TSC QUESTIONNAIRE

Personal and professional

1. ***Do you have any business or financial connections or other commitments which might give rise to a conflict of interest in carrying out your duties as a Deputy Governor of the Bank of England?***

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

While it does not give rise to any conflict under the Bank's conflicts policy, in the interest of full disclosure, I would add that my daughter is a journalist at a London newspaper. This relationship, as all others, is covered by the Bank's confidentiality policy and has also been disclosed to all of the policy committees on which I sit.

2. ***Do you intend to serve out the full term for which you have been appointed?***

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

Financial Stability and the Financial Policy Committee.

3. ***In your response to the Treasury Committee's questionnaire on your appointment as Deputy Governor in 2013, you said you anticipated four main challenges:***

   i. ***"ensuring macro-prudential supervision is a well understood, credible and effective operational reality;***

   ii. ***influencing, completing and implementing the international regulatory reform agenda;***

   iii. ***implementing in the UK an effective and credible resolution regime and ensuring central counterparties are safe and sound so as to address the problems of too big to fail, and;***

   iv. ***making the new Bank structure work to its maximum potential."***

   What has been your personal contribution to addressing these challenges over the last five years?

Over the past five years there has been very significant progress against the challenges that I identified in October 2013 at the outset of my current term as Deputy Governor for Financial Stability.

I set out below the main elements of this, many of which are also covered in answers to other specific questions from the Committee.

i) Ensuring macro-prudential supervision is a well-understood, credible and effective operational reality.

In 2013, macro-prudential supervision was still a very new policy area.

Likewise, the institutional machinery and its operation, especially the Financial Policy Committee but also the Bank of England's post crisis macro-prudential policy capability, were relatively new and largely untested.

The FPC had begun its work in June 2011 on an interim basis but had only been formally established in April 2013. The Bank also assumed responsibility for micro-prudential supervision and for the Prudential Regulation Authority in April 2013 and the strategic re-structuring of the Bank to reflect these new responsibilities was implemented in June 2014.

The interim FPC had rightly focussed on reinforcing quickly the overall resilience of the major UK banks and making progress to the new international capital standards. This provided a firm basis for much of the FPC's subsequent work.

However, at the start of my current term, significant areas of policy in relation to the prudential framework for the banking system remained to be resolved and put into practice. These included: the leverage ratio capital requirement; the systemic buffer regime for domestically significant banks; 'ring-fencing' of UK banks retail operations, the implementation of bank system wide stress testing in the UK; the objectives and operation of the Counter-Cyclical Capital Buffer (CCyB); the main pillars of the new bank resolution regime; and developing an approach to address risks from cyber.

At the same time, the Committee had not at that point had the time to develop or articulate its approach, as the UK macro-prudential authority, to risks beyond the banking system. In particular the Committee had not developed its thinking and tools in relation to overall financial stability risks and vulnerabilities on household as opposed to bank balance sheets. And while international action had been launched on the aspects of shadow banking that had proved toxic in the crisis, the Committee had not developed its approach to risks and resilience in market- as opposed to bank-based finance.

Over the past five years, the main planks of the post-crisis macro-prudential framework for banks have been put in place and the FPC has assessed the overall level of resilience in the system.[1] Annual system wide stress testing of the banking sector commenced in 2014.

In 2015, the FPC set out its overall approach to counter-cyclical policy, emphasising that it saw its primary role as reinforcing the resilience of the banking system, for example by raising capital requirements, over the financial cycle as risks built up rather than seeking

[1] The FPC has set out its approach to using its powers in a series of policy statements: '*The FPC's approach to setting the countercyclical capital buffer*' (April 2016), *'The FPC's power to supplement capital requirements'* (January 2014), *'The FPC's powers over leverage ratio tools'* (July 2015), and *'The FPC's powers over housing policy instruments'* (November 2016).

to 'lean against the wind' to manage the financial cycle more directly. In this way, the Committee seeks to ensure that the financial system can support the economy at times of stress rather than generating and amplifying stress as occurred in the financial crisis.

In 2015, the stress testing framework was developed further to establish the Annual Cyclical approach to stress testing. This links the severity of the stress test more directly to the financial cycle to inform the Committee's judgments on the necessary level of resilience in the banking system and, in particular, the setting of the counter cyclical capital buffer. At the same time the Committee instituted an additional biennial 'exploratory' scenario, to explore the robustness of the banking system to more general challenges. The UK stress testing framework is transparent and is now well understood by banks and their investors.

In 2014, the Committee developed its approach to risks on household, as opposed to banking sector, balance sheets when it addressed the rising loan to income ratios in new mortgage lending. The Committee's assessment was that although the crisis, like other episodes of stress in the UK, had not resulted in a high level of mortgage default and bank losses, cohorts of households with higher mortgage debt relative to income had reduced consumption materially in times of stress and constituted a macro-economic, and indirectly a macro financial, vulnerability that the committee should address. In June 2014 the Committee recommended precautionary limits on the flow of lending at high debt to income ratios and strengthening the testing of new borrowers at stressed interest rates. HM Treasury subsequently proposed and Parliament agreed that the Committee be given direct powers in relation to household debt to income and debt to equity. Since 2014, the Committee has continued to focus on macro-prudential risks arising from borrower as well as bank balance sheets.

Over this period, the FPC has also developed its approach to risks and resilience beyond the core banking system. The FPC has powers of recommendation over where HMT sets the regulatory perimeter. Since 2014 the FPC has conducted an annual assessment of financial stability risk and regulation beyond the core banking sector. As part of this annual assessment process, it has investigated and reported on a number of non-bank elements of the financial system. These investigations have explored risk and resilience in relation to open-ended investment funds; market liquidity; insurance companies; derivatives markets; and the role of leverage in the non-bank financial system (the last of which is ongoing).

FPC has also developed and set out its agenda for addressing system wide cyber risk and resilience operational resilience. In 2013, the FPC initiated the CBEST programme of threat-led penetration testing of the most significant firms and market infrastructures at the core of the UK financial system. In June 2017 the FPC issued a comprehensive forward-looking cyber agenda encompassing not only the ability of firms to withstand attacks – as the CBEST did – but also their ability to recover from I attacks. The FPC's work on cyber involved a range of UK authorities, including the National Cyber Security Centre, and the Bank has played a key role in promoting and developing the FSB agenda as part of international work to address cyber threats in the international financial system.

Over the past five years the FPC has embedded clear working methods. It has established an annual cycle for stress testing and for *reviewing* risks beyond the regulated perimeter and a forward agenda for investigative 'deep dives' into the specific areas of financial stability risk. The Committee publishes its work programme annually. It has reinforced the support given to its external members.

The Court of the Bank oversees an annual survey of FPC members to assess the Committee's effectiveness and the support provided by the Bank. The external members have reported to the Chair of Court that they consider the Committee to be working well, with productive discussions and effective policy interventions.[2]

The FPC has also developed its working methods in relation to the other Bank of England policy committees with which its work can interact. It has established joint meetings annually with the PRC on the joint FPC/PRC stress test of the major banks and other bank regulation issues. It meets together with the MPC at least twice a year to discuss issues of common interest.

Over this period the Bank's macro-prudential capacity and capability, which supports the work of the Committee, has evolved. In the 2014 Strategic Plan the former separate financial stability elements of the PRA and the Bank were restructured into two directorates for Financial Stability and for Prudential Policy to serve the whole Bank and both the FPC and the PRC. Both report to the DGFS (the reporting line for Prudential Policy is shared with DGPR). As the post crisis macro-prudential regulatory framework has been put in place, it has been possible to put and direct more resources to supporting the FPC's work on risks beyond the banking sector.

Over the past 5 years, the FPC has met in each of the 20 quarters,[3] published ten Financial stability Reports, carried out four concurrent stress tests,[4] issued four policy statements, and made 19 policy directions or recommendations. It has assessed and where necessary addressed not only risks originating from within the financial sector but also externally generated risks to financial stability. The most striking examples here are the FPC's assessment of risks to financial stability that might arise around the Scottish and the EU referendums and the Committee's ongoing work to identify and address financial stability risks around Brexit. In the case of the referendums, the FPC and the Bank made an assessment in advance of what might happen as results became clear, what risks to financial stability that might give rise to, and how to mitigate those risks – and it put measures in place in advance to make sure that could happen. I deal with Brexit related risks in the answer to question 4 below.

