

Evaluation of the Bank of England's approach to providing sterling liquidity

January 2018



BANK OF ENGLAND





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Independent Evaluation Office, Bank of England

Foreword from the Chair of Court

The Bank of England's sterling liquidity facilities are at the heart of its mission — for example, the historical record suggests that the Bank has been providing sterling liquidity to the market for financial stability purposes since at least 1847, and probably longer.⁽¹⁾ In recent years, and in part following a review commissioned by the Court of Directors (the Bank's Board) in 2012, these liquidity facilities have been subject to a series of reforms. More generally, the wider Bank has sought ways to work more effectively together, in line with its 'One Bank' strategy.

Given the importance of the facilities to the Bank's work, Court commissioned its Independent Evaluation Office to assess whether the various reforms in recent years were on track to achieve their aims. The IEO's findings and recommendations are contained in this report.

The report concludes that the reforms have been effectively implemented, and that positive progress has been made across multiple dimensions in recent years. The Bank now has a wide range of facilities that can be used flexibly to deal with liquidity stress. There have also been numerous instances of successful 'One Bank' collaboration. This was particularly evident around the time of the EU referendum, when the Bank carried out comprehensive, highly effective and detailed contingency planning.

As the report notes, no severe liquidity shock has occurred since the Bank's facilities have been reformed. But of course we cannot be certain about the effectiveness of every single facility in all situations. For example, although the Bank has made material progress in reducing the risk that firms will be unwilling to use its bilateral facility — the Discount Window Facility — in times of stress, this remains a challenging area. These issues are not novel, especially in an environment where financial conditions have been supportive. Nor are they unique to the Bank of England, with other central banks facing similar challenges.

The full set of recommendations in this report come from a perspective of refinement rather than wholesale reform. They fall into three categories: future-proofing for stress situations; operating as One Bank; and communicating the Bank's risk management approach more effectively. I am pleased that the Bank has committed to taking the IEO's recommendations forward. And Court will be monitoring their implementation as part of its wider follow-up framework for IEO reports.

Anthony Habgood, Chair of Court
January 2018

(1) See Anson, *et al* (2017).

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Executive summary

In December 2016, the Bank of England's Court of Directors (the Bank's Board) commissioned its Independent Evaluation Office (IEO) to conduct a broad-based evaluation of the effectiveness of the Bank's approach to providing sterling liquidity insurance through its published market facilities (known as the Sterling Monetary Framework or 'SMF').⁽¹⁾ This report sets out our findings and recommendations.

The Bank has materially reformed its approach to the provision of sterling liquidity insurance since the 2012 Court-commissioned Winters Review (Winters (2012)). At the same time, consistent with its broader strategy,⁽²⁾ the institution has sought ways to operate more effectively as 'One Bank', as well as to strengthen its risk management arrangements.⁽³⁾ The IEO was tasked with assessing whether these changes were on course to have their desired impact — focusing principally on the period spanning from late 2013 to immediately after the EU referendum vote in the summer of 2016.

Our evaluation found positive evidence of progress across numerous aspects of sterling liquidity provision. Substantial progress has been made in opening up access to the Bank's facilities. The Bank's facilities have become cheaper and more flexible. In the main, firms have been receptive to the reforms, with the Bank's facilities at least partly integrated into firms' own liquidity planning. And the institution has made tangible progress of working together well as 'One Bank'. This is evidenced by, among other things, the comprehensive package of planning for potential liquidity stress around the EU referendum, where the Bank's approach helped firms plan with confidence. Together with supportive communications immediately after the referendum, this may have tempered the likelihood of a liquidity stress materialising.

More generally, over our review period, there have been no severe idiosyncratic or market-wide liquidity crunches to fully test the mechanics of the facilities. This means that our ability to provide a complete assessment of their effectiveness has been necessarily constrained. The relatively benign liquidity backdrop is likely to reflect, in part, the Bank's revised approach to liquidity provision, the improved regulatory environment and supportive financial conditions more generally (Section 1).

Nevertheless, our evaluation has uncovered opportunities where the Bank could refine and update its approach. Our recommendations (**Figure 1**) fall into three main themes: future-proofing the facilities for stress situations; operating the SMF as 'One Bank'; and communicating the Bank's risk management approach more effectively.

On **future proofing the facilities** (Section 2), we found clear evidence of the positive impact of recent reforms. The Bank has a range of facilities that can be used flexibly to deal with liquidity stress and it has demonstrated its willingness to be 'open for business' around prospective stress events. Looking ahead, the Bank should take further steps to help ensure its sterling facilities are understood better both within the institution and outside, and that lessons from past experience are consolidated to its Bank's approach. That may help mitigate the risk that firms approach the facilities too late, or that they are given mixed signals by the Bank during a liquidity stress. We also highlight some examples of issues that merit further re-examination or clarification, such as the appropriate interaction between a firm's liquidity buffers and the Bank's sterling liquidity facilities, as well as policies on disclosure.

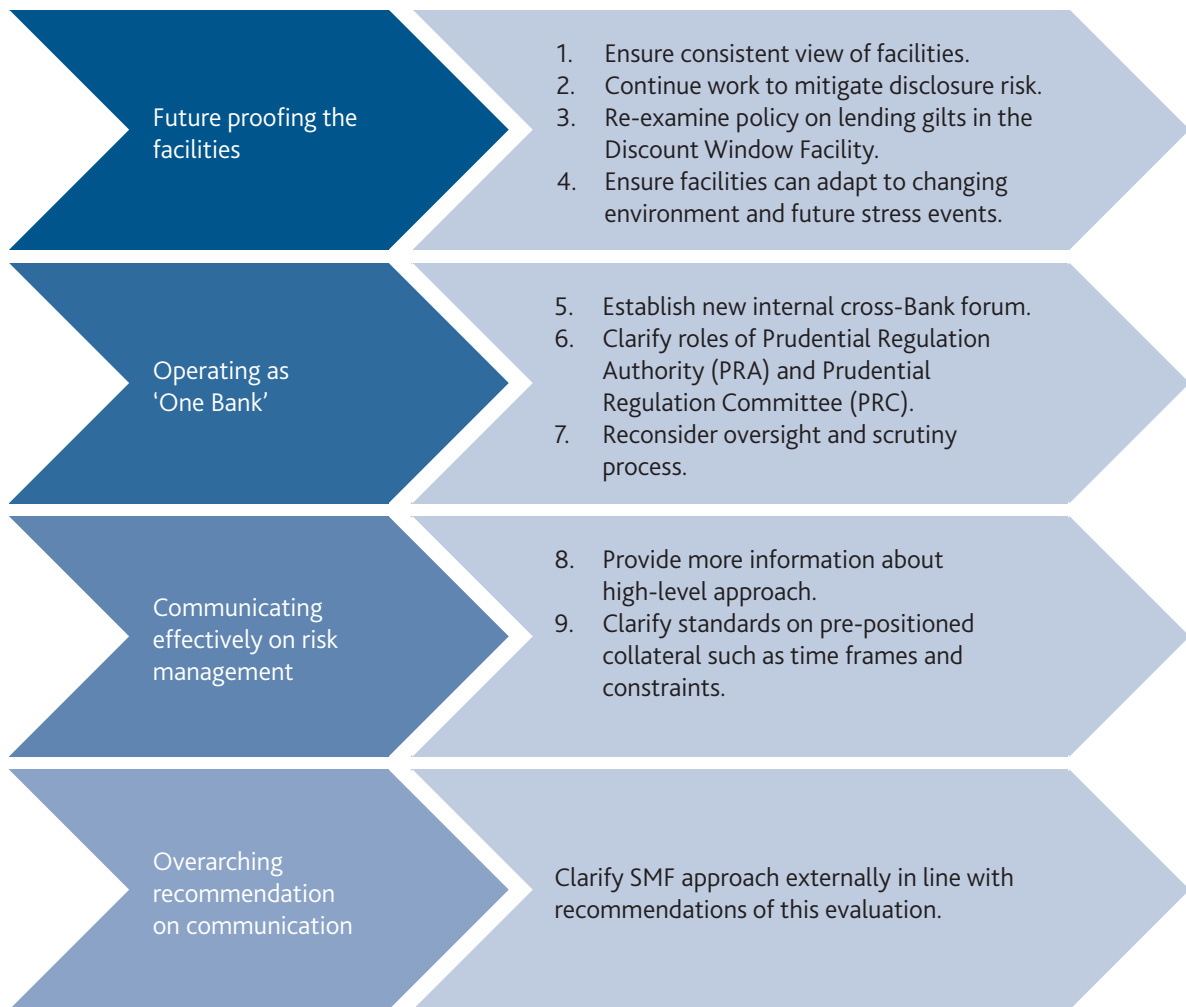
In terms of **'One Bank' working** (Section 3), the institution has made tangible progress in exploiting complementarities and synergies to deliver its liquidity insurance objectives. Collaboration has in our view improved over time. We believe, however, that the Bank's internal structures could be more conducive to setting

(1) The SMF is described in detail in the Bank's 'Red Book' — see Bank of England (2015). This evaluation does not consider the effectiveness of the Term Funding or Funding for Lending Schemes — although as discussed in Section 1 those schemes will have affected firms' liquidity and funding conditions and likely demand for SMF facilities.

(2) See Carney (2014).

(3) The Bank has materially strengthened its risk management arrangements in the recent past. See pages 47–49 of Bank of England (2016b).

Figure 1 Summary of recommendations



sterling liquidity provision/balance sheet strategy as a single institution, particularly when this strategy has the potential to cut across a number of the Bank's policy objectives. We therefore recommend the establishment of a senior, cross-Bank forum to support the work of the Governors, Court and the policy committees. We also recommend clarifying the relationship between the Bank's supervisory function and the SMF, as well as drawing more on the wider Bank in the SMF review and scrutiny process.

As for **financial risk management** (Section 4) we have found good evidence that the Bank has operationalised effectively the changes made to SMF access and collateral policies following the Winters Review. Those continue to be refined as the Bank's revised financial risk management arrangements take shape. The Bank's recently created 'second line' financial risk function has added value, while the first line has retained a strong risk management culture. Looking ahead, we believe that the Bank could communicate its risk management approach more effectively within the organisation and externally. And it could better manage firms' expectations in the collateral pre-positioning process. In our view, more transparency would help the Bank achieve its desired policy outcome without compromising risk management objectives.

Running through these three themes is the observation that there is some scope to clarify aspects of the Bank's approach externally: high-level purpose and scope; the operation of facilities; and financial risk management. While we recognise that there are limits to effective transparency in this area, we would encourage the Bank to consider these findings in the context of its broader Vision 2020 strategy.⁽¹⁾

(1) The Bank launched its new strategic plan 'Vision 2020' in May 2017. It sets out how the Bank plans to change how it works and the way it communicates. More information is available at www.bankofengland.co.uk/about/governance-and-funding.

Our evaluation was primarily conducted between March and October 2017 by a dedicated project team reporting directly to the Chair of Court.⁽¹⁾ The IEO team benefited from feedback and challenge throughout the evaluation from a senior-level advisory group (including external members of the Bank's Financial Policy Committee and Prudential Regulation Committee, and Prudential Regulation Authority senior advisors), as well as senior officials at the European Central Bank and the Federal Reserve Bank of New York, and former bank/building society executives.⁽²⁾

This report was approved for publication by the Chair of Court at the December 2017 Court meeting.

(1) The IEO team was: Lea Paterson (IEO Director), Andrew Georgiou, Céline Gondat-Larralde, John Power and Kate Stratford. George Holbrow-Wilshaw and Joseph Williams provided research assistance and analysis.

