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Working Paper

Central banking in the age of the climate crisis: Is Sweden's Riksbank in the process of adopting a proactive approach to greening monetary policy?

SECO Working Paper, No. 2023: 4

Provided in Cooperation with:

Socio-Economic Research Centre (SECO), Department of Social Sciences and Business, Roskilde University

Suggested Citation: Speer, Scott P. R.; Samuelsen, Emil W. W. (2023) : Central banking in the age of the climate crisis: Is Sweden's Riksbank in the process of adopting a proactive approach to greening monetary policy?, SECO Working Paper, No. 2023: 4, ISBN 978-87-7349-239-0, Roskilde University, Department of Social Sciences and Business, Socio-Economic Research Centre (SECO), Roskilde

This Version is available at:

<https://hdl.handle.net/10419/298561>

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Central banking in the age of the climate crisis

**Is Sweden's Riksbank in the
process of adopting a
proactive approach to
greening monetary policy?**

**Scott P.R. Speer and Emil W.W.
Samuelsen**

SECO WORKING PAPER 2023: 4

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<https://ruc.dk/en/seco-working-paper-series>

Email: lbuur@ruc.dk

CAE/SECO working papers ISSN: 2446-337X

ISBN: 978-87-7349-239-0

SECO working papers can be downloaded free of charge from

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ABSTRACT

In 2019, Sweden's central bank, the Riksbank, sold carbon-heavy bonds from its foreign exchange reserves. This act led to the Riksbank being labelled a frontrunner in what has been referred to as green central banking (GCB). The growing interest in proactive central banking has led to a wealth of information on how central banks can act in the age of climate change. In this article, we put the Riksbank to the test using the options set out by leading voices within GCB. The lens of governmentality, with its Foucauldian foundations, allows the political rationalities, technologies and programmes of government that underpin analysis of the Riksbank to be understood. The Riksbank has been characterised as a progressive, 'front-running' central bank, having sold carbon-intensive bonds in its corporate bond portfolio. The mixed methodological approach of a systematic discourse analysis, supplemented by expert interviews, found that the Riksbank has only very recently problematised climate change as a related feature of financial (in)stability, and therefore as a factor to be considered when protecting the mandate of a central bank. The analysis also revealed that the Riksbank is acting within what may more appropriately be termed the infant stages of greening its monetary policies, suggesting that it does not in fact deserve the label of 'front runner'.

Keywords:

Green central banking; Riksbank; climate change; monetary policy; low-carbon transition

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ACKNOWLEDGEMENTS

This paper builds on the authors' Master's theses and would not have been possible without the unerring support and guidance of Jakob Vestergaard. We would also like to express our gratitude to the interviewees who dedicated their time and efforts to this research.

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1. Introduction

The remaining years of this decade are going to be critical in keeping nature within planetary boundaries. It is essential to cut greenhouse gas emissions in half (compared to 2020 levels - IPCC, 2022), in addition to stopping and restoring biodiversity loss by 2030 (IPBES, 2018). Aligning the economic system with the required funding for the green transition will inevitably have to come from both public and private institutions.

Mark Carney's 2015 'Tragedy of the horizon' speech seems to be a significant point in our understanding of the central banks' role in relation to climate change. (Bank of England, 2015). Central banks and financial supervisors establish regulations for financial entities. Mandates vary from bank to bank, but they can be generalized as involving the narrow objective of providing safe methods for payments, price stability and maintaining the stability of their nation's financial system. Many central banks in OECD countries have as their goal a 2% inflation rate, which is seen as the optimum figure for a healthy economy. The way in which central banks attain this goal is mainly by setting interest rates and buying bonds.

As a means of pursuing their mandates, central banks have frequently engaged in significant interventions during social crises, such as providing financial support for wars (Toniolo & Clement, 2005) or facilitating attempts at economic development. Central banks play a primary role in present and future investment streams and have thus been increasingly problematized in the age of climate change (NGFS, 2019; Knot, 2020; Cojoianu et al., 2020). Central bankers themselves have highlighted how the financial system is funding global warming (Carney, 2020).

The argument for 'green' central banking is first and foremost due to the enormous impacts that climate change and biodiversity loss pose across the globe. 'Responsibility for financial and macroeconomic stability implicitly or explicitly lies with the central bank, which therefore ought to address climate-related and other environmental risks on a systemic level' (Dikau, 2018). The narrow mandates 'arguably require central banks to explore climate and environmental risks', but 'they do not mandate them to go further and to actively promote sustainability and green finance' (ibid.).

Central banks have multiple tools they can wield to address environmental risk and promote green finance and investment while also maintaining financial stability. The Network for Greening the Financial System (NGFS) published nine stylised options for adjusting operational frameworks to climate-related risks (NGFS, 2021). The latest research shows that modifying four monetary policy instruments may result in a 5% to 12% reduction in annual greenhouse gas (GHG) emissions (Altaghlibi et al., 2022). Examples include tilting asset purchases, adjusting haircuts, and positive and negative screening in collateral policy (see Appendix 1 for all options). The question, however, of whether central banks *should* engage in political activities related to climate change has become a subject of increasing debate among prominent leaders, opinion pieces and organizations (Bank of England, 2015; Tooze, 2021; Speer & Samuelsen, 2021; NGFS, 2019a). Political activities related to climate change include but are not limited to actions regarding

research on climate-related risks to financial stability, steering monetary policy towards ‘green’ industries, and penalizing assets and issuers dealing in carbon-intensive activities (NGFS, 2021). The onus is often laid at the feet of governments’ fiscal policies. As Klaas Knot, President of the Dutch Central Bank, said, ‘We shouldn’t be tempted to think that we are the primary actors here. The primary actors are really the governments. Central banks should follow, but first, it is the job of democratically elected governments to lead’ (*Financial Times*, 2021). Addressing climate change, however, is increasingly understood falling within the mandate of central banks (Green Central Banking, 2023). There is a growing acceptance that ‘central banks can contribute to the climate challenge; as economic advisors, as implementers of monetary policy and as supervisors of financial institutions’ (Knot, 2020).

Isabel Schnabel, Executive Board Member of the European Central Bank (ECB), has described the twin challenges of monetary policy and climate change. The price to be paid for going green includes three different, but interrelated inflationary shocks; climateflation, fossilflation and greenflation (Schnabel, 2022). Climateflation refers to the costs of climate change itself, as the number of natural disasters and severe weather events is increasing, so too is their impact on economic activity and prices. Fossilflation ‘reflects the legacy cost of the dependency on fossil energy sources...in 2019 petroleum products and natural gas still accounted for 85% of total energy use in the euro area’ (ibid.). Research within the last decade has revealed an implicit carbon bias from financial institutions (Cojoianu et al., 2020; Matikainen et al., 2017). Lastly, greenflation refers to the imbalance between the supply of and demand for metals and minerals that are key to renewable energy production. One example is the 1000% price increase in lithium since January 2020 (ibid.).

The *longue durée* of central banking ideas and ruptures illustrates how central banks across the globe have acted differently over time. We may currently be within an interregnum, since the financial crisis of 2007/8 marked the end of market triumphalism and a regime of inflation targeting (Goodhart, 2010). Following the last decade, the Covid-19 pandemic has been a global phenomenon that has again forced the politicization of central banks. As opposed to the last decade’s financial crisis, the Covid crisis exposed not the banking system as the fundamental flaw, but the asset markets themselves. Assets that embody the foundation of the credit system were shown not to be so safe after all (Tooze, 2021). Crises have illustrated how such a rupture opens up a new possibility regarding the mandate central banks pursue: the Covid-19 crisis and the growing recognition of a climate crisis may pave the way for a radically interventionist mandate.

Capital investments are confronted with the increasing inconsistency of ‘natural disasters’, a plethora of climate-related shocks that threaten macroeconomic stability (Dikau & Volz, 2019). Consequently, central banks have been forced into accounting for such factors. Until now, however, traditional risk models have not included the identification of climate-related risks (Svartzman et al., 2021). The latest research has revealed the ‘quasi-certainty of the occurrence of climate change-related catastrophic material and human losses’ (ibid.: 2). Thus ‘climate change calls for an epistemological rupture in risk models’ (ibid.: 3). Researchers have claimed to illustrate how, in merely responding to the components of inflation without accounting for the rising prices and

decreasing outputs associated with the effects of climate change, central banks may cause ‘unnecessarily large output losses’ (Dikau & Volz, 2019: 84).

The asymmetric uncertainty and risks faced with climate change confront us all, including central banks (NGFS, 2019b). Claims for the need for an epistemological rupture remain trapped in the modernist assumption that a technical fix (here, a change in financial risk models) provides the answer to solving the climate crisis, as opposed to more ‘radical’ ideas such as degrowth, for example. The reaction of many financial institutions during the Covid pandemic has shown that, if the organization of financing is more than a technical matter for monetary sovereigns, it is surely a political choice (Tooze, 2021). Beginning with the inception of the NGFS (2017), or perhaps Mark Carney’s speech in 2015, the term ‘Green Central Banking’ (GCB) has steadily risen in prominence (Park & Kim, 2020; Bank of England, 2015). Although there are numerous new taxonomies, recommendations and multilateral initiatives designed to facilitate climate action, this action is lacking or in its earliest phase.

