BANK OF ENGLAND

# Speech

## Finding the right balance

Speech given by
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## Introduction

It's an honour to be invited to talk here for the Society for Professional Economists (SPE) today, and I'm very grateful to Bloomberg for the opportunity to speak again in their fantastic HQ. Although I've spoken many times at the Society's events over the years either in my previous role at the Treasury or in in my ongoing role as President of the SPE this is the first time I've spoken at the Society in its new guise as the Society for Professional Economists and in my role as the Bank of England's Deputy Governor for Markets and Banking.

This week is national inclusion week in the UK. And in that spirit I do think the SPE's new moniker, which Kevin Daly has championed, is more inclusive and speaks to a wider group of economists. That is borne out by the excellent turn-out today. At the same time we need to improve diversity in today's economics profession, in central banking and in finance more generally.[1] Sustaining recent progress is a key priority for the Bank of England as I know it is for the SPE.

People often ask me what my professional responsibilities in the Bank are. The most formal description is contained in the Bank's Senior Managers and Certification Regime return. The SM&CR is a critical element of the post-crisis regime for accountability in the whole financial sector, ensuring there is a clear public line of sight running from the senior leadership through to every key function carried out by a financial institution.[2] The SM&CR is an essential part of the soft infrastructure underpinning improved conduct and therefore fairer and more effective financial markets in the UK and globally.

The SM&CR entry for me is long, and so I will just flag a few of my key responsibilities.[3] What these boil down to is that among the Governors I have operational responsibility for the Bank of England's balance sheet.

It is the Bank's balance sheet that is going to be the focus of my talk today. The balance sheet is integral to the operations undertaken in the areas I oversee, Markets and Banking, Payments and Financial Resilience. And it is central to the Bank's mission for monetary and financial stability: the balance sheet is the hard infrastructure that supports much of the Bank's policy activity. For most of the time it may not be as newsworthy as some of the tools it supports, like Bank Rate, QE or "lender of last resort". But it is foundational: were it not to be of sufficient size or usability, that would quickly make headlines at times of financial stress.

[1] Gender diversity in central banking was discussed at the excellent recent conference that the Bank, together with the Federal Reserve and the European Central Bank, hosted on Gender and Career Progression: https://www.bankofengland.co.uk/events/2018/may/gender-and-career-progression, while the Treasury's Women in Finance Charter encourages gender diversity in the financial industry more generally: https://www.gov.uk/government/publications/women-in-finance-charter. Of course, gender is just one important element in the broader drive to improve diversity in the economics profession.
[2] For more information on the SM&CR, see Allen, T. (2018), "Strengthening the link between seniority and accountability: the Senior Managers and Certification Regime", Bank of England Quarterly Bulletin, 2018Q2, available at https://www.bankofengland.co.uk/-/media/boe/files/quarterly-bulletin/2018/senior-managers-certification-regime.
[3] These include: responsibility for management of the Bank's capital and the Bank's funding and liquidity operations; responsibility for the Bank's treasury management functions; responsibility for the Bank's proprietary trading activities; responsibility for the protection of clients' assets.

In my remarks today I want to account for how we've got to where we are and what the balance sheet of today is used for. I'll then give some pointers on where it might go, drawing on a discussion paper we published in August 2018. And I'll conclude with some remarks on the current policy environment, which the balance sheet is supporting.

The 11th anniversary of the start of the global financial crisis

But I couldn't give a speech in September 2018 without marking an anniversary – though the one I'm most interested in is an 11th anniversary – the year *before* the collapse of Lehman Brothers – which I will use to frame my comments today.

On 9th August 2007, BNP Paribas froze three of its investment funds, citing lack of liquidity in sections of the US securitised debt market. Fear spread. First the cost of interbank funding spiked, and then the interbank funding markets effectively froze, as credit concerns and liquidity hoarding spread amongst firms. Northern Rock, with a business model depending on its ability to access funding markets, experienced what started as an electronic run. In September 2007 the Bank announced it was providing emergency financial support to Northern Rock, and shortly after that we saw the first physical run on a bank in the UK in over a century.

