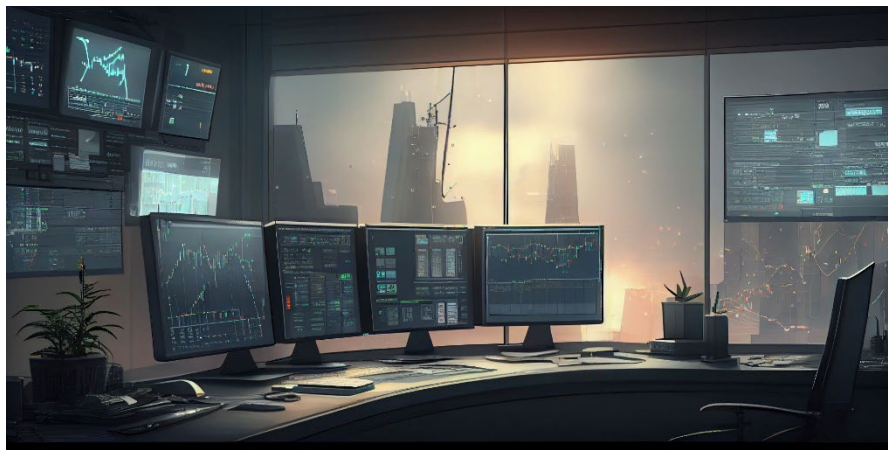


Post-trade services and financial stability

Assessing prospects for post-Brexit
market infrastructure in the EU



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Abstract

This research paper outlines how post-trade financial services work and how relying on central counterparties outside the EU poses political and economic risks to the financial stability of the Union. It demonstrates recent migration away from established venues in London to the EU and the United States, and evaluates prospects for further establishment of post-trade services in the EU.

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LIST OF ABBREVIATIONS

BIS	Bank for International Settlements
CCP	Central Counterparty
CCP-RRR	Central Counterparty-Recovery and Resolution Regulation
CDO	Collateralised Debt Obligation
CFO	Collateralised Fund Obligation
CME	Chicago Mercantile Exchange
CMU	Capital Markets Union
CSD	Central Securities Depository
DTCC	Depository Trust Clearing Corporation
EBA	European Banking Authority
ECB	European Central Bank
EMIR	European Markets Infrastructure Regulation
EONIA	Euro Overnight Index Average
ESMA	European Securities and Markets Authority
€STR	Euro Short Term Rate
EP	European Parliament
ETD	Exchange Traded Derivatives
EU	European Union
EURIBOR	Euro Interbank Offered Rate
FSMA	Financial Services and Markets Act (2023)
ICE	Intercontinental Exchange
ISDA	International Swaps and Derivatives Association
LCH	London Clearing House

LIBOR	London Inter-Bank Offer Rate
OECD	Organisation for Economic Cooperation and Development
OTC	Over-the-counter (derivatives)
SOFR	Single Overnight Financing Rate
TR	Trade Repository
UK	United Kingdom
US	United States

EXECUTIVE SUMMARY

Aim

This study analyses how post-trade financial services impact on financial stability and economic growth, and the consequences of where these services are rendered. It examines:

- The role central counterparties play in financial stability and the impact of their functioning on economy;
- The pros and cons of continuing to rely on services from outside the EU;
- The potential for cliff-edge effects, added costs for EU business, and weakened capacity for CCPs after migration from London
- Evidence of recent migration of post-trade services from London to the EU and the US;
- The requirements for financial stability in the EU added by EU regulations, supervision and public backstops.

Key Findings

Post-trade financial services encompass central counterparties, central securities depositories and trade repositories. Central counterparties in particular are considered essential to financial stability since they were mandated in 2012. They ensure that payments are fulfilled by financial market participants, stepping in to pay on their behalf if necessary. Their purpose is to ensure that failure to pay does not result in a systemic financial crisis. They themselves are financial institutions, associations of banks and other financial trading companies that are subject to capital requirements, risk management procedures and even rules about resolution if they collapse.

Central counterparties for the EU were located in London before Brexit, and the member banks argued that only they had the financial resources, expertise and connections to international financial markets required to clear complex financial derivatives. Migration to the EU would be technically impossible, be hugely expensive to EU businesses, and unleash financial instability. However, business has largely fled London in the first half of 2023, showing the claims to be false. Not only has the EU benefited from initial migration, American companies cleared just over half of trading in mid-2023. This shows that the EU has work to do to reach its goals. Meanwhile, work is underway in the EU to enhance private infrastructure and public oversight. As business moves to the EU, European central counterparties will be able to serve larger volumes of transactions, and more easily serve larger institutional investors.

There is a clear distinction between companies that moved from London to the EU, and those that moved to the US. Larger institutional investors chose for the United States, with its direct access to deep pools of capital and US-dollar denominated bonds that serve as the foundation for interest rate and currency derivatives. Smaller institutional investors chose more frequently for the EU market. This suggests that future moves to calibrate clearing requirements for EU companies should look to the future relationship between EU CCP size and their ability to compete favourably with American clearing houses. Recent shifts of clearing are still new and subject to change.

There are further reasons to proceed with plans to ensure most clearing for the EU market takes place in the EU. The mechanisms by which central counterparties manage risk and are supervised make them vulnerable to political and economic risks, particularly when they are located outside the EU. Political risks are primarily related to the possibility of very different attitudes to what constitutes appropriate levels and forms of financial stability regulation. It also encompasses questions of whether and how

strenuously a public authority should 'do whatever it takes' in a systemic crisis. Judgement calls on prudential requirements like minimum capital standards or risk assessments during a crisis are examples of such discretion that were used for banks during the COVID crisis and could be relevant for CCPs as well. Economic risks are derived from very different economic conditions in another jurisdiction, such as a sovereign debt crisis, rampant inflation, non-payment of loans and different interest rates that might lead to negative consequences for others.

Overall, cliff edge scenarios related to clearing requirements in the EU or an equivalent territory have not materialised, and markets have largely adjusted prior to the 2025 deadline. There is still significant clearing taking place in the US. The groundwork for preparing an inviting and safe environment for that clearing to take place in the EU lies in consolidating migration to date, building on the subsequent growth of EU central counterparties, and upgrading the coordination of CCP supervision in the Single Market.

1. POST-TRADE SERVICES AND FINANCIAL STABILITY

KEY FINDINGS

Capital markets not only trade in stocks and bonds, but a wide variety of financial derivatives that are used to insure companies against financial loss under conditions of market turbulence. The most commonly traded derivatives are interest rate swaps and currency swaps, which hedge against changes in interest rates and exchange rates respectively. This chapter introduces:

- Different kinds of financial instruments, their purpose, and their supportive role for the European economy.
- The key role that central counterparties, securities depositories and trade repositories play in making trades, and a European capital markets union possible.
- The current debate over migration of central counterparties and their trading activity with special attention to financial stability.

This study deals with current debate over requirements to ensure that central counterparties (CCPs) providing financial services for EU companies be located on EU territory and be subject to EU oversight, and that companies using their services hold active accounts at an EU CCP to conduct their trading. It presents a stock take of recent trends in clearing, with particular attention to the issue of whether clearing can and does migrate out of London. While it addresses differences in regulations with the UK, it notes that this work has been conducted elsewhere¹ and that concrete changes have yet to materialise, given a shift of political priorities in the UK. It addresses as well the impact of whether or not jurisdictions enjoy decisions of regulatory equivalence under Articles 107 and 1-116 CRR, the prospects of avoiding a cliff-edge scenario when UK equivalence is set to expire in 2025, and shows evidence of which kind of business activity migrates to the EU or the US, where CCPs enjoy equivalence.

The study also deals with trade repositories (TR) and central securities depositories (CSDs), which are essential to the business of conducting trades over CCPs, as well as to the attractiveness, efficiency and cost of financial services within the EU. CCPs are tied to real-time financial flows, while CSDs are the accounts into and out of which securities move, or are otherwise saved, and where loans are provided to investors to leverage further investments in securities. Trade repositories are where holdings and transactions are recorded and announced. These entities are used by more traditional financial services like banks, insurance companies and pension funds alongside hedge funds, money market funds and other investment schemes.

The intent of promoting CCPs, CDSs and TRs in Capital Markets Union (CMU) is not only to promote the use of stock and bond markets as a source of finance in the EU, but also the use of derivatives for a wide variety of purposes. These range from everyday financial activities for financial and non-financial companies, particularly swaps, futures and options to hedge for interest rate and exchange rate fluctuations, to synthetic investment products such as collateralised debt obligations, collateralised fund obligations and European Safe Assets. Synthetic investment products are also central to plans to make non-performing loans marketable in combination with safer assets within CMU. CCPs are central to supporting trading in a number of financial instruments in addition to the parts of EU economic strategy and business activities they support. These instruments are as follows:

¹ Petit, C.A. and Beck, T. (2023). Recent trends in UK financial sector regulation and possible implications for the EU, including its approach to equivalence. PE 740.067. [https://www.europarl.europa.eu/RegData/etudes/STUD/2023/740067/IPOL_STU\(2023\)740067_EN.pdf](https://www.europarl.europa.eu/RegData/etudes/STUD/2023/740067/IPOL_STU(2023)740067_EN.pdf).