Sweden’s central bank, the Riksbank, has been identified as one of the very few central banks to have taken any sort of action in this regard, partly due to it including ‘dirty bonds’ in its portfolio (Bergius, 2021: 58). As one of the very few central banks to have included an aspect of the consequences of climate change into the decision-making process of their operations, the Riksbank presents an interesting case of whether it is as proactive as it has been praised for being in what has been termed the green transition. Sweden was deemed the second-highest performing country on Sustainable Development Goals (SDG) indices in 2023 (SDR, 2023). However, that comes with the caveat that Sweden has performed poorly on climate-related SDGs (ibid.). On the surface, therefore, the Riksbank appears to be somewhat ahead of the field in GCB. Could this be a case of a central bank acting prior to the incentives being provided by the Swedish government in terms of climate mitigation or adaptation?

We hypothesise that the Riksbank has incorporated an aspect of the consequences of climate change into its communications, but any action to future-proof financial stability with a focus on allowing for climate-related financial risks is likely to be lacking. The focus, we hypothesise further, is for central banks to discuss how climate change must be treated as a financial risk in its communications, but not act with respect to that risk. We also hypothesise that it will defend having to act in the name of its mandate, thus reinforcing the argument that to adopt a focus on climate-related issues would be beyond the scope of its powers when having to uphold financial stability.

NGOs, academics and the more socially and environmentally conscious political parties are facing an uphill battle against the mainstream rhetoric of modern-day central banking, which lauds market neutrality, central bank independence and strict inflation targeting. GCB therefore represents a threat to the neoliberal ideal of what a central bank stands for. We argue that, if a lack of operational proactiveness can be found within this crucial case study of the Riksbank, we are unlikely to see a shift away from communicating about climate change and how central banks may actively change the operational process regarding neoliberal monetary policy.

The next section (2) describes the research design, including a literature review, our theory, our methodology and a description of why the Riksbank qualifies as a ‘critical’ case study. Section three then presents an analysis of the research question, followed by our conclusions.

2. Research Design

2.1 Literature Review

There is a growing canon of literature and research on the field of GCB, though this area of research is still new. A crucial gap remains the actions of central banks, and specifically how central banks are employing concrete work plans with the climate in mind. Calls to model the role that finance plays are crucial (Battiston et al., 2021), as is research that illuminates how a central bank views its role in the climate crisis. Although analyses have sought to shed light upon the interpretation of mandates relating to climate risk and sustainability by the ECB, the Bank of England, and the Dutch central bank (Dikau & Volz, 2021), no such analysis has yet been undertaken regarding Sweden’s Riksbank. The lack of empirical research regarding central banks’ role in the climate transition begs the question of analysis. The fact that the Riksbank is one of the perceived frontrunners in GCB (Bergius, 2021: 58) makes it an example to which other banks may look for inspiration.

In the field of GCB, one must understand the type of agency that central banks have. From a historical perspective, their agency has been under-emphasized, the argument being that proactive action on the climate is an element outside their traditional mandate of price stability. Various elements have influenced this particular discourse, one being that central banks are not primary actors (Hansen, 2021). However, there is a recognition that ‘central banks can contribute to the climate challenge; as economic advisors, as implementers of monetary policy and as supervisors of financial institutions’ (Knot, 2020). Academics have made similar observations inasmuch as the promotional role of supporting green investment remains a political consideration (Dikau & Volz, 2021). A second factor has been that central bank mandates have been regarded as a macroeconomic stabiliser, their core responsibility being to maintain low and stable inflation. This is based on the premise that stable inflation is a mandatory precondition for growth (Dikau & Volz, 2019: 82).

In contrast to the minimal acknowledgement of agency, other items of literature emphasize how well-placed central banks are to drive change. Extensive research departments, broad international networks and powerful financial tools make central banks key actors in shifting consumer behaviour (Dikau & Volz, 2021). Further argumentation of this sort is found in work by Leon Wansleben, who argues that ‘central banks have accumulated unparalleled power over the conduct of macroeconomic policy’ (Wansleben, 2018: 1). Echoing this argument is Jacqueline Best, who noted that the financial crisis of 2007/8 increased the power of central banks in the economy: ‘the relative autonomy of central banks enabled them to respond to the emergency as quickly and as radically as they did. Their emergency actions in turn intensified their exceptional status, increasing the powers that they wield’ (Best, 2018: 342). Therefore, although central banks, with their independence, strive to maintain a distance of from political activity, as actors they have been shown

to hold enormous transformational power that may be used with the goal of greening the financial system (NGFS, 2019b).

Yet other literature on the role central banks play as actors within society shows how their instruments bias certain industries. In response to the 2007-8 financial crisis, the 'Basel III' Accord imposed new regulations, supervision and risk management on banks (BIS, n.d.). However, the liquidity requirements of the reforms may de-incentivize investment in low-carbon initiatives that require long-term credit, as they pose a riskier, less liquid alternative to sovereign bonds, for example (Campiglio, 2016). The Euro system's collateral framework is implicitly biased towards carbon-intensive industries (New Economics Foundation, 2021a). In addition to the implicit bias that some central banks may have, a lot of research illustrates the active role the finance sector plays in its ability to allocate capital efficiently, representing a key dimension impacting on global change (Maltais & Nykvist, 2020; Hourcade and Shukla, 2013; IPCC, 2014).

There are discrepancies regarding the reasons for the carbon industry benefiting from central banks' investments. One is that this is seen as mere credit market failure (Campiglio, 2016). The allocation of credit to polluting businesses is seen as an externality of the market which stems from the epistemological assumption that capital works efficiently. Therefore, the pricing of carbon is a sufficient (and the cheapest) way of stemming the problem, thereby reducing CO₂ (OECD, n.d.). In opposition to that assumption is the argument that, to the extent it is needed, carbon pricing is not practical as a policy strategy and is insufficient in steering the required resources to green investment (Campiglio, 2016) or is merely misplaced as a strategy altogether (Hickel & Kallis, 2020). As evidenced above, while climate policy is far from lacking in research, a gap has opened up because of the lack of research based on the actions of central banks.

Some scholars have called for central banks to take up the role of regulator and monitor bank behaviour (Dow, 2014). The argument for this change is that the 2007/8 crisis called for urgent policy responses. Responsibility as a regulator and active actor is nothing new in central banking, but it comes from their traditional role (ibid.). Furthermore, an expanded mandate of central banks also includes managing government finance and public debt (ibid.). In sum, this illustrates how the creation of monetary policies involves mutual dependence between governments and central banks.

The burgeoning call for a greater mandate is central to the present research question and exposes a current gap in the literature on how great an actor central banks are in the 'green transition'. Risk management would to some extent be the most efficient way of handling the financial superstructure that the world has built out of the limited stock of real capital (Dow, 2014). New risk assessments regarding climate-related risk have now become part of the assessment of central banks, and the models are continuously evolving (Battiston et al, 2017; Dafermos & Nikolaidi, 2021). Research that has taken up the mantle by analysing how central banks are reacting to climate change has focussed on matters of transparency (Bolsinger, Hoffmann & Villhaue, 2021; Buiters, 2014) and standardization (Weikmans & Gupta 2021). Scholars find that central banks have limited resources due to the lack of both the transparency of climate issues throughout portfolios and of any global standardization of climate markers. A recent report set out how the ECB could green the

Eurosystem's collateral framework (New Economics Foundation, 2021a). However, despite the pressure and roadmaps provided by NGOs and scholars, the ECB, like many banks, is at a preliminary phase of activity. Therefore, increased importance is placed on understanding how central banks are reacting to climate issues.

There is a growing acknowledgement that there is a direct causation between climate risks and material risks to the financial sector and its stability (ECB, 2021b; Battiston et al., 2021; Bank of England, n.d.; Dikau & Volz, 2021; Gjesdal & Kristiansen, 2019). As a result of this, the NGFS has continued to push the agenda in terms of what central banks' role should be (NGFS, 2019b). In 2021, the Bank of England was given a climate monetary mandate (NEF, 2021), which will provide interesting insights into how a central bank wields and acts upon expanded monetary power.

The gap is in the theoretical and methodological use of research that relates to central banking and climate-related activities. Thus far, the ways in which 'sustainability' has been attached to financial risk have not been sufficiently understood. A buzzword such as 'sustainability' or 'climate-related risk' must be explored in order to facilitate an interpretation of what exactly defines this link between such broad concepts. Thus, there has been little analysis of how climate change, as a socio-political phenomenon, interacts with central banks. Furthermore, how would a theoretical approach illuminate the rationalities and subsequent technologies of the Riksbank in relation to climate change?

In tandem with the growing consensus that monetary policy must incorporate climate-related risks, institutions and academics have published a flurry of papers modelling different elements of the green transition. Transition modelling comes in the form of, among others, transition pathways and the subsequent risks and opportunities to financial stability (NGFS, 2023). Although econometric and statistical analyses have relied upon vast swathes of data in order to model how a zero-carbon transition could work, here the gap relates to how the climate has been problematized by important actors (McConnell, Yanovski & Lessmann, 2021; Svartzman et al., 2021; Bender et al., 2019; Battiston et al, 2021; Ackerman, 2017).

