



BANK OF ENGLAND

# Speech

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## **The Bank of England's Balance Sheet: Monetary Policy and Liquidity Provision during the Financial Crisis**

Speech given by

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## Introduction

1 We have just experienced the biggest global financial crisis in history. The United Kingdom – like many of the most advanced economies – is now emerging from the worst recession for at least a generation. The response from the authorities, across the world, has been substantial and wide-ranging. Today, I want to focus on the Bank of England’s operations during the crisis and their implications for our balance sheet. The ability of the Bank to influence the economy through its actions in financial markets should be of profound interest to the pensions industry, both in terms of our objective of restoring nominal spending growth so as to hit the inflation target, and in terms of the immediate implications for financial asset prices.

2 We think the best way to understand the Bank’s operations is to take our balance sheet as an organising framework. I hope that I can convince you of that today, especially since this audience is better placed than most to understand a balance sheet approach!

3 The Bank’s balance sheet enables us to fulfill our core purposes, which are to promote and maintain monetary and financial stability. My focus today will be on what we call the Sterling Monetary Framework or SMF. This is the means by which the Bank implements monetary policy, and offers liquidity insurance to the banking system.

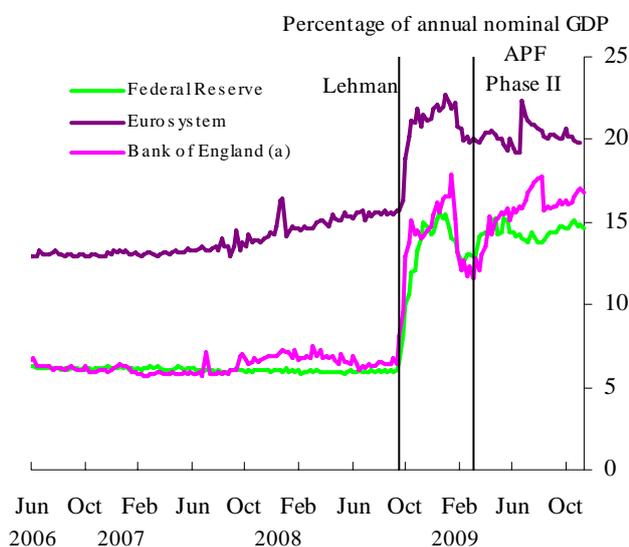
4 I want to make one point clear up front. The SMF has to control the amount of money in the economy consistent with monetary policy objectives. The liquidity insurance operations also provide temporary, short-term liquidity assistance to commercial banks (and building societies – but for the rest of this talk I will just refer to commercial banks for the sake of brevity). That support helps to minimise disruptions to the liquidity and payments services which commercial firms offer to the economy. What our framework cannot do is provide medium-term funding to the banking sector to support their lending activities. It would take too long to explore this argument fully today, but you might like to think of it this way: given that we have to control the amount of money in the system to target inflation, the Bank has to be able to both put liquidity into the system and take it out again, whenever that proves necessary. So the Bank could never create a stable medium-term funding source for commercial bank lending, even if we thought that was our job. Which it is not. This point is not widely appreciated, but is very germane to current policy debates. The rest of this talk may make that easier to understand and I shall come back to it at various points.

5 What I want to do next is to explore the overall scale of central bank actions during the crisis. I am then going to take you through the crisis in chronological fashion, describing the new operations that we introduced, in sequence, and their implications for the balance sheet. I shall finish with some remarks on how we might exit from those operations as the economy recovers. (Clearly, a very

detailed chronology would take some time. The first appendix sets out a timeline/aide-memoire of our operations during the past two years or so.)

6 Like central banks in other advanced economies, our operations have evolved very rapidly over the past two years. That has resulted in a considerable expansion of the balance sheet, especially since the collapse of Lehman Brothers. Relative to annual nominal GDP, the balance sheets of the US Federal Reserve (Fed), the Eurosystem (ie the ECB and the national central banks of those states that have adopted the euro) and the Bank of England have all increased by broadly similar amounts, as shown on **Chart 1**.<sup>2</sup>

**Chart 1: Central Bank total liabilities as a percentage of annual nominal GDP**



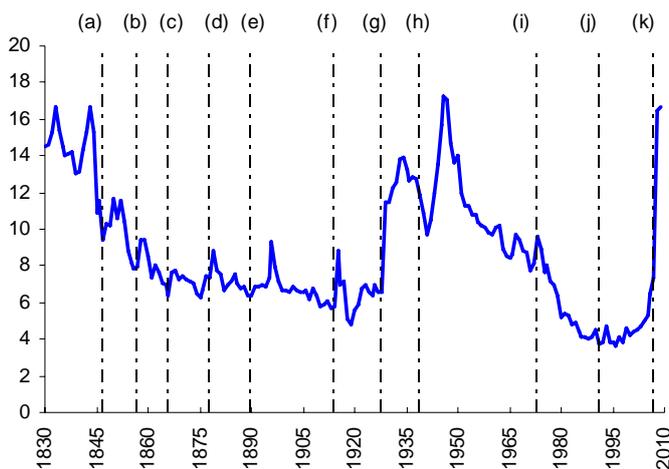
(a) Excludes loans and associated deposits in course of settlement.

Source: National accounts data, Federal Reserve, ECB, Bank of England.

7 If one included the Bank’s Special Liquidity Scheme (SLS) – which, as an asset swap, is off balance sheet – the UK expansion would reach around 25% of annual GDP. Before moving on to the details, it is worth setting recent events in a much longer historical context. The Bank’s balance sheet as a proportion of GDP has – even excluding the SLS – been expanded to be about as large as at any point in the past two centuries, a period that included: the aftermath of the Napoleonic wars; two world wars; the Great Depression, and a number of banking failures and financial crises (**Chart 2**).