(2) The external advisors for this evaluation were: Ulrich Bindseil (Director General Market Operations, ECB), Antoine Martin (Senior Vice-President and Head of the Money and Payments Studies Function, Federal Reserve Bank of New York), Andrew Caton (formerly Chief Officer Treasury and Corporate Affairs & Executive Director, Yorkshire Building Society), David Hopton (formerly Managing Director in Treasury and Wholesale Markets at Santander UK, and currently non-Executive Chairman to GSAV Ltd.) and Richard Moore (formerly Managing Director of Financial Markets, Lloyds Bank plc). The analysis and recommendations in this report, together with any errors herein, remain the full responsibility of the IEO, and not the IEO's advisors or members of Bank staff. The annex provides further details on our approach.

1 Context for the Review

The Bank of England is the sole supplier of central bank money in the United Kingdom.⁽¹⁾ As central bank money is the economy's most liquid asset, it has an important role to play in the payment and liquidity services provided by the financial system. Commercial participants in the financial system (including banks, broker-dealers and central counterparties) should manage their liquidity primarily through private markets in 'normal' times. However, these commercial participants are subject to liquidity risk, and unexpected developments can threaten the provision of critical financial services. The Bank therefore provides liquidity insurance to individual, credit-worthy institutions and to the financial system as a whole — specifically, it stands ready to swap high-quality but less liquid collateral for liquid assets (a so-called 'liquidity upgrade') as needed.

The main way that the Bank provides liquidity to the financial system is through its Sterling Monetary Framework (SMF) — the Bank's published framework for its sterling money market operations. The full range of SMF facilities supports both the Bank's monetary and financial stability mission. The facilities most relevant to the provision of liquidity insurance are described in Box 1.

1.1 Changes to the framework for providing liquidity insurance

Several reforms were made to the Bank's approach to providing liquidity insurance following a Court-commissioned review of the facilities in 2012. The Bank has also implemented changes to risk management and governance. These reforms are summarised below.

(i) Recent reforms to the Bank's facilities

In 2012, Court commissioned a review of the Bank's Sterling Monetary Framework by Bill Winters (Winters (2012)).⁽²⁾ The Winters Review concluded that the reforms in response to the crisis had consistently improved the facilities and that the Bank had been responsive to changing conditions. The review found that the SMF functioned properly, was robust, and broadly fit for purpose. However, it also recommended that more be done to reduce the reluctance of banks to access central bank facilities and to make them more usable, while avoiding banks becoming overly dependent on the facilities for ongoing support.

In response, the Bank made several changes. Those were set out in the Governor's 2013 'Open for Business' speech and accompanying documentation.⁽³⁾ The changes (Table A) were designed to increase the availability and flexibility of liquidity insurance, providing liquidity at longer maturities, against a wider range of collateral, at lower cost and with greater predictability of access. The Bank also recognised that it could lever off the PRA to ensure banks and building societies better integrated the Bank's liquidity insurance facilities into their planning, and more generally that there were synergies and complementarities between the design of central bank operations and prudential policy.⁽⁴⁾ The institution's Strategic Plan was seen as cementing the commitment to work as 'One Bank' to exploit those synergies.

There have been further changes since then. In 2014, reflecting their systemic importance, the Bank widened access to the SMF to broker-dealers and central counterparties. And it has worked to reduce barriers to access further — particularly for smaller institutions or new institutions going through the PRA authorisation process. For example it has recently allowed for the possibility of firms gaining restricted access to the SMF while still in mobilisation.⁽⁵⁾

(1) Central bank money takes two forms — the banknotes used in everyday transactions, and the balances ('reserves') that are held by SMF participants at the Bank of England. See Bank of England (2015).

(2) Mr Winters is currently Group CEO of Standard Chartered PLC. He is a former CEO of JP Morgan Investment Bank, and at the time of the 2012 review he was Chief Executive of Renshaw Bay.

(3) See Carney (2013) and Bank of England (2013).

(4) For example, the imposition of minimum liquidity requirements can help mitigate the risk that the provision of central bank liquidity insurance induces institutions to take on greater risk (so-called 'moral hazard').

(5) Banks in 'mobilisation' are new banks which are authorised at an earlier than normal stage in order to help them secure further investment, recruit staff and invest in IT systems (see page 11 of Bank of England (2017b)).

Box 1

An overview of the Bank's published liquidity insurance facilities

Within the Sterling Monetary Framework three principal facilities provide liquidity insurance: the bilateral Discount Window Facility; the market-wide Contingent Term Repo Facility and Indexed Long-Term Repos. Each of these facilities provides liquid assets — either central bank reserves or gilts — in exchange for less liquid collateral. The purpose of each facility is summarised in **Figure A**. A fuller description of each facility can be found in the Bank's 'Red Book'.⁽¹⁾

Figure A Summary of SMF liquidity insurance facilities

Bilateral	Discount Window Facility	Firm-specific liquidity shock requiring liquidity in bespoke size and timing, with lagged disclosure.	<ul style="list-style-type: none"> • On demand • Rollable 30-day term^(a) • Usually gilts lent
	Indexed Long-Term Repo	Predictable/regular need for term collateral transformation.	<ul style="list-style-type: none"> • Typically monthly • Six-month term • Reserves lent • Auction prices
Market-wide	Contingent Term Repo Facility	Actual or prospective market-wide stress meaning banks need cheap, plentiful cash at term.	<ul style="list-style-type: none"> • Triggered by the Bank • Flexible term • Reserves lent • Auction prices

Source: Bank of England.

(a) For banks, building societies and broker-dealers. The term is five days for CCPs.

The Bank also offers some liquidity insurance in the course of implementing monetary policy. Central bank reserves form an important part of an SMF participant's liquidity buffers — which can be run down during stress. And Operational Standing Facilities also provides overnight liquidity to help firms manage unexpected payment shocks arising due to technical problems. Neither these, nor the temporary funding schemes (Section 1.2), are the focus of this evaluation.

When the Bank lends in its operations, it does so against collateral of sufficient quality and quantity to protect itself from counterparty credit risk. The collateral is divided into three sets (Level A, B, and C) reflecting a judgement on the collateral's degree of liquidity. The price at which the Bank provides liquidity depends on which collateral set is delivered by the counterparty, reflecting the extent of the 'liquidity upgrade'. All three sets are accepted in the Bank's liquidity insurance operations.⁽²⁾

(1) Bank of England (2015).

(2) Level A includes certain high-quality sovereign securities that are deemed by the Bank to be liquid in all but the most extreme circumstances. Level B includes high-quality liquid collateral, including private sector securities that normally trade in liquid markets. Level C consists of less liquid securities including for example, portfolios of loans.

Table A Summary of the reforms to liquidity provision since the Winters Review

Changes to:	Details
Discount Window Facility	<ul style="list-style-type: none"> • Pricing reduced. • Bank of England disclosure lag increased to five quarters. • The Bank committed to continuing work to ensure new disclosure regimes do not increase the risk of premature disclosure.
Indexed Long-Term Repo	<ul style="list-style-type: none"> • Extended to provide six-month liquidity at cheaper auction-determined rates and against the full range of eligible SMF collateral. • Auction mechanism updated to link the amount on offer to the degree of market stress.
Contingent Term Repo Facility	<ul style="list-style-type: none"> • The facility was retained, allowing the Bank to meet liquidity needs in response to stress of an exceptional nature — when SMF participants need cheap, plentiful cash at term. The terms are not pre-agreed in order to allow the Bank to respond flexibly to the stress.
Eligible collateral	<ul style="list-style-type: none"> • Extended to include, for example, the drawn portions of corporate revolving credit facilities. • Working to ensure no technical obstacles to accepting equities as collateral.
Counterparties	<ul style="list-style-type: none"> • Banking groups allowed to access through multiple entities. • Access extended to broker-dealers and CCPs. • Reduction in barriers to access.
Access to borrow	<ul style="list-style-type: none"> • Presumption that all banks and building societies that met PRA Threshold Conditions for authorisation may sign up to the SMF and have full access to borrow in its facilities.

(ii) Reforms to governance and risk management

The Winters Review also covered SMF governance. It observed that formal governance arrangements were clear and appropriate. But there was a case for new arrangements to be put in place to ensure that decision-making on the SMF benefited from a broader range of input and challenge, and was subject to periodic scrutiny by the Bank’s Court and external stakeholders. The Winters Review also advocated clarifying the roles of the Financial Policy Committee and Monetary Policy Committee.

In response the Bank made changes to governance of the SMF. New decision-making mechanisms were set up to ensure that SMF decisions drew on a wide range of advice and that the views of the relevant Deputy Governors were recorded. The Bank also created an SMF Annual Review process and established frameworks for engagement with the Financial Policy Committee (FPC) and Monetary Policy Committee (MPC) on the design and review of SMF operations. Those set out arrangements for consultation and information sharing. The frameworks were updated in 2017 to formalise the roles of the committees in approving changes to the framework (Section 3).⁽¹⁾

The Bank has also strengthened its risk management approach in recent years, including following a review of its risk management arrangements in 2015. That was motivated by the changing institutional structure of the Bank; together with recognition that over the course of the financial crisis the Bank had needed to quickly develop and scale up its risk management work to support its balance sheet and operations. The review recommended that the Bank create a clear risk tolerance framework for both financial and non-financial risks with dedicated executive oversight, and enhanced tools and capabilities to support the framework. As an outcome of the review a new financial risk second line of defence was created outside the Markets Directorate. The Bank changed its approach in line with the recommendations, although some aspects of the implementation of the review remain work in progress (see Section 4).

1.2 Other factors affecting firms’ liquidity positions

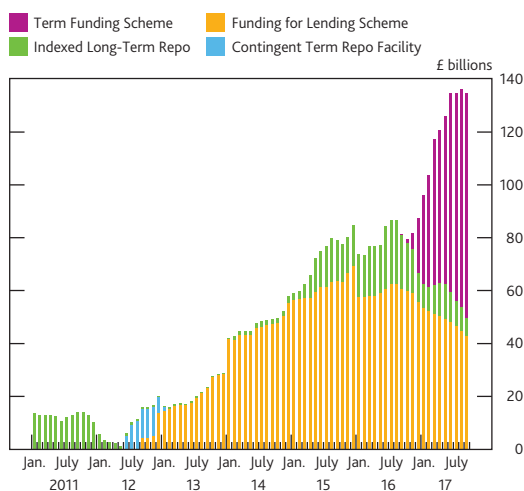
Firms’ overall liquidity positions and therefore their need to use the Bank’s liquidity facilities have been affected by a range of factors in recent years. Most substantively, in response to broader challenges posed to its monetary and financial policy objectives, the Bank — in common with central banks worldwide — introduced a wide range of supportive policy measures. Those will have collectively impacted the level and composition of firms’ own liquidity positions. Relevant policies include:

⁽¹⁾ The framework for engagement between the Bank’s Executive and the FPC with regard to SMF is available at www.bankofengland.co.uk/-/media/BoE/Files/financial-stability/fpc-and-the-banks-liquidity-insurance-operations.

- **Liquidity regulation** — Microprudential liquidity regulation has strengthened since the crisis. The Liquidity Coverage Ratio (LCR) started to be phased in from 2015. This requires firms to hold a sufficient buffer of liquid assets to weather a 30-day stress, increasing their ability to withstand a liquidity shock. Capital requirements have also strengthened, reducing the likelihood that a liquidity shock will put solvency in question.
- **Quantitative Easing** — Since 2009, the Bank has purchased assets from the financial system through its Quantitative Easing programme, amounting to a current stock of holdings of £445 billion.⁽¹⁾ This has increased the level of reserves — which are the most liquid form of asset — held by SMF participants.
- **Term funding** — In 2012, the Bank jointly with HM Treasury launched the Funding for Lending Scheme (FLS). This scheme provided funding to banks and building societies for an extended period and was intended to incentivise firms to boost their lending to the real economy. And in 2016, following the EU referendum, the Term Funding Scheme (TFS) was launched. This provides term funding to banks and building societies at rates close to Bank Rate in order to reinforce the transmission mechanism of monetary policy. At its peak, total outstanding FLS drawings stood at almost £70 billion. And around £100 billion has been provided through the TFS (Chart 1.1).