There are two key strands evident in these events, both related to the increasing interconnectedness of the financial system. The first was the valuation of the underlying assets in many derivatives and securitisations. The US subprime mortgage market, we now know, was overvalued. It might have been a containable problem, had these mortgages not been packaged up into ever more complicated transactions, distributed around the banking system, allowing a domestic US housing crash to become a global problem of the first order. And the second was what crystallised as a result – a loss of confidence in wholesale funding markets. Banks became uncertain of how creditworthy their peers were, and as a result they stopped lending to one another, and couldn't fund themselves – a crucial need. The vulnerability in banks' balance sheets sparked a crisis of liquidity and funding.

These events prompted a wide-ranging set of back-stopping actions by the Bank of England and other authorities, both across the Bank's own balance sheet, as well as deploying the Government's. But despite these actions, we now know that the funding crisis, or "credit crunch", helped push the US into recession in December 2007, with the UK following in summer 2008.[4]

The financial crisis has left an indelible mark on financial markets; the hard lessons learned have changed the shape of finance for the better. Our banks are well-capitalised, with appropriately prudential liquidity

[4] See for example Ben Bernanke's new paper: Bernanke, B. 2018. "The Real Effects of the Financial Crisis" BPEA Conference Draft, Fall, available at https://www.brookings.edu/bpea-articles/the-real-effects-of-the-financial-crisis/ and summarised at https://www.brookings.edu/blog/ben-bernanke/2018/09/13/financial-panic-and-credit-disruptions-in-the-2007-09-crisis/.

requirements. In the UK we are completing the ringfencing of our banks, to protect UK deposit takers from riskier investment banking activities. Resilience has been further strengthened by the increasingly central role of central counterparties (CCPs) for the trading of OTC derivatives, a global post-crisis reform. That has made these firms systemically important components of financial markets, and we have responded accordingly by strengthening the prudential framework around them, and by extending them access to our liquidity facilities.

There have also been more organic changes: the proliferation of non-bank sources of finance, the emergence of many new, small banks, and the growth of the fintech sector. These changes are driving new interconnections across a more diverse and genuinely distributed financial system, which, appropriately managed and regulated, is leading to real gains in resilience for the system as a whole.

Over this 11 year period central banks have changed too, no more so than in the size and reach of their balance sheets, which are unrecognisable from the pre-crisis period. The Bank of England's balance sheet has grown tenfold from around £60bn to over £600bn, equivalent to 30% of GDP. And the story is similar in many other economies.

Developments in monetary policy

In September 2008 the conduct of monetary policy could still be summarised as follows. The central bank produced a forecast of the likely paths for inflation and the degree of spare capacity.[5] Based on that forecast and the trade-off between the two variables it decided whether monetary policy needed to be incrementally tighter, looser or unchanged. In the UK case the MPC voted on one proposition every month, whether to adjust its policy rate to deliver the appropriate stance of policy and meet its remit of maintaining price stability. And it used its balance sheet to keep money market rates, which served as an anchor for rates in the wider economy, close to its policy rate.[6]

The rest is monetary history. Ten years on, central banks now use a much wider range of tools than just the policy rate in setting monetary policy. Once Bank Rate hit 0.5% in March 2009, which at the time was seen as its effective lower bound, the MPC turned to what were then thought of as unconventional monetary policy tools to stimulate demand and help bring inflation back to target. These tools used our balance sheet in new and different ways. And together they account for a large part of the increase in the size of the Bank's balance sheet.

[5] As part of the MPC's continuing efforts to make our thinking more transparent, we published our estimate of excess supply (or slack) in the economy for the first time in the May 2018 Inflation Report.
[6] The last Bank Rate change to follow this practice was arguably the 50bp cut on October 8th 2008. I say arguably because this cut was itself unconventional: it was coordinated across the major central banks and, due to differing international schedules, actually took place early on a Wednesday afternoon rather than the usual Thursday at noon.

