

CLIMATE CHANGE AND THE ROLE FOR CENTRAL BANKS

Climate change is one of the great challenges to modern society, often rated (e.g., at the World Economic Forum) alongside nuclear war, pandemics and cyber-attacks. The extent of the climate challenge is set out in an appendix. This note focusses on the specific question: is climate change an appropriate issue for central banks and financial regulators?

The Double Materiality Arguments

The case against: Those who argue against any central bank involvement in the climate issue argue that the cobbler should stick to his last.¹ They contend that there is a danger that central banks will be compromised in carrying out their core functions, such as monetary policy, if they are given an additional mandate for which they have no specific tools. And central banks should not take new responsibilities upon themselves – they have delegated authority in specific policy areas and their scope for independent action on those areas will be restricted should they exceed the boundaries of their mandate.

The responsibility to mitigate climate change lies with the government. Climate change can be seen as a political/social/scientific/moral issue which is for society at large and its elected politicians to address. Mitigating climate change will require legislation, and fiscal and supply-side policies, which are outside the remit of central banks. Furthermore, central banks already have (too) many responsibilities, and the case can be made that they are struggling to cope with those.

The counter argument: Climate change creates the potential for large shocks to monetary stability, financial stability, the safety and soundness of firms, payment systems and all other outcomes that concern central banks. It is already having a material impact on both the real and the financial economy globally, so it has an impact on the existing legally mandated objectives of central banks. Central bankers must take into account any significant risks from climate change to monetary policy, financial stability and, where appropriate, prudential supervision.

Furthermore, since climate change represents a material, indeed existential threat to humanity, every agent in the economy needs to be part of the solution and to do what they can. One of the major climate challenges is financing the transition towards a sustainable ecosystem. Central banks could assist, for example, by encouraging the emergence of green markets.

Mindful of these tensions, many central banks and regulators are working on issues relating to climate change. The *Network for Greening the Financial System* (NGFS) was founded by 8 central banks in December 2017. By end 2022 it had 121 member central banks and financial regulators, with a secretariat based at the Banque de France. The *Sustainable*

¹ Or in Pliny's words *ne supra crepidam sutor iudicaret*,

Synopsis of themes considered at a roundtable discussion on 29/11/22. The views expressed do not necessarily reflect those of the participants. Roundtable discussions take place semi-annually. Participants have included Vitor Constancio, Jacques de Larosière, Erkki Liikanen, Donald Kohn, Guillermo Ortiz, Andrew Sheng, Masaaki Shirakawa and Dr Zeti Aziz. The discussions are moderated by Dr Gavin Bingham, Sir Andrew Large and Paul Fisher.

Insurance Forum (SIF), a similar body for insurance regulators, was founded in late 2016, has 33 members and is one of 19 observer organisations at the NGFS.

Conflict with government policy: In most countries and most of the time, the actions of central banks in response to climate change are supportive of national government climate change policies, not in conflict. But there are there are important exceptions. Governments in the US and Australia have not always been supportive of any central bank action in this domain. That seems to have initially constrained the US Federal Reserve System, e.g., delaying their joining the NGFS until late 2020, but less so the RBA (which joined the NGFS in mid-2018) and APRA which provided the second chair of the SIF in early 2018.

In the EU, the UK and many emerging market economies, climate change mitigation policies have largely enjoyed cross-party political support. The most explicit and formal link to central banking objectives amongst developed countries has arguably been in the UK where the Government adjusted the annual remit letters for the Bank of England (including the PRA) and the FCA to specify government policy to be taken into account as including 'delivering Net Zero'. The ECB's broad secondary objective has also been interpreted to allow it to support EU climate policy. In emerging market and less developed countries, supporting economic and financial development is usually a more routine and explicit part of the central bank's broad responsibilities and hence central bank involvement in climate mitigation and adaption policies are less politically sensitive.

What are the climate risks to central banks?

