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Monetary policy and ecological crisis: towards a climate justice approach

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This paper contributes to the post-Keynesian debate on central banking by arguing that for monetary policy to be effective in countering the growing risks of climate disruption it will have to adopt a climate justice approach and thus integrate climate action with social, economic, and spatial justice. This will require a new kind of alignment of monetary policy with other key policies, including fiscal policy, climate policy, energy policy, housing policy, food policy, water policy and other social policies as well as alignment with policies aiming to achieve territorially balanced development at various spatial scales.

The global financial crisis and the pandemic both demonstrated that central banks are prepared to make bold interventions in the economy through monetary means. However, the key problem is that their actions (aimed at stabilising the financial system) helped to preserve a system that is profoundly unjust, deeply uneven and inherently unstable. In other words, as the ecological crisis worsens, unless there is transformative change central banks will continue to perpetuate inequities in climate vulnerabilities. It is clear now that central banks are exacerbating human suffering around the world by stabilising financialised economies in the short-term while delaying the required transformation needed to achieve sustainability in the long-term. In this paper, we contend that the opposite approach may be required: a short-term 'creative disruption' of the financial system to secure a long-term, durable sustainability. By describing how financialisation has been preventing effective action toward climate justice while also exacerbating spatial inequities and social injustices, this paper expands assumptions regarding financial stability and climate politics and reconceptualises the design of transformative financial disruption to accelerate systemic change to move toward a more equitable, just, healthy, sustainable future.

Keywords: Monetary policy, central banks, climate justice, financialisation, creative disruption

Monetary policy and ecological crisis: towards a climate justice approach

1. Introduction

This paper contributes to the post-Keynesian debate on central banking by arguing that for monetary policy to be effective in countering the growing risks of climate disruption it will have to adopt a climate justice approach. As global climate change is destabilizing the lives of most of humanity and worsening inequities and disparities around the world (Deubelli and Mechler 2021, IPCC 2022), climate justice is emerging as an urgent global policy priority (Robinson 2018, Kashwan 2021, Newell, Srivastava et al. 2021). Climate justice, an approach to climate action that goes beyond the technological emphasis on decarbonization and reducing greenhouse gas emissions, focuses attention on social, economic, and institutional innovations that link technological change with societal transformation by centering social justice and economic equity (Stephens 2022, Sultana 2022). A climate justice approach recognizes the huge societal risks associated with increased social instability and the geopolitical dangers of growing inequities, and how the climate crisis exacerbates all of those risks (Harlan, Pellow et al. 2015, Stephens 2020). Climate justice attempts to redress the legacy of coloniality, economic injustice, extractive finance, and systems of exploitation that are worsening climate vulnerabilities by instead prioritizing transformative economic investments, social policies, and innovative practices. In so doing, climate justice aims to disrupt the status quo financial and political systems that continue to concentrate wealth and power among those individuals and organizations that are already privileged (Schapper 2018, Newell, Srivastava et al. 2021, Whitaker 2021, Sultana 2022).

The problem is that despite more frequent and intense disruptions associated with the worsening ecological crises, most monetary policy continues to assume an impractical and unrealistic climate stable future (Boneva, Ferrucci et al. 2022). We argue that despite increasingly 'green' rhetoric, monetary policy has not yet fully adapted to integrate the inevitable instability of worsening climate disruptions. A traditional and simplistic approach to monetary policy (heavily influenced by the neoliberal mantra of 'central bank independence') has also resulted in monetary policies that are not coordinated or aligned with other key policies including fiscal policy. This both hinders effective responses to the climate crisis and prevents action towards climate justice.

This paper makes two main contributions regarding monetary policy and the climate crisis. First, we argue that for monetary policy to be effective in addressing climate disruptions it must adopt a climate justice approach in such a way as to integrate climate action with social, economic and spatial justice. In practical term this means that monetary policy must be aligned with and support a range of other policies including fiscal policy, energy policy, industrial and trade policy, territorial development and spatial planning policy, housing policy, food policy, water policy, public health policy, social welfare policy, gender equality policy and other social policies that are influencing climate vulnerabilities of people and communities around the world. Second, we argue that in order to achieve the desired change, transformative financial 'creative disruption' led by central banks is needed. Without some level of intentional disruption of how financial systems operate, the scale of change that is needed will not occur. In contrast to the Schumpeterian notion of 'creative

destruction' (Schumpeter 1942), we advocate for a short-term, intentional, creative *disruption* that would secure a long-term, durable sustainability.