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[2] See pp. 59-60 of the Bank of England annual report and accounts, 2017-18
[3] Each quarter, the FPC typically meets at least 7 times – a briefing meeting from staff covering developments since our last round, three 'Issues' meetings to discuss key topics in more depth, the policy meeting and two drafting meetings to agree the Statement (or FSR executive summary) and the Record. There are additional meetings as needed including some with the PRC (in particular to agree stress test scenarios and results) and the MPC.
[4] The fifth – the 2018 ACS – is currently in progress.

My assessment is that the UK's macro-prudential framework has matured and is now an operational reality. The policy framework and the machinery to deliver the Bank's macro-prudential financial stability objectives been firmly established and operate smoothly, credibly and effectively both to identify and respond to financial stability risk. This assessment is supported by the conclusion of the IMF in its recent Financial Stability Assessment of the UK that UK 'authorities have made significant progress in their operational framework', specifically commenting that the FPC has established a functional process for identifying systemic risk and mapping risks into policy action.

The macro-prudential framework, though it is now firmly established, will of course need to evolve further to respond to changes in the financial sector and new areas of risk. I set out some of these future challenges in the answer to question 4 below.

There will also need to be greater progress on the wider communication of macro-prudential policy and the Bank's financial stability function. While the UK's post crisis macro-prudential framework has in my view become a credible and effective operational reality over the past five years, less progress had been made in ensuring it is widely well understood. This challenge is covered in greater detail in the answer to question 19.

Progress on embedding and developing the UK's macro-prudential framework over the past five years has been the result of much high quality, dedicated and path breaking work by Bank of England staff and the contributions of past and current members of the FPC. I believe I have contributed, personally, to this in three ways.

First, as deputy Chair of the FPC I have participated actively in and contributed to all of the Committee's discussions and decisions. In doing so, I have sought to bring to bear my previous experience, from the Treasury and Cabinet Office of financial stability issues pre-financial crisis and lessons learned in the crisis itself and in its aftermath. Where relevant, I have drawn heavily on my international and EU experience. I have chaired the Committee when the Governor has, unavoidably, been unable to do so.

Second, as the Deputy Governor responsible for this area of the Bank's work I have sought to ensure the Bank could deploy and, where necessary, develop the capacity and capability to deliver the Bank's financial stability objective and support the macro-prudential framework and the FPC. This senior management role has included shaping the organisation to meet priority challenges, ensuring we have the right skills and personnel for the job and setting objectives for this part of the Bank. I maintain a close oversight of the work that supports the FPC. As a member of the MPC and of the PRC, and as the Bank representative on BIS, FSB and G20 committees, I am also able to bring insights from the FPC to these committees and vice versa.

Third, as the most senior Bank official, below the Governor, responsible for financial stability I have represented the Bank and the FPC publicly. I have sought to use my role to communicate not only the approach and decisions of the FPC but also to explain the underlying financial stability issues we face. I have done this through a series of: media engagements; public speeches (see attached list) and conferences; engagement with industry participants; and regional and schools visits.

ii. Influencing and completing the international regulatory reform agenda.

International agreement of the unprecedented, post crisis, programme of regulatory reforms is now essentially complete. Implementation of the major elements is well under way. All FSB jurisdictions have the core Basel 3 rules on capital and liquidity in place, including additional capital buffers for the systemically important institutions. The final elements for the Basel 3 capital and liquidity standard for banks were agreed last year. Full implementation by banks will take a number of years but banks globally have already raised $1.6tn more capital and greatly increased the liquidity they hold.

A series of measures have addressed the most toxic forms of shadow banking. Reforms to derivatives markets are replacing a complex, opaque and dangerous web of under-collateralised bilateral contracts with a more robust and transparent system centred around central clearing (see answer to question 8 below). International standards have been agreed for bank resolution, including on requirements for debt that can be bailed in to enable the resolution of failing banks. Banks have already raised $170bn of 'bail-in-able' debt (see answer to question 7 below).

With the key elements of the reform programme agreed and implementation in train, the FSB, which has overseen this programme of reform, has begun to pivot more towards surveillance of financial stability risks, monitoring of implementation and evaluation of the regulatory reforms in the light of emerging experience.

Over the past five years, the Bank of England has continued to make a very substantial contribution to the international reform programme and in recent years the pivot towards surveillance and evaluation through its participation in the work of: the key international standard setting bodies; the FSB; the Bank for International Settlements, the G20 and G7 and the IMF. The Bank is also heavily engaged in the work of the European Systemic Risk Board and the European Supervisory Agencies and supports HM Treasury closely on EU financial sector legislation. Bank officials have led a number of key work streams and Bank analytical work has informed discussion in a number of areas.[5]

My personal contribution has taken two forms. First, I have represented the Bank in a wide range of financial stability and international regulatory fora and sit on a number of the FSB, BIS and ESRB committees. I have used these positions to bring to bear the perspective of the Bank, which has financial stability responsibility for the world's most complex financial centre, on the development of the reform agenda and on the assessment of risk and resilience. I have led a number of international work streams. Second, I was instrumental, in 2014, in the creation of the Bank's International Directorate for which I have management responsibility along with the Deputy Governor for Monetary Stability (see answer to 3(iv) below).

[5] For example, I chaired the CGFS study groups on repo market functioning and on 'window dressing'. This year, a member of staff from the Bank of England co-chaired the FSB's first policy evaluation – the Derivatives Assessment Team's evaluation of incentives to centrally clear over the counter (OTC) derivatives – and Bank staff have been active participants and leads in working groups on topics from cyber risk to crypto-assets to leverage in non-banks.

iii. Implementing in the UK and effective and credible resolution regime and ensuring central counterparties are safe and sound so as to address the problems of too big to fail.

See answers to questions 7 and 8 below.

iv. Making the new Bank structure work to its maximum potential.

My current term began only shortly after the PRA had been incorporated into the Bank and the FPC formally established. The Bank's responsibilities for resolution and for the supervision of financial market infrastructure were also relatively new. Bringing these responsibilities together under one roof, alongside monetary policy and the Bank's market intelligence, offered the opportunity for more informed, more co-ordinated and more efficient analysis and decision making.

Inculcating a culture of One Bank and some reorganisation, particularly of the financial stability divisions (see above) was a crucial step in getting the best out of the new structure in which the Bank has responsibility for both macro and micro prudential supervision. The creation of the International Directorate and the merging of the international macroeconomic and macro-prudential divisions had similar benefits in ensuring broad and comprehensive analysis and advice for both the FPC and the MPC. The structure was further streamlined by the full integration of the PRA in 2016 and the establishment of the PRC and FPC as statutory Committees on the same basis as the MPC.[6]

These changes, along with innovations such as the joint meetings between the Committees referred to above and the sharing of integrated Bank wide analysis between all parts of the Bank and between the policy the Committees has in my view released much of the potential of the new structure. The Bank's current Vision 2020 strategic initiative aims to take that further by promoting a much greater degree of cross bank working and encouraging the development of multidisciplinary teams to tackle the Bank's key priorities. One striking example of this has been the Bank's work on Brexit which has integrated contributions from nearly every part of the institution.

As a member of the Bank's most senior leadership team, I have been heavily involved in the design and implementation of these initiatives. I also lead, along with the Deputy Governor for Prudential Supervision, the cross-Bank work on Brexit.

4. What do you see as the main challenges you will face over the next five years as Deputy Governor for Financial Stability?

I see four main challenges in relation to my financial stability responsibilities over the medium term: implementing timely and proportionate macro-prudential policy in the

[6] The PRA was initially set up as a subsidiary of the Bank of England. On 1 March 2017, as required by the Bank of England and Financial Services Act 2016, the PRA Board was replaced by the Prudential Regulation Committee (PRC), and the PRA was brought within the single legal entity of the Bank of England.

upswing of the financial cycle; identifying and addressing new financial stability risks that could be generated by the changing nature of both wholesale and retail finance; strengthening public understanding of and support for the Bank's financial stability work; and, depending of the outcome of the negotiations, incorporating the outcome of Brexit into financial stability policy.

Macro-prudential policy has, since the crisis, operated in an environment of subdued or fairly standard risk taking. It will need to show it can respond, proportionately but effectively, to the more aggressive risk taking environment that is associated with subsequent stages of the financial cycle.