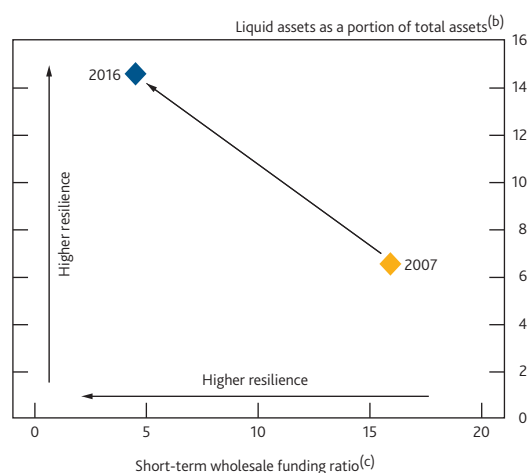
Taken together, these policies, together with favourable market conditions, are likely to have improved firms own liquidity positions (Chart 1.2), and reduced the needs of firms to use the Bank's liquidity insurance facilities.

Chart 1.1 Outstanding amounts lent in SMF liquidity facilities, the FLS and TFS, 2012–17



Source: Bank of England.

Chart 1.2 Liquid assets and short-term funding of large UK banks^(a)



Sources: PRA regulatory returns, published accounts and Bank calculations.

- (a) Sample includes Barclays, HSBC, Lloyds Banking Group (including HBOS in 2007), Nationwide and RBS.
- (b) The estimate of liquid assets in 2007 is based on cash and balances with central banks and highly liquid securities. Liquid assets in 2016 comprise Liquidity Coverage Ratio Level 1 high-quality liquid assets excluding covered bonds.
- (c) Share of total funding (including capital) accounted for by wholesale funding with residual maturity of under three months other than repo funding (repurchase agreements and securities lending). Wholesale funding comprises deposits by banks, debt securities and subordinated liabilities. Funding is proxied by total liabilities excluding derivatives and liabilities to customers under investment contracts. Where underlying data are not published estimates have been used.

1.3 Approach to the evaluation

In line with the approach taken in previous evaluations, we developed a set of five criteria against which the effectiveness of the Bank's approach could be judged. Those were:

- (1) The facilities are flexible and responsive particularly during times of actual or prospective stress.
- (2) The facilities are clear to the market and incentivise appropriate behaviour.
- (3) SMF liquidity insurance policy is implemented effectively as 'One Bank'.
- (4) The Bank manages risk appropriately.
- (5) The SMF is effectively and efficiently governed.

The annex describes the background to our evaluation in more detail.

(1) Comprised of £435 billion of gilts and £10 billion of corporate bonds.

2 Evaluation — future proofing for stress

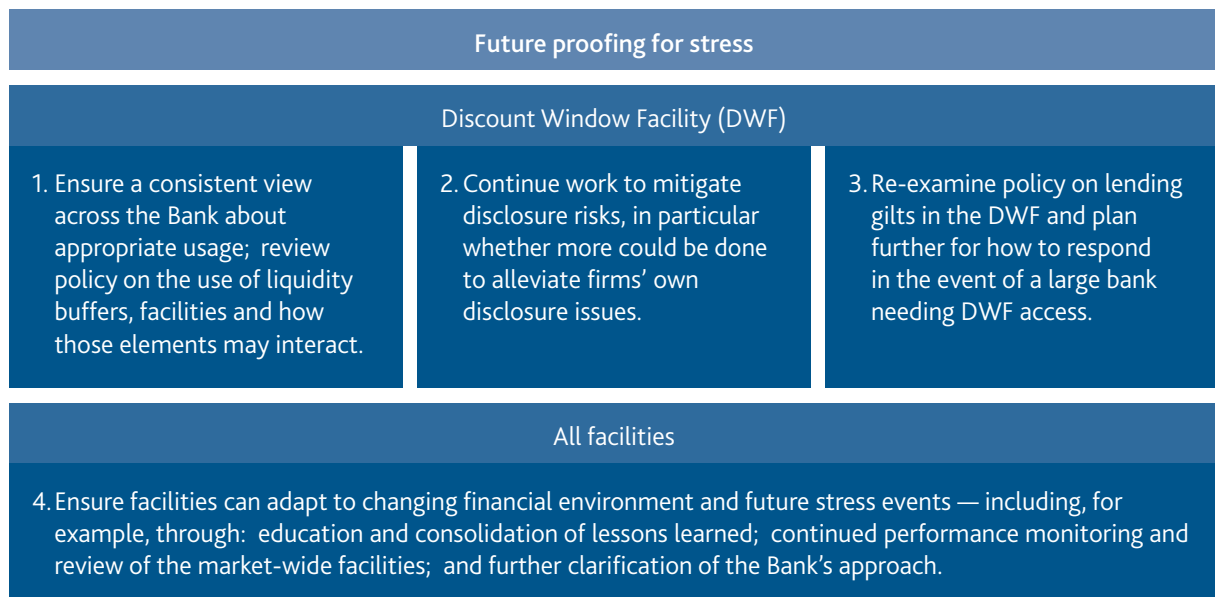
The Bank has made substantive reforms to its sterling liquidity insurance facilities in recent years, with the aim of making them more open, flexible and responsive. Here we have found clear evidence of progress. That includes the Bank successfully demonstrating that it is 'open for business' — particularly around the EU referendum (see Box 3).

At the same time, there are opportunities for the Bank to refine its approach in the light of both experience and the changing financial and regulatory backdrop. Specifically, we recommend further steps to help ensure that its sterling facilities are understood better within the institution and outside. That may help mitigate the risks that firms approach the facilities too late, or that they are given mixed signals during a stress. We also highlight some examples of issues that we believe merit further re-examination or clarification, such as the appropriate interaction between the facilities and liquidity buffers, disclosure policy, and the Bank's role in supporting longer-term funding markets.

The evidence in this section is particularly relevant to our first evaluation criterion — the extent to which the Bank's facilities are flexible and responsive, particularly during times of actual or prospective stress; as well as the second — the extent to which the facilities are clear to the market and incentivise appropriate behaviour. It draws on analysis of firm-level recovery plans, an external outreach exercise and referenda contingency planning.

Section 2.1 considers access to the facilities generally, Section 2.2 the bilateral facility (the Discount Window Facility), and Section 2.3 covers the market-wide facilities.

Figure 2.1 Recommendations — future proofing for stress



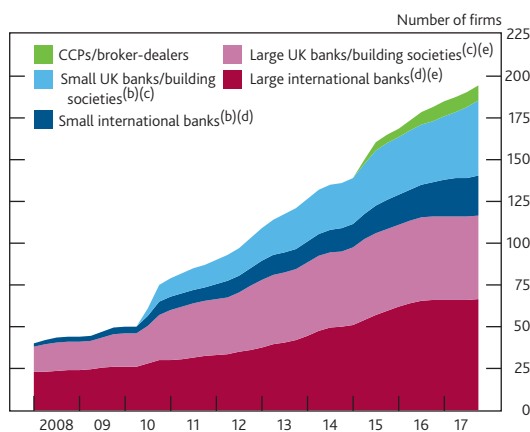
2.1 Access to the facilities

The Bank has substantially expanded access to its facilities since the financial crisis. They are now available to a much larger number of counterparties, increasing the reach of the Bank's operations. The Bank is also clearer about when firms should expect to be able to borrow from the DWF and other liquidity facilities, with a presumption of access to the SMF for those banks and building societies satisfying PRA Threshold Conditions

(see Section 4). This should allow firms to factor the facilities into their contingency planning with a greater degree of confidence.

The total number of SMF participants has risen to over 195, of which around 110 had access at the time of the Winters Review in 2012 and around 40 ten years ago (**Chart 2.1**). Some of the growth reflects expansion of eligibility to small firms since 2009. That expansion has been supported by steps taken by the Bank to reduce the barriers to joining the SMF (Section 1) and by efforts of PRA supervisors to encourage firms to join for safety and soundness reasons. Nearly all banks and building societies whose headquarters are based in the United Kingdom now have SMF access. And of that population about two thirds have DWF access.⁽¹⁾

Chart 2.1 Evolution of current SMF membership^(a)



Source: Bank of England.

- (a) This chart shows the evolution of SMF membership since 2008 by broad category. It shows the point at which current members of the SMF joined. The figures do not include those firms whose membership ceased during this period. And broker-dealers are only counted following the change in SMF access policy in 2014. The estimates do not capture how some firms will have moved category over the sample period.
- (b) Small banks/building societies are defined as those that do not place cash-ratio deposits with the Bank of England. Those institutions pay a fee for access to the SMF.
- (c) UK banks/building societies are defined as those which are headquartered in the United Kingdom.
- (d) International banks are defined as those with headquarters outside the United Kingdom.
- (e) Large banks/building societies are defined as those firms which place cash-ratio deposits with the Bank of England.

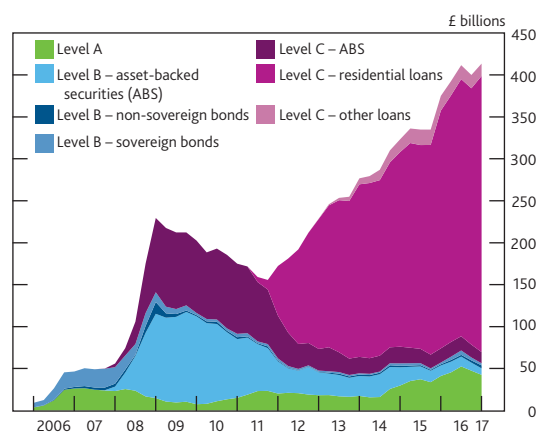
Increasingly, international firms with a UK presence, but whose headquarters are elsewhere, have joined the SMF (**Chart 2.1**). Take-up has been less widespread than for UK-based firms. This does not seem unreasonable currently given many international firms are unlikely to have large sterling liquidity requirements. Reflecting the updated policy, broker dealers and CCPs started to join the SMF in 2015.

Looking ahead, it will be important to ensure that the Bank maintains the capability to adapt and evolve access arrangements as the financial and regulatory environment change. The Bank has recently agreed steps to improve the review process by integrating the consideration of the liquidity facilities into the FPC's broader work programme (for example, considering access issues as part of the FPC's regularly scrutiny of the regulatory perimeter).

In our view, effectiveness could be further enhanced by greater clarity internally and externally about the criteria used for SMF eligibility for different classes of financial institutions. That would aid the Bank's transparency generally. It would also help allow staff from across the Bank to provide more effective input and challenge. That could be done under the auspices of the suggested Deputy Governor-led Bankwide forum on SMF issues (see Section 3).

Firms' ability to access the SMF during stress has also been enhanced by the expansion of collateral eligibility and the Bank's policy to encourage pre-positioning. SMF-eligible collateral delivered to the Bank (either through pre-positioning or in actual lending operations) has grown substantially over time — by around 50% since the

Chart 2.2 SMF-eligible collateral delivered to the Bank of England^(a)



Source: Bank of England.

- (a) Collateral delivered to the Bank of England includes the value of SMF-eligible collateral drawn upon in Bank of England sterling operations (including temporary schemes), as well as collateral that has not been drawn upon. The data have been adjusted to reflect the post-haircut value of the collateral.