The remainder of the paper is structured as follows. In Section 2 we argue that in financialised capitalism, central banks became central in managing 'financial chains' in the macro-economy. This puts central banks and monetary policy in a pivotal role when it comes to climate crisis. In Section 3 we explore what central banks are currently doing with regard to climate action. We highlight the fact that despite a lot of positive noise about the 'greening' of the financial system, central banks continue to support investment in climate-damaging fossil fuels, while preventing effective action toward climate justice and exacerbating spatial inequities and social injustices. Section 4 provides an overview of what central banks could be doing with tools currently available to them and what new monetary tools have been proposed so far to tackle the ecological crisis. In Section 5 we outline what additional monetary policy innovations could be imagined for more radical and disruptive change to accelerate a transformation toward climate justice. Embracing a 'policy-mix' lens, we explore how monetary policy can contribute to advancing climate justice by aligning itself with a range of other key policies. We call for an intentional 'creative disruption' by suggesting that central banks could be leveraged to initiate a short-term disruption of the financial system to secure a long-term, durable sustainable healthy future. In doing so, we question assumptions regarding financial stability and climate politics and reconceptualise the design of transformative financial disruption to accelerate systemic change to move toward a more equitable, just, healthy, sustainable future. Our key conclusions are summarised in Section 6.

2. Central banks, Financialization and Financial Chains

Central banks, public institutions in charge of monetary policy, are key to societal stability yet they remain underappreciated elements of how to respond to climate change (Langley and Morris 2020, Boneva, Ferrucci et al. 2022, Kroll 2022). Financialization, the expanding role of finance in society, has changed the power and influence of banks, shadow banks and central banks (Mader, Mertens et al. 2020, Walter and Wansleben 2020). After the global financial crisis of 2008, the extractive qualities of finance and the ways in which financial architecture perpetuates inequality and instability became more apparent (Sokol 2017). Responding to the lack of analytical tools to analyze what Lazarotto (2012) has described as a 'debt economy' in which every individual and all organizations at multiple scales are subject to creditor-lender relationships and financialization is an "enormous mechanism for managing private and public debt," the concept of 'financial chains' has been developed (Sokol 2017, Sokol and Pataccini 2020, Sokol 2022). Financial chains are understood as both channels of value transfer and as social relations that shape socio-economic processes over time and space (Sokol 2017). Financial chains act as a means of extracting value (i.e. by the creditor from the debtor) over time and across space, so they are central to understanding extractive finance and its role in exacerbating social and spatial inequalities.

As economies become more financialized (Stockhammer 2008, Lapavitsas 2013, Mader, Mertens et al. 2020), the role of central banks in keeping the financial system going has become more apparent (Lapavitsas and Mendieta-Muñoz 2016, Braun and Gabor 2020, Walter and Wansleben 2020). The role that central banks play in safeguarding financial

stability has been demonstrated through two major recent crises: the Global Financial Crisis of 2008 (Tooze 2018) and the Covid-19 pandemic-induced crisis of 2020 (Tooze 2020, Tooze 2020, Tooze 2021). In both cases, huge unprecedented monetary operations have been undertaken with the US Federal Reserve and the European Central Bank alone pumping trillions of US dollars and Euros into the financial system through unconventional policies such as Quantitative Easing (Ashworth 2020, Cavallino and De Fiore 2020). In doing so, central banks have assumed a central position in generating and managing financial flows in macro-economy (Figure 1). In other words, they have become key controlling nodes in the network of ‘financial chains’ (Sokol and Pataccini 2021, Sokol 2022). As recently noted by Tooze (2020), central banks have power to decide “who sinks and who swims.” This also puts central banks and monetary policy in a pivotal role when it comes to climate crisis.

