

INSPIRE Theme 6

Assessing the effectiveness and impact of central bank and supervisory policies in greening the financial system

Overview of the projects funded under the third call for research proposals

September 2020



INSPIRE

PROJECT

Energy transition intersectoral dependencies under different monetary and supervisory policy scenarios

Moutaz Altaghlibi^a and Rens van Tilberg^a

^a Sustainable Finance Lab, Utrecht University, The Netherlands

As we transition our economies to a low carbon path, climate related transition risks to the financial sector pose a challenge to policy makers in their policy design. The unprecedented climate challenge requires the use and the development of new tools in order to quantify these risks and investigate the role of different policies to steer the transition in the right direction. Central banks and financial regulators can play an essential role in facilitating a successful transition by directing the funds needed to achieve this transition in the right direction and in a timely manner. However, any intervention by central banks should be evaluated across sectors and across scenarios in order to guarantee the effectiveness, efficiency and coherence with fiscal policies.

Our methodology is scenario analysis based on a Computable General Equilibrium (CGE) model. Our CGE model allows us to capture feedback loops across sectors, along with tracking the change in prices and quantities following an exogenous change in policies, technologies, or consumer preferences. Moreover, in order to capture both risks and opportunities associated to the transition process, our model distinguishes between green and grey sub-sectors. It also uses sector-specific capital stocks which allows us to differentiate the cost of capital across sectors/scenarios.

The model output includes quantitative effects of exogenous policy change on cash flows, return on invested capital, asset values, price levels, inflation and many other variables across modelled sectors and scenarios. Such information can be used to stress-test investment portfolios and financial stability under different monetary, supervisory and fiscal interventions. We believe that our approach is an innovative one that contributes to answer key questions about the impacts of central banks' policies and operations on the costs of different pathways for the energy transition through both the performance of the financial system and the possible changes in the real economy.

PROJECT

The financial geography of green finance policy: Evaluating policy effectiveness across 50 countries

Theodor Cojoianu^a, Andreas Hoepner^{bc}, Michael Urban^d and Dariusz Wojcik^d

^a Queen's Management School, Queen's University Belfast, Northern Ireland; ^b School of Business, University College Dublin, Ireland; ^c EU Technical Expert Group on Sustainable Finance; ^d School of Geography and the Environment, University of Oxford, UK

In the past decade, over 390 green finance policy initiatives aimed at greening the financial sector have been spearheaded by various public authorities around the world (including governments, central banks, financial regulators, and public financial institutions). So far, scholarship has offered insights into how traditional environmental policy such as carbon taxes, emission trading schemes or low carbon R&D subsidies impact green financing, innovation and financial performance. However, we still know surprisingly little about the impact of green finance policies on the real economy and the financial sector itself. In particular, we run major knowledge and policy deficits in managing climate risks in primary capital markets. This is a major gap considering over \$10 trillion of new finance are raised annually through investment banking products and services alone. Furthermore, we still have a limited understanding of the effectiveness of green finance measures and how they interact with other existing environmental policy regimes across countries; particularly how they might be undercut by subsidy regimes towards emission intensive industries that governments pursue in parallel.

Our research project aims to fill this gap firstly by conducting an in-depth mapping of green finance policies and traditional environmental policy instruments across more than 50 countries. Secondly, we propose to quantitatively analyse the impact of extant green finance policies in shifting capital towards green solutions and away from emission intensive activities. These objectives will be achieved by i) merging and jointly analysing the largest datasets on sustainable finance policy initiatives and instruments (compiled by Green Finance Platform) and traditional environmental policy initiatives (from Ecolex), ii) interviewing NGFS members on how their green finance policy initiatives account for broader environmental policies and fossil fuel subsidies pursued by their governments iii) analysing a comprehensive global dataset of syndicated loans, equity and bond issuances (Dealogic and Bloomberg New Energy Finance) across green and emission intensive industries to understand the impact of these policies on green financial flows intermediated and syndicated by the investment banking sector worldwide.

