# The Bank of England's Special Liquidity Scheme

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The Bank of England introduced the Special Liquidity Scheme (SLS) in April 2008 to improve the liquidity position of the UK banking system. It did so by helping banks finance assets that had got stuck on their balance sheets following the closure of some asset-backed securities markets from 2007 onwards. The Scheme was, from the outset, intended as a temporary measure, to give banks time to strengthen their balance sheets and diversify their funding sources. The last of the SLS transactions expired in January 2012, at which point the SLS terminated. During the period in which the SLS was in operation, the Bank undertook a fundamental review of its framework for sterling market operations and developed a new set of facilities to provide ongoing liquidity insurance to the banking system. This article explains the design and operation of the SLS and describes how that experience has influenced the design of the Bank's permanent liquidity insurance facilities.

## Introduction

The closure of some asset-backed securities markets in the second half of 2007 led to funding and liquidity problems for banks. Banks had used these markets to fund part of their balance sheets. They did this by packaging assets such as mortgage loans into securities that could be sold to investors, including other banks, or used as collateral to borrow cash. Rising defaults on mortgage loans and falling house prices, initially in the United States, raised the prospect of investors incurring losses on such asset-backed securities. They also triggered a more general reassessment of the risks inherent in such securities and raised concerns about the quality of assets on banks' balance sheets. In such an environment, it became increasingly difficult for banks to sell securities backed by mortgages or other assets, or to use them as collateral to borrow cash. This left banks with an 'overhang' of illiquid assets on their balance sheets.

The Bank introduced the Special Liquidity Scheme (SLS) in April 2008 to improve the liquidity position of the banking system by tackling this overhang of illiquid assets.[2] Under the terms of the SLS, banks and building societies (hereafter 'banks') could, for a fee, swap high-quality mortgage-backed and other securities that had temporarily become illiquid for UK Treasury bills, for a period of up to three years. Because Treasury bills are a liquid asset, banks were able, in turn, to use them as collateral to borrow cash.

The SLS was, from the outset, intended as a temporary measure to address the immediate liquidity problems facing banks at that time. It was designed to provide liquidity support on a one-off basis, in large scale and for a long maturity, thereby giving banks time to strengthen their balance sheets and diversify their funding sources. The last swaps under the Scheme expired in January 2012, at which point the SLS terminated. During the period in which the SLS was in operation, the Bank undertook a fundamental review of its framework for sterling market operations and developed a new set of facilities to provide ongoing liquidity insurance to the banking system. In many cases, these facilities draw on the design principles and experience of operating the SLS. The Bank stands ready to provide liquidity assistance to the banking system through these liquidity insurance facilities.

This article explains the design and operation of the SLS and describes how that experience has influenced the design of the Bank's permanent facilities through which it provides liquidity insurance to the banking system. The first section explains the objectives and design principles of the Scheme. The second section describes how the Scheme was used. The third section describes the Bank's new permanent liquidity insurance facilities, and the final section concludes.

(1) The authors would like to thank Amandeep Bahia, Christopher Chambers, Mathew Sim, Ben Westwood and Paul Whittaker for their help in producing this article.

(2) Prior to the launch of the SLS, in response to strains in money markets during 2007, the Bank had extended the range of collateral it would accept in its regular three-month long-term repo operations. For further details see Cross, Fisher and Weeken (2010).

## Objectives and design principles of the Scheme

### Objectives

During the autumn of 2007 and early 2008, it was clear that the lack of liquidity in some markets was preventing banks from funding themselves through what had become normal means. Across the world, there was a lack of confidence in assets created from packages of bank loans, most notably mortgage-backed securities. That lack of confidence was prompted by the downturn in the US housing market and, in particular, the problems associated with sub-prime mortgages there. The markets in which those assets normally traded had, in effect, closed, so it had become very difficult for banks to exchange those assets for cash — the assets had become 'illiquid'.

As a result, banks in many of the major financial centres had an 'overhang' of assets on their balance sheets, which they could not readily sell or use to secure borrowing. This overhang created uncertainty about the financial position of banks, including whether — given the size of their balance sheets — banks had sufficient capital to cover a decline in the value of their assets. This made it more difficult for banks to attract funding, including from other banks, and, in turn, affected their ability and willingness to lend money to individuals and businesses.

Following the collapse of Bear Stearns in early 2008, it became clear that there was no immediate prospect that markets in mortgage-backed securities would start to operate as they had previously. The Bank of England felt that, unless the overhang of illiquid assets on banks' balance sheets was dealt with, banks might further curtail their lending to each other, and, more importantly, to the wider economy. The Bank launched the SLS on 21 April 2008 to deal with this overhang of illiquid assets by exchanging them temporarily for more easily tradable assets, which the banks could use to finance themselves.(1)

### Design principles

The SLS was based on a number of key design principles, aimed at meeting the Scheme's overall objectives:

#### Long-term liquidity via a collateral swap

The SLS operated as a collateral swap, allowing counterparties to exchange high quality but illiquid assets — specifically those most affected by the closure of asset-backed securities markets — for liquid UK Treasury bills (see the box on pages 60–61 for a description of the operational design of the Scheme). Counterparties could then use the Treasury bills to finance themselves, for example by using them to obtain cash in the repo market.