(1) Not all firms choose to have DWF access, for example, if they are highly liquid and only have a need for reserve accounts to store their assets securely.

start of 2014 (Chart 2.2). That means the Bank can mobilise liquidity support effectively and rapidly as required during a stress. Collateral pre-positioned in the SMF can be used across its suite of lending facilities, and potentially be used to provide liquidity through Emergency Liquidity Assistance.⁽¹⁾

2.2 The bilateral facility

The Bank's bilateral facility (the Discount Window Facility, or 'DWF') provides liquidity support to individual institutions in the face of a firm-specific or market-wide shock. A key objective of the Winters-inspired reforms (Section 1) was to increase the usability and flexibility of that facility. This section reviews progress against the Bank's aims, focusing first on the use of the DWF in contingency planning, and second on the progress made in adapting the facility to the shifting regulatory and financial environment.

(i) Contingency planning for prospective liquidity stress

While there has been no published usage of the bilateral DWF⁽²⁾ since it was introduced in 2008, it is regularly considered as part of contingency planning both within the Bank and within firms themselves. And we have observed some progress in reducing stigma surrounding possible use of the bilateral facility in the event of prospective stress. For example:

- Most firms now include the DWF in their recovery plans (see Box 2). Of the 16 firm-level recovery plans reviewed as part of this evaluation, almost all included the DWF. The facility is generally seen as the key option for dealing with a severe liquidity stress. Many of the firms we spoke to emphasised its value in contingency planning.
- The facility has played an important role in contingency planning for prospective liquidity stress. For example, ahead of the EU referendum, the Bank considered the extent to which firms might need to draw on the DWF and the market-wide facilities. It examined whether pre-positioned collateral was likely to be sufficient to meet firms' liquidity needs, and encouraged firms to place additional collateral as needed (see Box 3).

Despite this progress, the Bank's bilateral facility is still seen as very much a last resort, both by firms, and, to a certain extent, internally. Our external outreach exercise suggested that firms view it as akin to emergency liquidity assistance, to be used reluctantly in the event of a very severe stress — and possibly only after damaging actions have been taken (see Box 2). That has been compounded by the fact that there has been no published usage since the facility was established in 2008. As such a certain degree of stigma is seen as inevitable.

Our view is that the current high-level positioning of the DWF is reasonable — the Bank wants to encourage firms to self-insure, liquidity buffers are there to do their job, and the Bank should act as a backstop, not a port of first call, at times of idiosyncratic liquidity stress. More generally, the decision about when to come to the DWF is ultimately a choice for firms, and will vary according to a firm's individual business model and risk appetite.

But nevertheless we believe there is scope to do more to ensure a common understanding of when the bilateral facility might be used — both internally and externally. That should help mitigate the risk that firms come to the facility too late in the face of an idiosyncratic liquidity shock. Specifically, we recommend providing a fuller internal articulation on the types of circumstances in which firms should consider accessing the DWF, and ensuring that this is communicated effectively throughout the institution. There may then be scope to issue further published guidance to firms on this front too.

We also recommend that once this is done PRA supervisors and the Bank's Markets' Directorate periodically review firms' recovery plans in a more systematic way. This should ensure that assumptions about DWF usage are appropriate, and so help strengthen the Bank's ability to provide a consistent and clear message to firms.

(1) ELA is defined as support operations to firms outside the Bank's published framework which must be authorised by HM Treasury. See the Memorandum of Understanding between HM Treasury and the Bank of England on resolution planning and financial crisis management at www.bankofengland.co.uk/-/media/boe/files/memoranda-of-understanding/moufincrisisoct2017.pdf.

(2) DWF usage is published with a five-quarter lag.

(ii) Adapting facilities to regulatory/financial change

It is essential that the Bank's facilities can adapt in response to changes in the regulatory and financial environment. The Bank already undertakes periodic reviews to assess scope for facility improvement. But our work has highlighted three areas where we believe it would be particularly valuable for the Bank to focus its efforts with respect to the bilateral facility:

- **Interaction between DWF and liquidity regulation.** Since the Winters Review, liquidity regulation has evolved (Section 1), and this raises questions about how it should complement the liquidity facilities. Internally, we observed mixed views among staff about the appropriate interaction — and also to some extent among the firms (see Box 2). We recommend that the Bank works to clarify further its policies here.⁽¹⁾ That should include considering whether it is appropriate to draw on the DWF (and the facilities more broadly) to offset declines in liquidity metrics. Once clarified, the policy should be promulgated effectively to supervisory staff as well as to SMF participants.
- **Disclosure risks.** Because of the positioning of the DWF and perceived stigma surrounding usage, disclosure is a key risk for firms. Firms were generally positive about the steps the Bank has taken following the Winters Review (Section 1). But they continue to identify the risk of disclosure as a barrier to approaching the Bank for bilateral support. Specifically:
 - There is a risk that usage of the DWF could be inadvertently revealed through firm-level reporting (liquidity and asset encumbrance). We recommend that the Bank continues work with relevant authorities to mitigate the risk that international transparency initiatives do not lead to inadvertent premature disclosure.
 - Some firms are of the view that legal considerations may compel them to disclose DWF usage to the market, for example, under the Market Abuse Regulation. We note that in this case there is a provision in the Regulation that allow firms in receipt of central bank liquidity to delay disclosure if there is a financial stability reason for doing so and certain conditions are met.⁽²⁾ We recommend that the Bank considers whether more could be done to alleviate firms own disclosure issues, for example by raising awareness of the MAR provision.

In both cases we recognise that there are limits to how much the Bank can achieve, and that it faces competing public policy considerations: the benefits of transparency in financial markets on the one hand; and on the other seeking to maintain financial stability by not undermining confidence in the institutions in receipt of liquidity.⁽³⁾

- **Lending gilts to large firms.** For balance sheet disclosure reasons, the Bank's preferred approach is to lend gilts to larger firms rather than cash when providing bilateral liquidity support. One potential drawback of this approach is that if sterling repo market functioning is impaired or activity has fallen firms may find it challenging to monetise covertly gilts lent through the discount window.⁽⁴⁾ Against this backdrop, we believe the Bank should reconsider whether the presumption of lending gilts remains appropriate for the larger firms and the alternative strategies that could be feasibly pursued.

One way to crystallise some of these issues would be to integrate use of the DWF into the Bank's regular suite of exercises to inform its readiness to provide emergency lending. Further planning for idiosyncratic stresses, including where the use of the DWF may be appropriate, may also help identify whether such support has any unintended consequences — including, for example whether the use of facilities materially affects regulatory variables.

(1) Some supervisory guidance on this issue exists. See page 15 of Prudential Regulation Authority (2016).

(2) Article 17(5) of the Market Abuse Regulation (Regulation 596/2014/EU (<http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=celex%3A32014R0596>)) provides that a firm that is a credit institution or financial institution may delay disclosure of 'inside information' (including temporary liquidity assistance) if the disclosure entails the risk of undermining the financial stability of that firm and of the financial system; it is in the public interest to delay the disclosure; the confidentiality of that information can be ensured; and the relevant competent authority has given consented on the basis that the previous conditions are met.

(3) See Mehta and Salmon (2014).

(4) Repo market functioning can change over time. Indeed the Bank for International Settlements (2017) has noted that they are in a state of transition with several drivers behind that.

Box 2

Firms' views of the DWF from external outreach and recovery plans

This box summarises firms' views on the DWF that were obtained through our review of recovery plans and external outreach. We reviewed 16 firm recovery plans, and spoke to a similar number of firms that are SMF members (there was some, but not complete, overlap between these two sample groups). We chose a sample of firms to provide a representative mix of major banks, mid-tier, small firms, and building societies.

- **DWF and contingency planning.** The DWF is seen as a staple of firm-level contingency planning. It is regarded as the key management option for a large liquidity stress given the amount of liquidity it can provide relative to other options and the speed of access. Almost all of the recovery plans reviewed (15 of 16) included the DWF as an option in the event of a severe liquidity shock. A number of the firms we spoke to noted that having the DWF available for contingency planning was a key benefit of membership of the Sterling Monetary Framework. There were mixed views, however, about how willing the Bank would be to permit usage of the bilateral facilities in the event of a severe shock.
- **DWF and stigma.** There has been some progress in tackling the stigma surrounding DWF usage. But the DWF is still generally viewed by firms as a last resort. There were mixed views on whether firms would choose to access the facilities at a relatively early stage during a stress. Some noted that they would use the Bank's facilities sooner rather than later. But for most, the DWF was to be used reluctantly in the event of a severe stress after other options had been exhausted, including cutting back lending in a couple of cases.
- **DWF and liquid buffers.** The recovery plans revealed marked differences in the extent to which firms would run down buffers before turning to the DWF. For one firm, the DWF would only be used once high-quality liquid assets had been depleted, or were at significant risk of depletion. In contrast, a number of firms suggested they would use the DWF in order to maintain liquidity buffers above regulatory ratios. More generally, our outreach exercise pointed to some uncertainty about the appropriate interaction between firms' own liquidity buffers and use of liquidity facilities.
- **Disclosure.** Disclosure is a key concern. Firms appear to have the experience of the crisis at the forefront of their minds and have a strong desire to avoid negative headlines that could result from DWF usage being disclosed. The Bank's lagged approach to disclosure was generally appreciated. But some firms were concerned that it may still be possible to work out who had borrowed once usage data were released. Some firms noted that they might feel the need to disclose usage of the DWF through a market disclosure (eg if usage was associated with material news on the health of the firm). Those views were not universally held, however.
- **DWF gilt lending.** A few firms expressed concern around the Bank's preferred policy of lending gilts in the DWF to larger firms. Given the last resort nature of the facility, there was a sense that cash might be more beneficial. There was some concern that the policy of lending gilts could lead to inadvertent disclosure of usage. And one firm noted concern that the gilt market may not function in stressed conditions. It was also noted that this policy stood out relative to other central banks' bilateral facilities, which tended to lend cash.

2.3 Market-wide facilities

In addition to the Discount Window, firms that are facing a stress can access liquidity through the Bank's market-wide facilities — the Indexed Long-Term Repos (ILTRs) and Contingent Term Repo Facility (CTRF). This section reviews the extent to which market-wide facilities can respond during a stress, before turning to steps the Bank might take to ensure the facilities continue to adapt to the changing financial environment.

(i) Usage of facilities during (prospective) stress

The Contingent Term Repo Facility (CTRF)

The CTRF allows the Bank to provide liquidity against the full range of eligible collateral at any time, term and price it chooses. It can be activated by the Bank in response to actual or prospective market-wide stress of an exceptional nature. In principle, it should allow the Bank to respond in a highly flexible way to shocks, as the terms can be determined each time it is deployed, taking prevailing market conditions into account. In practice, however, CTRF activation has been limited.

In the EU and Scotland referenda, the Bank considered the case for launching the CTRF (see Box 3), should for example sustained stress materialise. But, in the event, that did not happen. The facility was used in 2012 as part of the Bank's response to the euro-area crisis, prior to the Winters Review (**Chart 1.1**). The facility, along with a number of other measures from the Bank and the European Central Bank (ECB), was judged to have contributed to a reduction of funding costs when it was used.⁽¹⁾

The lack of recent usage of the CTRF limits our ability to evaluate its effectiveness, although we note the advantages in having a facility offering such a degree of flexibility. It is important that the Bank maintains capacity to launch the CTRF if needed.

Indexed Long-Term Repos (ILTRs)

The ILTRs were reformed following the Winters Review (see Section 1) and have been used on a regular basis in recent years. In normal circumstances, the ILTRs offer a degree of liquidity to the market at commercially attractive rates in order to limit stigma. And this has encouraged routine take up among some, including smaller/challenger institutions, some of whom have integrated the facility into their business models. As a result, there appears to be little reported stigma in usage.

The ILTRs have been a useful flexible tool for contingency planning for prospective stress events. For example around the time of the EU referendum the Bank pre-announced additional ILTRs, and moved the auction frequency to weekly for a period (see Box 3) — allowing the firms to prepare further for that prospective stress event. From that experience firms appear confident that the Bank would be willing to provide sufficient liquidity in the event of a market-wide stress.

