BANK OF ENGLAND

Financial Market Infrastructure

Annual Report

The Bank of England's supervision of financial market infrastructures

15 February 2019 – 3 December 2020

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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.

3 December 2020

(1) Please note, references to '2019/20' 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. We use them when we make payments to and from our bank accounts or buy goods and services, and they also help financial market participants to manage risk. The Bank's supervision of FMIs aims to ensure that they can continue 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 played an important part in advancing and delivering the Bank's financial stability objective. This *Report* sets out how we have done that in the context of three significant challenges: the impact of Covid-19, continuing innovation in payments and preparations for the end of the transition period following the UK's withdrawal from the EU.

Covid-19 has been the toughest test of the financial system since the global financial crisis in 2008–09. The uncertainty caused by Covid-19, and the economic implications of the policy measures necessary to contain it, led to significant volatility in financial markets. The FMIs supervised by the Bank are at the heart of those markets, and their resilience is key to ensuring shocks are absorbed and not amplified. This *Report* describes some of the specific supervisory actions taken by the Bank to ensure that FMIs remain financially and operationally resilient through this period and beyond.

Technological innovation has continued to change how we pay for goods and services. Covid-19 has increased the pace of change; driving further increases in online sales and decreases in transactional use of cash. Such innovation can bring significant benefits to many consumers, but it is important for the regulatory framework to keep up with innovation to ensure that risks are well managed. The Bank is at the forefront of work to ensure that the domestic and international regulatory frameworks reflect this innovation in the payments landscape.

The UK left the EU with a Withdrawal Agreement on 31 January 2020, entering an 11-month transition period. The Bank, working with HM Treasury, the Financial Conduct Authority (FCA) and FMIs, has taken important steps to mitigate potential disruption to the provision of services provided by UK and international FMIs at the end of this period. In November 2020, HM Treasury announced UK equivalence decisions with respect to EU central counterparties (CCPs) and central securities depositories (CSDs). As the UK's relationship with the EU changes, the most significant risks to cross-border provision of services by FMIs have been mitigated.

The Bank has continued to deepen supervisory co-operation with our international counterparts. This year, we have agreed a significant Memoranda of Understanding with the US Commodity Futures Trading Commission (CFTC) in relation to CCP supervision. The Bank has also concluded a Memorandum of Understanding with the European Securities and Markets Authority (ESMA). These agreements are designed to facilitate deep supervisory co-operation, ensuring clear and stable reciprocal arrangements for supervising cross-border FMIs.

We have also continued to play a leading role in setting international regulatory standards. In January, I began a three-year term as chair of the Committee on Payments and Market Infrastructures (CPMI), comprising global regulators and central banks. This will be a crucial period as the CPMI develops its approach to enhancing cross-border payments and innovation in payments systems, including the regulatory response to 'stablecoins'.

This *Report* demonstrates that the Bank has continued to supervise UK FMIs effectively through a challenging and uncertain period. This year has served to remind us of the importance of a resilient financial system underpinned by resilient FMIs. Effective and rigorous FMI supervision is vital to maintaining that resilience.

3 December 2020

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

FMIs form the backbone of the financial system.
Members of the public, businesses and financial institutions use FMIs on a daily basis to make payments, settle transactions and manage risk. Although many consumers may be unaware of FMIs' operations and significance, in carrying out these functions FMIs play a crucial role in the financial system. The Bank's supervision of FMIs is aimed at ensuring that they can continue to carry out this role, through being reliable and resilient both in good times and in bad. This has been of particular importance during the Covid-19 global pandemic, where FMIs continued to carry out their vital role at a time of disruption to working arrangements and significant moves in financial markets.

The Bank regulates three broad categories of FMI: payment systems, central securities depositories (CSDs) and central counterparties (CCPs).
Payment systems allow funds to be transferred between businesses and individuals and they are used for many day-to-day transactions. CSDs keep ownership records of individual securities and facilitate the secure transfer of these securities between people or entities. CCPs sit between the buyers and sellers of financial contracts (each holds their side of the contract with the CCP, rather than with each other) and provide assurance that the obligations of those contracts will be fulfilled. The Bank supervises all UK CCPs, UK CSDs and systemically important recognised payment systems and specified service providers to those payment systems. **Table A** shows the entities supervised by the Bank.

FMIs are interconnected with the wider financial system, contributing to financial stability, but this places greater importance on their resilience.
FMIs have financial institutions, businesses and individuals as their members. By acting as central hubs, FMIs enhance the resilience of the financial system. For example, they simplify the financial interconnections between people and businesses, and they ensure that transactions are more efficient and secure than if they take place bilaterally. FMIs can also encourage or require their members to reduce their own risks, further supporting the resilience of the financial system. Due to their central role in the financial system, and because of the reliance that their members place upon them, disruptions at an FMI could lead to stress in the wider financial system. This could impact the ability of people or businesses to transact in the real economy. It is therefore critical that FMIs are resilient to financial and operational shocks.

A resilient FMI is one that can absorb shocks rather than amplify them.
Resilient FMIs have robust systems, processes and financial resources to allow them to withstand extreme market and operational events. They also respond to and learn from incidents that have the potential to disrupt the vital services they provide. Due to their interconnected nature, FMIs can be particularly exposed to disruption emanating from the members that use them, as well as disruption originating within themselves. It is important, therefore, that FMIs manage their own risks as well as their exposures to risks that may arise in their members.

FMIs must be resilient to both financial and operational shocks.
Financial resilience ensures they can survive shocks such as the failure of one or more members to fulfil their financial obligations to the FMI and other participants. This requires sufficient financial resources to withstand these types of shocks. Operational resilience is the ability of FMIs, and the wider financial sector, to plan for, prevent, respond to, recover from and learn from operational disruption. This may include cyber attacks, service disruption due to technology outages or disruption due to change programmes or third party outages. FMIs can enhance their operational resilience by using tools such as continuity and contingency planning, and by carefully considering the amount of disruption they can tolerate in the event of an incident.