In terms of how central banks are acting on greening monetary policy, there are examples from the People's Bank of China (Macaire & Naef, 2022) and the IMF (Ramos et al, 2021), in addition to Positive Money's Green Central Banking Scorecard, which focuses on monitoring the G20 countries (positivemoney, 2021). Research has also shown how the problematization of climate change can act as a tool to reorient the focus of climate change policies into an opportunist discourse that is somewhat counterintuitive in light of the problem of reducing the scale and volume of carbon emissions (Haigh, 2011).

Research has begun on how central banks are reacting to the increased calls for action, including an early glimpse of how the Bank of England is implementing its recent 'environmental mandate' to green its corporate bond purchase scheme (Dafermos et al., 2022), in addition, Deyris (2023) examined how a climate consensus was achieved in the ECB. The body of work addressing what

proactive policy options there are (McConnell et al., 2021, Svartzman et al., 2021) has thus far not been translated into sufficient research into specific central banks' actions.

Thus, the communication and more importantly the action of central banks on climate issues are of social value given the immediacy of climate change. How the Riksbank is framing and subsequently implementing climate operations provides a novel insight into the extent to which 'green' central banking has started to become genuine green central banking.

2.2. Theory and Methodology

The following section outlines the theoretical and resulting methodological framework that underpins the analysis. Rose and Miller's concept of governmentality has been employed and analysed using the methodological processes of textual discourse analysis, supplemented by expert interviews. This lens provides an important tool for grasping and analysing types of discourse in monetary policy and economics. Economics must be understood not as an objective player that creates models, descriptions and analysis, but as an actor in the 'intellectual machinery' that creates the reality of political programmes and guides the hand of government (Vestergaard, 2007: 22-23).

Rose and Miller distinguish three elements of governmentality, the first being *political rationalities*, which are found with three related characteristics: a moral form, an epistemological character, and an idiomatic language of politics and government. In combination, the three elements embody how agents frame problematizations and how something is made imaginable through language, which builds itself upon morality and finds its foundation in knowledge.

Secondly, *governmental technologies* refers to the use of various types of strategies, techniques and procedures through which different forces seek to render programmes operable (Rose & Miller, 1992: 179). Technologies of government refer to an extensive assemblage of techniques, devices and instruments that translate ideas into operable rationalities, thus enabling a conduct of conduct (Dean, 2012; Foucault, 1978; Lovbrand & Stripple, 2011). The way to create these ideas and techniques is by creating shared interests and through political discourses, persuasions, negotiations and bargaining (Rose & Miller, 1992).

Thirdly, Rose and Miller define *programmes of government* as the manifestation of problematizations rendered knowable by rationalities and made actionable by technologies of government. Programmes lay claim to a certain knowledge of a particular problematization (ibid.). In order to govern such problematization, such as the climate, for example, the idea of the climate must be translated into a problem that can be acted upon using political calculation. The climate, then, is rendered thinkable by theories of what constitutes the climate. This enables the climate to become something that can be governed, managed, evaluated, or programmed (ibid.), as central banks value the risks of economic activity and programmes and determine the investment framework for the financial sector.

Why does the Riksbank qualify as a ‘critical’ case study? Several factors motivate the choice of Sweden as a critical case study: i) Sweden’s Riksbank has been identified in the literature as a progressive central bank because of its climate change actions (Bergius, 2021: 58); ii) the Riksbank has a history as a modernizing central bank (Marcussen, 2006: 11); iii) Sweden has a reputation for being one of the least carbon-intensive economies in the European Union, one that has increased its renewable energy share of gross energy consumption (European Parliament, 2021). It thus appears to be an example of how to facilitate the progress made by a proactive central bank.

Like Deyris (2023), the methodological approach is based on a qualitative textual analysis. Where Deyris (2013) studied ECB policies, speeches and exchanges with the European Parliament to ascertain the change in the ECB’s governing council’s decision to make climate change a priority, we collect data from key Riksbank documents, namely Monetary Policy Reports (MPRs), Financial Stability Reports (FSRs) and Annual Reports, using governmentality as a conceptual framework in which to identify the different sorts of rhetoric contained in each of the reports. The nature and subsequent difference in the aim of MPRs compared to FSRs illustrated a difference in rhetoric. Manually classifying the differing forms of rhetoric into passive, defensive and proactive problematizations illuminates the extent to which the Riksbank is adopting a proactive approach.

The benchmark for classifying such actions is two-fold, first by using the NGFS typology for how central banks can act (see Appendix 1), and second, by using the ECB’s category of measures, which establishes how a central bank has reacted to climate change (see Appendix 2). Triangulating the two with the supplementary component of expert interviews provides a detailed picture of how the Riksbank has actually behaved in the age of climate change.

The NGFS, established in 2017, aims to strengthen actions to meet the Paris Agreement. The group consists of over a hundred members from various central banks and financial institutions that construct non-binding recommendations. Consequently, nine typologies were conceived as possible (and plausible) recommendations for how a central bank may act to green its monetary policy operations; adjusting pricing to reflect counterparties’ climate-related lending; adjusting pricing to reflect the composition of pledged collateral; adjusting counterparties’ eligibility; adjust haircuts of collateral frameworks; negative screen collateral; positive screen collateral; aligning collateral pools with a climate-related objective; tilt asset purchases; and negative screen asset purchases.

In November 2021, the ECB published a paper entitled ‘To be or not to be “green”: how can monetary policy react to climate change?’ (Boneva et al., 2021). It distinguishes between reacting to climate change (categorized as taking passive or defensive monetary action), raising awareness of climate risks, and proactively mitigating climate change (see Appendix 2). Deploying the three-layered classification, and using governmentality as a theoretical lens, it shows how the Riksbank compares to the most recent, leading classifications.

On the subject of GCB and political economy, governmentality provides an important tool for grasping and analysing the reality behind the discourse of monetary politics and economics. Eight

semi-structured interviews were conducted in the autumn of 2021¹ with senior officials at the Riksbank, NGO advocacy officers, and experts in Swedish monetary policy and Riksbank law (see Appendix 3). Interviews revealed how the Riksbank is reaching a position in history where the trajectory of climate action is at a juncture: the Swedish government published the updated Riksbank mandate in January 2023, which has been slightly reframed to incorporate the climate in its already existing techniques to mitigate financial (in)stability. Interviews captured insider views on past and current understandings of the Riksbank's responsibilities regarding climate-related issues. The central bankers we interviewed were senior officials who had been directly involved with the Riksbank's work on climate action and the selling of carbon-heavy bonds. NGO advocacy officers were selected due to their role in advocacy campaigns with the ECB and/or national central banks on climate change issues, which had given them a strong sense of the different positions at stake in Sweden. The interviewees were selected by snowballing: initial contacts were made on the basis of current or past positions and the work of the potential interviewees, who themselves recommended competent colleagues within the Riksbank.

3. Analysis

The analysis is structured into four separate sections. The first part focuses on the teleological change in which the Riksbank refers to climate change in its different reports. The starting point of a change in climate communications has been determined as coming in December 2018, when the Riksbank joined the NGFS. The second and third sections analyse the (climate) actions of the Riksbank against the two leading markers of climate considerations in GCB: against the NGFS criteria (section two), and against the ECB criteria (section three). Specifically, we look at how the Riksbank has incorporated the NGFS typologies into its operations, and then how the Riksbank's action compares according to the ECB's classifications. The fourth section focuses on the internal changes of the Riksbank according to its members and employees.

3.1. The prominent rise of climate change

In this section, we highlight how climate change has increasingly taken up space within the Riksbank's communications. Document analysis of the political reports and PR communication documents, supplemented by expert interviews, illustrates how the climate is becoming mainstreamed by being given increased attention in the Riksbank's work. A breakdown of the types of documents used for analysis is provided in Appendix 4. To do so, we provide a detailed account of speeches by the executive board on the subject, the Riksbank's FSRs, its reports on monetary actions incorporating climate change, its sustainability strategy, annual reports, and two reports that look exclusively at how climate change relates to the Riksbank. We compare those publications with the words mentioned in their operational reports (MPRs).

¹ This coincided with the new Swedish Riksbank Act being voted on in Parliament.

The Riksbank has increasingly mentioned climate change in its reports, and there is an increase in the amount of internal work being done on the subject. The increased focus on climate change has of now not yet materialized into genuine actions for change regarding the Riksbank's operations, as can be seen from the lack of mentions of climate change in the bank's monetary reports (MPRs) and its operational reports.

