022 thematic review*. https://www.bankingsupervision.europa.eu/ecb/pub/pdf/ssm.thematicreviewcercompendiumgoodpractices112022~b474fb8ed0.en.pdf

ECB. (2022c). *Walking the talk. Banks gearing up to manage risks from climate change and environmental degradation. Results of the 2022 thematic review on climate-related and environmental risks*. https://www.bankingsupervision.europa.eu/ecb/pub/pdf/ssm.thematicreviewcerreport112022~2eb322a79c.en.pdf

Elderson, F. (2021a). *All the way to zero: Guiding banks towards a carbon-neutral Europe*. Conference on "The Role of Banks in Greening Our Economies" Organised by the European Bank for Reconstruction and Development and Hrvatska Narodna Banka, Frankfurt am Main. https://www.ecb.europa.eu/press/key/date/2021/html/ecb.sp210429~3f8606edca.en.html

Elderson, F. (2021b). *Integrating the climate and environmental challenge into the missions of central banks and supervisors*. 8th Conference on the Banking Union, Goethe University, Frankfurt am Main. https://www.ecb.europa.eu/press/key/date/2021/html/ecb.sp210923~0c7bd9c596.en.html

Elderson, F. (2021c). *The role of supervisors and central banks in the climate crisis*. 31st Lisbon meeting between the Central Banks of Portuguese-speaking Countries, Frankfurt am Main. https://www.ecb.europa.eu/press/key/date/2021/html/ecb.sp211019~84d1b39bcb.en.html

Elderson, F. (2022a). *Maintaining prudence when navigating unexpected tides and firming currents*. 25th Euro Finance Week, Deutsche Bundesbank. https://www.ecb.europa.eu/press/key/date/2022/html/ecb.sp221115~2bad2ebaec.en.html

Elderson, F. (2022b). *The ECB's monetary policy strategy: Delivering our mandate in all circumstances*. European Parliament conference on "Greening monetary policy in times of soaring inflation", Brussels. https://www.ecb.europa.eu/press/key/date/2022/html/ecb.sp220928~13fb6e1240.en.html

Elderson, F. (2022c). *The European Climate Law and the European Central Bank*. Lustrum Symposium organised by Dutch Financial Law Association, Amsterdam. https://www.ecb.europa.eu/press/key/date/2022/html/ecb.sp221201_1~435e6ea81a.en.html

Elderson, F. (2022d). *Towards an immersive supervisory approach to the management of climate-related and environmental risks in the banking sector*. Industry outreach on the thematic review on climate-related and environmental risks, Frankfurt am Main. https://www.bankingsupervision.europa.eu/press/speeches/date/2022/html/ssm.sp220218~57944d77c0.en.html

Elderson, F. (2023). *Monetary policy in the climate and nature crises: Preserving a "Stabilitätskultur"*. Bertelsmann Stiftung. https://www.ecb.europa.eu/press/key/date/2023/html/ecb.sp231122~e12db02da3.en.html