The Bank's supervision of FMIs is a central part of its mission to maintain monetary and 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 supervisory best practice for FMIs.

This has been critical in the Covid-19 global pandemic.

The Bank's response has helped ensure that FMIs continue to carry out their vital role in the face of market turbulence, changing consumer behaviour and operational challenges. The Bank has closely monitored FMIs' financial and operational resilience, and key market developments, including market volatility leading to increased margin calls from CCPs. The Bank intervened where appropriate to address emerging risks and ensure FMIs' preparedness for adverse economic scenarios. For example, the Bank set a clear expectation with respect to dividend and variable remuneration distributions to ensure FMIs retain adequate financial resources. Overall, the Bank's assessment is that FMIs have continued to perform effectively under these stressed conditions. Further information on this is set out in Section 3.

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 (CSD)	Payment systems	Specified service providers
ICE Clear Europe (Exchange-traded derivatives and over-the-counter (OTC) credit default swaps)	Euroclear UK & Ireland (EUI) (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[(a)] (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)	

(a) 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.

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 behaviours 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 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 in the UK.

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 International Organization of Securities Commissions (IOSCO). The Bank is an influential member of the CPMI, which consists of global regulators and central banks. 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 under UK legislation, such as the Banking Act 2009, and EU legislation, such as the European Market Infrastructure Regulation (EMIR) and Central Securities Depositories Regulation (CSDR), which is being retained in UK law at the end of the transition period. The Bank's supervisory approach has previously received positive assessments from the International Monetary Fund (IMF) and the Bank's internal Independent Evaluation Office (IEO).

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 or 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.

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 was reviewed in 2019, and the recommendations of that review implemented, and a further review is currently under way. The Bank also has a MoU with the FCA in relation to supervision of markets and market infrastructure, and this is also currently being reviewed.

International co-operation is a fundamental component of the Bank's supervisory approach, reflecting the cross-border nature of FMIs.
Our 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 has colleges for each of its CCPs to ensure appropriate arrangements are in place for cross-border supervisory co-ordination. It was the first authority to establish Crisis Management Groups (CMGs) 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 (BIS), including the CPMI.

The Bank will assume new responsibilities as a result of EU withdrawal.
From the end of the transition period following the UK's withdrawal from the EU, certain regulatory responsibilities currently exercised by EU authorities will be reassigned to the relevant UK authority. Responsibilities assigned to the Bank will 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. Further information on the Bank's preparedness for the end of the EU transition period is set out in Section 3.

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

3.1 Meeting the challenges posed by Covid-19

The Bank has sought to ensure that supervised FMIs remain operationally and financially resilient both during the period of stress and beyond.

The Bank has maintained close supervision of and regular contact with FMIs, in order to have early sight of any relevant developments in firms' financial and operational resilience, and key market developments. The Bank has been swift in identifying and addressing any critical issues that emerge during the period, and taken steps to ensure FMIs' preparedness for potential developments — some of which are set out below. To allow FMIs and the Bank's supervision teams to focus on key priorities to support financial stability, the Bank adjusted supervisory programmes for individual FMIs, including through postponing less critical work, and extending the cycle for supervisory risk reviews. Alongside the PRA, in March 2020 the Bank announced a package of measures to alleviate the operational burden of Covid-19 on PRA-regulated firms and FMIs to help them continue providing critical functions to the economy. This included, among other things, extending the deadline for responding to the Bank's consultations on operational resilience and holding the first meeting of the Financial Services Regulatory Initiatives Forum in April 2020 to help co-ordinate the operational demands of regulatory initiatives on firms and FMIs.

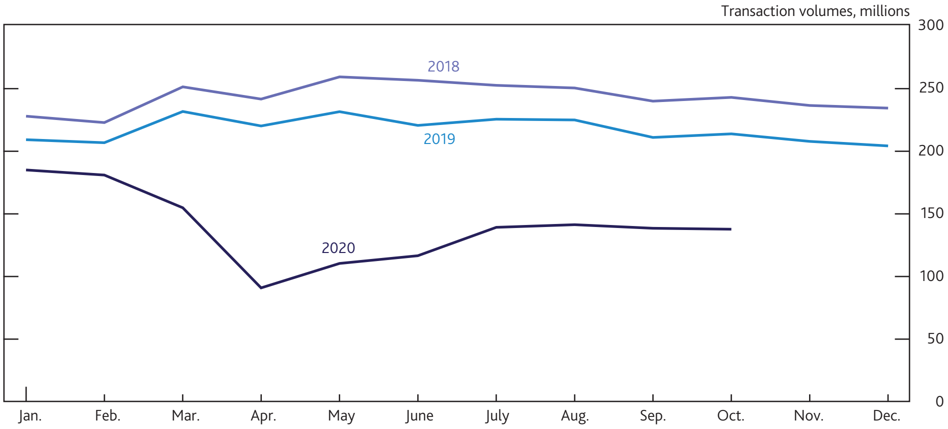
The Bank intervened to set clear expectations in respect of FMIs' resilience.

The Bank wrote to UK FMIs to stress its expectation that FMIs' boards should pay close attention to the risks and potential financial demands arising from Covid-19 when considering distributions to shareholders or making decisions on variable remuneration, and discuss any distributions to shareholders with the Bank in advance. This decision was made to ensure that FMIs maintain sufficient financial resources to maintain the services they provide to the wider system and to absorb potential losses. In addition, the Bank emphasised CCPs' regulatory requirements with regard to clearing member default and set clear expectations that they ensure they remain capable of employing internal default management procedures and IT infrastructure in the Covid-19 operating environment. Over 2020, UK CCPs conducted tests to ensure that their default management processes remained effective under remote working conditions.

The Bank's assessment to date is that FMIs have performed effectively under the stressed conditions resulting from Covid-19.

