
Reform of the Bank of England's operations in the sterling money markets

A consultative paper by the Bank of England

The following reproduces a paper issued for public consultation by the Bank on 7 May 2004. It reviews the objectives and broad framework of the Bank of England's operations in the sterling money markets. Comments were invited by 11 June 2004.

I Introduction

1 The Governor announced a review of the Bank's operations in the sterling money markets in a speech in Leicester on 14 October 2003.⁽¹⁾ The aim is to make improvements to ensure that the Bank's operational framework is at the cutting edge internationally.

2 The Bank last reformed its official sterling operations in the mid-1990s. The changes introduced then—in particular, the moves to operate in gilt repo and to broaden the range of counterparties—have worked well. But it is timely to examine whether there is scope for further improvements. The Bank has therefore reviewed the overall framework for the provision of central bank money, including its objectives and the implications for the markets and the wholesale payment systems that support them.

3 Since the announcement in October, the Bank has held discussions with more than 60 market participants, including all settlement banks and counterparties to the Bank's open market operations, infrastructure providers and, importantly, users of the markets, such as smaller banks, corporate treasurers and money market fund managers, in the United Kingdom and abroad. The Bank has also studied the operational frameworks of many overseas central banks. The Bank is grateful to those who have made their time available.

4 The great majority of market participants want greater stability in sterling overnight interest rates. Most users of the market, in particular, want a relatively narrow trading range for overnight rates, closer to that in major overseas domestic currency money markets. While intermediaries expressed a wider range of views, many believed that greater transparency and certainty of financing costs would narrow bid/ask spreads in

short-dated money markets and allow term money, bond and derivative markets, such as the overnight indexed swap market, to thrive.

5 This paper, which is issued for public consultation, sets out the Bank's objectives and asks for comment from interested parties on a number of specific issues related to the architecture of the framework. Those issues are covered principally in Sections V, VI and VII, and for completeness are summarised in Section VIII. In due course, the Bank will issue a further paper setting out its conclusions and consulting, as necessary, on questions of detail and implementation.

II Objectives

6 The purpose of the Bank's operations in the sterling money markets is to implement the Monetary Policy Committee's (MPC's) interest rate decisions while meeting the liquidity needs, and so contributing to the stability, of the banking system as a whole. This will not change.

7 But, in future, in seeking to implement the MPC's interest rate decisions through its operations, the Bank will aim to control overnight market interest rates much more closely. The Bank will have four objectives.

8 The first and primary objective is for sterling overnight interest rates to be in line with the MPC's repo rate, leading to an essentially flat money market curve out to the next MPC decision date, with very limited day-to-day or intraday volatility in market interest rates at maturities out to that horizon. Beyond the next MPC decision date, market interest rates will be free to reflect market expectations of future MPC interest rate decisions.

(1) Available on the Bank's web site at www.bankofengland.co.uk/pressreleases/2003/110.htm.

9 The second objective is an efficient, safe and flexible framework for banking system liquidity management, both in competitive money markets and, where appropriate, using central bank money. This framework should extend from efficient and safe provision of liquidity for making payments during the day, through to day-to-day and longer-term liquidity management, and it should retain incentives for banks to manage their own liquidity actively and prudently. In particular, the Bank is considering:

- i Giving banks more choice in their liquidity management by offering the possibility of holding remunerated balances ('reserves') at the Bank. Banks would then, for example, be able to choose whether to finance wholesale payments made via the Bank's real-time gross settlement (RTGS) payment system by borrowing from the Bank during the day against collateral (as now) or by drawing on reserve balances held with the Bank and borrowed through the Bank's open market operations or in the markets.
- ii Making the operational framework better able to cope with changes in demand for central bank liquidity, including in stressed market conditions or otherwise extraordinary circumstances.
- iii Giving more banks direct access to the Bank, through holding reserves and/or having access to standing facilities and/or settling payments directly across RTGS accounts with the Bank.

10 The Bank's third objective is an operational framework that is, as far as possible, simple, straightforward and transparent.

11 Finally, the Bank's fourth objective is competitive and fair sterling money markets, both for end-users and intermediaries.

12 Summary of objectives:

- **Objective 1:** Overnight market interest rates to be in line with the MPC's repo rate, so that there is a flat money market yield curve, consistent with the official policy rate, out to the next MPC decision date, with very limited day-to-day or intraday volatility in market interest rates at maturities out to that horizon.

