BANK OF ENGLAND

Financial Market Infrastructure

Annual Report

The Bank of England's supervision of financial market infrastructures

4 December 2020 – 14 December 2021

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The Bank of England's supervision of financial market infrastructures

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Presented to Parliament pursuant to section 203B of the Banking Act 2009, paragraph 33 of Schedule 17A to the Financial Services and Markets Act 2000 (FSMA) and Regulation 25 of the Central Counterparties (Amendment, etc, and Transitional Provision) (EU Exit) Regulations 2018.

14 December 2021

(1) Please note, references to '2020/21' in this Report should be taken as referring to this reporting period.

Foreword

Jon Cunliffe
Deputy Governor, Financial Stability

The financial market infrastructure firms (FMIs) supervised by the Bank of England (the Bank) are critical to the smooth operation of the UK financial system. They are used every day when we make payments to and from our bank accounts or buy goods and services, and they also play a key role in helping financial market participants manage risk. The UK is also a global financial centre and the smooth and safe operation of UK FMIs is also critical in a global context. The Bank's supervision of FMIs aims to ensure that they have the risk management and resilience to carry out these vital roles in good times and in bad. It is central to the Bank's overarching mission to maintain monetary and financial stability in the UK.

Over the past year, the Bank's supervision of FMIs has continued to contribute significantly to the Bank's delivery of its objective to protect and enhance UK financial stability. This Report sets out the key things we have done to deliver this objective in three key areas: robust supervision of FMIs and targeted enhancements to the supervisory frameworks, continuing innovation in payments, and new supervisory powers for non-UK FMIs following the UK's withdrawal from the European Union (EU).

Over the year, the Bank has continued to deliver robust supervision of FMIs, including through the use of the Bank's formal statutory powers. We have also made some targeted enhancements to supervisory frameworks. These include publishing policy statements on FMI operational resilience, commencing the first UK stress test of central counterparties (CCPs), and working with HM Treasury (HMT) to reinforce the framework for CCP resolution by bringing this into closer alignment with international standards.

The pace of technological innovation in payment systems has continued to change how we pay for goods and services. Increases in online sales and decreases in transactional use of cash have continued, with the shift away from cash increased as a result of Covid-19 (Covid) impacts. In addition the payments landscape has seen the entry of an increasing number of non-bank payment service providers with a variety of business models. The Bank has been taking steps to ensure that risks associated with these developments are fully encompassed by the regulatory framework. As part of this effort the Bank published a discussion paper on new forms of digital money. The Bank continues to be at the forefront of work to ensure that domestic and international regulatory frameworks reflect innovation in the payments landscape.

The transition period following the UK's withdrawal from the EU ended on 31 December 2020. From the start of 2021, the Bank has taken on a number of FMI-related powers and responsibilities formerly exercised by EU authorities. Among these responsibilities is the responsibility to evaluate applications for recognition submitted by non-UK FMIs which are providing services in the UK. This year the Bank has consulted on its framework for recognising non-UK CCPs, published its approach to oversight of non-UK law systems designated under settlement finality regulations and will soon consult on an approach to oversight of non-UK central securities depositories (CSDs). In carrying out these new functions, the Bank seeks to ensure that significant risks to cross-border provision of services by FMIs are mitigated.

The Bank has continued to be a substantial contributor to a broad range of international FMI policy workstreams designed to make FMIs more resilient and less likely to amplify risks during episodes of volatility. For example, the Bank has made significant contributions to the work of the Committee on Payments and Market Infrastructures (CPMI), which I currently chair, including progressing the development of international standards for FMIs, including the regulatory response to 'stablecoins' and taking forward the G20 programme of reforms to improve cross-border payment services. The Bank has contributed significantly to the CPMI-IOSCO led work examining the use of margin in the financial market volatility episode of March 2020. This international work helps reduce risks to financial stability arising from FMIs. The international co-operation agreements we have established facilitate deep supervisory co-operation, ensuring clear and stable reciprocal arrangements for supervising cross-border FMIs.

This Report demonstrates that the Bank has continued to supervise UK FMIs effectively as the economy and financial markets begin to emerge from the pandemic. Continued effective and rigorous FMI supervision is critical to ensuring financial stability now and into the period ahead.

14 December 2021

Contents

1 Why does the Bank supervise financial market infrastructure firms (FMIs)?

FMIs form the backbone of the financial system – consumers use them every day, often without realising.
FMIs play a crucial role in the financial system, yet many consumers are unaware of their operations and significance. By providing services that allow businesses and individuals to transact safely with one another, FMIs underpin financial stability. The heavy reliance of individuals, businesses and financial institutions on the continuity of these services means that small disruptions could set off a chain of reactions, impacting the wider financial system. As such, the Bank's supervision of FMIs is aimed at ensuring that they can continue to provide their services to the economy, both in good times and in bad, by being resilient and reliable.

The FMIs that the Bank regulates fall into three broad categories: payment systems, central securities depositories (CSDs) and central counterparties (CCPs).
CCPs sit between buyers and sellers of financial contracts so that both parties hold the contract with the CCP rather than with each other. This ensures that both obligations of a trade are fulfilled even if one party fails, thus reducing counterparty credit risk. CSDs keep ownership records of individual securities and facilitate the secure transfer of these securities between people or entities. Payment systems are entities that enable payments to be transferred and settled across an infrastructure according to a set of predetermined multilateral rules. They allow funds to be transferred between businesses and individuals, and from business-to-business and individual-to-individual, and they are used for many day-to-day transactions.

The interconnected nature of FMIs means their resilience is key to maintaining financial stability.
By their nature, FMIs are greatly interconnected with the wider financial system. They simplify the complex web of exposures between parties and make financial transactions more efficient and secure than if they were to take place bilaterally, hence enhancing the resilience of the financial system. Additionally, they encourage or require their members to take steps that reduce risks that are inherent in making transactions, further contributing to financial stability. Their central role in the financial system, paired with the reliance that their members place on them on a day-to-day basis, means that any challenges to their continuity can impact the ability of people to transact in the real economy. Therefore, maintaining operational and financial resilience is crucial for FMIs so that they can continue to provide their critical services to the economy and support wider financial stability.

FMIs must be financially and operationally resilient in order to be able to absorb market and operational shocks.
Robust FMIs can contribute significantly to altering the structure of the financial network thereby improving its resilience. For example, central clearing of financial instruments can help reduce network complexity by interposing a CCP between the original counterparties to a trade.

FMIs can be exposed to sources of disruption which originate from within as well as those that emerge from the members that use them. These sources of disruption can give rise to financial and operational risks. A resilient FMI is one that can absorb shocks resulting from these risks rather than amplifying them. It has robust processes, systems and financial resources in place that allow it to withstand extreme events. It should be able to respond to and learn from disruptions to its operations that could potentially disrupt the fundamental payment, clearing and settlement services that they provide. Financial resilience ensures that FMIs can withstand shocks such as the failure of one or more members to fulfil their financial obligations to them and other participants. This requires the FMI to have sufficient financial resources in place. Meanwhile, operational resilience refers to the ability of firms, FMIs and the sector as a whole to prevent, respond to, recover and learn from operational disruptions. They manage operational risk with the help of tools such as business continuity and contingency planning, and by carefully considering the amount of disruption that can be tolerated in the event of an incident.

The Bank supervises FMIs as part of its mission to maintain financial stability in the UK.

The Bank has legal powers to supervise FMIs, including with respect to their safety and resilience to risks, both financial and operational, which could lead to financial instability. This supervision takes place within the context of wider FMI-related policymaking which contributes to developing the regulatory framework and clear supervisory expectations for FMIs.