By design the ILTRs use a sophisticated auction mechanism that is designed to react automatically in size and price as stress increases.⁽²⁾ As we understand, no other central bank has employed such a sophisticated approach. That auction mechanism has been tested to some extent — with auction sizes varying over time, particularly around the EU referendum, reflecting variations in firms' demand. But the auction mechanism is yet to be tested in a severe liquidity stress. And participants have been required to pay above minimum prices for liquidity on only two occasions over our review period.

In that context a minority of firms have noted confusion around the operation of the facility, in particular around the few occasions when participants have been allocated less than the amount they bid for. The Bank has responded to this lack of understanding — publishing more information on the facility and running educative phone calls. We recommend that the Bank continues to educate market participants on the facility so that it can function effectively during a future stress. It will be important to continue to monitor the performance of the ILTR

(1) See for example Churm *et al* (2012), page 316.

(2) Two automatic responses are built into each ILTR operation. Firstly, as the pattern of bids observed in the operation suggests a greater overall demand, the total quantity of liquidity made available is automatically increased. Secondly, if the prices and quantities bid in the operation indicate that there are signs of increased stress on a particular set of collateral, a greater proportion of the liquidity made available by the Bank is lent against that set. See Frost, Govier and Horn (2015) for more detail.

and keep the general approach under review especially if participants fail to 'bid up' for funds when they need them.

More generally, the Bank could usefully consolidate its learning on how it responds to stress events. The EU referendum experience demonstrated a preference to launch additional ILTRs for that prospective stress event. But for other stress events it may be appropriate to activate the CTRF; to maintain recourse to the regular set of scheduled operations and DWF; or to deploy some flexible combination. To aid future preparation we believe it would be helpful to set out some of the factors internally that might govern such a decision. Those could include: how well anticipated the prospective liquidity shock is; its actual or expected severity; the extent to which firms' own resources could deal with the liquidity shock; the signalling impact to the market of a change in approach and the potential for that to raise stress; and the impact of the Bank's response on firms' incentives to self-insure.

(ii) Adapting facilities to financial change

It is important that the Bank ensures its market-wide facilities are able to adapt to changes in the financial environment. The Bank currently does this in a number of ways, most notably through its annual review of the facilities (see Section 3.3). And as a result of these considerations adaptations have been made — for example, the Bank began to consider the need for Shari'ah compliant facilities in order to broaden liquidity provision to the market, and the calibration of the ILTR has been updated over time. Notably the review of calibration considers market developments and any risks of the ILTRs disintermediating private repo markets.

It is also important that the Bank continues to refine communications on its approach — internally and externally — as market conditions evolve. For example, our evaluation suggests there may be further to go on ensuring there is clarity within the Bank about the appropriate usage of the market-wide facilities — specifically of routine ILTR usage. Some staff have questioned whether it was acceptable for firms, particularly smaller firms, to routinely turn to the Bank, if they draw down in size relative to their balance sheets. Others have viewed that regular usage is acceptable and encouraged in order to reduce stigma.

The question of the appropriateness of routine ILTR usage may come into sharper relief for some firms once the TFS drawdown window closes in February 2018 (ie if some of the demand moves to the auction-determined ILTRs).⁽¹⁾ We therefore recommend that the Bank ensure greater clarity on this issue internally — and, as appropriate, externally. This point also speaks to the supervisors' role in monitoring individual firm-level usage (see Section 3).

More generally, we see potential benefit in the Bank providing further information externally on its role in directly supporting longer-term funding. Currently the published framework, as set out in the 'Red Book', says very little on this topic. However, the Bank has shown through its own actions over the past ten years that it is willing to operate in this space if required to meet policy objectives: it has provided term funding to support funding markets; boost lending to the economy; and to support monetary policy at the lower bound. A more articulated approach would help reduce the risk of the Bank having to operate outside its published remit.

(1) Reflecting its policy purpose the Bank lends TFS funds at close to Bank Rate.

Box 3

Contingency planning for sterling liquidity stress in the EU and Scotland referenda

The Bank planned for possible sterling liquidity stress — including use of the sterling liquidity facilities — at the time of the EU and Scotland referenda. Those episodes help shed light on the effectiveness of the Bank's approach and provide evidence across all our evaluation criteria. This box summarises the planning and our assessment. As a high level conclusion, the Bank's ability to respond appears to have improved since the Scotland referendum.

Scotland referendum: 18 September 2014

For the Scotland referendum, the Bank's overall contingency planning started in 2014 Q2. The FPC and PRC were briefed on that planning over the summer. During that period the PRA worked with the individual firms to consider their liquidity management, operations and communications. Part of the planning considered the wholesale funding positions of those firms and whether they individually had sufficient assets pre-positioned should they need to draw on the Bank's facilities.

In September, the Bank's Governors considered options to support banks' liquidity positions — bilaterally through the DWF, as well as through the ILTRs/CTRF — if a 'yes' vote precipitated wider stresses in bank funding markets. Specifically they considered the merits of further auctions around the 18 September and the value of pre-announcement. Pre-announcing auctions so close to the referendum risked sending an unintended signal to financial markets. Accordingly, it was decided that in the event of a 'yes' vote the Bank would immediately announce its intention to conduct additional ILTR operations in each of the succeeding weeks — bridging to the scheduled 7 October operation. The FPC was briefed. But in the event the contingency did not materialise.⁽¹⁾

EU referendum: 23 June 2016

For the EU referendum, contingency planning started in 2016 Q1. In March, following a staff proposal, the Bank's Governors agreed to schedule three additional auctions over the referendum period, and to pre-announce that plan shortly after the decision was taken. This was justified on the basis that it helped market participants with their own liquidity planning, ensuring that a market-wide backstop was more frequently available if firms faced difficulties during that period. In contrast to the Scotland referendum, the Bank judged that an early announcement carried little risk of being mis-interpreted. The FPC was briefed at its March meeting and welcomed the action.⁽²⁾

In the subsequent months, staff across the Markets and Banking Directorates and the PRA jointly considered the potential for liquidity stress in banks and broker-dealers (individually and at the system wide level), the risk mitigation options (supervisory and via Bank operations) and the consequences for the Bank's balance sheet. That work identified the extent to which pre-positioned collateral could meet system-wide outflows as well as individual firm-level shortfalls — prompting further planning with the firms. It also considered how to balance the message that firms' own liquidity buffers are there to be used with the message that the Bank is 'open for business'.

The work was disseminated and reviewed appropriately — for example in April, the Bank's newly created Executive Risk Committee oversaw the stress testing of the Bank's own balance sheet to a potential liquidity demand (Section 4). The Governors' Committee (GovCo)⁽³⁾ considered the entire package of work in early May — noting that it would be important for supervisors to react in a measured way if the Bank's facilities were used: timely use should be considered appropriate, and not by itself construed as a reason for immediate escalation to senior Bank management. The Governors also agreed at that time that should a public signal be needed about the Bank's additional willingness to provide liquidity, it had the option to launch a Contingent Term Repo Facility. At its April and May meetings Court also discussed the EU referendum and relevant Bank-wide work underway.

(1) See Bank of England (2014).

(2) See Bank of England (2016a).

(3) The Governors' Committee is the team of Bank Governors and Chief Operating Officer which deals with issues of policy, strategy, and management that are not reserved for Court or the Bank's three statutory policy committees.

Cross-Bank preparations continued and were intensified in the immediate run-up to and after the referendum. Individual local areas produced detailed operating playbooks and action plans. The Markets and Banking plan, for example, set out its approach to market monitoring; the decision-making process for activation of its operations; and its communication strategy. Engagement with individual firms was stepped up with (at least) daily supervisory calls for those firms under enhanced liquidity monitoring. The Governors met frequently to assess conditions and consider the Bank's response. And the Bank engaged pro-actively with its international counterparts — including for example with the G7— in order to ensure that key partners had the information they needed and were well prepared to work with the Bank if needed.

The morning after the EU referendum, the Governor noted the extensive contingency planning that had been undertaken and made clear that the Bank stood ready to provide more than £250 billion of additional funds through its normal facilities (firms had pre-positioned collateral of that volume with the Bank). This came with an expectation for institutions to draw on this funding if and when appropriate, as well as use their own resources to provide credit, support markets and supply other financial services to the real economy.⁽¹⁾

The Bank's response was well received by financial market participants. And more funds were allocated in the ILTR to firms in the EU referendum period, compared with the Scotland referendum (Chart A). One of the auctions cleared at a higher than minimum rate — and some counterparties consequently did not receive any funds. Following that auction Markets held educative conference calls to explain how different bidding behaviours would be allocated in the ILTR.

Assessment

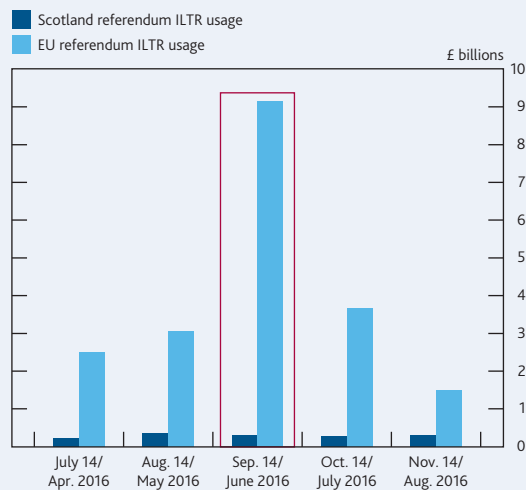
One Bank synergies: from an SMF liquidity insurance perspective the EU contingency planning was more comprehensive and integrated across the Bank than that for Scotland. In our view that in part reflects increased exploitation of cross-Bank synergies, such as movement of key staff around the institution (Section 3).

Responsiveness and flexibility of the facilities: both experiences demonstrated the Bank's willingness to use the range of tools at its disposal — in order to help mitigate potential liquidity stress. The response to the EU referendum also reflected a lesson learned from the Scotland referendum. During the Scotland episode the Bank's own assessment of the actions it could take came much later in the timeline, and so precluded the opportunity to pre-announce for fear of inadvertently raising stress.

Risk management: the EU referendum experience exploited the expertise of the newly created second-line risk function. This allowed the Bank to stress test its own balance sheet against potential losses — using timely supervisory information, and scenarios consistent with the analysis undertaken in the wider Bank (Section 4).

Taken together the thorough package of planning for the EU referendum allowed the Governor to confidently express that the Bank stood ready to meet individual and system wide liquidity stress with a significant amount of funds available.

Chart A Amount of funds allocated in the ILTR^(a)



Source: Bank of England.

(a) Normally there is one ILTR auction per month. But there were four in June 2016, and they continued weekly until September 2016.

(1) See Carney (2016).

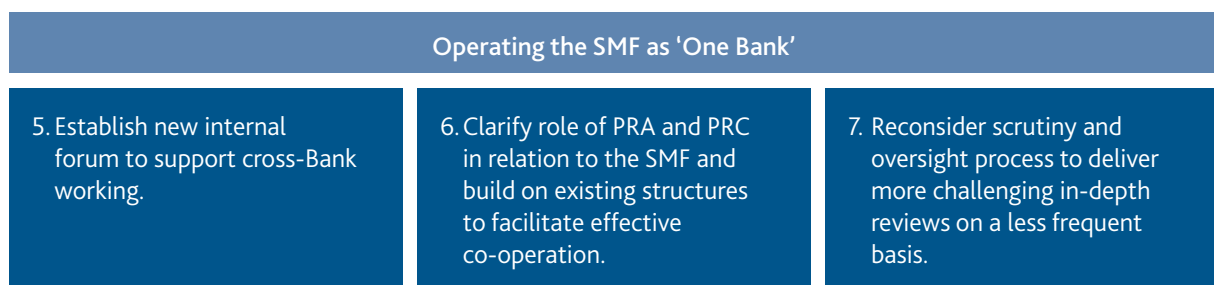
3 Evaluation — operating the SMF as 'One Bank'

The Bank has made tangible progress of working together as 'One Bank' in implementing SMF liquidity insurance policy. Moreover, our work suggests that collaboration has improved over time, particularly during contingency planning.