The financial cycle is more difficult to identify than the business cycle. In general, literature typically puts financial cycle length around 15 years, compared to business cycle length more like 5 years. Risks can build up slowly over a number of years before risk taking and leverage begin to accelerate quickly. The FPC's approach is to build up resilience in the financial system, including through higher bank capital, as risk taking increases to ensure the system is able to absorb any correction while continuing to support the real economy and ultimately to restrain risk taking. Macro-prudential policy operates with a lag and the costs of sharply tightening policy, for example raising bank capital, can be high. The challenge for the Bank and for the FPC over the medium term will be to time and to calibrate policy action to ensure resilience is built up in good time. The environment for such policy is likely to become more difficult as memories of the crisis and awareness of financial stability risks fade.

New risk from the changing nature of finance. The financial system is constantly evolving, so our surveillance of where risks might arise must keep pace with innovation, and we must also equip ourselves with the techniques and tools to swiftly spot, and effectively address these new risks if they become a threat.

A significant, and positive evolution, has been the growth in market based finance since the crisis. This has increased the diversity of sources of funding in the system and reduced reliance on bank based financing. Furthermore, whilst before the crisis market finance was often associated with complex, opaque and fragile structures, due to international post crisis reforms, the previously "toxic" forms of "shadow banking" have either been eliminated or rehabilitated through regulation, leaving us with more durable and resilient market based finance

However, this positive trend of the rise of market based finance, can bring new and different risks. There has been an evolution of risks, such as the rapid growth in open-ended investment funds embedding liquidity mismatch. Funds have moved into less liquid and riskier assets. Investors are often promised daily redemption of their investment. If liquidity is not deep enough in time of stress, redemption pressure could lead to a downward and self-reinforcing spiral of falling prices and asset 'fire sales'. The growth in these funds, alongside evolving structures in financial markets, means that the old orthodoxy that "markets always clear" or the presumption of liquid and continuous markets is not realistic in all scenarios. The next crisis may well be one related to liquidity in traded financial markets and we should make sure we have the toolkit, such

as through simulations of investor behaviour and interconnections in stress, to understand how to build resilience for these risks.

Innovation outside the banking sector is occurring at a fast pace, including from new technologies. The implications of the application of 'big data', automation and artificial intelligence in financial markets may bring about increases in efficiency and possibly market effectiveness, but will also pose risks that are not fully understood, for example the risks of destabilising activity and herd behaviour from algorithmic trading. Similarly the potential for technology enabled businesses to compete with, and perhaps disintermediate incumbent banks and insurers, may have implications for the resilience of firms within the regulatory perimeter, the structure and concentration in markets, and the potential for risk to shift outside the perimeter. Some of these effects are already being seen in the payments chain. The FPC will need to assess whether these developments could have any impact on financial stability and if so how best to address them.

Strengthening public understanding of and support for the Bank's financial stability work: see answer to question 19 below.

Brexit: see answer to question 5 below.

5. ***What do you see as the main risks to UK financial stability posed by Brexit, including in the event of a 'no deal' Brexit? What can the Bank do to mitigate these risks, and to what extent is it possible to mitigate them?***

There is a range of possible outcomes for the future UK-EU relationship. In line with its remit and its general approach to financial stability risk, the FPC is focused on ensuring that financial stability is maintained even in the most severe of possible outcomes – in other words, robust to what *could* happen rather than what is *most likely* to happen. In the context of Brexit, that includes scenarios in which the UK exits the EU at the end of the Article 50 period with no agreement on the future relationship and no implementation period.

Effects on financial stability could arise both through direct effects on the provision of financial services, and indirectly, through macroeconomic shocks that could test the resilience of the financial system.

Taking first financial stability risks arising from the possible disruption to the provision of financial services, since June 2017 the FPC has reported the key risks from a no-deal Brexit to the provision of financial services, and the steps that need to be taken to address them.[7]

These include ensuring legal frameworks are in place, ensuring the continuity of outstanding cross-border insurance and cleared and un-cleared OTC derivative

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[7] See Table A.2 in the June 2018 Financial Stability Report: 'FPC judgement of progress against actions to mitigate the risk of disruption to end-users of financial services' for the most recent published assessment.

contracts, and avoiding disruption to the availability of new financial services, in particular clearing, banking and asset management services. Additionally, any barriers to the cross-border flow of personal data could have a marked impact on the provision of financial services.

Progress has been made including through HMG 's commitment to legislate a temporary permissions regime to enable EU-based financial companies to continue to provide financial services to UK end-users. UK authorities have now set in train all of the possible unilateral measures that can be taken to avoid financial stability risk from disruption of financial services that cannot be solved by private sector action alone. These actions, which depend in large part on parliamentary approval of the necessary legislation, are scheduled to be completed before the end of the Article 50 period.

The remaining risks of disruption that could cause financial stability risk in a no deal scenario are areas where action is needed by both UK and EU authorities, most notably by ensuring the continued operation of the £96 trillion of existing derivative contracts between EU and UK firms in both cleared and uncleared markets.

Under EU law, after March 2019 EU clearing members will be acting unlawfully if they access clearing services from UK CCPs, and UK CCPs may not offer such services, unless those CCPs are recognised by ESMA.

Absent action by EU authorities, there is therefore legal uncertainty about whether EU clearing members could continue to meet their obligations to UK CCPs under existing contracts after the article 50 period in a no deal scenario. Any inability to meet their obligations would jeopardise the safe operation of CCPs, particularly in an episode of stress. This would amplify any stress around Brexit and increase financial stability risks. There is also uncertainty as to the legal consequences for UK CCPs under EU or member state law. To manage these risks, the contracts EU clearing members have with UK CCPs will need to be closed out, or transferred, before March 2019.

Cross-border uncleared OTC derivative contracts would not become void in a no deal scenario. However certain so-called lifecycle events under these contracts (e.g. compression, unwinds, amendments) may become illegal to perform due to loss of EU passporting.

Absent action from EU authorities, EU firms and clients and their UK counterparties may not be able to manage risks effectively. This would introduce fragility that would be exacerbated in, and could exacerbate, a stress.

Affected contracts account for the majority of uncleared derivatives, which have a total notional value of £30 trillion, of which an increasing share (£18 trillion) matures after March 2019.

A technical working group, chaired by the European Central Bank and Bank of England, was established on 27 April 2018 and is examining risk management in the area of financial services in the period around 30 March 2019.

The second, indirect, channel of financial stability risk is the possible impact on the financial sector of any macroeconomic shocks arising from Brexit. The FPC and PRC's annual stress test is designed to ensure that the UK banking system can continue to lend to UK households and businesses in the event of very severe domestic and international shocks. In line with this, the 2017 stress test incorporated a wide range of domestic and global shocks.

In December 2017, FPC judged that this scenario also encompassed a wide range of UK macroeconomic shocks that could be associated with the range of Brexit outcomes, including a disorderly no-deal, no-transition Brexit. As a result, the FPC judged that Brexit risks did not warrant additional capital buffers for UK banks. The FPC reconfirmed that assessment in its 9th October 2018 Statement. The FPC and the PRC are currently testing the major UK banks again against this severe scenario as part of the 2018 stress test which they will consider and report as part of their November round.

In the longer-term, the implications of Brexit for financial stability will depend on the future relationship between the UK and the EU in relation to financial services. The Government, in its White Paper on the future relationship between the UK and the EU, has set out its objective of a relationship based on autonomous UK and the EU 'equivalence' decisions to facilitate cross-border access for financial services.[8] The EU is in the process of revising its current equivalence regimes.

To the extent that Brexit leads to fragmentation of financial services, it could lead to financial stability risks through increased complexity, opacity and higher costs for risk mitigation. Whatever the outcome of negotiations between the UK and the EU, given the size and complexity of the UK financial stability and the costs of damage to financial stability, the FPC has made clear that it will remain committed to the implementation of robust prudential standards in the UK. This will require maintaining a level of resilience that is at least as great as that currently planned, which itself exceeds that required by international baseline standards. The UK authorities will continue to need the ability to manage domestic and external financial stability risks to the UK. And they will continue to need arrangements to support supervisory cooperation with jurisdictions, like the EU's, to which the UK is closely interconnected.

This is not just a Brexit issue. UK financial stability depends in no small part on the management of cross-border risk. Our financial sector is highly integrated in the global financial system. It is home to four, and host to the other 26, globally systemically important banks. As at Q4 2017, Non-EEA UK branches and subsidiaries make up 44% of UK banking sector assets, compared to 12% from EEA (excluding UK) branches and subsidiaries. The exposures of large UK banks to financial corporates resident in EEA (excluding UK) are 7% of their total assets compared to 14% for financial corporates resident in non-EEA. Major global financial infrastructure firms, including CCPs, are located in the UK.

