Bank of England

The Bank of England's supervision of financial market infrastructures Annual Report

15 December 2021–16 December 2022

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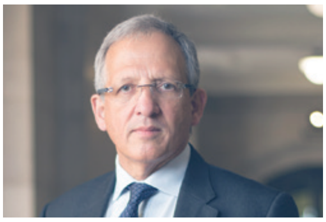
Presented to Parliament pursuant to Section 203B of the Banking Act 2009; paragraph 33 of Schedule 17A to the Financial Services and Markets Act 2000 (FSMA); Regulation 25 of the Central Counterparties (Amendment, etc, and Transitional Provision) (EU Exit) Regulations 2018; and paragraph 32(2)(a) of Schedule 7 of the European Union (Withdrawal) Act 2018.[2]

19 December 2022

1. Please note, references to '2021/22' in this Report should be taken as referring to this reporting period
2. Please note, the exercise of this specific duty covers the reporting period from 1 March 2021 to 16 December 2022. Further details in Annex 4.

Foreword



Sir Jon Cunliffe
Deputy Governor, Financial Stability

The financial market infrastructure firms (FMIs) supervised by the Bank of England (the Bank) are essential to the smooth and safe operation of the UK financial system. They provide services, like payments, that we use every day. They enable financial market participants to manage their risks. As a global financial centre, the smooth and safe operation of UK FMIs is also vital for international markets. The Bank's supervision of FMIs is essential for financial stability by ensuring that their risk management and resilience frameworks enable them to carry out their vital functions in normal times and during periods of stress. The Bank's supervision of FMIs is key to the Bank's objective to protect and enhance financial stability in the United Kingdom.

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 four key areas: delivering robust supervision in challenging times, developing and implementing a clear forward agenda on central counterparty (CCP) resilience and recovery, shaping the UK's response to innovations in payments, and setting out our policy on the recognition and supervision of overseas CCPs and central securities depositories (CSDs) who want to provide services to the UK.

Market volatility over the past year has demonstrated the importance of the resilience of FMIs for financial stability in the UK and abroad. Over the year, the Bank has continued to deliver robust supervision of FMIs, including through the use of the Bank's formal powers where issues have warranted such a response. We have also made some targeted enhancements to supervisory frameworks with new requirements on FMI operational resilience and consulting on further changes to reflect the increased reliance on outsourcing.

The publication of the Bank's first public supervisory stress test of UK CCPs marks a major milestone in our clear forward agenda on CCP resilience and recovery. The results confirm the resilience of the UK CCPs to market stress scenarios that were calibrated to be of equal or greater severity than the worst historical market stresses. The exercise supports our commitment to regulating CCPs with due transparency and in line with international best practice. The stress-testing methodology that the Bank is developing allows us to explore a wide range of risks to UK CCPs and test their resilience under a multitude of extreme circumstances. The Bank will continue to engage with industry on the findings from this exercise, which will inform and strengthen our ongoing supervisory and regulatory work at both the domestic and international level.

The entry of non-bank payment service providers with varied business models and innovative technology, will continue changes in the way we pay for goods and services, and the Bank continues to be at the forefront of work to ensure that domestic and international regulatory frameworks are fit for changes in the payments landscape. The formal recognition of the Sterling Fnality Payment System by HM Treasury (HMT) is the first recognition of a payment system that will enable wholesale payments using Distributed Ledger Technology (DLT). The DLT Sandbox being developed with HMT and the Financial Conduct Authority (FCA), will also support the exploration of the potential benefits of such ground-breaking technology in the settlement industry.

Recognising the importance of a global approach to new innovations in the payments area, the Bank has made significant contributions to the work of the Committee on Payments and Market Infrastructures (CPMI) on international standards related to the development of ‘stablecoins’ and to the Financial Stability Board’s (FSB’s) work to revise its ‘global stablecoin’ recommendations. The Bank has also continued to be a substantial contributor to international policy work designed to make CCPs more resilient and less likely to amplify risks during episodes of volatility. For example, the Bank co-chairs an FSB group examining the size of margin calls in centrally and non-centrally cleared derivatives and securities markets following the ‘Dash for Cash’ episode triggered by the start of the Covid pandemic in March 2020.

We have also, post-Brexit, finalised our policy regime for incoming FMIs. Robust supervision of incoming FMIs is required to fulfil our statutory objective of maintaining UK financial stability, and we have centred delivery of this, where possible, on the concept of deference and co-operation with home state regulators. This approach to cross-border supervision is consistent with the G20 St. Petersburg declaration, International Organisation of Securities Commissions (IOSCO) Good Practices, and the Bank’s commitment to international co-operation.

Looking ahead the Future Regulatory Framework, as set out in the Financial Services and Markets Bill currently before Parliament, is a significant component of HMT’s long-term strategy to create a post-Brexit Financial Regulation Architecture. The provisions in the Bill represent a significant milestone for the Bank’s regulatory regime, granting us a general rulemaking power in relation to CCPs and CSDs, with safeguards such that we apply our new powers in a transparent and accountable manner. As a result, our supervisory approach will evolve to ensure the UK maintains a coherent, agile, and internationally respected approach to financial services regulation that promotes financial stability.

This Report sets out how the Bank has continued to supervise UK FMIs effectively as the economy and financial markets emerged from the pandemic and faced the challenges caused by the war in Ukraine. Continued rigorous, risk-based, and forward-looking FMI supervision is critical to ensuring financial stability now and for the future.

Sir Jon Cunliffe
19 December 2022

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

FMIs form the backbone of the financial system, and the public relies on them every day.

FMIs are crucial to financial stability. They provide critical services that allow individuals and businesses to transact with each other, and yet how they work, and their importance is not widely understood. Disruptions to these systems can have consequences that affect the entire financial system. As such, the Bank's supervision of FMIs is aimed at ensuring that FMIs can continue to provide their services to the economy, both in good times and in bad, by being resilient and reliable.

The Bank regulates three broad categories of FMI: payment systems, central securities depositories (CSDs), and central counterparties (CCPs).

Payment systems are entities that 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. CSDs keep ownership records of individual securities and facilitate the secure transfer of these securities between people or entities. CCPs sit between buyers and sellers of financial contracts so that both parties hold a contract with the CCP rather than with each other. This ensures that obligations of a trade can be fulfilled even if one party fails, thus reducing counterparty credit risk.

FMIs are interconnected with the wider financial system, meaning their resilience is key to maintaining financial stability.

FMIs are greatly interconnected with the wider financial system and their members include financial institutions, businesses, and individuals. FMIs simplify complex networks of counterparty exposures and serve to make financial transactions more efficient and secure, contributing to financial stability. FMIs' central role in the financial system means that maintaining their operational and financial resilience is of utmost importance to financial stability.

FMIs must be financially and operationally resilient in order to be able to absorb, rather than amplify, shocks.

FMIs can be exposed to multiple sources of disruption, including from other market participants and service providers, as well as their own operations. These sources of disruption can give rise to both financial and operational risks. Resilient FMIs have robust processes, systems, and resources in place, and are able to absorb the shocks that arise when these risks crystallise, rather than amplifying their effects across the financial system.

FMIs should also be able to respond to and learn from disruptions to their operations which could potentially disrupt the fundamental payment, clearing, and settlement services they provide.

> **The Bank supervises FMIs as part of its objective to protect and enhance financial stability.**

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.

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

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) (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, FX, 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)	
		Mastercard Europe (Paying for goods/ services)	
		Sterling Fnality Payment System[(b)] (High-value sterling payments)	
		Visa Europe (Paying for goods/ services)	

(a) The Bank's FMI supervisory area continues to supervise CHAPS (a non-recognised payment system) to the same standard as other recognised payment systems. CHAPS was formally de-recognised by HMT in December 2017, when responsibility for managing the system was transferred to the Bank.