The FMIs and specified service providers supervised by the Bank and the functions they perform:

Table A: The FMIs and specified service providers supervised by the Bank and a non-exhaustive selection of their functions

Central counterparties (CCPs)	Central securities depositories (CSDs)	Payment systems	Specified service providers
ICE Clear Europe (Exchange-traded derivatives and over the counter (OTC) credit default swaps)	Euroclear UK & International (EUI)[a] (Securities transactions)	Bacs (Paying bills, receiving benefits/ pensions/salaries)	Vocalink (Technology service provider for some payment systems and ATM switching platforms)
London Clearing House (LCH) (Repos, listed, and OTC derivatives and securities)		CHAPS[b] (High-value sterling payments, cross-border sterling payments, house purchases)	
London Metal Exchange (LME) Clear (Listed metals contracts)		CLS (High-value FX transactions)	
		Faster Payments Service (FPS) (Internet, mobile, and telephone banking payments)	
		LINK (Withdrawing cash)	
		Visa Europe (Paying for goods/services)	
		Mastercard Europe[c] (Paying for goods/services)	

(a) On 1 September 2021, Euroclear UK & Ireland Ltd changed its name to Euroclear UK & International Ltd.
(b) The Bank's FMI supervisory area continues to supervise the CHAPS system to the same standard as recognised payment systems even though it was derecognised in December 2017.
(c) Mastercard came within the Bank's supervision on 21 October 2021.

2 What is the Bank's approach to supervising FMIs?

The Bank's supervision of FMIs contributes to its mission to promote the good of the people of the UK by maintaining monetary and financial stability.

The Bank seeks to ensure that the FMIs it regulates reduce systemic risk by:

(a) avoiding disruption to the vital payment, settlement and clearing services they provide to the financial system and real economy;

(b) avoiding actions that have an adverse impact on the safety and soundness of their members, subject to preserving the resilience of the FMI; and

(c) contributing to identifying and mitigating risks in the end-to-end process of making payments, clearing and settling securities transactions, and clearing derivatives trades.

Where necessary to achieve (a), the Bank additionally regulates certain other firms with regard to the critical services they provide to the FMIs it regulates. The Bank's approach has an international as well as a domestic perspective. This recognises that some of the FMIs it regulates are important in other jurisdictions, and that disruptions to their services internationally may impact monetary and financial stability.

The Bank supervises FMIs within a legal and regulatory context that is set at the UK and international levels.

The Bank's supervisory approach is based on, and consistent with, the Principles for Financial Market Infrastructures (PFMI) developed by the Committee on Payments and Market Infrastructures (CPMI) and the International Organization of Securities Commissions (IOSCO). The Bank is an influential member of the CPMI, an international standard-setting body composed of central banks. The Bank's Deputy Governor for Financial Stability, Jon Cunliffe, is currently the chair of the CPMI. The PFMI set international standards for FMI regulation in areas such as governance arrangements, financial resources, and the management of certain types of risk. The Bank regulates FMIs in accordance with a statutory framework which includes the Banking Act 2009, the Financial Services and Markets Act 2000 and retained EU law, such as the European Market Infrastructures Regulation (EMIR)(1) and Central Securities Depositories Regulation (CSDR).(2)

The Bank takes a forward-looking and judgement-based approach to supervision of FMIs to identify and address risks.

It uses a supervisory risk assessment framework to identify risks to which FMIs may be exposed and assess the measures that FMIs have in place to guard against those risks. The framework includes the FMIs' internal and external risk exposures, and three broad categories of mitigants to address those risks:

(a) operational mitigants, such as disaster recovery plans, governance arrangements and their risk management and control functions;

(b) financial mitigants, such as sufficient collateral, capital and liquid resources; and

(c) their plans to ensure recovery and resolvability if the risks to which an FMI was exposed crystallised to such an extent that its continued operation is threatened.

The Bank's supervisory framework includes periodic assessments, core assurance reviews, and third party reviews.

The Bank conducts a periodic assessment for each FMI it regulates, from which it sets actions that it expects the FMI to take to address its risks (known as 'Priorities'). These assessments are informed by a continuous cycle of supervisory engagement and a programme of core assurance reviews. In addition, the Bank has powers to commission reviews into supervisory topics by third party experts.

(1) Regulation (EU) No. 648/2012 of the European Parliament and of the Council of 4 July 2012 on OTC derivatives, central counterparties and trade repositories as it forms part of retained EU law. Unless otherwise stated, any references to EU or EU-derived legislation refer to the version of the legislation which forms part of retained EU law.
(2) Regulation (EU) No. 909/2014 of the European Parliament and of the Council of 23 July 2014 on improving securities settlement in the European Union and on central securities depositories as it forms part of retained EU law. Unless otherwise stated, any references to EU or EU-derived legislation refer to the version of the legislation which forms part of retained EU law.

The Bank co-operates closely with domestic counterparts.

The Bank co-operates with the Financial Conduct Authority (FCA) and Payment Systems Regulator (PSR) regarding market infrastructure and payment systems respectively. This facilitates effective supervision and policymaking by ensuring that information is shared appropriately and promotes efficiency by minimising duplication. The frameworks for co-operation are set out in Memoranda of Understanding (MoUs). The Bank's MoU with the Prudential Regulation Authority (PRA), FCA and PSR in relation to payment systems in the UK is reviewed annually. A further review is currently underway, and a summary of the review will be published in 2022 H1. The Bank also has a MoU with the FCA in relation to supervision of markets and market infrastructure, with the most recent review published in February 2021.(1) This MoU is also currently being reviewed as part of an annual process.

International co-operation is a fundamental component of the Bank's supervisory approach, reflecting the cross-border nature of FMIs.

The Bank recognises the importance of working in close co-operation with counterpart regulators where FMIs are licensed in multiple jurisdictions to avoid overlap and to share priorities. It has supervisory colleges for each of its CCPs to ensure appropriate arrangements are in place for cross-border supervisory co-ordination. Since the end of the transition period following the UK's withdrawal from the EU, members of former European Securities and Markets Authority Colleges have been given the opportunity to be included in the relevant Global Colleges. The Bank is also establishing a supervisory college for Visa Europe, applying the same fundamental principles of effective international cooperation to the supervision of a systemically important card system.

The Bank was the first authority to establish Crisis Management Groups for CCPs to provide a framework for authorities to plan crisis management measures (including orderly resolution) for FMIs that are judged to be systemically important in more than one jurisdiction.

The Bank actively participates in international oversight forums for other systemically important FMIs. The Bank's FMI supervisory and policy teams also contribute to international FMI-related committees and working groups, such as those hosted by the G20, Financial Stability Board (FSB) and the Bank for International Settlements, including the CPMI.

The Bank's international co-operation is supported by MoUs that the Bank has concluded with a wide range of international jurisdictions, allowing the Bank to draw on the expertise and perspectives of relevant international authorities.

The Bank's exercise of powers in relation to FMIs is undertaken by the FMI Board.

The FMI Board is an executive committee constituted by the Governor(2) to exercise the Bank of England's powers in relation to the three main types of FMI overseen by the Bank (namely, recognised central securities depositories, recognised clearing houses and recognised payment systems/specified service providers to those payment systems). The Board plays a vital role in oversight of the Bank's financial market infrastructure policy and supervision and, through this, helps support the Bank's statutory objective to protect and enhance UK financial stability. The Board is chaired by the Deputy Governor for Financial Stability, Sir Jon Cunliffe. In addition to senior executives from across the Bank, including the Executive Director for FMI, the Board includes three external members appointed by the Governor. The external members are currently Julia Black, Elisabeth Stheeman and Martin Pluves. Decision-making authority is vested with the Board itself (rather than any individual).(3) Decisions by the Board are reached by consensus wherever possible (or otherwise by vote). Where the Bank is exercising certain functions including making technical standards, these must be exercised by the Board and cannot be delegated.