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[8] Section 1.3.4 of the White Paper on the future relationship between the UK and the EU

Managing cross-border challenges to financial stability relies on: robust domestic regulation and supervision; clear international standards, and the implementation of those standards and effective supervision in the main jurisdictions with which our financial sector is connected; and strong cooperation with the supervisory and regulatory authorities in those jurisdictions.

6. ***Other than Brexit, what do you think are currently the most significant risk to global and domestic financial stability?***

The level of both household and corporate indebtedness in the United Kingdom has fallen since the crisis. However, it remains high relative to incomes by historical and international standards. Credit growth is currently moderate in aggregate – over the past year, lending to UK households and businesses has grown just a little faster than GDP. That relatively slow rate of growth appears to be due to subdued demand, rather than lending conditions where there are signs of growing risk appetite from lenders.

In the June 2018 Financial Stability Report, the FPC identified four main risks in addition to Brexit: UK household indebtedness, the UK's external financing position, global debt market conditions, and other global vulnerabilities. Its Q3 2018 statement, released on 9 October, updated that view for developments since then.

There is strong competition in the mortgage market with low interest rates available and banks increasing their share of lending at higher LTVs. But mortgage borrowing increased by only around 3% over the past year, perhaps as affordability constrains more potential borrowers and uncertainty dampens demand. Similarly, despite accommodative pricing for corporate lending, borrowing by UK companies from UK banks has also been subdued, rising by just 2.7% in the past year.

One pocket of rapid growth that the FPC is monitoring closely is in leveraged lending which appears to have been driven by strong investor demand for holding the loans, typically in non-bank structures such as CLOs (collateralised loan obligation funds). Gross issuance of leveraged loans by UK non-financial companies reached a record level of £38 billion in 2017 and a further £30 billion has already been issued in 2018. And lending terms have loosened with only around 20% of leveraged loans now having maintenance covenants, which used to be standard for all loans. The global leveraged loan market is larger than – and growing as quickly as – the US subprime mortgage market was in 2006. There are however important differences. The FPC is planning to assess any implications for banks in the 2018 stress test and we will also review how the increasing role of non-bank lenders and changes in the distribution of corporate debt could pose risks to financial stability.

There are also risks to UK financial stability from global vulnerabilities. Political uncertainty is heightened in a number of countries at the moment. For example, Italian asset prices have fluctuated materially this year in response to political developments there. And amongst emerging markets, Turkey and Argentina have faced particular market pressure in recent months, with Argentina having requested additional support from the IMF. For now, it appears that markets have seen the situation faced by those

two countries as largely idiosyncratic. However, financial conditions across emerging markets have tightened somewhat, as many emerging market central banks have tightened policy and sentiment towards emerging market assets has fallen. There is a risk of wider market stress if investors become more worried about trade tensions and about the future path of US monetary policy. Increased trade protectionism is likely to reduce output, but should not in itself pose a direct threat to global financial stability. That said, trade tensions can expose and crystallise risks related to underlying fragilities. In particular, trade tensions are likely to complicate the efforts of the Chinese authorities as they look to address the elevated level of corporate and financial sector debt.

Over the medium term, cyber risk has also been identified by the FPC as a significant risk to financial stability. This is increasingly on the radar of industry too: in the Bank's latest Systemic Risk Survey, 62% of respondents cited it as a key source of risk, up from 51% a year ago. As set out above, the FPC initiated testing to test the resilience of banks to cyber threats. But, given the nature of this risk, we have also asked firms to prepare for how they can recover if an attack is successful.

7. ***How confident are you that the problem of banks that are 'too big/important to fail' in has been resolved? To what extent is this problem asserting itself in other parts of the financial system?***

Ending 'too big to fail' requires both a robust capital and liquidity framework, with higher levels of capital for large, systemic firms and a credible resolution regime.

There has been a very material increase in capital and liquidity standards, including for the largest, systemic UK banks. Capital for major UK banks averages 16.8% of risk weighted assess and 5.4% on a non risk adjusted, leverage, basis. The major UK banks are already compliant with the 'fully loaded' Basel 3 capital standards. There is therefore much greater resilience in the banking system than prior to the crisis; on a like for like basis, UK banks hold three times more capital than they did in 2007.

However, there will always be risks in banking and the PRA does not operate a zero failure regime. There needs therefore to be a credible regime for resolving a failing bank safely, without damage to any critical functions it performs for the real economy and with the costs falling on shareholders and investors rather than on the taxpayer.

We have made significant progress in the UK, since the crisis in establishing a credible resolution regime for banks, comprising:

- A statutory resolution regime – the legal powers and tools to resolve banks: The UK now has in place a comprehensive and effective bank resolution regime, which gives the Bank a wide toolkit including powers to 'bail in' shareholders and creditors of failed banks. This is essential to ensure that those who enjoy the profits of success also bear losses in failure.

- Adequate loss absorbing capacity – banks should have enough resources on their balance sheets to absorb the losses that cause failure and to allow them to

be recapitalised and continue providing essential services after they fail: The biggest UK banks are already able to absorb losses of almost a quarter of their risk-weighted assets, and are well on their way towards 2022 requirements (which average around 30% of risk weighted assets once capital buffers are included).

- Elimination of barriers to resolvability – firms need to be organised in such a way that the Bank's resolution powers can be used without significant adverse consequences for the rest of the financial system or the wider economy: many common barriers to resolution have already been addressed. For instance, international efforts have led to the cross-border recognition of stays on termination rights in financial contracts. The Bank is working with UK banks to remove other firm-specific barriers to resolution.

- Cross-border co-operation – this is necessary to ensure that the UK is able to resolve not just domestic banks, but those that operate across borders: Significant progress has been made in developing and agreeing international standards for resolution and implementing the necessary arrangements. Co-operation between the UK and key host jurisdictions from around the world has increased substantially, with architecture in place in the form of cross-border Crisis Management Groups and Resolution Colleges. The UK also proactively contributes to cross-border policy development, in particular via the FSB. The FSB has published guidelines on a number of policy areas that the UK considers in its own policy development.

The next phase of work will focus on ensuring that major banks have and are able to demonstrate that they have the systems, documentation, assurance and controls necessary to support their resolvability. We intend to consult at the end of this year on the detail of this reporting and assurance framework.

There are also signs that market participants consider resolution increasingly credible:

- Rating agencies have reduced the degree of 'uplift' from implicit government support for UK banks from four notches in 2010 to less than one notch now. Estimates of the value of the implicit subsidy to major UK bank shareholders from the perception that they are 'too big to fail' have fallen since the financial crisis from around £45bn in 2010 to less than £5bn now.

- Recent cases in the UK and internationally have also demonstrated progress: (i) the private recapitalisation of Coop reflected the credible risk that now exists of bail-in wiping out claims of owners and subordinated debt holders; and (ii) the bail-in of Banco Popular at the height of a run being instrumental in achieving its sale to Santander. The experience of Italian bank failures, which showed a lack of credible loss-absorbing capacity given high retail holdings, and the need to use public funds, underline the importance of credibility in this context.

Our regime is not designed to guarantee to manage bank failure without risk to public funds in all states of the world. Resolvability is not binary and ultimately an expression of a risk tolerance. We must achieve a sufficient level of assurance that resolution plans can deliver an effective resolution for each firm. The major UK banks are both far more resolvable than they were in 2008; and on course to being fully resolvable, in line with our risk tolerance, by 2022. Resolution of a failing bank, even when the full regime is in place, will never be easy or a painless affair. The steps taken so far mean that, were a major UK bank to fail before 2022, resolution would still be a great improvement on the bail-outs of 2008. Shareholders and investors would be bailed-in to recapitalise the bank, outside bankruptcy and many of the elements are now in place to avoid or minimise any damage to critical economic functions.

Similar risks around too big to fail exist in relation to critical market infrastructure (see answer to question 8 below). To a lesser extent, they may exist also in relation to the largest insurance companies. The international standards in this area suggest the need for a resolution regime for insurers. This has not yet been implemented in the EU legislation.

