Finding the right shade of green: different approaches of EU central banks to climate change

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1. Central banks are painted different shades of green

Global consensus is emerging around the need to "green" monetary policy in the light of the materiality of climate change risks from the perspective of financial stability as well as the impact of climate change on price stability. Central banks across the world are taking steps to better incorporate environmental concerns into their analysis and monetary policy operations. In addition to the Bank of England, which famously was the frontrunner of the efforts after the former Governor Mark Carney's *Tragedy of the Horizon* speech (Carney, 2015), institutions in the EU have been leading the way. In particular, the Banque de France, the Dutch DNB and the ECB have in recent years – albeit in a very different way – taken leadership in greening their own portfolios, developing new analytical methodologies and building up cooperation cross-border and with the financial sector. Even Bundesbank representatives have in this respect conceded that today it is crucial to incorporate specific physical and transition risks stemming from climate change in the macroeconomic assessments and to promote better ESG disclosure among central bank counterparties (Weidmann, 2021). Such a green shift translates into global initiatives such as the Network for Greening the Financial System (NGFS), which allow central banks to exchange best practices and develop common frames of reference (such as stress test scenarios). In the EU, the discussion therefore shifts away from the question of *whether* the ECB should incorporate climate change policies concerns in its decision-making, towards *how* this should be done, and – by consequence - what are the governance implications of such a shift (van 't Klooster and de Boer, 2020)

However, the focus on the ECB and a few large institutions' activity, obscures the significant differences in the green actions taken by the different National Central Banks (NCBs). Some are indeed in the avant-garde: they deploy prudential instruments to develop green financial products or incorporate sustainability into their own asset management. Some are more curious about the emerging trend; they make initial explorations as to the specific risks their economies and financial systems face developing a strong research agenda in the area. But there are also followers, who – beyond paying lip service to the greening objectives – see their priorities and role elsewhere. Finally, some banks are uninterested in the greening efforts altogether, calling it "a fashion" (Glapiński, 2021). Such differences among central banks are perhaps surprising given the common framework within which they operate, namely that of the EU Treaty, which establishes the European System of Central Banks of which all EU NCBs (both eurozone and non-euro) are member.

This policy paper explores the heterogeneity of approaches from a legal-institutional perspective. Such an approach is warranted given the importance of central bank mandate and attributes such as independence. Understanding why central banks paint themselves different shades of green can further shed a light on whether differences of approaches can be problematic from a policy coordination point of view. As such our analysis leads us to formulate recommendations about wider stakeholder engagement of international and supranational institutions.

To this end, this paper proceeds as follows. First, we explain the rationale behind the emerging consensus around greening of monetary policy. Second, we review different formats of cooperation between central banks in the EU in the area of climate change and explain their significance. Third, we provide an overview of the different approaches taken by individual NCBs and the ECB in the last years. Fourth, from a legal institutional perspective we explore some explanations of heterogeneity. On this basis, we discuss when such variation of central bank may be problematic from the perspective of policy effectiveness, and – in particular with regard to Member States where climate change is less integrated into the policy formation – we point to structural obstacles and propose intermediate tools of engagement as policy recommendations.

2. Rationale for greening central banks

Climate change refers to man-induced changes in the earth's climate system, which result in an increase in the average temperature as well as extreme weather events such as floods, droughts, storms or heat waves. There are two major routes through which climate change becomes relevant from the perspective of central banks: due to its impact on price stability and on financial stability.

The most direct link with central bank's primary mandate is via climate change's impact on the value of money and therefore price stability. As the Governor of the Banque de France Francois Villeroy de Galhau argues, climate change may cause stagflation, because it may simultaneously cause prices to rise (e.g. due to greater frequency of extreme weather events, which will affect food production) and constrain economic activity (e.g. due to lower productivity) (2021). Such an impact can in fact be visible also in the short term: in 2021, as the gas prices are experiencing unprecedented fluctuations, the inflationary impact of the transition towards climate neutrality is becoming increasingly apparent (Tett, 2021, Bloomber, 2021).

