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Article

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Intereconomics

Suggested Citation: Vollmer, Uwe (2024) : Greening central bank policies: Euro area vs non-euro area EU member states, Intereconomics, ISSN 1613-964X, Sciendo, Warsaw, Vol. 59, Iss. 4, pp. 236-242, <https://doi.org/10.2478/ie-2024-0047>

This Version is available at:

<https://hdl.handle.net/10419/301424>

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Uwe Vollmer

Greening Central Bank Policies: Euro Area vs Non-Euro Area EU Member States

Climate change has become relevant for central banks worldwide, but they are adopting their instruments at different speeds. This article compares the reactions of the Eurosystem with those of the other EU central banks. Do these central banks differ in their efforts to make their own policies “greener”? The article argues that the options and constraints to react to climate change diverge between central banks.

Climate change is a global problem and there is a great need for international coordination to prevent “free riding” in climate policy (Nordhaus, 2015). This includes central banks as divergent policies could trigger financial carbon leakage, i.e. a shift of “brown” investment finance into financial markets with weaker climate risk disclosure requirements (Benincasa et al., 2022). Therefore, various central banks and financial regulators worldwide have joined together to form the Network for Greening the Financial System (NGFS), with the aim of strengthening the role of the financial sector in managing risk and mobilising capital for low-carbon investments. However, such climate clubs only make recommendations, lack sanction mechanisms and are essentially voluntary.

This article asks why central banks adapt their policy frameworks to climate targets with diverging intensity. Is this because central banks cannot become greener or because they do not want to do so? Some studies support the former and point to legal constraints, especially policy mandates (Dikau & Volz, 2021; Parajon Skinner, 2021; Calliess & Tuncel, 2023). This leaves open the question about other potential political costs that may make it less attractive for individual central banks to participate in the fight against climate change. Some papers analyse the political economy of greening central banking (Simandan & Paun, 2021; Cullen, 2023) and address the incentives and obstacles that green central bank policies face, but do not explain why central banks with similar mandates weigh climate protection goals differently.

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Open Access funding provided by ZBW – Leibniz Information Centre for Economics.

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We consider climate policies in the European Union and compare the Eurosystem with central banks from EU member states outside the euro area (EU8).¹ In 2019, the EU8 together accounted for 26.6% of all CO₂ emissions in the EU.² We argue that all banks in the sample share similar mandates and show that some of the central banks have greater difficulty than others in making their instruments climate neutral. Results suggest that it is not only central bank laws that make it difficult to protect against climate change, but also country-specific incentives and restrictions.

Climate change and central bank policies

The literature on climate change and central bank policy consists of two strands.³ One strand considers the consequences of climate change and of climate policy measures for financial stability and the ability of central banks to fulfil their monetary policy mandate. Climate change is important for central banks for several reasons (Schnaebel, 2021a). First, it affects short-term inflation dynamics and increases medium-term macroeconomic volatility (Cantelmo et al., 2023). Second, climate risks are not yet fully reflected in asset prices (Eren et al., 2022) and ratings do not reflect the risk position (Network for Greening the Financial System, 2018). Once these risks materialise, the banking sector may suffer from losses, which will affect monetary policy transmission (Acharya et al., 2020). Third, climate change weakens growth prospects, increases uncertainty and raises the risk of natural disasters; this lowers the long-term real interest rate (Bylund &

1 Balgarska Narodna Banka (BNB), Banca Națională a României (BNR), Česká Národní Banka (CNB), Danmarks Nationalbank (DNB), Hrvatska Narodna Banka (HNB), Magyar Nemzeti Bank (MNB), Narodowy Bank Polski (NBP), and Sveriges Riksbank (SRB). We handle Croatia as a non-euro country because it only recently joined the euro area.

2 <https://www.statista.com/statistics/789024>

3 Although banking supervision in Denmark, Poland and Sweden does not lie with the central bank but with separate supervisory authorities, we will continue to speak of “central bank policies”.

Jonsson, 2020) and may reduce the effectiveness of conventional monetary policy instruments.

The other strand asks to what extent central banks are able to influence climate change and mitigate its economic consequences. Monetary policy influences not only the inflation rate but also economic activity, which matters for climate change because CO₂ emissions and economic activity are strongly correlated (Khan et al., 2019). In order to influence climate change, central banks may proactively address this issue and apply a climate-adjusted Taylor rule, which adds an emissions gap as a third target to the traditional targets for inflation and the output gap. The associated reaction coefficient measures the responsiveness of the policy interest rate to deviations of CO₂ emissions from their steady-state value. In this case, the central bank could run into a dilemma because there is a risk of overburdening monetary policy (Chen et al., 2021).