<sup>2</sup> The Eurosystem’s balance sheet is larger in normal times, partly reflecting a much bigger demand, proportionate to GDP, for banknotes in the euro area.

**Chart 2: Bank of England balance sheet  
as a percentage of annual nominal GDP**



- (a) Famine / End of railroad boom (1847)
- (b) Overextension of credit from 1855-1866 (1857)
- (c) Failure of Overend Gurney (1866)
- (d) Failure of City of Glasgow Bank (1878)
- (e) Support for Barings (1890)
- (f) WWI (1914)
- (g) Currency and Bank Note Act (1928)
- (h) World War II (1941)
- (i) Secondary Banking Crisis (1973)
- (j) Small Banks Crisis (1991)
- (k) Current Crisis (2007)

Notes: The balance sheet observations are end-February for 1830-1966, end-year for 1967-2008, and November for 2009.

Sourced: Consensus forecast, ONS, Bank of England calculations . A variant of this chart was originally published in a speech by Andy Haldane (Chart 5, of 'Banking on the State')

### The Bank's balance sheet prior to the crisis

8 In normal circumstances, we would implement the desired monetary policy stance by setting interest rates. Our ability to do that derives from the banking system's demand for central bank money: banknotes in circulation and the balances held by commercial banks in their reserves accounts at the Bank of England. We would set the *price* of this money and then supply the *quantity* demanded consistent with that price. The size and composition of the central bank balance sheet plays no independent role.

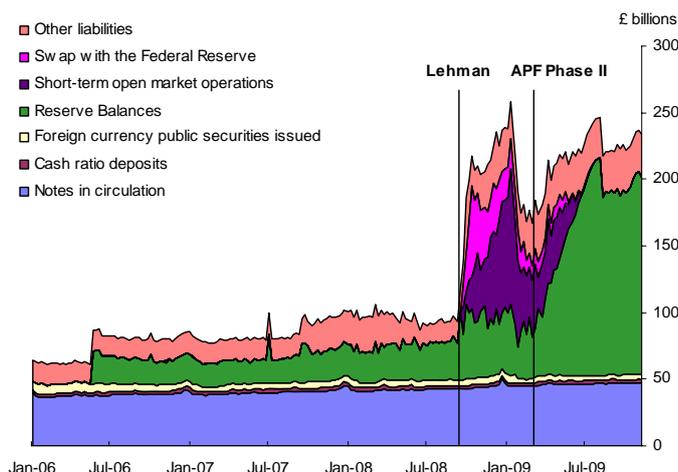
### The Bank's Main Liabilities

9 Banknotes are one of the two main liabilities of the Bank. They are bought from us at face value, on demand (shown in blue on **Chart 3**).<sup>3</sup>

10 The other main liability on the Bank's balance sheet is the aggregate balance on commercial bank reserve accounts (shown in green on **Chart 3**). These essentially act like current accounts for commercial banks. Such balances are among the safest assets a bank can hold and they are the ultimate means of payment. They can be used by banks to make payments between each other, or to purchase banknotes or other assets from us.

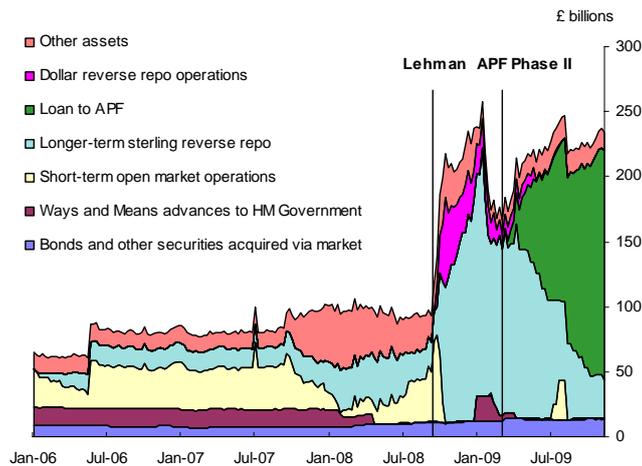
<sup>3</sup> The profits from issuing c£50 billion of banknotes in the UK – known as seigniorage income – are all passed to Her Majesty's Treasury. To that end the Bank's balance sheet is internally partitioned into two components: Issue Department and Banking Department, with banknotes being the sole liability of the former. In this speech I refer only to the consolidated balance sheet.

**Chart 3: Bank of England consolidated balance sheet: liabilities<sup>(a)</sup>**



(a) Excludes loans and associated deposits in course of settlement.

**Chart 4: Bank of England consolidated balance sheet: assets<sup>(a)</sup>**



(a) Excludes loans and associated deposits in course of settlement.

11 Reserves balances are intrinsic to the Bank’s normal implementation of monetary policy. To understand how the Bank’s balance sheet has changed during the crisis, it is important to understand how the Bank undertakes this function in normal circumstances. Let me briefly outline the key features of the revised framework introduced in May 2006.

*The Bank’s Sterling Monetary Framework from May 2006*

12 The framework had three main elements: reserve accounts, standing facilities and open market operations. They came together to keep overnight and other very short term interest rates broadly in line with Bank Rate between the MPC’s decisions. Over the monthly maintenance period, that is between MPC meetings, commercial bank reserves holdings are remunerated at Bank Rate, so long as, over the month, they average within a narrow range around a target. A unique feature of the UK system is that commercial banks choose their own reserves target at the start of each monthly period. Individually, on any given day, commercial banks have a choice between varying their reserves position at the Bank and transacting in the market.