Exchange rate swaps are used to support trade and investment in other currencies, whether in finished products or components. International trade is typically denominated in US dollars, which fluctuates over time in value vis a vis the euro and the other national currencies of the EU. *Interest rate swaps* allow companies to insure themselves against disadvantageous fluctuations in interest rates, particularly interest rate increases that make loans more expensive for borrowers. This is the most commonly-used type of financial derivative traded. *Commodity futures and options*, in contrast, allow companies to hedge against the price of raw materials and energy going up or down². These are popular at all times, but particularly during periods of energy and raw material scarcity. *Credit default swaps* are derivative contracts that provide insurance against non-payment of debts, making creditors whole in the event that a debtor fails to pay. *Synthetic securities* such as collateralised debt obligations (CDOs) and collateralised fund obligations (CFOs) are specially-constructed packages of bonds, mortgages and fund investments sold to institutional investors as income-generating assets. CDOs and CFOs attempt to combine higher yield and lower risk for investors through a package of riskier and safer assets. Like other securities, they are traded frequently as investors seek to optimise their income.

These financial instruments can be Exchange-Traded Derivatives (ETD) and Over-the-Counter (OTC) Derivatives, which are bought and sold to specialised institutional investors. The primary users of these financial instruments are investment banks as the main issuers, and pension, hedge and insurance funds as the biggest users, followed by unit trusts and money market funds. Of particular importance are the global systemically-important banks that are not only members of CCPs but which stand at the centre of the CCP ecosystem, trading large volumes with each other, and then trading with smaller banks in the system.

While the ECB, ESMA and the Commission, insist that EU companies be required to use CCPs located in the EU and under EU supervision, pushback from global banks situated in London, the Bank of England and the British government has been massive. Instead of moving assets and personnel involved in EU trading to the EU, London-based businesses have moved relatively small amounts of personnel and capital and continued to conduct trades in the UK in a practice known as back-to-back trading. Trades for EU customers are accepted at an EU office, but conducted in the UK. Similarly, the bulk of post-trade service company financial assets remain in the UK, decisions to demand money from customers are taken there as well, and legal requirements to ensure financial stability are taken by UK supervisors. This has raised concern by EU supervisors in the context of reviewing risk management practices. The most important of these policies are capital requirements (how much capital CCPs and CSDs must hold) and margin calls (how much money customers must pay when the CCP determines that the customer will suffer a loss on a derivative contract).

The rest of this study outlines the functions that post-trade services provide, the risks associated with the way they fulfil those functions, the reasons given for not moving those services out of London, the actual track record of companies moving post-trade services out of the UK, the financial stability benefits of ensuring that clearing take place within the Single Market, the steps being taken to prepare for moving business to the EU, and areas where the EU's supervisory architecture needs greater harmonisation to ensure that this migration takes place in a financially-stable way. In doing so, it raises points of concern about the impact on the EU of actions taken during a financial crisis that could undermine EU financial stability.

² European Parliament, (2023b) Public Hearing on Energy Derivatives Markets. 27 March.
<https://www.europarl.europa.eu/committees/en/public-hearing-on-energy-derivatives-mar/product-details/20230321CHE11464>.

2. CCPS: CRITICAL FINANCIAL STABILITY ARCHITECTURE

KEY FINDINGS

Central counterparties are critical infrastructure for financial stability. They ensure that payments flow and domino effects of bankruptcy do not spread as easily through the financial system when someone fails to make a payment. Their capacity to halt crises is limited and still relies on public backstops during a systemic crisis.

Central counterparties manage risk in ways that can suppress economic activity and exacerbate financial crises based on their own calculations and those of supervisors. When these are located outside the EU, CCP behaviour and requirements can be inappropriate for EU circumstances.

2.1. Central counterparties: role in the financial stability architecture

CCPs are financial institutions that specialise in clearing trades in commodities and securities. Many of the latter are derivatives to hedge against interest rate, exchange rate and commodity prices, as well as to insure against non-payment of contracts (credit default swaps). They have members that are other financial institutions that trade in commodities and securities through the CCP. While there is a risk of non-payment in the transfer of fully-owned securities from one owner to another, CCPs are particularly vital to confront the higher risk of non-payment in derivative contracts, like interest rate swaps, exchange rate swaps, and credit default swaps. These securities are not owned but require the parties to the transaction to buy or sell at a determined price in the future, unless crafted as an option. Under heavily changed conditions, such as a sudden, strong increase in interest rates, financial and non-financial institutions can find themselves obligated to buy or sell at a large loss which they cannot afford. The ubiquitous use and tremendous volume of such derivatives to hedge risks is linked not only to speculation, but to risk management strategies throughout the economy, and risk management requirements for financial institutions in accordance with global and EU standards (Basel III for banks and Solvency II for insurance). They are therefore non-optional features of both a resilient financial system and the broader economy.

Central counterparties were mandated after the 2008 global financial crisis to prevent domino effects from destabilising the broader financial system when an individual institution fails or fails to make a payment. CCPs provide insurance to the financial system by acting as a buyer to the seller and a seller to the buyer in a financial transaction, ensuring that sellers get paid, even if the buyer is unable to complete the purchase. CCPs were therefore introduced as a barrier to contagion within the financial system. When one company is unable to pay, the damage stops there through CCP reimbursement. This pre-empts three kinds of situations: real liquidity (cash) shortages that lead the beneficiary to fail in its own payments after not being paid; real cash shortages that force beneficiary companies to liquidate other loans and assets to compensate for the loss and avoid failure, generating further economic damage to other companies and households; and self-fulfilling panics as investors, clients and suppliers fear the beneficiary might not be able to pay, and flee the business, forcing it to close. These were compelling reasons across the world after 2008 to mandate their use in financial markets.

2.2. CCP Safety Mechanisms: Minimum Capital Requirements

In some ways, CCPs are like banks in the sense that they are exposed to a certain need to pay on any given day, and subject to minimum capital requirements. Minimum capital requirements are typically set by the legislator and applied by the supervisor to cover expectations surrounding the risk of default. These minimum capital requirements can be increased in one of two scenarios: if the legislator and

supervisor view the risk of financial disturbances as elevated; and if they have concerns about investor confidence in how well capitalised financial institutions are. Higher capital requirements can then be imposed to help ensure that financial institutions can weather more serious downturns, which the European Supervisory Authorities then subject to stress tests. Similarly, the UK has a history of increasing capital requirements during crises to inspire investor confidence in London-based financial services companies. These might be higher than EU authorities and companies view as necessary and desirable.³

Conversely, a lower minimum capital requirement during a financial crisis could prevent CCPs from exacerbating a crisis in real time (by forcing members to selling assets or call in loans in a crisis to acquire more cash, and use the cash available to conduct business). As a comparison, legislators and supervisors during the COVID-19 crisis used specified relaxations of minimum capital requirements to keep credit flowing to the economy, and to prevent banks exacerbating COVID-19's impact on the economy by dumping loans and other assets to come up with cash to meet the normal capital requirements⁴. These temporary relaxations worked and were later repealed as the crisis subsided. It is critical therefore that EU legislators and supervisors have the competence and authority over central counterparties, particularly if economic shocks hit jurisdictions differently.

The Commission issues minimum capital standards for CCPs as regulatory technical standards that implement the terms of the European Markets Infrastructure Regulation (EMIR: EU648/2012) on the advice of the European Banking Authority.⁵ The EBA assesses whether capital requirements address the risks the CCP is exposed to, and national competent authorities were permitted originally to make those standards more stringent.

2.3. CCP Safety Mechanisms: Collateral and Margin Calls

Under normal circumstances, however, the CCP's financial resources are only a backup to its first response to the risk of non-payment. Member institutions conducting trades are required to reserve collateral (financial assets that can be sold, known as an 'initial margin') on the possibility that the derivative will require them to pay money. The higher the probability of a payout, and the higher the volume of that payout, the higher the initial collateral. The CCP examines the risk regularly (often daily) and will require members to reserve more collateral if the risk of payment rises ('variable margin'), which they will likely have to purchase or redirect from other uses. Members of the CCP are therefore responsible for bearing the initial cost of individual financial setbacks, after which the CCP as a whole becomes responsible with its resources.