Foucault, M. (2009). *Security, territory, population*. Palgrave.
Gnan, E., Kwapil, C., & Valderrama, M. (2018). Monetary policy after the crisis: Mandates, targets, and international linkages. *Monetary Policy & The Economy*, *2*, 8–33.
Goodhart, C. (2011). The changing role of central banks. *Financial History Review*, *18*(2), 135–154. https://doi.org/10.1017/S0968565011000096
Goodhart, C., & Lastra, R. (2023). The changing and growing roles of independent central banks now do require a reconsideration of their mandate. *Accounting, Economics, and Law: A Convivium*, *0*. https://doi.org/10.1515/ael-2022-0097
Hall, R. B. (2008). *Central banking as global governance: Constructing financial credibility*. Cambridge University Press.
Holmes, D. (2014). *Economy of words. Communicative imperatives in central banks*. University of Chicago Press.
Howarth, D., Norval, A., & Stavrakakis, Y. (eds. 2000). *Discourse theory and political analysis. Identities, hegemonies and social change*. MUP.
Jessop, B. (2001). What follows fordism? On the periodization of capitalism and Its regulation. In R. Albritton, M. Itoh, R. Westra, & A. Zuege (Eds.), *Phases of capitalist development. Booms, crises and globalizations* (pp. 283–300). Macmillan.
Konings, M. (2016). Governing the system: Risk, finance, and neoliberal reason. *European Journal of International Relations*, *22*(2), 268–288. https://doi.org/10.1177/1354066115593393
Krippner, G. (2007). The making of US monetary policy: Central bank transparency and the neoliberal dilemma. *Theory and Society*, *36*(6), 477–513. https://doi.org/10.1007/s11186-007-9043-z
Laclau, E. (1990). *New reflections on the revolution of our time*. Verso.
Laclau, E. (2000). Constructing universality. In J. Butler, E. Laclau, & S. Žižek (Eds.), *Contingency, hegemony, universality* (pp. 281–307). Verso.
Laclau, E. (2005). *On populist reason*. Verso.
Laclau, E., & Mouffe, C. (1985). *Hegemony and socialist strategy: Towards a radical democratic politics*. Verso.
Lagarde, C. (2020a). *Climate change and the financial sector*. Launch of the COP 26 Private Finance Agenda, London. https://www.ecb.europa.eu/press/key/date/2020/html/ecb.sp200227_1~5eac0ce39a.en.html
Lagarde, C. (2020b). *Remarks on the occasion of receiving the Grand Prix de l'Économie 2019 from Les Echos*. Grand Prix de l'Économie des Echos pour l'année 2019, Paris. https://www.ecb.europa.eu/press/key/date/2020/html/ecb.sp200205_1~cc8a8787f6.en.html
Lagarde, C. (2021a). *Climate change and central banking*. ILF Conference on Green Banking and Green Central Banking, Frankfurt am Main. https://www.ecb.europa.eu/press/key/date/2021/html/ecb.sp210125~f87e826ca5.en.html
Lagarde, C. (2021b). *Climate change and central banks: Analysing, advising and acting*. International climate change conference, Venice. https://www.ecb.europa.eu/press/key/date/2021/html/ecb.sp210711~ffe35034d0.en.html
Lagarde, C. (2021c). *Financing a green and digital recovery*. Brussels Economic Forum 2021, Frankfurt am Main. https://www.ecb.europa.eu/press/key/date/2021/html/ecb.sp210629~e6458f8392.en.html
Lagarde, C. (2021d). *Towards a green capital markets union for Europe*. European Commission's high-level conference on the proposal for a Corporate Sustainability Reporting Directive, Frankfurt am Main. https://www.ecb.europa.eu/press/key/date/2021/html/ecb.sp210506~4ec98730ee.en.html

Langley, P., & Morris, J. H. (2020). Central banks: Climate governors of last resort? *Environment and Planning A: Economy and Space*, *52*(8), 1471–1479. https://doi.org/10.1177/0308518X20951809

Lastra, R., Whelan, K., Gagnon, J., Kirkegaard, J., Wilcox, D., Collins, C., Blot, C., Creel, J., Faure, E., Hubert, P., & Claeys, G. (2020). *The ECB's Mandate: Perspectives on General Economic Policies*. https://www.europarl.europa.eu/cmsdata/207722/Topic%201%20compilation%20online.pdf

Lautenschläger, S. (2018). *Ten years after the crisis – risks, rules and supervision*. 13th ASBA-BCBS-FSI High-Level Meeting on Global and Regional Supervisory Priorities, Nassau. https://www.ecb.europa.eu/press/key/date/2018/html/ecb.sp181030.en.html

Lautenschläger, S. (2019). *A call for Europe*. Lecture series "mein Europa", Heinrich-Heine University, Düsseldorf. https://www.ecb.europa.eu/press/key/date/2019/html/ecb.sp191030~c6127fd888.en.html