8. ***To what extent should we be concerned about the risks to financial stability posed by the possible failure of a major central counterparty clearing house? Does the Bank currently have the tools required to respond to such an event, and if not, what tools are required?***

A major, crucial, element of the international post crisis reform programme was to increase, to the maximum practicable extent, clearing of derivative contracts through central counterparties (CCPs). The crisis exposed an opaque, complex and in large part under-collateralised web of derivative relationship between financial system participants. As counter party credit risk increased, these relationships acted as very powerful, pro-cyclical amplifiers of stress. Derivatives relationships through CCPs proved much more stable, better collateralised and less pro-cyclical under stress.

Post-crisis reforms have therefore resulted in a significant increase in the importance of CCPs within the financial system – for example, the percentage of outstanding single-currency OTC interest rate derivatives globally that are centrally cleared has increased from an estimated 24% at end-2008 to at least 62% at end-June 2017.

This context is important – the counterparty credit risk that that has now been centralised in CCPs always existed but was previously spread throughout the system. By centralising such risk and also its management, the overall level of risk exposure in the system has been reduced, is more transparent and better collateralised.

Alongside mandating greater reliance on CCPs to manage derivative counter-party credit risk, global central banks and regulators agreed new global standards to support and enhance the resilience of CCPs themselves. These standards include key areas such as governance, financial resources, and risk management and are implemented by the EU through the European Market Infrastructure Regulation (EMIR).

The Bank has fully implemented a supervisory approach consistent with EMIR and with international standards. In 2016 the IMF reported that '*Supervision of financial market infrastructures (FMIs) in the UK has significantly strengthened in recent years; the Bank of England (BoE) is one of the leaders worldwide in shaping reforms in this area.*' In 2016 the Bank's IEO review recognised that '*the Bank is an acknowledged world leader in the field of FMIs and the framework put in place for supervision has dealt effectively with the risks of the past few years' and that 'international engagement is strong, with the Bank making effective use of the various arrangements it has in place for cross-border collaboration*'. The assessment further made a series of recommendations on how we could further strengthen what we do. Most of these are now complete, including strengthening the Board in the Bank of England that oversees FMI supervision and increasing our access to specialist supervisory resources.

In 2017, the FPC assessed that the increased role of CCPs, and the concurrent improvements in CCP supervision, have improved the resilience of the financial system – the global network of derivative contracts is more transparent and better collateralised than it used to be. International work at the FSB (by the Derivatives Assessment Team) similarly concluded that 'the changes observed in OTC derivatives markets are consistent with the G20 Leaders' objective of promoting central clearing as part of mitigating systemic risk and making derivatives markets safer'.

CCP do not themselves take market risk. But they are exposed to the risk of the failure of their counterparties. They are required to hold very substantial resources against this risk. In addition to the collateral that counterparties have to deposit with them, UK CCPs hold default funds (contributions from members that are available to mutually absorb losses from member defaults). These are sized to hold enough financial resources to withstand the default of their two largest clearing members under stressed conditions. There are further steps within their rulebooks that CCPs could take to recover from losses – ability to issue cash calls on members, haircutting of members' variation margins, and the ability to execute 'tear-up' (i.e. orderly closing out of positions) – before we would be in a position of one failing.

The failure of a major CCP would be an extreme tail event. Given the concentration of market participants counterparty risk in CCPs, however, it is necessary to ensure that if failure were to occur, or were likely to occur, a CCP could be resolved so as avoid a potentially systemic shock and to continue providing the risk management services on which its members depend.

The UK has been at the forefront of developing thinking on CCP resolution and UK CCPs were effectively brought into the scope of the Bank of England's resolution powers in 2014.[9] The international consensus around how to address failure in CCPs is less mature than for banks. FSB Guidance came out in July 2017 and is still being implemented globally

[9] When the relevant provisions of the Financial Services Act 2012 came into force

In the UK, we have set up Crisis Management Groups for the two CCPs that have been identified as systemically important in more than one jurisdiction. We are conducting resolution planning for them and have developed resolution strategies built around the provisions within the specific CCP rulebooks. The Bank has been highly transparent in our approach to CCP resolution, including setting out our thoughts on our preferred resolution strategy, to our international peers, CCPs and other industry stakeholders.

This is an area of resolution policy that is still evolving at the national and international level but at present the Bank is at the forefront of this work and in building the international relationships needed to support our approach. However, unresolved questions remain, internationally, about the interaction between resolution and the recovery actions provided for in the CCPs rulebooks, on levels of loss absorbency and on how deal with resolution of a CCP that has failed for reasons other than the default of its members. Finalising and implementing the international standards on CCP resolution is a key priority for the Bank of England.

9. ***How easy has it been to maintain consensus on the FPC? Has there been any decision on which you personally have had to make a significant compromise or have come close to breaking the consensus?***

It is a statutory requirement that the chair of the FPC "must seek to secure that decisions of the Committee are reached by consensus wherever possible".[10] In my five years on the Committee, it has always been able to reach decisions by consensus and has not therefore had to vote on any of its decisions.

In line with the statute, the FPC process is designed to facilitate consensus seeking. The aim is to ensure that, where possible, the Committee explores and discusses a policy issue over at least two quarterly rounds before seeking consensus on a decision. Within each quarterly FPC round, members have the opportunity to discuss each topic at least twice: the FPC's regular briefing and issues meetings each round provide a forum for initial discussion ahead of the final policy meeting at which consensus is sought.

The requirement to operate by consensus wherever possible reflects the very broad and diverse scope of the FPC. Unlike the MPC, with which it is often compared and which is required to vote at every meeting, the FPC has a large, diverse set of tools to address an extremely heterogeneous set of risks across the financial system. Many of the FPC's decisions to date have involved establishing new policy frameworks and tools rather than making finely calibrated adjustments to a single instrument. For the FPC, policy decisions are frequently non-binary: there are often choices between policy instruments and a variety of ways instruments can be applied. This makes voting considerably less straightforward than in the MPC's case.

The fact that the Committee has so far operated by consensus does not, however, signal that there is always homogeneity of view in the Committee or that rigorous discussion has been inhibited. In my experience, there has often been a very wide range of views,

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[10] The Bank of England and Financial Services Act 2016

that have had to be accommodated in the consensus and in the ultimate policy decision. In line with the Statute, Committee members have in my experience, worked actively and constructively over a series of discussions to find consensus on such issues. Such discussions and the different views incorporated in the final consensus are reflected in the Record that is published after each quarterly round of FPC meetings.[11] Perhaps the most obvious examples of finely balanced Committee deliberation to date has been around the setting of the counter-cyclical capital buffer, which is not surprising given that it is a well-defined quarterly policy decision for which we have an established framework.

There have of course been instances where my views have differed from those of other members of the Committee and in which the final consensus did not incorporate entirely my initial view. But through the process of discussion, I have been able to see the force of others' considerations and the eventual decision has incorporated sufficient of my view to make it possible to join the consensus.

10. ***What is your updated assessment of the macroprudential tools available to the FPC? Based on your experiences on the FPC so far, are there any addition tools that you think the FPC may require?***

The existing FPC toolkit is wide in scope and fit for purpose, as demonstrated by the body of FPC action that has been established over the past five years (see questions 3 part i). The FPC has powers of Direction and of Recommendation. It can make Recommendations to anybody and has special powers to make recommendations on a comply or explain basis to the FCA and the PRA. The FPC has an established track record of successful cooperation with other policy Committees (see for example, question 16).

Existing powers of Direction allow the FPC to address a broad range of risks to both lender and borrower resilience. For example, the FPC has power of direction over sectoral capital requirements for some sectors, the leverage ratio, LTV and DTI for owner occupied housing and LTV and ICR (interest coverage ratio) for buy-to-let housing. It is also responsible for setting the CCyB on a quarterly basis.

The FPC is able to ask for new powers of direction and has established a track record of doing so successfully. For example, it received powers of direction over LTV and ICR for the BTL sector in 2016 and the leverage ratio, and DTI and LTV for owner-occupied lending in 2015, after requesting these powers from the government.

The FPC has also been able to flexibly address risks in areas where it does not have powers of Direction. For example, in 2017, the FPC was able to effectively and efficiently address risks arising from rapid growth in consumer credit, by specifying the appropriate loss rate in the 2017 annual stress test. That did not require a formal power

[11] To pick out two examples of this, the relevant FPC Records make clear that there was active deliberation within the Committee around alternative calibrations of leverage buffers (October 2014) and the level of the CCyB in a standard setting (December 2015). The March 2016 and March 2018 Records record the debates the FPC has had around when and by how much to increase the CCyB, which the FPC must consider every quarter.

over sectoral capital requirements for the consumer credit sector and demonstrated the importance of flexibility in the macroprudential toolkit to respond to emerging risks.