2.3.1. Margin Calls and Crisis Intensification

Margin calls are therefore viewed as good risk management practice, taking place when the CCP demands that a party to a derivatives transaction set aside additional money to compensate for an impending loss, based on probabilities derived from a predictive model, even though it has not yet happened. The decision is taken as a combination of risk models used by the CCP and approved by regulatory supervisors, prevailing economic conditions, the terms of the contract and the financial

³ James, S. and Quaglia, L. (2020) Rule maker or rule taker? Brexit, finance and UK regulatory autonomy, *International Political Science Review*, 10.1177/0192512120967380, 43, 3, 390-403.

⁴ Quaglia, L. and Verdun, A. (2023) The European Central Bank, the Single Supervisory Mechanism and the COVID-19 related economic crisis: a neofunctionalist analysis. *Journal of European Integration*, 45(1), 139-156; Donnelly, S. (2023) Bank supervision between risk reduction and economic renewal. *Journal of European Integration*, 45(1), 59-77.

⁵ European Banking Authority (2012). *Regulatory Technical Standards on capital requirements for Central Counterparties (CCPs)* (EBA/RTS/2012/01). <https://www.eba.europa.eu/regulation-and-policy/market-infrastructures/draft-regulatory-technical-standards-on-capital-requirements-for-central-counterparties-ccps->

capacity of the party to pay, based on the quality of financial assets (collateral) referenced in the course of making the financial bet.⁶ They are part of the practices surrounding CCPs, and also part of the rule infrastructure surrounding them, allowing and requiring the CCP to demand money from one of the parties before the final date of the transaction. This reduces the likelihood of the CCP being stuck with the bill.⁷

Margin calls, like capital requirements, can be triggered at a higher and lower threshold, and can be adjusted to weather financial crises. This can also have pro-cyclical effects that worsen financial stability during a systemic-level crisis, turning a potential downturn into a self-fulfilling prophecy if a choice is made to play it safe and call for cash rather than temporarily relaxing thresholds.⁸ Looking at the 2012 sovereign debt crisis in the EU, Genito showed that CCP margin call decisions exacerbated the credit crunch for Member States and financial instability by forcing members to dash for cash.⁹ This meant liquidating assets to cover the risk of potential default on contracts. Crucially, these margin calls were private decisions taken without the suggestions and/or requirements of legislators and supervisors. The Bank for International Settlements' (BIS) research shows that margin calls generated strong downward push on companies during the 2020 pandemic and Russia's war against Ukraine, leading them to advocate further measures to stabilise the rest of the financial system during crises.¹⁰ In addition, Berendsen's overview of extant literature shows that margin calls during crises, including the EU's sovereign debt crisis increased, exacerbating an exit out of government-issued debt, which banks, pension funds, insurance funds and households also use as the foundation of their investment portfolios.¹¹ BIS statistics confirm that government bond-related securities were the largest category of securities cleared through CCPs, and that CCP models decided primarily to raise margins based on general market volatility, the size of the position (investment), and the direction of trade (whether the derivative had to pay out if market prices went up or down).¹²

Margin calls tend to be more expensive during crises when there is no central bank or budgetary tool to soften the impact of an economic shock, given the enhanced risk of default. Before the mandate of central clearing under EMIR in 2012, other innovations had been undertaken to stabilise markets for government debt, including the European Financial Stability Facility, which provided temporary loans to distressed governments that could no longer access capital markets. Even so, it took the ECB's decision to 'do whatever it takes' to reduce the spreads between sovereign debt instruments, minimise the risk of default and restore financial stability. Since then, the establishment of lending facilities through the European Stability Mechanism has solidified the support structure and extended it. However, it has not dispelled margin calls and speculation entirely. This is in part because there are questions of whether the terms of financial assistance adequately consider debt sustainability for

⁶ European Commission (2022a) communication from the Commission to the European Parliament, the Council, the European Central Bank and the European Economic and Social Committee: A path towards a stronger EU clearing system. COM/2022/696 final. 7 December. <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:52022DC0696>.

⁷ European Parliament (2023a) Banking and Financial Markets: some topical issues (study) [https://www.europarl.europa.eu/RegData/etudes/BRIE/2022/733717/IPOL_BRI\(2022\)733717_EN.pdf](https://www.europarl.europa.eu/RegData/etudes/BRIE/2022/733717/IPOL_BRI(2022)733717_EN.pdf).

⁸ Bank for International Settlements (2023) *Margin Dynamics in Centrally-Cleared Commodities Markets*. 23 May. <https://www.iosco.org/library/pubdocs/pdf/IOSCOPD735.pdf>.

⁹ Genito, L. (2019) Mandatory clearing: the infrastructural authority of central counterparty clearing houses in the OTC derivatives market. *Review of International Political Economy*, 26(5), 938-962; Genito, L. (2018) What Markets Fear: understanding the European sovereign debt crisis through the lens of repo market liquidity. Ph.D. Thesis, University of Warwick. <https://core.ac.uk/download/pdf/266992522.pdf>.

¹⁰ Bank for International Settlements (2022a) *Review of Margining Practices*. 29 September. <https://www.bis.org/bcbs/publ/d537.htm>; Bank for International Settlements (2022a) *CPMI-IOSCO finalise analysis of margining practices during March 2020 market turmoil*. 29 September. <https://www.bis.org/press/p220929.htm>.

¹¹ Berendsen, R. (2021) Fundamental questions on central counterparties: a review of the literature. *Journal of Futures Markets* 41(12): 2009-2022. <https://doi.org/10.1002/fut.22260>.

¹² Bank for International Settlements (2022b) *OTC Derivative Statistics at End-December 2021*. 12 May, pp. 16, 20. <https://www.bis.org/bcbs/publ/d537.htm>.

programme countries receiving loans. In other words, do the programmes help enough? It is also in part because national governments differ in their ability to use these loans to restore economic growth and employment. Margin calls sensitive to political and economic risks will necessarily have to contend with more volatile bond and derivative prices.

Under these conditions, central clearing, due to the necessity of margin calls, does not dispel the need for central bank lender of last resort facilities, resolution and even public backstops. Wendt reinforces this conclusion, showing that as financial difficulty increases for the CCP, that margin calls and then calls for cash spread throughout the members of the CCP when failures begin, causing a contagion or domino effect that can extend throughout the financial system.¹³ These decisions on when and how to intervene if CCPs fail are not only economic but political, affecting businesses and households across the board.

This risk that margin calls exacerbate a crisis has not gone away with the CCP mandate, as we saw in 2022, when CCPs and clients called for central bank lender of last resort facilities during the market crashes following the UK minibudget,¹⁴ which the Bank of England provided. Moreover, Walker et al. make it clear global banks situated in London needed this support to survive, alongside pension and investment funds.¹⁵ EU fiscal responses to calamities, specifically COVID-19, but also the war in Ukraine, have also lessened pressure on sovereign borrowing.

2.3.2. Repurchase Rates and Access to Capital

Related to margin calls and similar in financial stability effect are repurchase rates, often known as the repo rate, which is a means for members to raise cash to meet a margin call. This is the price a counterparty will charge to buy a financial asset from one of its members that needs to come up with cash. That price, the haircut, increases with the assessed risk that the future value of the asset will decline, meaning that members have to sell more of their other assets at declining prices (fire sales), exacerbating economic downturns and turning them into spirals with no in-built braking mechanism. Between 2009 and 2012, during the EU's sovereign debt crisis, fire sales not only placed noticeable pressure on financial institutions, but also on the ability of national governments in the EU to sell treasury bonds on capital markets.¹⁶

2.3.3. CCP Resources and the Default Waterfall

The likelihood of CCP having to pay out is embedded within a so-called default waterfall that relies heavily on these margin calls. Using Eurex Clearing, an EU-domiciled CCP as an example, loss coverage starts with netting losses against gains, then moves to the CCP demanding additional margin from a member if their initial margin is considered insufficient, then a cash contribution from the same member, then the member's share of the default fund, then the entire default fund, then a call on all members to pay more cash into the default fund (which CCPs call an 'assessment'), and finally the

¹³ Wendt, F. (2015) *Central counterparties: addressing their too important to fail nature*. International Monetary Fund Working Paper WP/15/21. <https://www.imf.org/en/Publications/WP/Issues/2016/12/31/Central-Counterparties-Addressing-their-Too-Important-to-Fail-Nature-42637> pp. 11-12.

¹⁴ Asgari, N. (2022) EU urged to help pension funds on margin calls stress. *Financial Times*, 20 October. <https://www.ft.com/content/1c47de9c-0d6e-4eb4-841c-1b8e8ea96aac>.

¹⁵ Walker, O., Noonan, L., McCrum, D., Bingham, C. and Wiggins, K. (2022) How banks and regulators reacted to the UK bond market meltdown. *Financial Times*. 22 October. <https://www.ft.com/content/0382680a-6081-4ad0-af2d-52c3c7c105a6>.