As such, our research seeks to inform and enhance the capacity of central banks and financial supervisors to implement effective green capital market policies that are well-adapted to broader policy and subsidy regimes. In addition, we will discuss the implications of more stringent capital market regulation for just transition outcome

PROJECT

Climate change and central bank asset purchases: An empirical investigation for the Euro Area and the UK

Yannis Dafermos^a, Daniela Gabor^b, Maria Nikolaidi^c and Frank van Lerven^d

^a Department of Economics and SOAS Centre for Sustainable Finance, SOAS University of London, UK; ^b Department of Accounting, Economics and Finance, University of the West of England, Bristol, UK; ^c Department of Economics and International Business, University of Greenwich, London, UK; ^d New Economics Foundation, London, UK

The corporate asset purchase programmes of the European Central Bank (ECB) and the Bank of England (BoE) have recently been expanded as a response to the COVID-19 crisis. These quantitative easing (QE) programmes involve the purchase of a large amount of corporate securities that in many cases are issued by companies with a high carbon footprint. This has raised concerns over the adverse climate impact of the asset purchase programmes and the non-consideration of climate risks in the process through which eligible corporate securities for purchases are identified. Instead, it has been argued that QE programmes could be recalibrated such that a higher amount of climate-aligned bonds are purchased instead of carbon-intensive ones. In so doing, central banks could contribute to the fight against climate change.

The aim of this project is to provide the first integrated analysis of how the corporate asset purchases of the ECB and the BoE could become climate-aligned, as well as the impact that this could have on economic/financial factors and emissions. Our research will be conducted in two steps. First, we will explore a range of ways through which the asset purchases of the ECB and the BoE could become climate-aligned, taking into account (i) the carbon intensity of the companies issuing securities that can be bought by the ECB and the BoE, (ii) micro factors that capture the vulnerability of companies to a low-carbon transition (such as profit margins and the lifetime of carbon-intensive assets), (iii) the classification of economic activities based on the recently developed EU Taxonomy and (iv) the green bonds that have been issued by companies in the Euro Area and the UK. We will investigate the extent to which the conduct of low-carbon purchases requires the modification of the criteria for the selection of eligible securities and the departure from the 'market neutrality' principle .

Second, we will use econometric techniques to specify quantitatively the implications of a climate modification in the composition of asset purchases. Using micro-level data, we will estimate how the inclusion of a bond in the QE programmes can affect through various financial channels (like bond yields and bond issuance) the investment and the revenues of the bond issuer. We will then combine the impact on revenues with emission intensity data to calculate the effect that QE inclusion has on the overall emissions of each company included in our sample. Using these estimations, we will proxy the reduction in emissions that could be caused by a green recalibration of the QE programmes.

PROJECT

Assessing the effectiveness and impact of central bank and supervisory policies in greening the financial system across Asia

Adrian Fenton^a, Sylvain Augoyard^a, Aziz Durrani^b and Ulrich Volz^{cd}

^a WWF Singapore, Singapore; ^b South East Asian Central Banks Research and Training Centre (SEACEN), Kuala Lumpur, Malaysia; ^c SOAS Centre for Sustainable Finance, SOAS University of London, UK; ^d German Development Institute, Germany

The Paris Agreement established the importance of aligning financial flows with a pathway towards low-carbon and climate-resilient development. In response, central banks and financial supervisors have stepped up and are increasingly important stakeholders in climate governance. Awareness of the need to mitigate climate-related financial risks and scale up sustainable finance has increased considerably among them, with many enacting or considering measures to this effect.

Due to the contemporary and evolving nature of the topic area, there is a knowledge gap regarding the efficacy of adopted measures and their environmental, social, and economic impacts. It is unclear whether sustainable finance measures are having the intended impact on the financial system and the real economy. Analysis is required to understand i) the full details of sustainable finance measures that have been implemented; ii) the rationales and processes underpinning their adoption; and iii) the effectiveness, efficiency, and equity of adopted measures, from the perspective of both financial institutions and supervisors.