13 In case of operational disruption, or exceptional volatility in overnight interest rates, reserves account holders may also borrow from, or lend to the Bank via our Operational Standing Facilities. They can do this overnight in unlimited amounts, but at a penal rate compared with Bank Rate. Providing banks are able to meet their individual reserves targets, this framework provides incentives for participants to arbitrage and so minimise any difference between market rates and Bank Rate until

the next MPC decision date. But for this to work, the Bank needs to ensure that its (net) supply of money to the system is just sufficient in aggregate so that the commercial firms' targets for reserve accounts are validated. The new SMF initially generated reserves balances of around £24 billion in May 2006. These liabilities are shown in green on **Chart 3**.

### Open Market Operations (OMOs)

14 The Bank's Open Market Operations (or OMOs) are the means through which we provide sufficient money to the system so that banks can collectively meet their targets for reserves accounts. These operations are ordinarily the balancing item on the balance sheet and their size reflects all the day-to-day sterling flows across the Bank's balance sheet. Under the 2006 framework, OMOs were to be undertaken on a weekly basis via an operation in which banks bid, usually to borrow funds from the Bank, at Bank Rate.

15 OMOs take the form of lending money against high-quality collateral (that is a 'repo' transaction) for a fixed term. These loans could, in principle, be exclusively done via short-term operations. Our standard one week operations are assets, shown in yellow on **Chart 4**.

16 However, effective implementation of monetary policy does not require the Bank to roll over its entire stock of loans each week. Such 'churn' would be inefficient. Much of the bank note issue is expected to be permanent, or at least long lasting. In order to avoid too high a churn in its assets, part of the notes issue can be backed by instruments with a longer maturity. From January 2006, the Bank started to offer longer-term repo operations at market interest rates for three, six, nine and twelve month maturities. These assets are shown in light blue on **Chart 4**<sup>4</sup>. And, in January 2008, the Bank began to conduct purchases of UK government bonds, shown in darker blue on **Chart 4**<sup>5</sup>, as a device to match the duration of the note issue with even longer duration assets. This was of course separate from, and much smaller than, the subsequent gilt purchase programme by the MPC begun in March 2009. More on that later.

### Other items

17 I don't have time in this speech to discuss all of the items on the Bank's balance sheet. For those interested in more detail there is an annex which covers items such as the Bank of England's foreign currency reserves, and its customer business.

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<sup>4</sup> For more detail about the injection of reserves via long term repo OMOs see the box on page 22 of the Markets and operations article in the Spring 2006 *Quarterly Bulletin*.

## **The Bank's balance sheet since the start of the current crisis**

18 To recap, the objectives of the Bank's operating framework are a function of the two core purposes of the Bank in the spheres of monetary and financial stability. They are to implement monetary policy by maintaining market interest rates in line with Bank Rate at maturities to the next MPC decision date. And to reduce the cost of disruptions to the liquidity and payments services supplied by commercial banks, via the ability to provide short-term liquidity support. This 'liquidity insurance' must be balanced against the costs of creating incentives for banks to take greater risks.

19 It will be helpful to make a distinction between these two objectives as I describe the Bank's response to the crisis. For monetary policy implementation, the main changes started in March 2009 when, with interest rates close to zero, large elements of the framework were suspended to allow the direct injection of money into the economy, on a much larger scale, and independent of the demand for banknotes or reserve account balances. For our liquidity insurance operations, the evolution was more continuous, although it is fair to say that the pace of change accelerated when the failure of Lehman Brothers led to a widespread loss of confidence in the financial system in September 2008.

### The early stages: liquidity insurance actions

20 There was some expansion of the Bank's balance sheet from August 2007 onwards, principally because, in response to the stresses in bank funding markets, banks voluntarily chose to hold more reserves. That was how our system was designed to work. Our counterparty banks collectively increased their reserves targets from £16 billion in July 2007 to a peak of £45 billion by December 2008. At the start of the maintenance period in September 2007, however, the commercial banks collectively raised their targets by only £1.1 billion. It was clear to us that this was insufficient and that more liquidity would be needed. Using the flexibility built into the system, the Bank expanded its lending operations beyond the amount needed for banks to meet their targets. At one point during that September 2007 maintenance period around an additional £9 billion was injected. In order not to penalise the commercial banks for holding reserve balances in excess of their targets, during September, the Bank also widened the normally narrow target ranges for each bank within which reserves were remunerated, to ensure that the banking system as a whole could hold the additional reserves without financial penalty. The target ranges were widened again in Autumn 2008 when the crisis deepened.

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<sup>5</sup> For more detail about the injection of reserves via bond-purchase OMOs see the box on page 22 of the Markets and operations article in the 2008 Q1 *Quarterly Bulletin*.

### *Extended collateral three-month repo OMOs*

21 During the Autumn of 2007, it was clear that the lack of liquidity in markets was preventing banks from funding themselves through normal means. Initially, we provided additional 3 month operations, offering 4 auctions of £10 billion each, against wider collateral and at a penalty rate. These were not taken up by the banks. By December 2007, bank funding markets had become even more difficult. So, there was a co-ordinated approach by the major central banks who all announced additional measures. In the UK, we offered further expanded 3 month repos. This time without a penalty, against a much wider range of collateral than accepted previously. This included AAA RMBS and covered bonds.

22 These extended collateral long-term repos (or eLTRs) were offered in auctions initially of £10 billion. When the crisis deepened in the Autumn of 2008, they were offered in greater size and at greater frequency and the eligible collateral was widened further to include securities backed by commercial mortgage assets and corporate debt. At their peak during January 2009 the stock of outstanding ELTRs reached £180 billion (the light blue bars on **Chart 4** show this).

