Deputy Governor for Financial Stability: Questionnaire in advance of Treasury Committee pre-commencement hearing

The completed questionnaire should be returned, along with a full CV, to the Treasury Committee in the week commencing 28 August 2023. Both the completed questionnaire and CV should be provided in PDF and Word.

1. Do you have any business or financial connections, or other commitments, that might potentially give rise to a conflict or perceived conflict of interest in carrying out your duties as Deputy Governor for Financial Stability?

No.

I have no business or financial connections or other commitments which might potentially give rise to a conflict or perceived conflict of interest in carrying out my duties as Deputy Governor for Financial Stability (DGFS).

I have declared my interests to the Bank in line with the Bank's conflict of interest policies and my relevant interests have been published in the Bank's public register of interests. As noted there, I hold a number of other roles including charity trustee roles (of the Houblon Norman Fund and the Education Endowment Foundation), and membership of the London School of Economics Financial Markets Group Advisory Board. Having discussed with the Bank's Secretary, I do not consider that any of these roles would pose a conflict with my new role as DGFS.

2. Have you ever held any post or undertaken any activity that might cast doubt on your political impartiality?

No.

I have worked at the Bank of England since 1991. Throughout this period, I have been in full compliance with the relevant policies on political impartiality.

In particular, I am in full compliance with the Bank's policies on political impartiality set out in the Bank's Code of Conduct, Our Code, including the Political Activities and External Communications and Engagement policies, as well as with the FPC's statutory conflicts code and communication guidance (both of which have requirements around political involvement and underline the importance of political impartiality).

3. Do you intend to serve out the full term for which you have been nominated?

Yes. I intend to serve the full term for which I have been appointed.

Professional background

4. How has your experience to date equipped you to fulfil the responsibilities of the Deputy Governor for Financial Stability?

I have a deep and broad knowledge of the economy, the financial system and financial stability, gained through more than 30 years of experience in a wide variety of central banking roles I am a member of the Financial Policy Committee (FPC) and the Financial Market Infrastructure (FMI) Board and have had extensive direct interaction with the Monetary Policy Committee (MPC) and Prudential Regulation Committee (PRC). As a result, I have experience both of policy substance and the responsibilities and accountabilities of policy making. In addition, I have built a strong set of analytical, operational, policy and supervisory skills. This combination of knowledge, skills and experience equip me well to fulfil the role of DGFS.

As the Executive Director for Financial Stability Strategy and Risk, I have been responsible for all the Bank's work to support the FPC in its statutory objective for financial stability. Through this I have led work on traditional financial stability topics (bank resilience, stress testing, housing policy) as well as newer ones (non-bank financial intermediaries, climate change, crypto and digital money). During this period – as indeed in other roles – I have progressed long-term important work (the FPC's medium term priorities, its approach to non-bank financial intermediaries, the System-Wide Exploratory Scenario) as well as short-term urgent issues (liability-driven investment (LDI), commodity market strains, overseas banking stress). I have a track record of delivering well-judged policy design that recognises uncertainty and how the Bank's policy objectives interact with the wider economic and commercial environment (for example simplification of the FPC's mortgage tools and the regulatory approach to climate change, crypto and stable coin). This includes my input into joint MPC and FPC meetings, including on issues such as where interest rate risk sits in the financial system. More broadly, I have considerable experience of policy making in fast-paced situations and crisis management (LDI, Covid, global financial crisis, and Northern Rock).

I have spent my entire career in and around economics and monetary policy making, from working in the Governor's private office during the establishment of the MPC in 1997, to managing close links between the monetary policy stance and financial stability now. As Executive Director for Financial Stability Strategy and Risk and an FPC member, I have led the FPC's work over the last 18 months to deliver financial stability amid rising global interest rates and market volatility. This included FPC recommendations for action to contain stress in the gilt market and to build resilience in LDI funds, as well as analysis of interest rate risk in the UK economy and financial system. I set out the links between monetary and financial stability in a recent speech. In previous roles I have focused on the transmission of monetary policy through the banking system and markets – for example work to judge UK banks' approach to lending and input into work on negative rates during Covid, as well as reform of the Bank's sterling market operations. All of the above is particularly relevant to the role of DGFS on the MPC (covered also in question 6).

As a senior supervisor in the PRA and senior leader in the Bank's Markets directorate, I have gained a broad-based, holistic and deep knowledge of financial markets and financial institutions, the vital role they play in supporting the economy and the regulatory policy framework that seeks to deliver their stability. I have supervised regulated firms of all kinds (UK and international, retail and capital markets, large and small), and have delivered good supervisory and policy outcomes (for example progressing the PRA's competition agenda and developing the post-Brexit approach to branching). This deep understanding of microprudential policy when combined with my financial stability experience means I am well positioned to ensure the PRC considers the interaction of micro and macroprudential policy.

The UK is host to a leading global financial centre and so much of the financial stability agenda needs to be progressed globally. I have a strong international network and experience of representing the UK's priorities internationally in prior roles. For example, I instituted and built successful 'trilaterals' with US and European colleagues and I am recognised as a global leader on climate (e.g. as Chair of the Financial Stability Board's (FSB's) Climate Vulnerabilities and Data Group and in my work with the Network for the Greening of the Financial System). This experience, my network and the Bank's leadership position on financial stability issues mean I am well placed to contribute to international policy making.

Communication, in particular being able to convey complex issues simply to different audiences and through different media, is an essential part of policy making. I have considerable experience of this, including through my existing FPC role (as explained further in question 5). By explaining clearly what we do and why, I build trust in and support for our work.

Finally, I have a strong track record in and enjoy leadership. I have spent the last decade running large areas (of 200-250 people) delivering full agendas to high standards, at pace and through uncertainty. I am clear on priorities and direction, and delegate and empower colleagues so they can deliver their best. I am approachable and seek to create safe spaces for challenge. I am seen as a collaborative team player and will continue to be so as I take on the new role.

5. Which of your articles, papers or other publications are of most relevance to your future role as Deputy Governor for Financial Stability?

As the Executive Director, Financial Stability Strategy and Risk, I oversee the production and publication of all the FPC's key external publications.

This has included: the FPC's semi-annual Financial Stability Reports; all its ad hoc publications - Financial Stability in Focus on corporate debt, technical paper and consultation on FPC's mortgage market measures, Financial Stability in Focus on cryptoassets and decentralised finance, Financial Stability in Focus on interest rate risk in the UK economy and financial system; the 2022/23 annual cyclical scenario stress-test; the 2022 Climate Biennial Exploratory Scenario; the FPC's medium term priorities; and the FPC's revised policy on setting the countercyclical capital buffer.

Given the importance of building trust in and support for our work, I regularly give speeches and participate in panel events relevant to financial stability. The key published speeches are:

- The building blocks of resilience
- Risks from leverage - how did a small corner of the pensions industry threaten financial stability?