We believe that further steps could be taken to bolster cross-Bank collaboration, in particular on SMF issues that cut across multiple Bank objectives (Section 3.1). Specifically, we recommend the creation of a new, senior-level cross-Bank forum to support the work of the relevant decision-making committees. There also remain opportunities for refinement in light of the integration of the PRA (Section 3.2), including drawing more widely on cross-Bank input as part of the SMF review and scrutiny process (Section 3.3).

This section primarily speaks to our third evaluation criterion: the extent to which liquidity provision is implemented effectively as 'One Bank'. It also touches on the fifth: the extent to which the facilities have effective and efficient governance mechanisms; and the second: how the facilities incentivise appropriate behaviour. The evidence presented here is primarily drawn from the structured interviews with staff, a desk-based review of relevant documents and the EU and Scotland case studies.

Figure 3.1 Summary of 'One Bank' recommendations



3.1 Cross-Bank collaboration

As noted in Section 1, the core tenet of the Bank's 2014 Strategic Plan was to exploit complementarities between the Bank's functions. And, over the evaluation period, we observed multiple instances of positive evidence of cross-Bank collaboration to help deliver SMF liquidity insurance goals. For example:

- PRA supervisors have worked to ensure that SMF participants integrate more effectively the availability of liquidity insurance from the Bank into their recovery plans (Section 2).
- Cross-Bank collaboration has been particularly effective during contingency planning. As identified in the Scotland/EU referendum case studies the effectiveness of cross-Bank collaboration appears to have improved over time (Box 3).
- Collaboration between different parts of the Bank has proved valuable in assessing the risks posed to the Bank's balance sheet by SMF lending. For example, insights from PRA supervisors help inform firm-level credit assessments conducted by the Bank's Markets Area (Section 4).

Collaboration on SMF issues has also helped the wider Bank deliver on its objectives. For example, the PRA has been working to reduce barriers to entry for challenger banks in support of its secondary competition objective.⁽¹⁾

(1) See Prudential Regulation Authority (2017) for details of recent initiatives to enhance competition in the banking sector.

It has been aided in this by the development of a more bespoke SMF access policy for banks in mobilisation (Section 1).

Collaboration and the exploitation of synergies are likely to have been strengthened by measures taken as part of the Bank's 2014 Strategic Plan — in particular movement of key staff between the institution's Markets and Banking Directorates and the PRA. They also reflect growing informal lines of communication and trust between the relevant areas.

But, in our view, there remains further to go in setting SMF strategy as a single institution. That is especially so on issues that cut across a number of the Bank's policy objectives, including those of the statutory policy committees. That is because the institution's internal structures do not always lend themselves to effective cross-cutting discussions of liquidity insurance prior to formal decision-making by the relevant committee(s). Our view is that there are a variety of areas that would benefit from more structured cross-Bank consideration, especially in light of the complexity of the issues involved. These include:

- **Assessing how developments in prudential regulation may affect the functioning of the sterling lending facilities, and vice versa.** Relevant issues include the interaction between the Bank's liquidity facilities and liquidity regulation (see also Section 2), as well as the leverage ratio.
- **Assessing how developments in the Bank's sterling lending facilities can influence the Bank's supervisory, resolution and wider financial stability objectives.** These could include the question of how 'excessive' reliance on the Bank's lending facilities may be associated with supervisory or financial stability risks.
- **Horizon scanning and proposals to reform the SMF.** Evolution of the financial sector will necessarily bring with it potentially new supervisory and financial stability risks. The Bank has a menu of micro and macroprudential policy options at its disposal to mitigate risks of this nature — including, for example, reforms to the SMF facilities.
- **Co-ordination of SMF/balance sheet contingency planning.** While we observe an improvement in cross-Bank contingency planning, it would be useful to have structures in place to ensure that liquidity issues are tackled in a co-ordinated way and the success of EU referendum planning can be easily replicated in other situations.

In order to support the Bank's broader efforts to break down internal silos, we advocate the creation of a new senior, cross-Bank forum led by the Deputy Governor for Markets and Banking. This would bring together staff from across the Bank to discuss important policy questions and provide challenge on the issues outlined above. It could also help advise on the risk implications of policy innovations under consideration prior to decision-making (Section 4.1). And it could commission a future review and challenge process for the SMF, drawing on the wider Bank (Section 3.3).

Such a forum would provide a means for more in-depth, 'think-tank' type discussions, similar to those previously held by the Operations Committee (OpsCo), which was disbanded in 2014.⁽¹⁾ And in that regard we would not envisage it involving a change in executive responsibilities or reporting lines. Rather it would support the work of the relevant Bank decision-making committees, such as Court, Governors' Committee (GovCo), and the statutory policy committees.

3.2 Co-operation with the statutory committees

It is important that the roles and responsibilities of the policy committees in relation to the Bank's liquidity operations are well defined as the operation of the SMF is relevant to their remits. The Winters Review recommended further steps on this front for both the MPC and FPC. And progress has been made through the creation (and subsequent update) of concordats — or frameworks for engagement — with the committees. In

(1) That was created as part of the Bank's response to the Winters Review to address the recommendation that the Deputy Governors should be formally consulted on the design of the SMF. But it was disbanded as part of the 2014 Strategic Plan when the Deputy Governor for Markets and Banking post was created and with outstanding responsibilities reassigned to GovCo. GovCo, however, has a wide-ranging remit, and in our view would benefit from an earlier 'clearing house' on balance sheet issues.

2017, the FPC was given formal authority to approve changes to the scope and principles underpinning the liquidity insurance facilities, reflecting its role to take action to remove or reduce systemic risk. Feedback from colleagues suggests improvement in co-ordination between the Executive and the FPC, as well as the relevant Bank staff, over the past year or so.

(i) The roles of the PRA and PRC

The relationship between the SMF and the PRA/PRC is less well-developed or defined. Although the Deputy Governor for Markets and Banking sits on the PRC, there is no equivalent structured framework for engagement as there is for the MPC and FPC.

In our view there are gains to be had in clarifying the relationship with the Bank's supervisory function. In the first instance that would involve articulating how the facilities support microprudential objectives (the PRC, like the other statutory committees is currently asked to 'sign off' that the Bank's provision of liquidity insurance via the SMF is supportive of those objectives during the annual review process). Any formalisation of the relationship would need to be mindful of current agreed operational responsibilities, including that the Deputy Governor for Markets and Banking has prescribed responsibilities for the management of the Bank's capital and the Bank's funding and liquidity operations under the Senior Managers Regime (SMR).⁽¹⁾ Additionally, we believe that there are a number of areas where the PRC would benefit from more systematic information sharing, for example, on individual firm-level usage of the facilities or where there may be different cross-Bank perspectives on the viability of firms (Section 4).

We also observe that the relationship between the PRC/PRA and the SMF is two-way. The SMF helps serve safety and soundness goals, while the PRA has a role in helping the Bank meet its SMF objectives. For example, through our evaluation we have observed that supervisors need to understand how the facilities work in order to help firms build them into their liquidity plans; they can monitor and feedback on facility usage — in the context of their broader supervision of firms' funding and liquidity, and they consider whether firms have sufficient capacity to repo gilts during stress. More generally they contribute to Markets Directorate credit risk assessment efforts. In our view it would be helpful to articulate those roles more clearly. Importantly, any clarification should preserve the principles-based approach to supervision, and not lead to a highly prescriptive set of responsibilities.

(ii) Developing more effective co-operation between the PRA and the Bank on SMF issues

Since the creation of the PRA as part of the Bank of England, substantial progress has been made on working-level collaboration between PRA supervisors and staff in the Markets and Banking areas of the institution. Information flow between the areas is generally viewed as good. There are a number of initiatives that have been set up to reinforce the progress that has been made. Discussions with firms suggest that in the main the relevant areas' communications are well aligned.

Nevertheless, our work suggested some areas where there is scope for some further 'low cost' refinement. For example internal training could be refocused to emphasise where supervisory engagement can help the Bank achieve its SMF mission as well as *vice versa*. And once clarified, training should also usefully cover policies on information sharing specifically in relation to Markets staff (some supervisors have raised concerns around whether it is permissible to share firm-level data with Markets staff — especially if they have trading relationships). We also suggest that the Bank uses available technology to facilitate sharing relevant contact names and regular data outputs. Such simple steps may help ensure that in stressed circumstances co-operation can continue unhindered.

3.3 Scrutiny and challenge

In order to ensure that the SMF facilities continue to operate and adapt effectively it is important that there is a thorough review process. And as the SMF supports wider Bank objectives that process should engage staff from across the Bank.

(1) Although the Bank is not legally required to adhere to the SMR, it intends to apply the core principles of the SMR to its leadership team and its work. The statement of responsibilities is available at www.bankofengland.co.uk/-/media/boe/files/payments/smr.pdf.

At present, the main way in which the SMF is scrutinised is through the Annual Review. This was established following the Winters Review, with the aim of identifying whether the SMF was achieving its objectives, and whether any part of it should be changed. As part of this process, Markets staff hold a series of calls with firms in order to gather feedback on the functioning of the facilities. They also survey the Bank's policy committees, including asking whether the SMF supports their objectives, and undertake a review of the design of the ILTRs (Section 2). A report is produced for the policy Committees and Court and is ultimately published. It is a reasonably time consuming process — taking about 6 to 8 months from start to conclusion.

The Annual Review process has been useful in a number of ways. It provides a structured time to take stock of the market-wide operations and to consider any amendments to the calibration. The Bank is also able to gain helpful insights from the feedback received through its annual consultation calls. Publication improves transparency around the Bank's market operations.

The current process, however, does not provide the level of challenge to the facilities that was initially intended. At the time of introduction the process was expected to deliver 'provocative' questions and frank debate on issues like counterparty riskiness and the impact of liquidity regulation on the SMF. In practice, though, it has tended to be a more formulaic review of the year's developments. Moreover, while the policy committees are consulted and asked for their views on the SMF, some members noted that they lacked context to challenge effectively.

In our view the effectiveness of the review process could be enhanced if the rest of the Bank provided more substantive input and challenge. The new cross-Bank forum could support that process by commissioning input from relevant policy areas. Such an approach could be more costly. One way to mitigate that would be to take a lighter touch approach most years, and conduct more in-depth reviews on a less frequent basis. That approach would also be consistent with a view that the liquidity insurance facilities are broadly mature and do not require a continuing programme of reform. In our view that is borne out by experience since the Winters Review.

A reformed process should also provide Court with greater assurance over the facilities. Court delegates day-to-day management of the Bank to the Governor, but reserves to itself the responsibility for approving the objectives of the SMF and agreeing any amendments to that framework that increases the risk exposure of the Bank. Given that role it is essential that members of Court are well informed on the functioning of the SMF. That requires regular education. A more thorough review process that is better able to draw in challenge from across the Bank should also give Court greater confidence to discharge its role.

4 Evaluation — financial risk management

Since the financial crisis, the Bank has made numerous changes to its risk management approach to support its growing balance sheet and suite of operations. The approach evolved further following the 2012 Winters Review and, more recently, after a review of its risk management arrangements in 2015.⁽¹⁾ Our evaluation considered the impact of these changes from an SMF financial risk perspective.

