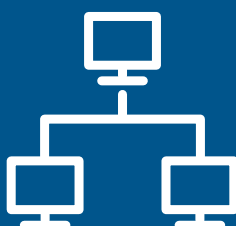


# One Bank Research Agenda

February 2015



BANK OF ENGLAND



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**The Bank of England is one of only a handful of institutions internationally with responsibility for monetary, macroprudential and microprudential policy, and the operation of all of these to achieve policy outcomes.**

All of these areas face big questions, not least of which is the interaction between them. Conventional thinking about these policies has been challenged by the financial crisis. New policies and interventions have been deployed; new regulations introduced; new supervisory practices adopted. While enhancing understanding of the economy and financial system is of timeless importance, the recent explosion in the amount and variety of available data offers the prospect of deeper insight. And fundamental technological, institutional, societal and environmental change means that we have an ongoing need to reassess our thinking and policies over a long horizon.

World-class policymaking requires frontier research. The Bank of England is, therefore, publishing a co-ordinated One Bank Research Agenda, spanning all aspects of central banking and focusing in particular on the intersections between policy areas. The five themes articulated below are broad, reflecting the diversity of the agenda. They deliberately emphasise new challenges and new directions, while recognising that familiar questions facing central banks remain no less important.

While the Bank of England strives to be an international intellectual leader in the areas of its policy responsibilities, making progress on such a broad agenda requires input from the wider community of academics, policymakers and experts, both within economics and finance and from disciplines well beyond it, ranging from psychology to epidemiology, from computer science to law. By publishing these research

questions, we aim to open up our research agenda and learn from external contributors. We wish to expand our external research connections, collaborate with those experts and begin to crowd-source solutions to key policy questions. To catalyse such research, the One Bank Research Agenda is accompanied by the publication of a supporting [Discussion Paper](#) giving more details of the research themes, the release of new data sets, and the launch of new research and data visualisation competitions.

Contributing to the Bank of England's research agenda and exploiting our data sets provides a unique opportunity to tackle some of the most important questions facing policymakers, while advancing the academic frontier. We encourage feedback and debate on both our research agenda and fruitful approaches for tackling questions within it. We look forward to discussing your comments and ideas. To contact us, please use the following mailboxes covering each of the five themes:

- [1. Policy frameworks and interactions](#)
  - [2. Evaluating regulation, resolution and market structures](#)
  - [3. Policy operationalisation and implementation](#)
  - [4. New data, methodologies and approaches](#)
  - [5. Response to fundamental change](#)
- [Multiple themes/general comments](#)

# Policy frameworks and interactions



## 1 Central bank policy frameworks and the interactions between monetary policy, macroprudential policy and microprudential policy, domestically and internationally

The emergence of macroprudential instruments as part of the policy armoury raises fundamental questions about the interaction of monetary policy, macroprudential policy and microprudential policy. And it adds a new dimension to long-standing questions over policy frameworks, both domestically and in the global monetary and financial system.

While different policy instruments have been assigned to meet specific primary objectives, in practice they often affect a wider set of objectives. For example, monetary policy shapes risk-taking and macroprudential policy can affect growth and inflation, as well as institution-specific risk. Similarly, microprudential policies can affect the stability of the financial system and the transmission mechanism of monetary and macroprudential policy. These interactions also raise questions of co-ordination between the different arms of policy. When, if ever, should monetary policy take account of its effect on risk-taking or macroprudential policy help support the macroeconomy? When might monetary, macro and microprudential actions jar and how should each of these policies respond in a downturn? How should bank stress tests and macro-financial indicators integrate to deliver capital requirements which meet both micro and macroprudential objectives? And what lessons can be learned on these topics from pre-crisis experience of monetary policy, systemic risk monitoring, prudential policy and supervision?