- **Objective 2:** An efficient, safe and flexible framework for banking system liquidity management—both in competitive money markets and, where appropriate, using central bank money—in routine and stressed or otherwise extraordinary conditions.
- **Objective 3:** A simple, straightforward and transparent operational framework.
- **Objective 4:** Competitive and fair sterling money markets.

III Reasons for change

13 The primary reason for change is that the current operational framework leaves sterling overnight rates considerably more volatile than is desirable, as illustrated by comparison with other currencies (Charts A and B).

Chart A
Overnight interest rates and policy rates—United Kingdom, United States and the euro area

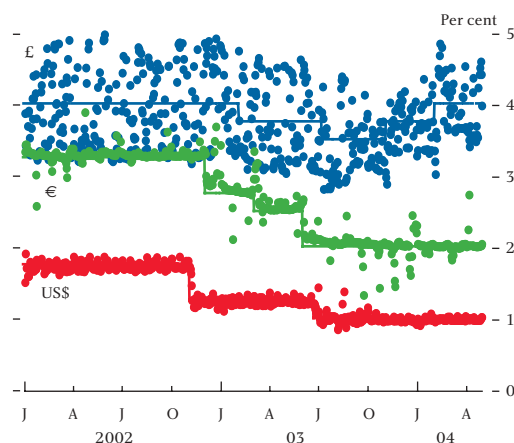
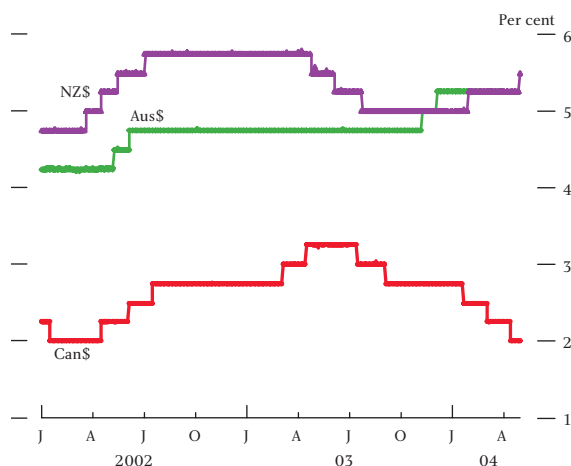
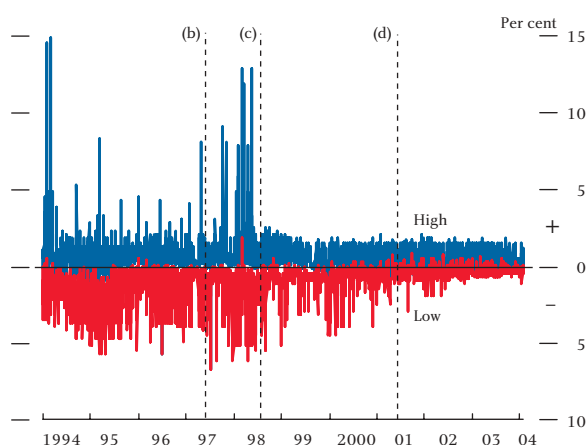


Chart B
Overnight interest rates and policy rates—Canada, Australia and New Zealand



14 This is despite there having already been substantial reductions over the past decade in volatility in sterling overnight interest rates following earlier changes to the Bank's operations (Chart C). Volatility decreased after the Bank's previous major review of its operations in the sterling money markets in 1996–98, when the Bank began conducting open market operations with banks and securities dealers rather than discount houses and enlarged the pool of eligible collateral to include gilts taken via reverse repo operations. Volatility fell further in 1999 when the Bank broadened the eligible collateral pool to include a much wider range of EEA government and supranational securities, so that there is currently some £3 trillion of collateral eligible for use in the Bank's open market operations, compared with Bank holdings of typically £20 billion. And volatility fell further again in 2001 following the Bank's introduction of an overnight deposit facility to put a floor under overnight market interest rates.

Chart C
Volatility of the sterling overnight interest rate^(a)



- (a) High and low of the day observed by the Bank's dealing desk as a spread to the policy rate.
 (b) Routine gilt repo OMOs introduced.
 (c) Introduction of deposit facility.
 (d) Introduction of deposit facility.