Finally, the FPC is able to make recommendations as to where to set the regulatory perimeter. So far, it has not needed to recommend any changes to the regulatory perimeter.

An important challenge for the future will be ensuring that the macroprudential toolkit is able to respond to the evolving shape of the financial system and the growing importance of market-based finance (see question 4). As part of that, the FPC has conducted annual assessments of financial stability risk and regulation beyond the core banking sector since 2014 (with 'deep dives' covering investment funds; market liquidity; insurance companies; derivatives; and leverage in the non-bank financial system). At present, the FPC has not seen the need to for additional powers; this systematic annual process should enable the FPC to identify any such needs in future.

Monetary policy

11. ***You voted against the MPC majority to raise Bank rate in November 2017, but voted with the majority to raise it a second time in August 2018. Have you moved closer to the majority view on the outlook for the economy and inflation since last year? What is your current assessment of that outlook, and the risks to it?***

In November 2017, the MPC's assessment was that there was very little labour market slack left in the economy and that GDP was growing at slightly above its post crisis potential rate of around 1.5%. The MPC's forecast, its best collective view of the central path for growth and inflation, was that growth would continue at around this rate, generating excess demand over the forecast period. This would gently raise domestic inflation pressure, driven in part by faster pay growth. As a result, while the externally generated inflation from sterling's post referendum depreciation would wane, domestic inflation pressure would push inflation above target by the end of the forecast period. The Committee's assessment was that rates would need to rise gradually over the forecast period to keep supply and demand in balance and inflation at target. The majority of the Committee voted to raise rates at the November meeting.

As I made clear at the time, I shared the Committee's central view of the likely path of the economy. But I was less certain that it would generate sufficient domestic inflation pressure to push inflation to target, as the inflation from sterling's depreciation waned. The economy had grown steadily since the beginning of 2013 and over this period unemployment had fallen quickly to levels not seen for over 40 years. But domestically generated inflation pressure had remained muted over this period. There was, in my assessment, no clear evidence that firms had sought to rebuild profit margins squeezed in the post crisis recession and pay growth had remained very weak over the period and had undershot the MPC's forecasts. It was unclear whether and, if so, to what extent, structural changes in the economy and in the labour market had affected the relationship

between unemployment and pay and, more generally, the relationship between the balance of supply and demand on the one hand and inflation pressure on the other.

While, therefore, I subscribed to the Committee's central forecast, I wanted to see more evidence that diminishing slack in the economy was leading to domestically generated inflation pressure and specifically that pay growth was beginning to establish itself at rates consistent with the forecast. I recognised at the time, that waiting for greater confirmation risked policy not being sufficiently forward looking. But, given the experience of the past five years, the still unresolved post crisis puzzles around the rates of growth of pay and productivity, and the fact that rates would only need to rise relatively gently and to a limited extent over the forecast period, I judged that the better course was to wait and voted accordingly.

My approach to policy has not changed materially in subsequent months. In August, I judged that there had been evidence that domestic inflation pressures were increasing broadly in line with the MPC's forecast. Unemployment had fallen further and other indicators showed increasing tightness in the labour market. Most importantly while earnings growth had been volatile, for the first time since the crisis, shorter run measures indicated that pay growth was established above 2.5%.[12] Given the evidence, my assessment was that a rate increase was appropriate.

Looking forward, it seems to me that, while diminished, there remains considerable uncertainty about the supply side. Domestic inflation pressures, while strengthening a little are not yet established at levels consistent with inflation at target. Pay growth has established itself in the 2.5-3% range. But the latest readings do not signal strongly that pay growth will make the next step to establish itself firmly in 3% territory in line with the May forecast. We may still be underestimating supply in the labour market.

In short we are still learning about the relationships between key economic variables in the post crisis economy and are still a long way off the old rules of thumb. This for me still implies an approach with a little more resistance in our reaction to developments.

This approach does not incorporate a judgment on the outcome of Brexit. Brexit has, of course, already affected the UK economy, most notably, but not solely, through the depreciation of sterling following the referendum.

And these impacts have been incorporated into the MPC's assessment of policy and forecast of the economy. But it would be much harder, and in my view it would be mistaken, to set policy going forward in anticipation now of any particular Brexit outcome. There remains a range of possible outcomes and paths to those outcomes. And it is not at all clear how the evolution of demand, supply and the exchange rate would respond in different circumstances – which could mean very different implications for monetary policy.

[12] The three-month-on-three-month annualised growth rate for whole economy regular pay had been 2.5% or greater for 12 months in a row for the first time since 2008.

My view is that the best course for the MPC until there is clarity on Brexit is to react to the economy as it evolves, conditioning our forecasts on neutral assumptions about Brexit outcomes. At the same time, we should stand ready to respond as necessary to meet the inflation target when this uncertainty is resolved. That response will depend on the evolution of supply, demand and the exchange rate.

12. ***What are the costs and benefits of the MPC collectively, and members individually, providing greater clarity on their expectations for the path of interest rates, including through conditional forecasts?***

The MPC doesn't *systematically* publish or report on its view of the future path of interest rates. Its best collective forecast of the UK economy – which we do publish – is conditioned on the contemporaneous market path for interest rates and has been, on occasion, accompanied by qualitative statements about the MPC's view of that outlook. That is not true for all jurisdictions – for example, the Riksbank (responsible for monetary policy in Sweden) publishes a best estimate of future interest rates and the US FOMC publish each member's (anonymised) view of the future rate of paths.

The ability of central banks to influence spending, and hence inflation, depends not just on their ability to set the current level of Bank Rate, but also on their ability to influence expectations regarding future interest rates.

It is clear from the heterogeneity in approaches taken by central banks around the world that the case for publishing a rate path is not clear-cut. It boils down to a judgement about the pros and cons of doing so relative to the alternative approaches, given the particular institutional arrangements of individual central banks.

In a perfect world, guidance about future rates would be redundant. People would know how the MPC intends to set rates over the future and how those intentions would adjust to economic developments – the so-called reaction function. In the real world, guidance can be useful in providing people with information about MPC intentions and, over a period of time, in aiding understanding of how monetary policy adjusts in response to news.

But there are drawbacks to publishing our own path – first, it may convey an unwarranted level of precision: future interest rates depend on future conditions and the MPC is always evaluating new information in making its decisions each round. Second, relatedly, it may be seen as a promise and the MPC credibility weakened if it doesn't follow the path (which may be the appropriate policy response to changing macroeconomic conditions); third, the path may not be accepted – US markets have persistently forecast fewer rate hikes than the FOMC's publications in recent years.

Those are drawbacks in whether it would achieve greater guidance. There could also be drawbacks in terms of MPC behaviour. A published path could make members reluctant to change their views when conditions change. Moreover, while it has been MPC practise to publish our best collective view for forecasts, in practise the MPC operates as a Committee where each member has a vote – which may differ from the majority – on

the policy rate which could make agreeing a collective forecast for rates somewhat harder.

There are arguments both ways, and different institutional setups may lend themselves to different answers, but in my view the current approach of the MPC is appropriate.

13. ***The latest Inflation Report includes an analysis of the long-run equilibrium real interest rate. The Bank's model finds that this has fallen to between 0 and 1 per cent. If you add in the inflation target, that would point to a long-term Bank rate of 2 to 3 per cent. Is this analysis in line with your own thinking? Assuming it is correct, what are the implications for the future of monetary policy and the MPC's ability to prevent inflation from falling below target?***

The MPC in its August forecast round considered analysis of the long-run equilibrium real interest rate. Persistent longer term trends have been pushing down with increasing force on real long term interest rates for two to three decades now. Global preferences for saving and investment have shifted due to forces such as demographic change, changes to income distribution, increased precautionary saving in emerging markets, the falling relative price of capital and low public investment. Low productivity growth is an important more recent part of this story alongside demographic and income distribution trends. The analysis presented in the Inflation Report aimed to quantify these trends to the extent possible.