This episode demonstrates the need for resilient FMIs, which in turn enhance the resilience of the financial system. From an operational perspective, FMIs have responded swiftly to changes such as the move to large-scale remote working, changes in consumer spending patterns and a sharp decline in the transactional use of cash. Cash withdrawals were 60% lower during the UK lockdown in April 2020 than a year before, and have remained low even as lockdown restrictions have eased. In September 2020 they were still one-third lower than September 2019 (**Chart 1**). In parallel, UK online sales in April increased to 30% of total retail transactions from just over 18% a year earlier. Many shops are encouraging contactless forms of payment over the use of cash, and the limit for contactless payments was increased from £30 to £45 in April 2020.

Chart 1: Cash withdrawals in 2020 have been materially lower than previous years as a result of Covid-19
LINK transaction volumes



Notes: These figures include balance enquiries and rejected transactions made through the LINK network, but do not include transactions made by customers at their own banks' or building societies' ATMs. Cash withdrawals account for a majority of these transactions.

Source: www.link.co.uk/about/statistics-and-trends/.

3.2 Building operational and financial resilience

Operational resilience continues to be an area of focus for the Bank's supervision.
The importance of operational resilience has been underlined by the challenges posed to FMIs by Covid-19. Covid-19 materially changed the operating models of FMIs as large numbers of staff moved to working remotely. The Bank continues to assess FMIs' risk profiles, risk appetites and controls to ensure new risks are effectively identified and mitigated. It is likely that FMIs' operating models will continue to evolve and the Bank's focus on FMIs' risk and control environments will therefore remain a priority.

The Bank continues to assess the effectiveness of FMIs in preventing, preparing for, recovering and learning from operational disruptions of their important business services.
Alongside the distinct actions taken in response to Covid-19, the Bank has maintained its day-to-day supervisory focus on assessing the effectiveness of FMIs' operational resilience capabilities, including their risk governance arrangements, enterprise-wide risk management frameworks and business continuity arrangements to recover from disruption. In relation to information security, the Bank's CBEST framework is used to deliver bespoke, intelligence-led cyber security tests, which the Bank undertakes every three to five years for the largest FMIs. The Bank also undertook a pilot cyber stress test in 2019, which included PRA-regulated banks and an FMI. The Bank is currently reviewing the findings of this pilot exercise and will determine next steps in due course.

The Bank also undertakes operational resilience focused thematic reviews periodically to develop its understanding of prevailing industry standards and explore emerging risks. Furthermore, the Bank has a supervisory team focused on ensuring that upcoming major payments infrastructure changes are delivered successfully without undermining the resilience of critical payments. These include the New Payments Architecture — new infrastructure for retail payments, which will in due course replace the current Bacs and FPS systems — and the renewal of the Bank's Real-Time Gross Settlement (RTGS) system which holds accounts for banks, building societies and other institutions.

In December 2019 the Bank consulted on proposals for further improving the operational resilience of FMIs.
These consultations were published jointly with the PRA and FCA and closed in October 2020, following an extension to take account of Covid-19. They proposed setting expectations that firms identify the most important services they provide to their customers, set impact tolerances for these services, and test their ability to stay within these impact tolerances, prioritising investment to build resilience where necessary.

Financial resilience remains central to the Bank's supervision of FMIs.
The Bank's supervision teams have continued to intervene where appropriate to ensure that FMIs remain financially resilient. For example, over the reporting period, the Bank conducted capital reviews of some of the most significant FMIs. The Bank has also commissioned third-party Skilled Person reviews where appropriate, such as one into an FMI's

process for approving new products. Furthermore, CCPs' ability to manage the default of participants effectively is essential to their resilience. The Bank has supported CPMI and IOSCO in their work on CCP default management auctions — a tool allowing a CCP to transfer a defaulting participant's positions to non-defaulting participants. A report on this was published in June 2020, which outlined issues that CCPs should consider regarding default management auction processes and identified practices to address those issues.

The Bank is developing its approach to supervisory stress testing of CCPs, in line with the CPMI-IOSCO Framework published in 2018.
An important element of the supervision of CCPs' financial resilience is to ensure that they can withstand extreme market events. The Bank has conducted a pilot exercise with UK CCPs to understand the relevant data requirements and analytical processes, and a project is now under way informed by the pilot to prepare for the first test.

The Bank continues to develop its resolution regime for UK CCPs.
Central clearing of standardised OTC derivatives is a key pillar of financial market reforms agreed by the G20 following the 2008–09 global financial crisis. Given the significance of CCPs to the resilience of the financial system, it is important that there is a robust regime for their recovery and resolution. The FSB has consulted on guidance for authorities on the adequacy of financial resources and the treatment of equity in CCP resolution. In addition, the EU has recently agreed a new CCP resolution regime. As the UK was one of the first jurisdictions to legislate to establish a CCP resolution regime, the current regime pre-dates the FSB's guidance and the Bank is therefore working with policy stakeholders to consider further development of the UK regime.

3.3 Making use of data

The Bank has consolidated its use of data to inform supervisory judgements and policy development.
Over the past year, this has included supporting the Bank's assessment of the risks arising to FMIs and the wider system from Covid-19. It has also supported the Bank and the FPC's assessment of the potential risks to financial stability caused by disruption to derivatives markets following the UK's withdrawal from the EU. In addition, the Bank published its approach to settlement internalisation reporting under the CSDR in April 2019. The Bank is expanding its technical capability to make use of data, and continuing to work alongside international counterparts on the harmonisation of data standards. The Bank is also preparing to receive and process a new data collection relating to securities financing transactions, which will enhance the Bank's understanding of risks in securities lending and repo markets.