The Bank considered it important to provide banks with certainty about their liquidity position for a long enough period to give them time to diversify their funding sources and strengthen their balance sheets, thereby underpinning confidence in their financial positions. To this end, assets could be swapped for up to three years.

#### Liquidity provision against the overhang of illiquid assets

The SLS was specifically designed to deal with the overhang of existing assets on banks' balance sheets, not to finance new lending directly. To that end, only securities formed from loans existing before 31 December 2007 (known as 'legacy assets') were eligible for use in the Scheme.

#### One-off scheme

Banks were only able to enter into new collateral swaps ('drawings') with the Bank of England within a pre-determined period, known as the 'drawdown window'. It was set to be long enough to allow banks to package up portfolios of legacy loans into a form that would be accepted in the Scheme. No new drawings could be undertaken once the drawdown window closed.

At the time of the launch of the Scheme, the drawdown window was set to last six months, closing on 21 October 2008. But, on 17 September 2008, the Bank announced an extension of the drawdown window to 30 January 2009 in light of the disorderly market conditions following the failure of Lehman Brothers.

#### Credit risk remained with banks

The fact that the SLS operated as a collateral swap meant that, unless a participating bank defaulted, the credit risk associated with the assets pledged by banks as security against their drawings of Treasury bills ultimately remained with the banks and their shareholders.

To minimise the risk of a loss in the event that a counterparty defaulted, the Bank insisted that banks provided assets with a value greater than that of the Treasury bills borrowed. This difference between the value of the collateral provided and the market value of the Treasury bills borrowed is known as the 'haircut'.

Given the scale of the SLS relative to the size of the Bank of England's capital, the Scheme was indemnified by HM Treasury (HMT). This indemnity was designed so that HMT indemnified the Bank against any *net* loss it incurred in connection with the SLS: any loss following a default by a counterparty would first have been covered by fee income made by the Scheme, after which there would have been a requirement for HMT to meet any residual loss under the indemnity.

(1) Other central banks also introduced a variety of temporary facilities in the course of the financial crisis. For example, the US Federal Reserve's response to the crisis is set out at www.federalreserve.gov/monetarypolicy/bst_crisisresponse.htm.

The public sector would therefore have been exposed to a loss only if all three of the following conditions were met: (i) a counterparty defaulted; (ii) the value of collateral provided by that counterparty fell after that default by more than the size of the haircuts applied; and (iii) the resulting exposure (after any recoveries via the administration process) exceeded the buffer of retained SLS fee income. At the end of the Scheme no counterparty had defaulted and no such losses were recorded.(1)

### Controlled disclosure

There was controlled disclosure of aggregate SLS usage while the Scheme was in operation. After the closure of the drawdown window, the Bank released a statement detailing the total amount of Treasury bills borrowed and the total value of collateral pledged in the Scheme.(2) In addition, the amount of Treasury bills outstanding in the Scheme was periodically disclosed in the Bank of England's *Annual Report*, the *Quarterly Bulletin*, the *Financial Stability Report* and in speeches by members of the Bank Executive.

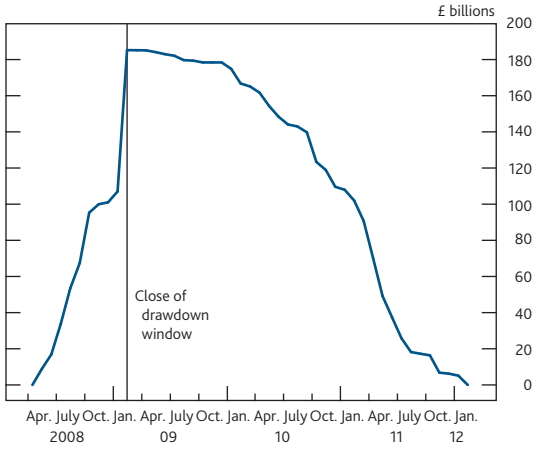
## Usage of the Scheme

### Amount of Treasury bills borrowed

At its peak, the Scheme lent Treasury bills with a face value of £185 billion. To put this number in perspective, this was more than twice the size of the Bank's balance sheet prior to the financial crisis.

There was a steady increase in the value of SLS drawings throughout the drawdown window period. As noted above, the drawdown window was extended on 17 September 2008. By that stage, Treasury bills with a face value of £75 billion had been borrowed in aggregate. The peak usage of £185 billion of Treasury bills was reached by the time the drawdown window closed on 30 January 2009 (**Chart 1**). At that point, 32 banks had accessed the Scheme. In aggregate, those banks accounted for over 80% of the sterling balance sheets of the financial institutions eligible to use the Scheme.

**Chart 1** Treasury bills borrowed in the Scheme(a)




(a) Face value of Treasury bills borrowed in the Scheme.