- Investing in financial stability
- Two sides of the same coin – delivering monetary and financial stability timelessly
- Macropru - fit for the future?
- Climbing Mountains Safely
- Climate Action – approaching a tipping point?
- Balancing on Net Zero Tight Rope
- Avoiding the storm: Climate change and the financial system

Monetary Policy

6. How would you assess your knowledge and experience of monetary policy and the work of the MPC?

I have worked in the Bank of England – where, alongside financial stability, monetary stability is the core of what the institution does – for more than three decades. I have been involved in and been around monetary policy making and policy delivery and implementation all my career. I bring a deep understanding of financial institutions and markets and so how monetary policy transmits to businesses and households. And I will bring the perspective of a financial policy maker whose decisions have been grounded in the MPC's outlook for the economy and that has experience of making policy decisions that involve trade offs and uncertainty.

I have deep expertise in financial markets and the UK and international banking systems and so how the MPC's monetary policy decisions are transmitted via markets and the financial system into the credit conditions faced by businesses and households. For example, I was responsible for the supervision of UK banks through the Covid period and saw first-hand how banks responded to the shock. I was involved in work to consider how banks might respond if the MPC brought in negative interest rates.

More recently, I have been responsible for financial stability through a period of rising interest rates. Our analysis of financial stability risks has therefore required a thorough understanding of developments in inflation, growth and monetary policy and so what tighter financial conditions might mean for the economy and the financial system (see Financial Stability in Focus: Interest rate risk in the economy and financial system).

In addition to ensuring the FPC is able to judge how developments in monetary policy might affect financial stability, I have regularly briefed MPC on the resilience of the financial system to tighter financial conditions (in particular following global banking stress earlier this year) so that the MPC is well sighted on potential risks to financial stability as it seeks to deliver price stability. I co-led the Bank's response to the 2022 LDI crisis, where our market operations had to deliver both monetary and financial stability. And I have set out my thinking on how monetary policy and financial stability relate in a recent speech.

My experience as a financial policy maker on FPC will provide me with a solid foundation as a monetary policy maker on MPC. Many decisions the FPC take involve judgements and trade offs like those that the MPC faces. In addition, the FPC has to balance many inputs (quantitative models, qualitative analysis, historical experience, scenario analysis) in making its judgements. My approach to monetary policy making will reflect this experience.

While this experience as a financial sector expert will bring a valuable perspective to the MPC, it will be important to combine that with deepening my knowledge of the detailed judgements that have underpinned the MPC's policy decisions. In addition, my involvement to date in macroeconomic modelling has been limited to understanding the MPC's forecast, ensuring a coherent scenario design for the Bank of England's annual cyclical scenario stress-test and work at the Bank and through the Network for Greening the Financial System in developing approaches to modelling the macroeconomic impact of climate change. Given the importance of the forecast to the MPC's policy decisions, I will have a particular focus on developing a deeper understanding of how the forecast is constructed and what it does and does not capture well, so I can both understand it more deeply and support our better challenge of it.

In support of this, I will meet with Bank experts, question assumptions and explore judgements, listen and learn. In addition, I will shadow the MPC's decisions ahead of my formal commencement and will be keen to learn from fellow members. I have a track record of learning quickly and recognise the critical importance of deepening my expertise as I get ready to take on the role of DGFS.

7. The current MPC remit sets an inflation target of 2 per cent at all times, but it also allows the MPC to tolerate temporary deviations of unspecified length in order to avoid "undesirable volatility in output". How do you interpret this mandate and the degree of flexibility it offers?

The MPC Remit is clear on the primacy of its objective to deliver price stability - defined as a symmetric target of 2% for annual inflation in the Consumer Price Index (CPI) - at all times, as a necessary foundation for UK growth and prosperity. Subject to that, the MPC's objectives require it to support the economic policy of the Government, which is confirmed in the Remit as strong, sustainable and balanced growth. The Remit recognises that actual inflation rates will on occasion depart from target and that attempts to keep inflation at target in all circumstances may cause undesirable volatility in output.

In considering how to interpret this mandate in practice, I will be focused on both the inherent uncertainties in formulating policy and the nature of the specific shocks facing the economy.

As is well known, monetary policy affects inflation with a lag. The peak impact is estimated to occur around 18 months or more after policy is changed. Since shocks are difficult to predict in advance, it will never be possible fully to offset them. In addition, it would be counterproductive to react to short-lived shocks to supply or demand that lead to a one-off shift in the price level and not the rate of inflation. The full effect of policy would come through only after the shock had passed, increasing volatility in both inflation and output, with real consequences for businesses and households.

Lags in the monetary transmission mechanism are also variable and state dependent. This might reflect, for example, the greater use of fixed rate mortgages, or the reaction of banks and financial market participants to changes in Bank Rate. As a result, the impact of monetary policy decisions is uncertain, further reducing our ability to meet the inflation target exactly at all times.

In addition, most of the time there is unlikely to be a path for Bank Rate that brings inflation to target at every point in the future. This is because both shocks and Bank Rate have different impacts on inflation at different horizons. This too leads to fluctuations around the inflation target that would be both difficult and counterproductive to offset.

As well as these issues around our ability to meet the inflation target at all times, there may be trade offs to be made in determining how quickly to return inflation to target given the nature of the shock affecting the economy.

Where there is a persistent change in demand which pushes inflation above target and output above its potential, the appropriate monetary policy response is clear. Stabilising inflation requires tighter policy, and by lowering output towards its potential and preventing an unsustainable increase in output, tighter monetary policy simultaneously stabilises output. There is no trade off to be made.

In contrast, when the economy is hit by cost or supply shocks that move output and inflation in opposite directions, we face a trade off between stabilising inflation and output.

For example, for a net energy importer like the UK, an increase in the price of energy will drive up consumer prices. Such a shock will also reduce consumption and output as real income falls.

If we were to focus solely on returning inflation to target as quickly as possible, we could tighten policy sharply. However, by weakening demand, such a policy would further weaken output potentially pushing the economy into recession, reducing inflation below target and so requiring a subsequent loosening of policy. The resulting volatility in policy and in output would be undesirable. It would have real consequences for jobs and incomes, affecting businesses and households across the country.

We could instead place less weight on the near-term inflation outlook. This would recognise that the fall in household real incomes would reduce output, and so inflation, and so would require a more moderate monetary policy response. With a less sharp tightening in monetary policy, inflation would take longer to return to target, but the volatility in output would be lower.

The remit is clear that the MPC has the flexibility to take into account undesirable volatility in output linked to these trade offs. Nevertheless, the risk in such a strategy is that a temporary period of above target inflation affects wage and price setting behaviour in the economy and inflation expectations, pushing up further on inflation. It is essential for the MPC to be focused on the medium-term outlook to maintain the credibility of its inflation target and to ensure that inflation is returned sustainably to target following shocks.

As an MPC member, I plan to spend a lot of my time interrogating the evidence to interpret the shocks and disturbances that are affecting the economy. I know my future colleagues on the MPC already take that role very seriously, with the support of excellent staff at the Bank. The shocks and disturbances in the UK have been particularly large in recent years, and their effects are particularly uncertain, which makes it all the more important to be humble, flexible and open to challenge when forming judgements around how they will play out and their implications for policy.

In support of this, the remit requires the MPC to explain its policies, including around how it is approaching trade offs of this kind. Our policies are powerful and the policy decisions we make can have major implications for households and businesses around the country. I place a lot of importance on the communication tools the MPC uses and I intend to do my bit to contribute to them effectively (see question 10).