Secondly, climate change translates into specific financial risks through its impact on the physical world (physical risks), the policy changes (transition risk) as well as possible litigation (legal risk). Such risks become material in financial terms to banks and other market actors via their impact on e.g. insurance premia or credit risks. As such they may pose risks to financial stability and affect different channels of monetary policy transmission (Szwarc and Stefaniak, 2020).

While these two approaches are more traditionality within the remit of monetary policy considerations, there are also some experts who propose that monetary policy should directly address the problem of climate change for more existential reasons. Schoenmaker (2021) for example argues that the risk perspective obscures what is at stake, namely the viability of life on earth in the long run. The risk-based perspective should therefore be replaced by a proactive policy of central banks which is more aligned with the socio-economic transformation towards climate neutrality.

The greening of central banks has been driven predominantly by the two first approaches, though an increasing sense of urgency can be observed (Büttner et al, 2021).

In terms of specific activities taken by central banks, these include:

- reducing own carbon footprint (e.g. by reducing energy consumption)
- incorporating ESG criteria in portfolio management
- incorporating climate change risks into economic modelling
- incorporating ESG considerations in open market transactions (asset purchases, collateral policy)

- incorporating climate change risk in macroprudential oversight, including through climate stress testing
- promoting of high standards of climate change risk disclosure in the financial sector

Crucially from the perspective of the Eurosystem, and this will be explored further below, such tools are not all within the exclusive monetary policy remit of the ECB, which allows the NCBs to implement their own policies in the area and us to explore such differentiated behaviour.

3. International and supranational cooperation in the area of central bank greening

A particularly interesting aspect of greening of central banks has been the scale of international engagement and cooperation with regard to developing common standards. Given that climate change is an inherently global challenge this is of course not surprising. However, the scale of such cooperation also shows how critical in a financially interdependent world is formulation of common frames of reference for the challenges economies face, such as climate change.

In this context, 2015 has been the turning point year in international central bank cooperation in the area of climate change. In September, Mark Carney made his famous *Tragedy of the Horizon* speech, in which he drew attention to the disastrous consequences of the myopic treatment of climate change by the financial markets. A few months after the Paris Agreement was concluded. Its provisions emphasise, for the first time so explicitly, the financial sector dimension of transition efforts: Art. 2(1)(c) of the Agreement states its aims as: "making finance flows consistent with a pathway towards low greenhouse gas emissions and climate-resilient development"). Since 2015, cross-border cooperation in greening finance and central banking has flourished. We review a number of formats below to draw the differentiated scope of engagement and functions.

3.1 Global central bank cooperation framework

Financial Stability Board (FSB) and the Task Force on Climate-Related Financial Disclosures (TCFD)

The TCFD was created by the G20's Financial Stability Board in 2015 with the objective of developing appropriate disclosure standards. It is chaired by Bloomberg's Micheal Bloomberg, and is made up of representatives of global financial institutions (banks, accountancies) from across the G20 countries. TCFD's 2017 recommendations span metrics and targets, risk management, strategy and governance aspects of climate change related disclosures, which subsequently are treated as a point of reference for the market practices, central bank policies and regulations introduced across a number of jurisdictions.

Network for Greening the Financial System (NGFS)

Since its creation in 2017, the NGFS quickly achieved central stage as the main forum for central bank exchange around issues of greening. NGFS was spearheaded by eight institutions: the central banks of Mexico, UK, France, Netherlands, Germany, Singapore and China as well as the Swedish financial supervisor. Its secretariat is run by the Banque de France. By September 2021, over 90 central banks and supervisors are members of the NGFS. With the US Fed joining the initiative in December 2020, the network now covers 85% of global emissions, 88% of the world economy and all systemically important institutions. 24 EU central banks as well as the ECB are part of the network, The three EU central banks absent from the NGFS are those from Bulgaria, the Czech Republic and Poland.[1] The network's main outputs are comparative analyses of central bank action, elaboration of guidelines for the supervisors and central banks as well as the development of

[1] Polish financial markets supervisor (KNF) has joined in 2020.

common scenarios. Such scenarios (no transition, quick transition, and disorderly transition) have subsequently informed the development of stress test scenarios by individual central banks, such as the ECB or Banque de France.