Quantitative easing (QE) could be used for climate-protection purposes. One way would be a targeted privileging of green bonds which finance green projects that promote climate goals or serve environmental protection. The effectiveness of “green QE” depends on how it is implemented where procedure and speed play a role (Ferrari & Nispi Landie, 2020). With respect to procedure, two possibilities exist: the central bank keeps its total securities holdings constant and sells brown bonds in exchange for green bonds; alternatively, it increases its total securities holdings and acquires green bonds by issuing its own liabilities. In both cases, the green sector’s financing costs decrease: the brown sector’s costs increase only in the first scenario, resulting in a decrease in (new) CO₂ emissions. However, the resulting emission reduction does not lead to a significant decrease in the (cumulative) CO₂ stock in the atmosphere.

In terms of speed, there are the following options: a gradual increase in securities purchases, a front-loaded green QE or a temporary green QE, i.e. the central bank first buys green bonds and then lets their holdings fall (Ferrari & Nispi Landie, 2020). The impact on CO₂ emissions is greater with frontloading, but even in this case, the impact on the total stock of CO₂ is small. There is also the possibility that green QE increases (new) emissions, provided that green and brown consumer goods are complementary and the expansion of production of green goods also increases the production of brown goods.

An alternative to green QE would be the preferential treatment of green bonds in the collateral framework. By tilting the framework towards green bonds, the central bank affects the relative price of green and brown bonds because banks can use green bonds more easily to settle liquidity deficits. This may initiate a permanent shift towards green

technology but this shift is small and accompanied by adverse side effects, such as higher risk-taking by banks (Giovanardi et al., 2022).

Another alternative would be to differentiate minimum reserve requirements for banks according to the carbon footprint of their liabilities (Campiglio, 2016). Central banks could also design green targeted long-term refinancing operations (T-LTRO) that provide banks with cheap funding if they lend to sustainable activities (van ’t Klooster & van Tilburg, 2020). This requires an appropriate taxonomy to identify sustainable activities, which is currently unavailable. A programme that ties refinancing to the renovation of energy-inefficient housing would be easier to implement (Batsaikhan & Jourdan, 2021). Finally, central banks could use macroprudential instruments to initiate a green transition. Green differentiated capital requirements (GDCR) can slow down climate change and reduce the associated risks. The effect is rather small but increases when GDCR are used together with a green fiscal policy (Dafermos & Nikolaidi, 2021).

Greening central bank policy

The EU has set itself the goal of reducing net greenhouse gas emissions by at least 55% by 2030, but the necessary fiscal policy instruments have not yet been developed. A carbon tax currently exists in only some member states, because its introduction has met with considerable political resistance from taxpayers. The key instrument is emissions trading, but so far only a few sectors of the economy are included. As a result, carbon prices, both in the form of taxes and trading schemes, were relatively low in the EU (Avgousti et al., 2023). Pressure on central banks to step in as “climate rescuers of last resort” (Bolton et al., 2020) is growing.

What can central banks do?

The possibilities for EU central banks to actively participate in the fight against climate change are specified in Article 127 TFEU. The primary objective of the European System of Central Banks is to maintain price stability. There is also a duty to support the general economic policies in the European Union, as long as price stability is not jeopardised. Monetary policymakers should thus select the policy options that contribute most to price stability. If two or more policy alternatives contribute equally to price stability, they can be prioritised according to their support for secondary objectives.

EU central banks make different use of this room for manoeuvre. The European Central Bank (ECB) assumes a “secondary objective” and derives from its mandate an obligation to pursue climate-friendly policies – as long as price stability is not

endangered (Elderson, 2021). From the ECB's point of view, climate protection measures promote price stability because they have a stabilising effect on macroeconomic dynamics, reduce the risks associated with climate change and prevent a decline in the natural rate of interest (Schnabel, 2021b).

Central bank laws of the EU8 allow similarly broad interpretations. The primary objective is always to maintain price stability (or a low and stable inflation); as long as this is not jeopardised, the central bank should support the general policy. In Bulgaria, the legislator also requires the central bank to promote the policy of sustainable and non-inflationary growth. The new central bank law in Hungary goes furthest in giving the central bank a green mandate and in requiring the bank to support the government's environmental policy.