Such questions partly reflect our nascent understanding of macroprudential policies – what are the underlying drivers of systemic risk and what do they imply for the design of macroprudential policy; which instruments are most effective, how do different instruments interact and what is their transmission mechanism; and under what circumstances

should macroprudential policies be deployed? But they also reflect questions about whether, and how, the monetary policy framework might evolve in light of the crisis. For example, how does inflation targeting compare to other policy frameworks; how should the monetary policy framework respond to the possibility of the policy rate hitting the zero lower bound; and what role, if any, should monetary policy guidance and unconventional monetary policy instruments such as quantitative easing play in normal times? Fundamental questions around how to model and handle uncertainty also pervade all of these policy areas. Are model and data uncertainties reflected appropriately in policy decisions? How should stress tests or inflation and output forecasts deal with these uncertainties? And given these uncertainties, how frequently and granularly should different types of policy be set? To what extent should policy adopt a ‘robust control’ approach? And what lessons can we draw from other disciplines about dealing with significant uncertainty?

Despite recent global integration, financial systems are still largely regulated and supervised on a country-by-country, or regional, basis. That risks adverse cross-border spillovers and inadequate insurance against common cycles or shocks – for example, to global risk appetite. Could greater co-ordination of policies help to reduce cross-border spillovers or tackle common global shocks? More generally, what would international financial ‘system-wide’ risk management look like? What role might supra-national authorities play in monitoring and mitigating financial system-wide risks? And to the extent that policymaking becomes increasingly supra-national, what challenges does this pose for national central banks in meeting their own objectives?

# Evaluating regulation, resolution and market structures



## 2 Evaluating regulation, resolution and market structures in light of the financial crisis and in the face of the changing nature of financial intermediation

The financial crisis has precipitated a radical overhaul of the approach towards regulation, supervision and resolution. Regulatory policies have shifted from a near-exclusive focus on microprudential resilience to place at least as much emphasis on minimising systemic risk. But there has been relatively little assessment of the overall effect of reform in a system-wide context, especially beyond the banking sector. And the interplay between such reform and the changing nature of financial intermediation raises big questions about how incentives and market structures might evolve and whether new policy tools are needed.

At a fundamental level, it is important to understand the appropriate configuration of intermediation between financial institutions and capital markets, and how the regulatory framework can help to establish it in a credible way. This requires an understanding of the economic functions of the financial system, the incentives of the people and institutions within it, the interplay between regulatory, valuation and accounting frameworks, and the distortions that might produce socially inefficient outcomes.

One such distortion is 'too big to fail' (TBTF) and the implicit subsidies associated with it. Banks perceived as more likely to receive taxpayer support have been shown to benefit from lower funding costs, which can create an incentive to take additional risk. The introduction of resolution regimes and other measures aimed at eliminating TBTF could be assessed through the lens of estimates of these implicit subsidies. But can we measure reliably their size at different points in the cycle, in different market conditions and across different types of bank and non-bank institution? Is there information in these measures that can tell us what else remains to be done to remedy TBTF, including for central counterparties (CCPs) and insurers? And what are the implications of effective resolution arrangements and ending TBTF for prudential regulation and supervision?

Coupled with changes to central bank facilities and collateral frameworks, regulatory reform is likely to have a significant effect on the structure of the financial system. Are risks now borne by those with the greatest capacity? How will business models evolve in response to new prudential regulations, and what are the implications for liquidity in markets and thus systemic risk? What is the impact on competition in the financial system, and is this impact positive or negative for stability over the longer term? How should the regulatory regime respond to the complexity of the financial system?

Regulatory reform may also exacerbate recent trends towards increased financial intermediation outside the traditional banking sector. This raises important analytical and operational questions, for example around the transmission mechanisms of macroprudential and monetary policy. More broadly, while diverse and resilient market-based finance can help to support financial stability, it also presents risks, especially when activity takes place outside the regulatory perimeter. How large are the systemic risks from investment funds? Could credit risk on banks' balance sheets morph into liquidity risk on asset managers' or broker-dealers' balance sheets? And how should micro and macroprudential policy respond to risks in the non-bank financial sector? For example, could some combination of minimum and countercyclical haircuts on securities financing transactions and enhanced disclosure requirements improve the resilience of market-based finance?

More generally, what are the risks and opportunities from further financial innovation? And how might the system need to be insulated from non-financial shocks? For example, how should the regulatory regime respond to the emergence of new and rapidly evolving risks such as the threat of cyber-attacks that have the potential to interrupt the provision of financial services?