(b) While recognised, Fnality is not yet operational.

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 regarding the critical services they provide to Bank-regulated FMIs. The Bank's approach has an international as well as a domestic perspective, recognising the importance of some Bank-regulated FMIs in other jurisdictions, and that disruptions to their services 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 Organisation 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, Sir 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) and Central Securities Depositories Regulation (CSDR).

The Bank's FMI supervisory area continues to supervise CHAPS (a non-recognised payment system) to the same standard as other recognised payment systems. CHAPS was formally de-recognised by HM Treasury (HMT) in December 2017, when responsibility for managing the system was transferred to the Bank.

The legal framework surrounding the Bank's supervision of FMIs is in the process of change, as detailed further in Box D.

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

The Bank uses a supervisory risk assessment framework to identify potential risks to FMIs 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 risk mitigants:

(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, technical risk reviews, and third-party reviews.

The Bank periodically assesses each FMI it regulates. As an output of these assessments the Bank sets actions (known as 'Priorities') that it expects the FMI to take to address its risks. These assessments are informed by a continuous cycle of supervisory engagement and a programme of cross-FMI thematic and technical 'deep dive' risk reviews. In addition, the Bank has powers to commission reviews into supervisory topics by third party experts. During this reporting period, the Bank commissioned four of these skilled person reviews under Section 166 of the Financial Services and Markets Act and s195 of the Banking Act. In the previous reporting period, the Bank commissioned three of these reviews.

The Bank also revises and expands its supervisory tools. In October 2022, the Bank published the results of its first public CCP supervisory stress test, assessing the credit and liquidity resilience of UK CCPs. The results will be used to inform the Bank's expectations of CCPs' risk management and whether those expectations are met, and to inform future exercises. The Bank plans to conduct regular CCP supervisory stress tests as part of its ongoing supervision.

The Bank co-operates closely with domestic counterparts.

The Bank co-operates with the Financial Conduct Authority (FCA) and the 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) which are reviewed annually.

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

Where FMIs are licensed in multiple jurisdictions, the Bank recognises the importance of working in close co-operation with counterpart regulators to avoid overlap and to share priorities. This commitment to co-operate was formalised this year in our policy for incoming FMIs[3] which is grounded on the principle of 'informed reliance'. This policy sets out that the Bank will not bring an FMI into direct UK supervision if we can see on a continuing basis that its home regulators are delivering the outcomes we need to protect UK financial stability.[4] This involves assessing whether a jurisdiction has a robust regulatory and supervisory framework and is clearly committed to meeting our expectations with respect to co-operation, trust, and information sharing.

The Bank also ensures it delivers the same level of co-operation for UK FMIs. It has supervisory colleges for each of our UK CCPs to ensure appropriate arrangements are in place for cross-border supervisory co-ordination. The Bank was also 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 is also establishing a supervisory college for Visa Europe, applying the same fundamental principles of effective international co-operation to the supervision of a systemically important card system. Additionally, 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 exercise of powers in relation to FMIs is undertaken by the FMI Board.

The FMI Board is an executive committee constituted by the Governor 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, chaired by the Deputy Governor for Financial Stability, Sir Jon Cunliffe, plays a vital role in overseeing the Bank's FMI policy and supervision and, through this, helps support the

3. **The Bank of England's approach to tiering incoming central counterparties under EMIR Article 25**.
4. **Speech given by Christina Segal-Knowles at the FIA, on Monday 8 November 2021**.

Bank's statutory objective to protect and enhance UK financial stability. 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) and Board decisions are reached by consensus where possible (or otherwise by vote). Where the Bank exercises certain functions, including making technical standards, these must be exercised by the Board and cannot be delegated. As the Bank prepares to gain new powers under the Future Regulatory Framework (FRF) as outlined in Box D, the role of the FMI Board will also change to reflect these.

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

As a result of the UK's withdrawal from the EU, the Bank, as FMI supervisor, has gained certain regulatory responsibilities that were previously discharged by EU Authorities. These include the power to make technical standards[5] and the responsibility to recognise non-UK FMIs seeking to provide services in the UK.

In order for a CCP or CSD to operate in the UK, its jurisdiction must be granted equivalence by HMT. The Bank is providing advice to HMT to assist with these equivalence assessments of third-country jurisdictions. Alongside this we continue to prepare for recognition of overseas 'incoming' FMIs, including engaging with the home regulators with a view to agreeing appropriate co-operation arrangements. The Bank has prioritised the incoming FMIs that it considers pose the greatest risks to UK financial stability.

Incoming CCPs are currently providing services in the UK under the CCP Temporary Recognition Regime (TRR), which allows eligible incoming CCPs to operate in the UK prior to the recognition decisions being made. HMT has legislated for the TRR to expire on 31 December 2024 and is extendable by HMT in increments of up to twelve months. HMT recently expanded the scope of the TRR to allow overseas CCPs within the regime to offer new products into the UK. The CSD transitional regime also allows eligible non-UK CSDs to provide CSD services in the UK prior to any recognition decisions being made.

5. The Bank's powers to make technical standards are a relevant sub-delegated power to be reported pursuant to paragraph 32(2)(a) of Schedule 7 of the European Union (Withdrawal) Act 2018. See Annex 4 for further details.

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

In the past year the Bank has ensured that FMIs contribute to greater financial stability in the UK. This work can broadly be divided into four key areas: delivering robust supervision in challenging times; developing and implementing a clear forward agenda on CCP resilience and recovery; shaping the UK and the world's response to innovations in payments; and finalising approaches to recognition and supervision of cross-border CCPs and CSDs. Each key area is examined in further depth below.

3.1: Delivering robust supervision in challenging times

The market environment has remained challenging for FMIs.

Significant market shocks have occurred following the global Covid-19 (Covid) pandemic and the Russian invasion of Ukraine. In early 2020, the Covid pandemic sparked a 'flight to safety' by investors, with considerable volatility across asset classes, including government bonds; coined the 'dash for cash', this episode resulted in the biggest two-day price moves for some cleared products in the past decade.[6] Similarly, the Russian invasion of Ukraine has caused major disruption to global energy and food markets, and equity and commodity prices have seen very high levels of volatility.[7]

FMIs have largely proved resilient and supported financial stability.

Most FMIs have been resilient to these stressed market conditions. Nevertheless, lessons were learnt for some firms – notably after the suspension of nickel trading at LME as outlined in Box A. The successful management of VTBC's default highlighted the ability of UK CCPs to perform their important role mitigating contagion from counterparty credit risk. The resilience of UK CCPs was noted by the IMF in their assessment of the UK financial system – see Box C – and contributes significantly to confidence in UK financial stability, particularly given the vital role undertaken by UK CCPs.

Nevertheless, lessons were learnt for some firms – see Box A – and international policy work to continue to strengthen CCP resilience and examine the responsiveness of margin to price volatility is also underway, as outlined in Section 3.2. This work to further strengthen the

6. Central clearing: three lessons and a path forward − speech by Christina Segal-Knowles.
7. Financial Stability Report – July 2022.

clearing system is a crucial part of our efforts to enhance the resilience of the UK and global financial system.

Market developments also provided challenges for operational resilience.

During periods of market stress, operational resilience is key to maintaining confidence in the financial system. FMIs have functioned well operationally, and the Bank has taken robust action where issues were identified to ensure FMIs operate at the necessary levels of resilience – see Box B. Nevertheless, our supervisory approach has continued to evolve as we meet emerging challenges to operational resilience. Our new policies on FMI operational resilience, discussed below, will drive forward improvements in this space, and we are consulting on protecting FMIs from potential systemic risks associated with outsourcing and critical third parties.

The Bank has continued to drive forward improvements in FMIs' operational resilience.

The Bank's policies on FMI operational resilience which were published in March 2021,[8] came into effect in March 2022. These policies 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. They set out expectations that firms identify important business services and set impact tolerances related to disruptions to their delivery of important business services.