The time it took for banks to access the Scheme was largely determined by whether they had the ability to issue SLS-eligible securities via residential mortgage-backed securities (RMBS) or covered bond 'programmes' when the Scheme was launched. Those institutions that already had such programmes in place tended to be able to create eligible securities backed by legacy loans and start to access the Scheme within the first few months. These were typically the larger banks. Many smaller institutions did not have such programmes already established. In these cases it tended to take between four and six months to establish suitable programmes, create eligible securities and start to access the Scheme.

### Collateral used in the Scheme

The Bank formed its own judgement on the risks inherent in securities submitted as collateral to the SLS. As in all its operations, the Bank exercised this judgement and managed the risks associated with the collateral through three basic tools: (i) eligibility — the types of collateral the Bank will lend against; (ii) valuations — how much that collateral is worth; and (iii) haircuts — how much the Bank will lend relative to the value of the collateral.

The high-level collateral eligibility criteria of the SLS are described in the box on pages 64–65. Where the Bank judged that a security met these criteria, the Bank assigned a value to the security. This valuation was made using market prices where available. Where market prices were not available or judged unreliable, the Bank used its own pricing models to value the security. To protect the Bank against loss in the event that a bank participating in the SLS defaulted, the Bank insisted that the value of the securities that participant provided as collateral was much larger than the Treasury bills borrowed. The difference between the market value of the collateral and the market value of the Treasury bills borrowed is known as the 'haircut'. The total haircut applied to a security comprised two elements: (i) a standard 'base' haircut for that asset type and (ii) haircut add-ons to protect against additional risks, including those that may have been specific to that security. The value of the securities was updated daily and if — after adjusting for the haircut — the value of the assets pledged as security fell below the value of the Treasury bills lent, banks had either to provide more assets to the Bank (a process known as margining) or to return some of the Treasury bills borrowed.(3)

At the end of the drawdown window the Bank held securities with a nominal value of £287 billion as collateral in the Scheme. The Bank's valuation of these securities was

(1) The surplus arising from the SLS to be paid to HMT in April will be published in the Bank's 2012 *Annual Report*.
(2) See www.bankofengland.co.uk/markets/Documents/marketnotice090203c.pdf.
(3) See Breeden and Whisker (2010) and Fisher (2011a) for a more detailed description of the Bank's collateral risk management.

## Operational design of the Scheme

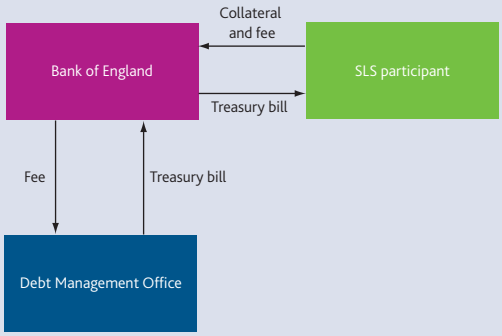
### Eligible institutions

The institutions eligible to participate in the Scheme were banks that were eligible to sign up to the Bank's existing bilateral Standing Facilities.(1) These facilities allowed banks to borrow from the Bank of England overnight against high-quality collateral.

### Collateral swap structure

Participants accessed the Scheme via collateral swaps, technically structured as collateralised stock lending transactions. SLS participants were able to borrow nine-month maturity UK Treasury bills from the Bank of England in exchange for eligible collateral, for a fee (**Figure A**) (see the box on pages 64–65 for details of the collateral eligible in the Scheme).

**Figure A** SLS collateral swap




The Treasury bills used were issued specifically for the Scheme. They were liabilities of the National Loan Fund, issued to the UK Debt Management Office (DMO) and held by the DMO as retained assets on the Debt Management Account. The Bank borrowed the Treasury bills from the DMO under an (uncollateralised) stock lending agreement (**Figure A**). The Bank paid the DMO a fee based on each transaction to cover administrative and other costs.

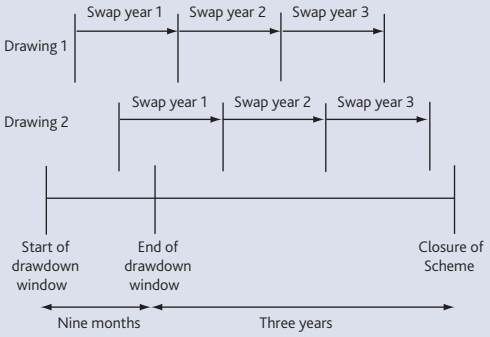
Treasury bills were used rather than gilts to minimise any potential disruption to the wider gilt market. As the SLS was designed to have an extended maturity, SLS Treasury bills were issued with a maturity of nine months. This was a longer maturity than the DMO's regular Treasury bills (usually one, three and six-month maturities) and reduced the number of times the Treasury bills would need to be rolled over throughout the three-year life of the Scheme.

### Length of swaps

Transactions in the SLS, both with participants and the DMO, were initially for one-year maturity, with the option to renew the swap to take the maturity up to a maximum total of three years. Where the collateral provided by a participant had a maturity date of less than three years from the date the swap was initiated, the maturity of the swap (and the related transaction between the Bank and the DMO) was set to the maturity date of the collateral.