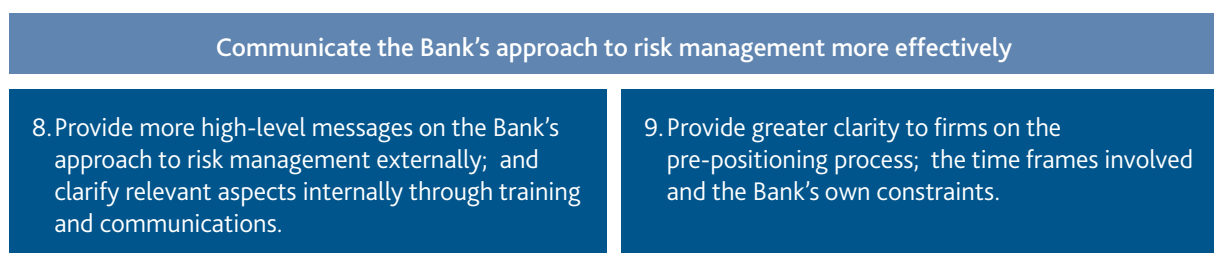
Overall, the changes have been operationalised to good effect. The processes put in place to support the achievement of SMF financial risk management objectives are generally effective. We also see clear evidence of the Bank's new 'second line' financial risk function adding value, while the first line has maintained a strong risk management culture.

There is scope however, for the Bank to communicate the principles underpinning the risk management approach more effectively within the organisation and externally. And at the same time we believe that the Bank could better manage firms' expectations in the collateral pre-positioning process.⁽²⁾ In our view more transparency would help achieve the Bank's desired policy outcomes — without compromising risk management objectives.

The evidence in this section is mainly relevant to our fourth evaluation criterion: how well SMF liquidity insurance operations are effectively risk managed. It also speaks to the first criterion: the flexibility and responsiveness of the Bank's facilities, particularly during periods of stress. This part of our evaluation is principally informed by firm level engagement (see Box 4), focus groups with relevant staff, targeted reviews of risk management topics and the Scotland/EU referendum case study.

We begin by considering the overall impact of the Bank's new risk management arrangements (Section 4.1). We then consider in more detail how the Bank has operationalised its credit assessment and collateral policies in light of those new arrangements and wider post-Winters reforms (Section 4.2).

Figure 4.1 Recommendations — risk management



4.1 The SMF and the Bank's risk management function

As set out in Section 1, in 2015 the Bank concluded an internal review of its risk management arrangements. That recommended the establishment of:

- A clear Bank-wide risk tolerance framework for first and second line management.
- Well-defined and separated first and second line responsibilities, incorporating strengthened second line challenge.

(1) See Bank of England (2016b). For more information on the Bank's risk management framework, see pages 44–48 of the Bank of England's 2017 *Annual Report* (Bank of England 2017a).

(2) In this context pre-positioning means delivering collateral to the Bank but not using it straight away. Pre-positioning helps ensure that collateral due diligence is done in advance of drawing on a lending facility. It also provides the Bank and the participant certainty about the value that can be advanced against the collateral. See Alphandary (2014) for details.

- Enhanced tools and capabilities and processes to support the framework — including dedicated executive oversight.

The review made broader recommendations on the structure and framework for risk management in the organisation, beyond SMF financial risk. And some of the implementation remains ongoing — for example, although the Bank has agreed a high-level risk tolerance framework, the detailed work on implementing more precise limits and thresholds continues.⁽¹⁾

For the purpose of this evaluation we adopted a relatively narrow approach and considered the effectiveness of the reforms through an SMF financial risk lens. Specifically, we considered whether the first-line risk management function in the Markets Directorate has remained strong; the added value of the newly created second-line financial risk management function; and the interaction between them.⁽²⁾

The evidence base is necessarily more limited than for other parts of the evaluation as the new risk management arrangements have been in force for only a short period. Nevertheless we observe that, to date, the reforms have been operationalised to good effect. Most notably:

- The first line continues to 'own' the risks and has maintained a strong risk management culture. The first line has lead responsibility for collateral eligibility/valuation and counterparty credit assessment. It is also responsible for decisions on access to the Bank's facilities (Section 4.2).
- In business as usual activity review and challenge is working as envisaged: processes exist to ensure that the second line has an appropriate voice in collateral and credit assessment — and a means to escalate disagreement (Section 4.2).
- The second-line function has developed tools to conduct forward looking analysis of risks through balance sheet wide stress testing and scenario analysis — drawing on the wider expertise of the Bank.⁽³⁾ For example, in preparation for the EU referendum (see Box 3) with the help of the rest of the Bank, the second line identified whether the scale of pre-positioned collateral could meet system-wide liquidity requirements in a severe stress, whether haircuts would protect the Bank's balance sheet should stress materialise, and circumstances in which an indemnity from HM Treasury might be needed. The work also helped inform further firm-level planning.

More broadly, the reforms have also delivered revised risk reporting and governance arrangements — including bespoke executive oversight of the risk profile.⁽⁴⁾

The introduction of the arrangements has inevitably been associated with teething issues as respective first and second-line roles and responsibilities bed down. Those could come into sharper relief during moments of acute stress such as when new policies or operations are introduced at short notice. In that regard the proposed DG-led forum (Section 3) could play an important role in considering, for example, any risk challenges to policy prior to decision-making at the relevant Bank committee.

4.2 Operationalising SMF credit assessment and collateral policies

Following the Winters-inspired reforms, there is now a presumption that once banks and building societies meet supervisory threshold conditions, they have access to borrow from the Bank's sterling facilities (Section 1). Access is not fully committed or automatic — indeed the Bank has noted that it cannot provide a 100% guarantee to

(1) Moreover, as recommended by the 2017 review of the Bank's approach to conflicts of interest, the Bank is considering executive responsibilities for risk and associated reporting lines across the organisation as a whole. The September 2017 meeting of the Bank's Court of Directors sets out progress on implementation of the Conflicts Review. This is available at www.bankofengland.co.uk/-/media/boe/files/minutes/2017/court-september-2017.pdf.

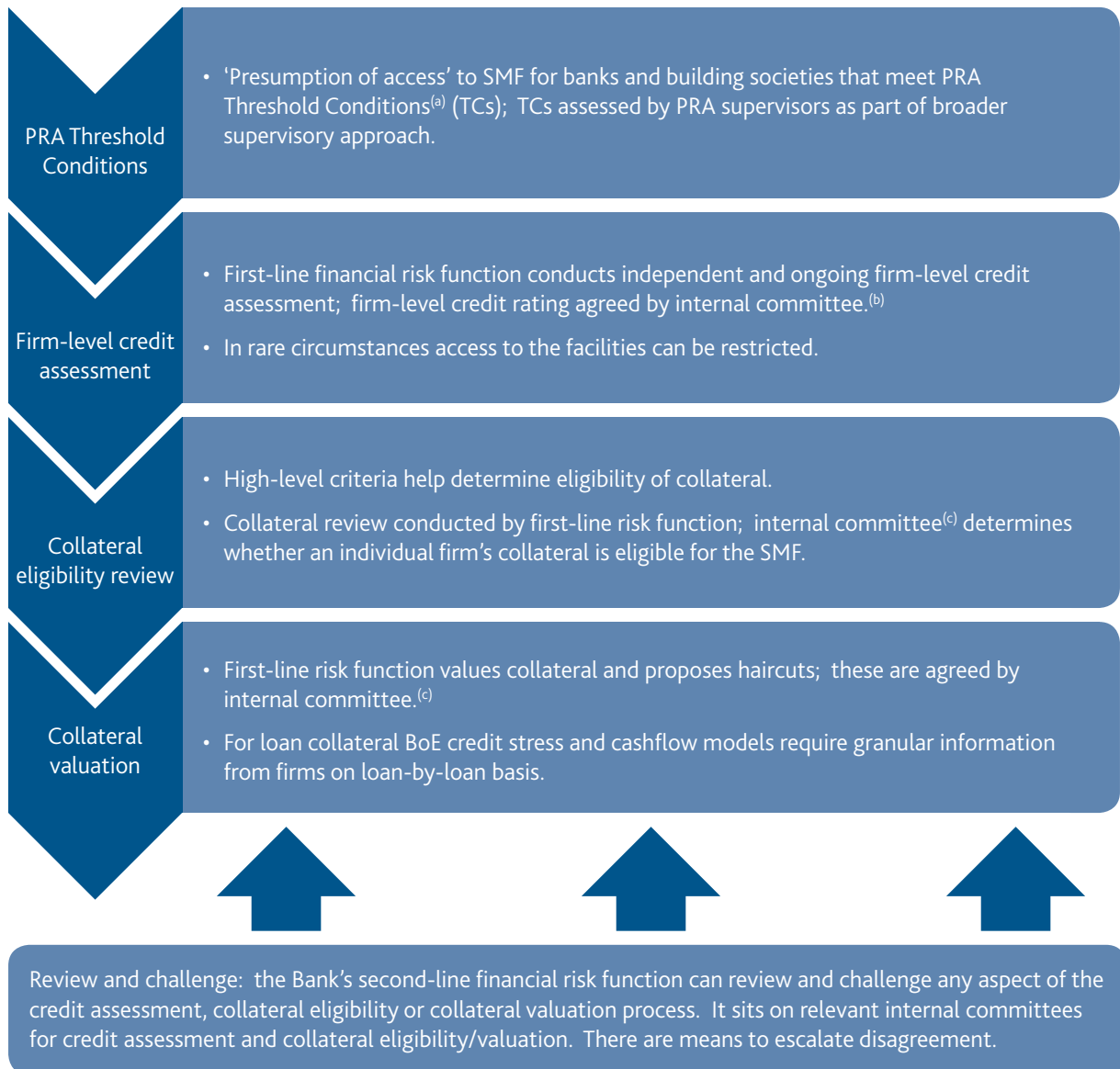
(2) In this context the Bank's 'Financial Risk Management Division' together with its 'Sterling Markets Division' form the first line. They are located in the Markets Directorate. The second line — the 'Financial Risk and Resilience Division' — is located in the Banking, Payments and Financial Resilience Directorate. The first and second lines report to separate Executive Directors. The two lines converge at the Deputy Governor for Markets and Banking.

(3) See Hauser (2017) for a discussion of how the contingent nature of risks that a central bank faces requires forward-looking tools for evaluating how those risks might crystallise and affect the balance sheet.

(4) The Deputy Governor chaired Executive Risk Committee (ERC) scrutinises the Bank's overall risk profile. It identifies and monitors key risks and makes recommendations on the prioritisation of mitigating actions. It reports to Court's Audit and Risk Committee. The ERC is assisted by the Bank's Financial Operations and Risk Committee which among other things provides advice and challenge on all material financial risk issues relevant to the Bank's balance sheet.

lend in all circumstances. Nevertheless one implication of the change is that the Bank's protection against counterparty credit risk is now principally assured through the delivery of collateral in sufficient quality and quantity to ensure that the Bank does not suffer losses on its exposures. This section considers how the Bank has operationalised those credit and collateral policies. **Figure 4.2** summarises the working-level approach.

Figure 4.2 The Bank's financial risk management approach and the SMF



(a) The PRA's statutory Threshold Conditions set out the minimum requirements that firms must meet in order to be permitted to carry on the regulated activities in which they engage.

(b) The Credit Ratings Advisory Committee (CRAC) provides a forum for advice and challenge on counterparty and sector credit rating proposals. Its membership includes staff from across the Bank.

(c) The Collateral Review Committee (CRC) provides a forum for advice and challenge on eligibility/haircuts on new and existing collateral pools; considers certain improvements to the collateral framework; and monitors the level and composition of collateral positions. Its membership includes staff from across the Bank.

(i) Presumption of access and credit assessment

The high-level SMF access policy stresses the primacy of meeting supervisory threshold conditions. Nevertheless the Bank's first-line risk function also conducts independent credit assessment in its market operations. That allows the Bank to directly understand the risks it faces from individual counterparties, monitor and manage counterparty credit exposures across multiple operations, and on rare occasions to restrict SMF access. That can occur for example, when threshold conditions are no longer considered to be met. In that context the first-line risk assessment also provides machinery to the Bank to quickly consider risks (including to threshold conditions) if individual firm circumstances are rapidly deteriorating.