All FMIs are now implementing the Bank's policies. As part of our ongoing supervision, the Bank will continue to work with FMIs to ensure that by no later than 31 March 2025 they have taken all reasonable actions to remain within their impact tolerances in the event of extreme but plausible disruptions to operations.

And we are consulting on further enhancements to strengthen operational resilience.

Recognising the greater use of outsourcing and the potential that these new dependencies create systemic risks – the Bank has issued two sets of proposals to enhance operational resilience.

The Bank consulted in April 2022[9] on outsourcing and third-party risk management for central counterparties (CCPs), central securities depositories (CSDs), recognised payment system operators (RPSOs) and specified service providers (SSPs), with the aim of facilitating greater resilience by FMIs in relation to their adoption of the cloud and other new technologies.[10]

8. **Bank of England policy on Operational Resilience of FMIs**.
9. **Bank of England Consultation Papers: FMI outsourcing and third party risk management**.
10. **The Future of Finance – our response**.

In addition, the Bank, FCA, and PRA published a joint Discussion Paper[11] in July 2022 to set out potential measures for how the supervisory authorities could use their proposed new powers to assess and strengthen the resilience of services outsourced to critical third parties (CTPs) by firms and FMIs, including setting minimum resilience standards and requiring resilience testing of CTPs.

The new powers are provided for by the incoming Financial Services and Markets (FSM) Bill. The potential measures comprise of three main pillars:

1. a framework for the supervisory authorities to identify potential critical third parties and recommend them to HMT for formal designation;
2. minimum resilience standards for designated CTPs in respect of material services they provide to firms and FMIs; and
3. a range of tools for testing the resilience of material services that CTPs provide to firms and FMIs.

11. **DP3/22 – Operational resilience: Critical third parties to the UK financial sector**.

Box A: Following unprecedented events in some commodities markets, the Bank is engaging with the other UK supervisory authorities to review operations at LME Clear

On 8 March 2022, the London Metal Exchange (the LME) suspended nickel trading, having concluded that a disorderly market had arisen. Nickel trading resumed on the LME on Wednesday 16 March. The suspension occurred amid challenging commodity market conditions and prices that had moved well beyond historical precedent, as shown in chart A.1, following Russia's invasion of Ukraine, exacerbated by the build-up of very large positions in the form of an opaque web of derivative exposures. While the bulk of the contracts were bilateral, many were centrally cleared at LME Clear.[12]

Following the events at LME, the Bank is undertaking a review into the operation of LME Clear as a central counterparty during this unstable period to determine whether any lessons might be learnt in relation to its governance and risk management. The FCA is also reviewing the LME's approach to managing the suspension and resumption of the market in nickel to determine what lessons might be learnt in relation to the LME's governance and market oversight arrangements.

Both the Bank and the FCA's reviews are being assisted by the appointment of skilled persons to report on the matter, under Section 166 of the Financial Services and Markets Act 2000. The FCA and the Bank will consider these reports in determining whether further action should be taken and will announce next steps in due course.

The LME has already made changes to its market structure that it expects will help avoid a repeat of March 2022's events, for example the introduction of OTC position reporting by members and has commissioned an independent review to make recommendations to reduce the likelihood of similar events occurring in the future.

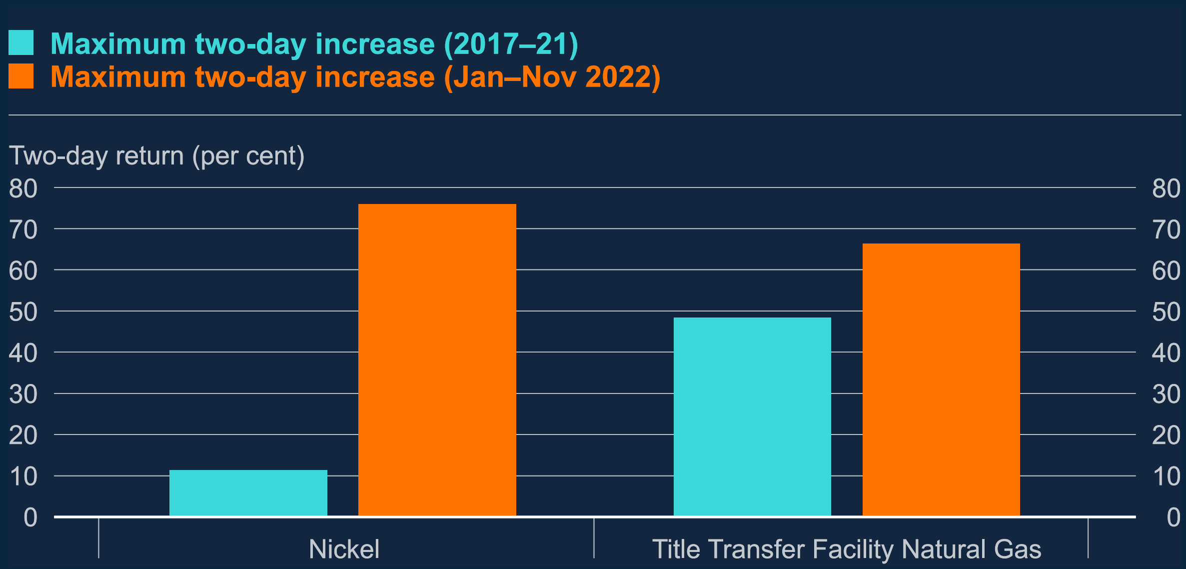
The war in Ukraine has also catalysed volatility in energy markets, with large spikes in the price of natural gas in particular. The nickel episode and other recent extreme events in commodities markets reinforce the case for international workstreams already underway amongst global regulators. Such ongoing work includes increasing the transparency of OTC derivatives via cross-jurisdictional data sharing, as well as taking

12. **Joint statement from UK Financial Regulation Authorities on London Metal Exchange and LME Clear**.

forward the recommendations of the BCBS[13] -CPMI-IOSCO Review of Margining Practices which will address clearing participant preparedness, margin transparency, and the reactivity of margin models.

Chart A.1: The Russian invasion of Ukraine catalysed an extremely large spike in the price of nickel, with further volatility seen in energy prices throughout 2022

Maximum two-day increase in price of nickel versus natural gas, 2017–21 versus January–November 2022



13. Basel Committee on Banking Supervision.

Box B: The Bank has used its supervisory tools to maintain the resilience of FMIs

Euroclear UK and International (EUI), the UK Central Securities Depository, suffered a settlement system outage on 17 June 2022 that caused notable market disruption. This followed a separate settlement system outage on 11 September 2020.

The Bank has used a variety of supervisory tools to secure enhancements in resilience in EUI. In light of the September 2020 incident's serious and disruptive nature, the Bank issued a direction to EUI, under Section 191 of the Banking Act 2009, which required the firm to implement the recommendations of an external review that the firm commissioned into the incident.[14] In addition, the Bank used 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.

The Bank will act robustly to address operational resilience failings. Our broader work programme to evolve and enhance our supervisory strategy to combat operational risks is detailed further below.

Following the June outage this year, the Bank again used its powers under Section 166 of the Financial Services and Markets Act 2000, requiring EUI to appoint a skilled person to inter alia assess whether any relevant lessons learnt from the previous incident in September 2020 had been appropriately implemented and whether EUI's strategy to enhance their IT resilience needs to be improved further.

14. **Bank of England announces supervisory action over Euroclear UK and Ireland September 2020 operational settlement outage**.

Box C: The IMF's Assessment of the Bank's FMI supervision

Throughout 2021, the IMF conducted its five-yearly review of the UK financial system under the Financial Sector Assessment Program (FSAP), a technical review of the UK regulatory authorities, completed in November 2021.[15] The IMF explored the role of CCPs in the 'dash for cash' episode and the Bank's supervisory response, noting that UK CCPs proved resilient through the March 2020 episode and that the Bank has 'significant experience' supervising them.