15 In the Bank's current framework,⁽¹⁾ settlement banks⁽²⁾ are obliged to maintain a minimum balance of zero on their accounts at the Bank at the end of each day (the maintenance requirement); balances on these accounts are not remunerated. The Bank conducts daily open market operations at a maturity of around two weeks to supply the market with the Bank's forecast of the net funds needed by the banking system in aggregate (the 'shortage') to meet this maintenance

requirement every day. But these open market operations are not in themselves sufficient to make the Bank the rate-setter in the overnight market since they do not necessarily establish the Bank as the marginal provider (or taker) of funds. The corridor for overnight market rates formed by the rates on the Bank's overnight deposit and lending facilities is wide (200 basis points or more), and direct access to these facilities is also limited to a narrow range of firms. This leaves considerable scope for overnight rate variability.

16 Separately, volatility can result from the Bank continuing to lend every day for a maturity of around two weeks at the prevailing MPC repo rate even when the term of the repo spans an MPC meeting. In consequence, when the MPC changes its repo rate at the subsequent meeting, outstanding lending is carried forward until maturity at the previous MPC rate. Through a process of normal market arbitrage, overnight market rates ahead of the meeting adjust to equalise the cost of borrowing from the Bank at two weeks and the expected cost of rolling borrowing in the overnight market over the same period. Thus, overnight rates ahead of the MPC meeting will tend to fall if overnight market rates following the meeting are expected to rise due to an increase in official rates. The opposite occurs (overnight rates rise) if the MPC is expected to reduce its repo rate. This 'pivoting' brings further unnecessary volatility in overnight market rates and distorts the money market yield curve.

17 The Bank's current operational framework could also probably be improved in relation to the Bank's three other objectives:

- i For example, in meeting the liquidity needs of the banking system, the Bank makes no provision in its current operations for banks to change the level of reserves they hold with the Bank. Banks that are members of RTGS also have an incentive to minimise their holdings of (unremunerated) reserve balances at the Bank, so that in practice they do not have an option to draw on reserves in order to meet intraday liquidity needs. Access to the standing facilities does not extend to banks generally, so many banks cannot use them as a liquidity management tool. And, in contrast to overseas systems, the framework does not include

(1) The Bank's current operational framework is set out in 'The Bank of England's Operations in the Sterling Money Markets', available at www.bankofengland.co.uk/markets/money/stermm3.pdf.

(2) Those banks (including the Bank itself) that are members of the sterling real-time gross settlement (RTGS) wholesale payment system and have settlement accounts at the Bank of England.

arrangements for liquidity provision, against routinely eligible collateral, beyond the Bank's forecast of the system's net liquidity shortage, even in extraordinary circumstances.

- ii Some elements of the current framework are complex, in particular the arrangements for balancing the banking system's books at the end of the day.
- iii Many users of the sterling money markets believe that volatility in short-dated market interest rates puts them at a disadvantage because the information available to different market participants about flows in the money market and wholesale payments system is inevitably uneven. Such perceptions may deter participation and impair market liquidity.

IV Setting the official interest rate

18 The Bank's ability to set sterling overnight market interest rates stems from its position as monopoly supplier of sterling central bank money. Demand for central bank money principally arises because:

- People want to hold bank notes and their banks must purchase the notes from the Bank. Notes in circulation are currently some £34 billion. The Bank issues bank notes on demand.
- The Bank is banker to the large UK banks: they settle payments amongst themselves across the Bank's books in the 'final settlement asset', central bank money, via the sterling payment system (RTGS).

19 Changes in demand for central bank money can be met only if some other part of the Bank's balance sheet changes at the same time—the Bank's assets must always equal its liabilities. The Bank can, in principle, meet the change in demand by lending (or borrowing) bilaterally or via open market operations.⁽¹⁾ The Bank can set the terms on which it lends or absorbs liquidity and the terms on which banks hold accounts with it. This provides the fulcrum of any system used by the Bank to set sterling market interest rates.