### *Special Liquidity Scheme*

23 Following the collapse of Bear Stearns in March 2008, financial conditions began to deteriorate again, particularly in bank funding markets. The Bank designed and introduced the Special Liquidity Scheme (SLS) which was launched on 21 April to improve the liquidity position of the UK banking system by allowing banks and building societies to swap high-quality, but temporarily illiquid, mortgage-backed and other securities for UK Treasury bills. The key principles of the SLS were (i) that it would be done in large scale - it eventually reached £185 billion (ii) it would offer liquidity for a medium-term period - of up to 3 years and (iii) to avoid inappropriate incentives in future (ie the 'moral hazard' issue), only assets already on commercial banks' balance sheets at the end of 2007 were eligible. And all the main UK banks agreed to take part.

24 SLS swaps are structured similarly to stock lending transactions, with banks paying a fee for the bills they borrow. Hence they do not appear on the Bank's balance sheet. The terms of the SLS made it equivalent to three-year funding. How does this sit with the central bank not providing funding? The key point is that the SLS could not be funded by creating central bank money. It was only possible using funding provided from the Government via UK Treasury bills. This reinforces the point that bank funding can only be provided – directly or indirectly – by savings.

25 After the collapse of Lehman Brothers in September 2008, financial market conditions deteriorated dramatically further. The Bank introduced a number of additional measures. The drawdown period for the SLS was extended from 21 October to the end of January 2009.

#### *Discount Window Facility*

26 The Discount Window Facility was launched in October 2008. The Bank drew on a number of the features of the SLS in designing this new, permanent bilateral liquidity insurance facility. In the Facility, banks and building societies may borrow gilts against a wide range of collateral, at fees reflecting the type of collateral and the size of drawing. It is designed to avoid encouraging imprudent liquidity management in the future. Like the SLS, transactions under the DWF represent asset swaps. They do not appear on the Bank's balance sheet, and they do not normally affect the provision of central bank reserves.

27 In recognition of continuing stresses in financial markets, the Bank announced in January 2009 that, for an additional fee of 25 basis points, it would permit drawing from the DWF with a term of 364 days in addition to the standard option to draw for 30 days.

28 For us, the DWF was perhaps the most significant development in our operational framework in this period. In launching it, the Bank took the decision that it could be transparent about the collateral it is prepared to take in a new, permanent public facility. The terms were designed to be consistent with avoiding creating incentives for commercial banks to take greater risks in future. Of course, they were also designed to protect the Bank from the risk of loss.

29 For assets to be admitted as eligible in the DWF, the Bank needs to be able to value them, and to be able to manage the risks in the event that counterparty default means that we take outright ownership. The fees that apply in the DWF reflect the type of collateral used, with higher fees being applied the more risky the collateral, with 'own-name collateral' – where the assets were originated by the borrowing bank – being in the category with the highest fee. We are considering widening the collateral eligible for use in the DWF in due course, subject of course to the basic principle that we must be able to value and manage the associated risks.

#### *US dollar repo operations*

30 There was one further major response to the pressures created by Lehman Brothers collapse. As some dollar funding markets closed, there was extremely poor liquidity in dollar inter-bank

markets, especially during European trading hours before the US market opened. This problem had existed for continental European banks from quite early in the crisis and the ECB had conducted a currency swap with the Fed to provide dollar loans in the European time zone. But the problems became more acute and widespread from September 2008. So the Bank of England joined other central banks in offering to lend US dollars overnight, beginning on 18 September 2008. The Bank established a swap facility with the Federal Reserve to provide the funding for these operations, offering \$40 billion initially. By late September, the immediate pressure had eased somewhat, but concerns remained about access to US dollar funding, especially over the quarter end. The Bank introduced a one-week operation alongside its overnight operations. In mid-October, the central banks involved in US dollar operations announced that the existing variable rate auctions were to be replaced with fixed-rate operations of unlimited size.<sup>6</sup> The Bank began conducting additional operations at one-month and three-month maturities, with counterparties able to borrow any amount against the Bank's wider pool of eligible collateral. At its peak, the stock of US dollars provided through the Bank's operations reached about \$86 billion. (These assets are shown in pink on **Chart 4** and the proceeds of the swap with the Fed as a liability on **Chart 3**)).

31 As pressures receded during 2009, the central banks involved announced the withdrawal of, first the overnight and then the one month dollar operations and, in September, of the three month operations. In common with the New York Fed and other central banks, the Bank continues to keep its US dollar operations under review in the light of market conditions.

#### The later stages of the crisis: implementation of monetary policy

32 In the stressed market conditions that prevailed from August 2007 until March of this year, the flexibility inherent in the existing framework was sufficient to implement monetary policy, with one exception – draining excess liquidity.

#### *Draining: Bank of England One-Week Bills*

33 I have noted how extra liquidity was injected via eLTRs in large scale in the Autumn of 2008. That meant that there was more central bank money in the system than was needed to meet the demand for banknotes and reserve accounts. Short-term lending operations (an asset shown in yellow on **Chart 4**) were not necessary and were halted. On the required scale, widening the target ranges for

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<sup>6</sup> This was facilitated by a change to US law permitting the Fed to pay interest on reserves balances.

accounts would no longer have been sufficient and the excess central bank money would have been inconsistent with the desired setting of interest rates. So our liquidity insurance operations were creating a challenge for monetary policy control. We needed a new instrument to drain money from the system. That new instrument was the one-week Bank of England bill. These were offered to commercial banks via weekly tender, and remunerated at Bank Rate. At their peak, over £100 billion of bills were issued on 8 January 2009 (a liability shown in purple on **Chart 3**). They also subsequently became an integral part of the regime under the early months of the asset purchase programme, when they were changed to be variable rate.

