

# Monetary Policy, Climate Change and Financial Stability

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## Abstract

The Climate change increases the risks to financial stability across economies, by exposing economic activity, assets and capital flows to exogenous shocks. This paper argues for "Circular Monetary Economics", an approach to monetary policy that seeks to green and prudentially insulate the design and implementation of liquidity and credit facilities. Central banks repo market operations and liquidity infusions occasion a structural liquidity mismatch in financial markets, but could be sued to incentivise the transition towards a greener economy. By aligning credit growth and standards with central bank liquidity, commercial banks will be incentivised to green and insulate their portfolios against extreme climate events. Circular monetary economics will lessen the probability of cross-asset contamination within financial institutions and contagion within the broader financial system, whilst simultaneously improving the transmissions from changes in the policy rate as well as macro-prudential regimes in the event of a climate or credit-driven financial shock.

**Keywords:** Policy • Financial • Climate

## Introduction

Evidence of rising temperatures across the planet, there is a growing awareness of climate risks leading to international action. The Intergovernmental Panel on Climate Change (IPCC) has estimated human activities to have led to around 1°C of global warming compared with pre-industrial times. In most scenarios developed by the IPCC, global temperatures are poised to exceed 4°C above pre-industrial levels by 2100, although uncertainty exists about the precise number.

Against this backdrop, the Paris Agreement, signed in December 2015, aims to limit the rise in global average temperatures to well below 2°C above pre-industrial levels and to pursue efforts to limit the rise to 1.5°C. Climate change will have dire effects on the economy, both directly and indirectly. Rising temperatures and changing patterns of precipitation hold grave implications for agriculture and fisheries, but may equally affect sectors such as energy, tourism, construction and insurance.

Meanwhile, climate change mitigation policies will equally have an impact on economic sectors, as the decarbonisation of asset flows will affect policy-induced changes to risk premiums in the short term. It is widely acknowledged that the financial system must adjust to climate change even as key gaps remain in measuring firm and sector level exposure. Within Europe, discussions on the financial aspects of climate change have ranged from on-going work at the European Commission to devise taxonomies that aim to support transparency and thereby market-based adjustment, to the establishment of a Network for Greening the Financial System (NGFS), where central banks and financial supervisors from five continents have joined forces to support the transition to a low-carbon economy and manage climate change risks [1]. Foremost among the measurement gaps is the understanding of exposures of financial institutions to climate change-related risks. Partly, this relates to a dearth of sufficiently granular public data detailing complex and evolving exposures both within as well as across economic sectors. Notably, while country-level data can be used for tracking the implementation of political commitments, monitoring financial exposures to the global effects of climate change requires reliable and comparable data at the level of economic sectors or individual exposures.

Limited empirical measurement has, in turn, constrained both market development and informed policy initiatives. This paper presents a distinct empirical framework and outlines how financial stability can be affected by

climate change. It next section discusses the interaction between monetary policy and climate change, followed by a discussion on circular monetary economics. It follows that such an approach will prevent liquidity mismatch and the proliferation of climate risks from exacerbating the reliance on central banks financing. This is followed by an analysis of credit cycles and how targeted amortization requirements can insulate these.

## Monetary Policy and Climate Change

The last decade has seen an approach to monetary policy that has facilitated a financial market dependence on central bank repo facilities and operations in money markets. Admittedly, low and sometimes negative interest rates are justified given weaker transmissions from the labour market to inflation outcomes. Whilst this has occurred at varying intensities amongst advanced economies, the shifting of risk away from the shorter end of the curve via quantitative easing has culminated money market operations and ad-hoc liquidity infusions designed to lessen financial stability risks [2]. During and after the financial crisis, permanent open market operations (OMOs) were used to adjust the Federal Reserve's holdings of securities to put downward pressure on longer-term interest rates and to make financial conditions more accommodative and ensure credit-driven investment and economic growth. Currently, permanent OMOs are used to implement the FOMC's policies of reinvesting principal payments from its holdings of agency debt and mortgage-backed securities (MBS) and of rolling over maturing Treasury securities at auction [3].