Lombardi, D., & Moschella, M. (2016). The government bond buying programmes of the European Central Bank: An analysis of their policy settings. *Journal of European Public Policy*, *23*(6), 851–870. https://doi.org/10.1080/13501763.2015.1069374

McNamara, K. R. (2002). Rational fictions: Central bank independence and the social logic of delegation. *West European Politics*, *25*(1), 47–76. https://doi.org/10.1080/713601585

McPhilemy, S., & Moschella, M. (2019). Central banks under stress: Reputation, accountability and regulatory coherence. *Public Administration*, *97*(3), 489–498. https://doi.org/10.1111/padm.12606

Mersch, Y. (2018a). *Climate change and central banking*. Workshop discussion: Sustainability is becoming mainstream, Frankfurt am Main. https://www.ecb.europa.eu/press/key/date/2018/html/ecb.sp181127.en.html

Mersch, Y. (2018b). *Financial stability and the ECB*. ESCB Legal Conference, Frankfurt am Main. https://www.ecb.europa.eu/press/key/date/2018/html/ecb.sp180906.en.html

Miller, P., & Rose, N. (1990). Governing economic life. *Economy and Society*, *19*(1), 1–31. https://doi.org/10.1080/03085149000000001

Monnet, E., & van 't Klooster, J. (2023). *Using green credit policy to bring down inflation: What central bankers can learn from history*. The INSPIRE Sustainable Central Banking Toolbox Policy Briefing Paper, 13. https://www.inspiregreenfinance.org/publications/using-green-credit-policy-to-bring-down-inflation-what-central-bankers-can-learn-from-history/

NGFS. (2019, April, 1–40). A Call for Action: Climate Change as a Source of Financial Risk. *NGFS Report*. https://www.ngfs.net/en/first-comprehensive-report-call-action.

NGFS. (2020, December). Survey on monetary policy operations and climate change: Key lessons for further analyses. *Technical Document*. https://www.ngfs.net/en/survey-monetary-policy-operations-and-climate-change-key-lessons-further-analyses

Panetta, F. (2021). *Sustainable finance: Transforming finance to finance the transformation*. 50th Anniversary of the Associazione Italiana per l'Analisi Finanziaria. https://www.ecb.europa.eu/press/key/date/2021/html/ecb.sp210125_1~2d98c11cf8.en.html

Panetta, F. (2022). *Greener and cheaper: Could the transition away from fossil fuels generate a divine coincidence*. Italian Banking Association. https://www.ecb.europa.eu/press/key/date/2022/html/ecb.sp221116~c1d5160785.en.html

Quorning, S. (2023). The 'climate shift' in central banks: How field arbitrageurs paved the way for climate stress testing. *Review of International Political Economy*, *31*(1), 74–96. https://doi.org/10.1080/09692290.2023.2171470

Saad-Filho, A. (2018). Monetary policy and neoliberalism. In D. Cahill, M. Cooper, & M. Konings (Eds.), *The SAGE handbook of neoliberalism* (pp. 335–346). SAGE.

Schmidt, V. A. (2022). European emergency politics and the question of legitimacy. *Journal of European Public Policy*, *29*(6), 979–993. https://doi.org/10.1080/13501763.2021.1916061

Schnabel, I. (2020a). *Never waste a crisis: COVID-19, climate change and monetary policy*. "Sustainable Crisis Responses in Europe". Organised by the INSPIRE Research Network. https://www.ecb.europa.eu/press/key/date/2020/html/ecb.sp200717~1556b0f988.en.html.