The IMF was also supportive of the Bank's proposed framework for CCP supervisory stress testing, noting that it is robust and 'borrows the best elements of existing international frameworks, and improves international practice in some areas'.[16] The FSAP also welcomed HMT's May 2021 consultation to expand the CCP resolution regime and commented that the Bank's regulatory framework – namely the Financial Policy Committee's (FPC) cyber strategy and the CBEST programme – is consistent with good international practices and cross-sectoral cybersecurity standards in its principles-based and outcome-focused approach.

The IMF also outlined suggested areas for improvement. The IMF highlighted the importance of resilience to cybersecurity threats and recommended that the Bank should seek additional statutory powers to review and examine critical third-party providers, and to enhance cyber risk technical reviews, amongst other recommendations. In addition, the IMF recommended that CCP stress tests should be co-ordinated with stress tests on CCPs' clearing members, so that the respective exercise can better inform each other, as well as recommending increased transparency of CCP stressed liquidity demands on clearing members and clients.

15. **United Kingdom: Financial Sector Assessment Program-Financial System Stability Assessment**.
16. **IMF Financial Sector Assessment Program: Vulnerabilities in NBFIs, Market-Based Finance, and Systemic Liquidity**.

3.2: Developing and implementing a clear forward agenda on CCP resilience and recovery

The Bank has published the results of its first public supervisory stress test of UK CCPs.

In October 2022, the Bank published the results of its first public CCP supervisory stress test (SST).[17] Launched in October 2021, the 2021–22 CCP SST was exploratory in nature – without pass-fail assessments – and explored the credit and liquidity resilience of the three UK CCPs (ICE Clear Europe Limited, LCH Limited, and LME Clear Limited). The exercise also included a reverse stress test to identify what would be required to deplete CCPs' financial resources, and an analysis of the impact of the stress test scenario on CCPs' clearing members and their clients.

Overall, the results showed UK CCPs were resilient to a severe market stress scenario combined with the simultaneous default of the two clearing member groups who, in defaulting, create the largest losses or worst liquidity balances. This severe market stress scenario consisted of shocks to the prices of a wide range of products cleared by the UK CCPs and was broadly equivalent in overall severity to the worst historical stress for each CCP clearing service. While the results varied across CCPs, no CCP experienced full depletion of prefunded financial resources or a negative liquidity balance. For one CCP Clearing Service (LME Base), losses resulted in close to full depletion of the Default Fund when the Bank's estimates of concentration costs were included. It should be noted that since the launch of the 2021–22 CCP SST exercise, there have been large price shocks in some markets which in some cases have gone beyond those previously historically observed. Due to the timing of the 2021–22 CCP SST, these realised market stresses were not incorporated into the historical observations used to inform calibration of the Baseline Market Stress Scenario – though they will feature in future tests.

This stress test supports the Bank's commitment, in line with the UK's status as a global financial centre, to regulating CCPs with due transparency and in line with international best practice. The Bank will continue to engage CCPs on the findings from this exercise, which will also inform the Bank's ongoing supervisory and regulatory work at both the domestic and international level.

The International Monetary Fund (IMF) also undertook an evaluation of the Bank's proposed framework for CCP supervisory stress testing, as part of the IMF's Financial Sector Assessment Program for the UK (see Box C).

17. **2021–22 CCP Supervisory Stress Test: results report**.

We have continued to play a leading role in international work on CCP margin.

In line with the Bank's support for strong international standards, the Bank has continued to take an active role in the development of international policy work on CCP margin. The Bank co-chaired the joint BCBS-CPMI-IOSCO group on margin, an ad-hoc group examining the size of margin calls in centrally and non-centrally cleared derivatives and securities markets following the 'dash for cash' episode triggered by the start of the Covid pandemic in March 2020.[18]

Following the group's consultative report[19] last year, the group published its final report in September.[20] The report sets out a number of areas for further policy work. The joint BCBS-CPMI-IOSCO group will be taking forward work on increasing transparency in centrally cleared markets and evaluating the responsiveness of centrally cleared initial margin models to markets stresses. Other pieces of follow-up work, such as liquidity preparedness and data gaps in regulatory reporting, will be taken forward by BCBS, CPMI and IOSCO together with the FSB.

And the Bank has published its final policy on amending the scope of the clearing obligation to reflect changes in market activity as a result of interest rate benchmark reform.

In June 2022, the Bank published a consultation on the scope of the clearing obligation, focusing on changes in US dollar interest rate markets ahead of the discontinuation of USD Libor benchmark at end-June 2023.[21] In line with the supportive feedback received to the consultation, the Bank published a policy statement in September 2022 finalising the amendments to the clearing obligation as consulted on: adding overnight index swaps referencing SOFR[22] on 31 October 2022 and removing USD Libor referencing contracts on 24 April 2023. This policy statement included the final UK Technical Standards instrument that implements the amendments.[23]

18. **Jon Cunliffe: Learning from the dash for cash**.
19. **Review of margining practices (26 October 2021)**.
20. **Review of margining practices (29 September 2022)**.
21. **Derivatives clearing obligation – modifications to reflect USD interest rate benchmark reform: Amendment to BTS 2015/2205**.
22. Secured Overnight Financing Rate.
23. The Bank's powers to set technical standards are a relevant sub-delegated power to be reported pursuant to paragraph 32(2)(a) of Schedule 7 of the European Union (Withdrawal) Act 2018. See Annex 4 for further details.

This consultation represented the third and final change to the scope of the clearing obligation arising from interest rate benchmark reform. This followed earlier consultations in 2021 which implemented changes to sterling, euro, and yen interest rate markets.[24]

3.3: Shaping the UK's and the world's response to innovation in payments

The Bank supported the development of international stablecoin guidance, published by CPMI-IOSCO.

The Bank has played a key role in CPMI-IOSCO work designed to ensure international standards for payment systems reflect innovation in the payments landscape. In July, CPMI and IOSCO issued final guidance on stablecoin arrangements confirming that the 'Principles for Financial Market Infrastructures' (PFMI) apply to systemically important stablecoin arrangements that transfer stablecoins.[25]

Given the novelty and complexity of stablecoin arrangements, the guidance elaborates on aspects related to governance; a comprehensive risk management framework; settlement finality; and money settlements. The guidance also provides considerations to assist authorities in determining whether a stablecoin arrangement is systemically important.

This guidance is a major step forward in applying the principle of 'same risk, same regulatory outcome' to systemically important stablecoin arrangements that are used for payments. It is also a key contribution to the G20 cross-border payments programme and supports the work of the Financial Stability Board (FSB) in this area. In the UK, the Financial Services and Markets Bill (see Box D) is consistent with the international standards set by this guidance.

And we have worked with other bodies, including the FSB, to update recommendations for global stablecoins arrangements.

In 2022, the FSB, in consultation with the Bank and other relevant international authorities and standard-setting bodies, published a proposed framework for the international regulation of crypto-asset activities. This framework was submitted to the G20 Finance Ministers and Central Bank Governors in October. The proposals included a review of the FSB's high-level

24. **Derivatives clearing obligation – modifications to reflect interest rates benchmark reform: Amendments to BTS 2015/2205**; **Derivatives clearing obligation – introduction of contracts referencing TONA: Amendment to BTS 2015/2205**; and **Derivatives clearing obligation – modifications to reflect USD interest rate benchmark reform: Amendments to BTS 2015/2205**.
25. **Application of the Principles for Financial Market Infrastructures to stablecoin arrangements**.