The Bank has assumed new responsibilities as a result of EU withdrawal.

Since the end of the transition period following the UK's withdrawal from the EU, certain regulatory responsibilities previously exercised by EU authorities have been reassigned to the relevant UK authority. Responsibilities assigned to the Bank include defining the set of financial instruments subject to mandatory clearing in the UK and recognising non-UK FMIs seeking to provide services in the UK. The Bank has also been given the power to make technical standards under Section 8 of European Union (Withdrawal) Act 2018 (EUWA). Further information on the exercise of these powers is set out in Section 3.

(1) See Update on Bank of England and Financial Conduct Authority Memorandum of Understanding on the supervision of market infrastructure and payment systems.
(2) The Governor has reserved limited decisions to himself (including the decision to place an FMI into resolution/insolvency, to provide emergency liquidity assistance to an FMI or withdrawing authorisation/recognition from an FMI without the FMI's consent); the Governor can also be consulted on important decisions that would otherwise fall within the Board's remit (and resolve to take such decisions himself).
(3) In urgent circumstances the Deputy Governor for Financial Stability is entitled to take decisions with at least one independent member, and must inform the FMI Board and Governor.

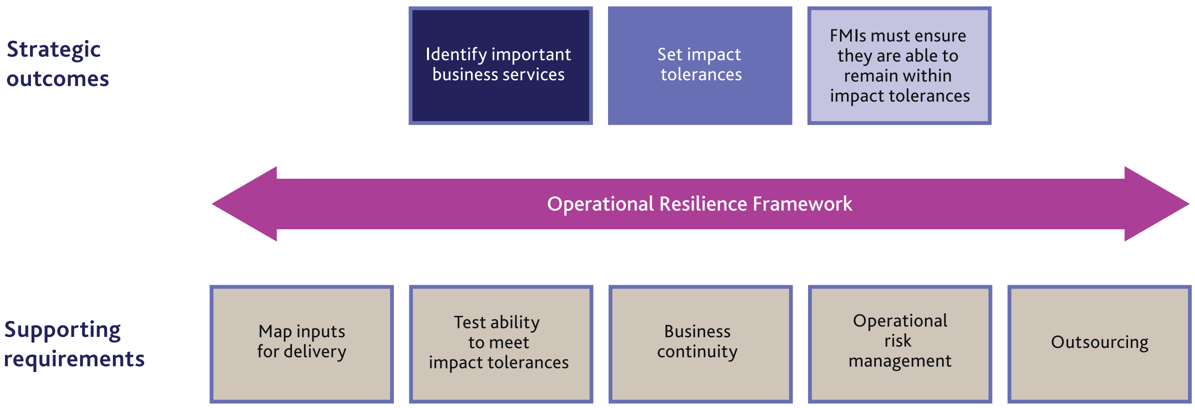
3 What have been the Bank's areas of supervisory and policy focus over the reporting period?

This year the Bank has delivered a number of important contributions to ensuring that FMIs contribute to greater financial stability in the UK. These contributions can broadly be divided into three key areas: delivering robust supervision of FMIs and targeted enhancements to supervisory frameworks, enhancing CCP resilience and recovery, and shaping the UK response to innovations in payments. Each of the key areas is examined more fully below.

3.1 Delivering robust supervision of FMIs and targeted enhancements to supervisory frameworks

Enhancing the operational resilience of FMIs.
Following extensive engagement with industry, and in co-ordination with FCA and PRA, the Bank published new policies for FMIs focused on achieving high standards of operational resilience.(1) These new policies, which come into force on 31 March 2022, make it clear that FMIs are expected to take ownership of their operational resilience and to prioritise plans and investment choices to protect the wider financial sector and UK economy from operational disruptions.

Figure A: Strategic outcomes and supporting requirements for the Operational Resilience Framework



Since publishing the policy statements, the Bank has been engaging closely with FMIs and monitoring their plans to implement the Bank's new policies, including firms identifying important business services, setting impact tolerances and ensuring that they can continue to deliver these services during severe but plausible scenarios.

Focusing on outsourcing and Cloud(2) based systems.
This year, a key priority for the Bank, as supervisor of FMIs, has been to focus on FMIs' cyber resilience and the increasing use of third party suppliers by FMIs, including the outsourcing of important business services to the Cloud. On 15 September, the Bank wrote to CCPs, CSDs payment systems and specified service providers setting out its expectations of FMIs in situations where FMIs outsource important business services to the Cloud.(3)

(1) See Bank of England policy on Operational Resilience of FMIs.
(2) The Cloud (cloud computing) is a model for enabling ubiquitous, convenient, on-demand network access to a shared pool of configurable computing resources (eg networks, servers, storage, applications, and services) that can be rapidly provisioned and released with minimal management effort or service provider interaction.
(3) See Letter to Central Securities Depositories (CSDs) in relation to material outsourcing to the public cloud and Letter to Recognised Payment System Operators (RPSOs) and Specified Service Providers (SSPs) in relation to material outsourcing to the public cloud.

Covid and FMI dividends.
The onset of Covid and the market volatility which followed this caused FMIs to face greater risks to their financial and operational resilience. It was therefore crucial that FMIs took steps to ensure the sufficiency of their financial resources to continue to provide their services to the wider financial system, and to absorb potential losses.

In light of this, the Bank wrote to the CEOs of UK FMIs in June 2020 concerning the distribution of profits.(1) The letter explained that when UK FMIs' boards were considering any distributions to shareholders or making decisions on variable remuneration, they should pay close attention to the additional risks and potential financial and operational demands arising from Covid, and to discuss any distributions to shareholders with the Bank in advance. This message was consistent with the PRA's March 2020 letter to the seven largest systemically important UK deposit-takers on the same topic. On 11 November 2021, FMIs received a letter from the Bank confirming that the Bank has returned to the approach for considering dividend payments which was in place prior to the Covid pandemic.(2)

The Bank granted Euroclear UK & International (EUI) its Central Securities Depositories Regulation (CSDR) licence in December 2020.
After extensive supervisory engagement since 2017, EUI submitted its final application for authorisation under CSDR in July 2020. Following a detailed assessment against the authorisation criteria and subject to consultations with relevant authorities, the Bank authorised EUI under CSDR and declared it to be a recognised central securities depository with effect from 8 December 2020.

The Bank has used its supervisory tools to maintain the resilience of FMIs, including issuing a power of direction to EUI following its September 2020 operational outage.
The Bank continues to use the range of supervisory powers at its disposal to deliver effective supervision. For example, the Bank has required firms to commission four 'skilled person'(3) or similar reviews during this reporting period. These reviews play an important role in supplementing the Bank's supervisory activities as they will provide deep and detailed analysis on particular issues. The commissioning of a third party review should not necessarily be interpreted as a sign that an FMI has failed to meet its regulatory requirements. Instead they should be seen as one of the tools the Bank regularly uses to assess risks and maintain financial stability. FMIs should continue to expect the Bank to use this tool regularly to probe specific areas in depth.

EUI, the UK CSD, suffered a settlement system outage on 11 September 2020 that caused notable market disruption.