Bank for International Settlements (BIS)

The third major global framework, within which cross-border central bank cooperation has been developing is the BIS, which – together with the Banque de France – published in 2020 a book calling for strengthening of global coordination to address the emerging risks. "The green swan: central banking and financial stability in the age of climate change" accordingly became a point of reference for the discussion, with a global 2021 "Green Swan" conference bringing together representatives of central banks from across the globe, including the UK, Japan, Germany, the ECB, China and Banque de France. In addition, the BIS, an institution owned by 63 central banks (including 25 from the EU), offers sustainable investment services to central banks (used for example by the Bank of Ireland). Although the BIS has joined late the greening of monetary policy efforts, it is currently also housing a number of training initiatives in this area developed jointly with the ECB and NGFS.

3.2 EU central bank framework

European System of Central Banks (ESCB)

EU cooperation of central banks as monetary authorities takes place within the framework of ESCB. Art. 127 TFEU stipulates that in the EU monetary policy shall be conducted with the principal aim of attaining price stability, with secondary objectives being *inter alia* a contribution to the general economic policies of the Union. This framework binds naturally the ECB, which is the monetary policy authority for the eurozone, as well as the NCBs which are part of the Eurosystem and exercise their tasks and objectives which are compatible with the price stability objective (Art. 14(4) ESCB Statute). The non-euro Member States, that is the countries which have a derogation from full EMU membership, as well as Denmark which enjoys an opt-out, are equally bound by this framework.

European Central Bank (ECB)

Within the Eurosystem, the ECB plays a dominant role, including to the extent that its Governing Board can direct the NCBs with regard to the remit of the non-Eurosystem functions. The ECB also enjoys an advisory function vis-à-vis all the central banks through art. 127(4) TFUE which requires that it should be consulted on all matters within its competence. This includes laws which concern central banks specifically such as any changes to their mandate. In its opinion on the amendment to the MNB's mandate, the ECB explicitly confirmed that sustainability considerations and environmentally friendly monetary policies comply with the Treaties (ECB, 2021).

European Systemic Risk Board (ESRB)

To the extent that EU central banks equally are involved in macroprudential oversight, another forum of cooperation is the European Systemic Risk Board (ESRB) tasked since 2010 with the identification and analysis of emerging systemic risks in the financial sector. The ESRB, housed by the ECB, develops to this end recommendations and issues warning. Its Governing Board is composed of representatives of central banks, macroprudential authorities (if these are separate institutions) and EU financial services agencies. ESRB's recent reports have tackled the issue of climate change as one which can raise a number of systemic risk concerns (2020), developed through joint task forces with the ECB.

General economic policies of the Union

The interest of NCBs and the ECB in climate change is further driven by policy developments at EU level. Green transformation has become a clear priority of EU action with the EU Green Deal announcement in 2019. The new emission reduction target – of emitting 55% less CO2 by 2030 as compared to 1990 levels – has been now enshrined in EU Climate law, with a regulatory overhaul to meet these objectives sweeping various sectors ("Fit for 55" package). The EU approach foresees a special role to be played in this regard by the financial sector. Banks are not only to duly disclose their exposures to climate change and incorporate these into their risk management, but are also encouraged to shift their own portfolios to climate change friendly objectives (Smoleńska and van 't Klooster, 2021). This shift is facilitated by a new common system of classification of sustainability of economic activities (Green Taxonomy). This reform directly impacts financial stability of the EU, and hence is of interest to the central banks and the ECB in particular. Furthermore, the credibility of EU's climate neutrality policies may have a direct bearing on price stability in the Union.