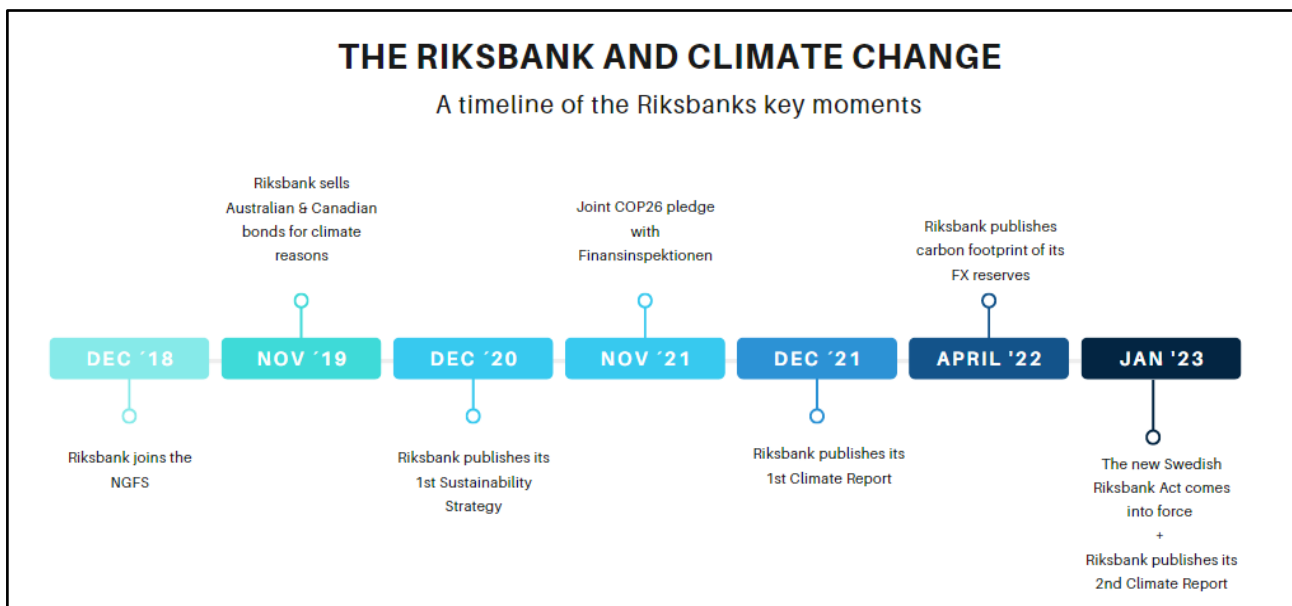


Figure 1. Timeline of the Riksbank's communication with reference to climate change

The most obvious way of deducing how a central bank understands climate change is its operational activities: how has the Riksbank acted in relation to climate change? Before acting, an actor such as a central bank must first problematize a phenomenon such as climate change. Thus, how has the Riksbank problematized climate change? From its first mention of 'climate-related risks' in 2018 (FSR: 2, 2018), FSRs have framed global warming and climate change as an *effect* on financial stability, rendering the power of the Riksbank that of a merely defensive actor against damaging 'climate-related risks', as opposed to it admitting contributing to the said risks. Reports repeatedly reference certain political technologies such as initiatives to 'make it easier to define, measure and compare different climate-related risks in a uniform manner' (ibid.: 18).

Thus, the rationality of 'what can be measured can be changed' justifies the inscription of measurement as an actor. The defensive approach is revealed here in the acknowledgement that the climate must be inscribed into already existing programmes of government such as risk-modelling and stress tests, with the added proviso that the bank must wait until quantitative data is available before it can act. Interviews with senior Riksbank officials confirmed that perhaps the most novel change in the Riksbank's work is that it now defines climate change as a financial risk (I1-I2). Articulating particular knowledge, the linking of climate with risk translates the climate into an object of government (Barry et al., 1996: 13, as cited in Vestergaard, 2007: 22).

Passive statements such as ‘Climate change is an overarching threat to the global financial system’ (FSR: 2, 2020) are usually followed with a recourse to defensive action such as ‘The Riksbank has, for example, analysed sea-level rises as a result of global warming and the risks they pose to the housing market’ (ibid.). The actions of the Riksbank as described in the FSRs fall wholly within already existing programmes of government: for example, negative screening, or taking ‘sustainability into consideration’, led to the sale of Australian and Canadian bonds (FSR: 2, 2019). In terms of including the climate in already-existing programmes of government (defensive action), FSRs describe how the Riksbank can act to defend its mandate by supporting and performing analyses of climate-related financial risks. However, the reports maintain that it is the responsibility of others (companies, both financial and non-financial) to ‘improve their reporting’ (FSR: 2, 2020). Thus, the Riksbank’s communicative actions fall into the ‘raising awareness on climate change’ category, one of the least proactive of categories (see Table 1).

As illustrated in Figure 2, mentions of the climate have increased linearly in the Riksbank’s annual reports, the sole voice that communicates with the Riksdag and the Swedish government. It therefore describes how ‘the Bank has conducted monetary policy, promoted a safe and effective payment mechanism and carried out other tasks during the financial year’ (Annual Report, 2021). Despite the growing communication regarding the climate in the Riksbank’s annual reports, this does not necessarily translate into a qualitative change in its operations.

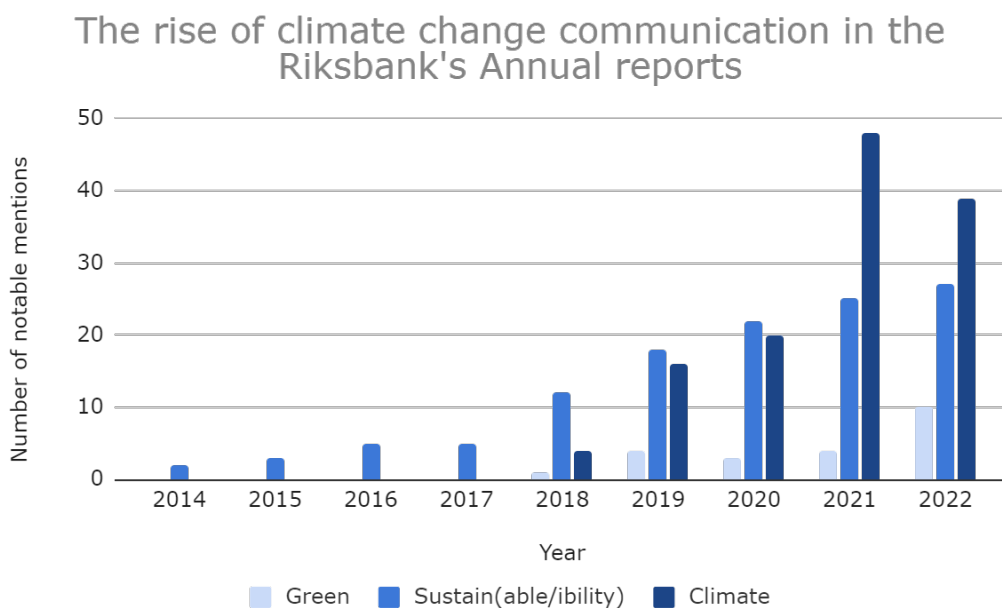


Figure 2. The Riksbank’s climate change communications

Published in December 2020, the Sustainability Strategy is an amalgamation of previous statements and analyses made by the Riksbank and its employees, typically citing previous MPRs when outlining the strategy to ‘apply a sustainability perspective in the management of the FX reserves’ (Riksbank, 2020: 2). The strategy also refers to preventing financial crises by analysing and overseeing risks (physical and transition risks) and vulnerabilities in the financial system. ‘It is therefore part of the Riksbank’s mandate to

promote resilience to climate-related risks in the financial system’ (ibid.). ‘Since 2019, analysis of the composition of the foreign exchange reserves does not just consider risk and yield but, also by how much the assets increase the amount of greenhouse gases, and this has resulted in some assets being sold’ (ibid.). However, perhaps paradoxically, ‘the Riksbank places no particular importance on whether or not the assets are classified as green. In the management of both the foreign exchange reserves and the Swedish portfolio, green bonds are treated and assessed on the same basis as other assets’ (ibid.: 5).

The climate report of 2021 is a summation of the Riksbank’s sustainability strategy and other climate-relevant references from various MPRs and FSRs. Aside from communicating how the Riksbank will, among other things, ‘promote regulations in the financial markets to reduce the risks climate change may entail for the financial system’ (Riksbank, 2021a), it stresses how ‘the responsibility for combating and reducing CO₂ and other GHGs through policy measures lies with the world’s governments’ (ibid.). The 2023 report highlights how, in 2022, the Riksbank carried out an analysis of transition risk in the Swedish banks’ loan portfolios and of how the new Riksbank Act affects the bank. The latter, as the climate report describes it, ‘identifies two areas in which the Riksbank shall take sustainability aspects into account: in its asset management, the Riksbank shall promote sustainable development and, in its external monitoring, the Riksbank must identify threats to sustainable development’ (Riksbank, 2023).

3.2. Where’s the action?

The following part of the analysis provides insights into the operational reports of the central bank, in addition to the new Riksbank Act. They both display a defensive agenda of reducing the politicization of the Riksbank regarding climate issues. The goal of conventional economic growth determined by GDP (government.se, 2021: 143) is a key finding of this analysis, since it could be argued as a reason for why we see a lack of proactiveness and agency from the Riksbank when it comes to taking direct action to mitigate climate change.

The power to be a proactive central bank on climate change is rendered possible only if the bank is allowed the space to act in such ways. If a central bank is not explicitly mandated to incorporate the goal of net zero as just one climate-focused objective, it can ultimately fall back on that lack of a mandate. The following quote from the new Riksbank Act illustrates how the growth imperative transcends any sustainable development considerations:

‘The Riksbank shall manage assets in order to be able to fulfil its tasks and powers and generate sufficient returns to finance its operations. The assets must be managed with low risk and taking into account the Riksbank’s position as a central bank and the purpose of the asset holding. In the administration, special emphasis shall be placed on how sustainable development can be promoted without waiving the above requirements.’ (government.se, 2021: 143)

The lack of proactive action can be seen from the first MPR, which describes how the ECB and the Bank of England under Mark Carney included financial stability and climate policy considerations

and considered how they should influence monetary policy strategy (MPR: 1, 2020). Traction for focusing on climate change grew in the July report, which states that the Riksbanks' investments may be used to 'promote the transition to a sustainable and climate neutral economy' (MPR: 3; 2020: 24). The framing of climate change mirrors that of the FSRs: as a risk factor, climate change must be incorporated into the existing models of risk calculation (FSR: 1; 2020). The consequences of such rhetoric make the Riksbank a merely passive or at best a defensive actor, reacting to the economic risks of climate change, but certainly not as active in preventing those risks.