¹⁶ Armakolla, A., Douady, R. and Laurent, J. P. (2019) Repurchase agreements and the European sovereign debt crises: the role of European clearinghouses. In Boubaker, S. and Khuong Nyugen, D. (eds.) *Handbook of Global Financial Markets: Transformations, Dependence, and Risk Spillovers*. Singapore: World Scientific: 467-492.

remaining capital of the CCP before it closes.¹⁷ Part of this cash is raised by charging members a fee that goes into a dedicated fund. In addition, CCPs charge fees from members based on their transactions. And finally, members may be called on to pay further amounts if the CCP's fund is insufficient to cover losses.

2.4. Supervision, Margin Calls and Financial Stability

Given the impact of capital requirements and margin call practices on financial stability, it therefore matters greatly whether public rule-setters have direct oversight of CCPs. This is only the case where the companies are registered, operating and fully capitalised within the EU. The potential for divergence in minimum capital requirements and margin calls is not only a function of divergent technical beliefs (least likely scenario), but also judgement calls (whether legislators discount the likelihood of stress on CCPs differently). Fees and collateral are not standard but set by the CCP in accordance with legislation, including technical implementing standards and supervisory oversight. Divergent economic conditions within and outside the EU requiring separate interventions in the minimum capital and margin call frameworks also can have negative impacts on financial stability.

The impact of divergent economic conditions placing pressure on policy-makers, supervisors and central banks to respond differently in accordance with local conditions is a well-studied and generally-accepted principle of financial stability design. Where there is a mismatch, the jurisdictions outside of the decision-making centre are forced to adjust to policies not built for them, inflicting unnecessary damage on the economy (unless there are countervailing measures like financial transfers from the decision-making centre to areas hardest hit, such as those contained within the Recovery and Resilience Facility, or calls for an EU federal budget). This is yet another reason why pre-crisis preparation and mid-crisis management tools are indispensable. Accordingly, the ECB has correctly claimed that it is important to have supervisory responsibility to ensure financial stability. The fate of CCPs is also central to conducting monetary policy.¹⁸

2.5. Industry Reasoning against Migration: Scale and Capital Market Depth

Access to deep pools of capital is one of the main arguments that proponents of retaining CCP services in the City of London put forth: that the City's high volume of clearing business allows it to raise money to cover capital requirements more cheaply than smaller EU-based alternatives. This allows fees to remain lower, and safety to be enhanced, since the CCP can recover losses more readily, and minimum capital is cheaper to hold. For its part, the UK government's approach to capital standards has been to err on the side of caution, with standards being higher than elsewhere. This is intended to instill confidence amongst investors that financial stability is as strong as it can be.

Another reason given for retaining CCPs situated in London is again based on scale: that a CCP with a membership base covering a larger number of transactions is better able to bring more buyers and

¹⁷ Gates, C. (2016) *Understanding Central Counterparties (CCPs)*. Global Financial Markets Institute, 17 April. <https://www.gfmi.com/articles/understanding-central-counterparties-ccps/>; Wendt 2015: 8.

¹⁸ Panetta, L. (2021) Central clearing and the changing landscape. Welcome address by Fabio Panetta, Member of the Executive Board of the ECB, at the Third Annual Joint Conference of the Deutsche Bundesbank, European Central Bank and Federal Reserve Bank of Chicago on CCP Risk Management. Frankfurt, 3 March.

<https://www.ecb.europa.eu/press/key/date/2021/html/ecb.sp210303~3a3d6522b0.en.html>.

European Central Bank, 2017, 'Relocating to the euro area', Frankfurt.

<https://www.bankingsupervision.europa.eu/banking/relocating/html/index.en.html>.

European Central Bank, 2017, 'ECB recommends amending Article 22 of its Statute', 23 June.

<https://www.ecb.europa.eu/press/pr/date/2017/html/ecb.pr170623.en.html>.

sellers together, and offset the gains and losses realised through a large number of derivative contracts internally rather than risking its own capital. This is the first risk management mechanism of the default waterfall mentioned above: losses from derivatives are first paid out by the members on the losing end of a derivative contract. The CCP can supply demand more easily with a larger customer base. The larger pool also means that the CCP need not be concerned as much about the potential financial stability risk of a single member defaulting because of a margin call. The size of resources available to compensate for loss rises with the size and business of the CCP, while the potential demand for cash is related only to situations where the member is no longer able to pay—not the entire volume of trading. The larger the pool, the more likely that net gains and losses are smaller in relation to the size of the central counterparty, and the less capital is required. The smaller the CCP, the more capital would have to be set aside, and the higher the collateral would have to be for traders to compensate for the higher potential impact of non-payment.

This argument has also been used to lobby against the active account requirement currently under legislative discussion, and in general regarding the migration of CCP services from the UK to the EU. UK-based firms have argued that meeting the requirement of having a fully-funded subsidiary in the EU would replicate the disadvantages of scale, increasing costs and damaging the capacity of CCPs to contribute to financial stability overall. However, we see that US-based CCPs have been able to effectively set up funds for the EU market that are separate from the rest of their business. While the caveats that apply to having CCP business conducted outside the EU apply to the US as well, so far it appears that the migration does not impede financial stability in itself.

2.5.1. Capital Pool Fragmentation

CCPs based in London as well as the International Swaps and Derivatives Association (ISDA) offer two further arguments in favour of retaining their dominance of clearing for the EU: that doing so would further fragment the global economy, playing into both general fears of economic nationalism and concerns about raising the overall level of capital reserved to ensure CCP solvency; and the transaction costs that companies would face in seeking alternatives to their existing market infrastructures (ISDA 2023). Petry shows that what is at stake is the dominance of globally-significant CCPs connected to exchange groups that handle the lion's share of trading.¹⁹

Despite arguments that CCP activity and assets cannot shift from London, migration began in earnest in 2021 and is accelerating, with most of the trading being shifted to the United States, where clearing houses enjoy equivalency status to serve EU markets. A key part of the migration has been the shift away from London-based interest rate benchmarks used for interest rate swap and currency exchange derivatives. Interest rate swap contracts are conducted between banks, in multiple currencies, and based on an index set daily. From 1986 to December 2021, most of these contracts were traded in London based on the London Inter-Bank Offer Rate (LIBOR), which itself was calculated by (U.S.-based) Intercontinental Exchange using the input of globally-significant banks²⁰. LIBOR fell into disrepute and has been replaced for USD-denominated securities with the Secured Overnight Financing Rate (SOFR), which is effectively set by the New York Federal Reserve since 2022 in accordance with the Adjustable Interest Rate (LIBOR) Act, and with the cooperation of the Chicago Mercantile Exchange. Euro Interbank Offered Rate (Euribor) futures migrated out of London in 2023 as the 1 July cutoff date approached (below).

¹⁹ Petry, J. (2021). From national marketplaces to global providers of financial infrastructures: Exchanges, infrastructures and structural power in global finance. *New Political Economy*, 26(4), 574-597.

²⁰ Dalla Fontana, S., Holz auf der Heide, M., Pelizzon, L. and Scheicher, M., (2019) The Anatomy of the euro area interest rate swap market. ECB Working Paper No 2242. <https://www.ecb.europa.eu/pub/pdf/scpwps/ecb.wp2242~b1f459eb90.en.pdf>.

Euribor is the mirror reference for euro-based interest rate swaps since the introduction of the euro in 1999, set by the European Money Markets Institute. They are traded by ICE (based in the US) and Eurex. As ICE has operations in the US, and has equivalence as a recognised CCP, transfer of business there is as easy for EU-domiciled companies as it is to Eurex. Migration effects are discussed in chapter 4 below.

The potential utility derived from substituting London-based clearing with EU-based clearing depends on market depth. That indeed benefits from large banking entities. The potential depth of interest rate swap markets is further increased by market makers: institutions that buy, hold and sell the derivatives, and offer collateral-backed lending (repurchase agreements or repos) to other market participants. London-based banks argue that only they are positioned to provide these services. Market-making banks can however be smaller: Eurex listed 57 banks as market makers in June 2023.²¹ They would also likely acquire more business in a regulatory environment mandating EU-domiciled CCPs.

Lobbying against migration is therefore based on cost to industry, and additional arguments about financial stability come from major banks trading in derivatives (BNP Paribas, Deutsche Bank, Société Générale), LCH, the International Swaps and Derivatives Association and the European Banking Federation. These bodies argued that the plans to require migration were unworkable, and raised hopes that political rapprochement between the EU and the UK under Prime Minister Rishi Sunak would provide enough political trust moving forward to allow for indefinite acceptance of EU equivalence for the UK (Noonan, Parker, Fleming and Stafford 2023).