Recommendations of October 2020 for the regulation, supervision, and oversight of 'global stablecoin' (GSC) arrangements.[26]

The Bank has made significant contributions to revising the FSB's GSC Recommendations to address associated financial stability risks more effectively. In particular, the revised Recommendations aim to ensure the safety of stablecoins as an alternative to commercial bank money, by requiring GSC arrangements to provide a robust legal claim, guarantee timely redemption at par into fiat, and maintain effective stabilisation mechanisms; and to be subject to appropriate prudential requirements.[27]

The revised FSB Recommendations are in line with the FPC's expectations for stablecoins, which guide the design of the Bank's regulatory framework for systemic stablecoins in the UK.

The Bank also worked domestically to progress the UK's regulatory framework for digital money.

The Bank published the responses to the Discussion Paper on new forms of digital money in March 2022.[28] Consistent with the final CPMI-IOSCO guidance confirming the application of the PFMI to stablecoins, the Discussion Paper had also stated the Bank's intention to apply the principle of 'same risk, same regulatory outcome', ensuring that the same risks are guarded against to the same extent.

The FPC confirmed in March that a systemic stablecoin issued by a non-bank without a resolution regime and/or deposit guarantee scheme could meet its expectations, provided the Bank applied a regulatory framework that was designed to mitigate risks to financial stability.[29]

While continuing work to support the prudential resilience of the wholesale cash distribution network in the UK.

Since 2016, cash processing volumes have declined significantly across the UK as consumers shift towards other forms of payment, including mobile and contactless. This shift

26. Characteristics of 'global stablecoins' as per the FSB's definition(s): 'There is no universally agreed legal or regulatory definition of stablecoin… three characteristics that distinguish a [global stablecoin] from other crypto-assets and other stablecoins… include: (i) the existence of a stabilisation mechanism, (ii) the usability as a means of payment and/or store of value, and (iii) the potential reach and adoption across multiple jurisdictions'. **Regulation, Supervision and Oversight of 'Global Stablecoin' Arrangements**, Financial Stability Board (**fsb.org**).
27. **Review of the FSB High-level Recommendations of the Regulation, Supervision and Oversight of 'Global Stablecoin' Arrangements: Consultative Report**, Financial Stability Board.
28. **Responses to the Bank of England's Discussion Paper on new forms of digital money**.
29. **Financial Policy Summary and Record – March 2022**.

has put a strain on the wholesale cash distribution network, which includes the delivery of new notes and coins, sorting and circulating those notes and coins, and withdrawing currency that is no longer fit for circulation. HMT has committed to giving the Bank powers to ensure that this network remains effective, resilient, and sustainable for the future. These powers are contained in the FSM Bill which is currently before parliament. In December 2022,[30] the Bank commenced a consultation on how it intends to use its new powers of market oversight and prudential supervision. Any firm recognised as systemic by HMT would be brought into the scope of the Bank's prudential supervision. We do not consider that any firm in the wholesale cash sector would meet the criteria for systemic recognition by HMT at present.

3.4: Finalising approaches to recognition and supervision of cross-border CCPs and CSDs

We are cementing and operationalising our approach to incoming FMIs.

The Bank has finalised its policy regime for incoming FMIs. The Bank's approach is underpinned by a desire to co-operate with the incoming FMI's home regulator and the concept of deference, where the Bank will defer to the respective local supervisory authorities wherever it is appropriate to do so.

Under the Bank's tiering approach, incoming CCPs will be assessed to establish the degree to which they pose, or are likely to pose, risks to UK financial stability. For those CCPs which are found to be potentially systemically important to UK financial stability, the Bank will undertake an assessment to determine the extent to which the Bank can place informed reliance on the regulation and supervision of the home authority.

Where this assessment shows the Bank's expectations have been met the Bank will defer to the home authority. Where such expectations have not been met, a CCP will usually be designated as Tier 2 under the on-shored European Market Infrastructure Regulation (EMIR) and therefore subject to direct supervision by the Bank.[31] Similarly, for incoming CSDs which the Bank judges to present material financial stability risks to the UK we would have closer engagement with the firm and its home supervisor.[32]

30. **Consultation on the Bank of England's supervisory approach to wholesale cash distribution**.
31. **The Bank of England's approach to tiering incoming central counterparties under EMIR Article 25** and **The Bank of England's approach to comparable compliance under EMIR Article 25a**.
32. Following the UK's withdrawal from the European Union (the EU), the Bank has taken on responsibility, pursuant to Regulation (EU) No 909/2014 of the European Parliament and of the Council of 23 July 2014 as it forms part of retained EU law ('UK CSDR'), for recognising incoming CSDs intending to provide notary and/or central maintenance services in relation to financial instruments constituted under UK law to either issuers or CSD services. **The Bank of England's fees regime for incoming central securities depositories**.

Which redoubles our commitment to international co-operation for FMI supervision.

This approach to cross border supervision is consistent with the G20 St. Petersburg declaration, IOSCO Good Practices, and the Bank's foundational commitment to international co-operation. Under this deferential approach, the Bank expects to primarily interact with home authorities to ensure it can continuously place reliance on them for regulation and supervision of incoming CCPs and CSDs in an informed manner, sustained by the delivery of co-operation and information sharing agreed with the home authority. This includes structured and regular engagement with the home authority to exchange views and information, and participation in multilateral fora or reviews led by the home authority to gain comfort on how supervision is delivered.

The level of co-operation and information sharing the Bank expects from the home authority will depend on the level of UK activity at the incoming CCPs and CSDs; the higher the UK activity, the higher expectation the Bank has for the depth of co-operation and information sharing. The Bank will also continue to monitor the level of gross risks posed by incoming CCPs and CSDs to inform its views on whether the level of co-operation and information sharing with the home authority remains appropriate and proportionate.

While progressing work on the recognition of incoming FMIs.

With these policies now in place, the Bank will proceed to recognise the incoming CCPs and incoming CSDs where the requirements for recognition are met, prioritising on the basis of the risk the firms may pose to UK financial stability. These requirements include a decision by HMT that the relevant jurisdiction's regulatory framework is equivalent, and appropriate and proportionate supervisory co-operation and information sharing being agreed with the incoming FMI's home authority.

The Bank is currently working with HMT to provide advice on granting equivalence decisions to the relevant jurisdictions and has also begun discussions with overseas authorities on the necessary Memorandum of Understandings (MoUs) to support recognition.

In the meantime, non-UK CCPs in the Temporary Recognition Regime (TRR) may continue to offer clearing services in the UK.[33] Non-UK CCPs that exit the TRR without being granted permanent recognition enter a run-off regime, which allows them to continue to be recognised for up to one year, as determined by the Bank. 6 non-UK CCPs that were in the TRR did not apply to the Bank for recognition before 30 June 2022, and so entered the run-off regime. Under the current arrangements these CCPs may continue to offer clearing

33. **List of third-country CCPs that are taken to be eligible for temporary deemed recognition in the UK by virtue of the Temporary Recognition Regime established by the Central Counterparties.**.

services in the UK until they exit the run-off regime (or achieve permanent recognition, should they apply).

Alongside the recognition process, incoming FMIs may be designated to obtain protection from certain insolvency challenges under the Settlement Finality Regulations.[34] The first of these designations was granted to STEP 2-T (operated by EBA Clearing).

And finalising our policy on fees for incoming CCPs and incoming CSDs.

As part of the Bank's responsibility for recognising and supervising incoming CCPs and CSDs, the Bank charges fees to reflect the work undertaken by the Bank to review their recognition applications and the level of monitoring and/or supervisory activity undertaken by the Bank following recognition. The changes to fees for incoming FMIs were implemented on 1 December 2022.[35]

34. **Approach to the monitoring of third country systems designated under the SFR**.
35. **The Bank of England's fees regime for incoming central securities depositories**.