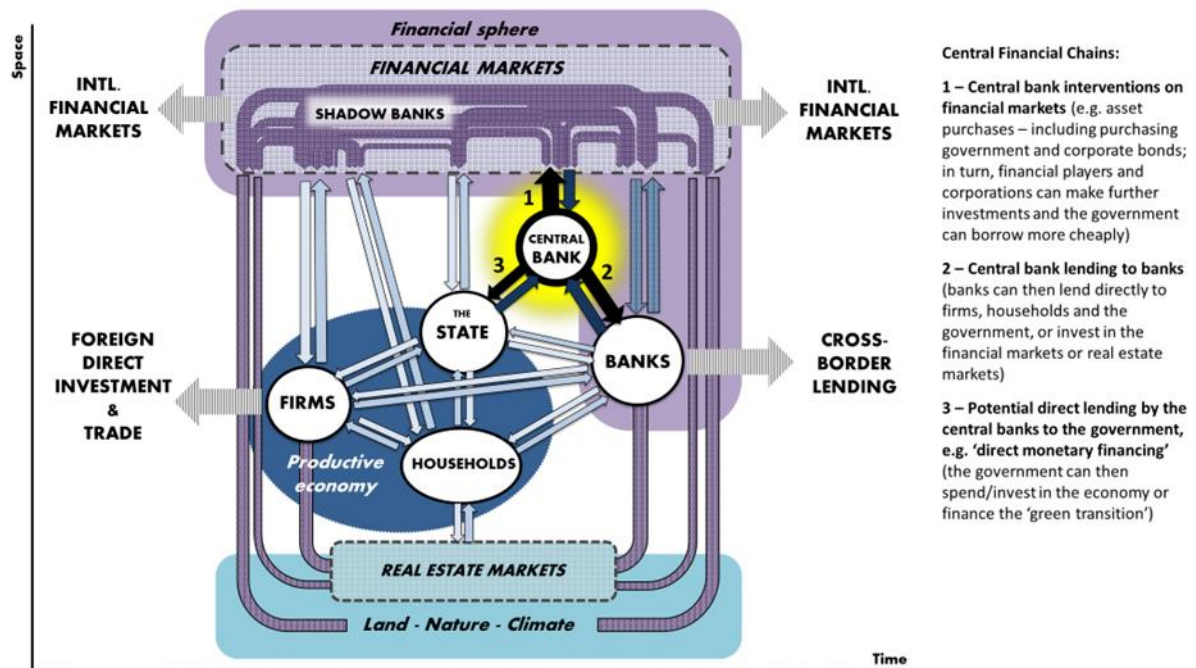


Figure 1: Central banks and financial chains showing how central banks increasingly influence both domestic and international financial flows. This simplified model of “financial chains” shows the key role of central banks and financialized economies. Adapted from (Sokol 2022).

Another important aspect of central banking is that the effects of monetary policy are felt differently across space. This has two main dimensions. First, by applying one-size-fits-all policies within their respective jurisdictions, central banks are inevitably favouring some regions over others, and thus shaping economic geographies of national economies (e.g. (Sokol and Pataccini 2021). Within multi-country monetary unions such as the Eurozone, questions over which countries benefit and which countries lose from the European Central Bank (ECB) policies are of major significance e.g. (Vermeiren 2017). Second, it is important to recognise that monetary policies can have significant effects beyond the domestic economies they serve. In other words, there are international spillovers from each and every monetary policy move including interest rate changes, lending to banks, exchange rate operations and asset purchases (Figure 2). In this way, central bank actions can have knock-on effects for international financial markets, cross-border lending, foreign direct

investment and trade as captured in Figure 1. However, the strength of these international spillovers or ‘side effects’ is dependent on the power each individual central bank enjoys within the international financial system. In this regard, “not all central banks are born equal” (Sokol and Pataccini 2020) p. 410). Powerful central banks in the Global North are occupying the top of the hierarchy – with the US Federal Reserve (the Fed) in the leading position. This translates into highly asymmetric effects, creating a hierarchy of monetary policy spillovers reflecting the dominance of the US dollar in global monetary architecture (Ca’ Zorzi 2020). In other words, powerful central banks in the West can shape ‘financial chains’ well beyond their territorial boundaries. Actions by the Fed, the ECB or the Bank of England can decrease or increase financial vulnerabilities of countries and communities in the Global South, many of which are at the frontline of climate change. Indeed, what these central banks do in relation to climate matters enormously for the entire world and this will be explored in turn.