Quantitative Easing (QE) involved buying gilts in exchange for newly-created reserves, via a specially created account called the Asset Purchase Facility (APF) which carries an indemnity from the Treasury.[7] The goal was to reduce the yield on gilts, and so to reduce yields – and therefore borrowing costs – on other financial assets, which would in turn feed through to support the economy. This created a large additional quantity of central bank reserves – currently £445bn worth – matched by an equally large loan to the APF on our balance sheet.[8]

Importantly, QE also changed the quantity of reserves from being determined by the quantity demanded by financial institutions to being determined by the quantity supplied by the Bank on behalf of the MPC. To accommodate this change, and to deal with the volatility of money market rates which had emerged as liquidity patterns changed, we also changed our framework for controlling interest rates. In 2009 the Bank moved from a corridor system, in which banks' reserve balances were remunerated at Bank Rate up to a limited amount, to a floor system, in which we remunerate all balances, no matter how large, at Bank Rate.

As well as QE, the MPC has used the Bank's balance sheet to lend directly to banks, via the Term Funding Scheme (TFS) in 2016. [9] The Scheme was designed to reinforce the transmission of the August 2016 cut in Bank Rate to 0.25%, thereby helping to lower the effective lower bound from 0.5% to close to 0%. It also led to a significant increase in the size of the Bank's balance sheet, again via the APF, peaking at £127bn.

Acting in support of liquidity

While operations to meet our monetary policy remit might take the biggest share of our balance sheet, they are by no means the full extent of it. The Bank is the sole provider of sterling central bank money – the most liquid sterling asset. Because of this, our balance sheet has an important role to play in financial policy, through the provision of liquidity insurance.

The core business of a commercial bank is to lend money by making loans to households and firms; to facilitate this it often needs to borrow money, by taking in retail deposits or by seeking funding from investors

[7] There were also some smaller-scale initial purchases of private sector assets, partly financed by Treasury bill issuance; in August 2016 the MPC also voted to purchase £10bn of corporate bonds.
[8] The APF itself currently holds £435bn of gilts and £10bn of corporate bonds, as well as the loans created via the TFS. For an overview of the estimated effects of QE and the mechanisms through which it works, see Haldane, A. G., Roberts-Sklar, M., Wieladek, T. and Young, C. (2016), "QE: The story so far". Bank of England Staff Working Paper No. 624, available at https://www.bankofengland.co.uk/working-paper/2016/qe-the-story-so-far. The debate about the precise effects of QE continues; for two recent contributions by my MPC colleagues, see Vlieghe, J. (2018), "The yield curve and QE", speech at Imperial College Business School available at https://www.bankofengland.co.uk/-/media/boe/files/speech/2018/the-yield-curve-and-qe-speech-by-gertjan-vlieghe.pdf, and Broadbent, B. (2018), "The history and future of QE", speech at the Society of Professional Economists available at https://www.bankofengland.co.uk/speech/2018/ben-broadbent-society-of-professional-economists.
[9] For more on the TFS see the information on the Bank's website at https://www.bankofengland.co.uk/markets/quantitative-easing-and-the-asset-purchase-facility. The Bank also lent directly to banks via the Funding for Lending Scheme (FLS) in 2012, a scheme designed to incentivise banks to lend to the real economy at a time when bank lending growth had been persistently very weak, not least because of spillovers from the euro area crisis. But this was a fully collateralised scheme, classified as off balance sheet under a collateral swap arrangement. For more on the FLS see Churm, R. et al (2012), "The Funding for Lending Scheme", Bank of England Quarterly Bulletin 2012Q4, available at https://www.bankofengland.co.uk/-/media/boe/files/quarterly-bulletin/2012/the-funding-for-lending-scheme.pdf.

in wholesale markets.[10] The latter is typically at a shorter term than the former, so this activity exposes banks to funding liquidity risk. Banks need to be able to take on this risk to execute their economic function. But it remains a risk nonetheless. Under ordinary circumstances, banks should largely be able to self-insure against this risk; indeed, that is a core part of effective bank risk management. But ordinary circumstances can't be guaranteed, and in the events of 2007 that I outlined earlier we saw unprecedented circumstances.