2.6. Central Securities Depositories and Trade Repositories: ancillary financial stability infrastructure

CCPs ensure payment in the process of buying and selling. Central securities depositories (CSDs) hold and transfer securities, and inform both CCPs and TRs. CSDs can also be globally-systemically-important banks (G-SIBs) (Wendt 2015: 9). This exposes the system to additional risk of disruption in a crisis, given the continuing fragility of banks. This area of supervisory responsibility falls to national regulators within the EU, under the Central Securities Depositories Regulation (EU/909/2014: Sections 2-3), with guidelines from ESMA.

TRs record and report the transfer of securities to supervisors.²² They were introduced as a feature to bring transparency into the OTC derivatives market, which are traded bilaterally and previously invisible to micro- and macroprudential supervisors. This in turn is central to the financial stability work of putting together risk dashboards for the purpose of early warning and trend analysis that supervisors put together. Supervision not only involves securities supervisors, but also banking and insurance supervisors, based on the impact of exposures to derivatives.²³ These entities, like CCPs, are subject to EU legislation (EMIR) to increase transparency, reduce risk, and increase efficiency, primarily under the supervision of national authorities, as supervised by ESMA.

²¹ Eurex (2023) Market-Making Options. <https://www.eurex.com/ex-en/trade/participant-list/market-making-options> Consulted 17 June.

²² Ferrarini, G. and Saguato, P., 2014. Regulating financial market infrastructures. *European Corporate Governance Institute (ECGI)-Law Working Paper*, (259). https://eprints.lse.ac.uk/59683/1/Ferrarini_Saguato_Regulating-financial-market-infrastructures_2014.pdf.

²³ Quaglia, L. (2020) *The Politics of Regime Complexity in International Derivatives Regulation*. Oxford: Oxford University Press; Quaglia, L. (2022) *The perils of International Regime Complexity in Shadow Banking*. Oxford University Press; Quaglia, L. and Spendzharova, A. (2022) Regime complexity and managing financial data streams: The orchestration of trade reporting for derivatives. *Regulation & Governance*, 16(2), 588-602.

3. RESOLVING CENTRAL COUNTERPARTIES IN CRISIS

KEY FINDINGS

Central counterparties can themselves go bankrupt. The methods used to resolve them while minimising further financial instability closely resemble those for resolving banks. Resolutions require swift, decisive action and potentially public backstops to prevent further damage. This requires crisis management by EU authorities and national counterparts in line with single rulebooks. Access to funds to ensure orderly resolution also remains indispensable.

The EU enacted the CCP Recovery and Resolution Regulation (CCP-RRR) (2021/23) to set out rules and tools for orderly resolution of central counterparties, involving practices surrounding recovery waterfalls and cash calls. Unlike the Single Resolution Mechanism for banks, however, the CCP-RRR places national competent authorities in charge of decisions regarding resolution. This raises questions of consistency of application, particularly since resolution will involve banks, which are politically sensitive. Any clarity generated by single rulebooks for EU-domiciled CCPs would be diluted when added to the complexity of depending on foreign CCPs and supervisors. The Commission correctly recognises this risk in arguing against allowing clearing outside the EU: 'if there are major stresses in CCPs, this impacts financial stability, and little we can do'²⁴

Ultimately, solutions on how to provide a public backstop would also be required in a large, systemic crisis, much as it would for the banking sector, for which a Banking Union was established and a public backstop remains indispensable, although undersupplied through the absence of deposit insurance and the full financial backing of the EU and the Member States. Literature on the need for backstops in case of CCP failure is thin, but points in the same direction as backstops for banks.²⁵ It shares with considerations about financial stability in banking an understanding that improvements in the resilience of financial institutions can only be part of the solution to stabilising financial markets. These measures function within a larger framework of macroeconomic management that influences how large or manageable stresses from outside the CCP are.²⁶

Regulation and issues of public backstops for CCPs are also crucial for the event that a central counterparty fails, given that CCPs are not immune from insolvency during systemic crises, given the large volumes of cash required, and the essential connectedness of central counterparties (Wendt 2015). Just as it does for banks in the Bank Recovery and Resolution Directive of 2014, the EU introduced a CCP Recovery and Resolution Regulation to manage the possibility of CCP failure (Regulation 2021/23)²⁷ This regulation emulated recovery and resolution for banks in the Single Resolution Board, with ESMA as the European oversight authority, but national competent authorities in the drivers' seat on resolution questions.

A CCP outside the EU is therefore a potential hazard to financial stability if (1) minimum capital requirements are insufficient to manage the risk of default in the system; and (2) monetary and

²⁴ European Commission (2022b) Speech by Commissioner Mairead McGuinness at the ECB/European Commission Conference on European Financial Integration, 'An EU financial system for the future', 6 April. https://ec.europa.eu/commission/presscorner/detail/en/SPEECH_22_2327.

²⁵ Berendsen, R. (2021) Fundamental questions on central counterparties: a review of the literature. *Journal of Futures Markets* 41(12): 2009-2022. <https://doi.org/10.1002/fut.22260>.

²⁶ Wendt, F. (2015) *Central counterparties: addressing their too important to fail nature*. International Monetary Fund Working Paper WP/15/21. <https://www.imf.org/en/Publications/WP/Issues/2016/12/31/Central-Counterparties-Addressing-their-Too-Important-to-Fail-Nature-42637>; Thiemann, M. (2018) Is resilience enough? The macroprudential reform agenda and the lack of smoothing of the cycle. *Public Administration* 97(3): 561-575. <https://onlinelibrary.wiley.com/doi/abs/10.1111/padm.12551>.

²⁷ <https://eur-lex.europa.eu/legal-content/EN/LSU/?uri=CELEX:32021R0023> (overview) See also https://finance.ec.europa.eu/capital-markets-union-and-financial-markets/financial-markets/post-trade-services/recovery-and-resolution-central-counterparties-ccps_en.

macroeconomic supervisory bodies are unable to adjust the capital requirement to deal with temporary shocks. Given the embedded nature of capital requirements within a global discussion of such standards, but the potentially divergent responses of legislators and supervisors during periods of stress, the second of these risks is the most pressing for financial stability in the EU.

Memoranda of Understanding between non-EU supervisors and governments mandating common regulations and crisis responses are a potential means of ameliorating the risk of policy and regulatory divergence with negative economic and financial stability consequences. The European Commission, together with the European Supervisory Authorities, has the task and responsibility of determining whether third-country rules and practices can be deemed equivalent to those in the EU. However, the durability of this equivalence depends on the strength of the mutual commitment to harmonisation in the future. It is not only the case that the UK might see a need in the future to diverge from a standing agreement with the EU if one were established, but the reverse. There might be situations in which the EU sees fit to calibrate its regulations of CCPs and other post-trade entities that move them away from UK (or other country) preferences. This topic is the subject of a previous study by Petit and Beck conducted in 2023.²⁸

²⁸ Petit, C.A. and Beck, T. (2023). Recent trends in UK financial sector regulation and possible implications for the EU, including its approach to equivalence. PE 740.067. [https://www.europarl.europa.eu/RegData/etudes/STUD/2023/740067/IPOL_STU\(2023\)740067_EN.pdf](https://www.europarl.europa.eu/RegData/etudes/STUD/2023/740067/IPOL_STU(2023)740067_EN.pdf).

4. MIGRATION FROM LONDON AND RISKS

KEY FINDINGS

Companies resist moving financial services from their existing locations, but move when the law requires it. Clearing business has moved from London in response to impending loss of access to the EU market. While some business has moved to the EU, even more has moved to the United States, where regulations are deemed equivalent to those in the EU. Risks that apply to UK-based counterparties ultimately apply to US-based ones as well.

Political risks are rooted in the turbulent nature of political attitudes to the EU, while economic risks are tied to the potentially divergent economic needs that non-EU-based counterparties and public authorities face. Real, systemic dislocation has happened within the last two years, putting financial stability at risk.

4.1. Inertia as an Inhibitor of Migration

A key concern is whether business conducted in the UK could and would migrate away from the City of London. Kalaitzake shows that clearing, derivatives services in the UK for EU firms actually increased by 2017.²⁹ A key factor cited was the interconnected financial services located geographically in one place, overseen by the Bank of England, and even more important liquidity concentration in London attracted to that ecosystem, which feeds economies of scale and reduces costs relative to the size of business being done. Capital requirements are then lower because companies can net the requirements applying to multiple customers, providing optimal conditions for financial stability.³⁰

On top of this, Panitz and Glückler find that financial services companies move the least amount of assets and personnel required, and select different locations, based on local advantages.³¹ Donnelly produces similar findings, and shows how firms migrate to different locations based on legal frameworks and supervisory practice, with Euronext in particular substituting IT-based connectivity across EU financial centres for geographical concentration.³²

4.2. Migration, Capital-Splitting and Cliff-Edge Scenarios

Since these studies were published, we have strong signs that EU businesses are willing and able to shift their demand for clearing out of London. The ECB reported in late 2022 that European Commodity Clearing had increased from 5 billion euros in March 2021 to 86 billion in June 2022.³³ A strong outflow from London to New York took also place as interest rates rose to battle inflation in 2023. In March 2023, according to data from Ostra, US CCPs processed more than half of all euro swaps worldwide for the first time (51%), taking business away from London clearing houses, which covered 14% of the market, while EU-based clearing houses increased their share of trading, covering 35%. Part of the shift in clearing was associated with one of the key American clearing houses closing down its London-

²⁹ Kalaitzake, M. (2021) Resilience in the City of London: the fate of UK financial services after Brexit, *New Political Economy*, 10.1080/13563467.2021.1994540, **27**, 4, (610-628).