Schnabel, I. (2020b). *When markets fail – the need for collective action in tackling climate change*. European Sustainable Finance Summit. https://www.ecb.europa.eu/press/key/date/2020/html/ecb.sp200928_1~268b0b672f.en.html

Schnabel, I. (2021a). *A new strategy for a changing world*. Virtual Financial Statements series hosted by the Peterson Institute for International Economics, Frankfurt am Main. https://www.ecb.europa.eu/press/key/date/2021/html/ecb.sp210714~0d62f657bc.en.html

Schnabel, I. (2021b). *From green neglect to green dominance*. "Greening Monetary Policy – Central Banking and Climate Change" online seminar, organised as part of the "Cleveland Fed Conversations on Central Banking", Frankfurt am Main. https://www.ecb.europa.eu/press/key/date/2021/html/ecb.sp210303_1~f3df48854e.en.html

Schnabel, I. (2021c). *From market neutrality to market efficiency*. ECB DG-Research Symposium "Climate change, financial markets and green growth", Frankfurt am Main. https://www.ecb.europa.eu/press/key/date/2021/html/ecb.sp210614~162bd7c253.en.html

Schnabel, I. (2022a). *A new age of energy inflation: Climateflation, fossilflation and greenflation*. Panel on "Monetary Policy and Climate Change" at The ECB and its Watchers XXII Conference. https://www.ecb.europa.eu/press/key/date/2022/html/ecb.sp220317_2~dbb3582f0a.en.html

Schnabel, I. (2022b). *Looking through higher energy prices? Monetary policy and the green transition*. Panel on "Climate and the Financial System" at the American Finance Association 2022 Virtual Annual Meeting, Frankfurt am Main. https://www.ecb.europa.eu/press/key/date/2022/html/ecb.sp220108~0425a24eb7.en.html

Schnabel, I. (2023). *Monetary policy tightening and the green transition*. International symposium on central bank independence, Sveriges Riksbank, Stockholm, Stockholm. https://www.ecb.europa.eu/press/key/date/2023/html/ecb.sp230110~21c89bef1b.en.html

Siderius, K. (2023). An unexpected climate activist: Central banks and the politics of the climate-neutral economy. *Journal of European Public Policy*, *30*(8), 1588–1608. https://doi.org/10.1080/13501763.2022.2093948

Șimandan, R., Păun, C. V., & Glăvan, B. (2023). Post-pandemic greenness? How central banks use narratives to become green. *Sustainability*, *15*(2), 1630. https://doi.org/10.3390/su15021630

Thiemann, M., Büttner, T., & Kessler, O. (2023). Beyond market neutrality? Central banks and the problem of climate change. *Finance and Society*, *9*(1), 14–34. https://doi.org/10.2218/finsoc.8090

Thiemann, M., Melches, C. R., & Ibrocevic, E. (2021). Measuring and mitigating systemic risks: How the forging of new alliances between central bank and academic economists legitimize the transnational macroprudential agenda. *Review of International Political Economy*, *28*(6), 1433–1458. https://doi.org/10.1080/09692290.2020.1779780

van 't Klooster, J., & Fontan, C. (2020). The myth of market neutrality: A comparative study of the European central bank's and the Swiss national bank's corporate security purchases. *New Political Economy*, *25*(6), 865–879. https://doi.org/10.1080/13563467.2019.1657077

van 't Klooster, J., & van Tilburg, R. (2020). *Targeting a sustainable recovery with Green TLTROs*. Positive Money Europe and Sustainable Finance Lab.

Weidmann, J. (2018). *From extraordinary to normal – reflections on the future monetary policy toolkit Keynote speech at the European Banking Congress*. European Banking Congress, Frankfurt am Main. https://www.bundesbank.de/en/press/speeches/from-extraordinary-to-normal-reflections-on-the-future-monetary-policy-toolkit-767476

Wray, R. (2007). A Post Keynesian view of central bank independence, policy targets, and the rules versus discretion debate. *Journal of Post Keynesian Economics*, *30*(1), 119–141. https://doi.org/10.2753/PKE0160-3477300106

Wullweber, J. (2015). Post-Positivist political theory. In M. Gibbons (Ed.), *The encyclopedia of political thought* (pp. 2932–2942). Wiley.