34 Aside from introducing these bills, the Bank's apparatus for implementing monetary policy was largely unchanged. And the size and composition of the Bank's balance sheet played a role in liquidity insurance, but no independent role in the delivery of the MPC's desired monetary stance.

#### *The Asset Purchase Facility.*

35 That changed on 5 March 2009 – my first week as Director for Financial Markets and my first MPC meeting as a voting member of the Committee – when we announced that, in addition to reducing Bank Rate by 50 basis points to its lowest ever rate of 1/2%, the Bank would undertake a programme of asset purchases financed by the issuance of central bank reserves. As we purchased assets from the financial sector, we allowed sufficient money to remain in the system so that reserves would rise in line with our asset purchase programme. In fact, we were forcing the banks collectively to hold far more reserves than they would have chosen as voluntary targets. Because of that, significant elements of the SMF were suspended. Instead of having voluntary targets and reserves averaging, we made a controlled expansion of reserve balances, and remunerated all reserve accounts at Bank Rate. And we used Bank of England bills to drain any excess created by the simultaneous injection of money by the eLTRs. This programme initially involved a plan to buy £75 billion of private and public sector assets, over a period of three months and was increased at subsequent MPC meetings to currently stand at £200 billion.

36 The purpose of these asset purchases (which have been mainly gilts) is to expand money spending in the economy and hence help the MPC meet the inflation target. The way in which it does that has been described elsewhere, but in essence, boosting the cash holdings of those who sell the assets will trigger a range of further adjustments in the economy. That should have the effect of raising asset prices, reducing yields on more risky assets, and will subsequently feed through to money spending.

37 In addition to the monetary aspects of the purchase programme, the Government had, in January 2009, authorised the Bank to commence the purchase of corporate assets to improve liquidity in selected corporate funding markets. The aim of these facilities is not to ‘fund’ the corporate sector. Rather, by making small targeted purchases, initially of investment grade commercial paper and subsequently corporate bonds, the Bank aims to reduce the cost of corporate finance by reducing liquidity premia. These purchases currently form part of the MPC’s quantitative easing programme. However, initially, corporate asset purchases were funded by a cash deposit which was in turn funded by the Debt Management Office issuing Treasury Bills. Should corporate purchases continue when the MPC’s asset purchase programme ends, then that financing mechanism would be employed again.

38 All the assets purchased in these programmes, gilts and corporate securities, are held off balance sheet in the Bank of England Asset Purchase Facility Fund (the BEAPFF). This Fund is financed by a loan from the Bank – an asset shown in green on **Chart 4**. As with the SLS, the Fund is indemnified for losses by the Government.

#### **The transition of the balance sheet to a post-crisis world : the road to recovery**

39 As we have noted, the expansion of the Bank’s balance sheet, to a size that as a proportion of GDP is as large as at any time in the past two centuries, initially reflected an increase in our liquidity insurance operations, and subsequently the decision by the MPC to make asset purchases.

40 Eventually, these operations will need to be unwound.

41 When the time comes for the MPC to tighten monetary policy, it will be able to do so either by raising Bank Rate, or by selling assets back to the market, or by some combination of the two. As and when assets are sold, reserves balances will fall accordingly, and that will tend to cause the balance sheet to contract. Independent of the operation of monetary policy, the Bank will continue the schemes to undertake operations in corporate debt, for as long as they are judged to be necessary.

42 The overall size of the balance sheet may well not fall back all the way to pre-crisis levels. Not least because banks may choose to hold higher reserves balances than before the crisis. One motivation for this might be to help meet the more demanding liquidity requirements recently proposed by the FSA. The Bank has also recently expanded the range of firms that are eligible to hold reserves accounts, to include smaller banks in order to help them to manage their liquidity. Previously only those with ‘Eligible Liabilities’ of £500 million and who therefore paid Cash Ratio Deposits to the Bank were eligible for reserves accounts. Now, all firms that report under the CRD regime, regardless of their size, will be able to apply to hold a reserves account at the Bank. This potentially

adds around 200 firms. The balance sheet impact of this for the Bank may be small, because even taken together these new balances will be relatively little. This is an important extension to the range of firms that is able to access the Bank's market-wide facilities.

43 Of the liquidity insurance operations I have described, the transition back to a more normal situation is in some cases time-limited, and in others it is state-contingent. In the case of the SLS for example, the facility was introduced as a temporary measure and the last swaps will expire by end January 2012, at which point the SLS will be closed.

44 The US dollar operations of the Bank and other major central banks were similarly intended to be a temporary measure in the context of exceptionally stressed market conditions. They are currently hardly being used but are due to run to 1 February.

45 On the other hand, extended collateral long-term repo operations and the Discount Window Facility are intended to be permanent features of the liquidity insurance menu of the SMF. As **Chart 4** shows, it is quite striking that, as the MPC expanded its purchases of assets, the participation in eLTRs has dropped. As we have forced the banks to hold ever more reserves and as market conditions have improved, their demand for liquidity through the eLTRs has reduced.

46 In the eLTRs, the Bank sets a minimum yield for bids involving wider collateral. This is set at a level such that in non-stressed conditions it is more attractive to finance the collateral in the private repo markets. So, as stress in markets abates, there are price incentives built into the design that should result in a decline in participation in our operations.