8. What do you see as the causes of the ongoing outbreak of inflation, and how do you assess the response to date of the MPC?

Much of the initial rise in inflation above target was linked directly to higher prices for imported goods, including energy.

During the recovery from Covid, global goods prices rose materially, linked to supply chain pressures around the world and the rapid recovery in global demand as economies reopened following the shutdowns during the pandemic. This pushed up goods price inflation in the UK because the UK is a net importer of goods and a price taker in many globally-tradable goods markets, such as electronics, clothes and cars. Non-energy import prices on their own are currently pushing CPI inflation around 2 percentage points above the MPC's 2 percent target.

Global energy prices rose gradually in the months leading up to, and more steeply in the months following, Russia's invasion of Ukraine in the first quarter of 2022. This pushed up energy price inflation in the UK, because we are a net importer of energy and a price taker in global energy markets. Natural gas – on which the UK is particularly reliant and for which Russia is a major producer – rose to more than six times their pre-invasion level in the UK and the rest of Europe.

At the peak, energy prices were directly adding almost 4 percentage points to CPI inflation. The rise in energy prices also led to higher inflation for other consumer products, because energy is an input into the production of most goods and services that people buy, and it is difficult to substitute away from it, particularly in the short term. However, energy is now actually pushing down on inflation, reflecting lower petrol and household energy prices.

Food and drink price inflation has also been very high, in part as a consequence of Russia's invasion of Ukraine. A large share of UK food and drink is imported and again the UK is a price taker in many global food and drink markets. In the latest data the CPI inflation rate for food and drink fell somewhat but remained very high at around 15%. This means that food prices are currently directly adding around 1¾ percentage points to headline CPI inflation.

Nevertheless, inflationary pressure has long since spread to a much broader set of products, many of which are relatively low in import content. This is in large part because the imported price pressures that I described above have led to second-round effects in the UK economy. In an effort to protect falling real incomes, whether wages or profits, workers, managers and business owners have sought compensation in the form of higher nominal pay and domestic selling prices. This has increased domestic price and wage inflation and so made inflation more persistent.

UK economic activity is weak in absolute terms. GDP is only slightly above its pre-Covid level and remains a long way below its pre-Covid trend. Consumption is even weaker than GDP.

But price inflation, and the indicators that give the best read on excess demand (wage inflation, vacancies and employment quantities – including the unemployment rate – among other things), all point to an economy that is tight, with demand stronger than supply. Measures of economic activity have also been more resilient than expected by the MPC and other independent forecasters in the second half of last year and first half of this year. This excess demand has pushed up on domestically-generated inflation.

Squaring the circle between weak activity and excess demand implies that supply is very weak. The UK economy has faced a series of shocks in recent years that have impaired supply capacity. There is also some evidence that labour supply has weakened, which could be linked to higher levels of sickness and more early retirement, possibly reflecting changes in preferences since the pandemic.

The MPC has responded to inflation pressures by raising Bank Rate by more than 500 basis points since December 2021. Whilst much of the impact of the rise in Bank Rate is to come, this monetary policy action has already materially pushed down on inflation. Indeed, a simple rule of thumb would suggest that inflation could have been around three to five percentage points higher had the MPC not increased Bank Rate.

The MPC also decided to reduce the stock of its past purchases of UK government bonds. The quantitative tightening programme started in the first quarter of last year and was supplemented by a programme of sales in the final quarter of last year. This has likely had a much smaller impact on inflation than the rise in Bank Rate. But this strategy has an important benefit in reducing the risk of a ratchet upwards over time in the size of the Bank of England balance sheet.

The MPC's communications have also underscored their commitment to inflation targeting and to the 2% target. This has helped to keep long-term inflation expectations well anchored.

Had the MPC sought to offset entirely the overshoot of inflation above target over the past couple of years, they would have had to do two things. First, they would have had to foresee the effects of the recovery from Covid on import prices and excess demand, as well as the impact on inflation from the invasion of Ukraine, well in advance of them happening. Second, they would have had to increase interest rates to more than double their current level. This would have led to a deep (global financial crisis-sized) recession, a huge increase in unemployment and a fall in nominal wages just as the economy was recovering from Covid-19. Neither of these seem like plausible counterfactuals.

More broadly, the MPC was faster than monetary policy makers in most advanced economies in beginning to tighten policy. And it recognised quickly that inflation was likely to be more persistent, although it has since updated its judgement on what that persistence should mean for the monetary policy stance. It is however important not to attempt to redo past monetary policy decisions with the benefit of hindsight. My colleagues had to make their policy decisions using only the evidence available at the time, along with their best judgements around how things would evolve going forward.

9. What is your assessment of the overall prospects for UK and global economic inflation, growth and unemployment over the short and medium term, and what do you see as the main upside and downside risks?

My starting point is the MPC's forecast which conditions on market expectations for Bank Rate, forward energy prices and announced fiscal policy.

I will interpret the short term as the next couple of quarters, and the medium term as more than 18 months in the future, which is the horizon at which the MPC's policy decision will have its peak effect on the economy.

CPI inflation was just under 7% in the UK in the latest data. Absent further shocks, it should decline over the rest of the year, to around 5%. Much of the decline will be driven by energy prices, which are no longer rising at the high rates we have seen for the past couple of years and have begun to fall. Food and core goods inflation should also fall. Over the next two years, demand should weaken and push the economy into excess supply, which will push down on inflation further via domestic channels. I expect inflation to be around the 2% target in two years, conditional on the assumptions in the August forecast.

It is hard to be precise about the UK growth outlook in the near term, especially given bank holidays that have led to volatility in the recent data and the data revisions we expect to see from the Office for National Statistics. Bank staff routinely attempt to strip out temporary factors to take a read on underlying growth. These estimates imply that growth on an underlying basis has been low but positive. Further ahead, and subject to further revisions that might change the picture, I would expect relatively flat GDP in the UK over the next couple of years, as the impact of past increases in Bank Rate increasingly push down on demand, and supply remains very weak.

The unemployment rate has been in a tight range from around 4% for several months. I would expect it to rise slightly but remain relatively low in the next few months. As demand weakens, in the medium term, this will inevitably lead to a rise in the unemployment rate. The MPC's August forecast has it rising above 4.5% in the next two years.

Turning to risks to the UK outlook, I agree with the MPC that the risks to inflation around the August forecast are skewed to the upside. We have learned, in particular, that second-round effects via price and wage setting are stronger than had previously been expected.

I consider there to be balanced risks to growth and unemployment in both directions. On the one hand, the MPC's forecast depends heavily on the negative impact on demand of the cumulative tightening in Bank Rate, which should push down on growth and inflation. However, given the scale and pace of the increases, the transmission mechanism may be different this time to what history would suggest, potentially pushing up on demand relative to expectations. This is something I want to dive into before my first vote as an MPC member. On the other hand, consumer confidence has remained weak and some of the business surveys are clearly softening, which may point to a loss of demand momentum and downside risks.