20 Payments and payment practices in the economy determine the demand for bank notes. But

banks' reserve balances at the Bank depend on the amount that the Bank lends to the market through its open market operations; on the terms on which the Bank provides these accounts, including how frequently it requires banks to balance their books (*the maintenance requirement*); and on the rates of interest applied to positive and negative balances on these accounts. These terms create incentives for banks to manage their account balances consistent with the Bank's policy objectives. A maintenance requirement can be daily, with banks required to hold a specific (positive) balance at the end of each day and charged a penalty rate if they fail to do so (*a same-day requirement*); or it can be a *period-average requirement*, with banks charged a penalty rate if they fail to hold a specific (positive) balance on average over a longer period. Examples of systems with a same-day requirement include Australia, Canada and New Zealand; and also the Bank's current system, in which settlement banks are required to balance their RTGS accounts at the end of each day and are charged a penalty interest rate if their accounts are overdrawn. Examples of period-average systems include those used by the European Central Bank and the US Federal Reserve.

21 Under a period-average requirement, banks would be able to draw down or build up reserves over the course of the *maintenance period*, provided their average end-of-day balance over the period as a whole equalled the requirement and they had a positive balance at the end of each day. (Banks would be charged a penalty rate on any overdrafts or if they failed to hold the required average balance.) Banks electing to join such a scheme, and so to become subject to the requirement, would be able to vary their reserve balance whenever overnight market interest rates diverged from their central expectation of the rate that would prevail on the final day of the maintenance period (for example, running down reserve balances when market rates were higher than the central expectation of the rate that would prevail on the final day of the maintenance period). This arbitrage process should ensure that overnight market interest rates earlier in the maintenance period remained close to the expected overnight market interest rate on its final day. The banking system's need to hold sufficient reserves to meet the period-average requirement would provide the binding constraint that the Bank would use to set market interest rates on the final day and consequently,

(1) Even if a counterparty is not itself a settlement bank, it will bank with a settlement bank or with a bank that banks with a settlement bank. In each case, the settlement of the Bank's injection (or withdrawal) of reserves is ultimately reflected in settlement banks' RTGS accounts at the Bank.

via that arbitrage, throughout the preceding days of the maintenance period.

22 By offering overnight standing lending and borrowing facilities to a wide range of banks at the end of the maintenance period (whether that period is one day or longer), the Bank should be able to ensure that overnight market interest rates remain within the range determined by the interest rates on these facilities. If a sufficiently large number of banks can borrow from or deposit funds with the Bank at these rates, market rates should not trade outside this range.

23 The Bank intends that such standing facilities should be the core of the rate-setting part of its operational framework and, consistent with its rate-setting objective, they will carry interest rates that have the effect of setting a narrow 'corridor' for the overnight market interest rate around the MPC's repo rate. A broad range of banks will have access to the standing facilities.⁽¹⁾ The Bank anticipates that they would be available throughout the day.

24 The Bank would expect the market overnight rate, and other rates out to the next MPC meeting, to remain close to the centre of this corridor, consistent with the MPC repo rate, provided four conditions are met:

- i The Bank provides sufficient funds to the market to enable banks to meet the maintenance requirement⁽²⁾ without recourse to the standing facilities.⁽³⁾⁽⁴⁾ (If that condition were not met, market overnight interest rates could move towards the edges of the overnight interest rate corridor.)
- ii The market's *central expectation* is that the Bank will provide sufficient funds to enable the banking system to meet the maintenance requirement without recourse to the standing facilities in the period up to the next MPC decision, with symmetric risks of the Bank's liquidity forecast leading to underprovision and overprovision.

- iii 'Pivoting' ahead of MPC decisions (as described in paragraph 16) is eliminated. If the Bank continues to lend beyond the time at which the next MPC decision takes effect, it will do so either at a market rate or at a rate that is indexed to the MPC repo rate(s) prevailing over the life of the transaction (see also Section VI).

- iv The market is competitive. A narrow corridor should aid this. It would make it less expensive than now for banks to use the Bank's standing facilities in order to avoid dealing in the market at unattractive rates.⁽⁵⁾

25 As part of its system for setting interest rates, the Bank is considering a deposit facility rate of, say, 25 basis points below the MPC's repo rate and a lending facility rate, say, 25 basis points above it. Depending on what it learnt from operating the system, the Bank would narrow this overnight interest rate corridor if necessary to achieve its rate-setting objective.