Provided Article 127 TFEU is not violated, central banks have various options for gearing their instruments more closely to climate policy. Measures can be classified into three categories: passive actions that raise public awareness of climate issues, preventive/prudential actions through which central banks protect themselves from climate change risks and proactive/promotional actions through which central banks participate in slowing climate change (Boneva et al., 2021). The first category includes NGFS membership, public statements highlighting climate change and exerting political pressure on financial sector actors to disclose climate risks. The second category includes efforts by central banks to disclose their own carbon footprint, to verify their vulnerability to climate risks through "climate stress testing" and to reduce the share of brown or other climate-risk assets in their balance sheet. In addition, central banks need to adapt their monetary policy strategy to climate change.

The last category covers measures to increase demand for sustainable financial securities. This includes increasing the share of green financial assets in own portfolio that are not held for monetary policy purposes. In addition, the share of green assets in foreign exchange reserves or in domestic securities held for monetary policy purposes can be increased. Central banks can base their lending to credit institutions on sustainability criteria by calibrating haircuts accordingly or by including sustainability criteria in the collateral framework. Minimum reserve ratios or minimum capital requirements can also be aligned with sustainability criteria.

What have central banks done so far?

All central banks are members of the NGFS, except the BNB, CNB and NBP.⁴ While central bank communication

on climate change has increased strongly (Arseneau et al., 2022), these topics are mainly found in publications of the ECB, MNB, DNB and SRB, as well as some national central banks within the Eurosystem. Text analyses show that climate change is now mentioned almost as often as inflation in official speeches by ECB representatives. In contrast, climate aspects in other EU8 central banks play only a minor role; there, statements on pandemics, digitisation of payment systems, fintech or banking supervision dominate (Deyris, 2023).

The ECB reviews the management of climate risks by the banks it supervises, setting them staggered deadlines on an institution-by-institution basis. It expects banks to adequately assess their climate risks and incorporate them into their risk management (ECB, 2022). Riksbank also intends to conduct "climate stress tests" and to analyse how a sharp increase in the price of emission rights could affect the banks through their lending to non-financial corporations (SRB, 2023b). It has not yet explained how it will respond if individual banks fail the test. The MNB has also asked the banks to assess the environmental risks and impacts of their operations and portfolios (MNB, 2021a, 2022). In contrast, mandated climate risk disclosures are not yet reported for the other central banks. The NBP does not publish numbers on the carbon footprint of its assets. The BNR has announced it will monitor climate change risks to the banking sector and conduct annual stress tests on climate risk-related issues (BNR, 2021). Similar announcements have been made by the HNB (2021).

Only some central banks so far have taken preventive or proactive measures. The Eurosystem announced in its strategy review that it would take the consequences of climate change into account. The Governing Council will adapt its monetary policy framework and give greater weight to climate criteria in disclosure, risk assessment, corporate sector asset purchases and the monetary collateral framework. A timetable is set for the implementation of these aspects. However, the ECB does not plan to "lean against the wind", i.e. it will not react to climate change with interest rate policy, but will tighten monetary policy if necessary to achieve price stability (Schnabel, 2021c).

The key preventive measure taken by central banks is to change the composition of their securities portfolio in the direction of assets with low climate risks. Only the Danish and Swedish central banks record the climate risks of their net foreign claims and adjust the composition of their foreign exchange reserves accordingly. The DNB excludes companies that violate sustainability goals from its foreign exchange reserve. It is also examining how it can

4 The Polish Financial Supervision Authority (KNF) is a member.

measure whether the companies in which the foreign exchange reserve is invested are transitioning in alignment with the Paris goals (Ingholt et al., 2021). Riksbank has begun to consider sustainability aspects in managing the foreign exchange reserves. It measures and reports the carbon footprint of its foreign government bond holdings in foreign reserves and has sold some assets with excessive carbon intensity (SRB, 2023a, 2023b).

In contrast, other central banks do not adjust their foreign reserves to climate goals. In the case of the ECB, a climate policy orientation of foreign reserves has not yet been planned. The NBP invests the majority of its foreign reserves in government bonds of countries with high credit ratings, which are characterised by the highest level of safety and liquidity. The non-government securities in the investment portfolios are mainly those issued by international institutions and government agencies. A portion of the reserves is held in the form of short-term deposits with banks with high credit ratings (NBP, n. d.). The remaining central banks do not provide information about the carbon footprint of their foreign reserves.