Box D: The Future Regulatory Framework (FRF)

The FRF is a significant component of HMT's long-term strategy to create a post-Brexit regulatory framework. It aims to ensure that the UK maintains a coherent, agile, and internationally respected approach to financial services regulation that promotes financial stability. The Financial Services and Markets (FSM) Bill proposes:

- **Objectives for the Bank in its role as CCP and CSD regulator**: When advancing the Bank's financial stability objective the Bank must also have regard to the impact its actions may have on the financial stability of other countries where FMIs provide services; and the desirability of regulating CCPs and CSDs in a way that is not determined by the location of their members. The Bank must also, so far as reasonably possible, act in a way which, as a secondary objective, facilitates innovation in the provision of FMI services.
- **A general rulemaking power**: The FSM Bill will grant the Bank a power to make rules in respect of CCPs and CSDs in pursuit of its statutory objectives. In due course, this power will enable the Bank to migrate firm-facing requirements in retained EU legislation into a single rulebook.
- **A new FMI Committee**: In line with the additional responsibilities being granted to the Bank and to ensure that the Bank is able to exercise these new powers in a transparent and accountable manner, the Bill proposes to put the FMI Board – the Bank's internal decision-making committee relating to FMIs – on a statutory footing, creating a Financial Market Infrastructure Committee.
- **Further accountability mechanisms**: HMT will align the Bank's accountability mechanisms with those of the FCA and PRA. This will include changes to the way the Bank interacts with its stakeholders, the requirement to publish a framework for conducting cost-benefit analyses, and the requirement to publish a framework for reviewing rules created under the power.

In addition, the FSM Bill contains a number of significant measures relevant to the Bank's regulatory and supervisory powers elaborated further in Section 4, including:

- **Extending the Senior Managers and Certification Regime** to cover CCPs and CSDs.
- Allowing the Bank, PRA, and FCA to **directly oversee critical services** provided by designated **Critical Third Parties**.
- **Expanding the Bank's CCP resolution powers** in line with FSB guidance.
- Bringing **digital settlements assets** used for payments, such as **stablecoins**, into the UK regulatory perimeter.

4: What are the Bank's future priorities?

The Bank's work in the period ahead will build on the themes set out in the section above: delivering robust, risk-based supervision of FMIs and enhancing the supervisory approach; enhancing CCP resilience, recovery and resolution; facilitating safe innovation in payments and settlements; and continuing to co-operate with international partners to ensure safe, efficient and open markets.

4.1: Delivering robust, risk-based supervision of FMIs and enhancing the supervisory approach

The Bank will continue monitoring ongoing risks to financial stability and ensure that FMIs are resilient and robust to shocks.

Financial markets have experienced numerous shocks in recent years and while FMIs overall have proved robust and resilient to the challenges faced there are lessons to be learnt. The Bank is responding to outages and incidents that occurred earlier this year (see Box A and Box B) and will continue to promote high standards of operational and financial resilience across UK FMIs. We will continue to undertake a range of thematic and firm-specific deep dive reviews across the FMI population. These reviews will provide an opportunity for various peer-group analyses to be undertaken. The Bank will also ensure FMIs complete the implementation of new policy requirements for operational resilience which are required to be addressed by 2025.

And we will monitor innovations within FMIs to ensure continued resilience against potential future risks.

The Bank is working in a context of change and innovation across the FMI space. In August, HMT formally recognised the Sterling Fnality Payment System (Fnality) which brought it into the Bank's supervisory remit. This will be the first UK payment system to enable wholesale settlement using Distributed Ledger Technology (DLT). Existing UK FMIs are also implementing changes to their operations and processes, with a number embarking on large scale infrastructure transformation projects. The Bank will continue to evolve its supervisory and regulatory framework to ensure these innovations and changes are completed effectively, efficiently and with robust standards to ensure UK financial stability.

We will also continue preparing to embed our new objectives and rulemaking powers into our supervision framework.

The Future Regulatory Framework (FRF), laid out in Box D, will give the Bank greater powers with respect to setting rules for CCPs and CSDs. HMT consulted on moving to a regulatory model which will ensure that firm-facing requirements are set through regulator rulebooks and published a summary of the responses to that consultation in July 2022.[36] The FRF will empower the Bank to replace retained EU law (including UK EMIR and UK CSDR) with its own rules where appropriate. The Bank will also gain a new secondary objective to where possible, promote innovation in the services that FMI offer with the aim of improving the quality and efficiency of the sector. These reforms will also introduce new accountability mechanisms for the Bank, including the creation of a new Financial Market Infrastructure Committee, an obligation for the Bank to report on how it engages with interested stakeholders other than CCPs and CSDs themselves, and mandating the publication of a cost-benefit analysis framework.

Over the next period, the Bank will continue to work with HMT to implement the framework and prepare for the transfer of retained EU legislation.

> **Looking ahead, we will continue to strengthen our operational resilience framework with new tools, including developing policy related to Critical Third Parties (CTPs).**

As part of the recently introduced Financial Services and Markets Bill (FSM Bill), the government committed to enhancing the ability of the supervisory authorities (the Bank, the PRA, and the FCA) to manage risks posed by critical third parties. CTPs can include cloud service providers, data analytics providers, or other IT service providers which have become critical to the smooth functioning of FMI operations, meaning any outages of these services could pose a risk to UK financial stability. These services can improve the offering of FMIs to their clients through greater speed of delivery and cost savings and as such their adoption can contribute to FMI innovation.

The Bill would give HMT powers to designate certain third parties as ‘critical’, enabling the supervisory authorities to develop regulation for, gather information from, and take enforcement action against these CTPs with respect to the services they provide firms, including FMIs. These powers will facilitate FMIs’ adoption of the services provided by CTPs by strengthening their operational resilience. The supervisory authorities published a discussion paper[37] outlining potential uses of these powers, including setting minimum resilience standards and requiring resilience testing of CTPs. The Bank intends to review responses to the discussion paper and to consult on the use of these new powers in due course.

36. **The Future Regulatory Framework Review: Central Counterparties and Central Securities Depositories**.
37. **DP3/22 – Operational resilience: Critical third parties to the UK financial sector**.

And develop the Senior Managers and Certification Regime for CCPs and CSDs.

The FSM Bill would also introduce a high-level framework for a Senior Managers and Certification Regime (SM&CR). The main purpose of this regime would be to establish clear boundaries of personal responsibility for the various decisions made by CCPs and CSDs which could have a material impact on the firm's operations, and therefore financial stability. It also provides recourse for firms and regulators to hold these individuals to account. Some key features include:

- **A Senior Managers Regime** granting the Bank powers to determine whether individuals who perform roles that pose a potential risk to financial stability have the appropriate competence, expertise, and integrity to carry out their roles.
- **A Certification Regime** requiring firms to conduct 'fit and proper' certifications for any individual who performs a 'specified function' that could cause significant harm to the entity or its users.
- **Conduct rules** for all employees, which set minimum, high-level requirements of conduct for individuals in CCPs and CSDs. This contrasts with the existing regulatory regime which currently focuses supervisory and enforcement powers on the entities, with limited provisions for the oversight of individual conduct within CCPs and CSDs.

Over the next period, the Bank will continue to design and develop policy in this area in conjunction with HMT.

4.2: Enhancing CCP resilience, recovery, and resolution

The Bank will continue to develop its CCP supervisory stress testing framework.

The Bank intends to publish a framework document for CCP supervisory stress testing in the next reporting period. This publication will set out the Bank's overarching framework for CCP supervisory stress testing and guide the design of each of the Bank's annual CCP SST exercises. The framework will build on the proposals and options for the design of the Bank's CCP supervisory stress-testing framework set out in the Bank's Discussion Paper on Supervisory Stress Testing of Central Counterparties,[38] utilising the feedback received on this Discussion Paper as well as the experiences and lessons learnt from the Bank's exploratory 2021–22 CCP SST exercise. The Bank also intends to launch its next CCP SST exercise in due course.