Counterparties were able to access the SLS repeatedly during the nine-month drawdown window. This meant that many counterparties had multiple SLS drawings, with swaps maturing on different dates over a nine-month period to end-January 2012. These 'staggered' maturities are illustrated in **Figure B** below.

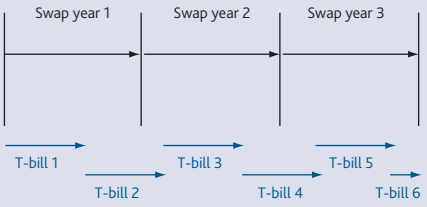
**Figure B** Staggered maturities of SLS transactions




### SLS Treasury bill rollovers

The combination of nine-month Treasury bills and one-year swaps that could be extended for a period of up to a maximum total of three years meant that the Treasury bills had to be exchanged regularly during the life of the Scheme (see **Figure C** for a stylised example). To enable such 'rollovers', the DMO would provide a 'new' Treasury bill each month. Participants holding soon-to-mature Treasury bills had to return these to the Bank once the residual maturities of the Treasury bills were between ten and 20 days. The Bank would then return these 'old' Treasury bills to the DMO in exchange for new nine-month Treasury bills, which the Bank would in turn pass back to the participant on the same day.

**Figure C** Stylised example of SLS transaction




### Fee

The Bank charged participants a fee for using the Scheme. This fee was based on the spread between three-month sterling Libor and the three-month sterling general collateral (GC) gilt repo rate, as published daily by the British Bankers'

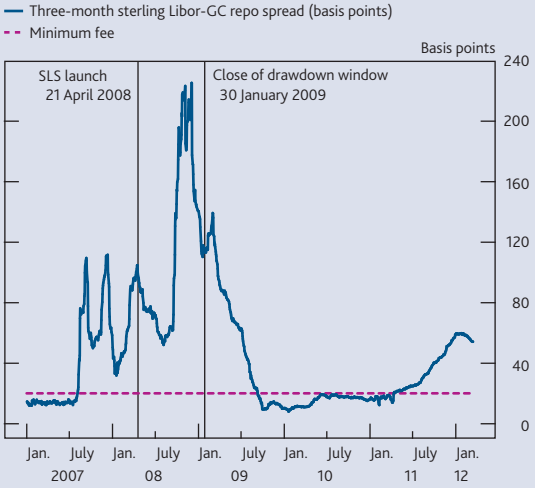
Association. As the Bank was lending Treasury bills rather than central bank reserves in the SLS, participants had to repo the Treasury bills if they wanted to obtain cash. This would have cost banks approximately the general collateral gilt repo rate. So the Bank set the fee as a spread above that rate.

A minimum fee was set at 20 basis points. This was higher than the Libor-GC spread prior to the financial crisis and so designed to make the Scheme relatively unattractive if market interest rates fell to pre-crisis levels, helping to incentivise exit. The minimum fee also ensured that the Bank's administrative costs were covered, including the fee paid to the DMO for borrowing the Treasury bills. In fact, the three-month Libor-GC spread was below 20 basis points from September 2009 until April 2011 (**Chart A**).

To reduce overreliance on the Scheme, the Bank charged higher fees for higher levels of usage relative to the size of each institution's balance sheet.

The participant's fee for each SLS swap was initially fixed on the date of the drawdown. It was subsequently refixed every three months thereafter based on the Libor-GC spread prevailing at that time. This was done in order to reduce incentives for banks to time their drawings under the Scheme according to prevailing market interest rates. The fee was calculated by applying the Libor-GC spread for the refix period to the daily mark-to-market value of the Treasury bills and was payable every three months at the end of the refix period, and on termination. Because the fee was payable in arrears, banks had to provide collateral against it, ie the haircut-adjusted market value of collateral used had to be greater than the sum of the market value of Treasury bills borrowed and the fee owed to the Bank.

**Chart A** Sterling three-month Libor-GC spread




Sources: Bloomberg and Bank calculations.

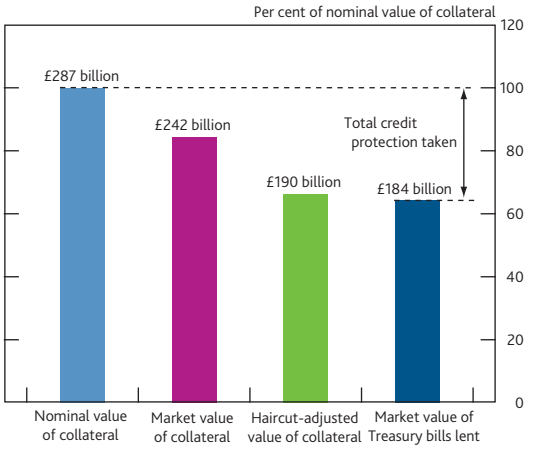
In addition to the fees, the Bank charged back to participants certain other costs incurred by the Bank in the SLS, including specific legal costs associated with checking the eligibility of collateral, and the custody costs incurred in holding the collateral securities.