Meanwhile, large scale asset purchases at the European Central Bank (ECB) were also accompanied by targeted longer-term refinancing operations designed to improve the transmissions of monetary policy [4]. In the case of the ECB, said liquidity infusions are also designed to smooth the functioning of monetary policy, improve the transmission of negative interest rates, and lessen credit mismatches in the financial sector [5]. Show that banks started to charge negative interest rates in some core European countries by end-2016, which was indispensable in supporting profitability over the medium term. This change was, however, only limited only to corporations, which nonetheless served to mitigate the adverse effects of negative interest rates. This suggests that eventually, the pass-through of negative rates may take place, but it is more sluggish than with positive rates and it may affect only certain types of customers [6-9] investigate the effect of negative interest rates via the Swedish banking channel and note that bank lending fell by 7.0% following the introduction of negative interest

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rates. This created an increased dependence on central bank repo market operations, designed to smooth the credit mismatch latent in commercial banks' balance sheets.

While the signalling mechanisms from interest rates cannot be understated, continued liquidity infusions suggest a structural mismatch has emerged more strongly amongst financial intermediaries. While the need for liquidity culminates the smooth functioning of capital and financial markets, "Circular Monetary Economics" will address long-term structural vulnerabilities that have dented the potential growth rate, whilst improving the transmissions from monetary policy to macroeconomic outcomes.

The proposed approach will ensure that commercial banks green their loan operations by prioritizing higher value-added investments, whilst remaining cognizant of the mismatch inherent in current funding mechanisms. This will inadvertently lessen the transfer of risks away from the corporate sector into central banks' balance sheet, by pushing risk at the longer end of the curve via targeted QE and differing improvement to the "growth-centric" approach that has come to characterise most advanced economies. The liquidity trap created by money market operations, are designed to smooth the functioning of financial markets but have nonetheless allowed a structural credit mismatch to persist. The divergence between short and long term lending is assuaged by central bank ad hoc interventions, but can only serve to extend the financial cycle. The broad credit channel – the balance sheet channel of monetary transmission – has displayed the salience of credit and the relevance of policy rates to the real economy [10-12].

## Discussion

### Companies benefiting from Central Bank liquidity must green their practices to support sustainable growth

Commercial banks benefiting from central bank liquidity must provide verifiable details of their loan tranches allocated to green and carbon-intensive intensive, following strict reporting standards that link the provision of liquidity to specific loan types based on maturities. Unlike the liquidity provision mechanisms and repo transactions that facilitate liquidity mismatches via ill-regulated investment funds and continued provisions of liquidity mechanisms and ad-hoc interventions i.e. \$170 billion for the Federal Reserve Bank which fail to include any governance approaches to their frameworks, with climate change or gender equity absent from their approaches.

In recent months a raft of central banks including the Bank of England, Bank of Canada, Federal reserve Bank and the ECB have reiterated the need for central banks to adjust risk-management frameworks to climate outcomes [12].

## Conclusion

Monetary policy in the recent past has sought to achieve mandated goals of price stability and output at varying intensities. Whilst quantitative easing has sought to re-engineer economic growth, repo market transactions have sought to ensure sufficient liquidity to support interbank lending activity, lessen the risk of liquidity mismatch, and the proliferation of financial stability risks. The proposed approach to the provision of liquidity serves as the basis for addressing structurally-driven liquidity mismatches symptomatic of economies that are increasingly reliant on market-based sources of finance. Rather than lessen the extent of repo market transactions, this paper posits an approach to the provision of liquidity that incentivizes the transition away from liquidity-depleting investments towards investments designed to smooth said mismatches. Additionally, fiscal policy will play an indispensable role in supporting economic growth and supporting wage-driven inflation outcomes, whilst macroprudential frameworks are symptomatic of different levels of financial sector stress and development in housing markets.

Furthermore, such an approach will improve the transmission mechanisms from policy rates in the event of stress, but lessen the negative effects of insurance premiums and damage claims. It will also lessen the incentive to utilize the countercyclical buffers, capital conservation buffer to reduce the impact of shocks on varying asset classes over the medium term even as such tools are designed to support the economy in the event of stress. It is, therefore, imperative if not indispensable that central banks green their balance sheets by enforcing "Circular Monetary Economics". This paper argues for a, somewhat, urgent and timely change to liquidity and repo facilities that incentivize a greening of loan activity and firms' balance sheet. This will facilitate the pass-through from monetary policy via "circular monetary economics" and lessen the reliance on Central bank liquidity operations. By boosting the potential growth via targeted and carbon-neutral investments, wage-driven inflation will boost domestic demand, cause inflation to converge towards the target, and reduce the cost of conducting monetary policy over the long term.

Circular monetary economics seeks to prudentially insulate the provision of central bank liquidity, facilitate the transition towards a greener and more sustainable economy, whilst reducing the structural mismatch latent in commercial banks' balance sheet.

## Conflicts of Interest

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

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