³⁰ Lysandrou, P., Nesvetailova, A. and Palan, R. (2017) The best of both worlds: Scale economies and discriminatory policies in London's global financial centre. *Economy and Society*, 46(2), 159-184.

³¹ Panitz, R. and Glückler, J., (2022) Relocation decisions in uncertain times: Brexit and financial services. *Economic Geography*, 98(2), pp.119-144.

³² Donnelly, S. (2022) Post-Brexit financial services in the EU. *Journal of European Public Policy*, 30(5): 787-806. /doi.org/10.1080/13501763.2022.2061579

³³ European Central Bank (2022) Banks and CCPs facing stressed derivatives markets. 17 November. <https://www.bankingsupervision-europa/press/publications/newsletter/2022/html/ssm.nl221117.en.html>.

based clearing business (ICE Clear Europe) and attracting customers to parent company ICE Clear Credit in the United States.³⁴ These clients were also the biggest players, taking more volume with them, and also willing and able to meet more stringent registration requirements in the US. ICE managed the transition without increasing margins for clients, therefore also keeping transaction costs low. It credited its ability to do so to the large volume of trades being conducted within the CCP. In contrast, a greater number of clients shifted to the rival LCH subsidiary CDS Clear in Paris, which had easier registration requirements and no transfer fees.³⁵ There are therefore no immediate consequences of contributing to the default fund of a new CCP, or of capital being compartmentalised to deal with EU and non-EU parts of American businesses.

In order to accommodate this activity, US entities needed to have different units with their own liquidity pools (cash reserves), contradicting the claims of London banks that dividing capital would harm financial stability. This happened at a moment when US capacity to serve the European market was tested with market turbulence. Rising interest rates led to higher trading volume, as companies tried to hedge bets in their portfolios, and speculative investors sought to make money on price movements in the market.³⁶ In short, markets can handle migration under price volatility, and companies can handle EU trading volumes with smaller dedicated capital. Cliff-edge scenarios for the EU, and concerns about the lack of an equivalence decision have been dispelled for the time being.

Clearing in the EU has therefore roughly doubled since early 2022, and EU decisions to only allow clearing where it is permitted works. However, more migration of clearing and assets to the United States rather than the EU ultimately raises the same questions about and risks to financial stability during crises that pertain to keeping those assets and transactions in the UK. A key question moving forward is what steps EU-based financial services providers and legislators are taking to prepare for a larger migration.

We see further evidence of decoupling and migration taking place in the infrastructure provided by London and EU-based post-trade services. In April 2021, Euronext prepared for migration by purchasing Borsa Italiana, which owned CC&G Clearing House.³⁷ In January 2023, Euronext paid a termination fee to the London Stock Exchange Group to move part of its clearing business from London to Milan before its contract was due to expire (in 2027), expecting CC&G to take over its settlement business in late 2024.³⁸ While there are other CCPs in Europe, its connection to Euronext places it to grow exponentially. A question remains whether business diverted to the US can and will move to the EU. The larger CC&G becomes, the more likely it will be able to compete on an even level with US counterparts. In the meantime, claims of financial centre inertia are clearly disproven. Nevertheless, there are still signs of reticence on migration. In May 2023, Eurex, as a prominent CSD, pleaded for EU authorities to allow non-EU banks to continue providing clearing services to its clients, despite having a list of 57 clearing houses for its customers to use.³⁹

³⁴ Osttra (2023) OSTTRA transfers \$190 billion of open interest to support the ICE Clear Europe credit clearing closure. 4 May.

https://osttra.com/press_releases/osttra-transfers-190-billion-of-open-interest-to-support-the-ice-clear-europe-credit-clearing-closure/

³⁵ Clancy, L. (2023) ICE and LCH declare victory as CDS migration nears end. *Risk.net*. 4 May. <https://www.risk.net/risk-management/7956646/ice-and-lch-declare-victory-as-cds-migration-nears-end>.

³⁶ Asgari, N. (2023) US grabs majority of euro swaps trading after Brexit rift. *Financial Times*, 16 May. <https://www.ft.com/content/70024181-4f24-45b8-a47e-33233caf28f4>.

³⁷ Stafford, P. (2021a) Euronext to pull trading servers out of UK after Borsa Italiana deal. *Financial Times*, 29 April. <https://www.ft.com/content/bda3bf7e-4393-4517-b311-86854572523a>.

³⁸ Asgari, N. (2023a) Euronext to switch derivatives clearing to Italy in 2024. *Financial Times*, 16 January. <https://www.ft.com/content/5cf637f6-52a4-4adf-bafe-fcaa9f0f20a6>.

³⁹ Eurex (2023) Market-Making Options. <https://www.eurex.com/ex-en/trade/participant-list/market-making-options> Consulted 17 June. Becker, L., (2023) Eurex clearing chief calls for active account carve-outs. *Risk.net*. 16 May. <https://www.risk.net/regulation/7956740/eurex-clearing-chief-calls-for-active-account-carve-outs>.

It should be stressed that data on migration will need to be further corroborated and analysed in the future, given how recent the changes are, and that the data available relies on private sector reporting without confirmation from the Bank for International Settlements' statistical service.

4.3. Lessons for Migration

Recent events therefore show two things that are relevant for EU-based financial stability provisions. The first is that EU businesses that use UK-based clearing houses do indeed see migration as a viable alternative. Some business has migrated from London to EU-based CCPs. An even greater share has migrated from London to the United States. The Commission's equivalence ruling of 2021 plays a role in ensuring that EU businesses act in accordance with EU law when shifting UK-based financial transactions to US-based institutions. But a noticeable shift in EU activity is related to the overall demand for financial transactions in euro swaps related to the financial turbulence of 2023. That turbulence played into the kinds of securities issued and traded to deal with interest rate hikes by central banks, and the need of companies facing financial losses or exposures to attempt some form of compensation.⁴⁰ The category of transactions also includes credit default swaps, which are a form of insurance against non-payment of loans.

Where CCP activity tied to the UK would remain essential is where businesses in the EU continue to have financial dealings with investments in the UK. This would be the case for European companies trading stocks and bonds in the UK, but it would not be required for the vast majority of interest rate derivatives, currency swaps and credit default swaps designed for the European market. This applies in principle to any other jurisdiction. European banks trading stocks and bonds in India, for example, have made use of Indian clearing houses, the CCPs lost their supervisory approval by ESMA for the EU market, given that ESMA had no say in the regulatory supervision of those houses. In response, ESMA imposed capital requirements on trades designed to suppress them altogether.⁴¹ Translated to the context of Brexit, this means that ESMA would have to have co-supervisory rights over CCPs located in the UK based on the potential for regulatory divergence, embedded in a formal Memorandum of Understanding which the UK government rejects.

4.4. Risks of continued clearing, depositories and repositories in the UK: political and economic drivers

The question of reliance on third-country regulations and supervisors, as well as the CCPs they oversee, depends significantly on political will. Two aspects of political will to sustain a mutually beneficial and satisfactory supervisory and regulatory partnership are (1) how UK politicians see Brexit and their relationship with the EU on a fundamental level; and (2) how willing UK and EU politicians are to tie their hands on political, regulatory and economic cooperation.

The first of these aspects are the most troublesome for robust cooperation between the UK and the EU. Hard Brexit voices within Parliament, which reject agreement with the EU on immovable grounds of identity and sovereignty, constitute a small but vocal and influential component. This pervades most political parties, except for the Liberal Democrats, and regional parties: the Scottish National Party in Scotland and Sinn Féin in Northern Ireland.

⁴⁰ McDougall, M and Venkataramakrishnan, S. (2023) How the bond market is driving up UK mortgage rates. *Financial Times*, 20 June. <https://www.ft.com/content/a11ca42c-aa69-470a-9351-a2db3542f57a>.

⁴¹ Noonan, L. (2023) EU banks face punitive charges as expiry of Indian clearing house permit nears. *Financial Times*, 22 March. <https://www.ft.com/content/1659678c-4719-43e7-b785-cd8324111f44>.