V Banking system liquidity management

26 There are various ways of designing the Bank's operational framework so that it meets the liquidity needs of the banking system efficiently, safely and flexibly whilst still achieving the Bank's rate-setting objective. The dimensions include what maintenance requirement the Bank specifies as banker to the banks and how it meets variations in demand for central bank money, both day to day and during the day in the RTGS payment system.

27 The Bank does not intend that use of the standing facilities should form part of a bank's routine liquidity management. The standing facilities will, however, be available to a broad range of banks on demand. It is proposed that use of the standing lending facility should not (as now) be limited to the Bank's forecast of the banking system's net liquidity shortage. This will enhance the flexibility of the framework in response to extraordinary circumstances by allowing banks to borrow from the Bank (against routinely

(1) Borrowing from the Bank in the standing facility would be subject to the provision of eligible collateral.

(2) More precisely, in a same-day system, to meet the maintenance requirement every day; and in a period-average system, to meet the maintenance requirement on the final day and to avoid aggregate overdrafts on other days.

(3) That is, open market operations would supply the banking system's net liquidity need.

(4) In the case of a period-average requirement, this might include a routine 'fine-tuning' open market operation on the final day of the maintenance period to ensure that the banking system's net liquidity need was met as precisely as possible at (or very close to) the MPC's repo rate.

(5) In normal circumstances, the Bank currently envisages recycling any use of one standing facility on the final day of the maintenance period by obliging banks to use the opposite standing facility. So, for example, if £100 million was deposited with the Bank rather than placing funds in the market at unattractive rates, this would leave the banking system short of its maintenance requirement by £100 million, which banks would need to cover by using the standing lending facility. Since banks using the deposit and the lending facility both suffer a penalty, this should encourage market rates to trade towards the centre of the corridor.

eligible collateral), or to deposit funds with the Bank, throughout the day.

28 Currently, reserve balances held at the Bank are not remunerated and amounts held are small. In consequence, the much larger balances needed to accommodate routine *intraday* variations in demand for central bank money, as settlement banks make payments to each other across the Bank's books, are provided through intraday loans by the Bank (via reverse repo of high-quality securities) that must be repaid by the end of each day. Routine *day-to-day* variations in demand for central bank money, principally reflecting changes in notes in circulation, are offset through changes in the size of the Bank's lending in its daily open market operations. One possibility would be to continue with this approach.

29 As an alternative, the Bank is considering offering banks the opportunity to hold remunerated reserves overnight, which could be drawn down in order to make payments during the day. In managing their payments-related liquidity needs in RTGS, existing and any new RTGS banks would, therefore, have the choice of utilising overnight reserve balances (cash), obtained either in the Bank's open market operations or from the money market, or of holding high-quality securities that could be used as collateral for borrowing from the Bank during the day (as now).

30 If it were to offer remunerated reserves, the Bank's intention would be to broaden the tools available for liquidity management in the banking system. They would not be used as a mechanism for monetary control, nor imposed in order to tax the banking system. For this reason, any reserves held at the Bank would be remunerated close to or at the MPC repo rate.

31 In advance of a maintenance period, scheme banks would need to have committed to holding a specified positive level of reserves. If they failed to do so—by holding too much or too little—they would face interest rate penalties. Remuneration might be set by the Bank at a slightly lower rate than the MPC repo rate, with scheme banks choosing the quantity held. Or the Bank could remunerate reserves at the MPC repo rate, but set a ceiling on the amount of reserves that scheme banks could choose to hold. Another variant might be for the Bank to auction a fixed value of reserves, with a maximum rate of remuneration equal to the MPC repo rate.

32 If the Bank continued with the present same-day maintenance requirement, banks would be required to hold their agreed level of reserves each day. This level could be reset periodically, for example monthly or quarterly.

33 As stated above, the Bank is also considering specifying the maintenance requirement for banks as a period-average rather than a same-day requirement. In such a system, banks would be able to vary their level of reserves day to day within the maintenance period as well as during the day. Such 'averaging' would allow day-to-day variations in demand for central bank money to be accommodated through changes in reserves rather than daily open market operations. Any maintenance period would run from one MPC decision date until the next, so that speculation about changes in the MPC repo rate should not influence banks' decisions about their demand to hold reserves on particular days within a maintenance period.