Those are slow-moving factors that affect the long-run trend real rate, what we call R*. Over the nearer term, the equilibrium real interest rate, r*, can fluctuate around its trend level as a result of shorter-term influences on the economy. During the financial crisis, a number of headwinds to demand — including a rise in uncertainty and a tightening in the financial conditions facing households and firms — meant that the equilibrium real rate fell sharply. These headwinds to demand are taking many years to dissipate, meaning that the equilibrium real rate remains well below the trend real rate R*, which is itself well below its longer-term average.

Given a lower resting point for monetary policy, the effective lower bound is likely to bind more often and for longer periods at a time.

But we have learned a lot about operating at these levels over the past ten years. The MPC may have to turn more frequently to less conventional measures – such as quantitative easing, and the term funding scheme – to operate monetary policy. Our understanding of how these tools operate is less developed than for interest rates, but they have been effective. Monetary policy itself is not constrained, just because interest rates may be.

In this context, staff at the Bank have been doing further work on whether there are further tools we should be working up in a low for long environment.

One of the themes on the Bank's research agenda is "The monetary policy toolkit, including central bank balance sheets, the interplay with prudential policies and the consequences of a low for long environment." We welcome interest from academics, researchers and experts to discuss and potentially collaborate with us on this topic.

Options being considered by the international central banking and research community include extensions of the monetary policy toolkit (such as systematic balance sheet policies), adjustments of the monetary policy strategy (such as commitments to keep interest rates lower for longer through forward guidance, or an explicit risk management approach with an easing bias in the monetary policy stance), or even changes to the monetary policy regime (such as a temporary or permanent price level target, nominal GDP targeting, or a higher inflation target).

The MPC's flexible approach to meeting a 2% inflation target has served the United Kingdom well. The bar should be high for changing this well-established framework. We are not at a point where the balance of evidence favours experimenting with alternatives. But we continue to monitor the merits of adjustments to our framework as our understanding of the economy evolves.

14. ***What financial stability concerns could arise from the withdrawal of quantitative easing and raising Bank rate from its historic lows? What work is the Bank doing to understand and address these?***

The withdrawal of QE and increase of Bank Rate will lead to higher funding costs for businesses and higher cost of borrowing for UK households. For some businesses and households, those increases could lead to financial stress – and potential defaults on loans.

The first thing to note on this is that the MPC will decide when to increase Bank Rate and when to withdraw QE in order to keep inflation at target. It is likely therefore that the circumstances in which these happen will be ones in which there is domestic inflationary pressure – in particular, in which wages are growing and firm margins are growing. Fewer households and businesses will be vulnerable to increased borrowing costs in such circumstances.

The second is that UK households and businesses, in aggregate, do not appear to be particularly vulnerable to increases in interest rates: the interest servicing costs for UK businesses remain comfortably below their pre-crisis average and only 1.4% of UK households have debt servicing costs of greater than 40% of their incomes, the level the FPC has noted would leave households more vulnerable. Interest rates would have to rise materially (600bps for businesses, 175bps for households) before these measures were to rise to their pre-crisis average. That is not to say that for some firms and households, rising interest rates would be difficult, but I do not believe that such vulnerability is widespread enough to be a risk to financial stability.

Finally, we have tested the UK banking system's resilience to defaults in the face of rising interest rates even if those rising interest rates are in a period of stress rather than

growth. The Bank's 2017 stress test scenario had Bank Rate increasing to 4%. Longer-term interest rates are pushed up by an increase in term premia, as well as a higher expected path for Bank Rate. The ten-year gilt yield peaks at 6.9% over the stress period. This was as part of a broader stress to other variables such as corporate bond spreads, exchange rates, volatility measures, credit spreads and equity indices, with many of these shocks resembling the market movements observed during the financial crisis.

The 2017 stress test confirmed that banks are resilient to a snap back in interest rates. No bank needed to strengthen its capital position as a result of the stress test. The major UK banks will be tested again against this scenario in 2018.

The MPC has made clear that it considers interest rates to be its primary policy instrument and it does not intend to reduce the stock of purchased assets until Bank Rate reaches around 1.5%.[13] It has further made clear that any sale of assets on the Bank's balance sheet will be at a gradual and predictable pace, taking into account the need to maintain the orderly function of the gilt and corporate bond markets, and coordinated with the Debt Management Office.

Given the relative volume of experience, we cannot be as confident about the impact of unwinding QE as we are about the impact of increasing interest rates. Analysis suggests that much of the impact of asset purchases may have been due to the circumstances at the time that they were mad: financial markets were not functioning well at that time and the announcement of QE helped to bring order and restore confidence. In the US, where asset sales have begun at a gradual pace, it appears that there has been limited impact on pricing in asset markets, and no damage to financial stability. The Bank is closely monitoring the experience of others, and doing further research, but, at present, I see no evidence to suggest that a gradual unwind in the context of a growing economy would be a risk to financial stability.

Prudential Regulation Committee

15. Has the change from PRA Board to Prudential Regulation Committee resulted in a change in the approach and perspective of the Committee?

The PRA's objectives and functions, and its funding model, were not changed by its de-subsidiarisation in 2017 and those functions (covering both policy and execution) are exercised through or under the PRC. In common with the PRA Board, the PRC is independent in its decision-making functions, including making rules, and the PRA's most important supervisory and policy decisions. Unlike the PRA Board, as a committee rather than a subsidiary company within the Bank, the PRC no longer has the normal corporate duties of a board. As a committee of the Bank, the PRC is subject to the oversight of Court in the same way as the MPC and FPC. But the PRA continues to produce a separate annual report from the Bank of England, and reports annually to the

[13] A decision to start reducing the stock of purchased assets would reflect the economic circumstances at the time.

Chancellor on the adequacy of the resources allocated to the PRA functions and the extent to which exercise of those functions is independent of the exercise of the Bank's other functions. The PRA's strategy is set by the PRC, in consultation with Court.

I have seen no material difference in the PRC's approach or perspective relating its objectives. There has been no change in the Committee's policy or decision making framework. The structural move from a company to a part of the Bank reduced the amount of time spent on compliance, though in practise this has not been material.

But having a PRC model that is aligned closely with the MPC and the FPC – rather than a separate corporate entity within the Bank - has, in my view, enabled better engagement with staff across the Bank and helped further to inculcate a 'one Bank' culture . Information is shared more easily within the analysis that comes to each of the Committees is clearly aligned.

16. How do the perspectives and priorities of the PRC and the FPC differ? Is there any scope for conflict between the committees? How has their relationship worked in practice?

In line with its remit and its general approach to financial stability risk, the FPC is focused on ensuring that financial stability is maintained even in the most severe of possible outcomes – in other words, robust to what could happen rather than what's most likely to happen, or 'tail risks'.

The FPC's scope is broad – it looks at the system-wide health of the financial sector, not just individual banks and insurers. The FPC looks across the financial system to identify where structures or behaviours might amplify or transmit shocks and thus have the potential to magnify them.

For example, the Committee's work on open-ended funds has been concerned with whether the actions of those funds in stress would have the potential to cause distress to markets, and hence other funds. And in our investigation of non-bank leverage, we are interested not just in whether synthetic leverage – derivatives – is leading to highly levered funds but also whether it creates connections and opacity within the financial system that could lead to issues like those seen in the crisis.

Furthermore, the FPC has not limited itself to looking just at the financial system – financial instability can arise from elsewhere in the economy, including from household and business balance sheets. The FPC has acted to address systemic risk that could arise from over indebted households. In these ways, the focus of the FPC differs from that of the PRC. And for banks and insurers, where the FPC does have a common interest with the PRC, our interests are largely aligned – good macroprudential oversight is built on good microprudential regulation.

There are though, circumstances in which the objectives of the two Committees may pull in different directions. During a period of stress in the banking system, what can make sense for an individual firm when considered in isolation – deleveraging to conserve

capital for example – may be counterproductive by amplifying the economic shock when aggregated across the financial system. Indeed, this is one of the key arguments that was put forward post-crisis in support of creating macroprudential regimes. Likewise, the FPC needs to take a top down view on the economic effect of the overall level of capital in the banking system whereas the PRC looks at capital on a firm specific basis.

Through the joint annual stress test exercise and other joint discussions, each Committee is familiar with how the other thinks about safety and soundness in stress, and the importance of ensuring that banks are in a position to continue to support the economy even in severe macroeconomic scenarios.

The two Committees meet together several times a year to discuss issues of common interest. In 2018 that has included not just the stress test, but also the overall level of bank capital and the impact of IFRS9.