The ECB has already compiled its portfolio of “other securities” according to ecological criteria; however, it only accounts for just under 10% of the total securities holdings of the Eurosystem. Quantitatively much more significant are the “securities for monetary policy purposes”, which are purchased under the Public Sector Purchase Programme (PSPP) and the Corporate Sector Purchase Programme (CSPP) and now comprise a volume of €5 trillion. So far, Eurosystem has deliberately applied broad criteria for the eligibility of securities for purchase, so that environmental aspects played neither a positive nor a negative role. It has “bought the market” in order to avoid price distortions in individual market segments and not to contradict the principle of an open market economy with free competition (De Santis et al., 2018). Because there are indications that the assets purchased by the Eurosystem in the CSPP are mainly from high emission intensity companies (Papoutsis et al., 2021), the Eurosystem plans to pursue a “tilting strategy” in the future and gradually adjust its purchases more to sustainability criteria. A complete stop of the purchase of brown financial assets is not planned, because this could destroy the incentive for these sectors to invest in climate-friendly technologies (Schnabel, 2021b, 2021c, 2022).

Minimum reserve ratios do not play an important role in the Eurosystem’s monetary policy framework and there are currently no plans to adjust them in line with climate policy. Instead, the ECB intends to adjust the collateral list accordingly; sustainability-linked bonds are currently already included. However, a finer adjustment of lending

to commercial banks has so far failed to provide a sufficient metric, making it difficult to separate “green” from “brown” loans, so that the Eurosystem cannot use its TLTRO for climate policy purposes (Schnabel, 2022).

The MNB started the Green Home Programme and provides refinancing loans at a low interest rate to commercial banks. This resource can be used to grant mortgage loans to the banks’ retail customers on favourable terms. Loans can only be granted for the construction and purchase of new apartments and detached houses with very high energy efficiency. The MNB decided to purchase mortgage bonds qualifying for green bond status; moreover, the MNB introduced preferential capital requirements for green corporate and municipal financing (MNB, 2021a).

Few central banks have taken climate aspects into account in their macroprudential instruments. The ECB has begun applying additional capital requirements to banks that fail to effectively manage climate and environmental risks. It has also warned that further action will be taken if institutions do not meet all of the supervisory expectations within the next two years (ECB, 2022). Since 2020, MNB has set lower capital requirements for banks granting new eligible green housing loans with an interest rate discount (MNB, 2020).

Why do central banks react differently?

Differences in attitudes

Central banks disagree about whether they should take active steps against climate change. The ECB finds that central banks must participate in the fight against climate change because global carbon pricing alone “will not be sufficient to ensure a swift transition to a carbon-free economy” (Schnabel, 2021b).⁵ Environmental externalities create a market failure that is transmitted to financial markets, which disadvantages climate-friendly investments for two reasons (Schnabel, 2020). First, there is a lack of a clear, consistent and transparent global taxonomy to assess environmental risks of financial assets. This hinders investments in green assets and makes companies reluctant to declare investments as climate-friendly in order to avoid being suspected of green washing. Secondly, there is no global price for CO₂ emissions, causing financial markets to overstate the returns on carbon-intensive assets. Moreover, financial markets in the EU are bank-dominated, and commercial banks are less effective than equity markets in financing technological innovation and climate-friendly technologies (De Haas & Popow, 2023).

⁵ MNB (2021b) seems to share this view.

Due to such market failures, the Eurosystem does not want to be a bystander and uses its operational framework to influence credit allocation towards climate-friendly projects.

The CNB takes a different position and argues that central banks should confine themselves to their core tasks and competencies (Mora, 2021; Rusnok, 2021).⁶ The task of monetary policy is to maintain price stability and financial market stability; monetary policy is unsuitable to correct market failures or to save the climate, for which other policy areas are more suitable. Central bankers cannot decide whether, e.g. bonds issued by a nuclear power plant are green or not. Central banks must include the consequences of climate change in their analyses, but not use their instruments to actively combat climate change. If they do, climate policy could become a gateway for greater political influence on central banks.