34 As described in Section IV, under a period-average requirement, the Bank would control market interest rates within a narrow interest rate corridor on the final day of the maintenance period in order to achieve its rate-setting objective. As well as being designed to ensure that market expectations of the final-day rate were equal to the MPC's repo rate, the corridor would also limit actual volatility in overnight market rates on the final day of the maintenance period. On other days, however, the interest rates on the standing facilities would not be performing a rate-setting function in the same way. So they could be set at a wider spread around the MPC's repo rate, such as plus and minus 100 basis points. By applying a clearly penal rate to use of the Bank's standing facilities, this would encourage banks to manage their liquidity prudently.

35 Under either a same-day or period-average scheme, the Bank envisages making access to central bank money more widely available throughout the banking system. If a period-average system were introduced, the Bank would especially want to ensure that the ability to average reserves was used by a broad range of banks. In principle, all UK banks could be invited to hold reserves with the Bank and given access to the standing facilities, although the Bank would reserve the right to exclude banks on prudential or risk grounds. The Bank would hope that, having elected to bank with the Bank, many banks—especially those that

have significant sterling business or are otherwise significant participants in capital markets—would also become direct participants in the sterling RTGS payment system. This would aid efficient settlement and also reduce residual intraday credit exposures in the UK payments system, helping to underpin the stability of the UK financial system as a whole.

36 The Bank would like to understand the factors that would influence banks' demand for remunerated reserves:

- i How sensitive would demand for reserves be to the rate of remuneration?**
- ii What factors other than the rate of remuneration would influence demand for remunerated reserves?**
- iii How might these factors change over time (for seasonal or other reasons)? (Is this different within and between maintenance periods?)**
- iv What preferences do banks have between borrowing intraday against high-quality collateral or drawing down remunerated reserves in order to meet intraday liquidity needs in the Bank's real-time gross settlement (RTGS) payment system? Would having this choice be valued?**
- v Would demand for remunerated reserves vary depending on whether the maintenance requirement was a period-average or same-day?**
- vi How frequently might banks wish to change their desired level of remunerated reserves under (a) a period-average maintenance requirement and (b) a same-day maintenance requirement? Why?**

VI Open market operations

37 The Bank will use open market operations (OMOs), potentially alongside reserve averaging, to offset variations in demand for central bank money and other flows across its balance sheet. The Bank is considering a number of ways of organising its open market operations.

38 Although open market operations do not directly control market interest rates, they will be

undertaken on terms that are consistent with the Bank's objective for market interest rates. The aim will be to ensure that the banking system as a whole does not need to use the standing facilities for routine liquidity management, which could otherwise lead to movements in market interest rates towards the edges of the overnight interest rate corridor.

39 The size of the Bank's balance sheet (and thus the banking system's net liquidity need) can vary day to day, month to month, seasonally (for example, due to increases in notes in circulation during holiday periods) and permanently (resulting, for example, from underlying growth in notes in circulation). For managing short-lived variations, daily open market operations at short maturities are an alternative to setting a period-average maintenance requirement. In other words, variations in the Bank's balance sheet can be offset either through changes in the stock of lending via open market operations or through changes in the banking system's reserve balances. For this reason, with a same-day maintenance requirement, the Bank would need to undertake open market operations each day; but in a period-average system, they could be less frequent, perhaps weekly or twice weekly. On either scheme, the Bank would plan to use open market operations as a way of offsetting longer-term variations in its balance sheet.

40 Currently, the Bank has a regular pattern to its OMOs—it is always a lender for around two weeks, typically lending more than £1 billion each day. A regular pattern could include provision for medium-term ('rough tune') repos to offset semi-permanent or seasonal shifts on the Bank's balance sheet—for example, to accommodate the rise in demand for bank notes over Christmas/New Year. **Would that be useful?**

41 Would market participants prefer one-week, two-week or overnight maturities for the Bank's open market operations?

42 What would be the advantages and disadvantages of the Bank using variable or fixed-rate tenders?

43 If the Bank continues to undertake fixed-rate tenders, as stated above it will want to avoid lending at a fixed rate across MPC meetings. The Bank could achieve this by undertaking indexed repos such that whenever

the MPC decided to change its repo rate, the interest rate on any outstanding transactions would reset to the new rate for the remaining term of the transaction. Although the Bank undertook such indexed repos as part of its management of banking system liquidity ahead of the Y2K date change and such instruments exist in private markets, indexed repos have not been used routinely in official operations. **The Bank seeks views on whether or not counterparties would be able to work with a system where the rate on the Bank's repos was indexed to the MPC's repo rate.**