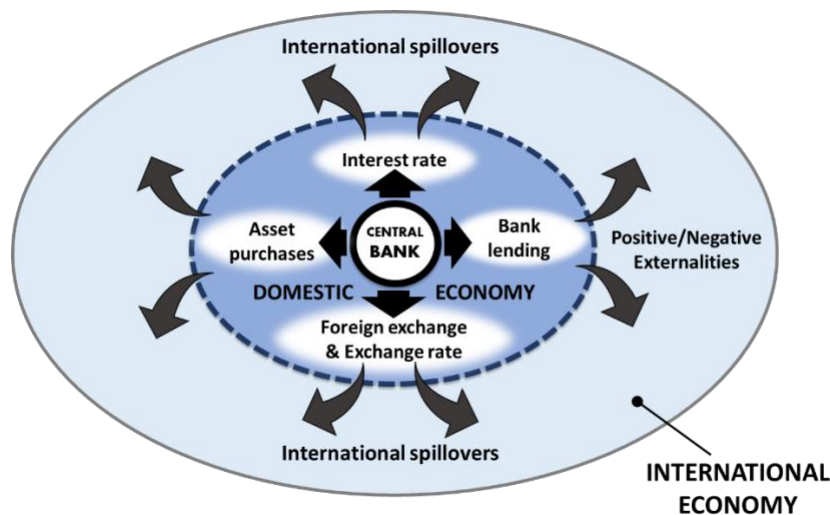


Figure 2: International spillovers of monetary policy.

3. Central Banks and Climate (In)Action: What Central Banks are Doing Now

This section reviews how central banks are currently integrating climate into their action, with a focus on the US Federal Reserve (the Fed), the European Central Bank (ECB) and the Bank of England (BoE). The section will highlight the fact that despite a lot of positive noise about the ‘greening’ of the financial system, central banks continue to support investment in climate-damaging fossil fuels. Furthermore, monetary policy under financialisation continues to concentrate wealth among corporate interests who then have more power to resist policy action toward climate justice. So in this way central banks are exacerbating spatial inequities and social injustices which increases vulnerabilities to climate disruption

There is a growing debate about how central banks should respond to the climate crisis (e.g. Dafermos 2021, Gabor 2022). Some argue that climate action is not part of central banks’ mandate and that the responsibility for dealing with the ecological crisis lies elsewhere (Skinner 2021). In the United States, climate change has become a divisive political issue, and the Fed is frequently considered “apolitical” and “independent” of the rest of the government, so many argue that the Fed shouldn’t get involved in political issues. Despite

this resistance, central bankers themselves are increasingly realising that central banks can no longer avoid or ignore growing climate disruptions if they are to fulfil their primary objectives (Carney, Villeroy de Galhau et al. 2019, NGFS 2022). Central banks are generally considered to have two “broad objectives”: monetary stability (the main element of which is price stability) and financial stability (including the resilience of the financial system as a whole) (Carney 2021) p.90-91). It is increasingly recognised that climate change represents a threat to both these objectives.

With regard to the *price stability* mandate (i.e. low and stable inflation), central banks seem to have not yet paid sufficient attention to the volatility of energy systems reliant on unpredictable fossil fuels and food systems that are vulnerable to droughts, floods and other climate disruptions. With increasingly complex geopolitics of fossil fuel supply, it is clear that the price volatility of fossil fuels is a major critically important inflationary pressures (Kroll 2022, Melodia and Karlsson 2022), as witnessed by the current energy crisis. Given this volatility and the inflationary pressure, it would make sense for central banks to support the phase out of fossil fuels in society (Chatterji 2022). In addition to energy, food is another critical commodity and a major contributing factor to price instability. With worsening climate conditions for food production, rising food prices will add to inflation thus further highlighting the need for central banks to act on climate (Hertel 2016, Kuttner 2022).

Climate change also presents a major challenge for the *financial stability* mandate. Indeed, it has been widely accepted that climate change poses a major threat to financial stability. Anticipated financial disruptions caused by climate change are often referred to as ‘Green Swan’ risks (Bolton, Despres et al. 2020, Svartzman, Bolton et al. 2021). These financially disruptive events are projected to be the primary triggers of the next systemic financial crisis (Bingler and Colesanti Senni 2022).

This threat to financial stability has prompted many central banks to start incorporating climate considerations into their policies and operations (Table 1A). The ECB has announced a ‘green shift’ in 2021 as a result of its strategy review (Eliet-Doillet and Maino 2022). Meanwhile, the Bank of England’s mandate has been recently expanded to include support for the transition to a net zero economy (Dafermos, Gabor et al. 2022), the first Western central bank to do so. The Fed seems to be lagging behind in climate action, but has recently announced it will start stress-testing a few US banks to assess risks under different climate scenarios (McNamee 2022). These initial steps are all part of a wider movement among central banks to respond to the inevitable climate disruptions that are coming— as witnessed by the emergence of the Network for Greening the Financial System (NGFS 2022). The past few years has seen a surge in ‘green’ activism by central banks, with much faith placed on macro-prudential stress-testing of the financial system (Table 1A).