17. ***To what extent is there growing pressure for a lighter-touch regulatory regime in the UK after Brexit? How do you respond to such pressure?***

The UK's financial sector's assets are equal to around ten times its GDP. It is home to the largest and most complex international financial sector. The financial crisis brought home the cost to the economy and to society of financial instability.

The FPC made clear, shortly after the Referendum, that it will remain committed to the implementation of robust prudential standards in the UK. This will require maintaining a level of resilience that is at least as great as that currently planned, which itself exceeds that required by international baseline standards. When the UK leaves the EU, the current EU regulatory framework will be 'onshored' without material change and will be fully incorporated in UK law and regulations.

There has been considerable public discussion of the post-Brexit regime for financial service trade with the EU. While this has included discussion of particular elements of the EU regulatory regime (for example, the 'risk margin' component of Solvency II) in my experience, there has not, so far at least, been generalised pressure, from industry or elsewhere, for a 'light touch' regulatory system. The nature of the post Brexit financial services relationship with the EU has not been settled, however, and it is of course possible that such pressure could grow in future. As part of its remit, the FPC will need to monitor and to evaluate against its financial stability objectives any material changes to the regulatory and supervisory regime.

General

18. ***Along with two of your fellow Deputy Governors and the Governor, you sit on all three of the Bank's policy committees. What are the advantages and risks of this arrangement? Do you find it possible to be as engaged with the work of the Monetary Policy Committee as you are with the Financial Policy Committee and Prudential Regulation Committee, which are more directly concerned with your responsibilities as Deputy Governor?***

The financial crisis underlined the close links between the supervision of individual firms and the resilience of the financial system as a whole. It also made clear the relationship of macro-economic stability and financial stability.

I set out in the answer to question 3(iv) above the way in which the changes to the Bank's responsibilities and structure has enabled greater account to be taken of these linkages and where necessary for the Bank's policy committees to take decisions based on common evidence and analysis. The presence of the Governor and of the Deputy Governors for Financial Stability, Monetary Policy and Markets and Banking ensures that each policy Committee can take a holistic view where necessary and informed by insights from the other, related areas of the Bank's responsibilities.

The risks in a structure that brings a number of discrete but related responsibilities under one roof is that the system can be vulnerable to 'groupthink' and to internalising the trade-offs that may need to be made between the different objective. The current structure guards effectively against that risk, in my view, by: each policy committee having a clear and well defined statutory objective; by balancing the members of the Bank executive team, who share all of the Bank's objectives, with external members who are responsible only for the objective of the Committee on which they sit; by transparency through the Minutes and Record of the FPC and MPC; through the public accountability of each Committee to Parliament (which can and does examine the external members of the policy committees); and through the role of the Court in close monitoring of the operation of the Committees which includes attendance at Committee meetings.

As Deputy Governor for Financial Stability I have a leadership and executive role in relation to the Bank's Financial Stability Directorates, including the Resolution and Financial Market Infrastructure Directorates. This has not prevented me from engaging, in any way with the work of the PRC (which I have chaired on a number of occasions) or the MPC. Over the past five years I believe I have made effective contributions to both the MPC and PRC. Senior executive roles in any large, complex organisation require prioritisation and judgement about the most effective use of time and, in my experience, the Bank is no different in that respect.

19. ***To what extent do you think that wide public understanding of the roles of and decisions made by the Bank of England and its policy committees are important for its accountability and effectiveness? What is your assessment of the current state of public understanding? In particular, how does the state of and need for public understanding vary across the three committees?***

Parliament has delegated a wide range of responsibilities and powers to the Bank of England that can affect the economy and society. As such, it is important that the Bank is clearly accountable to Parliament and that it makes every possible effort to explain the decisions it makes, and how it discharges it functions, to the public.

Independent monetary policy is now well-established and well understood across financial markets and much of the general public. The Bank is seeking to widen its audience and extend the reach of its public communication. We have recently introduced 'layered' communication of monetary policy in order to increase the range of audiences with whom we effectively communicate. Layer one is the main message that can easily be understood by the public and passed on in a single Tweet. Layer two is a succinct tour of the MPC's assessment of the main issues – it is mainly aimed at more informed audiences and journalists. And layer three is the traditional Inflation Report, which has a steady readership among financial market participants and economists.

There is a strong public consensus that low and stable inflation is an important public good. One challenge for us, particularly as memories of the crisis start to fade, is to establish that same legitimacy for financial stability – that it is something the public as a whole deem important to maintain.

Over the past five years, however, my experience has been that the hardest function of the Bank to communicate is the financial stability mandate. Financial sector commentary and response to FPC communication and policy suggests that the macro-prudential framework and within it the role of the FPC is understood within the financial sector. But broader public awareness of the Bank of England's financial stability work is more limited. In a recent survey conducted for the Bank, almost half (46%) of respondents could not say whether they thought the Bank of England was doing a good or poor job of ensuring the financial system could withstand difficult circumstances. This response was consistent with those from previous surveys conducted over the past five years.

We have put substantial effort into improving awareness of our financial stability work over the last year or so and my objective is to make further progress in my second term. We are reforming the way we communicate, both within the Bank and with the public. We have refined our flagship product, the Financial Stability Report, to: increase its impact by making it more focussed (with short chapters on key risks rather than a comprehensive survey of all risks); with more succinct summaries of the FPC's overall position (with a digestible 1-2 page executive summary and a 'risk overview' chapter explaining our CCyB decision); and with enhanced charts and infographics, consistent with the Bank's broader Vision 2020 strategy of 'layered' communications. These have begun to be widely replicated in print and social media, helping to disseminate our key messages to a wider audience.

Date	Title	Venue	Place
13/07/2018	A little bit of stodginess?	Cumbria Chamber of Commerce	Cumbria
05/06/2018	Central Clearing and Resolution - learing some of the lessons of Lehmans	FIA Annual International Derviatives Expo	London
26/02/2018	Looking after our money	University of Warwick PPE Society	Warwick
09/02/2018	Market-based finance: a macroprudential view	Asset Management Derviatives Forum, Dana Point	California
14/11/2017	The Phillips curve: lower, flatter or in hiding?	Oxford Economics Society	Oxford
29/09/2017	Ten years on: Lessons from Northern Rock	Single Resolution Board Annual Conference	Brussels
22/02/2017	Global pipes - challenges for systemic financial infrastructure	Official Monetary and Financial Institutions Forum	London
08/02/2017	Are firms under investing - and is so why?	Greater Birmingham Chamber of Commerce	Birmingham
16/11/2016	Why are interest rates low?	University of Manchester	Manchester
03/11/2016	Challenges for financial markets	Association for Financial Markets in Europe Annual Dinner	London
29/04/2016	A 21st century approach to dealing with failed banks	1st Single Resolution Board Annual Conference	Brussels
26/04/2016	Remarks at the Alastair Ross Goobey Memorial Lecture	Alastair Ross Goobey Memorial	London
24/02/2016	The UK Economy Post Crisis: A series of unfortunate events?	Centre for International Business Studies, London South Bank Uni	London
09/02/2016	Credit: Can trees grow to the sky?	British Property Federal Annual Residential Investment Conference	London
10/11/2015	The outlook of countercyclical macroprudential policy	The Graduate Institute	Geneva
22/10/2015	Market liquidity and market-based financing	BBA, International Banking Conference	London
28/07/2015	Macroprudential policy: from Tiberius to Crockett and beyond	CityUK	London
22/06/2015	Pay and productivity: the next phase	Automative Fellowship International Dinner	Luton
20/01/2015	Financial Stability, the Single Market and Capital Markets Union	City of London Corporation and Open Europe conference	London
28/10/2014	Monetary policy one year on	Cambridge Society for Economic Pluralism	Cambridge
20/10/2014	Regulatory reform and returns in banking	Chatham House	London
18/07/2014	The role of the leverage ratio and the need to monitor risks outside the regulated banking sector	Financial Report Council Annual Conference	London
03/07/2014	The Bank of England's monetary and financial policy committees: guiding the economy towards a sustainiable and safe recovery	International Festival for Business	Liverpool
13/05/2014	Ending Too Big to Fail - progress to date and remaining issues	Barclays European Bank Capital Summit	London
01/05/2014	Momentum in the housing market: affordability,indebtedness and risks	Worshipful Company of International Bankers Dinner	London
17/03/2014	Is the world financial system safer now?	Chatham House City Series	London