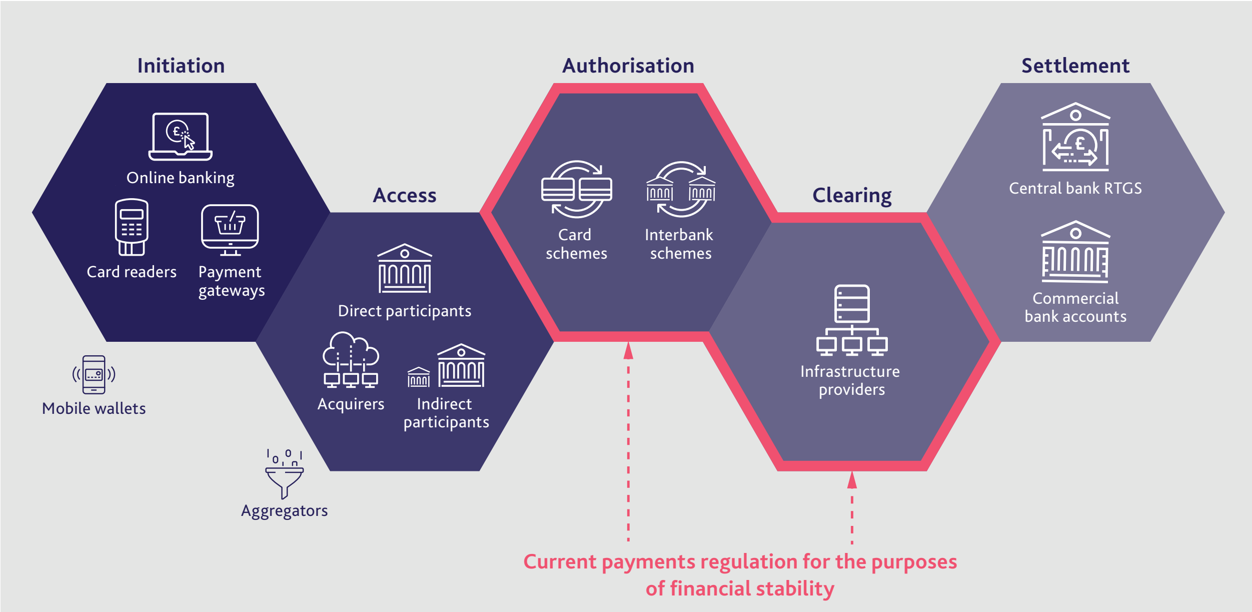
3.4 Responding to innovation in payments

The past year has seen continued innovation and change in the payments landscape.
As noted in the August 2020 *Financial Stability Report*, there has been considerable innovation in the UK's payments landscape and a need for the regulatory framework to keep pace with that innovation. Over time, there has been an increase in the importance of new non-bank payment service firms, which has added to the number of firms involved in a typical electronic payment. These new institutions and changing consumer behaviour have driven a shift towards digital payments. This innovation has been accelerated by the changes in consumer behaviour brought about by Covid-19, such as an increase in online sales and decrease in the transactional use of cash. This may further accelerate innovation, including innovation that could provide further competition and replace existing ways to pay entirely. These could include central bank digital currencies, which would be an electronic form of central bank money that could be used by households and businesses to make payments, and on which the Bank published a discussion paper in March 2020.

Today, the regulatory framework may not fully capture payment chains end-to-end.
Payment chains are comprised of several key activities. Firstly, there are initiation services which initiate the transfer of funds from or between accounts. Then access arrangements connect front-end services, for example card readers, to underlying payment systems which provide clearing and settlement. There is then the authorisation process, which involves the set of rules for payment arrangements and checking of payments as they are processed. Clearing reconciles payment messages by aggregating all orders for transactions into net amounts, which are communicated to settlement systems, where the final debiting and crediting of gross or net amounts due to each participant occurs.

Figure 1 highlights how regulation of payments from a primarily financial stability perspective currently focuses only on a subset of payments activities: authorisation and clearing. Some innovations in undertaking payment initiation and access activities may be regulated against other objectives or fall outside of the regulatory perimeter. It is possible that new entrants could ultimately become critical links in systemically important payment chains without being subject to regulation designed to maintain financial stability.

Figure 1: Overview of payment chain activities and the limits of current payments regulation



Notes: **Figure 1** is a stylised representation of the regulation of the key activities in a typical payment chain. It shows where various payments entities generally sit, where current payments regulation from a financial stability objective is currently focused, and where certain payments entities may not be fully captured by payments regulation. The terms used to describe payments entities and activities are conceptual for the purposes of this diagram and are not intended to correspond with any related legal definitions.

The Bank's Financial Policy Committee (FPC) has outlined principles to guide its assessment of the regulation and supervision of payments.
These include that payments regulation should reflect the financial stability risk, rather than the legal or technological form, of the entity providing payments activities. Furthermore, regulation should ensure end-to-end operational financial resilience across systemic payments chains that are critical for the smooth functioning of the economy, and payments firms should provide sufficient information to allow monitoring of emerging risks to financial stability.

The FPC has set out further expectations for stablecoin-based payments chains.
Changes in the way we pay may also accelerate the development of cryptoassets known as 'stablecoins', which could be used as a means of payment. Such innovation could bring benefits to users. However, it is important that the Bank's supervision and the broader regulatory framework keep pace with innovation. If a stablecoin were to significantly replace current systemic payments chains as a way to pay, it would pose at least the same risks to the economy as those associated with existing systemic payments chains. Therefore, in December 2019, the FPC set out two expectations for stablecoin-based payment chains:

(i) Payment chains that use stablecoins should be regulated to standards equivalent to those applied to traditional payment chains. Firms in stablecoin-based systemic payment chains that are critical to their functioning should be regulated accordingly.

(ii) Where stablecoins are used in systemic payment chains as money-like instruments they should meet standards equivalent to those expected of commercial bank money in relation to stability of value, robustness of legal claim and the ability to redeem at par in fiat.

The Bank is at the forefront of work to embed these principles and expectations in the domestic and international regulatory framework.