47 Similar principles apply to the DWF pricing. Unlike the extended collateral repos, the DWF is available on demand. The amount borrowed is determined by the counterparty, but at prices and on conditions determined in advance by the Bank. The prices are a function of the collateral type offered by the counterparty, and the amount of the counterparty's borrowing; and they increase as banks' borrowing increases, and/or is made against riskier collateral. Even at low levels of borrowing, however, the pricing structure is designed to be more expensive than is available in private markets in non-stressed circumstances. In this way, the pricing schedule for the Bank's provision of liquidity insurance is carefully balanced against the cost of the existence of insurance creating incentives for banks to take excessive liquidity risk.

## **Concluding remarks**

48 This talk has been quite detailed. But I hope that it has helped explain a number of points about the Bank's balance sheet and its operations since the crisis began. Here are a few conclusions you may like to take away:

- The extent of the Bank's support for the economy has been truly, historically, massive - both in terms of liquidity insurance operations and monetary policy. That shows up in the expanded size of our balance sheet.
- There has been an unprecedented pace of change and innovation in our facilities. Nevertheless, the schemes have been carefully designed to protect against losses impacting on the Bank.
- We can provide temporary short-term liquidity support to individual banks and to the system as a whole.
- And we can set expansive monetary conditions even when interest rates reach close to zero.
- But we can't provide medium-term funding for banks to carry out lending. That must ultimately come from private sector savings or, possibly, from Government. Similar principles apply to purchases of non-financial corporate assets in any significant scale.
- At some point, the large expansion in our balance sheet will have served its purpose, and we shall return to more normal times. The temporary facilities are either time limited or have price disincentives to use in normal conditions.
- The Bank's balance sheet will return to something like its former composition, and perhaps even its former size. Our work is not over yet, but the innovations introduced during the crisis should leave us much better prepared to deal with stresses in the future.

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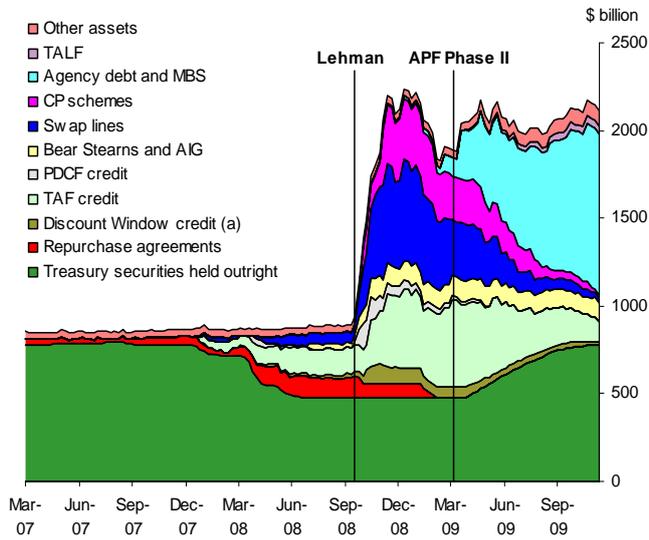
Date	<b>Annex 1: Timeline of Bank of England actions since the start of the financial crisis</b>
13-Sep-07	The Bank offered to supply additional reserves equal to 25% of the aggregate reserves target in its weekly OMO. The extra reserves were accommodated by widening the range around banks' reserves targets from +/- 1.0% to +/-37.5%. The additional reserves were reoffered at each scheduled OMO for the remainder of the Maintenance Period.
14-Sep-07	The Bank announces it has provided a liquidity support facility to Northern Rock.
18-Sep-07	In response to a further disturbance to conditions in sterling money markets following the announcement of a liquidity support facility for Northern Rock, the Bank offered a further 25% of aggregate reserves targets via an exceptional two day fine-tune OMO.
21-Sep-07	The Bank announces four Term Auctions offering £10 billion of reserves with a 3-month maturity against a wider range of collateral than accepted in OMOs.
02-Oct-07	For the Maintenance Period beginning on 4 October, the range around reserves banks' targets within which reserves are remunerated was set to +/-30%.
29-Nov-07	The Bank announces a 5-wk STR to provide liquidity over the year-end. Operation held on 06/12/07
12-Dec-07	As part of a coordinated central bank announcement, the Bank announces the introduction of three-month long-term repo OMOs against a wider range of collateral (initially offering £10 billion on a monthly frequency).
17-Mar-08	Following a period of renewed pressure in money markets surrounding the announcement of the acquisition of Bear Stearns, the Bank offered to supply £5 billion of additional reserves (equal to 25% of aggregate reserves targets) via an exceptional three day fine-tune OMO. The additional reserves were reoffered at each scheduled OMO for the remainder of the Maintenance Period.
21-Apr-08	The Bank launches the Special Liquidity Scheme (SLS) to allow banks to swap high quality mortgage-backed securities for UK Treasury bills for a period of up to three years.
02-May-08	The Bank announces an increase in the ceiling for Reserves Account targets to the higher of £2.5 billion or 5% of a participant's eligible liabilities.
07-Jul-08	For the Maintenance Period beginning on 10 July, the range around reserves banks' targets within which reserves are remunerated was set to +/-20%.
15-Sep-08	In response to the failure of Lehman Brothers the Bank offered to supply £5 billion of additional reserves in a three day exceptional fine-tune OMO. The reserves were reoffered in the scheduled short-term repo OMO on 18 September.
16-Sep-08	The Bank offered to supply £20 billion of additional reserves via an exceptional two day fine-tune OMO. These reserves were reoffered in the scheduled short-term OMO on 18 September.
17-Sep-08	The Bank announces an extension to the Special Liquidity Scheme (SLS) drawdown period from 21 October 2008 to 30 January 2009.
18-Sep-08	As part of a coordinated central bank announcement the Bank announces the introduction of a daily overnight USD repo operation to offer up to \$40 billion secured against routine OMO collateral and US Treasury securities.  To accommodate additional reserves provision following failure of Lehman Brothers, the Bank widened the range around reserves banks' targets within which reserves are remunerated to +/-40%. The range was subsequently widened to +/-60% on 1 October.
26-Sep-08	The Bank announces an increase in the size and frequency of its long-term repo OMOs with the additional provision of reserves to be offset in other operations if necessary.
26-Sep-08	The Bank announces the introduction of a one-week USD repo operation offering \$30 billion alongside the existing overnight USD repo OMO.