The process for credit assessment appears robust — aligned with standard market practice (**Figure 4.2**). Supervisory input is used extensively in the assessment process and materials are shared in order to exploit synergies. The relevant areas have fed back positively on the level of interaction and co-operation.

Processes for restricting (and reopening) access exist. Those have been, and continue to be, refined as experience is gained. The imposition of restrictions on SMF access has been rare over our review period. Importantly, any proposal to restrict access where the PRA has not determined breaches of Threshold Conditions needs to be escalated to the Bank's Governors for decision.

Internally, however, we observed some residual ambiguity about the Bank's approach. Some small firm supervisors, for example, were nervous that the Bank could collectively hold differing perspectives on the viability of firms with Markets Directorate as custodians of the balance sheet potentially taking one view, and supervisors another. At the same time, externally we observed mixed views around certainty of access in some recovery plans (eg with some firms referencing the pre-Winters approach)

We suggest therefore that the Bank consider further its approach to promulgating its agreed policies — internally through training and externally through its public communications. Internal training could usefully set out how the approach has evolved in light of experience gleaned from handling individual cases, as well as how exceptions are determined and reconsidered.

(ii) Collateral eligibility, valuation and haircuts

Eligibility

The Bank's reformed approach to the SMF stresses that any asset that the Bank judges it can effectively and efficiently risk manage could in principle be eligible for inclusion as SMF collateral.⁽¹⁾

In practice, the first-line risk management function speaks to firms when they join the SMF about the assets on their balance sheet, considers how widely those assets are used in the market, identifies where the policy need is most acute and then determines where to focus its effort to expand eligibility. Each individual asset eligibility decision is reviewed from a risk perspective and challenged by the second line (**Figure 4.2**). As with credit assessment, the process for collateral eligibility appears broadly effective.

Our work nevertheless suggests some opportunities for refinement — especially in light of firms' feedback (see Box 4). The Bank could be clearer for example about its high-level eligibility policy. And with the benefit of experience, it could also better frame firm-level expectations on expansion into new types of collateral — particularly non-mortgage assets. For example, it could better set out the time and effort needed, as well as the constraints/priority calls the Bank may face when trying to meet the system's needs as a whole.

Collateral valuation and haircuts

As for valuation the Bank forms its own independent view of the risks in the collateral taken. It applies haircuts⁽²⁾ to the value of collateral in order to protect itself from loss should a counterparty fail to repay. The techniques deployed are sophisticated. For loan valuation the Bank requires granular information from the firms on an individual loan-by-loan basis — in order to model the underlying risk characteristics of each loan. And the assumptions underpinning the approach are conservative.⁽³⁾ Those conservative assumptions are designed to ensure that the Bank can pursue its policy goals without breaching its financial risk tolerance and to avoid the Bank behaving procyclically in stressed circumstances.⁽⁴⁾

As with credit rating and collateral eligibility each individual haircut decision is scrutinised — including by the second line (**Figure 4.2**).

(1) Other criteria include that collateral need to be held in sufficient quantity by the market to support financial stability objectives; that the Bank should be able to risk manage the assets using existing resources, or additional ones obtained at a proportionate cost; and that it should avoid unsecured exposures to other SMF participants in the collateral taken. See Alphandary (2014) for more details.

(2) In this context a haircut is the discount the Bank applies to the value of collateral delivered by a Bank counterparty.

(3) For example, the Bank determines the 'stressed' value of mortgage loan pools using severe assumptions about a downturn in the residential property market. And for these assets, reflecting their illiquidity, it also assumes that it may have to hold the loans until they mature should it need to hold them on balance sheet for that period.

(4) The Bank's high-level risk tolerance requires financial risks to be managed so that the occurrence of any material loss in the Bank's operations resulting from policy decisions is a very rare event. See Bank of England (2016b), page 47. See also Hauser (2017) for a discussion of the central bank's role as a firefighter and associated challenges for managing central banks' own risks.

Box 4

The views of firms on the Bank's SMF financial risk management approach

As part of our interviews with firms we asked them specifically about impediments to borrow from the Bank's facilities; the clarity and appropriateness of the Bank's risk management policies and whether there were any adverse impacts of the Bank's collateral policies on the market more widely. Some firms thought that the Bank's approach was appropriate for a central bank and that policies were well understood. The interviews did not reveal any wider adverse impacts from the Bank's collateral policies.

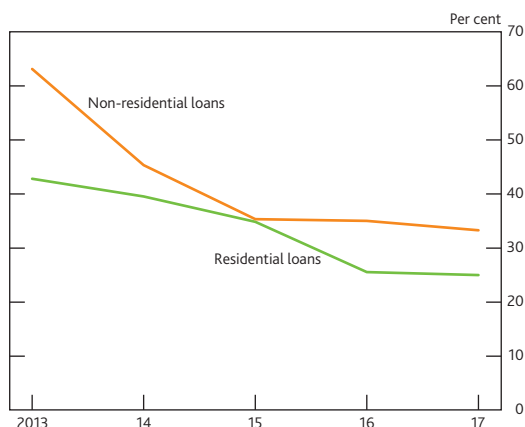
Many of the firms we spoke to raised questions about the policy approach or revealed concerns about the collateral pre-positioning process. Those included:

- Nervousness that the Bank would raise haircuts or restrict access during a stress — for some that stemmed from previous experience or perception of how the authorities acted during the financial crisis.
- Uncertainty over the effort and time it takes to pre-position new (non-mortgage) forms of collateral.
- A perception of excessive/inflexible due diligence and standards applied by the Bank in assessing and valuing collateral; and relatedly whether the Bank would be able to complete processes during a stress.

Some firms also noted that it would be helpful for the Bank to develop a tool to help track individual eligible securities, similar to the approach taken by some other central banks.

We recognise that individual firms cannot internalise the Bank's own finite resourcing constraints or risk appetite. Moreover, pre-positioning should help avoid bottle-necks/delay during stressed periods when firms need to access the facilities. Nevertheless as set out in the main text, the Bank could consider further ways to manage firms' expectations in light of experience to date including, for example more clarity with the firms on standards/time frames required in the prepositioning process. The feedback also suggests that the Bank could develop further means for firms to escalate issues when they need to.

Chart 4.1 Average haircuts on loan pool collateral delivered to the Bank of England^(a)



Source: Bank of England

(a) The average haircut has been calculated by combining haircuts on individual loan pools weighted by their nominal share in the total loan collateral pool delivered by SMF participants to the Bank of England.

In 2015, following significant investment by the first line, the Bank introduced a new system to manage loan collateral and a revised methodology for implementing haircuts. Better modelling of risks helped support a reduction in the weighted average haircut for residential loan pools (**Chart 4.1**). Importantly the second line reviewed the model, and following challenge and modification, endorsed the revised approach. This is a good example of how investment in risk technology and the revised financial risk arrangements have allowed the Bank to further its policy goals without compromising its risk tolerance. As part of its work programme the second line is in the process of validating the valuation approach for each additional collateral class.

Discussions with firms about the Bank's approach yielded mixed views. As set out in Box 4 some understood, or had little comment on the philosophy behind valuation and haircuts. Others questioned the approach or raised

concerns that the Bank would act procyclically. Consistent therefore with the theme of this section we suggest that the Bank provide more high-level messages to the firms on its approach to risk management — without compromising its ability to practise it. And in that regard any description of the Bank's policies needs to be mindful of the Bank's tolerance framework and ongoing work to operationalise it at a detailed level.

Annex Background to the evaluation: remit, scope and methods

At its December 2016 meeting, the Bank's Court of Directors commissioned the IEO to conduct an evaluation of the effectiveness of the Bank's approach to providing sterling liquidity insurance. This evaluation sought to identify whether the post-2012 changes to the Bank's approach had achieved their objectives.

In line with the approach taken in previous reports, we developed a set of five criteria describing what 'good' should comprise and against which the effectiveness of the Bank's approach could be judged. Specifically these were:

- (1) The facilities are flexible and responsive particularly during times of actual or prospective stress.
- (2) The facilities are clear to the market and incentivise appropriate behaviour.
- (3) SMF liquidity insurance policy is implemented effectively as 'One Bank'.
- (4) The Bank manages risk appropriately.
- (5) The SMF is effectively and efficiently governed.

We commenced the evaluation in March 2017. The evaluation considered evidence from the implementation of the Winters reform to just after the EU referendum. As such it considered the contingency planning around the EU referendum but did not evaluate the package of measures — including the Term Funding Scheme — that were announced by the Monetary Policy Committee in August 2016 to provide additional monetary stimulus. Facilities that may be launched with the objective of supporting broader market functioning (Market Maker of Last Resort) and bespoke bilateral liquidity assistance (ELA) were not in scope of this evaluation.

We deployed several methods to conduct our evaluation as set out in the table.

Input	Details
Desk-based review	Thematic analysis of the implementation of the Winters' reforms and risk initiatives including: <ul style="list-style-type: none"> • DWF positioning and covert lending. • Usage of the facilities — including questions of 'appropriate' usage/incentives. • SMF Annual Review process, relationship with PRA/PRC and FPC, governance. • Risk management issues. • Assessment of internal committee minutes and papers. Small firm issues — including access. Information sharing and training.
Case studies	Contingency planning for the EU and Scotland referenda.
Internal focus groups and interviews	Eight focus groups including supervisory, prudential policy, Markets and Banking, Payments and Financial Resilience Staff. Approximately 80 interviews with Bank staff including with FPC and PRC members.
Peer analysis Firm-level recovery plans External outreach	Basic international comparisons, including conversations with other central banks. Assessment of 16 recovery plans. 19 firm-level interviews, including members and non-members of the SMF.

As with previous IEO evaluations we drew on a range of expertise — including from outside the Bank. This expertise was provided on an advisory basis only — analysis and recommendations contained in this Report (and any errors herein) remain the sole responsibility of the IEO.

The team benefited from feedback, advice and challenge from five advisors from the central banking community and industry: Ulrich Bindseil, the Director General of Market Operations at the ECB; Antoine Martin, Senior Vice-President and Head of the Money and Payments Studies Function at the Federal Reserve Bank of New York; Andrew Caton, previously Chief Officer Treasury and Corporate Affairs & Executive Director, Yorkshire Building Society; David Hopton, previously Managing Director in Treasury and Wholesale Markets at Santander UK, and currently non-Executive Chairman to GSAV Ltd; and Richard Moore, previously Managing Director of Financial Markets, Lloyds Bank plc.⁽¹⁾ During the evaluation we discussed progress with our advisors and invited feedback on emerging themes.

The team also benefited from an advisory group whose members included external members on the FPC and PRC, a PRA Senior Advisor, other current and former Bank of England officials, and legal expertise.⁽²⁾ The group met monthly and provided us with feedback and challenge throughout the project.

As with previous evaluations, the IEO's work was conducted at arm's length from local business areas, reporting directly to the independent Chair of Court.

(1) As with all IEO evaluations, external advisors were offered remuneration at the Bank's standard daily rate for senior external advisors.

(2) Members of the group included: Martin Taylor (FPC external member), Elisabeth Steeman (at the time a PRA Senior Advisor, and recently appointed FPC external member), Mark Yallop (PRC external member), and Paul Fisher (CCBS advisor, and former Deputy Head of the PRA). Other senior officials from the Bank of England included: Chris Salmon (Executive Director, Markets), Andrew Hauser (Executive Director, Banking, Payments and Financial Resilience), Rommel Pereira (Executive Director, Finance), Martin Stewart (Director, UK Deposit Takers), Sarah John (Head of Sterling Markets Division), Nathaniel Benjamin (Head of Financial Risk and Resilience Division), Tim Taylor (Senior Advisor, Markets), and Jonathan Grant (Head of Legal, Markets, Banking and Notes, Legal Directorate).

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