Clear and transparent regulatory expectations are critical to ensure that innovation can progress safely, without causing serious interruptions in payment and settlement services. The Bank's *Future of Finance* report, published in June 2019, considered the implications of innovation in payments for the Bank's objectives of maintaining monetary and financial stability. The Bank supports the work of UK authorities to consider reforms to payments regulation to ensure that the FPC principles and expectations above can be met. In addition, the Bank has made a significant contribution to FSB and CPMI work on enhancing cross-border payments. This has included contributing to a report published by the CPMI in July 2020, which was produced by a CPMI task force chaired by the Bank, and contributing to the roadmap presented to the G20 in October.

3.5 Continuing supervisory co-operation with international counterparts and preparing for the UK's changing relationship with the EU

The Bank is setting the agenda for the deep supervisory co-operation necessary to sustain the resilience of cross-border FMIs.

Cross-border infrastructure can support financial stability, for example by allowing financial market participants to benefit from global pools of liquidity and to hedge their risk in the broadest possible markets. Maintaining the resilience of cross-border financial infrastructure requires deep co-operation that gives regulators in both 'home' and 'host' jurisdictions assurance that cross-border infrastructure will be secure and reliable both in 'business as usual' and also during times of stress. It is equally crucial that supervisory co-operation does not become counterproductive as a result of conflicting, overlapping or confusing directions for firms, particularly in a crisis. As such, supervisory co-operation arrangements must be subject to agreed procedures and recognise the primacy of the lead supervisor. They must also be stable, reciprocal and proportionate.

In line with these considerations, this year the Bank concluded a significant MoU with the US Commodity Futures Trading Commission on supervisory co-operation in relation to CCPs. Through agreements of this kind, the Bank is setting the standard for international supervisory co-operation, and upholding the G20 commitment that authorities should defer to each other where justified by the quality of the respective regulatory and supervisory regimes. The Bank will continue to be guided by these considerations as its relationships with other authorities develop.

As the UK's relationship with the EU changes, the Bank has taken steps to minimise the risk of disruption.

The Bank has worked closely with HM Treasury to ensure that EU FMIs can continue to provide services in the UK, pending recognition by the Bank (Box 2), and to ensure both continuity of the regulatory framework and to implement changes in the Bank's responsibilities as a result of EU withdrawal. The UK has completed its equivalence assessment of the EU's financial services regulatory and supervisory regimes and, having taken into account advice received from the Bank and other authorities, HM Treasury announced several equivalence decisions in November 2020. HM Treasury has laid an equivalence regulation with respect to CCPs and an equivalence direction with respect to CSDs before Parliament. This means that HMT has determined these EU regulatory and supervisory regimes equivalent to those of the UK. EU CSDs and CCPs will be able to continue to provide services in the UK, subject to an appropriate co-operation arrangement between the Bank and the relevant EU authority and a positive recognition determination by the Bank. Prior to any recognition decisions being made, the transitional regimes (as set out in Box 2) will provide legal certainty for EU CCPs and CSDs to continue to provide services in the UK.

The Bank has worked with UK FMIs to ensure that they have robust contingency plans in place to address any remaining risks. In consequence, most risks to UK financial stability that could arise from disruption to cross-border financial services should the transition period end without the UK and EU agreeing equivalence or other arrangements for financial services, have been mitigated.

Significant steps have been taken to minimise disruption to UK CCPs and their members at the end of the transition period.

The European Commission has adopted a time-limited equivalence decision with respect to UK CCPs until 30 June 2022 and the European Securities and Markets Authority (ESMA) has subsequently announced that it will recognise the three UK CCPs from 1 January 2021. This means that they will be able to continue providing services to

EU members. This is a key step to mitigate financial stability risks at the end of the transition period. Furthermore, the Bank has now concluded a significant MoU with ESMA to facilitate deep supervisory co-operation on CCPs.

The European Commission has announced a time-limited equivalence decision with respect to UK CSDs, but further clarity is needed to ensure these CSDs can continue providing CSD services in the EU after the transition period ends.

ESMA must recognise the UK CSD before the end of the year in order for it to continue providing core CSD services for securities issued under the law of an EU member state after the end of the transition period. If the UK CSD does not receive recognition, it will need to consider commencing processes to cease offering core CSD services in respect of these securities.

The Bank has made significant progress in correcting deficiencies that will arise in retained EU law at the end of the transition period.

To ensure continuity of the regulatory framework for FMIs, the Bank has supported the Government's programme of financial services secondary legislation made under the European Union (Withdrawal) Act 2018 to correct deficiencies that will arise in retained EU law at the end of the transition period. Powers have been delegated to the Bank as competent authority for FMI supervision to fix deficiencies in Binding Technical Standards relevant to its remit. Over this reporting period, the Bank has published several documents setting out its approach. In February 2019, the Bank published a policy statement containing the Bank's near-final transitional direction (the instrument that gives effect to the Bank's transitional power), as well as near-final Exit Instruments making amendments to 'onshored' Binding Technical Standards. The final Exit Instruments were subsequently published in an update to the policy statement in April 2019.

There have since been two further consultation papers published in July 2019 and September 2020. These contain further Exit Instruments and proposed updates to the Bank's transitional direction. The Bank will publish its responses to feedback received as well as final Exit Instruments and directions, which will come into force at the end of the transition period, in due course.

Box 1
The role of CCPs' margining requirements during market volatility resulting from Covid-19

The collection of margin on derivative contracts is a crucial safeguard in financial markets. By ensuring that derivatives exposures are adequately collateralised as market prices change and volatility rises, margin reduces the risk that the failure of one counterparty causes concerns around the solvency of other counterparties — which could otherwise lead to panic that can impair market functioning, as was experienced in the financial crisis 10 years ago. Enhancements in margining practices and greater use of central clearing since the 2008–09 financial crisis to address this have made the financial system safer.

During significant market volatility in March as a result of Covid-19, these reforms functioned as intended. Despite the very large asset price moves counterparty credit risks were contained.