(1) Institutions eligible to sign up to the Bank's existing bilateral Standing Facilities were all banks and building societies that were required under the Bank of England Act 1998 to place cash ratio deposits at the Bank. For further information about cash ratio deposits, see www.bankofengland.co.uk/statistics/Pages/faq/faq_crds.aspx.

approximately £242 billion, against which the Bank would have been prepared to lend £190 billion. This implies an average haircut of 22% against the valuation of the collateral securities. The market value of the £185 billion of Treasury bills lent was £184 billion. This was slightly smaller than the haircut-adjusted value of the collateral of £190 billion (**Chart 2**). In part this reflected some counterparties preferring to overcollateralise their drawings slightly, to reduce the operational costs of having to post extra margin if small price fluctuations reduced the value of their collateral.

The majority of the collateral received in the Scheme was sterling RMBS and covered bonds backed by UK residential mortgages (**Table A**). The average haircut applied to this collateral was much larger than, for example that applied to UK government debt (which was used to cover margin calls in the SLS). That reflected a number of factors. First, the greater uncertainty surrounding the price and liquidity of such securities resulting in higher base haircuts (12 percentage points for a floating-rate RMBS compared to 0.5 percentage points applied to floating-rate sovereign debt). Second, where an observable market price was not available, haircuts were increased by 5 percentage points to deal with risk inherent in estimating a valuation. And, third, the fact that the overwhelming majority of this collateral was 'own-name', ie the participant pledging the collateral was also the

**Chart 2** Credit protection taken in the Scheme




Notes: Data are for the end of the drawdown window on 30 January 2009. Because some asset-backed securities repay the principal amount over the life of the security, the original principal has been adjusted such that the nominal value only reflects the remaining principal that was left to be distributed (so-called 'factored nominal').

**Table A** Type of collateral used in Scheme at 30 January 2009

| Collateral type | Nominal value[a] (£ billions) | Market value (£ billions) | Haircut-adjusted value (£ billions) | Average implied haircut |
|---|---|---|---|---|
| UK prime RMBS | 160.3 | 132.3 | 103.9 | 21% |
| Other UK RMBS | 11.3 | 7.8 | 6.0 | 24% |
| European RMBS | 11.5 | 8.2 | 6.3 | 23% |
| Covered bonds backed by residential mortgages | 84.1 | 75.9 | 59.2 | 22% |
| Asset-backed securities backed by credit cards | 15.9 | 14.1 | 10.6 | 25% |
| UK government-guaranteed bank debt | 0.3 | 0.3 | 0.3 | 9% |
| UK government debt[b] | 2.9 | 2.9 | 2.9 | 1% |
| Other government and supranational debt | 0.4 | 0.4 | 0.4 | 4% |
| Total | 286.7 | 242.0 | 189.6 | 22% |

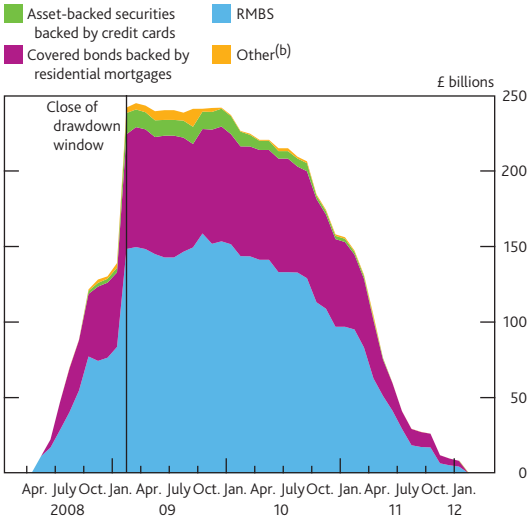
Note: The 'haircut-adjusted value of collateral' is the amount the Bank would be prepared to lend against, following the application of the haircut.

(a) Nominal is factored nominal.
(b) All UK government debt given as collateral was given as margin.

originator of the underlying assets. In these cases, the haircut was increased by 5 percentage points to reflect the risk of adverse correlation between the quality of the underlying loans and the creditworthiness of the participant that had delivered the security.

Haircuts were adjusted during the course of the life of the SLS to cater for specific risks in some securities. In particular, in some securitisations, the Scheme participant provided services to the securitisation, which would no longer be available if the participant were to default. For example, where cash related to the mortgages backing a security was held in an account with the participant who had delivered the security to the Bank, the Bank would have been an unsecured creditor to the participant in the event of their default. The Bank applied additional, security-specific, haircuts to cover such risks.

**Chart 3** Collateral pledged in the Scheme[a]



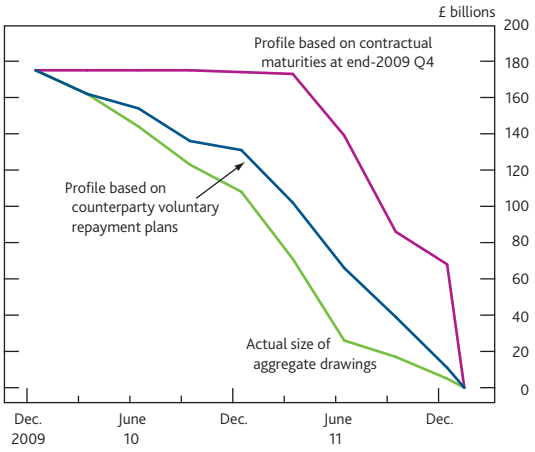

(a) Market value of securities pledged as collateral and margin in the Scheme.
(b) 'Other' includes UK government debt, UK government-guaranteed bank debt, government-guaranteed agency debt, and other government and supranational debt.