It is in such unprecedented circumstances that the Bank's role of providing liquidity insurance to solvent but illiquid banks is most apparent. But what has emerged from the experience of 2007 and 2008 is a liquidity policy framework and set of tools which can be applied in good times as well as bad. It is a framework which is consistent with Walter Bagehot's advice to the Bank in the Victorian era – that the Bank should seek to avoid reaching the panic points of no return with its banks by lending to them "quickly, freely, and readily".[11]

In 2006, the Bank had two facilities for providing liquidity insurance, both of which functioned in the course of monetary policy implementation.[12] Now, in 2018, the tools in our kit – the Sterling Monetary Framework - are much expanded. Some crisis tools, such as the Special Liquidity Scheme[13], have been superseded by this more comprehensive framework. In an important review published six years ago in October 2012, Bill Winters took stock of the progress made in reforming the SMF.[14] The Bank refined the framework further in response, and five years ago the Governor emphasised that we were "open for business".[15] Today our toolkit contains three specific liquidity insurance facilities offering money and/or high quality collateral for variable terms and prices as well as the liquidity insurance offered in the course of implementing monetary policy. [16]

But there's little point opening the door to our business more widely if only a narrow range of shapes fit through it. So as well as expanding the quantity of our tools at our disposal, over the years we have worked to extend the access to them by making our facilities cheaper and making them available against a wider set of collateral and to a larger number of counterparties.

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[10] An excellent description of how banks operate is given in McLeay, M. et al (2014), "Money creation in the modern economy", Bank of England Quarterly Bulletin 2014Q1, available at https://www.bankofengland.co.uk/-/media/boe/files/quarterly-bulletin/2014/money-creation-in-the-modern-economy.pdf.

[11] Bagehot, W. (1873), "Lombard Street"

[12]These were the ability to vary reserves demand both intra-day and day-to-day, and the Standing Facilities which provided overnight liquidity insurance, allowing banks to borrowing reserves in unlimited quantity, secured against very high quality collateral or deposit excess reserves directly with the Bank.

[13] The Special Liquidity Scheme operated as a 'collateral swap', allowing banks to exchange their illiquid assets (principally packaged as an ABS or covered bonds) for liquid UK T bills.

[14] Winters, B. (2012), "Review of the Bank of England's framework for providing liquidity to the banking system", available at https://www.bankofengland.co.uk/-/media/boe/files/news/2012/november/the-banks-framework-for-providing-liquidity-to-the-banking.

[15] The Bank's response to the Winters review can be found at https://www.bankofengland.co.uk/-/media/boe/files/news/2013/march/response-of-the-boe-to-the-three-cort-commissioned-reviews. The quote from the Governor is taken from Carney, M. (2013), "The UK at the heart of a renewed globalisation", speech at an event to celebrate the 125th anniversary of the Financial Times, available at https://www.bankofengland.co.uk/-/media/boe/files/speech/2013/the-uk-at-the-heart-of-a-renewed-globalisation.pdf.

[16] The three liquidity insurance facilities are: (I) Indexed Long Term Repo– for predictable/regular need for term collateral transformation; (II) Discount Window Facility – for firm-specific liquidity shock requiring liquidity in bespoke size and timing, with lagged disclosure; and (III) Contingent Term Repo Facility – for actual or prospective market-wide stress meaning SMF participants need cheap, plentiful cash at term. More information on the Bank's facilities can be found in the 'Red Book' https://www.bankofengland.co.uk/-/media/boe/files/markets/sterling-monetary-framework/red-book .

Prior to 2006, the Bank had just 17 members of its Sterling Monetary Framework. But liquidity needs are not just for the biggest banks & building societies. In recognition of this, we had already increased the number of members to 106 by 2012; today it stands at 207. [17]

The crisis also revealed that liquidity shortages can materialise far beyond the banking system; and the financial system has continued to evolve since then. And so in 2014 we widened access to our facilities to include central counterparties and broker-dealers as well as banks and building societies.[18] In today's global banking system UK liquidity shortages can also arise in other currencies than just sterling: to that end we maintain and regularly test a network of swap lines with other central banks, enabling us to provide liquidity in a wide range of currencies: US and Canadian dollars, euros, Swiss francs and renminbi as well as pounds sterling.

And back in 2006, our liquidity facilities were only offered against high quality, liquid assets – predominantly government bonds. That list had to expand quickly in the face of the financial crisis. We now take a much broader range of collateral, accepting asset-backed securities and a range of raw loans, suitable to the wide range of activities undertaken by our member firms.