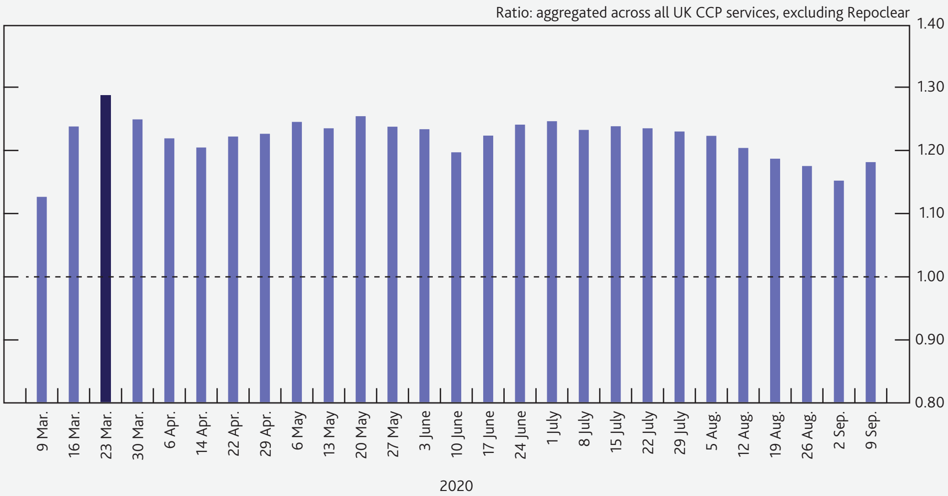
Large moves in asset prices led to significant increases in CCPs' variation margin requirements, which mirror actual price moves in underlying markets. As variation margin reflects the new market price of a product, gains by market participants on one side of the trade are equal to the losses incurred by other market participants. This means that, in aggregate, variation margin does not typically remove liquidity from the system, but rather redistributes it. It ensures that financial firms can depend upon the derivative instruments they have bought to manage their risks once those risks start to crystallise.

However, market participants can face large variation margin calls if they have large directional positions. It is therefore important that market participants manage their liquidity in anticipation of potentially large margin calls in a stress.

CCPs' initial margin requirements, which cover expected losses in the event of a clearing member default, also increased through March — in response to the very large asset price moves. Initial margin requirements are expected to rise in response to market stress, reflecting increases in the risk of losses to the CCP, which would then have to be met by all members. This ensures that counterparty risk is properly mitigated at all times and that CCPs retain very high standards of resilience. However, this may also create a procyclical effect by requiring counterparties who post margin to find additional liquid assets at a time when it is most difficult for them to do so. UK CCPs are subject to regulatory requirements that require them to use anti-procyclicality tools in their initial margin models. Together with anti-procyclicality policies UK CCPs have in place, these are designed to avoid large unexpected jumps in initial margin requirements. It is important to ensure that these tools and policies are working as intended.

Chart A: Initial margin rose in March and remains moderately elevated

Weekly average initial margin requirement at UK CCPs, as ratio compared to January to February 2020 average level



Source: Supervisory returns.

The stock of initial margin held by UK CCPs has now reduced somewhat, but remains moderately elevated, helping to reduce the risk of another sharp increase in initial margin should market volatility increase again (**Chart A**).

The Bank is undertaking further analysis of CCP performance during this period. This may explore whether higher initial margin requirements in normal times could minimise increases in stress and how margining practices could take better account of the system-wide impact of large margin calls in a stress, while providing adequate protection against counterparty credit risk. It will also explore how margin calls are passed on by clearing members to clients. A further important aspect is the preparedness of market participants to meet margin calls. The FPC has therefore supported further work to examine the extent to which non-banks, such as insurers and pension funds, are able to anticipate and prepare for margin calls as part of their liquidity risk management.

Box 2
Ensuring continued access to incoming FMIs

The Bank has worked closely with HM Treasury to ensure that EU CCPs and CSDs can continue to provide services in the UK, pending recognition by the Bank.

To achieve this, a legislative framework has been established to allow the Bank to recognise incoming (that is, non-UK) CCPs and enable CSDs to operate under transitional provisions. This will enable these FMIs to continue providing services in the UK once the transition period ends. It provides confidence that UK firms can continue to access the services provided by these incoming FMIs without disruption. The Bank has published interim lists of the incoming CCPs and CSDs respectively recognised or operating under these frameworks.

The Bank has also published interim lists of European Economic Area (EEA) central banks and systems operators which have been designated to receive UK settlement finality protection from the end of the transition period. This will ensure that payments to FMIs can be protected from challenges in the event of the insolvency of one of the participants, helping to bolster their resilience and reduce risks to other participants.

Incoming FMIs must meet certain conditions to remain within these frameworks:

- FMI system operators that wish to retain UK settlement finality protection must apply to the Bank for designation within six months of the end of the transition period.
- CSDs that wish to continue to offer services in the UK must apply to the Bank for recognition within six months of an equivalence decision for the jurisdiction in which they are established, or within six months of the end of the transition period.
- HM Treasury has recently laid legislation that extends the deadline for submission of recognition applications by CCPs in the Transitional Recognition Regime (TRR) (if they had not already done so) to 18 months after the end of the transition period to allow time for the completion of the UK's recognition regime.

Interim lists of these FMIs can be found on the Bank's website. The final lists will be published at the end of the transition period. In addition, the Bank will develop its own policy approach to recognition and supervision of incoming CCPs. Further information on this is set out in Section 4.

4 What are the Bank's future priorities?

The Bank will continue to promote FMIs' financial and operational resilience, with its immediate focus remaining on addressing the impact of Covid-19.
Covid-19 has had a significant impact on financial markets, the broader economy and the operating environment of the FMIs supervised by the Bank, with the outlook remaining uncertain. This is expected to remain the Bank's immediate supervisory priority, as well as the focus of many FMIs themselves. The Bank will continue engaging closely with FMIs and monitoring for 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 stands ready to intervene as necessary to mitigate emerging risks and support financial stability, 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 approach to supervising operational resilience, including publishing the final policy on operational resilience following the Bank's consultations.
- Publishing further information on CCP supervisory stress testing, following completion of a pilot exercise.
- Considering further development of the UK regime for CCP resolution.