The composition of collateral changed over the course of the Scheme (**Chart 3**). This reflected participants terminating swaps as well as participants substituting securities delivered as collateral in the SLS for other securities eligible in the SLS (substitution is described in the box on pages 64–65). Decisions to substitute collateral reflected a number of factors. For example, some banks removed collateral that they were able to use in transactions with market counterparties.

## Managing the exit from the Scheme

As SLS swaps were initiated over the nine-month drawdown window (April 2008 to January 2009), almost all of the £185 billion of Treasury bills borrowed in the Scheme were contractually due to be returned to the Bank in the nine months to end-January 2012,(1) with almost £70 billion due to be returned in the final month. These contractual maturities are shown by the magenta line in **Chart 4**.

**Chart 4** Aggregate SLS repayment profiles[a]




(a) Face value of Treasury bills borrowed in the Scheme.

It was clear that this concentration of maturities in the final months of the Scheme posed risks. In particular, if banks had waited to refinance their SLS drawings until their contractual maturities, there would have been a glut of debt issuance by banks in the final months of the Scheme. The market could have found it difficult to absorb this issuance, which in turn, may have pushed up the overall funding costs of banks.

At the same time, SLS participants faced a co-ordination problem in smoothing the exit profile because no individual bank had the incentive to accelerate its repayment schedule. To help tackle the risks posed by this potential co-ordination problem, and so avoid a refinancing 'cliff', the Bank held discussions with the major SLS participants during 2009 Q4 and 2010 Q1. The Bank encouraged institutions to consider raising at least some funding earlier than they might otherwise

(1) As described in the box on pages 60–61, some swaps had a maturity of less than three years, reflecting the underlying collateral.

have done in order to avoid issuance congestion in the final few months of the Scheme. Following those discussions, banks were asked to submit individual voluntary repayment schedules consistent with what they considered to be credible funding plans. These voluntary repayment plans are shown by the blue line in **Chart 4** and implied a much smoother profile than the contractual maturity profile.

In practice, the banks went further than their revised repayment plans had suggested, in aggregate repaying their drawings at an even faster rate (shown by the green line in **Chart 4**). This was possible because of the relatively favourable conditions in long-term funding markets in the second half of 2010 and first half of 2011.

## The Bank's permanent liquidity insurance facilities(1)

Prior to the financial crisis, the Bank's published Sterling Monetary Framework (SMF) was primarily focused on the implementation of monetary policy. Although the SMF at that time also recognised as an objective the importance of ensuring banks had the means to manage their liquidity in stressed or otherwise extraordinary conditions, this was primarily to be achieved against a relatively narrow range of high-quality collateral. During 2007–08, it became clear that this was inadequate in the face of the developing crisis. The Bank responded by extending its operations, undertaking a number of extraordinary longer-term open market operations against a broader range of collateral, as well as introducing the SLS.(2)

Although these operations allowed the Bank to respond to the immediate stresses in the system, the experience of the financial crisis revealed the need to develop and formalise the range of liquidity insurance tools available as part of the permanent SMF. Such formalised facilities would give counterparties more clarity about the terms and conditions on which liquidity insurance could be provided. The Bank therefore undertook a fundamental review of the entire framework for its sterling market operations and issued a consultative paper in October 2008, setting out potential technical reforms to its existing operations and, more fundamentally, possible new liquidity insurance facilities.(3) In particular, the paper included proposals for new tools capable of dealing with a broad range of liquidity shocks, including those that affected the banking system as a whole, and providing liquidity insurance against a broad range of collateral, at an appropriate price. These proposals, which constituted a significant change in the way in which the Bank uses its balance sheet to provide liquidity support, are now part of the permanent SMF. The remainder of this section describes how the design of many of these facilities, in particular the Discount Window Facility, benefited from the experience the Bank gained in designing and operating the SLS.

### Discount Window Facility(4)

In October 2008, the Bank separated its bilateral Standing Facilities into Operational Standing Facilities (OSFs) and a Discount Window Facility (DWF). OSFs are primarily designed to keep short-term market interest rates within a corridor around Bank Rate, but also provide liquidity insurance for dealing with overnight frictional payment shocks. In contrast, the DWF is a new permanent bilateral liquidity insurance facility. Borrowing under the DWF is instigated by the counterparty, but at prices and on conditions determined in advance by the Bank and subject to the borrowing counterparty being judged by the Bank to be solvent and viable.

The Bank drew on a number of the features of the SLS in designing the DWF. Like the SLS, DWF transactions would usually be collateral swaps, with counterparties receiving liquid securities — gilts in the case of the DWF — rather than central bank reserves in exchange for the less liquid collateral they provide.(5) And, there is no institution-level disclosure of drawings, either by the Bank or the participant. Aggregate usage levels are released with a lag. This ensures that any individual drawing will have ended before data on it are published.