Turning to the global economy, inflation has been declining from a high level in other advanced economies, mirroring the situation in the UK. Energy prices are well below their peak and supply chain pressures have substantially eased. Demand is also weakening in many regions including the Euro Area, partly linked to tighter financial conditions. This will pull down on inflation via both global prices and domestic pressures.

Growth should remain relatively weak, albeit positive, in the global economy, including in the US and Euro Area. Increases in central bank policy rates and the broader tightening of financial conditions will contribute to weaker growth in demand. Growth in China was buoyed earlier in the year by its recovery from Covid but is now slowing. There has been little news on growth rates in emerging economies, which remain above the global average. Weakening demand should push up slightly on unemployment rates in other advanced economies, like in the UK.

Turning to risks to the global outlook, like the UK, there is a risk that second-round effects in advanced economies mean that inflation is slow to return to central bank targets.

There are also risks relating to the global energy market, where further adverse supply shocks would push down on growth and up on inflation in most advanced economies, whilst providing support to growth in net energy exporters, including some emerging economies.

Other risks include geopolitical tensions and the potential for the global economy to fragment. While there is evidence in some industries of decoupling, we are yet to see a substantial impact on global growth. Any significant fragmentation would represent a supply shock and be inflationary all else equal.

10. How do you intend to add to the public's understanding of the role and decisions of the MPC?

Explaining clearly what the MPC is doing and why it is doing it are essential not only to deliver legitimacy, but also because greater understanding improves the effectiveness of monetary policy.

There are two relevant dimensions– explaining my own personal monetary policy decisions and contributing to and helping to improve the MPC's existing set of communications.

In support of both (and covered in questions 4 and 5), I have had considerable experience as Executive Director for Financial Stability Strategy and Risk and as lead for the Bank's work on climate change of communicating complex ideas simply. I have engaged with a wide variety of audiences including parliamentarians, the media, participants in the financial system, businesses, the third sector and the public. I have used a variety of formats – speeches, panels, roundtables, agency visits, citizens' panels, webinars, social media posts and talks at schools. I will aim to do the same as a member of the MPC.

On the former, I look forward to continuing to visit businesses and people around the UK. In my current role, I have undertaken (or have planned) trips to meet businesses and people in different parts of the UK, including the South West of England (Exeter), Yorkshire and the Humberside (Leeds, York and Hull), Nottingham, the North West of England (including Manchester), Greater London, Wales, Northern Ireland and Scotland. In undertaking these visits, I would underline that the information flow must go both ways – that I listen as well as explain what we are doing. I know from experience on the financial stability side that our network of agents across the UK is well placed to provide information to help us better understand developments in the economy and the financial system on the ground. But engagement of this kind is even more valuable as an MPC member, especially in the current conjuncture, since understanding the experience of the economy on the ground can help us better understand both the likely economic outlook and the impact of our management of challenging policy decisions.

On the latter, the MPC has a wide set of materials that explain its decisions (MPC minutes, Monetary Policy Reports, open letters, press conferences, interviews and parliamentary hearings) as well as a programme of education materials designed to improve the public's understanding of what it does. As with the FPC, much progress has been made – for example the use of layered communications targeted at different audiences and the introduction of regular short social media clips to explain decisions. But we should continue to focus on developing ways of making our complex, nuanced messages as simple as possible to understand

<u>Financial Stability</u>

<u>11. What is your assessment of the track record of the FPC? What are the areas of most success and where is there still the most work to be done?</u>

The FPC exists to ensure that the UK financial system is prepared for, and resilient to, a wide range of risks – so that the system can absorb rather than amplify shocks, and so serve UK households and businesses. I judge that the FPC has successfully transitioned from its early and justified focus on banks to the broader financial system. It has also made full use of its strong institutional arrangements and used its range of tools, including the power of recommendations. I would highlight five areas where our work has proven successful and four areas where there is more work to do.

First, the FPC has <u>successfully built financial resilience in the UK banking sector and UK real economy</u>, such that those sectors have been able to absorb a range of shocks (e.g. Brexit, the Covid pandemic, Russia's invasion of Ukraine, tighter financial conditions).

This has reflected the FPC's post-crisis work on the regulatory capital framework for banks, the consequent build-up of UK banking sector resilience and regular stress testing of the major UK banks. The FPC has also developed its policy for, and actively used, the UK countercyclical capital buffer, increasing its neutral level and actively varying it in line with judgements on financial vulnerabilities and the risk environment. The release of this 'rainy day' capital buffer creates capacity for banks to absorb losses and continue to support lending when a stress hits, thereby avoiding the harmful effects of deleveraging. Evidence suggests that unlike some other capital buffers, the UK countercyclical capital buffer is a genuinely usable capital buffer.

The introduction of the FPC's mortgage market measures in 2014 have also helped to prevent an increase in aggregate household indebtedness and the number of more highly indebted households. We were also able to withdraw one part of this - the 'Affordability Test' - in December 2021, judging we could achieve the appropriate level of household resilience in a simpler, more predictable and more proportionate and manner.

Second, the FPC has <u>pivoted to focus on financial stability risks from market-based finance and non-bank financial institutions</u>. It has overseen in depth assessments to judge financial stability risks from investment funds, market liquidity, investment behaviour of insurance companies, derivatives networks, and leverage in the non-bank sector. And following the 'dash for cash' in March 2020, it set out its analysis of the market-based finance vulnerabilities revealed during this period and the international policy actions required to address them (focusing on mismatches in liquidity of assets, the role of leveraged investors in times of stress, liquidity demands during stress, looking into potential new central bank tools, and considering ways to enhance data in the sector). Building on this, the Bank has played a key role in shaping the international agenda on market-based finance led by the FSB (see question 12).

We have also begun to take action to build resilience in this sector. The FPC has supported the launch of a joint (Bank of England/Financial Conduct Authority) review of open-ended funds and a Discussion Paper on Money Market Fund resilience. And following the stress in Autumn 2022, it set out Recommendations to build the resilience of LDI funds and launched the first of its kind system-wide exploratory scenario analysis of market-based finance. Nevertheless, as I note below, there is more to do on this important topic.

Third, the FPC has <u>steered successful system wide contingency planning for specific events</u>. In particular, working with other authorities, the FPC was successful in ensuring the financial system was able safely to navigate the UK's exit from the European Union without material disruption to financial stability and the provision of financial services. The FPC's monitoring work successfully identified potential sources of disruption and led to extensive preparatory action by the UK authorities, alongside the private sector and EU counterparts, over a number of years. The FPC performed a similar role in relation to an orderly transition from Libor to alternative risk-free rates.

Fourth, the FPC has <u>been alive to new and emerging risks to financial stability</u> and has sought to support sustainable innovation and growth as it responds to them. For example, we undertook a Climate Biennial Exploratory Scenario to explore the risks posed by climate change for the UK's largest banks and insurers. And on digital money, the FPC set out expectations for the regulatory regime for stablecoins used as money in systemic payment chains, considered implications for financial stability from moves from bank deposits into digital money, and conducted an assessment of financial stability risks from growth in cryptoassets and decentralised finance.