4. Central bank practice in the EU

What the central banks have been doing within the EU, however, varies enormously – even once we correct for the fact that the Eurosystem NCBs have a much more restricted role, as we discuss below. There are some authorities which lead the greening process, such as the Dutch *DNB,* French *Banque de France* or Hungarian *MNB*. A few, such as the Polish *NBP* or the Czech *CNB*, strongly resist this trend, calling it "a fashion" and emphasising the potential risks from presenting central banks as omnipotent. A great number of central banks falls somewhere in between. To get a sense of the different approaches we have reviewed the green actions taken by the 28 EU central banks (ECB and 27 NCBs). We specifically assessed factors such as: (a) specific "green" decisions (e.g. regarding own fund management); (b) operational decisions (e.g. creation of climate change teams); (c) length of NGFS membership; (d) climate change related research; (e) climate change related speeches by governors; and (f) showcasing climate change on central bank website. To this end we reviewed all central bank websites, and in particular the most recent annual reports. On this basis, we group the banks into four categories: the proactive, the curious, the followers and the inactive.

The proactive group are central banks which actively incorporate climate change considerations into their actions, e.g. in their own portfolio management, eliminating certain types of carbon-intensive assets (e.g. Banque de France), holistically incorporating climate change into macroeconomic modelling (e.g. ECB), adopting specific broad strategic with respect to greening (e.g. MNB) or explicitly showcasing their involvement and approach to incorporating climate change within the remit of their mandate (e.g. Riksbank, Bundesbank). These are the central banks which have for the most part created the NGFS, with the Banque de France providing its official secretariat.

The curious group are the banks which are in the early phases of adopting a proactive strategy: they focus on research (Ireland, Belgium), training (Austria) or specific surveys in the financial sector to improve their understanding of the climate change risk (Croatia). They have been for the most part the first to join the NGFS in 2018. These banks have taken steps towards exploring the relevance of climate change for their actions, but have not taken leadership positions nor implemented meaningful policies to reflect related concerns in their decision-making.

The great majority of central banks are followers to the green trend: while the Eurosystem NCBs might actively engage with the strategic review (Slovenian Central Bank), their own actions do not extend beyond paying lip service to the Green Deal objectives. Assurances of extensive action to reduce own environmental footprint, as in the case of Banca d'Italia, are not a substitute in this regard. A notable mention in this group, however, should be the Greek Central Bank which has set up a Climate Change Impacts Study Committee as far back as 2009, however, there is little evidence of actual actions taken in response. These banks have joined the NGFS in the last two years for the most part.

Finally, the inactive banks are those which appear rather uninterested (Bulgaria), or in fact are actively resisting greening, referring to it as "fashion" in the case of NBP (Glapiński, 2021) or emphasising potential risks to independence in the case of CNB (Mora, 2021). None of the three banks are members of the NGFS. Their rationale for the position emphasises the possible conflicts with the principal objective of price stability and the unsuitability of tackling climate change with temporary instruments of monetary policy (e.g. asset purchases), the "nobility" of such objective notwithstanding,

Table 1: Attitudes of central banks across the EU to incorporating climate change in their policies

Proactive	**Curious**	**Followers**	**Inactive**
ECB	Austria	Cyprus	Bulgaria
Finland	Belgium	Estonia	Czechia
France	Croatia	Greece	Poland
Germany	Denmark	Italy	
Hungary	Ireland	Latvia	
Netherlands	Luxembourg	Lithuania	
Sweden	Portugal	Malta	
	Romania	Slovakia	
	Spain	Slovenia	

5. Explaining different shades of greening

The reasons for such differences are complex. Surely, they can be partly explained by socio-cultural factors, perception of climate change and government action as well as general awareness among the decision-makers (Siderius, 2021). In some countries the political consensus seems to be converging around the idea that climate change is the defining political issue of the generation (Büttner et al, 2021). Our interest is however primarily in the role played by legal-institutional factors, and specifically: (a) euro area membership; (b) scope of mandate; (c) independence; and (d) overall institutional framework.