What does this add up to? The 2018 SMF annual report sets out that, as of February 2018, the Bank could lend an additional £295bn against the amount of pre-positioned collateral available: around 50% again of our current balance sheet size. [19]

The Bank's Independent Evaluation Office review, published in January 2018, emphasised the importance of business as usual as well as the unprecedented or unusual.[20] In response we are refining our communications efforts to ensure market participants understand our facilities, as well as thinking about how we work and communicate within the Bank – across its operational, policy, and supervisory functions – to make the most of our facilities. Of course the last ten years have, thankfully, not seen any further liquidity crises, but this progress was tested with the preparatory and contingency work conducted around the EU Referendum in June 2016 – where our approach helped firms plan with confidence.[21]

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[17] As well as opening up the SMF, the Bank has expanded access to Settlement Accounts for its Real Time Gross Settlement system (which allows account holders to settle payments real time in sterling central bank money) from 21 in 2006 to 201 today. These now include to new entrants in payments – non-bank payment services providers. We are currently renewing our RTGS system, and a core feature of the new system will be the ability to interface with new and innovative payment systems, designed to encourage a more diverse and resilient financial system.

[18] Before widening access to new classes of institution, the Bank considered three key criteria to ensure usage of the facilities remained appropriate; whether they were systemically important, whether they were exposed to sterling liquidity risk, and whether they were appropriately prudentially regulated.

[19] The 2017/18 SMF Annual Report can be found at https://www.bankofengland.co.uk/-/media/boe/files/sterling-monetary-framework/annual-report-2017-18.pdf.

[20] The IEO report on the Bank's approach to providing sterling liquidity, together with the Bank's response, can be found at https://www.bankofengland.co.uk/news/2018/january/ieo-evaluation-of-the-boe-approach-to-providing-sterling-liquidity.

[21] See Shafik, M. (2016), "Small is Beautiful but Big is Necessary", speech at the Bloomberg Markets "Most Influential" Summit, available at https://www.bankofengland.co.uk/-/media/boe/files/speech/2016/small-is-beautiful-but-big-is-necessary.pdf.

One of the lessons of the crisis and the ensuing ten years was that we need to continuously challenge ourselves to ensure that we are prepared for the future. The Bank has taken that to heart. Today I want to highlight two innovations. First, the Bank has recently supplemented the ability to provide liquidity to our expanded set of members by ensuring that we are operationally capable of accepting equity collateral, should the need ever arise. And, second, in pursuit of a more diverse and resilient financial landscape in the UK, we have been progressing work to enable Islamic banks to hold Bank of England reserves to meet their regulatory requirements for holdings of high quality liquid assets in a way consistent with Islamic commercial jurisprudence. And as a result, today I can announce that we will shortly be establishing a new subsidiary of the Bank, to house the Shari'ah Compliant Facility; this will be a special purpose vehicle, called the Bank of England Alternative Liquidity Facility (BEALF). This will also be the first non-interest based liquidity facility to be offered by a major Western central bank, providing important structural support to the UK's Islamic finance sector, and further strengthening the UK's position as an international financial centre.[22]

Enhancing our policy readiness

With all of this capability comes the need for accountability. We are running a much larger balance sheet than ever before. But holding billions of pounds worth of collateral over a variety of asset classes, and big exposures to SMF members, means that we are exposed to risk. And as responsible public servants, we must manage that risk carefully. We have developed the sophistication of our own risk management alongside the growth in our balance sheet. In 2015 we established for the first time a rigorous second line financial risk division[23], organisationally distinct from our well-established and highly professional first line financial risk management division. In addition to managing our own risks, these functions are also integral to the risk management arrangements that we have with the Treasury.

Our readiness to act for both financial and monetary stability purposes was enhanced further this year, when, on the back of the latest five year review of the Bank's financial framework, we agreed a ground-breaking new capital and income framework for the Bank with the Treasury.[24] This reinforces our independence and institutionalises our ability to react with our balance sheet in order to meet our remit. The Treasury has committed to increasing the quantity of loss absorbing capital the Bank holds by £1.2bn to £3.5bn by the end of the 2018/19 financial year. This will give us the financial backing to react at greater scale and more quickly than in the past.[25]