Finally, the FPC has <u>increased its focus on the operational resilience of the financial system</u>, including monitoring potential systemic risks from cyber-attacks and the financial system's increasing reliance on critical third parties (see question 16). It has conducted a cyber stress test. It set and updated its 'impact tolerance' for how quickly financial companies must be able to complete critical payments following severe but plausible operational disruption. And it set out the need for additional regulatory oversight to mitigate financial stability risks from increasing reliance on a small number of cloud service providers and other critical third parties to UK firms.

Nevertheless, I judge there to be a number of areas where more work is needed to reduce financial stability risks, consistent with the FPC's medium-term priorities (published in April this year).

I would highlight in particular the need to further improve risk identification in, and importantly the resilience of, market-based finance. To support this, the Bank is running a system-wide exploratory exercise to enhance understanding of the risks to and from non-bank financial intermediaries, behaviours in market stress, and how market dynamics might amplify shocks and so lead to financial instability. The FPC will set out its approach to assessing market-based finance risks, including where data needs improving. And the FPC needs to continue to contribute to, and ensure progress in, international work agenda on market-based finance (see question 12). It will be important when progressing this work to learn lessons from the handling of risks in LDI – including that the FPC takes opportunities to build resilience domestically where it is effective and practical to do so.

We need also to continue to respond to structural changes and new risks in the financial system and the economy**.** This includes continued work on the financial stability risks arising from tokenisation/digital money and climate change, where there is an opportunity for FPC to support growth and sustainable innovation as it does so. We also have important work to do to continue to improve macroprudential oversight of operational resilience, given its growing importance to financial stability.

Finally, we need to respond to lessons learned for macroprudential policy from our experience of stress. I would highlight ensuring the Bank has tools to address dysfunction in market-based finance, as well as considering lessons from stress in overseas banks (e.g. resolution options for small banks that improve continuity of access to deposits) and exploring the usability of bank capital buffers beyond the countercyclical capital buffer.

Overall, and while recognising there is clearly more to do, I think the FPC has been largely successful in its task. I think there is huge value in having an institution like the FPC with the responsibility and powers to identify and take action ahead of time to reduce vulnerabilities and build resilience to possible shocks to financial stability. Indeed, I think the institutional framework put in place by the UK is a model for financial stability authorities elsewhere. In support, I would add that the IMF's Financial Sector Assessment Program concluded that the FPC is a world-class macroprudential authority.

12. What is your assessment of the state of the global financial stability regime? Where would you particularly like to see international agreement?

I think the global financial stability regime has been significantly strengthened since the 2008 Global Financial Crisis.

The international standards for bank capital and liquidity have ensured that banks engaged in cross border activity are more resilient, supporting the core banking system's resilience through recent stresses. The international standard for loss absorbency in resolution makes it far more plausible for international banks to fail without endangering the whole financial system. Global reforms have made over-the-counter derivatives markets, a key amplifier of stress in 2008, simpler and safer – with greater clearing, margining and reporting. And more broadly, the global governance for financial stability has been strengthened. The FSB reporting to the G20, has a broad mandate to promote financial stability, monitor and assess risks, and coordinate standard setting bodies to ensure there are no regulatory gaps.

However, I think further work is needed to: increase resilience in market-based finance; consider the lessons from stresses in parts of the global banking system earlier this year; and finalise a global regulatory framework for crypto-asset activities and markets.

As highlighted in my answer to question 11, there is an urgent need to increase resilience in market-based finance. And since markets are global, these risks are most effectively addressed through internationally co-ordinated reforms in the first instance.

The FPC has long identified vulnerabilities in market-based finance that could threaten financial stability, a number of which have crystallised in recent years (March 2020 'dash for cash', September 2022 LDI stress, bank losses after the default of Archegos in March 2021, volatility in commodity markets in Spring 2022). The FSB is coordinating an important programme of work to remediate these vulnerabilities. I would highlight:

- Money market funds: where further action is needed to implement the FSB policy proposals agreed in 2021 to address the structural vulnerabilities and 'run risks' associated with money market funds. Authorities in the UK will consult later this year on money market fund reform.
- Margin practices: where, as highlighted by the BCBS-CPMI-IOSCO review of margining practices in 2022, international standard-setters need to develop policy proposals to reduce the potential for sudden and unexpected liquidity demands from margin calls, and to improve market participants' preparedness to meet such calls by strengthening their internal risk and liquidity management.
- Open-ended investment funds: where the FSB and IOSCO have both consulted in July on a welcome strengthening of liquidity management by open-ended fund managers compared to current practices.
- Non-bank leverage: where authorities, led by the FSB, are working to enhance our ability to identify and monitor risks from leverage in non-bank financial intermediaries, as well as to mitigate the adverse implications for market functioning of poorly-managed leverage (as crystallised in the UK in LDI stress in September 2022).

I think it essential that this work results in effective policy outcomes that improve the resilience of market-based finance globally.

In addition, international authorities need to draw lessons from the failure of three mid-sized US banks (including Silicon Valley Bank), and Credit Suisse, earlier this year. I would highlight

- Interest rate risk: These events demonstrated the importance of robust regulatory and supervisory standards for the management of interest rate risk.

- Liquidity framework: Deposit outflows at some regional US banks were large and rapid, with digital banking technology and social media playing a role in increasing the speed at which both information was shared and deposits withdrawn.
- Resolution: The stress demonstrated the importance of international authorities' commitment to ensuring that the resolution framework and plans for global systemically important banks, in line with FSB standards, remain credible.

As well as addressing the lessons from recent bank failures, implementation of the globally agreed rules and standards in the Basel 3.1 package is an international priority. This is in line with the Bank's approach to 'safe openness' and will avoid a potential race to the bottom. The PRA published a consultation paper on its proposals for Basel 3.1 implementation in November 2022.

Like market-based finance, cryptoassets, stablecoins and digital finance are global markets where risks are most effectively addressed through internationally co-ordinated reforms.

'Unbacked' cryptoassets have no intrinsic value and are vulnerable to major price corrections where investors may lose all their investment. While direct risks to UK financial stability from these are currently limited, were they to grow rapidly and become more connected to the financial system they would present a number of financial stability risks.

Stablecoins are less volatile and so have the potential to become widely used in payments – though so far, they have been used mainly to buy and sell unbacked cryptoassets. Financial stability risks here arise from use as a widespread means of payment without meeting standards equivalent to commercial bank money and traditional payment chains.

We have seen these risks crystallise in recent events. In March, the fall in cryptoasset prices and activity was a driver of the failure of two US banks (Silvergate and Signature) that offered services to cryptoasset clients. The failure in 2022 of a major stablecoin, as well as several crypto lenders and exchanges, highlighted how entities in this ecosystem are subject to the same sources of risk as those we have seen in traditional finance (e.g. leverage, liquidity and maturity mismatch, handling of client funds) but in many areas operate outside of the regulation developed to manage those risks.

I consider it important to put in place adequate regulation for this activity in advance of it becoming systemic not only to manage financial stability risk, but also to encourage sustainable innovation. It is difficult to retrofit regulation once new technologies and business models become established and adopted at scale. In addition, it ensures innovators are able to understand the risks that need to be managed as they develop their products, rather than innovation reflecting greater risk-taking. Such an approach maintains broader trust and integrity in the financial system.