Briefly, the approach taken by central banks is to focus on the financial risks to firms and to the financial system posed by climate change. The standard approach is to divide these into three:

- i) The **physical risks** from climate-related events – storms, floods, droughts. As the temperature rises, the magnitude and frequency of extreme weather events goes up. The increase in the variance of temperature, over time and geography, as well as on average, means that physical risks include both increasing numbers of episodes of extreme heat and some more instances of extreme cold, with the degree of extremeness also rising in both cases.
- ii) The **transition risks** as the economy adapts to global warming and adjusts towards lower carbon emissions. These effects include changes in demand, supply and regulation. Transition shocks have always occurred as economies develop, but the difference in this case is that the changes are relatively widespread, foreseeable and many of them could be affected by policy.
- iii) The **legal risks** as individuals/corporates/agencies get sued for causing climate change or not doing enough to prevent it. Relative to contentious risks in the past - such as tobacco or asbestos – the body of knowledge on climate change risks means that ignorance will be no defence. A London School of Economics database records over 2000 relevant legal cases historically, around 25% since 2020 and predominantly US-based, although actions are recorded in around 60 different countries or international courts.

These risks can be mapped into standard risk frameworks for financial firms used to manage credit, market, and operational risks. But perhaps the most important risk is for business models. Those who don't look for opportunities to supply credit for mitigation technologies and adaption, could well lose market share to those who do.

One can also map the risks for central banks (or other regulators):

Monetary policy: as yet, the monetary policy implications are not well researched, although the literature is growing. An increase in climate volatility will impact both growth and inflation – especially the relative prices of food and energy and their variance. Some Pacific region central banks are already feeding major climate events into their macroeconomic forecasts.

Financial Stability: to date, there have been individual asset prices that have crashed because of climate-related events (e.g., Peabody Energy, Pacific Gas and Electric) but the widespread re-pricing of fossil fuel assets or other potentially unsustainable activities have not so far caused a financial stability shock.

Prudential regulation: this is the topic which has seen most activity. It is relatively straightforward to argue that banks and other authorised financial firms, need to have risk management regimes which recognise the risks to their capital or their customers from climate-change. However, evaluating those risks does not fit easily into existing methodology, because past data sets do not reflect the scale and frequency of likely future climate shocks.

Balance sheet management: a potential source of debate in years to come will likely be discussions around what assets should be held on central bank balance sheets, and whether these should be 'green'. The massive expansion in the past 10 years or so in developed country central bank balance sheets is unlikely to be fully reversed soon, and although monetary policy will dictate the stock of money created, it is relatively silent on the precise composition of assets that a central bank should hold.

The current state of play.

Financial regulation: The central hub for sharing best practice on climate change and financial regulation is the NGFS. Initially, the US was notable for its absence, but 7 different US authorities have joined since the 2019 US presidential election. The NGFS “*defines and promotes best practices to be implemented within and outside of the Membership of the NGFS and conducts or commissions analytical work on green finance.*” Individual regulators are gradually building up their approaches. The Bank of England became the first to issue Supervisory Expectations on managing climate-related risks in 2019, and in 2022 both the Bank and the ECB released the results of coordinated stress tests related to a climate stress scenario.

The Basle Committee on Banking Supervision (BCBS) has a working group looking at whether climate change risks should mean any adjustment to capital risk weights, or other aspects of banking regulations. Ex ante there is only a little evidence supporting a reduction in risk associated with green assets. But, as policies to promote a net-zero transition bite, there is very likely to be more risk than previously identified associated with polluting assets. To date, most regulators have preferred firm-specific actions (under Pillar II) than changes to risk weights (Pillar I). Disclosure (Pillar III) is also favoured and can be seen as more oriented towards financial stability by promoting the appropriate pricing of carbon exposures.

Financial stability: In 2015 the FSB established the Task Force on Climate Related Financial Disclosures (TCFD) – a private sector group, chaired by Michael Bloomberg, which was tasked to propose voluntary recommendations for private sector disclosures. Making available greater information about climate risks would reduce the risk of sudden panic and asset re-pricing. The TCFD released high-level recommendations in 2017, which have been voluntarily adopted by most of the world's largest companies. TCFD-

aligned disclosures are planned to become mandatory in both the EU and the UK. The BoE has also released its own TCFD disclosure reports annually since 2020.