38. Supervisory Stress Testing of Central Counterparties.

Internationally, the Bank will continue to champion robust standards for CCP financial resources in resolution.

The Bank is, and will continue to be, an active participant in international discussions aimed at ensuring the resilience and resolvability of CCPs. In the coming period, the Bank will continue to contribute to analyses of various tools which ensure that critical clearing services are able to continue in the event of CCP recovery and resolution. The Bank will also continue to support international work to undertake further analysis on the resources available to CCPs in stress situations – including resources that may be used in non-default loss scenarios.

Domestically, the Bank will implement an enhanced regime for CCP resolution.

The FSM Bill also includes provisions for an enhanced CCP resolution regime, granting the Bank a wider range of powers and providing even stronger protections to ensure that any CCP resolution process is efficient, effective, protects taxpayer funds, and ensures continuity of critical clearing services. The enhanced regime will bring UK legislation further in line with international standards, which the Bank fully supported and contributed to during their development.

The new powers will include a financial stability trigger, which will enable the Bank to use wider risks to UK financial stability as criteria when determining whether to take a CCP into resolution. The Bank will also have powers to take control of the CCP (without the need for a bridge entity) and allocate losses appropriately. There will also be a robust protection built into the regime, referred to as the ‘No Creditor Worse Off’ safeguard, which ensures creditors will be entitled to claim for compensation if they bear larger losses in resolution than they would if the CCP was placed into insolvency. The Bank intends to publish Statements of Policy setting out how it will utilise these new powers, as required by the FSM Bill.

The FSM Bill will also introduce additional pre-resolution powers for the Bank. For example, a power to temporarily restrict CCPs from making certain discretionary payments, such as dividend payments, variable remuneration and share buyback.

In addition, the Bank will have the ability to set the amount of capital CCPs have to hold as a second tranche of their own resources (additional Skin in the Game)[39] and the ability to set the methodology by which this is calculated. This capital would be used as an extra resource to absorb losses that may occur. The Bank will continue its work to develop policy on additional Skin in the Game.

39. Final Government Response To Consultation – CCP Resolution.

4.3: Facilitating safe innovation in payments and settlements

The Bank will implement international standards within a domestic stablecoin regime.

The Financial Services & Markets (FSM) Bill published in July 2022 is scheduled to complete in 2023. This will be a key change in that, in line with the Bank's responsibilities for systemic payments systems under the Banking Act 2009, the FSM Bill seeks to bring systemic stablecoins into the Bank's regulatory remit. This will allow us to bring the UK regime in line with new international standards discussed in Section 3.3. The Bank will continue to engage with the Treasury during the Bill's passage, and once the legislation is completed will embed the policy to ensure the systemic stablecoin regime is robust and minimises risks to financial stability. The Bank is now working on a regulatory framework for systemic stablecoins and plans to consult on this in due course.

A key component of this framework will be a Special Administrative Regime for stablecoins.

Alongside regulation, another key component of a stablecoin regime is providing for certainty in the event of failure. The FMI Special Administrative Regime (FMI SAR) is a bespoke insolvency framework for systemic payment and settlement systems, and HMT is currently reviewing responses to a consultation in which it proposed applying the FMI SAR to systemic stablecoin firms. Under this regime, the Bank would be the lead regulator in the administration of systemic digital settlement asset firms and gain a number of new powers – including the power of direction over an appointed administrator as well as the power to require an appointed administrator to pursue the return of funds to coin holders ahead of the interests of other creditors. The Bank, working with HMT, will continue to develop this regime to ensure it reflects international guidance from CPMI-IOSCO.

The Bank will open further domestic innovation opportunities by developing the distributed ledger technology (DLT) FMI Sandbox.

The Bank is working with HMT and the FCA to design an FMI Sandbox,[40] which is scheduled to be up and running by the end of 2023. Firms participating in the sandbox will be able to test and adopt new technologies that may not be supported under current legislation. The Sandbox will initially explore the application of new technologies such as DLT to securities settlement activity. As well as exploring the potential benefits of adopting such technology, the Sandbox will allow the Bank to observe whether extra risk is created in the wider financial system from the adoption of these technologies and design a regulatory approach which mitigates these risks while allowing any benefits to be exploited.[41] Several

40. **Government sets out plan to make UK a global cryptoasset technology hub**.
41. **Innovation in post trade services – opportunities, risks and the role for the public sector − speech by Sir Jon Cunliffe**.

FMIs globally are already exploring the application of DLT in securities settlement, and some central banks and FMI regulators have conducted proof of concepts to explore the benefits DLT in this area. The Bank will continue to work with the FCA and HMT on the design of the Sandbox.

> **And we will continue to develop domestic policy regarding widening the payments perimeter.**

The government has also committed to reviewing the UK's payments landscape, such as proposing to bring systemic payments providers into the Bank's supervisory remit. Any expansion to the proposed payments perimeter would give the Bank powers to supervise the risk posed by the providers to the financial system. The government will respond to feedback on its consultation in due course and the Bank will begin to develop its policies in this area.

4.4: Continuing to co-operate with international partners to promote safe, efficient, and open global markets

> **The Bank will continue its work towards recognising incoming FMIs.**

In 2022, the Bank published its methodology for recognising CCPs that are incorporated abroad and provide services within the UK, known as cross-border or incoming FMIs.[42] In accordance with the requirements of the on-shored European Markets Infrastructure Regulations (EMIR), the Bank is mandated to 'tier' these CCPs based upon the risks they pose, or potentially pose to UK financial stability and then supervise these firms according to how they are tiered.

Over the next period, the Bank will continue to prioritise recognising the most systemically important FMIs. The Bank will also continue to pursue and agree enhanced co-operation and information sharing agreements with the various home regulators of these FMIs. In the enhanced co-operation and information sharing arrangements, the Bank will seek to agree structured and regular engagement with the home authority in bilateral and multilateral fora, supported by regular data provision from the home authority on incoming FMIs. This is with the intention that operationalisation of the enhanced co-operation and information sharing arrangements will provide the necessary assurance to the Bank and enable it to place reliance on the home authority on an ongoing basis.

42. **The Bank of England's approach to tiering incoming central counterparties under EMIR Article 25 – Statement of Policy**.

And continue to play a leading role in international work to ensure global cleared markets are resilient to shocks.

In the last two years, international markets have seen many disruptions which have threatened financial stability, from the dash for cash episode of March 2020, to ongoing shocks within commodity markets. These shocks have given rise to opportunities for learning and have necessitated further international policy work to ensure that the same levels of resilience are maintained globally.

One area where this work is progressing is around CCP margin requirements. In line with its support for strong international standards, the Bank will continue to take an active role in progressing international work on the subject. The Bank recently co-chaired a joint BCBS-CPMI-IOSCO group which published its report on lessons learnt during the March 2020 'dash for cash' episode.[43] In the next phase of this work, the Bank will have a particular focus on increasing transparency in cleared markets and the responsiveness of margin models.

The Bank is also contributing to international work focused specifically on margin responses to real-world events impacting commodities markets. This will include considering the effects on market participants who play a significant role in commodity markets.

43. **Review of margining practices**.

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 **(RCH)** 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**.

CCP	Description
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 purchase 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**.

Payment system	Description
Bacs[44]	Operated by Pay.UK, processes higher-volume and lower-value payments, such as salary, benefit, Direct Credit and Direct Debit payments.
CHAPS[45]	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.

44. Bacs and FPS are owned and operated by Pay.UK, which is the entity that the Bank supervises.
45. 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.

Payment system	Description
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.
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.
Sterling Fnality Payment System[46]	Once launched, the Fnality system intends to be the UK's first wholesale settlement system that uses Distributed Ledger Technology through the Bank's RTGS Omnibus Account.
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.

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**.

Specified provider	Description
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 **Uncertified Securities Regulations 2001**.

Recognised CSD	Description
Euroclear UK & International	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.