Given the global nature of these markets, it is important that regulators work together globally to promote comprehensive and consistent regulatory and supervisory approaches. In July, the FSB finalised high-level recommendations for both crypto-assets and stablecoins, based on the guiding principle of 'same risks, same regulatory outcome'. We need now to ensure full and effective implementation of these recommendations globally, supported by further work by international standard-setting bodies. HMT's proposed regime for cryptoassets will seek to implement the FSB's principles in the UK. And following the expansion in its regulatory remit in the Financial Services and

Markets Act 2023, the Bank will later this year publish a Discussion Paper on the regulatory regime for systemic payment stablecoins.

<u>13. What is your assessment of the risks to financial stability arising from both higher inflation and higher interest rates?</u>

Price stability reduces the scale of economic fluctuations over time and so returning inflation to target sustainably supports the FPC's objective of protecting and enhancing UK financial stability.

The sharp transition to higher interest rates and greater market volatility could however create stress in the financial system – as we set out in detail in the FPC's Q2 publications. This could arise from increases in debt servicing costs for households and businesses, which can make borrowers less able to refinance their debt, more likely to default (leading to losses for lenders), and more likely to adjust their spending and saving behaviour with wider economic consequences. Reductions in the market value of fixed-rate assets can present risks to financial institutions if exposures are not managed prudently within a regulatory framework (as was seen during US banking stress in March 2023). In addition, there may be liquidity risks from the use of derivatives or leveraged products if users lack sufficient liquidity to meet higher margin and collateral calls. The pressure of liquidity calls can lead to the fire-sale of assets (as we saw in the LDI stress in autumn 2022) and tighter credit conditions for households and businesses.

I support the FPC's judgement that large parts of the UK economy and financial system have so far been resilient to increases in interest rates, although it will take time for the full effect of higher interest rates to come through.

<u>UK households</u> are directly affected by rising interest rates through the cost of servicing and refinancing their debt. However, they are less exposed to this than in previous tightening cycles, in part reflecting the increasing prevalence of fixed-rate loans. Indeed, while the overall number of mortgages in arrears increased slightly over the first quarter of 2023, this remains low by historical standards.

The proportion of households with high debt service ratios, after accounting for the higher cost of living, has increased and is expected to continue to do so as households' fixed-rate mortgage deals expire. But it is projected to remain some way below the historic peak reached in 2007.

There are several factors that should limit the impact of higher interest rates on mortgage defaults. As noted in question 11, the FPC's mortgage market measures, introduced in 2014 – including its loan to income flow limit on lending to borrowers with high loan to income ratios at or above 4.5 – and the Financial Conduct Authority's (FCA's) responsible lending requirements, have limited the build-up of household indebtedness in the mortgage market. This has increased borrower resilience and played a role in reducing payment difficulties for residential mortgagors. In addition, given robust capital and profitability, UK banks have options to offer forbearance and limit the increase in repayments faced by borrowers, including by allowing borrowers to vary the terms of their loans. There are now stricter regulatory conduct standards for lenders with respect to supporting households in payment difficulties. And in June, the principal mortgage lenders, the Chancellor and the FCA agreed new support measures for mortgage holders.

The UK corporate sector is expected to remain broadly resilient to higher interest rates and weak growth. UK businesses (especially small and medium sized businesses) are more exposed than households to increases in interest rates in the short term due to the prevalence of floating-rate debt and so higher financing costs are likely to put pressure on some smaller or highly leveraged firms. The debt-weighted proportion of medium and large corporates with low interest coverage ratios is projected to continue to increase throughout 2023 as debts are refinanced at higher rates, although it is expected to remain some way below previous peak levels.

Corporate insolvency rates have risen above pre-Covid rates, but they remain low relative to longer-term average levels. The large majority of the increase in insolvencies has been among very small firms that hold little debt, and a high proportion of the debt they do hold is fixed at low rates and government guaranteed. More broadly, the corporate sector has been repaying debt and its near-term refinancing needs appear limited.

The rise in interest rates from a low level has so far increased UK banks' net interest margins and profitability. While higher rates reduce the market value of banks' fixed-rate assets, UK banks manage these risks through hedging within a robust regulatory and supervisory framework that includes rules designed to ensure that they hold capital against interest rate risks in their banking book as well as regular stress testing.

There are risks to banks from increased loan defaults as a result of higher interest rates. Nonetheless, asset quality overall remains relatively strong, with higher interest rates having had a limited impact on credit risk so far. Some forms of lending, such as to finance commercial real estate investments, buy-to-let, and lending to highly leveraged corporates – as well as lenders that are more concentrated in those assets – are more exposed to credit losses as borrowing costs rise.

The UK banking system is well capitalised and maintains large liquidity buffers. In addition, the results of the 2022/23 stress test indicate that the major UK banks are resilient to a severe stress scenario that incorporates persistently higher advanced economy inflation, increasing global interest rates, deep simultaneous recessions in the UK and global economies with materially higher unemployment, and sharp falls in asset prices. In aggregate, smaller lenders are also well capitalised and maintain strong liquidity positions. These lenders typically hold greater amounts of capital as a share of their risk-weighted assets, relative to regulatory requirements, than larger firms and maintain significant liquidity buffers.

The non-bank financial sector is also affected by rising interest rates. Indeed, we saw such interest rate risk crystallise in Autumn 2022, when unprecedented increases in long-term gilt yields exposed vulnerabilities in LDI funds that required a temporary and targeted intervention by the Bank to stabilise functioning in the gilt market while the funds took action to increase their resilience to higher interest rates. The ability of those funds to absorb shocks has since been reinforced through the setting of new standards following our recommendations.

The rest of the non-bank financial system has so far been resilient to higher interest rates. Some non-bank financial intermediaries may benefit from higher interest rates, for example, insurers and defined benefit pension schemes typically benefit as the present value of their future payments to policyholders and pensioners falls. However, the use of interest rate derivatives and repo can create leverage and liquidity risks that need to be managed. And the risks from higher interest rates can be amplified by non-bank financial intermediaries. For example, hedge funds are often highly leveraged, and deleveraging behaviour involving the sale of an asset often as its price falls, can amplify market moves in stressed environment.

Finally, there could be further spillovers to the UK from risks in other jurisdictions (as occurred in March this year). Those parts of the global banking system that are directly linked to the UK financial system appear resilient. However, riskier corporate borrowing in financial markets – such as private credit and leveraged lending – appears particularly vulnerable, and global commercial real estate markets face a number of short-and longer-term headwinds that are pushing down on prices and making refinancing challenging. Stress in other jurisdictions could pose risks to UK financial stability, if that stress translates into tighter financial conditions, sharp moves in asset prices, or reduced confidence in the global banking system. Similarly, a deterioration in the economic outlook in other jurisdictions may affect the outlook for the UK economy, and so the ability for UK firms and households to service debt.

In summary, the economic outlook is highly uncertain and the risk environment challenging. I judge that the UK economy has so far been resilient to interest rate risk, though it will take time for the full impact of higher interest rates to come through. Parts of the global banking system and financial markets remain vulnerable to potential stresses. However, I think UK banks remain strong enough to support households and businesses – even if future economic conditions are worse than expected.