But there are some important differences between the DWF and the SLS. The DWF is designed to deal with shorter-term liquidity shocks than the SLS. DWF drawings are intended to be for a maximum of 30 days, although they can be rolled over at the Bank's discretion. And it is more expensive than the SLS at times when market conditions are not stressed, so that commercial banks are incentivised to manage their liquidity risk prudently in the market. The DWF was also designed to be able to deal with a broader range of liquidity shocks than provided for by the SLS. So the range of collateral accepted in the DWF is not restricted to securities made up of loans that were originated prior to 2007. Instead, the Bank has used the knowledge it developed in managing the risks from SLS securities to broaden the range of collateral it accepts in the DWF. This now includes portfolios of loans that have not been packaged into securities (a process which can be costly and time consuming). The Bank believes that as a result of this change, the majority of assets held by commercial banks have become eligible for use as collateral.

To enable the Bank to analyse and value assets that banks may wish to pledge in the DWF, and thus to respond more

(1) The Bank's regular operations in the sterling money market are described in more detail in Bank of England (2011).
(2) See www.bankofengland.co.uk/markets/Pages/sterlingoperations/timeline/timeline.aspx for a timeline of the Bank of England's operations.
(3) See Bank of England (2008).
(4) The DWF is described in more detail in Tucker (2009).
(5) At its discretion, the Bank may agree to lend sterling cash rather than gilts. That might prove necessary in rare circumstances, for example if the government bond repo market fails to function properly.

## Collateral eligible in the SLS

### Eligibility criteria

The SLS was set up to provide liquidity for temporarily illiquid legacy assets. Each participant in the Scheme could deliver as collateral only securities held on balance sheet at 31 December 2007, and eligible securities formed from underlying loans held on balance sheet at that date.

### Eligible asset classes

The following asset classes were eligible in the SLS:

- Covered bonds issued in the United Kingdom and European Economic Area (EEA) backed by residential mortgages, social housing loans or public sector debt;
- residential mortgage-backed securities (RMBS) issued in the United Kingdom or EEA;
- asset-backed securities backed by social housing loans or credit cards, issued in the United Kingdom, United States or EEA;
- bonds issued by G10 government agencies explicitly guaranteed by national governments;
- conventional debt security issued by certain US government-sponsored enterprises: the Federal Home Loan Mortgage Corporation, the Federal National Mortgage Association and the Federal Home Loan Banks System.

In addition to the eligible securities outlined above, participants were allowed to post as margin the narrow collateral securities that were routinely eligible in the Bank's open market operations, (including UK and, for example, German government debt).

On 8 October 2008, in support of the Government's actions to recapitalise the UK banking system, the Bank announced that UK government-guaranteed bank debt would also be eligible in the Scheme.

Securities could have been denominated in sterling, euro, US dollars, Australian dollars, Canadian dollars, Swedish krona, Swiss francs or, in the case of Japanese government bonds and bank debt issued under the UK government's Credit Guarantee Scheme only, yen.

Securities accepted included those issued by the institution, or entities in the same group as the institution, entering into the transaction — known as 'own-name' securities. The assets underlying asset-backed securities had to be cash loans and not synthetic (that is, not derivatives). And properties on which residential mortgages were secured had to be located in the United Kingdom or the EEA.

Securities whose high credit quality was the result of a guarantee or insurance provided by a third party ('a wrap') were not eligible (with the exception of the government-guaranteed instruments noted above).

Individual loans or portfolios of loans that had not been packaged into asset-backed securities were not eligible. Nor were securities formed in whole or in part from underlying commercial loans. Securities backed in part by buy-to-let loans to private residential landlords were eligible, however.

### Judgement on eligibility of individual securities

The Bank formed its own judgement on the credit quality of individual securities accepted in the SLS. In the published eligibility criteria, the Bank required that eligible securities be high quality, rated as AAA by two or more of Fitch, Moody's, and Standard & Poor's. This requirement was intended to serve as a broad indicator of standards of credit quality expected, but the Bank exercised its own discretion, avoiding any mechanical reaction to changes in external ratings. For example, where securities fell below these indicative standards during the time they backed SLS drawings, the Bank undertook a review of the underlying assets, including an analysis of the latest loan-level data. In a number of such cases, the Bank determined that there had been no fundamental change in the credit quality of the underlying assets, and so continued to allow the securities to back SLS transactions as eligible collateral.

All securities were independently checked for eligibility by the Bank before acceptance in the Scheme. As a result of this process some securities, which initially appeared to meet the high-level criteria, were subsequently deemed ineligible. As in all of its operations, the Bank formed its own independent view of the risks in collateral pledged and reserved the right to deem a security ineligible at any time.