44 Separately, another possibility is that the Bank could offset longer-term variations in its balance sheet by lending via longer-maturity repos—say at six, nine or twelve months—at market rates in variable-rate tenders. **Would the ability to obtain liquidity from the Bank at such longer maturities be valuable? Would regular public tenders of this type help to encourage liquidity at longer maturities in the gilt repo market or in other parts of the sterling money markets?**

45 Given its desire to simplify its operational framework, even if the Bank retains a same-day maintenance requirement, it would prefer to undertake only one round of routine open market operations each day. The Bank has a more accurate forecast of the daily net liquidity shortage in the afternoons than in the mornings, perhaps suggesting a single afternoon round at, for example, 2.30 pm. **Do banks have a preference about the time of the Bank's operations during the day? If so, why? Do these preferences vary depending on the size or maturity of the Bank's operations?**

46 At a later stage, the Bank will consider what, if any, criteria should be retained for being a counterparty in its open market operations.

VII End-of-day arrangements

47 The current end-of-day arrangements are too complicated. The Bank wants to simplify them, whether the maintenance requirement is same-day or a period-average.

48 In a same-day system, the Bank would require scheme banks to balance their accounts (ie to have a non-zero balance or to meet any pre-set positive reserve

balance) by the end of the day. Likewise, in a period-average system, on the final day of the maintenance period, scheme banks would be required to hold whatever balance was needed to achieve the agreed period-average and, every day, banks would need to ensure that their account at the Bank was not overdrawn.

49 The Bank expects banks to manage their liquidity, and square off expected end-of-day positions, actively during the trading day. As described above, it is proposing to give banks the option—probably throughout the day—to cover any expected deficit via the standing (collateralised) lending facility and to place any expected surplus in the standing deposit facility. Any excess reserves at the end of the maintenance period will be non interest-bearing. Overdrafts or shortfalls in reserve balances will be charged a significantly higher interest rate than available in the standing lending facility in order to create incentives for banks to manage their liquidity in a controlled way when markets are open.

50 As discussed in Sections IV and VI, the Bank will seek to provide sufficient funds to the market via its open market operations to meet the banking system's net liquidity need over the maintenance period. But errors in the Bank's liquidity forecast are still likely to occur from time to time. The Bank has identified a number of options for resolving such errors at the end of the maintenance period.⁽¹⁾ These include:

- i Where necessary (for example in the event of an unusually large forecast error), undertaking an end-of-day 'fine-tuning' open market operation directly to offset the forecast error.
- ii Allowing scheme banks to use standing facilities at the MPC repo rate in order to offset the Bank's forecast error. If use of the standing facilities exceeded the forecast error, a mixed rate could apply on a pro-rated basis. (For example, if the forecast error was -£50 but banks, in aggregate, had borrowed -£100 in the standing lending facility, 50% of each bank's borrowings would be charged at the MPC repo rate and 50% at the standing lending facility rate.)
- iii The Bank remunerating reserve balances that fall within some range. In other words, the

(1) That is, every day in a same-day system; and on the final day of the maintenance period in a period-average system.

maintenance requirement would be expressed as a band rather than as a point target that banks needed to achieve precisely.⁽¹⁾ Some errors in the Bank's forecast of the system's liquidity needs, and thus in its supply of liquidity, would then leave scheme banks' reserve balances within the target band. Scheme banks would, in consequence, be less likely to need to have recourse to the standing facilities as a result of Bank forecast errors.

51 Which (if any) of the above (or other) approaches would banks prefer and why?

52 With a much narrower trading range for overnight rates and more widely available standing facilities at less penal rates than now, the Bank believes that there would probably be less need for any special end-of-day arrangements for banks that are direct members of the payments system to square off amongst themselves. **It would therefore like to hear views on whether or not the current End-of-Day Transfer Scheme for settlement banks⁽²⁾ should be discontinued.**

VIII Summary of questions and next steps

53 The Bank is seeking views from interested parties on the following issues:

(Para 36) **The factors that would influence banks' demand for remunerated reserves:**