As Figure 3 shows, any action regarding climate change has only occurred in the last few years. The momentum seems to have begun when the Riksbank joined the NGFS in 2018 and after being criticized for its lack of action regarding climate change (Swedbank, 2018). The only example of an operationalized action was the sale of Australian and Canadian bonds based on greenhouse gas emissions. This would be categorized under option nine (negative screening of asset purchases) of the NGFS typology, as it excluded some assets or issuers from purchases if they failed to meet certain climate-related criteria. Aside from this concrete action, the MPRs elaborated on how the Bank intends to approach its climate-related operations.

Seen through the lens of the nine typologies of the NGFS, only two are mentioned, the majority of which were found in the 2020 report. The purchase of nominal and real Swedish government bonds and Swedish sovereign green bonds is categorized under option eight (tilting purchases). Similarly, the decision only to offer to buy corporate bonds issued by companies that are deemed to be complying with international standards and norms for sustainability 'is a means for the Riksbank to contribute within its mandate to limiting climate change' (MPR: 5; 2020: 16). As understood by many within sustainability reporting, standards and norms are extremely difficult to coordinate and generalize. Hence the Riksbank's 'sustainability perspective' (Riksbank, 2020: 2) is subject to sustainability standards and reporting.

The sustainability perspective outlined in the Riksbank's strategy (*ibid.*) includes the promotion of climate-related stress tests, the reporting of climate-related risks, the reporting of banks' capital adequacy requirements, and a sustainability perspective of the Riksbank's asset purchases and corporate bond purchases. The act of selling the Canadian and Australian FX reserves counts as the one occurrence of negative screening in Figure 3. NGFS's eighth option, tilting purchases (*i.e.*, skewing asset purchases according to climate-related risks and/or criteria applied at the issuer or asset level) is the second action the Riksbank has taken. The Riksbank's strategy expands such that its 'purchasing policy stipulates that [the] sustainability aspects must be considered in procurements. This means that the possible impact on environmental or social issues will affect the decision' (*ibid.*).

To what extent this sustainability perspective holds water is yet to be established. Despite the Riksbank implementing only two of the nine options set out by the NGFS, it is crucial to note the criticisms that have been made of the options themselves. What is perhaps more important when analysing the Riksbank and the NGFS options is whether the Riksbank is pursuing the options that

the literature deems most effective for GCB. Vestergaard (2022) claims that a dual strategy of expanding collateral eligibility through positive screening and widening haircut spreads to change relative incentives in favour of green over brown assets is the most effective form of GCB. Neither was mentioned by the Riksbank either in the document analysis or during interviews.

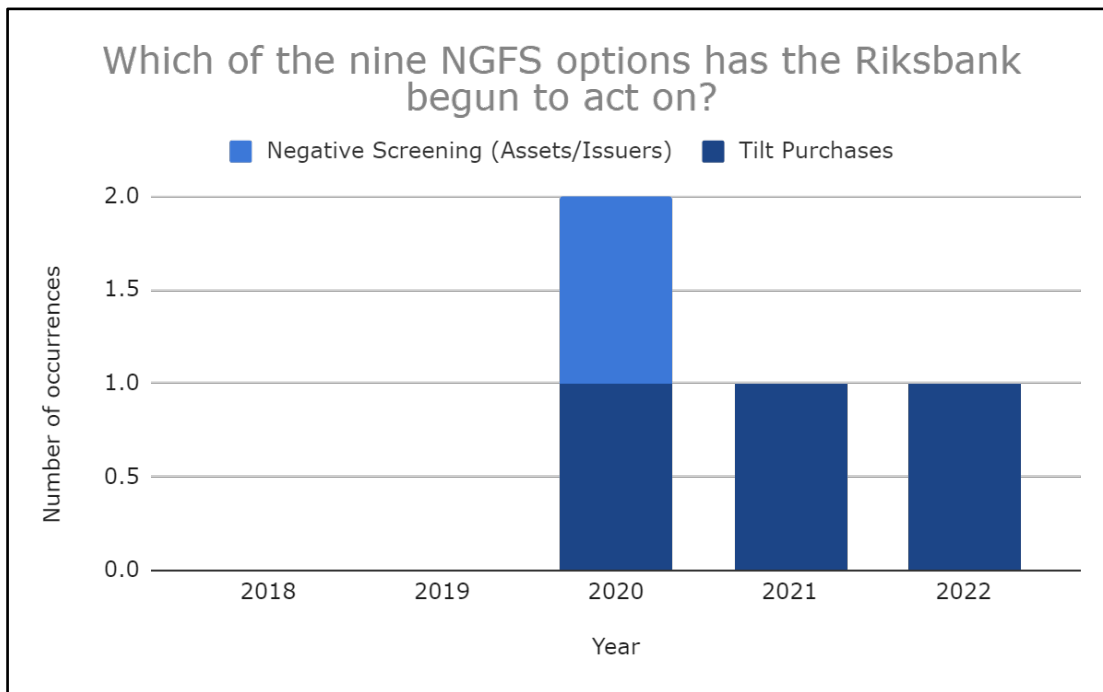


Figure 3. Which of the 9 NGFS options has the Riksbank begun to act on?

It was not until 2018 that the Riksbank began mentioning climate change in its economic analyses. In the short term, this has culminated in the Riksbank's first climate report and a sustainability strategy, in addition to the dumping of 'dirty bonds'. It is a process that, for the time being, gives the impression that the central bank has begun incorporating climate change into its operations, though such action is minimal, lacking altogether when compared with the NGFS typology and ECB classifications. Although the concrete action of selling bonds in high-emitting areas in Australia and Canada was lauded as an important first step, focusing on this one act may give a false sense of actual implementation or of the systemic changes needed if the Riksbank is genuinely to mitigate climate-change concerns and take them into their operations.

Based on interviews, the analysis reveals the strong resistance against further politicizing the Riksbank with proactive monetary operations, not only in their former mandate, but perhaps exacerbated by how the new or current mandate is shaping the Riksbank's responsibilities and goals. There was no reference to the climate in the former mandate, but the current mandate does ask how 'sustainable development can be promoted', with the caveat that should not interfere with the objective of price stability (Riksbank, 2022b: 17). This contradicts what the ECB has said, namely that there cannot be an economy without nature (ECB, 2023).

Though the political rationality has, to some extent, begun to change inside the Bank, the future of the Riksbank's actions is not likely to break from history too drastically, as evidenced by the criticism from both the Riksbank (centralbanking.com, 2021a), our external interviewees (I4-I8)² and the IMF (centralbanking.com, 2021b) regarding the updated Riksbank mandate. The key criticism regarding the new Riksbank Act from 2023 is therefore aimed at the proportionality principle, which renders the Riksbank seemingly unable to act progressively:

‘Even if they write ‘sustainability’ if there is a conflict and they don’t know which way they should go, they must always follow the growth path, the low-risk path and the self-financing path first, and then they can consider sustainable development. So the new law adds it, but in a way weakens the ability of the directors of the bank to think for themselves.’ (I5)

Therefore, despite this marking a turning point in a central bank mandate that includes the climate, the growth imperative is explicitly not to be interfered with (I4-I6). The proposed mandate may be seen as one step forward, two steps back: one step forward, in that it mentions sustainable development as a secondary objective; two steps back, in that it reiterates that sustainable development is beholden to the price-stability and growth imperative:

‘...in this new Act, a new law that is being put together, there are small changes, very small. Actually, none at all. When it comes to the mandate, it's still price stability. But there are a few sentences suggesting that the Riksbank should devote more analysis to sustainability issues, and in particular risks.’ (I3)

There is nonetheless an understanding that there are proactive tendencies within the Riksbank. Internal interviews expressed how there is a movement building upon ongoing investigations in order to analyse ‘to what extent they (Riksbank) can include sustainability in their work, given the legal prerequisites and economic aspects’ (I1-I2). This movement may indeed warrant a slow-moving proactive stance in that evidencing climate-related risks to Sweden's financial system is likely to be a prerequisite to taking affirmative action to mitigate climate damage.

3. 3. How do the Riksbank's actions hold up against the ECB's standards?

The ECB provides a way in which the Riksbank can be analysed in that it has provided a framework for determining whether a central bank has made proactive choices in its operations. (ECB, 2021c). The second element of the article's analysis was to triangulate the Riksbank's climate actions with the ECB's classifications of how a central bank can act with regard to climate change. In keeping with the ECB's format, Table 1 shows where the Riksbank stands in relation to climate action. Despite the increasing prominence of climate change in the Riksbank's communications, its operations are wholly restricted to the first two columns: in other words, thus far the Riksbank has acted as a passive or defensive actor. This should not come as a surprise, as central banks regularly

² Although interviews commenting on the mandate that has now come into force in 2023 were recorded in 2021, the interviewees were aware of the planned changes at the time of the interview.

use the necessity of independence as an argument for de-politicizing themselves from ‘political’ problems such as climate change or inflation.

