International Network for Sustainable Financial Policy Insights, Research and Exchange (INSPIRE)

Second Call for Research Proposals

A Comprehensive Call

Priority issues for research on central banks, supervision and greening the financial system

29 July 2019

Workstream 1 – Microprudential/Supervisory

1. Investigating the risk effects of environmental factors

The aim of this research package is to clarify how environmental factors translate into micro-prudential risks for financial institutions. Some insights are becoming available for listed markets such as equities and bonds, but, crucially, not yet for bank loans (apart from early results from China). Research outputs will help financial regulators better design supervisory responses (such as 'brown penalising factors' or 'green supporting factors' in capital requirements). The research could respond to one or more of the following questions and issues:

a) Do 'green' or 'brown' or other environmental properties of assets affect their risk profiles? If so, which properties are material for which asset classes, under which circumstances and to what degree?

b) Use of more granular data to investigate whether there is any correlation and/or causality between specific environmental factors (e.g. greenhouse gas emission) and financial risk (e.g. default rate).

c) What assets on banks' (or other financial institutions') balance sheets are prone to lead to an increased risk from an environmental or climate perspective in the short- and in the long-run? How can this risk be best assessed and measured for financial regulators?

d) How can limitations in existing studies be overcome, notably limited country and sectoral coverage, limited time periods for data covering 'green' assets and inconsistent definitions of environmental characteristics?

2. The opportunities and limits of enhanced disclosure

The aim of this research priority is to identify:

a) market failures and other issues which can be addressed through enhanced public disclosure and supervisory reporting and – conversely –

b) the limits of disclosure-based financial supervision as a tool for market discipline with regards to climate change and other environmental challenges.

Topics of interest include, but are not limited to, the strengths and limitations of different disclosure approaches – e.g. public disclosure vs supervisory reporting – as well as the suitability of disclosure-based tools to manage different types of risk (e.g. climate risk vs other environmental risks) and to identify high-exposure (so-called 'brown') assets risk differentials. This is an area with extensive work underway, not least around the TCFD, and the aim is to match experience with evidence and expectations about the likely impacts of disclosure on market behaviour.

3. Environment/climate scenario analysis and stress testing on institution-level

The aim of this research area is to review and develop the methodologies or methods for financial institutions (banks, insurance firms, asset managers/owners or investment banks, etc.) to conduct scenario analysis and/or stress testing on environmental and climate risk. Applications to certain financial institute(s) should be considered.

Workstream 2 – Macrofinancial

4. Long-term financial supervision

Over 10 years after the global financial crisis, financial supervisors are still struggling on ways to integrate 'long-term risks' into supervisory mandates and practices focused on managing financial stability over the business cycle. Long-term risks include risks related to long-term secular trends such as climate change and automation, as well as 1 in 100 type risk events with high probability, but uncertain timeline, such as nuclear catastrophes and pandemics. While these risks may sometimes be addressed in ad-hoc exercises or when they become 'live' (e.g. SARS pandemic, etc.), they are not systematically managed.

There is uncertainty both to the mandate and the practice of 'supervising the long-term' or in other words, 'financial supervision beyond the business cycle'. Without this concept however, integrating long-term sustainability risks for example in traditional stress-tests becomes challenging and potentially not very meaningful. Research is needed to understand what a long-term supervisory framework looks like. Potential questions in this research area include:
   a) How can one measure long-term risks and what is its materiality?
   b) How can one measure 'long-term risk management' and incentivise it?
   c) What are potential early warning sign systems as to whether risks are increasing or decreasing?
   d) What are the financial policy options to reduce long-term risks (Counter-cyclical Capital Buffers, Differentiated Capital Requirements, etc.)?

5. Modelling systemic climate-related financial risk

The aim of this research stream is to provide analysis that helps to improve understanding of systemic climate-related financial risks. Some central banks and supervisors are already advancing their understanding in a number of areas, such as investigating the macro- economic effects of climate policies (such as carbon pricing) as well as tracking the transmission channels of climate-related risks. Analysis is also starting on international spill- over effects due to common

asset holdings and potential amplification mechanisms through fire sales using scenario analysis combined with network analysis. Potential questions in this research area include:

a) How can financial stability assessments be improved to better understand impacts and transmission mechanisms over the medium-term (2020-2035) from both physical and transition risks with sensitivity analysis and confidence levels for results?

b) How can financial stability assessments evaluate the impacts of potential tipping points (e.g. rapid and irreversible global heating) as well as a rapid transition scenario to a 1.5C consistent economy?

c) What could be the effects on financial stability from shifts in investor and consumer behaviour, particularly on developing countries with limited adaptive capacity?

d) How can more realistic assessments be developed that move beyond the simplified scenarios for transition risk based on carbon price assumptions?

e) How can financial stability assessments better incorporate second round and network effects as well as the non-linearity of climate impacts, which could generate a climate Minsky moment?

f) How do macroeconomic and financial models incorporate other environmental and social risks?

g) Are all relevant transmission channels through which physical and transition risk might interact and impact financial institutions and markets adequately modelled and accounted for?

h) What gaps remain, e.g. regarding the translation of economic models and scenarios into financial risk metrics?

i) How can data gaps be assessed and closed (e.g. development of global databases)?

6. Building a common set of scenarios

This research area focuses on how the quantitative assessments of climate risks within financial markets can best be assessed across a set of plausible scenarios with a set of standardised base assumptions, facilitating comparability across sectors and geographies. Research questions include: can the assumptions such scenarios are based on be reasonably standardised – e.g. across developed and developing countries – without unduly constraining or limiting analysis? What types of scenarios are useful tools to assess the resilience of financial institutions and markets, e.g. scenarios focussed on tail-events or climate Minsky moments, most-likely-scenarios etc.?