Following the incident, EUI independently commissioned an external review into its causes. In light of the incident's serious and disruptive nature, and in recognising the importance of ensuring implementation of remedial actions, the Bank issued a direction under section 191 of the Banking Act 2009 requiring EUI to implement the recommendations of the independent reviewer. The Bank is using its powers under section 166 of the Financial Services and Markets Act 2000 to require EUI to appoint a skilled person to assess the implementation of the recommendations; this will report in 2022.(4)

3.2 Enhancing CCP resilience and recovery

The Bank published a discussion paper on CCP supervisory stress testing and launched its first supervisory stress test of CCPs.
The Bank intends to use CCP supervisory stress testing as a key mechanism through which to undertake assessment of the resilience of individual CCPs and the broader resilience of the clearing network. Reflecting this, the Bank published a discussion paper in June 2021(5) setting out its intention to develop a public regime for CCP supervisory stress testing. This discussion paper sets out a range of proposals and options for the design of the Bank's CCP supervisory stress testing regime, and the Bank is keen to gather feedback from a broad range of stakeholders.

(1) See Letter from Sir Jon Cunliffe to FMIs.
(2) See Letter from Sir Jon Cunliffe to firms,
(3) Paragraph 12 of Schedule 17A to the Financial Services and Markets Act 2000 and section 195 of the Banking Act 2009.
(4) See Bank of England announces supervisory action over Euroclear UK and Ireland September 2020 operational settlement outage.
(5) See Supervisory Stress Testing of Central Counterparties.

The Bank also launched its first public CCP supervisory stress test this year, which is due to complete in 2022. This test is exploratory in nature, and will be used to explore the credit and liquidity resilience of UK CCPs. This exercise will include the clearing services of all three UK authorised CCPs and also include a reverse stress-testing component in an attempt to identify combinations of assumptions that are sufficiently severe to deplete CCP resources beyond normally acceptable levels.

The Bank has amended the scope of the clearing obligation to reflect changes in market activity as a result of interest rate benchmark reform.

The Bank published a Consultation Paper in May 2021 that proposed to remove from the clearing obligation contracts that reference interest rate benchmarks that are being discontinued by January 2022[1] and replace them with overnight index swaps (OIS) that reference the replacement near risk-free reference rate (RFR) benchmarks selected for each currency. After considering the responses received to the consultation, the Bank published a policy statement in September finalising the amendments to the clearing obligation as consulted on. This policy statement includes the final UK Technical Standards instrument that implements the amendments.

In the absence of a single replacement RFR benchmark for JPY Libor at the time of publication, the Bank did not propose to add any replacement contracts to the clearing obligation for those referencing JPY Libor in the Consultation Paper published in May. However, following a number of announcements by the Japanese authorities selecting TONA[2] as the primary replacement RFR, the Bank published a further Consultation Paper in September that proposed to add TONA OIS to the clearing obligation. The Bank published a policy statement related to this in early December.[3]

The changes made to the scope of the clearing obligation represent the Bank's first uses of its new power to make technical standards under Section 8 of EUWA. The changes have been implemented through amendments to Commission Delegated Regulation (EU) 2015/2205 of 6 August 2015 supplementing Regulation (EU) No. 648/2012 of the European Parliament and of the Council on OTC derivatives, central counterparties and trade repositories with regard to regulatory technical standards on the clearing obligation.[4] [5]

The Bank has continued to focus on CCP recovery and resolution, consulting with HMT on its proposals to expand the UK CCP resolution regime for CCPs.

In February 2021, following substantial engagement and co-ordination with the Bank, HMT published a Consultation Paper[6] containing proposals to expand the UK CCP resolution regime for CCPs. The proposed regime is designed to bring the UK's current CCP resolution regime, introduced before the development of international standards in this area, into full alignment with the latest FSB guidance, given the UK's commitment to engage in the development of international standards and to implementing them when agreed.

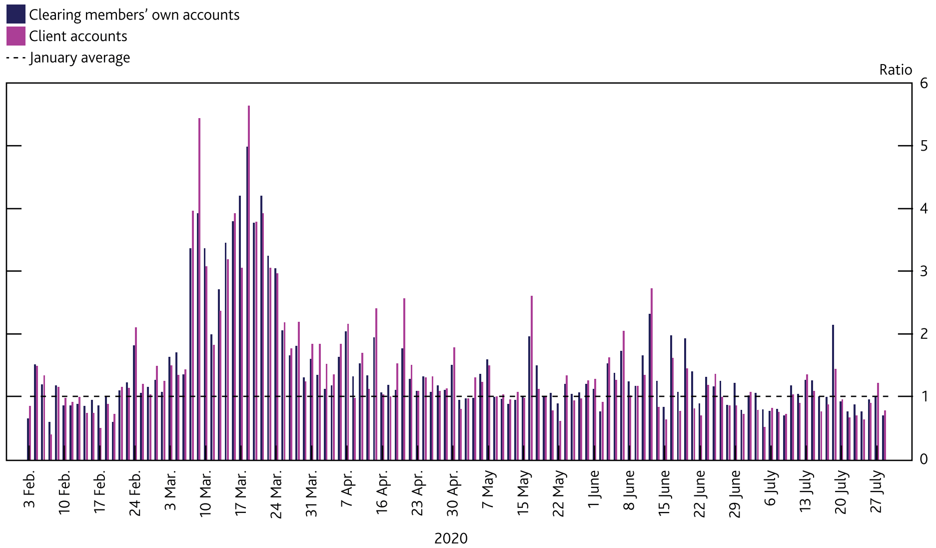
The proposed expanded CCP resolution regime will give the Bank additional powers to mitigate the risk and impact of a CCP failure and the subsequent risks to financial stability and public funds. These new powers will help the Bank to maintain financial stability by enabling the Bank to take full control of a CCP and use a number of tools without reliance on the CCP's rulebook when a CCP is considered to be failing, likely to fail, or where there is a risk to financial stability. This would mean the Bank could take faster and more extensive action to stabilise the CCP than is possible at present. These powers would also limit risks to public funds by ensuring CCPs and clearing members ultimately bear the losses arising from a CCP failure, rather than taxpayers, while still stabilising the CCP, preventing contagion and providing reassurance to the market. Of crucial importance will be a new safeguard that will protect CCP shareholders, creditors and clearing members, by ensuring they are compensated should they be left worse off in resolution than they would have been had resolution action not been taken and had proceeds and losses from the failed CCP been distributed in accordance with any applicable loss allocation arrangements the CCP has, followed by application of general insolvency rules. This safeguard incentivises the Bank to ensure it carries out its resolution actions responsibly.

The consultation period ended in May 2021. HMT, alongside the Bank, are currently analysing the feedback received.

(1) As part of the wider interest rate benchmark reform.
(2) Tokyo Overnight Average rate.
(3) See Derivatives clearing obligation – introduction of contracts referencing TONA: Amendment to BTS 2015/2205.
(4) See Bank standards instrument: the technical standards (clearing obligation) instrument 2021.
(5) See Bank standards instrument: the technical standards (clearing obligation) (no. 2) instrument 2021.
(6) See Expanded Resolution Regime for Central Counterparties (CCP): consultation.

The Bank continues to play a leading role in international work on CCP margin.
CCPs performed well during the periods of Covid-related market volatility in 2020. The increased use of CCPs for clearing of OTC derivatives products in recent years helped mitigate counterparty risks. However, margin calls in some derivatives markets during the peak of the March 2020 turmoil may have been larger than expected or insufficiently anticipated by market participants, adding to the overall demand for cash and prompting concerns about excessive CCP margin procyclicality. While margin requirements are designed to increase in stress to increase protection in the system, this should not be more procyclical than warranted and market participants need to be prepared to meet those demands.

Chart 1: CCP margin calls grew significantly in response to market volatility
Variation margin on centrally cleared derivatives, as a ratio to the January average



Source: Bank of England supervisory returns.

At the request of the G20, and as part of the FSB's work programme on non-bank financial intermediation, the Bank is co-chairing an international workstream formed jointly under the Basel Committee on Banking Supervision (BCBS), CPMI and IOSCO to review margining practices during the early stage of the pandemic. This work includes analysis of margin calls in cleared and uncleared markets during March and April 2020, the drivers of these calls, a review of margin practice transparency and predictability across markets and analysis of liquidity management preparedness by market participants.