Table 1: What Central Banks are Doing Now

A. Climate-mitigating policies and actions	B. Actions accelerating climate crisis
<ul style="list-style-type: none"> • ‘Green’ mandate (Bank of England) • ‘Green shift’ (ECB) • Building forward-looking scenarios (the Fed) • Incorporating climate change risk within macro-prudential stress testing • Purchasing green bonds (to a limited degree) • Moves towards ‘greening’ their own balance sheets 	<ul style="list-style-type: none"> • Focus on (short-term) financial stability in the Global North, not overall (long-term) climate stability • Unconditional quantitative easing (QE) – a subsidy for the fossil fuel industry • Unconditional lending to banks (no ‘green’ criteria attached) • International spillovers may increase vulnerability in the Global South • No attention to climate justice

However, we want to highlight the fact that there are several major problems with the way central banks are currently integrating worsening climate disruptions. . One issue is that the actions implemented so far simply don’t go far enough to result in sufficient changes to reduce climate vulnerabilities. These actions are completely insufficient to encourage transformation of the prevailing financial landscape, let alone to reduce negative impacts of climate change. Furthermore, the fundamental problem at the heart of the current central bank climate-related strategies is that ‘[f]or central banks, it is the financial stability implications of climate change that to date have prompted their governmental interventions and proposals, and not the climate crisis itself’ (Langley and Morris 2020)p.1474). To put it crudely, it does not matter if planetary ecosystems are further destabilised, as long as systemically important financial institutions are able to hedge against the associated risks and the financial system as a whole stays more or less intact. The problem with this kind of approach is that, in actuality, this may not be possible. As Svartzman et al. (2021) p. 564) observe, most of the risk associated with ‘Green Swan’ events ‘will remain *unhedgeable* unless a system-wide approach to the energy transition is undertaken’.

Another major problem is that, while making a lot of positive noise about the ‘greening’ of the financial system, central banks continue to perform actions that undermine climate efforts (Table 1B). In doing so, they are deepening ecological crisis and increasing the risks of more frequent and severe environmental, economic and financial disruptions. Central banks continue to provide financial support the fossil fuel industry. This has been most recently on display during the Covid-19 pandemic, which saw central banks supporting the fossil fuel industry both directly via unconditional quantitative easing (QE) and indirectly via its bank lending operations that lack any ‘green’ conditionality. The so-called ‘market neutrality’ which lies at the heart of central bank operations produces a strong carbon bias and this has been well documented (Boneva, Ferrucci et al. 2022, Gabor 2022).

This also points to another fundamental issue: central banks (while narrowly interpreting their mandate), are attempting to maintain financial stability at all costs. In doing so, they stabilise financial markets and banking systems (and the attendant ‘financial chains’), thus perpetuating financialised systems that increase social inequality and deepen uneven

development at various scales. Thus, central banks are fostering conditions for future instability while compromising climate justice. Furthermore, they focus on safeguarding financial stability in the Global North with little regard to the repercussions their actions will have on Global South. Indeed, financial stability in the capitalist core can be achieved at the cost of economic, social and environmental instability elsewhere, thus destabilising the system globally. Finally, by focusing on maintaining short-term immediate financial stability, they are leading us towards more volatile instability in the long-run.