Workstream 3 – Scaling up green finance

7. Central bank operations, climate risks and the real economy

The transition to a low-carbon economy depends significantly on the accurate pricing of climate risks. Yet, as the NGFS has highlighted in its first progress report in October 2018 "climate- or environmental-related criteria are not yet sufficiently accounted for in internal credit assessments or in the models of credit agencies […] which many central banks rely on for their operations." Addressing this current mispricing of risk is critical.

Against this background, a growing number of observers are pointing to the urgent need for central banks to account for climate risks in their own operations – in particular their asset purchases, collateral frameworks and reserve management. The development and integration of climate risk analytics is key for that.

With this in mind, this research package aims at advancing research on the methodologies and data that underpin current climate risk analytics and pathways for central banks to integrate such analytics into their own risk management processes. It also seeks to better understand the impact that the integration of such analytics in monetary policy operations has on capital costs and thus on the real economy.

<u>8. Leveraging central bank balance sheets for environmental sustainability</u>

The greening of finance must accelerate rapidly to meet the investment needs for a low- carbon economy. Central bank balance sheets potentially offer a key lever in targeting this objective.

Monetary policy operations targeted at specific sectors of the economy are already used widely. The Fed's QE purchases of mortgage-backed securities, the ECB's focus on non- financial lending through its targeted longer-term refinancing operations (TLTROs), the Bank of England's incentives for SME lending in the context of its Funding for Lending Scheme, and the Reserve Bank of India's 'Export Credit Refinance Facility' are cases in point.

Thus, this research area seeks to illuminate the real economy effects of targeted monetary policy operations in the past and the lessons that can be drawn from this experience for a potential targeting of future monetary policy operations towards green investments. In this context, research is also needed on possible design elements and institutional arrangements for such green targeting of monetary policy operations – including possibilities for strengthening the alignment of future QE and long-term refinancing programmes with a transition towards a low-carbon economy.

<u>9. Evaluating the impact of climate change and environmental factors on monetary policy</u>

A number of relevant research questions remain unanswered relating to the implications of the physical impacts of climate change, transition response measures and other environmental factors for monetary policy. These include:
   a) What could be the impact of climate change and environmental factors on short-term price dynamics and the output gap?
   b) What could be the longer-term impact of climate change and environmental factors on longer-term productivity and the natural rate of interest, including potential consequences on the expansionary lower bound?
   c) How could climate change and other environmental factors impinge on inflation expectations?
   d) How do different monetary regimes perform when faced with shocks created by climate impacts and transition measures?

Crosscutting Issues

<u>10. Building a common language: understanding the consequences of 'green' and 'brown' taxonomies</u>

To effectively allocate capital towards sustainable development, market participants need to assess and understand the environmental attributes of financial assets and their underlying activities. One approach that is being pursued in this context is to build 'green' and 'brown'

taxonomies for activities and assets. The work on an EU taxonomy for environmentally sustainable economic activities is a case in point.

The aim of this research package is to explore the opportunities, limitations and risks of such taxonomies. To what extent do green and brown taxonomies provide effective guidance for investors, regulators and other stakeholders? What is the role of policy-led taxonomies in comparison to market-led initiatives in sustainable finance? How do such taxonomies align with the growing momentum to integrate environmental risks into credit risk assessments and equity analysis? What is the appropriate level of analysis and granularity for such taxonomies to be meaningful for different financial market participants?

11. Identifying green finance crisis response measures

The aim of this research is to identify robust green finance response measures that could be deployed rapidly in the context of market turbulence and future crises. This work comes in the context of growing warning signals pointing to slowing growth, rising rates and deleveraging.

The research would develop forward-looking options available to central bankers and other financial supervisors to respond to future financial crises in ways that are consistent with the strategic goal of greening the financial system. It would also explore how the toolkit of crisis management measures could be analysed with regard to their potential impacts on climate change. Importantly, the research would identify examples where response and stimulus measures may have had negative environmental impacts in the past to help avoid 'unintended consequences' in terms of stimulus measures which entrench current unsustainable financing practices.

12. Enabling central banks to fulfil their mandate

In their recent report, NGFS members emphasised the need for action by policymakers to enable central banks to fulfil their mandates and to support the central banks' and supervisors' mission of ensuring financial stability. In this context, governments delivering on the Paris Agreement is of primary importance as well, as the report highlights. Thus, understanding how necessary policy changes can be taken and what supportive roles NGFS members can play in this regard within the limits of their mandates is pivotal to eventually creating an enabling environment that allows NGFS members to fulfil their duties.

Research questions to advance this understanding include: Which actions necessary to 'climate-proof' the financial system can be taken by central banks and supervisors and where is action needed by parliaments and governments or international organisations and standard setting bodies (e.g. the IASB)? What are the main barriers keeping policymakers from facilitating the 'climate-proofing' of financial systems? How can central banks support policymakers in drafting effective policies needed to ensure financial market stability in the face of climate change, e.g. through knowledge exchange? What are the 'unintended consequences' of 'climate-proofing' the financial system (e.g. whole regions becoming uninsurable due to new climate risk assessments) that need to be managed by central banks and supervisors on the one hand and governments and parliaments on the other hand? These research questions need to be answered both for domestic and for international contexts.

Details of projects awarded from INSPIRE's first and second calls for research can be found at https://www.climateworks.org/report/building-the-analytical-foundations-for-greening-the-financial-system/