Drawing on the findings of this work, a consultation report proposing potential areas for further work to inform policy considerations was published on 26 October.[1] These proposals include further work to evaluate the responsiveness of cleared IM models to market stresses, evaluate the responsiveness of uncleared IM models to market stresses, and to streamline variation margin processes in cleared and uncleared markets. The consultation report also sets out proposals for further work to increase transparency in cleared markets, enhance liquidity disclosures and liquidity preparedness of market participants, and to identify data gaps in regulatory reporting.

The Bank's Financial Policy Committee (FPC) noted in its July 2021 *Financial Stability Report* that it supports international work to assess whether there was more procyclicality in margin calls than was warranted, whether market participants were prepared for margin calls in a stressed episode, and any consequent need for policy changes in light of this, without compromising the benefits of the post-global financial crisis margining reforms.[2]

(1) See Review of margining practices.
(2) See Assessing the resilience of market-based finance.

3.3 Shaping the UK's response to innovations in payments

The Bank has continued to make progress towards the regulation of 'stablecoins'.
In January 2021, HMT issued a public consultation on the UK's regulatory approach to crypto-assets and stablecoins used for payments.(1) The consultation proposes establishing an FCA authorisation regime capturing key activities to mitigate consumer, prudential and market integrity risks. It also proposes making changes to enable the Bank (and PSR) to regulate systemically important stablecoin payment systems as well as other stablecoin service providers that have the potential to be systemic. The latter could include, for example, issuers and wallet providers, following HMT designation (and/or recognition) to mitigate stability and competition risks.

The consultation proposes that stablecoin arrangements that reach systemic scale should be regulated by the Bank under existing systemic payment system and service provider regulation which is grounded in the PFMI. The consultation notes that by building on the PFMI the Bank's approach to systemic stablecoin arrangements will help ensure delivery of the UK FPC's expectations for stablecoins which were set out in the December 2019 *Financial Stability Report*.

This year the Bank laid further groundwork for the regulation of stablecoins. In June, the Bank published a discussion paper setting out its emerging thoughts on new forms of digital money.(2) The paper examined existing forms of money and their uses, and considered how new forms of digital money, such as systemic stablecoins and central bank digital currencies, might come to be widely used for payments. The Bank set out analysis on the risks to financial and monetary stability of deposits moving from the banking sector into new forms of digital money, including potential impacts on banks' funding costs and credit availability.

The paper reiterated the FPC's expectations that systemic stablecoins ensure that holders are offered equivalent protections to commercial bank money, and sets out possible regulatory options for systemic stablecoins to achieve this, drawing on key elements of existing payments and banking regimes. The feedback window on the discussion paper closed in September 2021 and the Bank is currently analysing the responses to inform the ongoing development of the regulatory framework for stablecoins, subject to the outcome of HMT's legislative consultation.

The Bank has also played a key role in CPMI-IOSCO work designed to ensure international standards for payment systems reflect innovation in the payments landscape. This work led to the CPMI-IOSCO consultative report(3) on the 'Application of the PFMI to stablecoin arrangements' that provides guidance as to how the existing PFMI apply to stablecoin arrangements. The guidance emphasises that systemic stablecoin systems that are used to transfer funds – for example to pay for goods and services or repay debts – must adhere to the PFMI just like existing systemic payment systems. The guidance also clarifies that stablecoins can only be used to settle transactions if they meet the same high standards we expect of the money used for settlement today.

More broadly, the Bank has been collaborating with global standard setting bodies on cross-border payments.
Following the launch of the G20 roadmap to enhance cross-border payments last year, the Bank has continued to take a leading role in international bodies such as the CPMI and the FSB to support work on cross-border payments. This year Bank staff have supported Sir Jon Cunliffe, who co-chairs the FSB Cross-border Payments Coordination group in the continued development of the roadmap(4) and the development of targets addressing the challenges of cross-border payments.(5)

The Bank continues to monitor the development of the UK's New Payment Architecture programme.
The New Payment Architecture (NPA) programme is designed to provide increased assurance that the infrastructure supporting interbank payments will remain resilient in a fast-changing payments environment which includes evolving cyber-risks and market innovations. Pay.UK is currently designing and developing the NPA programme, which aims to replace the current Faster Payments Scheme (FPS) and then, in due course, the BACS system.

(1) Ending on 21 March 2021.
(2) See New forms of digital money.
(3) See Application of the principles for financial market infrastructures to stablecoin arrangements.
(4) See G20 Roadmap for enhancing cross-border payments: First consolidated progress report - Financial Stability Board (fsb.org).
(5) See Report on Targets for Addressing the Four Challenges of Cross-Border Payments: Overview of the responses to the consultation.

The Bank expects a payment system operator, such as Pay.UK, to ensure that any new infrastructure continues to deliver payment services in a robust, resilient and secure manner. The payment system operator will need to ensure a robust approach to migration to the new infrastructure that minimises risk of discontinuity or degradation in service. And the Bank expects the operator to put in place arrangements which enable it to appropriately manage the payments ecosystem and to exercise robust oversight of out-sourced service providers.

The Bank expects firms to consider these outcomes at all stages of the development process from design through to delivery and it will assess the infrastructure projects at key decision points. The Bank's supervisory approach to the NPA includes cross-Bank co-ordination, to ensure that the infrastructure renewal project does not reduce financial stability and confidence in the financial system, whilst also working alongside the PSR to ensure that the design and development of the NPA programme aligns with our objectives.

Elsewhere in the payments arena, HMT specified Mastercard Europe as a recognised payments system under the Banking Act 2009.

Alongside its supervision of recognised payment systems, the Bank performs a horizon scanning role to assess unrecognised payment systems against the recognition criteria, and to determine their importance to UK financial stability. This analysis is discussed at periodic meetings with HMT, which may then decide to recognise any additional payment systems. On 21 October 2021, and in line with analysis and advice provided by the Bank, HMT issued a recognition order specifying Mastercard Europe as a recognised payment system subject to the Bank's supervision in accordance with Part 5 of the Banking Act 2009 in light of its importance to UK financial stability. Recognised payment systems are supervised by the Bank under the Banking Act 2009, which provides us with a set of supervisory tools. For recognised payment systems, we have adopted the global standards drawn up by central banks and securities market regulators in the CPSS/IOSCO principles for FMIs.

Mastercard Europe is domiciled in Belgium and is subject to joint lead oversight by the European Central Bank (ECB) and National Bank of Belgium (NBB). As a result of HMT's recognition order, the Bank will act as a host supervisor of the firm and is seeking to put in place co-operation arrangements with ECB and NBB, the firm's home authorities.

Box A
Ensuring FMIs remain resilient to cyber risks

The Bank conducted its second cross-FMI review assessing the adequacy of FMIs' current cyber-security arrangements.

The review provided a full assessment of the maturity of FMIs' cyber-security capabilities and also assessed their progress towards implementing enhancements identified in a previous 2018 thematic review. Recognising the additional challenges posed to FMIs' cyber-security arrangements arising from the ongoing Covid pandemic, the Bank also received guidance from the National Cyber Security Centre (NCSC) to better understand cross-FMI sector threat themes. These were based on NCSC's published best practice guidance for Distributed Denial of Service (DDoS) and Remote Working, which pose potential Finance Sector and National Resilience risks.

The cyber review defined six cyber capability functions which are used to organise cyber-security activities undertaken by FMIs. This was based on the National Institute of Standards and Technology Framework for Improving Critical Infrastructure Cyber-security, with two additional areas of focus added: Governance, and Situational Awareness.