Wullweber, J. (2016). Performative global finance: Bridging micro and macro approaches with a stratified perspective. *New Political Economy*, *21*(3), 305–321. https://doi.org/10.1080/13563467.2016.1113948

Wullweber, J. (2019). Money, state, hegemony: A political ontology of money. *New Political Science*, *41*(2), 313–328. https://doi.org/10.1080/07393148.2019.1596686

Wæver, O. (2005). European integration and security: Analysing French and German discourses on state, nation, and Europe. In D. Howarth & J. Torfing (Eds.), *Discourse theory and European politics* (pp. 33–67). Palgrave Macmillan.

Appendix

In order to assess the significance of climate issues for the ECB, we analysed the ECB Speeches dataset (ECB, 2019), which contains all speeches delivered by members of the ECB Executive Board between February 1997 (when the forerunner of the ECB, the European Monetary Institute, was still in operation) and December 2022. The dataset includes 2652 speeches, presentations, lectures, remarks, and hearings in the European Parliament. Following Deyris (2023), we filtered the dataset using the programming tool R, and extracted only those speeches in English that used the lemmas (i.e., word roots formed following a dictionary approach) 'clima', 'sustain', 'carbon', 'green', and/or 'fossil'. The filtering process yielded a total of 362 observations, which we manually edited to remove false matches, that is, speeches that only used the words in ways unrelated to ecological issues, for example, those containing names such as 'Alan Greenspan', or 'Barry Eichengreen', or terms like 'sustainable economic growth', 'sustainability of public finances', 'unsustainable debt', or 'economic climate'. We also excluded speeches with words that were not part of the speeches themselves, for example, a reference to an article whose title contained one of the words. As mentions to the topic prior to 2018 do not deal with how climate change affects the ECB, we removed all references before 2018.

The filtering process yielded 126 speeches held by ten ECB board members from 2018 to 2022, which we then coded in MAXQDA according to four criteria: (a) relevance; (b) framings of the consequences of climate issues and their bearing on the central bank's area of influence; (c) competences of the central bank to tackle climate issues; (d) policy, i.e., specific instrument proposals.

Under 'relevance' we classified speeches according to whether they dealt with climate issues as a main topic, a secondary topic (which devoted at least two paragraphs to climate-related themes), or a minor topic (see Table 1). Section 4 in the main text gives a detailed explanation of the category 'framings'. Under 'competences' we grouped the speeches according to (1) those that contained express mention to a mandate, subdividing them according to whether they referred to the ECB's primary mandate of price stability or the secondary mandate in support of EU economic policies, (2) those that referred to the ECB's role in financial supervision, (3) those in which mention was made to more than one of the foregoing categories, and (4) those which did not specify a particular role (in cases, for example, where a speaker mentions that the ECB has been acting within its overall mandate but without specifying which part of the mandate). As our interest focuses on how ECB intervention to mitigate climate change is legitimised, we included only those speeches with explicit mention to different bases of justification in the category 'more than one'. As an exception to this rule, we included those speeches in which express mention was made to the primary mandate as well as to the secondary mandate in both of these categories. In a few cases as a result a speech was counted twice. However, where a single speech referred more than once to the same rationale for addressing environmental concerns, it was only counted once to avoid the false impression that the argument was used in more than one speech.

Finally, we identified the specific instruments proposed in the speeches and classified them into four broad categories: (a) monetary policy, (b) financial regulation, (c) the banking and capital markets unions, and (d) miscellaneous. Category (a), monetary policy, includes green asset purchase programmes, refinancing operations, and measures to green the collateral framework. Category (b), financial regulation, encompasses banking supervision measures, scenario or stress test analysis, and requirements for institutions to disclose their risk exposures. Category (c), the banking and capital markets unions, stands alone. Category (d), miscellaneous, covers the improvement of staff qualifications and data collection, the production of better indicators and research, contributions to the EU taxonomy for sustainable activities, proxy voting for equity investments, the greening of other asset portfolios (i.e., pension funds, own funds), and participation in the Network for Greening the Financial System (NGFS).