Table 1. Analysing the Riksbank against the ECB criteria of climate action

An overview of the Riksbank’s actions (2018-2022) according to the ECB’s criteria of climate action		
Reacting to climate change	Raising awareness of climate change	Proactively mitigating climate change
Has added climate-related risk to its analytical toolkit	Joining and participating as a member of NGFS since 2018	Has taken a ‘sustainability perspective’ in its asset purchases and in the management of its foreign exchange reserves while remaining within the framework of the Riksbank’s mandate*
Has developed a sustainability strategy for ensuring monetary policy is resilient to climate change	First climate report published in December 2021	
Has begun carbon-mapping its corporate bond portfolio	Speech on how the Riksbank can help the climate by Deputy Governor Anna Breman	
Reports on opportunities for green bonds in Sweden	Has developed a sustainability strategy where the Riksbank commits to ‘not unnecessarily contributing to climate change’	
Sold CO ₂ -heavy bonds from Australia and Canada, thereby protecting its balance sheet: reducing the weight of ‘brown’ and other assets at risk of becoming stranded	Has communicated how much the Riksbank plans to buy/invest in green bonds	

**According to the ECB model, greening asset purchases is deemed to be proactively mitigating climate change. The reason for this note is to underline the fact that the Riksbank doesn’t describe this as greening its assets purchase. Sustainability will be taken into account, but that does not clearly indicate that the Riksbank will green its purchasing programme, or its FX reserves.*

3. 4. Tools of change: the Riksbank’s internal dynamics

Interviewing members of the Riksbank confirmed that it has long adopted a conservative approach, strictly according to its mandate, that so far has not included climate considerations (I1-I3). This leads one to believe that the agents of change inside the Bank conflict with a strong defence of a ‘business as usual’ approach, though one interviewee directly mentioned Anna Breman as a voice for change within the

Riksbank (I4-I5). Indeed, Breman penned a report that described the need for new knowledge, the integration of the climate into economic models, and the necessity of monetary policy to ‘become more or less expansionary’ in order to handle this new threat to financial stability in Sweden (Breman, 2020: 5). In the same report Breman emphasized how ‘an effective climate policy that contributes to more rapid technological development in green energy and sustainable infrastructure could, on the contrary, lead to productivity growth, new jobs, and higher living standards’ (ibid.: 5). Here, at the very least, is some realization that the Riksbank can be proactive and should not be limited to mitigating the negative risks set out in its mandate.

The scope of the analysis does not provide details on the extent to which pressure external to the Riksbank have effected what the Riksbank have chosen to do or not do. It is not only pressures from the Executive Board, but pressures external to the Riksbank that are vital. The demand for more proactive policies from fellow members of the NGFS would certainly add pressure to all central banks that are not exploring ways to mitigate climate risks. The fear of litigation has also grown in recent years, with the first case of a central bank (Belgium) being taken to court for failing to meet the environmental, climate and human rights requirements when purchasing bonds from fossil-fuel companies in 2021 (Climate case chart, 2021).

On top of the increased issue of climate risk in MPRs, there has been a shift in the personnel of the Riksbank’s executive board. This is no trivial matter. As Deyris (2023) shows, consolidating a climate consensus involves intertwined dynamics that are both internal and external to a central bank if its rationale should change from the status quo. Anna Breman was appointed Deputy Governor in December 2019, around the same time as the Bank’s internal reports, speeches and communications on climate change increased. Breman had publicly criticized the Riksbank for its lack of action while at Swedbank (Swedbank, 2019). Despite the lack of proactiveness, as shown above, the appointment of a critic such as Breman, who presented the bank’s first climate report, may be a testament to the change in how the Riksbank presents its secondary mandate to the Swedish government.

4. Conclusion

The term ‘green central banking’ is part of a process of refocusing a country’s political economy and stands for a programme that has the power to implement new standards in sustainable financial modelling. The conditions of possibility for this process are multifarious. The NGFS and ECB have already highlighted various methodologies and forms of action for green monetary operations, to which, however, there is clearly strong resistance. Despite implicit bias towards certain industries, central banks and government officials maintain that independence and market neutrality are the essential elements of a well-functioning central bank. Both of these hurdles must therefore be overcome to move closer to a possibility where a central bank funnels investments into climate-neutral or negative operations. The Covid-19 crisis and central banks’ subsequent reactions illustrate the myth that both hurdles still exist. The conceptual tool of governmentality elucidated changes in discourse and the (in)actions of the Riksbank’s operations. A more comprehensive knowledge of how the climate is being understood by a European central bank is being developed. The labelling of the Riksbank as proactive has been shown to be premature at best. Indeed, central banks, like

most other actors, are only in the very early stages of any climate change policies. Since joining the NGFS, the Riksbank has taken small steps, such as the carbon mapping of its corporate bond portfolio (Riksbank, 2021b) and FX reserves (Riksbank, 2022a), and the negative screening and offloading of ‘dirty bonds’, as well as incorporating the climate into risk analysis models.

The above findings illustrate how, if there is now a linear process proceeding from the status quo to a greening of monetary policies, that process is slow. The Riksbank is one actor within a larger system that favours economic growth and inflation-targeting over other variables. Ultimately an epistemological rupture that incorporates ecological boundaries into economic models has yet to appear in either the Riksbank’s or most other central banks policies. The new mandate indicates explicitly that the development of sustainability may only be promoted as long as it does not waive the requirement to fulfil the mandate’s main target (Riksbank, 2022b). The government must therefore also be criticized for not creating the conditions of possibility to facilitate a proactive central bank. Without a clear mandate to act, the Riksbank has a duty to uphold financial stability. In the age of the Anthropocene, where climate change is predicted to continue affecting financial stability at an increasing and uncertain level, the Riksbank may shift to operationalize more of the options that are available in order to fulfil its mandate.

Political action such as providing a central bank with a mandate to act (see the Bank of England, for instance) is an example of how primary actors can create the conditions for a possible change not just in fiscal policy, but also in monetary policy. Central banks maintain that they are not the primary actors in the fight against climate change, even though they possess the political power to pressure policymakers both within and outside governments in order to act against the exacerbating effects of climate change, not to mention the implicit bias within business-as-usual monetary policy. Indeed, ‘economics is the mother tongue of public policy, the language of public life, and the mindset that shapes society’ (Raworth, 2018: 17). As has been shown in the foregoing analysis of the Riksbank, the understanding of what to factor in to financial (in)stability are subject to temporal change. If the green agenda is to succeed, central banks must problematize and act upon the evidence that monetary policy is situated within the earth’s ecological boundaries.

References

Academic

Ackerman, F. (2017) ‘Worst-case economics,’ *Anthem Press* [Preprint]. Available at: <https://doi.org/10.2307/j.ctt20p5685>.

Balls, E., Howat, J., & Stansbury, A. (2016) *Central Bank Independence Revisited: After the financial crisis, what should a model central bank look like?* MossavarRahmani Center for Business & Government.

- Battiston, S., Dafermos, Y. & Monasterolo, I. (2021) ‘Climate risks and financial stability,’ *Journal of Financial Stability*, 54, p. 100867. Available at: <https://doi.org/10.1016/j.jfs.2021.100867>.
- Bender, J., Bridges, T.A. & Shah, K. (2019) ‘Reinventing climate investing: Building equity portfolios for climate risk mitigation and adaptation,’ *Journal of Sustainable Finance & Investment*, 9(3), pp. 191–213. Available at: <https://doi.org/10.1080/20430795.2019.1579512>.
- Bergius, S. (2021). ‘Central Banks in Europe: On the Road to more Sustainability’, in H. Bolsinger, J. Hoffman & B. Villhauer (eds) , *The European Central Bank as a Sustainability Role Model*. Cham: Springer, pp. 55-73.
- Best, J. (2018) ‘Technocratic exceptionalism: Monetary policy and the fear of democracy,’ *International Political Sociology*, 12(4), pp. 328–345. Available at: <https://doi.org/10.1093/ips/oly017>.
- Cojoianu, T. *et al.* (2020) ‘In the name of COVID-19: Is the ECB fuelling the climate crisis?’, *SSRN Electronic Journal* [Preprint]. Available at: <https://doi.org/10.2139/ssrn.3630112>.
- Dafermos, Y., Gabor, D., Nikolaidi, M., van Lerven, F. (2022). ‘An Environmental Mandate, now what? Alternatives for Greening the Bank of England’s Corporate Bond Purchases’, *SOAS University of London; University of Greenwich; University of the West of England*.
- Dean, M. (2012). *Governmentality*. Los Angeles: SAGE Publications Ltd.
- Delanty, G. 2020. *Critical Theory and Social Transformation: Crises of the Present and Future Possibilities*. Routledge.
- Deyris, J. (2023) ‘Too green to be true? forging a climate consensus at the European Central Bank,’ *New Political Economy*, Available at: <https://doi.org/10.1080/13563467.2022.2162869>.
- Dikau, S. & Volz, U. (2019). ‘Central Banking, Climate Change, and Green Finance’ in: Sachs J., Woo W., Yoshino N., Taghizadeh-Hesary F. (eds), *Handbook of Green Finance. Sustainable Development*. Springer, Singapore, pp. 81-101.
- Dikau, S., & Volz, U. (2021). ‘Central bank mandates, sustainability objectives and the promotion of green finance’. *Ecological Economics*, 184, 107022. Available at: <https://doi.org/10.1016/j.ecolecon.2021.107022>
- Foucault, M. (1978). *The history of sexuality*. Vol. 1, New York: Random House.
- Gjesdal, A., & Kristiansen, M. (2019). ‘Climate at risk: The financial turn in corporate climate change communication’. *Cahiers De Praxématique*, (73). Available at: <https://doi.org/10.4000/praxematique.5912>

Goodhart, C. (2010). 'The Changing Role of Central Banks'. *SSRN Electronic Journal*. Available at:<https://doi.org/10.2139/ssrn.1717776>

Hansen, L.P. (2021), 'Central banking challenges posed by uncertain climate change and natural disasters'. *Journal of Monetary Economics*. Available at:<https://doi.org/10.2139/ssrn.3854963>

Lövbrand, E. & Strippel, Johannes. (2011). 'Bringing governmentality to the study of global climate governance. Governing the Climate: New Approaches to Rationality'. *Power and Politics*. 27-41. 10.1017/CBO9781107110069.005.