# Policy operationalisation and implementation



## 3 Operationalising central banking: evaluating and enhancing policy implementation, supervision and communication

As important as the design of policy is its implementation and communication. The financial crisis has thrown up new questions on issues that have been at the heart of central banking for decades. For example, central banks around the world made extensive use of their balance sheets during the crisis, often in very imaginative ways. These measures included quantitative and credit easing; foreign exchange intervention; the operation of liquidity schemes at longer durations and against a wider set of eligible collateral; market-maker of last resort operations to backstop functioning in core asset markets; and state-dependent liquidity provision, such as the Funding for Lending Scheme in a UK context. Governments were also active, for example via bank recapitalisation and funding guarantee schemes.

With the benefit of hindsight, which of these interventions were most effective, through which channels and under what circumstances? Are there tools not used during the crisis which we might usefully have on the stocks for next time? Have promises of liquidity insurance reduced stigma in central bank facilities? What are the implications of expanded central bank collateral eligibility for asset prices and liquidity in various markets? And how can such policies be designed most effectively to minimise the likelihood that they encourage excessive risk-taking by financial institutions? More broadly, what is the impact of balance sheet policies on money markets, financial markets generally and the wider economy? Should central banks continue to use balance sheet measures in normal market conditions to meet either monetary or financial stability objectives?

The crisis also led to a number of changes in the design of central bank operational frameworks. Further changes are likely to be needed when central banks return to more 'normal' times, drawing on lessons from the use of unorthodox

instruments in recent years. For example, what system should central banks use to control interest rates? What tools do central banks need to ensure they can effectively manage the supply of reserves to the system? How should central banks balance the need for monetary control and the provision of liquidity insurance? And should they look to expand their counterparty lists further, and provide liquidity insurance facilities to non-bank entities?

Communication played an important role in the crisis response, from forward guidance to disclosure of stress-test results. This follows a long-term trend towards greater central bank transparency. What are sensible next steps? How frequently, in what form and about what, should central banks communicate? Is the communication strategy for financial stability, resolution and supervision different? And how can we improve our communication of uncertainty while enhancing policy reaction functions? Is there a risk of communication proving excessive or counter-productive, by adding volatility to financial markets? Or, conversely, are central bank communications dulling the senses of financial markets, companies and households and encouraging herding due to an over-reliance on public signals?

The crisis has also reopened debates on the role of judgement in the approach towards supervision and resolution. Discretionary models have real merits. But as with any area of technical decision-making, they can be subject to various behavioural biases – for example, 'confirmation bias' when assessing evidence, 'defensive actions' when prescribing options and 'disaster myopia' when assessing the scale of risks. How significant are these biases in the supervisory and resolution spheres? Are there useful insights from other professions on how to enhance judgement-based decision-making? For example, are there objective 'rules' that can be used as a cross-check on subjective assessments?

# New data, methodologies and approaches



## 4 Using new data, methodologies and approaches to understand household and corporate behaviour, the domestic and international macroeconomy, and risks to the financial system

Increasing amounts of data – structured and unstructured, current and historical – are available on almost every aspect of the economy and the financial system. And theoretical and methodological techniques continue to advance. In devising better policy responses, it is important to exploit these developments, alongside existing approaches, to improve our understanding of household and corporate behaviour, the macroeconomy and risks to the financial system, while continuing to enhance forecasting and stress-testing capabilities.

New micro-level data sets can help us to explore how households and businesses behave and react to changes in their circumstances. The application of microeconomic or agent-based techniques to distributional data from surveys of individual households, administrative data, and information from credit bureaux could play an important role in quantifying and understanding this behaviour – for example, the impact of an interest rate change or a portfolio loan to value or debt to income cap on households, or the underlying drivers of indebtedness and its links to business cycles, arrears and defaults. The same could be done for the corporate sector. Survey or experimental methods could also enhance our understanding of risk cultures in financial institutions or the nature of household, corporate and investor risk-taking, both within and across countries.