- i **How sensitive would demand for reserves be to the rate of remuneration?**
- ii **What factors other than the rate of remuneration would influence demand for remunerated reserves?**
- iii **How might these factors change over time (for seasonal or other reasons)? (Is this different within and between maintenance periods?)**
- iv **What preferences do banks have between borrowing intraday against high-quality collateral or drawing down remunerated reserves in order to meet liquidity needs in the Bank's real-time gross settlement (RTGS) payment system? Would having this choice be valued?**

- v **Would demand for remunerated reserves vary depending on whether the maintenance requirement was a period-average or same-day?**
- vi **How frequently might banks wish to change their desired level of remunerated reserves under (a) a period-average maintenance requirement and (b) a same-day maintenance requirement? Why?**

(Para 40) **Whether or not medium-term repos to offset semi-permanent or seasonal shifts on the Bank's balance sheet (for example, to accommodate the rise in demand for bank notes over Christmas/New Year) would be useful.**

(Para 41) **Whether market participants would prefer one-week, two-week or overnight maturities for the Bank's open market operations.**

(Para 42) **The advantages and disadvantages of the Bank using variable or fixed-rate tenders in its open market operations.**

(Para 43) **Whether or not counterparties would be able to work with a system where the rate on the Bank's repos was indexed to the MPC's repo rate (such that whenever the MPC changed its repo rate, the interest rate on outstanding transactions would reset to the new rate for the remaining term of the transaction).**

(Para 44) **Would the ability to obtain liquidity from the Bank at longer maturities (six, nine or twelve months) at market rates in variable-rate tenders be valuable? Would regular public tenders of this type help to encourage liquidity at longer maturities in the gilt repo market or in other parts of the sterling money markets?**

(Para 45) **Do banks have a preference about the time of the Bank's operations during the day? If so, why? Do these preferences differ depending on the size or maturity of the Bank's operations?**

(Para 51) **Which (if any) of the following (or other) approaches to managing the resolution of the Bank's forecast errors would banks prefer and why—(i) an end-of-day fine-tuning OMO, (ii) use of the standing**

(1) This is similar to having some carry-over provision between maintenance periods.

(2) As described at www.apacs.org.uk/downloads/EoDT.pdf.

facilities at the MPC repo rate in order to offset the forecast error (pro-rated if necessary) or (iii) the Bank remunerating reserve balances that fall within some range?

(Para 52) Whether or not the current End-of-Day Transfer Scheme for settlement banks should be discontinued.

54 This paper is issued for public consultation. Comments are invited and should be sent to the Head of Sterling Markets Division, Bank of England,

Threadneedle Street, London EC2R 8AH, or by e-mail to moneymarketreform@bankofengland.co.uk.

55 The Bank would be glad to discuss these issues with interested parties.

56 In the light of comments received and following further consultation if necessary, the Bank will finalise its proposals for the broad architecture of its operational framework. It will in due course issue a paper setting out the changes it intends to make and consulting, as necessary, on questions of detail and implementation.

Appendix

The Bank believes that a number of possible schemes are consistent with the principles outlined in this document. Two such possible schemes, illustrating the range available, are outlined below.

Maintenance requirement	Same-day; minimum reserve balance of zero or higher by agreement with (individual) banks.	Period-average reserve requirement (plus minimum balance of zero daily); maintenance period from one MPC decision date until next MPC decision date.
Applicable to	Voluntary: any UK bank.	Voluntary: any UK bank.
Level of remunerated reserves	Voluntary. Chosen periodically (say quarterly). Remunerated at a slight discount to or at MPC repo rate.	Voluntary. Chosen ahead of each maintenance period. Remunerated at a slight discount to or at MPC repo rate.
Standing facilities	Available all day. ± 25 basis points.	Available all day. Final day of maintenance period: ± 25 basis points. Other days: ± 100 basis points.
Penalty rates	Excess reserves—earn zero. Overdrafts/missed reserve targets—greater than standing lending facility rate.	Excess reserves—earn zero. Overdrafts/missed reserve targets—greater than standing lending facility rate.
Type of regular OMO	Indexed repo (the rate changes when the MPC repo rate changes).	Repo.
Frequency of OMOs	Daily (one per day).	Weekly/twice a week. Plus routine fine-tuning OMO on final day of maintenance period.
Maturity of regular OMOs	One-week.	One-week, plus weekend repo if twice-a-week OMOs are necessary, plus overnight end-of-maintenance period fine-tuning OMO.