Marcussen, Martin. (2007) 'Leading Central Banking in Europe.' *Public Sector Leadership, the Third Transatlantic Dialogue*, University of Delaware, Newark, Delaware, USA n.d. Available at: <https://doi:10.4337/9781848449343.00012>.

Migliorelli, Marco & Dessertine, Philippe. (2020). 'Sustainability and Financial Risks'. *Palgrave macmillan*. Available at:<https://doi.org/10.1007/978-3-030-54530-7>.

Park, H., & Kim, J. (2020). 'Transition towards green banking: role of financial regulators and financial institutions'. *Asian Journal Of Sustainability And Social Responsibility*, 5(1). Available at: <https://doi.org/10.1186/s41180-020-00034-3>

Rose, N., & Miller, P. (1992). 'Political Power beyond the State: Problematics of Government'. *British Journal of Sociology*, 43(2), 173-205. Available at: <https://doi.org/10.2307/591464>

Svartzman, R., Bolton, P., Despres, M., Pereira Da Silva, I., & Samama, F. (2021) 'Central banks, financial stability and policy coordination in the age of climate uncertainty: a threelayered analytical and operational framework', *Climate Policy*, 21:4, 563-580

Toniolo, G., & Clement, P. (2005). *Central bank cooperation at the Bank for International Settlements, 1930-1973*. Cambridge University Press.

van Tilburg, R. & Simic, A. (2021). 'Every avenue available: Lessons from monetary history for tackling climate change', Utrecht: Sustainable Finance Lab.

Vestergaard, J. (2007). 'Discipline in The Global Economy: Panopticism and the PostWashington Consensus'. *Samfundslitteratur*. PhD series No. 1.2007.

Wansleben, L. (2018). 'How expectations became governable: Institutional change and the performative power of central banks'. *Theory and Society*, 47(6), 773. Available at:<https://doi.org/10.1007/s11186-018-09334-0>.

Non-academic

Bank of England (no date). 'Climate change: what are the risks to financial stability? Available at: <https://www.bankofengland.co.uk/knowledgebank/climate-change-what-are-the-risks-to-financial-stability>

Bank of England. (2015). 'Breaking the tragedy of the horizon - climate change and financial stability - speech by Mark Carney'. Available at: <https://www.bankofengland.co.uk/speech/2015/breaking-the-tragedy-of-the-horizon-climate-change-and-financial-stability>

Boneva, L., Ferrucci, G. & Mongelli, F.P. (2021) *To be or not to be 'green': how can monetary policy react to climate change?* publication. European Central Bank.

Centralbanking.com. (2021a). 'Ingves renews attacks on 'artificial division' in proposed Riksbank act'. Available at: <https://www.centralbanking.com/central-banks/governance/7840001/ingves-renewsattacks-on-artificial-division-in-proposed-riksbankact?fbclid=IwAR0DMZv3owlwNok3EJuqdzhcSNStMEiRya5acISUDuWPqSFoue3J4QQWAsg.71>

Centralbanking.com. (2021b). 'IMF supports Riksbank's criticism of proposed central bank law'. Available at: <https://www.centralbanking.com/central-banks/governance/7663911/imf-supportsriksbanks-criticism-of-proposed-central-bank-law?fbclid=IwAR3ovDUo7RXNmLeLHv1WkpODydPxVGD8yvZ4SEDtBxYGzOoMWVZfUExgg>.

Climate case chart (2022) 'ClientEarth v. Belgian National Bank, Climate Case Chart'. Available at: <https://climatecasechart.com/non-us-case/clientearth-v-belgian-national-bank/#:~:text=Belgian%20National%20Bank,-Filing%20Date%3A%202021&text=Summary%3A,other%20greenhouse%2Dgas%20intensive%20companies>.

ECB. (2021a). 'Our response to the coronavirus pandemic'. Available at: <https://www.ecb.europa.eu/home/search/coronavirus/html/index.en.html>

ECB. (2021b). 'Climate-related risk and financial stability'. Available at: <https://www.ecb.europa.eu/pub/pdf/other/ecb.climateriskfinancialstability202107~87822fae81.en.pdf>

ECB. (2021c). 'To be or not to be 'green': how can monetary policy react to climate change?' Available at: <https://www.ecb.europa.eu/pub/pdf/scpops/ecb.op285~be7d631055.en.pdf>

ECB. (2023). 'The economy and banks need nature to survive' Available at: <https://www.ecb.europa.eu/press/blog/date/2023/html/ecb.blog230608~5cffb7c349.en.html>

European Parliament. (2021). ‘Climate action in Sweden’. Available at: [https://www.europarl.europa.eu/RegData/etudes/BRIE/2021/698764/EPRS_BRI\(2021\)698764_EN.pdf](https://www.europarl.europa.eu/RegData/etudes/BRIE/2021/698764/EPRS_BRI(2021)698764_EN.pdf)

Financial Times. (2021). ‘Central banks should turn green’. Available at: <https://www.ft.com/content/1cbbb6d5-1676-43dd-a1cb-232f92ebb876>

Knot, K. (2020). ‘Steps central banks can take on the road to a green recovery’. Available at: <https://www.dnb.nl/actueel/algemeen-nieuws/speeches-oud/speechklaas-knot-steps-central-banks-can-take-on-the-road-to-a-green-recovery/>

Matikainen, S., Campiglio, E., & Zenghelis, D. (2017). ‘The climate impact of quantitative easing’. Available at: https://www.lse.ac.uk/granthaminstitute/wpcontent/uploads/2017/05/ClimateImpactQuantEasing_Matikainen-et-al-1.pdf

NGFS. (2019a). ‘Origin and Purpose’. Available at: <https://www.ngfs.net/en/aboutus/governance/origin-and-purpose>

NGFS. (2019b). ‘A call for action’. Available at: https://www.ngfs.net/sites/default/files/medias/documents/ngfs_first_comprehensive_report_-_17042019_0.pdf

NGFS. (2021). ‘Adapting central bank operations to a hotter world’. Available at: https://www.ngfs.net/sites/default/files/media/2021/06/17/ngfs_monetary_policy_operations_final.pdf

NGFS (2023) ‘Stocktake on Financial Institutions’ Transition Plans and their Relevance to Micro-prudential Authorities’. Available at: https://www.ngfs.net/sites/default/files/stocktake_on_financial_institutions_transition_plans.pdf

Positive Money. (2021). Big win: New Green Mandate for the Bank of England. Available at: <https://positivemoney.org/2021/03/big-win-new-green-mandate-forthe-bank-of-england/>

Raworth, K. (2018). ‘Doughnut economics’. *Random House UK*, pp. 17.

Riksbank. ‘Annual Report’. (from 2014-2022). Available at: <https://www.riksbank.se/en-gb/press-and-published/publications/annual-report/>

Riksbank. ‘Financial Stability Report’. (from May 2017- November 2022). Available at: <https://www.riksbank.se/en-gb/financial-stability/financial-stability-report/74>

Riksbank. ‘Monetary Policy Report’. (from February 2020 - February 2023). Available at: <https://www.riksbank.se/en-gb/monetary-policy/monetary-policy-report/>

Riksbank. (2018). 'Riksbank new member of international network for climate and financial systems'. Available at: <https://www.riksbank.se/en-gb/press-andpublished/notices-and-press-releases/notices/2018/riksbank-new-member-ofinternational-network-for-climate-and-financial-systems/>

Riksbank. (2019). 'Financial risk and investment policy'. Available at: <https://www.riksbank.se/globalassets/media/riksbanken/lagar-regler--policy/financialrisk-and-investment-policy.pdf>

Riksbank. (2020). 'Sustainability strategy for the Riksbank'. Available at: <https://www.riksbank.se/globalassets/media/riksbanken/hallbarhetsstrategi/engelska/sustainability-strategy-for-the-riksbank.pdf>

Riksbank. (2021a). 'The Riksbank's Climate Report. Climate risks in the policy work'. Available at: <https://www.riksbank.se/globalassets/media/rapporter/klimatrapport/2021/theriksbanks-climate-report-december-2021.pdf>

Riksbank. (2021b). 'Carbon footprint of the holdings of corporate bonds'. Available at: <https://www.riksbank.se/en-gb/monetary-policy/monetary-policyinstruments/purchases-of-corporate-bonds/carbon-footprint-of-the-holdings-ofcorporate-bonds/>