Financial Conduct and Markets: In 2018, the EU High Level Experts Group on Sustainable Finance recommended adoption of a Green Taxonomy as an enabler to facilitate rules and labels around financial products to encourage market development and discourage 'green-washing'. The EU has implemented such a taxonomy, the UK is set to adopt a variant, and up to 30 jurisdictions covering 60 countries worldwide are embarked on delivering some sort of Green Taxonomy or principles.

The use of taxonomies opens an interesting question of which sovereign debt can be considered 'green'. Some debt issues have been hypothecated to particular green expenditures and sold as sovereign green bonds. Might some holders of sovereign bonds, including central banks, conclude that the rest are 'not green'? More likely perhaps, is that those countries seen to be on track to meet net zero carbon commitments could earn a green premium going forward.

Monetary Policy: At first glance there has been much less progress on monetary policy. But developments before and after the invasion of Ukraine give some insights as to the problems, not least in terms of the inflationary consequences of variations in energy sources.

If the long-term agenda is economic stability in the face of climate change, then maintaining short-term monetary and financial stability is not in conflict: rather it is a vital pre-requisite. During 2022, there was considerable delay in the development of green policies because of preoccupations with inflation and the Ukraine war.

Regardless of views on climate change actions, there seems to be agreement amongst central bankers that monetary stability must remain the primary focus for central banks.

Either way, there could be more, and more extreme energy price shocks to come – in both directions – as governments change national energy strategies to improve energy security, especially given the consequences of the war in Ukraine. And every significant inflation shock to developed countries in the past 25 years at least, has involved an underlying shock to oil prices.

Balance sheet management: Sweden's Riksbank, the ECB and the BoE have all gone some way towards announcing that their holdings of corporate bonds will be 'tilted' to reflect climate considerations. Many other central banks and sovereign wealth funds (SWFs) have been buying green bonds to improve their carbon footprint. The more difficult debates to come will be whether central banks should be using their expanded balance sheets to invest proactively in green assets, if not directly then through buying bonds in e.g., publicly-owned green investment banks. This will involve foreign currency reserves as well as domestic portfolios. Some SWFs – notably the Norwegian Global Pension Fund – have already moved in that direction publicly.

Market development: There is a need for a flow of capital into projects to facilitate the transition to a lower carbon economy. At the same time, there is an excess demand for green assets by private investors – the evidence for which can be seen in the over-subscription and the pricing of green bonds. Arguably, the policy challenge currently is how to generate more green assets, including by market development. That might be a role for central banks, in supporting new market standards for example.

Growth: Central bankers agree that they do not have the primary responsibility for delivering economic growth, although it is sometimes believed otherwise by politicians and economic commentators! But growth prospects have a bearing on monetary stability and a few observations may be apposite:

- i) Improvement in living standards does not require producing ever more 'stuff' or consuming ever more energy – the developed world has been moving away from manufacturing towards services for decades and in the C21st towards digital services.
- ii) Improvements in air quality and the environment more generally can be seen as real growth in living standards, even if not measured by GDP.
- iii) Population growth is falling as people become better off and better educated. The birth rate has already dropped below 2 in many countries, implying that the global population will eventually peak and then fall, most likely within this century.
- iv) And whatever one may wish for, GDP growth simply cannot continue to be exponential – a constant growth rate of only 2% would imply a doubling of every 36 years which is increasingly implausible.

Discussion and Conclusion

There is a spectrum of views about the appropriate degree of involvement of central banks in response to climate change. There is, however, virtually universal agreement that central banks should not accept primary responsibility for climate change mitigation or adaptation – that lies with government. The primary responsibility of central banks is for monetary and financial stability, which should remain pre-eminent. There is a significant risk of that primacy being eroded if central banks are given substantial responsibility for addressing climate change. Going further, if 'mission creep' takes hold, central banks may be pressured to address other issues such as demographic challenges or income distribution.