This research addresses this knowledge gap, focusing specifically on Asia where many countries have adopted sustainable finance measures. Asia has global relevance as it contains many countries with the largest or rapidly increasing greenhouse gas emissions levels. This research will employ a sequential research design, utilising both quantitative and qualitative methods to collect primary data. Key elements of the research will be two written surveys with central banks and supervisors, and banking institutions, respectively, as well as detailed follow-up interviews with both groups.

The research will improve understanding of the progress made towards aligning financial systems and flows with the Paris Agreement. It will highlight cases where measures taken by central banks or supervisors have led to measurable positive outcomes, in terms of contributing to the transition to a low-carbon and climate-resilient economy or managing transition and physical risks. It will provide recommendations on data gathering by central banks to enhance their evaluation of the effectiveness of sustainable finance measures. It will provide policy guidance so countries can improve the design and implementation of existing and new measures, thereby enhancing the capacity of central banks and supervisors to manage climate related financial risks and promote sustainable finance. Our findings will support central banks and supervisors in learning from each other's experiences (one of the key objectives of the NGFS), including in countries which are considering enacting new sustainable finance measures.

PROJECT

Green monetary policy: Implications for emissions, investment and inflation

Kai Lessmann^a, Emanuel Moench^{bc}, Andrew McConnell^a, Hendrik Schultd^a and Boyan Yanovski^a

^a Potsdam Institute for Climate Impact Research, Germany; ^b Research Centre, Deutsche Bundesbank, Germany; ^c Faculty of Economics and Business, Goethe University, Germany

In recent years, many central banks have been discussing whether their mandate involves climate change mitigation alongside price stability. Several instruments for “green” central bank monetary policy have been proposed but so far there are few quantitative models to substantiate the debate. This project aims at using theoretical modelling and numerical simulation to assess two specific proposals of green monetary policy: the greening of central bank collateral frameworks, and targeted green re-financing operations. Through this modelling we hope to deepen our theoretical understanding of these instruments and quantify their impact on the economy and environment.

Specifically, the greening of central bank collateral frameworks means that haircuts are applied to collateral value based on an asset’s carbon intensity. Such a policy would be consistent with the risk-based approach of common collateral frameworks, to the extent that climate risks are not fully embedded in asset values or credit ratings. It could be implemented as a simple extension of existing policy. Green re-financing operations would involve releasing long term credit earmarked for “green” projects to banks at preferential rates. In order to understand the effects of these instruments we aim to draw on formal modelling which can account for cumulative emissions, differentiated investment (based on carbon emissions), economic growth, monetary policy, and inflation.

Our model will be the first to integrate all five aspects which are all essential to our research question. The inclusion of monetary policy is self-explanatory however the latter requirement, inflation, is often neglected in climate policy analysis. Within the context of green monetary policy inflation becomes particularly important as (1) it is the principle aim of most modern central bank mandates, and (2) climate change might create “cost-push” or “demand-pull” inflation. In relation to climate change, cost-push inflation can happen either through physical damages reducing potential output in the presence of sticky wages; or through climate policy, directly increasing prices for carbon-intensive inputs, being passed on to the rest of the economy. Demand pull inflation is also possible, if governments and central banks decide to induce a quick transition by means of deficit spending on green infrastructure. The aggregate demand effect of such policies might push the economy beyond normal production capacity utilization, resulting in higher input and final goods prices.

In order to inform policy makers of the potential effects of green collateral frameworks and green re-financing operations we propose including inflation and monetary policy into a dynamic general equilibrium model that includes banks, differentiated sectors (based on carbon emissions), and conventional climate policy. In addition to studying the effects of green monetary policy on emissions and investment this model would allow us to analyse the potential trade-off between climate mitigation and inflation.