5.1 Euro area membership

The most obvious explanation of different approaches is undoubtedly the fact that some of the central banks are part of the Eurosystem – the scope of the action of such central banks is therefore assumed to be limited. However, as becomes evident from our overview, the eurozone NCBs do take different approaches (e.g. with regard to NGFS membership), which may equally suggest that climate action is an area where narrow monetary policy (as expressed in the ECB's 2021 Strategic Review) and other central bank functions and roles combine.

Consequently, while we do observe some convergence within the Eurosystem in the context of the greening of the ECB's monetary policy in the context of the 2021 Strategic Review and the ambition to make euro "a green currency" (Donohoe, 2021), the different degree of interest of NCBs in the issue is more likely explained by other factors.

Outside the eurozone we also observe significant difference. The Hungarian MNB appears to introduce the most advanced greening policies (including favourable lending for green financial products). Meanwhile among the three central banks which remain inactive, Bulgaria meanwhile is already part of the Banking Union, and due to adopt euro in the near future.

5.2 Scope of the mandate

Notwithstanding the common EU law framework for central banks, their precise framing nonetheless differs. Building on the work of Dikau, Robins and Volz (2021) we review the mandates of the 27 NCBs in the EU. We find little evidence to support the claim that specific references to "supporting the economic policies of the government/the EU" within the NCB mandate result in stronger resolve of the NCB to incorporate climate change concerns into policy formulation. Specifically, central banks which have such mandate also at national level, do not appear to be more concerned with climate change mitigation than others. For example, the Swedish Riksbank has one of the more laconic mandates, with reference only to "smooth payment system operation", but is very advanced in incorporating climate change considerations. While sustainability features in the Hungarian MNB's (since 2021), the Czech CNB's and the Bulgarian BNB's mandates, it is only the first of these which is proactive in the green sphere.

However, one potential explanation for the different may stem from the trade-offs between different secondary objectives of central banks and economic policies other than environmental. For example, the central banks which resist the trend on green finance are those from countries which face significant challenges in terms of transition to climate neutrality and tend to showcase research which provides evidence of its financially destabilising impact (e.g. Safarzyńska and van den Bergh, 2017).

5.3 Independence

Another factor which may be relevant from the perspective of central bank greening is formal independence. Generally, a high degree of formal independence of central banks in the EU is required by the Treaties. Assuming a uniform degree of independence across the Eurosystem, such independence does not guarantee "greening". For countries remaining outside of the eurozone, central bank independence requirement is verified through regular convergence reports and in a number of cases the European Commission has raised questions about independence of the central bank (Czechia, Poland, Hungary (2020)). Among these we have the most proactive central bank in the EU (MNB) and those which remain inactive in greening (NBP, CNB). While the Hungarian government's action through frequent changes to the mandate appears to push the MNB in the direction of greening (partly financing the cost of the transition), in both Czechia and Poland the direction appears to be the opposite.

This suggests, however, that interplay with government action may play a key role in explaining the differentiated interest of central banks in greening. Notably, however, for DNB Siderius (2021) disputes such a claim, finding an explanation rather in the inhouse expertise and bureaucratic mobilisation around the issue of climate change.

5.4 Institutional framework

Another variable which potentially holds significant sway in greening, given the financial stability impact of climate change, is the institutional role of central banks within the overall architecture of financial system oversight. In other words, it could be expected that central banks (especially in the eurozone) which are also tasked with pursuing macroprudential policy (i.e. acting as the macroprudential authority under the EU framework), bank supervision or resolution, may be more inclined to think about climate change in systemic terms. However, we there seems to be no apparent correlation.