More data than ever before is also being collected on financial markets – both from regulatory returns and highly granular transactional data reported to trade repositories – often at high frequency. Could these data be exploited further to enhance understanding of financial market dynamics or of risks in capital markets and to the infrastructure (eg CCPs) that supports them? Is it possible to develop close to real-time maps of the financial network to detect the risk of contagion or adverse dynamics within the financial system?

There is also merit in exploring and analysing novel databases, including web and social media sources – for example, to understand how consumer and financial market sentiment evolves and to improve our backcasting, nowcasting and

forecasting of macroeconomic variables. Such techniques could also be applied to the Bank's market intelligence or agency reports to support surveillance. At the other end of the spectrum, historical time series that were previously unavailable have been reshaping a number of key policy debates recently. The Bank is uniquely placed to source much of the historical time series on money and banking in the United Kingdom. This could be illuminating in gauging the efficacy of past UK macroprudential policy measures, the impact of changes in bank liquidity and capital, or the relationship between credit, the economy and crises.

New data, methodologies and approaches could also help to enhance the Bank's overall forecasting and stress-testing capability. The crisis brought home the importance of interactions between the real and financial sectors. These are key to both the analysis of the macroeconomy and in stress testing banks' balance sheets. The crisis emphasised the importance of asset price and uncertainty-based channels for the macroeconomy, as well as contagion and feedbacks within the financial system. Enhancing the Bank's understanding and modelling in these areas would serve monetary, macro and microprudential purposes.

The United Kingdom may be particularly susceptible to financial and international factors given its position as a small open economy with a large financial sector. New approaches and data sets could also inform key questions on these topics. For example, how might large gross foreign asset and liability positions or the current account balance affect the transmission mechanisms of monetary policy or financial stability tools? How important is the global risk cycle, global activity and global liquidity in driving domestic risk and business cycles? What factors explain the correlation of UK asset prices with those observed in the United States and internationally – real linkages, financial linkages, global risk appetite, or other common shocks? What risks do sharp fluctuations in capital flows pose? And what implications does all of this have for domestic monetary policy and financial stability?

# Response to fundamental change



## 5 Central bank response to fundamental technological, institutional, societal and environmental change

There are a number of fundamental technological and structural global trends which have a potentially significant bearing on central banking, albeit over a longer period than the Bank's typical policy horizon. Among the more important changes are demography, increasing longevity, inequality, climate change, the increasing importance of emerging economies and the development of digital currencies. The potential policy implications of these developments range from the evolution of real interest rates to risks to the financial sector to the future of money and banking itself.

The insurance industry, particularly life insurance, is affected importantly by these fundamental changes, whether they be climatic or demographic, raising questions over the appropriate levels of capital, how long-term assets can be valued and long-lived contracts written, and the ability of households to manage such long-term risks. Technology is potentially transforming the landscape for money and banking. New digital or e-monies and new methods of payment and financial intermediation raise fundamental questions for financial regulation, money demand generally and central bank money in particular. For example, might central banks issue digital currencies and what would be the impact on existing payment and settlement systems? Is the cryptographic technology behind Bitcoin transformational? How will financial regulation need to adapt if new non-bank credit intermediaries emerge in scale?

Fundamental long-term developments could also have wider implications for central banks. For example, climate change, and policy responses to it, could have a dramatic impact on investment, energy and financial markets, sectoral capital allocation and ultimately financial stability and growth. Demographic change could have significant macroeconomic effects if household saving rates or appropriate retirement incomes change or changing patterns of labour force participation affect equilibrium unemployment. And wider structural change in the labour market may affect the relationships between unemployment, output and inflation which are key to inflation targeting. Changes in the income distribution could affect investment rates and trend GDP growth rates. And the growing importance of emerging economies is likely to influence global patterns of saving and investment. What can we learn about the drivers of, and outlook for, these secular trends? Do these factors help to explain the downward trend in interest rates over recent decades? Do they suggest that this trend will continue or reverse in future? Could these and other sources of global imbalances place stress on the international financial system? And how should macroprudential, microprudential and monetary policy regimes be designed to accommodate these long-term shifts?