1. **Governance**: FMIs putting in place arrangements to establish, implement and review their approach to managing cyber-security risks.
2. **Identification**: development of an organisational understanding to manage cyber-security risk to systems, people, assets, data and capabilities.
3. **Protection**: development and implementation of appropriate safeguards to ensure delivery of critical services.
4. **Detection**: development and implementation of appropriate activities to identify the occurrence of a cyber-security event.
5. **Recovery and resolution**: development and implementation of appropriate activities to take action regarding a detected cyber-security incident, and maintenance of plans to restore any capabilities or services that were impaired due to a cyber-security incident.
6. **Situational awareness**: development of FMIs' understanding of the cyber threat environment in which they operate.

Overall, the majority of FMI responses indicated that firms have continued to implement enhancements to their cyber-security controls since the last cross-FMI cyber resilience review in 2018, either as incremental improvements and/or to address specific areas of weakness. The majority of FMIs also confirmed that they have appropriate protections in place to mitigate the risks associated with staff utilising devices remotely, complete with risk mitigation measures in place to minimise the likelihood and potential impact of a DDoS attack on their critical systems.

The Bank has provided feedback to each FMI and will continue to assess firms' progress. These supervisory discussions are helping to determine the scope of future cyber resilience reviews.

4 What are the Bank's future priorities?

Looking ahead, the Bank will continue to develop its approach to FMI supervision and will adapt its supervisory priorities as necessary to achieve the Bank's financial stability objective. The Bank is a world-leading FMI regulator and supervisor, and remains committed to maintaining a standard of resilience at least as high as those currently in place while working closely with international counterparts.

As a guiding principle, the Bank will continue to enhance the robust FMI regulatory framework while adhering to international standards.

The Bank will continue to champion open markets while maintaining high prudential standards. We believe that by choosing not to take actions which could distort established cross-border markets or damage important links between clearing members, regulators lessen the risk of market fragmentation. Such fragmentation can lead to smaller liquidity pools in CCPs and reduce the ability of market participants to diversify risks, thereby diminishing resilience. The resulting higher costs could reduce the incentives to hedge risks, increasing the amount of risk that the real economy would have to bear. The Bank will continue to ensure the 'safe openness' of financial market infrastructure (that is, recognising the many benefits of an open financial sector, subject to high standards of resilience) consistent with the Bank's steadfast commitment to supervisory co-operation and, where appropriate, informed reliance on other supervisors. This approach is an important element of maintaining financial stability given the global interconnectivity of FMIs.

The Bank's work in the period ahead will build on the key areas discussed in Section 3 above: Delivering robust supervision of FMIs and targeted enhancements to supervisory frameworks, Enhancing CCP resilience and recovery, Shaping the UK response to innovations in payments. In addition the Bank will implement its approach to supervising cross-border FMIs. These areas are addressed in turn.

4.1 Delivering robust supervision of FMIs and targeted enhancements to supervisory frameworks

The Bank will continue to promote FMIs' financial and operational resilience.
The Bank will continue engaging closely with FMIs, monitoring developments that could present new or increasing risks, and overseeing the effectiveness of FMIs' risk and control frameworks in mitigating these financial and operational risks. The Bank has continued to update its supervisory approach by developing the Bank's risk assessments, risk reviews and oversight of firms' compliance with the PFMIs.

The Bank stands ready to act as necessary to mitigate emerging risks and support financial stability, strengthen FMIs' accountability and it will adapt its supervisory priorities as appropriate to achieve its objectives. Over a longer time horizon, the Bank has a number of further priorities to enhance its framework for FMI supervision, including:

- Continuing to develop the Bank's approach to supervising operational resilience, including to the new standards coming into force in April 2022 and reviewing their implementation in order to identify areas for greater focus and improvement.
- A focus on the role of third party providers in the provision of critical services by FMIs, with a particular focus on interdependencies and maintaining operational resilience.
- A planned consultation on its proposed expectations and policies for FMIs on outsourcing, with specific reference to the use of Cloud.

HMT has proposed increasing the Bank's supervisory toolkit by establishing a Senior Manager's and Certification Regime (SM&CR) for FMIs.
In July 2021, HMT published a Consultation Paper which proposes to establish a SM&CR for FMIs. If run the same way as it has established such regimes for banking and insurance, this would include the following features:

- **Senior managers regime**: this would give the Bank powers to determine whether individuals who perform key functions in an FMI pose a potential risk to financial stability or to the continuing functioning of the FMI have the appropriate competence, expertise and probity to carry out their roles. It would require firms to document the scope of these individuals' responsibilities and would establish a statutory requirement for senior managers to take reasonable steps to prevent and/or stop regulatory breaches in their areas of responsibility.

- **Certification regime**: under this regime, FMIs would need to certify that any individual who performs a 'specified function' that could cause significant harm to the FMI or its users is fit and proper, both on recruitment and annually thereafter.

- **Conduct rules**: these would give the Bank new powers to set conduct rules for FMIs' employees, setting minimum, high-level requirements regarding the conduct of individuals, where necessary or expedient to advance the Bank's financial stability objective.

The Bank would also have appropriate enforcement powers in relation to the SM&CR for FMIs. The proposals would apply to CCPs, CSDs, recognised payment systems and specified service providers.

HMT's proposals would help the Bank ensure that individuals in key positions of influence within FMIs are fit and proper and ensure that they are accountable – helping to underpin the resilience of FMIs. HMT's consultation closed on 22 October 2021 and HMT is considering the responses received in co-ordination with the Bank. The Government intends to legislate for this new regime when parliamentary time allows.

The Bank will continue to promote good risk management, better decision-making and greater innovation by promoting diversity and inclusion in the FMI sector.
The Bank as FMI regulator along with the PRA and FCA believe that diversity and inclusion at regulated firms is a key factor driving firms' quality of management, working culture and decision-making. The Bank, PRA and FCA have therefore been keen to hear from industry about how the above authorities can drive meaningful improvements to firm diversity and inclusion. In July 2021, the Bank, PRA and FCA published a joint Discussion Paper on Diversity and Inclusion seeking firm views on this. And to be able to ascertain the data gaps in firms' capture of diversity data, the Bank sent a voluntary data survey to FMIs in October 2021. The Bank will continue to evaluate the responses to the Discussion Paper and the results of this survey in the period ahead as part of its consideration of how to develop proposals to promote diversity and inclusion at FMIs.

4.2 Enhancing FMI resilience and recovery

The Bank will conclude its first supervisory stress test of UK CCPs and further develop its CCP supervisory stress testing framework.
The Bank will publish the findings from its first public CCP supervisory stress test in the summer of 2022. The findings from this exercise will inform the Bank's assessment of the resilience of UK CCPs and the wider UK clearing network, and any resulting supervisory actions where appropriate. In conjunction with feedback on the Bank's discussion paper on CCP supervisory stress testing, the findings from this exercise will also be used to inform the further development of the Bank's framework for CCP supervisory stress testing.

HMT is considering conferring further powers on the Bank as part of its Future Regulatory Framework review.
HMT's Future Regulatory Framework review considers how the regulatory framework for financial services needs to adapt to be fit for the future, and to reflect the UK's position outside of the EU. In November 2021, HMT published a consultation indicating that it was considering whether the Bank should gain significant powers previously exercised by EU authorities to make binding rules for CCPs and CSDs. This is necessary for the Bank to replicate in its own rules some regulatory requirements for firms which are currently in retained EU law, but also to ensure that these requirements keep pace with emerging risks and international standards. HMT is currently considering the appropriate framework for the exercise of these powers, and the Bank will continue to engage constructively with HMT and others on this issue.