46. While recognised, Fnality is not yet operational.

Annex 2: FMI data

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

		Total initial margin requirement (£ equivalent, millions)[b]			Default fund (£ equivalent, millions)[c]			Number of clearing members		Operational availability of core systems (per cent)		Products cleared
		2022 H1	2021	2020	2022 H1	2021	2020	2022 H1	2021	2022 H1	2021	2022 H1 and 2021
ICE Clear Europe[d]	Credit default swap	7,770	7,028	8,358	1,001	924	1,089	28	30	100	100	CDS, Credit Default Swap Market
	Futures and options	111,151	56,742	45,176	2,476	2,335	2,505	74	75			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	EquityClear	4,462	3,468	3,170	150	150	183	32	33	99.98	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	5,754	3,849	3,272	1,712	1,290	1,121	36	35			
	RepoClear	11,386	8,789	8,403	1,615	1,146	1,055	117	114			
	SwapClear[e]	145,064	143,343	154,414	5,675	5,667	6,014	129	139			

		Total initial margin requirement (£ equivalent, millions)[(b)]			Default fund (£ equivalent, millions)[(c)]			Number of clearing members		Operational availability of core systems (per cent)		Products cleared
		2022 H1	2021	2020	2022 H1	2021	2020	2022 H1	2021	2022 H1	2021	2022 H1 and 2021
LME Clear[(f)]	LME Base	11,349	6,867	5,861	1,293	1,007	689	46	45	100	100	Clears a range of base metal and precious metal derivatives traded on the London Metal Exchange

(a) Value and volume figures are daily averages over January–June for 2022, and January–December for 2020 and 2021.
(b) The end of day total margin requirement per default waterfall, averaged over all business days in the period.
(c) The size of the clearing member prefunded default fund, averaged over all business days in the period.
(d) ICE Default fund is average of requirement amount rather than deposit value.
(e) The SwapClear line covers the SwapClear and Listed Rates services.
(f) LME Precious – the service was withdrawn on 2 August 2022.

Recognised payment systems and securities settlement systems[a]

		Volume			Value (£ millions)			Number of settlement bank members		Operational availability (per cent)[b]		Important payment types
		2022 H1	2021	2020	2022 H1	2021	2020	Jun 2022	Dec 2021	2022 H1	2021	2022 H1 and 2021
Bacs		26,468,762	25,780,406	25,424,442	21,244	20,034	19,135	27	27	99.97	99.99	Direct Debit/Direct Credit
CHAPS[c]		202,429	189,539	175,346	377,869	341,171	361,844	37	36	99.99	100[d]	Financial markets and corporate treasury, cross-border, other wholesale, interbank, government, property completions and mortgages.
CLS	All currencies	1,145,858	971,725	1,051,735	5,074,668	4,502,070	4,582,301	77	77	99.92	100	Settlement of Foreign Exchange Transactions in 18 currencies including sterling
	Sterling	81,251	70,944	77,696	451,812	399,504	378,521					
CREST	Sterling	226,957	230,602	228,738	896,741	878,146	925,593	25	25	99.77	99.88	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	7,468	7,320	8,034	1,788	1,459	1,901					
	Euro	1,163	2,300	6,110	690	1,023	1,732					
	Total CREST	235,589	240,222	242,882	899,219	880,628	929,226					
Faster Payments Service[e]		15,331,363	13,508,815	11,221,151	12,375	10,266	8,270	37	35	100	100	Single Immediate Payments, Standing Order Payments, Forward Dated Payments, Direct Corporate Access
Link[f]		4,290,677	4,168,944	4,500,335	221	216	222	33	34	100	100	Withdrawing cash from ATMs deployed by entities other than the withdrawer's card issuer.

		Volume			Value (£ millions)			Number of settlement bank members		Operational availability (per cent)(b)		Important payment types
		2022 H1	2021	2020	2022 H1	2021	2020	Jun 2022	Dec 2021	2022 H1	2021	2022 H1 and 2021
Mastercard Europe	All currencies	124,017,144	123,051,232	96,638,656	3,973	3,492	2,838	856	810	100	100	Card payments
Visa Europe	All currencies	128,707,684	116,898,456	96,120,480	4,410	4,099	3,491	365	370	100	100	Card and digital payments

(a) Value and volume figures are daily averages over January–June for 2022, and January–December for 2020 and 2021.

(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) The exact figure of operational availability in 2021 was 99.9975%.

(e) Directly connected Participants during the reporting period of 2021 were 38 and for H1 2020 were 40. Three of the directly connected Participants do not undertake settlement. Number shown in the above table are directly connected settling Participants.

(f) 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

Term	Definition
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.

Annex 4: Report on the exercise of relevant sub-delegated powers for the period ending 16 December 2022

Presented to Parliament pursuant to paragraph 32(2)(a) of Sch. 7 of the European Union (Withdrawal) Act 2018.

The European Union (Withdrawal) Act 2018 ('The Act') requires the Bank of England to report to Parliament annually if we exercise relevant sub-delegated powers.[47]

This annex relates to the exercise of sub-delegated powers by the Bank in our supervision of FMIs[48] in the reporting period ending 16 December 2022.

The previous report was made jointly with the PRA and laid by HMT in Parliament in September 2021 covering the year ending 28 February 2021.[49] The Bank has also issued a standalone report in relation to exercise of relevant sub-delegated powers in the resolution context for the year ending 28 February 2022.

Modifications of the derivatives clearing obligation to reflect interest rates benchmark reform.

The relevant power exercised for the purposes of this report is the power to make Technical Standards Instruments under s138P Financial Services and Markets Act 2000.

A total of three standards instruments have been made during the reporting period:

- Bank Standards Instrument: The Technical Standards (Clearing Obligation) Instrument 2021.[50]
- Bank Standards Instrument: The Technical Standards (Clearing Obligation) (No. 2) Instrument 2021.[51]
- Bank Standards Instrument: The Technical Standards (Clearing Obligation) Instrument 2022.[52]

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47. Schedule 7, paragraph 32 of the EU (Withdrawal) Act 2018.
48. Note that the Bank has issued a separate standalone sub-delegated powers report in relation to its resolution powers. **Exercise by the Bank of England of sub-delegated powers under the European Union (Withdrawal) Act 2018**.
49. **Exercise by the Bank of England and Prudential Regulation Authority of sub-delegated powers under the EU (Withdrawal) Act 2018 – Report for the financial year ending 28 February 2021**.
50. **Bank Standards Instrument: The Technical Standards (Clearing Obligation) Instrument 2021**.
51. **Bank Standards Instrument: The Technical Standards (Clearing Obligation) (No. 2) Instrument 2021**.
52. **PS: Derivatives clearing obligation – modifications to reflect USD interest rate benchmark reform: Amendment to BTS 2015/2205**.

Modifications to the scope of clearing obligation contracts were made in 2021, namely the removal from the scope of contracts referencing EONIA, JPY Libor, and GBP,[53] as well as adding Overnight Index Swaps (OIS) that reference TONA to the scope of contracts subject to the derivatives clearing obligation,[54] among other changes.

In 2022, the Bank has since modified the scope of contracts subject to the clearing obligation further by adding Overnight Index Swaps (OIS) that reference the Secured Overnight Financing Rate (SOFR) and, subsequently, removing contracts referencing USD Libor. This forms part of the Bank's work in this area to reflect the reforms to interest rate benchmarks and in particular, the discontinuation of the USD Libor benchmark in June 2023.[55]

53. **Derivatives clearing obligation – modifications to reflect interest rate benchmark reform: Amendments to BTS 2015/2205**.
54. **Derivatives clearing obligation – introduction of contracts referencing TONA: Amendment to BTS 2015/2205**.
55. **Derivatives clearing obligation – modifications to reflect USD interest rate benchmark reform: Amendment to BTS 2015/2205**.

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