6. Do differences matter?

That different central banks pursue different routes towards greening may not necessarily constitute a problem: after all, while climate change is inherently a global challenge, the particular impacts (e.g. the particular of physical and transition risks) will be local. Likewise, the differences in preferences may occur for a variety of reasons as we explore in Section 5.

However, our survey of different approaches taken by central banks leads us to identify a number of issues.

First, it seems plausible to us that the central banks are not engaging fully with the scale of the transition, may do so due to short term objectives related to government policy (political pressure), the anticipated turbulence of the transition or – as incredulous as it may sound in the year the IPCC published its damning report on the man-made nature of climate change - due to lack of conviction that urgent action is necessary.

Second, while the role of global networks created by central banks is critical, their membership is uneven with regard to the EU NCBs. This concerns not only the NGFS, where most central banks have joined already, but equally – and this being a more significant impediment – the BIS or the FSB. With some central banks spearheading the development of the macroeconomic and microfinancial impacts of climate change, the gap between granular understanding being developed within the Eurosystem as a result of the conducted macroprudential stress tests and the rest of the EU may make it more difficult to implement comprehensive sustainable finance policies. A great part of climate change related work in central banks hinges on collection and processing of data as well as developing statistics. Furthermore, a gap in understanding in climate change related risks can only be expected to grow with the key role played by the global networks such as the NGFS or within the scope of the BIS, in which a number of less active banks are absent.

Third, such asymmetries may exasperate cross-border negative financial spill-overs (e.g. through arbitrage) within the EU, in particular in the transition phase. They also may make more difficult a transition which is truly “just”, in particular where the late-comers can be expected to pay higher costs in the medium term, e.g. if the standards and approaches elaborated through the coordinated networks do not recognise the local challenges (Stefaniak and Szwarc, 2020). As such, where the effects of central bank greening are likely to have ripple effects throughout the microfinancial system, such heterogeneity is also likely to be a source of fragmentation in the internal market, in particular with respect to financial institutions (Smoleńska and van ‘t Klooster, 2021).

7. Conclusions and policy recommendations

Our legal-institutional analysis of the factors which may explain why some banks “go green” and others do not, inevitably points to non-legal elements for the difference. Though it may also be expected that it is the resources at the disposal of the central banks that are also important in this respect, we argue that political pressure and civic engagement – both towards greening and against – is the most plausible explanation. Such pressure may lead to both greater and less action. In such a case, such different shades of green may undermine a fair and equitable transition as well as impede leveraging the unique potential of speeding up the transition which lays with central banks. Finally, heterogeneity of approaches may undermine the credibility of the transition from the perspective of some investors.

A solution therefore is needed. The first-best option would be for the laggards to develop an explicit strategy and engage in the discussion on the challenges to monetary policy which arise from climate change, if not for conviction, then in order not to be an outsider to a global trend. To this end, it is critical less active central banks invest in their research capacities, strengthening their position as knowledge hubs vis-à-vis other actors in the economy.

In the meantime, there is a key role to be played by the EU institutions, both the ESRB and the European Commission, with regard to understanding the source of heterogenous behaviour, but as well the heterogenous impact on EU cross-border financial stability due to climate change related risks. Where a lack of engagement can be explained by lack of resources, EU institutions may consider programs of training and exchanges among the less active central banks in the EU (e.g. facilitating access to the BIS and NGFS' Central Banks' and Supervisors' Climate Training Alliance (CTA), developing bespoke EU programs). A key role is in this respect to be played by the leaders in the regions (such as the Austrian OENB in Central Europe). In the long term, clarifying the issue of interplay between central banking and climate change action in Europe from a legislative point of view, in particular as suggested already with regard to the ECB's secondary mandate (de Boer and van 't Klooster, 2021), may well be warranted as well. Such a discussion may open up the issue as well to a more democratic discussion, through the engagement of the private sector as well as NGOs, which is critical also in the processes of developing scenarios and the accountability for the policies being put in place.

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