The Bank will continue to keep the scope of the clearing obligation under review, including by monitoring developments in benchmark transition in the USD interest rate derivatives markets.
The Bank published policy statements in September and December 2021 finalising changes to the clearing obligation to reflect interest rate benchmark reform in GBP, EUR and JPY interest rate derivatives markets. As the publication of the most widely used USD Libor settings will cease in June 2023, the Bank has not yet made any changes relating to the transition from USD Libor. However, as noted in both policy statements, the Bank will – in co-ordination with the CFTC, where possible – look to consult on changes to the clearing obligation relating to USD Libor contracts in 2022.

4.3 Shaping the UK's response to innovations in payments

Innovation in payments, including stablecoins, will remain a key area of focus.
The Bank will continue its work to ensure that innovative payments infrastructure is designed and implemented in a way that promotes the resilience of individual FMIs and the broader financial system. Having published its Discussion Paper on New Forms of Digital Money in June 2021, the Bank will now review responses to the Discussion Paper and will continue to work closely with HMT and other authorities to develop the UK approach to crypto-assets and stablecoins.

The Bank has also supported HMT's Payments Landscape Review, a review of payments networks in the UK, which was designed to better understand the rapidly changing payments ecosystem in which payment chains have become more complex as the payments sector has been opened up to competition. This coupled with technological developments has led to the emergence of new types of firms in payment chains and other innovations, such as stablecoins. Some of these firms could pose material risks to financial stability if their services were to be disrupted. The Bank welcomes HMT's commitment (in the recently published response to the Payments Landscape Review call for evidence) to consult in the first half of 2022 on expanding the Bank's regulatory remit to capture a wider range of systemic payment firms.

4.4 The Bank will continue to support international workstreams on payments and FMIs more broadly

The Bank will take a leading role in key international workstreams and co-ordinate closely with international counterparts on a wide range of topics related to FMI regulation.
On payments, the Bank will work closely on the next stage of work on the FSB's cross-border payments roadmap, and continue to help shape the international regulatory response to stablecoins, including within CPMI-IOSCO as well as co-ordinating with other international organisations like the FSB and other standard setting bodies. The Bank will also continue to contribute to the next phase of work arising from the BCBS-CPMI-IOSCO review of margining practices, the joint FSB-CPMI-IOSCO work on CCP financial resources, monitoring the implementation of the PFMI, and climate change related risks to FMIs.

Box B
Implementing an approach to the supervision and regulation of cross-border FMIs

The Bank is committed to supporting safe but open global markets for cross-border FMIs. This is reflected in its role of home supervisor of globally important UK FMIs as well as in its new role recognising non-UK ('incoming') FMIs that provide or intend to provide services in the UK.

Currently incoming FMIs can continue to provide services in the UK under a temporary recognition regime, until they are permanently recognised by the Bank. This provides confidence that UK firms can continue to access the services provided by these incoming FMIs without disruption.

Over 2021 the Bank has been developing its policy framework for post transition period recognition and oversight of incoming CCPs and CSDs. For CCPs, the UK has retained the EU framework for recognising incoming CCPs known as EMIR. The Bank is responsible for finalising the policy for implementing EMIR. The Bank is currently consulting on its approach to classifying individual incoming CCPs according to the level of systemic risk they could pose to UK financial stability, known as 'tiering'.(1) The Bank's proposed approach uses thresholds to triage potentially systemic CCPs and then subjects these CCPs to further assessment. Reflecting the Bank's commitment to safe openness in wholesale financial markets, the Bank proposes to consider the extent to which it is able to rely on home regulation and supervision of the incoming CCP through an 'informed reliance assessment' when making its final tiering determination. The Bank is also consulting on its proposed approach to assessing whether a CCP's compliance with the regulatory requirements in its home jurisdiction satisfies the relevant UK requirements ('comparable compliance') and will soon consult on its approach to setting fees for incoming CCPs.(2) The Bank will finalise its policy on implementation of EMIR in the UK in 2022 following feedback on its consultation papers.

As well as finalising the policy framework, the Bank will continue to progress work on the recognition process itself. There are several steps to permanent recognition of incoming CCPs and CSDs including a determination by HMT that the home-country regime is 'equivalent' to the UK's regime, establishing co-operation arrangements with the relevant national authority and an assessment that individual firms meet the relevant recognition requirements.

The Bank is also continuing to progress work on designation of cross-border FMIs under the UK's Settlement Finality Regulations. Systems that wanted to be designated after the transition period ended were required to submit an application for permanent designation by 30 June 2021. In addition, in September 2021, the Bank published its approach to oversight of non-UK law designated systems.(3) We will continue to assess these applications over the coming year.

For UK CCPs, the Bank will continue to work closely with other authorities to ensure cross-border co-operation remains effective. This includes embedding and enhancing its global supervisory colleges for UK CCPs. The Bank stands ready to work with the EU as it operationalises its EMIR framework.

The EU's temporary equivalence and recognition determinations for UK CCPs expire on 30 June 2022, although the Bank acknowledges the recent European Commission statement that a further equivalence decision will be made in early 2022. Without clarity on future arrangements regarding if and how EU clearing members can access UK CCPs there is a clear risk that members off-board in a disorderly fashion that could damage both EU and UK financial stability. The Bank will act to mitigate risks that would arise from a disorderly or last-minute off-boarding.

It is crucial that members of CCPs are in full conformity with their domestic legislation and that there is no legal doubt about their ability to meet their obligations to CCPs at all times. The Bank continues to monitor the potential for disruption if EU members were required as a consequence of changes to current permissions, to terminate their membership of UK CCPs and close out their positions in line with their contractual obligations.

(1) See The Bank of England's approach to tiering incoming central counterparties under EMIR Article 25.
(2) See The Bank of England's approach to comparable compliance under EMIR Article 25a.
(3) See Approach to the monitoring of third country systems designated under the Settlement Finality Regulations.

Annex 1

FMIs and specified service providers supervised by the Bank and the key supervisory legislation to which they are subject

Central counterparties (CCPs) are regulated under **FSMA 2000** as recognised clearing houses (**RCHs**) and under **EMIR**. The embedded payment systems of LCH Ltd and ICE Clear Europe are also both recognised payment systems under the **Banking Act 2009**.

ICE Clear Europe Limited	Clears a range of exchange-traded derivatives and OTC credit default swaps.
LCH Limited	Clears a range of securities, exchange-traded derivatives, interest rate swaps, inflation swaps, non-deliverable foreign exchange forwards, FX options, bonds and bond repurchase transactions.
LME Clear Limited	Clears a range of metal derivatives traded on the London Metal Exchange.

Payment systems meeting defined criteria may be recognised by HMT. Recognised payment systems are supervised by the Bank under the **Banking Act 2009**.

Bacs[(a)]	Operated by Pay.UK, processes higher-volume and lower-value payments, such as salary, benefit, Direct Credit and Direct Debit payments.
CHAPS[(b)]	Operated by the Bank of England, the CHAPS system is the UK's high-value payment system, providing real-time gross settlement of sterling transfers between participants.
CLS	Operates the world's largest multicurrency cash settlement system for foreign exchange transactions in 18 currencies, including sterling.
Faster Payments Services (FPS)	Operated by Pay.UK, processes standing orders and electronic retail transactions, including transactions generated in internet, mobile and telephone banking.
LINK	LINK is a network of card issuers and ATM deployers which allows cardholders to use their cards to withdraw cash at any ATM connected to LINK where the ATM deployer is not the same institution as the cardholder's issuing bank.
Visa Europe	A four party card scheme and cards payments processor operating in the UK, EEA, Israel, Turkey and Switzerland, offering debit, credit, deferred debit and prepaid card products.
Mastercard Europe	Mastercard Europe is a four party card scheme and cards payments processor operating in the UK, EEA, Albania, Bosnia and Herzegovina, Israel, Montenegro, North Macedonia, Russia, Serbia, and Switzerland, offering debit, credit, deferred debit and prepaid card products.[(c)]

Specified providers may be **specified** by HMT where their service(s) are determined to form part of the arrangements constituting a recognised payment system. Specified service providers are supervised by the Bank under the **Banking Act 2009**.