[22] See the Shari'ah-compliant liquidity facilities section of https://www.bankofengland.co.uk/markets/funding-for-lending-and-other-market-operations for more information.
[23] Second line risk provides challenge to first line risk functions. See Hauser, A. (2017), "Watching the Watchers", speech at the GARP 18th Annual Risk Management Convention, New York. Available at https://www.bankofengland.co.uk/-/media/boe/files/speech/2017/watching-the-watchers-forward-looking-assessment-and-challenge-of-a-central-banks-own-financial-risk.pdf.
[24] The details of the capital framework are contained in a Memorandum of Understanding between the two institutions, available at https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/718481/The_Financial_Relationship_between_the_Treasury_and_the_Bank_of_England_-_MoU_web.pdf.
[25] See Carney, M. (2018), "New Economy, New Finance, New Bank", Mansion House Speech 2018, available at https://www.bankofengland.co.uk/-/media/boe/files/speech/2018/new-economy-new-finance-new-bank-speech-by-mark-carney.pdf.

Where are we heading?

Where does all this leave policy and the balance sheet through which it is implemented?

In August 2018 the MPC voted to raise Bank Rate from 0.5% to 0.75%. That was based on our Inflation Report forecast, which showed that absent an increase in Bank Rate, the economy was likely to move into excess demand, and that the resulting wage pressures would push inflation above our 2% target. In September we then voted to leave Bank Rate unchanged at 0.75%. And looking ahead we expect that, if the economy continues to evolve, as it has done so far, broadly in line with our August forecast, then further limited and gradual rises in Bank Rate will be appropriate to return inflation sustainably to the target.

As well as being the collective view of the committee, this is also my personal view, which is why I voted for an increase in Bank Rate in August. The signal I take from the labour market indicators is one of labour market tightness and rising pay pressures, which I expect to support inflation in the medium term.

Stepping back, I have to recognise that we have predicted higher nominal wage growth in the past, and have been serially disappointed. Since the Referendum, downside news on nominal wages has been augmented by the inflationary effect of the fall in sterling, meaning real wage growth has been strikingly weak. Over the two years to 2018Q2 real wages fell by 0.5%, more than 4pp below the MPC's May 2016 forecast of 3.8% cumulative growth.[26] But we are now forecasting both nominal and real wage growth to pick up from here.

Given our forecasting history it would be foolish of me to rule out being disappointed on wage growth again – although developments over the past year have so far broadly matched our expectations, with private sector regular pay in particular now growing at 3%, a little stronger than our forecast of a year ago. One additional important factor to bear in mind here is that our past downside errors on wages have largely come from weaker productivity. But what matters for businesses' costs and so for inflation is wages *relative* to productivity, that is to say, unit labour costs; and here our forecast errors have been somewhat smaller. So while there is certainly still a risk that productivity will disappoint again – even conditional on a smooth transition to an average of possible Brexit outcomes, as in our central forecast – and that wages will again turn out weaker, even in that case it seems likely to me that, given the gradual move into excess demand that we expect, unit labour costs and inflationary pressure would still pick up as in our August forecast.[27]

That said, a range of outcomes for Brexit are clearly still possible, not all of which are captured in our central forecast. Consistent with that it is noteworthy that option pricing implies that market participants are insuring to a greater degree against tail outcomes: FX implied volatilities have increased in recent months, implying

[26] Other forecasters were similarly surprised – for instance the OBR were predicting 3.7% cumulative real wage growth over the same period in the March 2016 Economic and Fiscal Outlook (available at http://obr.uk/efo/economic-fiscal-outlook-march-2016/).
[27] I set out my views on the economic outlook and the labour market in detail in a speech in June: Ramsden, D. (2018), "What's Going On?", speech at the Barclays Inflation Conference, available at https://www.bankofengland.co.uk/-/media/boe/files/speech/2018/whats-going-on-speech-by-dave-ramsden.pdf.

greater weight on the tails of the distribution, while risks reversals have fallen to their lowest levels in over a year, suggesting a greater increase in relative weight on downside outcomes. But the moves are still small relative to those we saw ahead of the Referendum.

On a day-to-day basis, we continue to use our balance sheet in support of monetary policy and financial stability. Our regular market operations will continue to keep market rates anchored to Bank Rate, and we will continue the programme of gilt reinvestments that maintains the stock of APF purchases at its target level for as long as the MPC choose to maintain it there. And our monthly Indexed Long-Term Repo liquidity facility continues to see regular usage, with £785mn allocated in September's operation.