In addition, the Bank continues to consider that there is a strong case for introducing a Senior Managers and Certification Regime for FMIs, and would support legislation to facilitate this.

The Bank is examining the procyclicality of margin calls and the resilience of non-bank liquidity when faced with margin calls.
As noted in Box 1, central clearing of derivatives and margin requirements ensured that market participants were protected from counterparty credit risk despite very sharp price moves. However, the Bank is undertaking further analysis to ensure that CCPs' margining practices are not excessively procyclical and the extent to which non-banks, such as insurers and pension funds, are able to anticipate margin calls as part of their liquidity risk management.

The Bank is contributing to international work to learn the lessons from this year's market volatility.
In November 2020, the FSB published a holistic review of market volatility in March. This set out lessons learnt and policy implications, exploring the ways in which the March volatility has underscored the need to strengthen resilience in the non-bank financial intermediation sector. With regards to FMIs, the review analyses the role played by margin requirements during the crisis, and sets out areas for further work on the role played by margining practices both in centrally and bilaterally cleared and bilateral markets, including on market participants' preparedness to meet stressed margin calls and their ability to monetise liquid assets under stress in a timely manner. CPMI, jointly with IOSCO and the Basel Committee on Banking Supervision, will be developing further work on these issues throughout 2021. The Bank will contribute to the FMI-related aspects of these initiatives.

Innovation in payments will remain a key area of focus.
The Bank will continue its work to ensure that technological change at FMIs, including the next generation of payments infrastructure, is designed and implemented in a way that promotes the resilience of individual FMIs and the broader financial system. The Bank supports HM Treasury's Payments Landscape Review, a review of payments networks in the UK, and its planned consultation on the regulatory approach to cryptoassets, including stablecoins. The Bank will also continue to work with international counterparts, including through the work of the FSB and CPMI-IOSCO to ensure international standards reflect innovation in the payments landscape and to develop principles for the regulatory response to stablecoins.

The Bank will develop an approach to recognition and supervision of incoming CCPs.

Amendments to the EU legislative framework for CCPs, known as EMIR 2.2, mean that third-country (that is, in this context, non-EU) CCPs seeking recognition by ESMA will be divided into tiers, depending on their systemic importance to the EU. ESMA will have greater supervisory powers over those third-country CCPs deemed systemically important. The EMIR 2.2 framework is being retained in UK law after the transition period ends. Legislation to make the framework operable in the UK context will make the Bank responsible for finalising policy on important areas of the implementation of EMIR 2.2 in the UK, including specifying further the approach to dividing non-UK CCPs into tiers. The Bank is currently considering its policy approach in these areas and will set out further details in due course.

Annex 1

FMIs and specified service providers supervised by the Bank and 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 repos, exchange-traded and OTC securities and derivatives.
LME Clear Limited	Clears a range of metal derivatives traded on the London Metal Exchange.

Payment systems meeting defined criteria may be recognised by HM Treasury. 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 United Kingdom'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)[(a)]	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 EEA, Israel, Turkey and Switzerland, offering debit, credit, deferred debit and prepaid card products.

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.

Securities settlement systems are regulated under **FSMA** as recognised **CSDs** and are also subject to the **Uncertificated Securities Regulations 2001**. Euroclear UK and Ireland Limited operates the CREST system, which is also a recognised payment system under the **Banking Act 2009**.

Euroclear UK & Ireland Limited (EUI) CREST	EUI operates the CREST system — the 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 (EUI also operates CREST for the purposes of settling Irish equities).

(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.

Annex 2
FMI data

CCPs (by default waterfall)

		Total initial margin requirement (£ equivalent, millions)[a]			Default fund (£ equivalent, millions)[b]			Number of clearing members		Operational availability of core systems		Products cleared
		2020 H1	2019	2018[c]	2020 H1	2019	2018	2020 H1	2019	2020 H1	2019	2020 H1 and 2019
ICE Clear Europe	Credit default swap	8,169	5,686	5,125	1,135	965	781	30	30	99.97%	99.99%	Credit default swap market.
	Futures and options	44,059	35,534	28,073	2,549	2,518	2,070	78	77	100.00%	99.99%	Exchange traded energy markets (including ICE Endex, ICE Futures Europe and ICE Futures US) and the financials and softs futures and options contracts traded on ICE Futures Europe.
LCH Ltd	Equities	3,415	2,040	1,999	216	225	225	34	38	99.97%	99.94%	Clears a range of OTC and exchange traded interest rate derivatives, OTC FX derivatives, cash equities and equity derivatives, cash bonds and repos.
	ForexClear	3,850	4,099	4,025	1,244	1,497	1,722	35	34			
	RepoClear	15,409	11,408	11,083	1,216	1,123	1,170	88	89			
	SwapClear[d]	152,584	124,894	99,223	6,000	5,337	4,980	122	123			
LME Clear	LME Base	6,005	5,713	5,774	670	489	816	45	45	100%	100%	Clears a range of base metal and precious metal derivatives traded on the London Metal Exchange.
	LMEprecious	105	136	227	104	116	180	9	10			

(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. The 2018 figure is based on the guaranty fund requirement whereas, in the previous report, the 2017 figure was based on the guaranty fund model.
(d) The SwapClear line covers the SwapClear and Listed Rates services.