Within the Conservative Party, a small but vocal minority, the European Research Group, continues to make parliamentary votes in favour of agreements with the EU difficult to pass for successive governments. This group undermined attempts by Theresa May to negotiate a soft Brexit that would keep the UK aligned with the Single Market on the grounds that the UK could not tolerate taking rules from the EU. It strongly supported the Johnson cabinet's pursuit of full autonomy and a 'bonfire of regulations' to assert and secure its independence, and lashed out at what it saw as a meagre commitment to replacing EU legislation under the Sunak cabinet (Parker and Foster 2023). A partner party in Northern Ireland, the Democratic Unionist Party, is also an obstacle to agreement between the UK and the EU, equating open borders with the EU, or any border checks within the UK as equivalent to their own, and Protestant Ulster's demise.

The Labour Party also contains a significant cohort of supporters who voted for Brexit and blame the EU and the City of London for the UK's economic troubles. In this context, the willingness and ability of Labour leadership to support agreements that extend beyond the single market on goods is limited.⁴²

These factors weighed more heavily in determining UK policy than the preferences and lobbying of the City of London, which historically provided most post-trade financial services to EU markets before the transition period of Brexit had expired. James and Quaglia see a strong push from the UK government to calibrate banking rules to be the most stringent in the world with regard to capital adequacy to defend its position as a global financial centre after the 2008 global financial crisis.⁴³ This collided with the EU's plans for Banking Union, in terms of legal standards, in terms of legal competency for supervision, and ultimately in terms of potential migration to the EU. Similarly hawkish tones came from the chief regulator (the Financial Conduct Authority) and the Bank of England. This softened after May's election in 2017 before hardening again in 2018. By then, EU authorities had expressed unequivocally hawkish positions on the integrity of the single market and preventing a race to the bottom between Member sStates. On the other side of the Channel, the Bank of England pressured London-based businesses to keep people and assets in the UK, while attacking Commission and ECB demands for migration as unnecessary and destructive.⁴⁴

Ideational and ideological politics not only places limits on cooperation at the UK level, but specifically within (Northern) Ireland as well, which in turn generates political distrust and acrimony between the UK and the EU. Neither of the two major UK political parties was able to advocate an institutionalised, uncontested relationship with the EU until the Sunak cabinet expressed new willingness to seek accords with Europe . The 2020 Trade and Cooperation Agreement, agreed by the Johnson cabinet, had unleashed domestic unrest in the UK from Northern Ireland unionist parties, which in turn led to antagonism between the UK and the EU. The UK Parliament accepted the Windsor framework of February 2023, which settles the issue of how to implement customs controls on goods flowing between Northern Ireland and Great Britain. However, the framework lacks agreements on financial services and CCPs.

On the UK side, there is interest in reframing financial services regulations away from EU standards. In December 2022, the UK government released the Future Regulatory Framework for financial services. This was released in the context of an agenda to repeal and replace EU with UK law as outlined in the Retained EU Law (REUL) Revocation and Reform Bill. Financial market regulation was handled separately in the Financial Services Markets Bill. The Financial Services Markets Act (FSMA) of 2023 shifts

⁴² Diamond, P. (2021). New Jerusalems? The Labour Party's Economic Policy-Making in Hard Times. *The Political Quarterly*, 92(2), 264-273.

⁴³ James, S. and Quaglia, L. (2020) Rule maker or rule taker? Brexit, finance and UK regulatory autonomy, *International Political Science Review*, 10.1177/0192512120967380, **43**, 3, (390-403).

⁴⁴ Morris, S. and Binham, C. (2021) Bank of England clamps down on Brexit-driven EU relocations. *Financial Times*, 29 March. <https://www.ft.com/content/ba285268-e4ce-42dd-9118-bba24155664c>.

responsibility for technical implementing standards from EU law to UK authorities. HM Treasury is responsible for policy and legislation. The Bank of England drafts implementing regulations and conducts oversight for central counterparties and CSDs. The (FSMA) model is to be the benchmark for law that is adapted and retained. HM Treasury underlines that rules need to reflect the 'specific features of the UK market and our position outside the EU'.⁴⁵ Specific revisions relevant to derivatives trading were prepared in the Securitisation Review of 2021 and the Wholesale Markets Review of 2022⁴⁶. Overall, Petit and Beck's analysis of these changes and the potential for regulatory differences concludes that the UK's approach shows a general tension between financial stability and the drive for international competitiveness.⁴⁷

This push was replaced by slower approach in May and June 2023,⁴⁸ to the dismay of hard Brexiteers. On 27 June 2023, EU and UK authorities signed the final version of a Memorandum of Understanding on Regulatory Cooperation in Financial Services. Based on the Windsor Framework, the EU and the UK committed to exchange views and analysis on markets, regulation, global standards and the conditions for equivalence, without committing to equivalence itself, and to explore opportunities for cooperation in semi-annual talks.⁴⁹

⁴⁵ HM Treasury (2022) *Building a smarter financial services framework for the UK*. London: December.

https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1122734/Building_a_smarter_financial_services_framework_for_the_UK.pdf.

⁴⁶ HM Treasury, 2022a, UK Wholesale Markets Review: a consultation (updated). London: 1 March.

<https://www.gov.uk/government/consultations/uk-wholesale-markets-review-a-consultation>.

HM Treasury, 2021, Securitisation Regulation: call for evidence (updated). London: 13 December 2021.

<https://www.gov.uk/government/consultations/securitisation-regulation-call-for-evidence>.

⁴⁷ Petit, C.A. and Beck, T. (2023) Recent trends in UK financial sector regulation and possible implications for the EU, including its approach to equivalence. PE 740.067, p. 45. [https://www.europarl.europa.eu/RegData/etudes/STUD/2023/740067/IPOL_STU\(2023\)740067_EN.pdf](https://www.europarl.europa.eu/RegData/etudes/STUD/2023/740067/IPOL_STU(2023)740067_EN.pdf).

⁴⁸ Foster, P., Strauss, D., and Parker, G. (2023) Why the watered-down EU law bill remains mired in controversy. *Financial Times*, 19 May. <https://www.ft.com/content/d515a617-15d0-457f-a3df-873524a4bc67>; Parker, G. and Foster, P. 2023. Rishi Sunak faces ire of Brexiteers after ditching 'trivial' EU-era laws. *Financial Times*, 16 May. <https://www.ft.com/content/e6682422-67cb-47a8-a7d0-fb47f09d4301>.

⁴⁹ Bounds, A. and Fleming, S. (2023) Brussels agrees to sign regulatory co-operation deal with the UK. *Financial Times*, 17 May. <https://www.ft.com/content/82485b12-0b9b-4d01-b817-177baba60e63>; Memorandum of Understanding establishing a framework for financial services regulatory cooperation between the European Union and the United Kingdom of Great Britain and Northern Ireland. Brussels, 27 June 2023. <https://www.gov.uk/government/publications/uk-eu-memorandum-of-understanding-on-financial-services-cooperation/uk-eu-memorandum-of-understanding-on-financial-services-cooperation>.

5. FINANCIAL STABILITY RISKS REMAINING

KEY FINDINGS

Three kinds of financial stability risks remain: instances where the EU lacks resources, infrastructure, institutions and regulation; continued reliance on non-EU entities for the majority of post-trade services; and rising systemic risks that the EU financial system has to deal with.

The EU needs to consider ensuring that supervisory structures, resolution structures and access to emergency support from the ECB at the latter's discretion are built to ensure financial stability.

5.1. Resources, infrastructure, institutions and regulation

CCP governance and regulation is currently in the hands of national authorities, unless domiciled outside the EU, with the guidance of ESMA. Further work is to be done to ensure a tight, cohesive approach reminiscent of the Single Supervisory System in banking, rather than the looser and more problematic one in the Single Resolution Mechanism.

CCPs remain systemically-important institutions, regardless of size, due to their connectedness to the wider financial system. Meanwhile, some are enormous in size. Risk mitigation measures exist but only reach so far, meaning that it is an illusion to think that they might not require public backstops in a crisis. Their presence constitutes a potential financial stability risk under conditions of extreme stress, meaning that they are too big or interconnected to fail. These provisions are currently lacking. While the CCP Recovery and Resolution Regulation creates a tool kit to manage crises and prevent further contagion, it is in all likelihood unable to handle collapses that extend beyond a single CCP.