Date	<b>Annex 1: Timeline of Bank of England actions since the start of the financial crisis</b>
29-Sep-08	The UK Government announces Bradford & Bingley is to be nationalised. The Bank provides Bradford & Bingley with a working capital facility.
03-Oct-08	The Bank announces an extension to the range of collateral eligible for extended-collateral long-term repo OMOs to include AAA-rated asset-backed securities of some corporate and consumer loans; and approved highly-rated asset-back commercial paper programmes. Government guaranteed bank debt is also made eligible on 8/10/08
06-Oct-08	The Bank publishes a Market Notice announcing that, with effect from 06/10/08, the Bank may undertake operations to drain reserves through the issuance of Bank of England bills.  For the Maintenance Period beginning on 9 October, the range around reserves bank's targets within which reserves are remunerated was set to +/-40%.
13-Oct-08	The Bank announces that its swap line with Federal Reserve will have no fixed amount. One-month and three-month tenders are introduced with all operations adopting a fixed-rate full allotment structure.
15-Oct-08	Following the increased size and frequency of reserves provided through long-term OMOs, the Bank starts to drain reserves through the issuance of Bank of England bills in its short-term OMOs.
16-Oct-08	The Bank publishes a consultative paper on the development of the Bank's market operations
20-Oct-08	The Bank launches the Discount Window Facility (DWF) and Operational Standing Facilities (OSFs).
03-Nov-08	For the Maintenance Period beginning on 6 November, the range around reserves bank's targets within which reserves are remunerate was set to +/-20%.
06-Nov-08	The Bank announces the withdrawal of its overnight USD repo operations.
14-Nov-08	The Bank announces a reduction in the frequency of its extended collateral long-term repo OMOs to bi-monthly.
01-Dec-08	For the Maintenance Period beginning on 4 December, the range around reserves bank's targets within which reserves are remunerated was set to +/-10%.
10-Dec-08	The Bank announces that Bank of England bills are eligible for delivery in the widely traded UBG DBV basket.
19-Jan-09	HMT authorise the Bank to buy up to £50 billion of high quality private sector paper under the Asset Purchase Facility (APF). Initial purchases are financed through the issuance of Treasury bills by the Debt Management Office (DMO).
19-Jan-09	The Bank announces an extension to the term of Discount Window Facility (DWF) borrowing to 364 days subject to an additional 25bps fee.
30-Jan-09	The Special Liquidity Scheme (SLS) closes to new drawings. The Bank subsequently publishes a Market Notice on 03/02/09 stating that Treasury Bills with a face value of approximately £185 billion have been lent to 32 institutions under the scheme. The total nominal value of securities delivered as collateral under the scheme is approximately £242 billion.
13-Feb-09	The Bank launches a Commercial Paper Facility under Phase I of the Asset Purchase Facility to purchase investment grade Commercial Paper issued by UK corporates, both at issuance and in the secondary market.

Date	<b>Annex 1: Timeline of Bank of England actions since the start of the financial crisis</b>
05-Mar-09	The MPC voted to reduce the official Bank Rate paid on commercial bank reserves by 0.5 percentage points to 0.5%, and to undertake a programme of asset purchases of £75 billion financed by the issuance of central bank reserves. In addition to purchases of private sector debt previously sterilised through the issuance of Treasury Bills by the DMO, the Bank announces its intention to purchase conventional gilts with a residual maturity of between 5 and 25 years. The system of reserves averaging is suspended with all reserves balances remunerated at Bank Rate. The rate applicable to the operational standing deposit facility is amended to be 0% for deposits while the rate charged on the Operational Standing Lending facility will continue to be set at 25bps above Bank Rate.
19-Mar-09	The Bank publishes a Market Notice containing details of its Corporate Bond Secondary Market Scheme as part of the Asset Purchase Facility (APF). The first operation takes place on 25/03/09.
07-May-09	The MPC voted to continue with its programme of asset purchases financed by the issuance of central bank reserves and to increase its size by £50 billion to a total of £125 billion.
28-Jul-09	Following a Market Notice published on 25/06/09, the Bank conducts its final one-month USD repo operation.
03-Aug-09	The Bank launches a Secured Commercial Paper facility to purchase investment grade sterling Asset Backed Commercial Paper as part of the Asset Purchase Facility APF.
06-Aug-09	The MPC voted to continue with its programme of asset purchases financed by the issuance of central bank reserves and to increase its size by £50 billion to £175 billion. Furthermore, the Bank announces that it will make a significant amount of the gilts acquired by the APF available to the DMO for on-lending to the market via a Bank-DMO repo facility. The Bank suspends its short-term repo OMOs so that the level of reserves is primarily a function of the level of reserves injected via asset purchases and the reserves supplied via long-term repo OMOs. The pool of gilts eligible for purchase by the APF is extended to include all conventional gilts with a residual maturity greater than three years.
05-Oct-09	The Bank publishes a Market Notice containing changes to the eligibility criteria for access to Reserves Account and other Sterling Monetary Framework facilities, widening the population of institutions eligible to apply to all deposit-takers eligible to pay Cash Ratio Deposits to the Bank, regardless of size.
06-Oct-09	Following a Market Notice published on 24/09/09, the Bank conducts its final three-month USD repo operation.
05-Nov-09	The MPC voted to continue with its programme of asset purchases financed by the issuance of central bank reserves and to increase its size by £25 billion to £200 billion.