Vocalink	Vocalink is a technology company that designs, builds and operates IT infrastructure for payment systems and ATM switching platforms.

Recognised CSDs are regulated under **FSMA** and **CSDR**. Euroclear UK & International operates the CREST system, which is also a recognised payment system under the **Banking Act 2009** and is also subject to the **Uncertificated Securities Regulations 2001**.

Euroclear UK & International (EUI)	EUI operates the CREST system – a securities settlement system for a range of securities including UK gilts and money market instruments, as well as UK equities – which settles on a delivery versus payment basis.

(a) Bacs and FPS are owned and operated by Pay.UK, which is the entity that the Bank supervises.
(b) The Bank's FMI Directorate continues to supervise the CHAPS system to the same standard as recognised payment systems even though it was derecognised by HMT in December 2017 to reflect the fact that it is now operated by the Bank.
(c) At the time of publishing, Mastercard Europe also operate in Azerbaijan, Armenia, Belarus, Georgia, Kazakhstan, Moldova, Turkey and Ukraine but this is set to change on 1 January 2022 when these countries will move to Mastercard's EEMEA region.

Annex 2
FMI data

CCPs (by default waterfall) – average of daily figures over the period

		Total initial margin requirement (£ equivalent, millions)[a]			Default fund (£ equivalent, millions)[b]			Number of clearing members		Operational availability of core systems		Products cleared
		2021 H1	2020	2019	2021 H1	2020	2019	2021 H1	2020	2021 H1	2020	2021 H1 and 2020
ICE Clear Europe[c]	Credit default swap	7,346	8,358	5,686	895	1,089	965	30	30	100%	99.99%	CDS, credit default swap market.
	Futures and options	45,106	45,176	35,534	2,314	2,505	2,518	75	78	100%	99.99%	Futures and options: exchange traded energy markets (including ICE Endex, ICE Futures Europe, ICE Futures Abu Dhabi, and ICE Futures US) and the financials and softs futures and options contracts traded on ICE Futures Europe.
LCH Ltd	Equities	3,726	3,170	2,040	150	183	225	34	34	99.93%	99.93%	Clears a range of OTC and exchange traded interest rate derivatives, OTC FX derivatives, cash equities and equity derivatives, cash bonds and repos.
	ForexClear	3,263	3,272	4,099	1,117	1,121	1,497	35	35			
	RepoClear	7,835	8,403	11,408	880	1,055	1,123	107	98			
	SwapClear[d]	142,867	154,414	124,894	5,683	6,014	5,337	138	138			
LME Clear	LME Base	6,149	5,861	5,713	1,039	689	489	46	47	100%	100%	Clears a range of base metal and precious metal derivatives traded on the London Metal Exchange.
	LMEprecious	3	50	136	57	89	116	7	8			

(a) The end-of-day total margin requirement per default waterfall, averaged over all business days in the period.
(b) The size of the clearing member prefunded default fund, averaged over all business days in the period.
(c) ICE Default fund is average of requirement amount rather than deposit value.
(d) The SwapClear line covers the SwapClear and Listed Rates services.

Recognised payment systems and securities settlement systems[a]

		Volume			Value (£ millions)			Number of settlement bank members		Operational availability[b]		Important payment types
		2021 H1	2020	2019	2021 H1	2020	2019	June 2021	Dec. 2020	2021 H1	2020	2021 H1 and 2020
Bacs		25,499,215	25,424,442	25,732,792	20,337	19,135	19,983	27	27	100%	100%	Direct Debit/Direct Credit.
CHAPS[c]		189,033	175,346	192,292	340,894	361,844	329,671	35	35	100%	99.98%	Financial markets and corporate treasury, cross-border, other wholesale, interbank, government, property completions and mortgages.
CLS	All currencies	986,966	1,051,735	992,535	4,610,090	4,582,301	4,602,456	74	74	100%	100%	Settlement of Foreign Exchange Transactions in 18 currencies including sterling.
	Sterling	71,767	77,696	76,405	404,033	378,521	374,574	74	74	100%	100%	
CREST	Sterling	248,932	228,738	189,969	879,362	925,593	822,876	24	24	99.99%	99.52%	Settlement of gilts, equities and money market instruments (including in respect of the Bank's open market operations and repo markets transactions more generally).
	US dollar	7,976	8,034	7,172	1,672	1,901	3,622					
	Euro	3,414	6,110	5,459	1,291	1,732	1,356					
	Total CREST	260,322	242,882	202,600	882,325	929,226	827,854					
Faster Payments Service[d]		13,019,159	11,221,151	9,643,926	9,984	8,270	7,674	33	31	100%	100%	Single immediate payments; standing order payments; forward dated payments; direct corporate access.
Link[e]		3,851,079	4,500,335	7,146,187	200	222	319	34	34	100%	100%	Withdrawing cash from ATMs deployed by entities other than the withdrawer's card issuer.
Visa Europe	All currencies	104,125,097	96,120,480	94,730,191	3,729	3,491	3,380	524	521	100%	100%	Card and digital payments.
Mastercard Europe	All currencies	109,239,581	96,638,656	90,996,901	3,028	2,838	3,006	812 (as of 7/10/2021)	–	100%	100%	Card payments

(a) All value and volume data represent daily average unless otherwise stated.
(b) The data on operational availability is not comparable between firms because each firm uses its own definition.
(c) Number of settlement bank members includes non-bank payment service participants and does not include suspended participants.
(d) Directly connected participants during the reporting period of 2020 were 35 and for 2021 H1 were 37. Four of the directly connected participants do not undertake settlement. Number shown in the above table are directly connected settling participants.
(e) Number of settlement bank members may vary as not all LINK Members have their own RTGS account and will settle using other LINK Members' RTGS accounts.

Annex 3
Glossary of terms

Collateral
An asset or third party commitment used by a collateral provider to secure an obligation vis-à-vis a collateral taker.

Credit risk
The risk of loss due to the failure of a counterparty to perform on a contractual obligation on time and in full. Credit risk arises whenever future cash flows are due from parties who may not provide them.

Default fund
A fund consisting of assets contributed by members of a system that would be used to pay liabilities of defaulting members.

Exposure
The maximum loss that might be incurred if assets or off balance sheet positions are realised, or if a counterparty (or group of connected counterparties) fail to meet their financial obligations.

G20
The G20 group comprises 19 countries and the European Union, representing the world's largest economies, whose finance ministers and central bank governors have met periodically since 1999.

Initial margin
Collateral which is posted at the beginning of a transaction by a member to a CCP to cover potential future adverse changes in the market value of the contract and is recalculated on a regular basis.

Liquidity risk
The risk that a party does not have sufficient funds to meet an obligation when it becomes due, or can only obtain those funds at an unexpectedly high cost.

Margin
Combination of initial and variation margin.

Operational risk
The risk that deficiencies in information systems or internal processes, human errors, management failures, or disruptions from external events will result in the reduction, deterioration, or breakdown of services provided by an FMI.

Securities settlement system
An entity enabling securities to be transferred and settled by book entry according to a set of predetermined multilateral rules. Such systems allow transfers of securities either free of payment or against payment.

Systemic risk
The risk that the inability of one or more participants to perform as expected will cause other participants to be unable to meet their obligations when due.

Variation margin
Collateral which is posted during the life of a contract by a member to a CCP to cover actual changes in the market value of a contract.