Recognised payment systems and securities settlement systems

		Daily average volume			Daily average value (£ millions)			Number of settlement bank members		Operational availability[a]		Important payment types
		2020 H1	2019	2018	2020 H1	2019	2018	June 2020	Dec. 2019	2020 H1	2019	2020 H1 and 2019
Bacs[b]		25,235,614	25,732,792	25,470,470[c]	19,061	19,983	19,599[d]	28	27	100%	100%	Direct Debit/Direct Credit.
CHAPS[e]		174,674	192,292	191,788	364,704	329,671	330,095	34	34	99.97%	99.95%	Financial markets and corporate treasury, cross-border, other wholesale, interbank, government, property completions and mortgages.
CLS[f]	All currencies	1,151,220	992,535	874,612	4,703,270	4,602,456	4,370,957	72	72	100%	99.83%	Settlement of Foreign Exchange Transactions in 18 currencies including sterling.
	Sterling	81,963	76,405	61,860	388,640	374,574	353,957					
CREST	Sterling	241,621	189,969	195,302	958,973	822,876	778,427	23	23	99.95%	99.92%	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	8,777	7,172	7,578	3,610	3,622	1,897					
	Euro	6,506	5,459	5,429	2,406	1,356	1,178					
	Total CREST	256,904	202,600	208,309	964,989	827,854	781,502					
Faster Payments Service[g]		10,491,002	9,643,926	8,074,310	7,717	7,674	6,755	34	34	100%	100%	Single immediate payments; standing order payments; forward dated payments.
Link[h]		4,610,110	7,146,187	7,993,421	219	319	343	34	35	100%	100%	Withdrawing cash from ATMs deployed by entities other than the withdrawer's card issuer.
Visa Europe[i]	All currencies	87,275,855	94,730,191	82,413,365	3,175	3,380	3,142	521	518	100%	100%	Card and Digital Payments.

(a) The data on operational availability is not comparable between firms because each firm uses its own definition.
(b) Number of settlement bank members includes non-bank members.
(c) A new data source was used for the 2018 Bacs volume of transactions figure. This may not be directly comparable to values provided in previous reports. (2018 — 26,278,549.)
(d) A new data source was used for the 2018 Bacs value of transactions figure. This may not be directly comparable to values provided in previous reports. (2018 — 19,616.)
(e) Two further payment service providers are technically enabled as Direct Participants/settlement banks in CHAPS, and preparing for full participation. Number of settlement bank members includes non-bank payment service providers and does not include suspended participants.
(f) Number of settlement bank members includes non-bank members. Operational availability for CLS is between January 2019 and December 2019.
(g) Number of settlement bank members includes non-bank members.
(h) Number of settlement bank members may vary as not all Link members have their own RTGS account and will settle using other members' RTGS accounts.
(i) Figures represent average daily volume for the year of 2018, 2019 and 2020 H1 based on processed transaction volume.

Annex 3
FMI *Annual Report* commitments

2019 *Annual Report* section	2019 commitment	2020 *Annual Report* section
Memoranda of Understanding (MoUs)		
2.3.1	The authorities will **update** the MoU between the Bank and FCA to ensure it continues to appropriately reflect their respective roles and responsibilities once the UK has left the EU.	2
2.3.2	The authorities will **review** the MoU between the Bank, FCA, PSR and PRA regarding payment systems over the next year to ensure it continues to appropriately reflect their respective roles and responsibilities once the UK has left the EU.	2
Technological change in FMIs		
2.5.4	The Bank will **publish** a report on the Future of Finance, which will include a set of implications for how the Bank can support the UK's evolving financial sector landscape while continuing to meet the Bank's main objectives of maintaining monetary and financial stability.	3.4
4.1.2	The Banks oversight of the planned, structural changes within the payments landscape will **seek to ensure** that it is designed and implemented in a way which promotes the resilience of individual FMIs and the broader system.	3.4
Operational resilience		
3.2.1	The Bank will **say more** on its operational resilience policy development in due course.	3.2
3.2.1.1	As part of a pilot of the approach to operational resilience stress testing in 2019, the Bank will **determine** how FMIs will be included in the scope of this exercise.	3.2
4.1.3	The Bank will continue its work to **further develop** its supervisory approach and policy framework for operational resilience in close collaboration with the PRA and the FCA.	3.2
EU withdrawal		
Box 3	The Bank will **publish** a policy statement in the first quarter of 2019 responding to feedback on both consultation papers regarding the process of correcting deficiencies in retained EU law. This will include the statutory instruments that would come into force if the UK leaves the EU without a withdrawal agreement.	3.5
4.1.5	The Bank will **continue its work** to ensure that FMIs and the Bank in its capacity as FMI supervisor are well-prepared for the UK's withdrawal from the EU, irrespective of the form it takes.	3.5
International engagement		
3.3.1	As part of the Bank's participation in the CPMI-IOSCO working group looking at processes and practices for CCP default management auctions, the group will **assess** its next steps in 2019 including whether any further guidance is required on this topic to ensure the effectiveness of default management processes.	3.2
4.1.6	Internationally, the Bank will **engage** with counterparts in the EU and globally to shape the international policy agenda on FMI-related issues, including through fora such as the FSB, CPMI and CPMI-IOSCO.	3.5
CCP supervisory stress testing		
Box 4	The Bank intends to **develop** its internal CCP supervisory stress-testing approach in 2019, prior to finalising and publishing the supervisory stress-testing regime for UK CCPs in due course.	3.2
FMI data		
3.4	The Bank expects to be able to run selected analytics on a wider subset of the trade repository (TR) data set during the course of 2019 and more quickly than was previously possible. In 2019, the Bank will continue to **develop** this architecture to expand the range of analytics available on the data platform as well as to reduce further the time that it takes to process and manipulate large subsets of the TR data set.	3.3
4.2	In 2019, the Bank will **develop** its approach to reporting under the CSDR. The CSDR will require all UK firms that settle securities transactions outside a CSD ('internalised settlement') to provide to the Bank quarterly aggregated reporting of the volumes and values of these securities transactions.	3.3

Annex 4
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.

Payment system
An entity enabling payments to be transferred and settled across an infrastructure according to a set of predetermined multilateral rules.

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.