The Bank refined and clarified the eligibility criteria for collateral during the course of the Scheme. For example, the Bank issued a Market Notice in August 2008 to clarify, among other things, the eligibility of revolving structures and securities backed, in whole or in part, by commercial loans.[1]

### Amortisation limits

Some of the securities used in the SLS were issued from 'revolving' structures. This meant that the underlying pools of loans backing the securities accepted as collateral could be topped up by loans originated after 31 December 2007. This is a common feature of covered bonds and some RMBS, and compromised the design principle of the SLS only to provide liquidity against legacy assets. Rather than making such structures ineligible, the Bank decided to limit the value of securities issued from revolving programmes that could be delivered into the SLS by a single institution. These limits, known as 'amortisation limits', were applied over the

three-year life of the SLS for participants delivering covered bonds and RMBS with revolving structures. The limit for each institution in the first year of the Scheme was the total value of eligible legacy assets, not already in non-revolving structures, available on the institution's balance sheet as at end-December 2007. The limit was reduced by one third in each year of the Scheme using a simplifying assumption that about a third of the underlying mortgages would be paid off by the start of the second year, and another third by the start of the third year of the Scheme.

### Substitution of collateral

Participants were allowed to substitute eligible collateral in their swaps at any time. The haircut-adjusted market value was, however, not allowed to fall and the swap maturity date could be reduced if the collateral substituted into the swap had a shorter residual maturity.

(1) See www.bankofengland.co.uk/markets/Documents/sls/sls-addendum080814.pdf.

quickly to requests to access the DWF, many banks have pre-positioned eligible assets with the Bank.(1)

### Indexed long-term repos(2)

Prior to the launch of the SLS, in response to strains in money markets during 2007, the Bank had extended the range of collateral it would accept in its regular three-month long-term repo operations. The Bank replaced these extended long-term repo (ELTR) operations in June 2010 with indexed long-term repo (ILTR) operations. In contrast to the bilateral SLS and DWF, ILTRs, like the ELTRs they replaced, are auction-based with the Bank offering central bank reserves to the banking system as a whole. But the Bank benefited from the insights it gained from the SLS in managing the range of collateral accepted in the auctions.

In ILTRs the Bank offers to supply a fixed amount of central bank reserves against two distinct sets of collateral — a narrow set of sovereign or near-sovereign bonds that is reliably liquid in private markets ('narrow collateral') and a wider set that includes high quality, but less liquid private sector securities ('wider collateral'). Participants can submit bids against either or both of the two collateral sets. These bids are expressed as a spread to Bank Rate (subject to a minimum spread of zero). The Bank allocates a proportion of the reserves on offer to the bids against wider collateral, in line with a pre-determined supply schedule. In this way the proportion of the auction allocated against wider collateral is endogenously determined depending on the level of stress reflected in the spreads offered; a larger proportion of the auction is automatically allocated to wider collateral in response to higher levels of stress. The remainder of the auction is allocated to bids against narrow collateral.

ILTRs are usually conducted once a month, with two operations with a maturity of three months and one operation with a maturity of six months each quarter. But both the size and the frequency of ILTRs can be varied at the discretion of the Bank in response to stressed conditions.

### Extended Collateral Term Repo Facility

The Bank announced the potential availability of an Extended Collateral Term Repo (ECTR) facility in December 2011. The ECTR facility is a contingent liquidity facility which the Bank can activate in response to actual or prospective market-wide stress of an exceptional nature. The ECTR facility lends cash against the same wide range of collateral that the Bank accepts in the DWF, drawing on the experience of managing much of that collateral in the SLS. But in contrast to the bilateral DWF and the SLS, the ECTR is an auction-based facility specifically designed to address a market-wide liquidity shock by providing liquidity, normally for a term of 30 days, against a broader range of collateral than is eligible in the ILTRs.

## Conclusion

The Bank introduced the SLS in April 2008 as a temporary measure to address the immediate liquidity problems facing the UK banking system at the time. Under the Scheme banks could swap high-quality assets that had temporarily become illiquid for liquid UK Treasury bills. In turn, banks could use these Treasury bills in private markets to obtain cash.

At the Scheme's peak (at the end of January 2009), Treasury bills with a face value of £185 billion had been lent for a period of up to three years. By providing liquidity support on a one-off basis, in large scale and for a long maturity, the SLS gave banks time to strengthen their balance sheets and diversify their funding sources.

The last of the swaps under the SLS expired at the end of January 2012, at which point the Scheme terminated. To ensure an orderly exit from the Scheme, participants had agreed voluntary repayment plans with the Bank to avoid a concentration of swap maturities in the last few months of the life of the Scheme.

During the period in which the SLS was in operation the Bank undertook a fundamental review of its framework for sterling market operations and developed a new set of facilities to provide ongoing liquidity insurance to the banking system.

(1) See Bank of England (2010) for further details on the extension of eligible collateral in the DWF.
(2) The Bank's ILTRs are described in more detail in Fisher (2011b).

Most of these facilities had not been in place at the time the SLS was introduced, and their design benefited from the insights the Bank gained from the design and operation of the SLS. These facilities were designed to deal with a broad range of liquidity shocks, and in some cases accept a wider range of collateral than the SLS. The Bank stands ready to provide liquidity assistance to individual banks or to the banking system as a whole through these permanent facilities.

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