Riksbank. (2022a). 'The carbon footprint of the assets in the Riksbank's foreign exchange reserves'. Available at: <https://www.riksbank.se/globalassets/media/rapporter/ekonomiska-kommentarer/webbrapport---pdf-dokument/2022/the-carbon-footprint-of-the-assets-in-the-riksbanks-foreign-exchange-reserves.pdf>

Riksbank. (2022b). 'Swedish Code of Statutes'. Available at: https://www.riksbank.se/globalassets/media/riksbanken/lagar-regler--policy/the-sveriges-riksbank-act-2022_1568.pdf?fbclid=IwAR3TWgFDXs_srMxc67--9K0hmP71h8V9allULNNGfk6w8fUowEQUP5MqDQg

Riksbank. (2023). 'The Riksbank's Climate Report 2023'. Available at: <https://www.riksbank.se/en-gb/about-the-riksbank/the-riksbanks-work-on-sustainability/climate-report/the-riksbanks-climate-report2/foreword/>

SDR. (2023). 'Sustainable Development Report . Country profile'. Available at: <https://dashboards.sdindex.org/profiles/sweden>

Speer, S., & Samuelson, E. (2021). 'Centralbankerne skal have mandat til at arbejde aktivt for den grønne omstilling'. *Information*. Available at: <https://www.information.dk/debat/2021/11/centralbankerne-mandat-arbejde-aktivtgroenne-omstilling>

Swedbank. (2019). 'What central banks can do to fight climate change'. Available at: <https://online.swedbank.se/ConditionsEarchive/download?bankid=1111&id=WEBDOC-PRODE31400172>

The Guardian (2019). 'Sweden's central bank dumps Australian bonds over high emissions,' *The Guardian*, 14 November. Available at: <https://www.theguardian.com/environment/2019/nov/15/swedens-central-bank-dumps-australian-bonds-over-high-emissions>.

Tooze, A. (2020). 'The Death of the Central Bank Myth. Foreign Policy'. Available at: <https://foreignpolicy.com/2020/05/13/european-central-bank-myth-monetarypolicy-german-court-ruling/>

Tooze, A. (2021). 'Has Covid ended the neoliberal era?' *The Guardian*. Available at: <https://www.theguardian.com/news/2021/sep/02/covid-and-the-crisis-ofneoliberalism>

Appendices

1. Selected stylised options for adjusting operational frameworks to climate-related risks (NGFS, 2021: 5).

Credit operations ^a	
(1) Adjust pricing to reflect counterparties' climate-related lending	Make the interest rate for central bank lending facilities conditional on the extent to which a counterparty's lending (relative to a relevant benchmark) is contributing to climate change mitigation and/or the extent to which they are decarbonising their business model.
(2) Adjust pricing to reflect the composition of pledged collateral	Charge a lower (or higher) interest rate to counterparties that pledge a higher proportion of low-carbon (or carbon-intensive) assets as collateral or set up a credit facility (potentially at concessional rates) accessible only against low-carbon assets.
(3) Adjust counterparties' eligibility	Make access to (some) lending facilities conditional on a counterparty's disclosure of climate-related information or on its carbon-intensive/low-carbon/green investments.
Collateral ^b	
(4) Adjust haircuts ^c	Adjust haircuts to better account for climate-related risks. Haircuts could also be calibrated such that they go beyond what might be required from a purely risk mitigation perspective in order to incentivise the market for sustainable assets.
(5) Negative screening	Exclude otherwise eligible collateral assets, based on their issuer-level climate-related risk profile for debt securities or on the analysis of the carbon performance of underlying assets for pledged pools of loans or securitised products. This could be done in different ways, including adjusting eligibility requirements, tightening risk tolerance, introducing tighter or specific mobilisation rules, etc.
(6) Positive screening	Accept sustainable collateral so as to incentivise banks to lend or capital markets to fund projects and assets that support environmentally-friendly activities (e.g. green bonds or sustainability linked assets). This could be done in different ways, including adjusting eligibility requirements, increasing risk tolerance on a limited scale, relaxing some mobilisation rules, etc.
(7) Align collateral pools with a climate-related objective	Require counterparties to pledge collateral such that it complies with a climate-related metric at an aggregate pool level.
Asset purchases ^d	
(8) Tilt purchases	Skew asset purchases according to climate-related risks and/or criteria applied at the issuer or asset level.
(9) Negative screening	Exclude some assets or issuers from purchases if they fail to meet climate-related criteria.

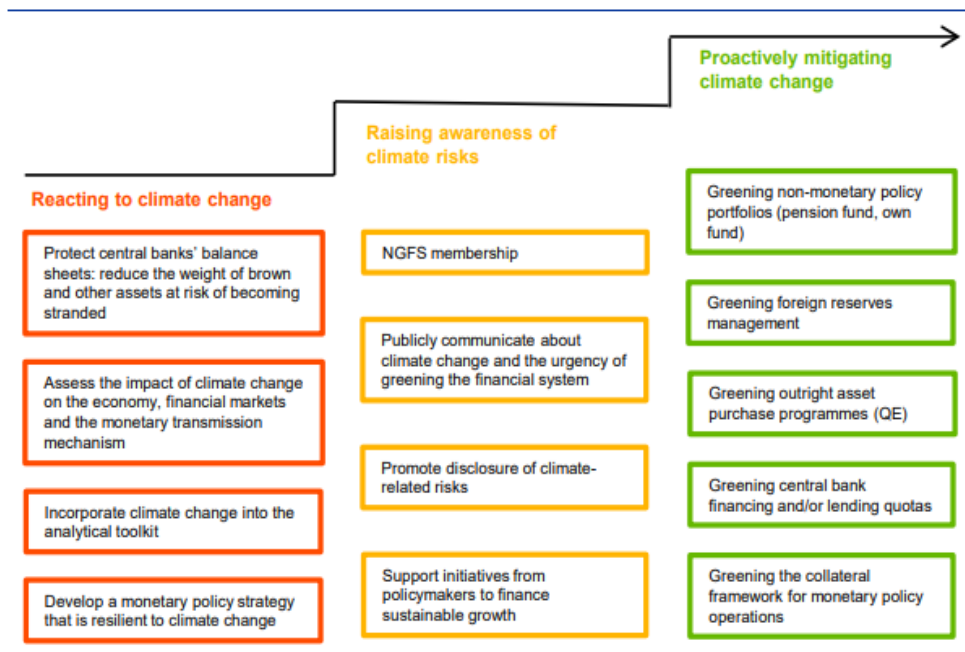
a Credit operations are widely used to provide aggregate liquidity and usually take the form of collateralised lending.

b Collateral policy defines the range of assets that can be pledged to secure central bank credit operations, as well as the risk control measures that apply to them.

c Annex 1 expands upon the different approaches for haircuts and valuation adjustments.

d Central banks may buy a variety of assets from both public and private sectors, typically in an effort to exert greater influence on longer-term interest rate levels and spreads while improving market liquidity.

2. The ECB’s categorization of possible central bank actions to respond to climate change (Boneva et al., 2021: 13).



3. List of semi-structured interviews

	Interviewee	Date	Type
I1	Senior official from the Riksbank	21/08/2021	Video call
I2	Senior official from the Riksbank	21/08/2021	Video call
I3	Senior official from the Riksbank	21/08/2021	Video call
I4	NGO advocacy officer	21/08/2021	Video call
I5	NGO advocacy officer	21/08/2021	Video call
I6	NGO advocacy officer	21/08/2021	Video call
I7	Expert on Swedish monetary policy and Riksbank law	23/08/2021	Video call
I8	Expert on Swedish monetary policy and Riksbank law	23/08/2021	Video call

4. List of reports used for document analysis.

Type of report	Name	Description	Purpose of paper
Operational reports*	<i>Monetary policy reports (MPRs)</i>	Published bi-monthly, summarizing the actions already taken by the Riksbank. Therefore, the MPRs are the documents that are the most important for understanding which actions have been operationalized.	The report informs about the executive board's decisions and creates knowledge about the Riksbank's assessment.
Political and communication reports**	<i>Financial Stability Reports (FSRs)</i>	Bi-annual, diagnostic reports which inform the Riksbank, as well as external parties of the threats to the financial system.	The report's focus is for the Riksbank to clarify its policy regarding financial stability.
	<i>Annual Reports</i>	Yearly summaries which communicate the rhetoric of both MPRs & FSRs to a wider audience, usually reiterating the content found in both.	To inform the wider public and parliament on the Riksbank's operations in a given year.
	<i>Sustainability Agenda</i>	Published in December 2020 outlining the work of the Riksbank, as well as its future strategy for sustainability.	Operational guidelines for the Riksbank's employees to follow.
	<i>Climate Report</i>	Published in December 2021 outlining the measures taken to manage climate change, and how climate change may affect the conditions in which the Riksbank must fulfil its mandate.	Creating an overview of the Riksbank's actions taken on climate change. Guidelines for its employees and the general public.
	<i>Speeches</i>	The executive board informing the public on the Riksbank's operations and goals	External actors

*Operational reports are defined as reports that specify what action the Riksbank has taken.

**Political and communicative reports are defined as in terms of the purpose of such documents.

Since the Riksbank plays an advocacy role as defined by its mandate, it communicates the risks to that mandate by way of various reports, as evidenced above.

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