Prudential Policy

14.What are the main operational challenges now facing the PRC?

A complex operating situation – in particular the increased responsibilities as a rule-maker that flow from the Financial Services and Markets Act (FSMA) 2023 – alongside the challenging risk environment (described in questions 11, 13 and 15) provide a demanding backdrop to delivering the PRA's strategic priorities that were set out in the PRA Business Plan 2023-24 in May.

As a result of FSMA 2023, the PRA is taking on wider rulemaking responsibilities (in particular the deletion of retained EU law and the replacement of this material in PRA rules).

Given these extra responsibilities, it is appropriate that the PRA is subject to an enhanced accountability framework, as Parliament has determined and set out in the legislation. These include a secondary competitiveness and growth objective, new regulatory principles (or 'have regards') and the establishment of a panel to provide independent input into the PRA's cost benefit analysis. And more broadly, the PRA is seeking to take the opportunity presented by the reforms in FSMA 2023 to refine the way it makes policy, ensuring the PRA consistently delivers in a strong, accountable, responsive and accessible way.

Competitiveness and growth will carry greater weight in decision making, consistent with their elevation to the status of a secondary objective. The PRA aims to take a proactive approach to the new objective - for instance by embedding competitiveness considerations in policy development from an early stage and including analysis of the impact of proposed policy on competitiveness in formal internal committee papers, including for the PRC.

Having rules in the PRA Rulebook rather than legislation will enable the PRA to update rules more quickly and to make any new rules as required.

There will also be greater flexibility over how international standards are implemented. The PRA will be committed to faithful implementation, but there will be circumstances where implementation of standards will be adjusted to account for UK circumstances.

Finally, the PRA Rulebook will be substantially revised. Currently, regulatory material is scattered across a range of sources. Reforms here are focused on reducing complexity and fragmentation and improving the clarity and accessibility of regulatory material. We know this is an important issue for regulated firms.

The Government's reforms constitute a step change in the PRA's responsibilities. I agree they are welcome and that the PRA should take full advantage of the opportunities they will create. The work presents a number of operational challenges, however. In particular:-

- It will be important to retain agility alongside the new accountability requirements. The policy development process is becoming more complex; so we must be careful not to compromise on the aim to be a more responsive regulator.

- Some of the reforms are far-reaching and ambitious and progress will not come overnight. For example, reform of the PRA Rulebook is a multiyear process, and is dependent upon retained EU law being deleted and replaced in PRA rules.

The PRA has already taken steps to facilitate competitiveness and growth under the pre-FSMA 2023 framework. It has for example tailored proposals on the Net Stable Funding Ratio (NSFR) in response to firms' feedback. In addition, it has removed EU restrictions on distributions that went beyond internationally agreed standards given an absence of evidence that these restrictions were justified – from an FPC perspective, this change is welcome as it addresses the risk that such restrictions could lead banks to restrict lending in a stress.

Separately, the PRA is progressing an extensive programme of work to strengthen and transform its data and technology capabilities. And notwithstanding an increase in staff numbers and reprioritisation, there has been increased levels of staff stretch.

I look forward to monitoring and supporting the PRA in meeting these challenges as a member of PRC.

15. Which do you think are currently the greatest risks to the safety and soundness of the UK financial services firms, and how likely is it that those risks will crystallise?

PRA regulated firms are dealing with a very significant degree of uncertainty arising from the wider geopolitical, economic and financial risk environment.

I would highlight in particular that actual and expected increases in interest rates – which have led to tighter financial conditions – along with subdued economic growth have the potential to pose risks to the safety and soundness of UK financial services firms (see question 13).

I consider the UK banking system to be resilient and to have capacity to support households and businesses through a period of higher interest rates, even if economic conditions are substantially worse than expected. The results of the 2022/23 annual cyclical scenario stress-test support this.

I judge the UK insurance sector to be similarly resilient. The 2022 insurance stress tests demonstrated that the UK insurance sector is resilient to adverse economic scenarios in combination with increases in longevity, natural catastrophe and cyber losses.

In addition, the first public supervisory stress test in 2021-22 of UK central counterparties (CCPs), which are supervised by the Bank, found them to be resilient to a severe financial market stress scenario, incorporating a rise in interest rates.

The resilience of UK banks, insurers and CCPs reflects the strong regulatory and supervisory standards to which they are held and which are especially important in this challenging risk environment.

There are potential risks to the resilience of other non-bank financial intermediaries, where vulnerabilities remain (see questions 11 and 12). As we saw with the default of Archegos, such vulnerabilities can lead to credit risks for banks. And as we saw with the dash for cash and in the period of LDI stress, market dysfunction affects all firms using those markets including banks, insurers and critical third parties. There continues to be an urgent need to increase resilience in non-bank financial intermediaries globally. The PRA as supervisor of counterparties to non-bank financial intermediaries and intermediaries in market-based finance and the Bank as supervisor of CCPs have an important role to play in supporting this work.

As set out in my answer to question 16, there is a need to ensure the operational resilience of all financial firms, not least given the increase in frequency and sophistication of cyber threats. The Bank, the PRA and the FCA are in the process of building a stronger supervisory framework to improve the operational resilience of all financial services firms. Firms have made good progress in building resilience, though there is more for them to do.

The physical and transition risks associated with climate change can create financial risks that matter for the safety and soundness of financial services firms. The Bank has aimed to size these risks through its Climate Biennial Exploratory Scenario. In addition, the PRA's supervisory expectations aim to ensure that UK banks and insurers develop capabilities to manage their climate-related financial risks. As I set out in a recent speech, while firms have made significant and positive progress to implement these expectations since their introduction in 2019, the level of embeddedness varies across firms and further progress is needed from all firms, as set out in the latest PRA Dear CEO letter.

Finally, poor governance and risk management are always potential risks to the safety and soundness of firms. These matter in particular in a volatile and challenging risk environment. Supervision and regulation of these issues ensures a continued focus on these important topics.

16. To what extent are you concerned with the operational resilience of UK financial services firms?

UK banks, insurers and FMIs have generally coped well with a number of operational challenges over recent years, such as the impact of Covid-19 and other episodes of market volatility. While there have been some disruptions to services, overall resilience (and firms' ability to recover) has been generally positive and is improving, as the Bank and PRA have continued to enhance their regulatory and supervisory frameworks in this area.

The Bank/PRA's new policies on operational resilience came into effect in March 2022. They set out expectations that firms:

- identify important business services and set impact tolerances defining the maximum amount of disruption that can be tolerated without causing harm to customers, the firm or the wider financial system,
- undertake mapping and vulnerability identification of resources that are critical for the end to end delivery of their important business services - such as dependencies on a third party or legacy IT infrastructure, and
- undertake scenario testing to demonstrate ongoing ability to remain with impact tolerances under a range of severe but plausible disruption scenarios.