Differences in capabilities

The structure of their balance sheets affects the ability of central banks to conduct climate-adjusted monetary policy. Only few central banks conduct their monetary policy operations predominantly in domestic assets, either by lending to the banking sector or by buying (public or private) securities in open markets. This applies to the Eurosystem and the central banks of Sweden and (to a much lesser extent) of Hungary. Base money creation in the remaining central banks predominantly occurs through the purchase of foreign assets; and foreign reserves have traditionally played a prominent role in central bank balance sheets.

Because these central banks do not conduct liquidity-creating tender or open market operations with the commercial banking sector, they are unable to incorporate climate aspects into their policy framework via the “domestic component” of monetary base creation. This does not apply to foreign currency assets accumulated by debtor central banks as a result of interventions in the foreign exchange market, the composition of which may well be based on climate policy aspects. However, the obstacles to a climate policy orientation of foreign assets are different from those of a corresponding alignment of domestic assets (Fender et al., 2022).

A central bank’s ability to align the composition of its foreign reserves with climate criteria depends on the purpose that international reserves serve. Historically, foreign reserves served to guarantee fixed exchange rates and signal to markets that a country’s international solvency

was assured. On this basis, the accumulation of foreign reserves was guided by the import ratio or short-term external debt, and “liquidity” or “safety” were important criteria in deciding the composition of foreign reserves. Meanwhile, many countries have moved to flexible exchange rates and hold more foreign reserves than necessary to signal international solvency; for these countries, yield considerations play a greater role than liquidity and risk exposure in investment selection (Fender et al., 2019).

Differences in external pressures

Even though central banks are independent, they still respond to political pressure, mostly from governments or private pressure groups. The “demand” for central bank independence (CBI) has decreased due to several reasons (Binder, 2021). Low inflation rates during the great moderation have made traditional arguments for CBI less relevant. Central banks have gained political power during the financial crisis, raising public concerns about legitimacy and accountability. As a result, there are growing calls for central banks to serve societal goals other than guaranteeing price stability, such as the desire to become active in climate policy.

Differences in policy pressure may be another reason why some central banks respond more flexibly than others to calls for climate-friendly policies. Although there is a lack of data on political pressure on central banks from climate policy lobby institutions, there is indirect evidence that it varies across the EU. One indicator is the number of climate strikes organised by Fridays for Future between March 2019 and November 2021 in EU member states.⁷ These protests indicate that climate change is seen as a pressing issue in some large euro zone member states as well as in Denmark and Sweden; however, in the six other EU member countries discussed here, the political pressure is considerably lower. This picture is mirrored by results of a survey conducted among 26,600 EU citizens (European Commission, 2021).

Policy preferences are transmitted to central bank decisions in different ways. One channel is climate change litigation, which clarifies whether the Eurosystem takes environmental aspects sufficiently into account and does not violate Article 11 TFEU. Such a case was pending before a Belgian court in early 2021 until the plaintiff withdrew the charge after the ECB acknowledged its legal obligations to take climate into account (Setzer et al., 2021; Client Earth, 2022). Another channel is formed by the European Parliament, whose members since 2017 have increased

⁶ Governors of HNB and BNR share this position (Vujčić, 2021; Isărescu, 2022).

⁷ See <https://fridaysforfuture.org/what-we-do/strike-statistics/list-of-countries>.

pressures on the ECB regarding its role in fighting climate change (Massoc, 2022). Moreover, there is evidence that the ECB reacts to public opinion and responds to public dissatisfaction by expanding the scope of its policy message (Moschella et al., 2020; Deyris, 2023). Central bankers have a “home bias” and their position-taking is also shaped by domestic political considerations and by the ideological inclinations of their governments (Bennani & Neuenkirch, 2017; Moschella & Diodati, 2020).

Conclusion

EU central banks can be divided into three groups: one that takes climate change into account relatively strongly (Eurosystem, MNB), a group that acts cautiously (DNB, SRB) and a group (BNB, BNR, CNB, HNB, NBP), that has been less active in climate policy. The divergences cannot be attributed to different mandates, but are based on different assessments of the role of central banks as climate protectors, different capacities to take climate change into account and different external pressures.

The reported divergences suggest that the willingness, at least in the Czech Republic and Poland, to join the euro area in the near future will continue to decline. Neither country intends to join the Exchange Rate Mechanism in the foreseeable future. With the ECB currently taking a cautious course towards stronger compliance with climate targets, internal reservations about joining the eurozone are likely to increase further.

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