The issue of energy is a case in point. Although climate science reveals the urgent need to decarbonize human society and transition away from fossil fuels to renewables as fast as possible (Geels, Sovacool et al. 2017, IPCC 2018, IPCC 2021), fossil fuel reliance remains strong, governments around the world are still investing billions of dollars of public funds to subsidize fossil fuels (Victor 2009, Espa and Rolland 2015, Coady, Parry et al. 2017, Sovacool 2017, Kotchen 2021), and the fossil fuel industry continues to plan for sustained, long-term extraction of oil and gas (Li, Trencher et al. 2022, Trout, Muttitt et al. 2022). The persistence of fossil fuels and insufficient investment toward climate justice results in part from steady finance and investments provided by banks for fossil fuel infrastructure (Elliott and Löfgren 2022, Rainforest Action Network, BankTrack et al. 2022) amid steady and strong support from central banks (Campiglio 2016, Corporate Europe Observatory 2016, Campiglio, Dafermos et al. 2018, van 't Klooster 2021) as highlighted above. Not only does continuing to support fossil fuels worsen the climate crisis, the high price volatility of fossil fuels destabilizes the economy, in particular by contributing to inflation (Kroll 2022, Melodia and Karlsson 2022). So although central banks are responsible for constraining inflation and stabilizing the economy, most central banks continue to support and perpetuate fossil fuel reliance (not least via the aforementioned QE). This aspect of the design and implementation of monetary policy is counter to climate justice goals (Barnes and Livingstone 2021) and subjects economies to increased oil and gas shock vulnerability. This goes to show that '[w]hen push comes to shove, arguably central banks will prioritise the stability and growth of capitalism in its present form' (Langley and Morris 2020) p. 1473). By stabilising and perpetuating system that is unfair, unjust and unsustainable central banks '[can be] part of the climate crisis problem' (Langley and Morris 2020), p. 1477).

To sum up, it could be argued that there has been a surge in 'green' activism by central banks and a lot of positive noise about the 'greening' of the financial system. Yet, central banks continue to support investment in climate-damaging fossil fuels, while central bank-supported financialisation has been preventing effective action toward climate justice while also exacerbating spatial inequities and social injustices. From a climate justice lens, it is clear that central banks are currently exacerbating human suffering around the world by stabilising financialised economies in the short-term while delaying the required transformation needed to achieve sustainability in the long-term. With growing awareness about climate disruptions and inadequacies of current central bank (in)action, various organizations and scholars have explored the multiple innovative ways that central banks could support climate action and advance climate justice and these will be reviewed in turn.

4. What central banks could be doing: Towards a monetary toolbox

In line with the view of Langley and Morris (2020) p. 1471) that central banks ‘seem crucial to achieving a genuine step-change in the governance of the climate crisis’, this section outlines ideas and proposals that potentially may achieve that. These could be grouped under three headings (Table 2). First, concrete proposals have been put forward that use already existing tools and adapt them for climate action. Under the second heading come proposals that suggest creating new monetary tools or new structures. Third, there are suggestions that go beyond monetary systems altogether.

Table 2: Monetary policy for climate action toolbox: examples of different tools/approaches

Adapting existing monetary tools of central banks for climate justice	Creating new monetary tools or structures for climate justice	Beyond monetary systems
<ul style="list-style-type: none"> • Green quantitative easing (QE), purchasing ‘green bonds’ (e.g. Dafermos, Nikolaidi, et al. 2018; Mazzucato, Ryan-Collins et al. 2020, Boneva, Ferrucci et al. 2022) and phasing out fossil fuel industry asset purchases • Lending to banks / green collateral (e.g. Abdelli and Batsaikhan 2022; Dafermos, Gabor et al., 2022b) • Lending to banks / Preferential interest rates (Batsaikhan and Jourdan 2021; Positive Money Europe 2022) • Green differentiated capital requirements (GDCRs) (Dafermos and Nikolaidi, 2022) 	<ul style="list-style-type: none"> • Green World Central Bank (GWCB) and ‘ecor’ currency (Aguila, Haufe and Wullweber 2022) • Climate Coalition of Central Banks (CCCB), carbon coins (carboni) (Robinson 2020a, Robinson 2020b) • MMT (Kelton 2020); direct monetary financing (Diessner 2020) for green transition without creating debt (see Sokol and Pataccini 2021) • Climate bailout (Kroll 2018) • Central bank digital currency (e.g. Varoufakis 2021a, 2021b) • Democratic transformation and fundamental repurposing of central banking (Langley and Morris, 2020) 	<ul style="list-style-type: none"> • Beyond money (Nelson, 2022) • Non-capitalist and post-capitalist systems • Eco-socialism

Within the first group, one finds proposals that advocate various forms of ‘green QE’. This could entail central banks buying large quantities of ‘green’ bonds, while also phasing out purchases of assets related to fossil fuel industry (e.g. see *(Dafermos, Nikolaidi et al. 2018, Langley and Morris 2020, Mazzucato, Ryan-Collins et al. 2020, Barmes and Livingstone 2021, Boneva, Ferrucci et al. 2022). Another set of proposal involve tweaking collateral frameworks to favour green assets (e.g. (Abdelli and Batsaikhan 2022, Dafermos, Gabor et al. 2022). Yet another idea is to introduce preferential interest rates when lending to commercial banks for ‘green’ purposes (Batsaikhan and Jourdan 2021, Positive Money Europe 2022). Of course, this could be accompanied by phasing out lending for fossil fuel expansion and other polluting activities. Finally, Dafermos and Nikolaidi (2022) put forward a proposal for Green differentiated capital requirements (GDCRs).