Since these policies came into effect, firms have taken positive steps to build resilience and address vulnerabilities. But I judge that they have more work to do. This includes ensuring their scenario tests are severe enough, and that they have effective remediation plans. Strategic investments and transformation programmes to deliver these changes will take time. And so as part of ongoing supervision, the Bank/PRA will need to continue to work with firms to ensure that by no later than 31 March 2025 (and after then on an ongoing basis), they have taken all reasonable actions to remain within their impact tolerances in the event of extreme but plausible disruptions to operations.

Supervisors have taken robust supervisory action where necessary to promote firms' operational resilience. For example, the Bank used its statutory powers to require Euroclear UK and International (the UK Central Securities Depository) to appoint a skilled person to conduct a review following a settlement system outage on 17 June 2022.

Within the broad topic of operational resilience, I would highlight the important focus on cyber risks and the risks from critical third-party providers.

On cyber, the CBEST programme of intelligence-led penetration testing - conducted by Bank/PRA and FCA on participating banks, insurers, asset and investment managers and FMIs – enables firms to address any weaknesses identified in their cyber defences and controls. Tests were conducted on 14 firms in the last cycle (2022).

The Bank also conducted a cyber stress test across a set of participating UK firms in 2022 – examining how the sector would respond in the event of a cyber attack across multiple firms. The test highlighted important lessons to improve firms' response to such an incident – e.g. around coordinated industry decision-making, communications , and the need to develop and test contingencies (such as rerouting payments via alternative payment systems).

FMIs, banks and insurers increasingly rely on technology provided by third parties, in particular, cloud service providers. The Bank and PRA have set out policies on outsourcing and third-party risk management, which focus on firms' contingency planning for temporary and prolonged outages at third-party providers, and exit strategies from outsourcing arrangements.

However, if a large number of firms become dependent on a small number of dominant outsourced or third party arrangements which are very difficult or impossible to substitute, a major disruption, outage or failure at one of these third parties could create a single point of failure. Therefore, it is welcome that, under the 2023 Financial Services and Markets Act, the Bank, FCA and PRA will have new powers both to recommend third parties to HMT for designation as critical third parties and to set minimum resilience standards for those critical third parties in respect of material services they provide to firms and to require testing of the resilience of those services.

17. What is your assessment on how technological innovation will affect firms' business models?

I would identify three key technological trends that will affect the business models of banks, insurers and FMIs:

- Increasing use by banks and FMIs, as well as new players, of technologies pioneered in the crypto world to develop new forms of digital money and tokenised assets.
- The increasing capability and use of artificial intelligence (AI).
- Increasing adoption of cloud technologies.

The changes in firms' business models as a result of these trends have the potential to bring considerable benefits to households and businesses through increased efficiency, functionality and resilience, thereby supporting growth. But they also bring risks, including to financial stability, and so we need to ensure the regulatory environment supports safe and sustainable innovation.

The 'tokenisation' of money and other financial assets, including through use of distributed ledger technology (DLT), has the potential to enable more extensive, faster and more secure programming and automation of transactions.

These developments could offer, for wholesale payments and settlement (e.g. between financial institutions and large corporates), the opportunity for fewer intermediaries, lower transaction costs and faster settlement. And for retail payments, there could be a greater ability for users to programme and automate their transactions – e.g. shopping online and releasing funds to the seller only once delivery of goods is confirmed.

We are seeing increasing exploration of tokenisation outside of the crypto ecosystem – by FMIs, banks, and potential issuers of new forms of money. For example:-

- Payments: the Sterling Fnality Payment System will be the first UK payment system to enable wholesale settlement using DLT.
- Settlement: Several FMIs globally (e.g. Luxembourg, Switzerland) are exploring the application of DLT in securities settlement.
- Several industry initiatives are investigating tokenised retail bank deposits – e.g. the Regulated Liabilities Network consortium and Mastercard's Multi-Token Network.
- Although stablecoins are at present used mainly to support trading in other crypto-assets, we have seen several proposals for broader payments use in the economy, including from Big Tech firms – e.g. Libra/Diem (2019-22) and Paypal.

The issuance of digital money by new non-bank players will have implications for banks' business models. Households and businesses may in future hold such new forms of digital money in place of some of their holdings of bank deposits - though it is difficult to forecast with any certainty the extent of this demand for new products.

Banks' use of wholesale funding might increase as some deposit funding transfers to new forms of digital money. Other things equal, banks' overall funding costs would increase as a result, pushing up on the interest rates they charge on lending. The Bank estimated a modest steady-state impact in an illustrative scenario in its Discussion Paper in 2021. We will keep such estimates under review as we learn more about demand for new forms of digital money.

To ensure financial stability, such a transition for banks' balance sheets and business models should be orderly and gradual and needs to consider also what might happen in stress. Our consultation on a digital pound (a UK retail central bank digital currency) proposed limits on holdings of it, at least in its introductory period. We are considering whether there should be limits, initially at any rate, on systemic stablecoins used for payments - we will publish a discussion paper on our regulatory regime later this year.

The PRA intends to set out its approach to tokenised bank deposits alongside the Bank's discussion paper on systemic stablecoins. And more broadly, the Bank is supporting innovation of this type through the launch of a Digital Securities Sandbox (to explore the application of technologies such as DLT to securities settlement). In addition, the Bank is developing ways to ensure that tokenised wholesale transactions are able to settle in safe, central bank money whether through new 'omnibus' accounts already launched in our Real-Time Gross Settlement (RTGS) payment system, renewal of the overall RTGS system, or potentially wholesale CBDC. Together, these will support safe innovation.

Financial services firms are also increasingly using more advanced and embedded AI applications – for example:-

- to improve risk management and compliance, particularly for anti-money laundering and fraud detection
- to improve credit underwriting and reduce the need for manual processing; and
- to improve insurance pricing and underwriting.

AI could provide benefits both for consumers and firms – for example if risk assessments are more accurate or if processing of information is more efficient. And so the Bank and PRA, together with the FCA, have been proactively exploring the adoption of AI and machine learning by financial firms in the UK. This included surveys in 2019 and 2022, the establishment of the AI Public-Private Forum, and a Discussion Paper on the use of AI and machine learning in October 2022. The Bank and PRA have a technology-agnostic approach to prudential regulation based on the guiding principle of 'same risks, same regulatory outcome'.

Like other financial models, AI models may have risks. Their increased complexity could mean model results are hard to explain (the 'black box problem'), making model performance hard to judge. Their use of large volumes of data could make them vulnerable to errors or biases in inputs. Use of similar AI models or input datasets may add to risks of herding across firms and so procyclical behaviour at times of market stress. And finally, since developing and implementing AI models can require a significant amount of data, computing power and expertise, firms may choose to outsource this, potentially increasing reliance on a small number of critical third parties.

It is important that we continue our work exploring whether existing requirements and guidance are sufficient to address these risks, and how additional intervention may support the safe and responsible adoption of AI in UK financial services.

Finally, we have already seen increasing adoption of cloud technologies by banks, insurers and FMIs and much more is expected. This can potentially provide benefits for efficiency and operational resilience (e.g. compared to legacy technology and on-premise data centres). It could also support competition and innovation, by reducing barriers to entry for smaller players who might not be able to invest in their own technology solutions. But, as noted in response to question 16, it will also require work across the public and private sectors to ensure the risks are managed appropriately.