## Annex 2 : Balance sheets of the Federal Reserve and the Eurosystem

### Chart A1: Federal Reserve assets

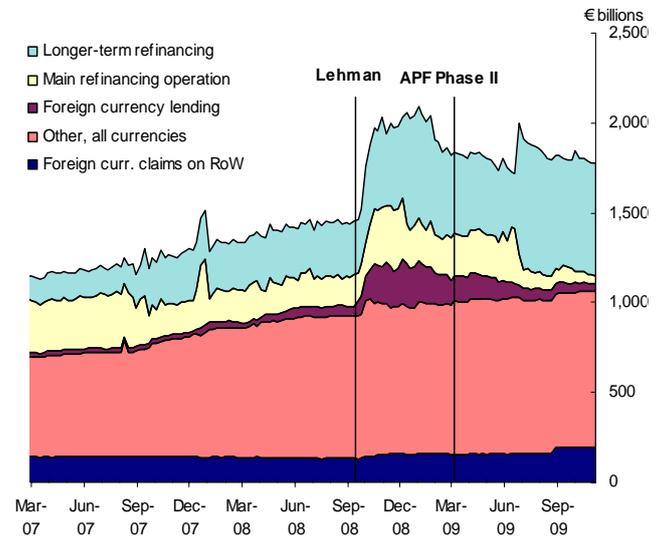


a) Includes primary, secondary and seasonal credit

Source: Federal Reserve. For a recent discussion of the Federal Reserve's balance sheet please see Chairman Bernanke's speech given on 3 April, available at

<http://www.federalreserve.gov/newsevents/speech/bernanke20090403a.htm>

### Chart A2: Eurosystem assets



Source: European Central Bank

## **Annex 3: ‘Other Items’ on the Bank of England Balance Sheet**

### **Ways and Means**

1 ‘Ways and Means’ is the name given to the Government’s overdraft facility at the Bank. Prior to the transfer of the government’s day-to-day sterling cash management from the Bank to the Debt Management Office (DMO) in March 2000, the outstanding daily balance varied significantly reflecting net cash flows into and out of government accounts. Since March 2000, borrowing from the Bank has not been used to facilitate day-to-day cash management and the balance was generally stable at around £13.4 billion until the facility was repaid during 2008. The Bank and the Treasury agreed to this repayment in order to provide the Bank with additional balance sheet flexibility in responding to the demands of the financial crisis. The facility however remains available for use.

### **Foreign exchange reserves**

2 The Bank of England holds its own foreign exchange reserves. These reserves are separate from the Government's foreign exchange reserves, which the Bank manages as HM Treasury's agent. The institutional arrangements for exchange rate policy and foreign exchange reserves was set out as part of the new monetary policy framework introduced by the government in 1997.<sup>7</sup> Under this framework, the Government is responsible for determining the UK’s foreign exchange rate regime. The Government’s foreign exchange reserves are held in an account called the Exchange Equalisation Account (the EEA), and the current size of the government’s gross reserves is approximately \$66 billion. The EEA is managed by the Bank as agent for the Treasury.

3 But the framework also provides for the Bank of England to have its own separate pool of foreign exchange reserves which the MPC may use at its discretion to intervene in the support of its monetary policy objective – in other words, the Bank may intervene in foreign exchange markets as part of its operating framework for meeting the inflation target which the government sets for the MPC. The size of the Bank’s reserves is modest compared with those of the Government, and stands at approximately \$6 billion. The Bank finances the acquisition of its reserves by issuing foreign currency securities in its own name in the international capital markets. The currency denomination, maturity and size of this issue reflects the Bank’s judgment on where the best value for money may be achieved. In recent years, issuance has taken the form of an annual syndication of a \$2 billion 3-year bond.

4 Intervention in foreign exchange markets by the UK is now very rare. That reflects the Government’s monetary policy framework which sets the inflation target as the nominal anchor for the economy, and which allows the exchange rate to be market-determined. Prior to that, when the monetary policy framework included an exchange rate objective (either formally as in sterling’s membership of the ERM, or informally as part of exchange rate shadowing) intervention by the Government was more common in support of that exchange rate objective. Another context in which

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<sup>7</sup> [http://www.hm-treasury.gov.uk/press\\_40\\_97letter.htm](http://www.hm-treasury.gov.uk/press_40_97letter.htm)

the Government may use its foreign exchange reserves is that of participating in concerted international interventions, such as the G7 US dollar interventions in the 1980s.

5 The Bank has not intervened in foreign exchange markets on its own account since the inception of the 1997 monetary policy framework. And over the same period, the Government has intervened using the EEA only once, in September 2000 as part of concerted international intervention to support the euro.

### **Other assets and liabilities**

6 Some of the Bank's capital and reserves are held in equity holdings, eg in the BIS and ECB and of course the Bank's physical assets. The remainder (the Bank's 'free' capital), together with the proceeds of non-interest-bearing Cash Ratio Deposits placed with the Bank by UK-resident commercial banks are invested in a portfolio of sterling-denominated securities.

7 The Bank also provides banking services for a small number of customers, mainly other central banks. These accounts appear as liabilities of the Bank and are placed back out in deposits.