The second group of proposals consist of suggestions that go beyond the existing monetary tools and/or structures. Here one can highlight a recent proposal by Aguila, Haufe and Wullweber (2022) for the Green World Central Bank (GWCB) and special purpose 'ecor' currency, building on Keynes' ideas for International Clearing Union (ICU) and 'bancor' currency. Meanwhile, in a similar vein, Kim Stanley Robinson has alluded to the Climate Coalition of Central Banks (CCCB) and 'carbon coins' (carboni) as a way forward (Robinson 2020, Robinson 2020). Further to this, in the spirit of Modern Monetary Theory (MMT), direct lending by the central bank to the government could also be considered (Kelton 2020). This so-called direct monetary financing (Diessner 2020) could fund a green transition without creating additional debt (Sokol and Pataccini 2021). This option is therefore different from 'green QE', which still leaves the requirement to repay the sums borrowed via bonds issue (and with interest). Another ideas worth considering is 'climate bailout' (Kroll 2018). Under this proposal, instead of phasing out purchases of fossil fuel assets, central banks would do the opposite: they would purchase all dirty fossil fuel assets and subsequently close down, while also forcing investors to use the bailout money to invest in clean renewable energy. In addition to this, the idea of central bank digital currency (e.g. Varoufakis 2021a, 2021b) is gaining traction and could be used to encourage green transformation. Finally, Langley and Morris (2020) have argued that for central banks to achieve a genuine step-change in the governance of climate crisis, there is an urgent need for democratic transformation and fundamental repurposing of central banking.

The third group of ideas revolve around envisioning systems that go beyond monetary arrangements altogether and towards non-capitalist, post-capitalist or eco-socialist systems. Most recently, one such suggestion to go 'beyond money' has been put forward by Anitra Nelson (2022).

5. Monetary policy: Towards a climate justice approach

As is evident from the above, there is a wide-ranging array of proposals that could form a formidable toolbox for central banks to reduce, rather than worsen, the risks of climate crisis. Despite the breadth and diversity among these different proposals, most of these tools assume or aim for a *smooth* transition of the financial system.

We are not convinced this is desirable or even possible. Following Minsky (1986), we contend that contemporary financial systems are inherently unstable as they are. Financialisation has made them even more volatile – as witnessed by the Global Financial Crisis of 2008. Now, with more frequent and intense climate disruptions, another major financial crisis is almost guaranteed. So, rather than anxiously waiting in anticipation of the next inevitable financial crisis, we argue that central banks should, in cooperation, proactively induce short-term 'creative disruption' of the financial system to put the economy on a new path toward a more equitable and sustainable future..

This also means tackling head on the so-called 'climate paradox' view (Carney 2021), which suggests that some choices may need to be made between addressing climate change or guaranteeing financial stability. Recent actions demonstrate that when central banks are faced with the above dilemma (see section 3), they have been consistently choosing financial stability over climate stability. This preference for always prioritizing short-term

financial stability is accelerating climate change and contributing to the inevitability of much bigger financial instability ahead. It is time to resist and reconsider the traditional notion of financial stability and to reclaim and restructure the financial sector toward a more climate just future. Rather than accepting the idea of a paradox or dilemma, we argue that long-term stability requires short-term disruption in the way monetary policy is implemented. Rather than reinforcing an artificial choice between climate stability and financial stability, monetary policy needs to recognize that financial stability will only be achieved in the long-run if environmental, social and economic stability are prioritized.