Looking further ahead, the TFS is now closed to new drawings, and will gradually unwind in the coming years as banks repay their loans. In June the MPC gave updated guidance that it will not reduce the stock of asset purchases until Bank Rate reaches around 1.5%, and any decision on what happens then will of course be a decision for the MPC of the time and will depend on the economic circumstances prevailing at the time.[28]

As and when our balance sheet shrinks, it is likely that its size will return to being determined by the level of SMF participants' demand for reserves (as well as the amount of banknotes in circulation), rather than by the quantity supplied. Given its proven success at maintaining market rates in line with Bank Rate, as well as the benefits of operational continuity, the Bank is minded to keep using a variant of the current floor system for controlling market rates. And, as the quantity of reserves supplied falls towards the quantity demanded by market participants, we will stand ready to meet SMF participants' demand for additional reserves through regular open market operations. In addition, there is a strong case for holding some longer maturity assets, such as gilts, to back the stable portion of demand for banknotes, and indeed we had already started to do this ahead of the financial crisis.[29]

How large a quantity of reserves SMF participants will demand, and therefore how large our future balance sheet will be, is an open and difficult question. As well as changing our own monetary policy toolkit, the financial crisis has changed the behaviour of financial institutions, including in ways that are significant for the size of our balance sheet. In particular their demand for reserves and for liquid assets more generally, is much greater than it was before the crisis. That reflects a combination of tighter regulation which requires them to hold larger buffers of liquid assets, and more prudent management which means that banks have learnt the lessons of the crisis and the value of maintaining liquidity, as well as the fourfold increase in the number of SMF participants. This change was not caused by QE and the expansion of our balance sheet.

[28] For further details, see the minutes of the June 2018 MPC meeting.
[29] See for example the consultation paper, archived at http://webarchive.nationalarchives.gov.uk/20170726163822/http:/www.bankofengland.co.uk/markets/Documents/money/documentation/consult_bond_purchases.pdf, and the Market Notice archived at http://webarchive.nationalarchives.gov.uk/20170726163816/http:/www.bankofengland.co.uk/markets/Documents/money/documentation/061124.pdf.

But it happened alongside it. And, since it seems likely to persist, it means our balance sheet is also likely to remain materially larger than pre-crisis.[30]

Exactly how much larger that means is likely to depend on a range of factors: risk appetites, perceptions of the nature of future liquidity shocks, and developments in regulation. And some of these factors may well vary over time. Understanding the net effect of these factors on aggregate reserve demand is an important question for implementing monetary policy, as well as for our risk management of the balance sheet. Reflecting this, we launched a Discussion Paper in early August which examines the different factors in more detail, and have begun a series of discussions with market participants to help us understand them further, framed around these six questions.[31] We will continue gathering inputs until the end of October – and if anybody here would like to contribute they would certainly be very welcome – and will provide further information as our thinking develops.

Conclusion

In conclusion, what do these developments mean overall? They mean that the Bank's balance sheet is a key part of the infrastructure for securing monetary and financial stability for the good of the people of the UK. And that infrastructure is future-proofed. We regularly execute a variety of operations. We test facilities that we are not actively using, and encourage firms to be sure of their operational capability to use them. We have banks' collateral pre-positioned with us so we stand ready to lend at short order, if needed. And we support all of this with the appropriate risk management framework, to ensure that as well as supporting firms and markets, we aren't unduly jeopardising public resources. And all this means that our balance sheet is fit for purpose to underpin whatever policy decisions, covered by the Bank's remit, are made in the future.

[30] See also Carney, M. (2018), "New Economy, New Finance, New Bank", Mansion House Speech 2018, available at https://www.bankofengland.co.uk/-/media/boe/files/speech/2018/new-economy-new-finance-new-bank-speech-by-mark-carney.pdf.

[31] The Discussion Paper is available at https://www.bankofengland.co.uk/paper/2018/boe-future-balance-sheet-and-framework-for-controlling-interest-rates. Comments should be sent to balancesheetDP@bankofengland.co.uk by 31st October 2018.