More widely, most central banks and regulators have already accepted that they must take climate change shocks and risks into account insofar as they impact on existing objectives. Emerging Market and Developing countries are often involved in issues around broad economic development. In part, that may reflect the quality and quantity of technical staff available, as well as the medium-term perspective of central banks. Even in developed countries, the efficient working of financial markets can be of direct concern to central banks. To the extent that climate change affects – or fails to affect – externalities in the pricing of financial assets, central banks may have a legitimate interest there, as well as through direct impacts on monetary and financial stability. This does not involve appropriating new responsibility for climate objectives; rather it is consistent with and arguably necessary to fulfil existing mandates.

One view is that even if central bankers do not want to get involved in resource allocation, those who have massively expanded their balance sheets cannot easily avoid it. To a certain extent, resource allocation has already been impacted by different choices about which assets to purchase such as housing assets (US), corporate bonds (Europe, UK) or equities (Japan). Taking that argument further, some may blame those central bank expansionist policies for supporting excess consumption and hence carbon emissions, making central bank policies part of the problem make it even more difficult to stand aside from policies to mitigate climate change going forward.

Central banks need to find their way forward given these competing tensions. Developing common approaches may well be helpful to make sure that they can continue to deliver on their monetary and financial stability mandates. To the extent that the political nature of the debate sets the context and is different across countries, there may be differing approaches. In those countries where the debate around climate change is heavily politicised, and there is no democratic mandate for positive action, central banks and regulators will have to tread with extra caution.

But even those central banks which act judiciously to reflect the impact of climate change on their existing objectives, will have to be mindful of the risks. First, they need to avoid central bank action displacing that by their governments which ought to be leading and setting the agenda. Second, they need to avoid taking responsibility for climate outcomes or targets which they do not have the requisite powers to deliver. And thirdly they need to guard against mission creep to other political and social issues, where central bank responsibility and influence is much less.

Appendix: The climate challenge

In 2015, at the 21st *Conference of the Parties* in Paris, world leaders reached a rare consensus. 196 signatories agreed that climate change was real, caused largely by human activity releasing greenhouse gases (GHG) into the atmosphere and that this presented an existential threat to humanity that required a response. The Paris agreement committed governments to make their own nationally determined contributions (NDCs) to collectively reduce emissions such that global warming would be limited to no more than +2⁰ C - relative to the average temperature from 1850-1900 - with ambitions of limiting it to no more than +1.5⁰ C.

At the Paris conference, the plans put forward by individual countries were estimated, collectively, to be consistent with limiting global warming to +2.6⁰ C. One might well contend that the science of forecasting climate change can hardly be so precise. Nevertheless, governments acknowledged that much more would have to be done. Since 2015, many countries have adopted commitments to achieve net zero carbon emissions by 2050. China set a target date of 2060, and some countries have yet to commit. Despite these promises it is doubtful that any country can say with any degree of confidence that their policies are consistent with achieving net zero by any date. And it is likely that future policy will require net extraction of GHGs to be sure of achieving a stock equilibrium.

Of course, some do not accept the existence of climate change, or deny that it is man-made. There has been resistance from those sectors or regions, where prosperity depends in large part on burning fossil fuels or unlimited energy use. But as the planet has already warmed by +1.2⁰ C and the evidence of climate change becomes increasingly obvious, most have accepted that something needs to be done. If one waited for everyone to be absolutely certain that climate change was man-made and preventable, it would be far too late to implement the necessary policies. Assuming that global warming can be stopped, the time lags involved between action and climate consequences mean that the more action is taken at the earliest opportunity, the less disruptive that action will likely be.

As it stands, GHG emissions have been falling in the US and Europe since a peak at the time of the oil price crises in the early '70s. The industrialised world is historically responsible for the larger part of the stock of GHGs in the atmosphere but emissions from less developed countries – notably China and India - are increasing so fast that net global emissions are still rising. Of course, those emissions are partly the result of net exports from Asia to the West. But the difference in timing means that the less developed countries are asking the developed countries to share the financial cost of adjustment, a point which seems to have been accepted in principle at COP27 in 2022.