What we are calling for, therefore, goes pretty much against the prevailing wisdom about how central banks should respond to the deepening climate crisis. Instead of trying to safeguard financial stability at all costs, we argue that central banks should spearhead a short-term ‘creative disruption’ of the financial system to secure a long-term, durable sustainability. We are under no illusion that any disruption of the financial system can be messy, and cause human suffering. However, the human suffering that is occurring in the current financial structure is rising exponentially anyway. The value of an intentional ‘creative disruption’ compared with just waiting to respond to accumulating inevitable climate disruptions is that an intentional creative disruption can include investing in people and communities in ways that reduces climate injustices and economic inequity. An intentional ‘creative disruption’ can be designed with transparent goals regarding who will benefit and who will bear the costs of the disruption. By restructuring monetary policy to directly benefit ordinary people, workers and families while constraining corporate profits and wealth accumulation, central banks can redirect financial flows in society to reduce climate chaos and human suffering. This approach will be in contrast to previous crises in which the costs of financial disruptions fell disproportionately on those already more vulnerable and disadvantaged, while central banks helped to protect asset-owning classes and the top 1%.

To achieve the desired outcomes, monetary policy for ‘creative disruption’ must be aligned with a host of other relevant policies. This includes fiscal policy, energy policy, industrial and trade policy, housing policy, food policy, water policy, public health policy, social welfare policy, gender equality policy and other social policies. This new approach to monetary policy will also need to be aligned with spatial planning policy and territorial development at various spatial scales from local to global. Indeed, a new era of cooperation among and between central banks is required to tackle climate vulnerabilities of people and communities around the world including a new type of international coordination between central banks in the Global North and Global South (see also (Svartzman, Bolton et al. 2021). In other words, alignment with policies aiming to achieve territorially balanced development at various spatial scales will be needed. What we have here is therefore a bold push towards a new type of a “policy-mix”.

In public policy research, the concept of “policy-mixes” describes alignment and combinations of different policy instruments designed to interact to achieve a larger common policy goal (Howlett and Rayner 2007, Rogge and Reichardt 2016). Recent scholarship exploring societal transformation for sustainability demonstrates that policy mixes are required to destabilize existing regimes while creating space for innovative alternatives, described as processes of creative destruction or disruptive innovation

(Kivimaa and Kern 2016). Given the intersecting and cascading impacts of climate disruptions, a comprehensive agenda for large-scale transformation toward climate justice has to include a combination of policy instruments that result in coordinated investments in reducing climate vulnerabilities while simultaneously resisting fossil fuel extraction and reliance and supporting investment in a more equitable, healthy and renewable based future.

6. Conclusions

By prioritizing social justice and economic equity within a climate justice framework, this paper challenges mainstream assumptions regarding financial stability and monetary policy. We review multiple options for redefining the role of central banks in a world of increasing climate chaos to expand understanding of the centrality of monetary policy in climate change. We argue that until central banks become proactive in constraining investments in fossil fuels and supporting investments to reduce climate vulnerabilities, monetary policy will continue to inadvertently accelerate a destabilizing effect on the global economy and on the earth's climate system.

Given worsening climate suffering throughout the globe, we argue that financial stability can only be achieved if and when there is an intentional "creative disruption" to reset financial systems to align with – rather than be antagonistic to - a more equitable, just, healthy and sustainable future society. With drastic increases in all kinds of climate vulnerabilities in communities around the world, a new kind of coordination and alignment in monetary policy is required; central banks need to coordinate globally and central banks need to align their policies with domestic and international climate policies, energy policies, housing policies, etc. A new commitment to embracing the concept of "policy-mixes" is essential for the transformative societal changes that are needed for future societal stability.

We are calling for a paradigm shift with regard to how central banks strive for societal stability and also what kind of societal stability central banks prioritize. Rather than narrowly focusing on stability of financial markets that are exacerbating other kinds of societal instability including inequality and the climate crisis, central banks can instead re-prioritize their actions with a goal of stability for people and the earth's systems. If central banks embraced a goal of stability for people and the planet, then they would immediately disrupt any investments in fossil fuels and they would mobilize in a way similar to how they do for a war or a pandemic. The global financial crisis and the pandemic both demonstrated that central banks are prepared to make bold interventions in the economy through monetary means. Unfortunately, these interventions also demonstrated that monetary policy narrowly aimed at stabilising the financial system perpetuated the concentration of wealth and power and reinforced a system that is profoundly unjust, deeply uneven and inherently unstable. Rather than allowing this to happen again when central banks are forced to respond to climate disruptions, a proactive and intentional "creative disruption" to move the world toward climate justice is needed.

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