The financial instability generated by margin call practices and capital requirements calculated with those practices in mind needs to be addressed by public authorities, particularly in time of stress. These practices ripple all the way out to the end-users of financial services and the broader economy. Legislation needs to give supervisors the capacity to calibrate expectations and requirements for financial service providers to prevent the type of cascade credit crunch that margin calls generate in times of uncertainty and crisis, much as it does in banking supervision under the Capital Requirements Regulation. The concerns of ESMA that the EU will require better capital standards, better insight into CCP margining models, and more centralised supervision to exercise its mission to increase market resilience and financial stability as EU-domiciled CCPs growth in size and systemic importance⁵⁰ need to be taken very seriously and acted upon. In essence, the legal and institutional, IT systems and hiring work needs to be ready before shifts occur. The same applies to resolution powers for resolution authorities once a collapse begins. National competent authorities and national legislation on which it is based will require better centralised direction in terms of single rulebooks, technical standards and discretionary competencies of ESMA and the ECB as Single Supervisor to ensure financial stability, before, during and after a major credit event.

⁵⁰ Stafford P. (2021b) EU financial watchdog says banks can continue to use UK clearing houses. *Financial Times*, 17 December. <https://www.ft.com/content/0fda2f0a-f2a5-40ab-b47a-8c7c5a7c2cae>.

European Securities Markets Authority, 2021, ESMA's Proposals Regarding the Review of the CSD Regulation (CSDR). 20 May. https://www.esma.europa.eu/sites/default/files/library/esma70-156-4519_letter_to_ec_-_csdr_review.pdf.

European Securities Markets Authority, 2017, Principles on the supervisory approach on relocations from the UK, Paris, May.

5.2. Risks of reliance on non-EU domiciled CCPs

Even under conditions of increased good faith and relations with the UK, the UK has two continuing motivations to diverge from EU needs in a crisis: an intense desire to ensure that margin calls and capital requirements are the toughest in the world during a crisis (catering to international investors rather than the domestic or EU economies); and the potential desire to prevent collapses in their own economy, which has deteriorated significantly since Brexit. At the same time, the UK's own financial system is more fragile than the EU's given the UK's bigger problems in taming inflation, rising interest rates, and the resulting vulnerability of its banks to non-payment of mortgages.

Equivalency of US CCPs and supervisors has already been determined⁵¹. Reliance on US market operators and public authorities is safer than reliance on the UK, given the size of the economy and financial markets, but not without risk. The US stands at the centre of global capital markets and standard-setting, even more than the UK. However, the direction of prudential regulation goes up and down with American politics, the resulting gap with European preferences and requirements widens and narrows with it, and sometimes prudential oversight is weakened to the point of generating later financial crises, which then become the rest of the world's problem.

Under the Biden administration, both sides of the Atlantic are largely on the same page. Progress in devising measures to enhance resilience, such as CCP resolution plans mandated by the Securities and Exchange Commission (SEC), are a good example of a parallel to the EU's CCP Recovery and Resolution Directive.⁵² But the United States has its own banking crises that ripple into CCP-linked companies, and has political conflicts over whether prudential regulation is a good thing, particularly for the large, globally-significant institutions attached to CCPs providing services for the EU.

Difficulties for the EU can also emanate from private companies, even where the European Commission recognizes regulations and supervision of CCPs as equivalent to European ones, and where the respective government is aligned with European preferences and requirements. American-based CCP services might withdraw from the EU market under stress, creating a further financial stability risk. They might also leave or pressure EU authorities to reverse decisions they oppose. During the EU's introduction of price caps for energy in 2022, ICE threatened to leave the European market if the price caps on energy contracts went through.⁵³ Attempts at political coercion by American companies are not new (see social media and GDPR considerations) and should not be discounted.

Global CCPs that are relevant to the EU market and that offer CSD facilities are the Depository Trust & Clearing Corporation (DTCC), Intercontinental Exchange (ICE) Clear Credit, and the Chicago Mercantile Exchange (CME) for commodities (all in the US), LCH Clearnet (Paris, but owned by the London Stock Exchange Group), and Eurex Clearing (operated by Deutsche Börse in Frankfurt). LCH provided services to Euronext until the migration discussed above.

⁵¹ European Commission, 2021, Financial Services: Commission adopts equivalence decision for US central counterparties. 27 January. https://ec.europa.eu/commission/presscorner/api/files/document/print/en/ip_21_205/IP_21_205_EN.pdf.

European Commission, 2022a, Financial Services: European Commission adopts additional equivalence decisions for US exchanges. 4 April. https://ec.europa.eu/commission/presscorner/detail/en/IP_22_2263.

European Commission, 2020, Recovery and resolution of central counterparties (CCPs). https://finance.ec.europa.eu/capital-markets-union-and-financial-markets/financial-markets/post-trade-services/recovery-and-resolution-central-counterparties-ccps_en.

⁵² McCrack, J. (2023) US SEC proposes plan to bolster clearing houses' resiliency. *Reuters*, 17 May. <https://www.reuters.com/markets/us/us-sec-proposes-plan-bolster-clearing-houses-resiliency-2023-05-17/>.

⁵³ Stafford, P. and Hancock, A. (2022) ICE warns it may pull gas market from EU over Brussels price cap. *Financial Times*, 15 December. <https://www.ft.com/content/f32d077f-7aa9-403c-b51d-6aa8d8b02e19>.

5.3. Continued Lobbying to Limit Migration

Some EU banks have lobbied to continue reliance on UK and US service providers by permitting “back-to-back trading” for CCPs after Brexit. This practice allows European banks and CCPs to provide financial services to customers but conduct all the derivative trading outside the EU. This means that the capital held by the CCP and the fees for the transactions are also outside the EU. The Bank of England vigorously opposes shifting this business from London to the EU as harmful and unnecessary.⁵⁴ Notably, the German central bank has added its weight to this opposition, focusing on ensuring that active account requirements do not lead to higher costs for EU companies compared to elsewhere.⁵⁵ Meanwhile, while the European Banking Authority argued in 2018 that using this ‘backbone’ of global finance should not be banned,⁵⁶ it has not affected the ECB’s drive to have transactions and capital located within the EU. By 2022, the ECB’s examination of assets, trading activity and the location of these particulars (the so-called desk mapping review) underlined that splitting derivatives trading back-to-back between the EU and the UK potentially exposed EU-domiciled counterparties to uncovered losses that could unleash a financial crisis.⁵⁷ The EU would then have to step in to contain a crisis emanating from abroad. The current legislative proposal contained within the European Markets Infrastructure Regulation 3.0⁵⁸ to require trading for EU companies doing EU-related business to have their derivatives traded and cleared in EU-domiciled companies, is therefore sound and prudent to ensure financial stability.

5.4. Shocks, systemic risk and CCPs in a wider financial stability architecture

Business and economic cycles produce regular downturns. This is the least worrisome for CCPs, as they are built to meet this challenge. Financial crises, meanwhile, on average happen every 7-8 years, with serious consequences for the economy and society at large, and consequences that central counterparties may not be able to absorb easily. CCPs not only have the task of ensuring the stability of current financial contracts during the first phases of a crisis, but handling greater volumes of public spending and industrial policy that emerge in the later stages, as governments, individually and collectively through the EU respond to a number of existential threats requiring public investment and expenditures (pandemics, climate mitigation, chip shortages and military security in Europe) or financial intervention to prevent contagion after a financial collapse (collapse of crypto markets and affected banks in 2022). These events put pressure on CCPs through rising commodity prices, inflation and ripple effects on interest rate changes; ripple effects on sovereign and corporate debt prices; and a concurrent rise in need for public borrowing.⁵⁹ In one 2022 case, a European company focused on energy derivatives had to request public support as a result of war-induced energy market turbulence

⁵⁴ Morris, S. and Binham, C. (2021) Bank of England clamps down on Brexit-driven EU relocations. *Financial Times*, 29 March. <https://www.ft.com/content/ba285268-e4ce-42dd-9118-bba24155664c>.

⁵⁵ Jones, H. (2023) Bundesbank, BNP caution over EU euro derivatives clearing curbs in Britain. *Reuters*, 20 June. <https://www.reuters.com/article/britain-eu-derivatives-idUSL8N38C237>.

⁵⁶ Binham, C. and Jones, C. (2018) Bank watchdog rules out ‘back-to-back’ trading ban after Brexit’. *Financial Times*, 18 September. <https://www.ft.com/content/63174f46-b118-11e8-8d14-6f049d06439c>.

⁵⁷ Enria, A. (2022) The desks mapping review – integrating Brexit banks into European banking supervision. The Supervision Blog, 19 May. <https://www.bankingsupervision-europa.eu/press/blog/2022/html/ssm.blog220519~3081950bac.en.html>.

⁵⁸ European Commission (2022) Proposal for a regulation of the European Parliament and the Council amending regulations (EU) No 648/2012, No 575/2013, and No 2017/1131 as regards measures to mitigate excessive exposures to third-country counterparties and improve the efficacy of Union clearing markets. COM(2022) 697 final. <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:52022PC0697>.

⁵⁹ Organization for Economic Cooperation and Development (2023) *OECD Sovereign Borrowing Outlook 2023*. Paris: 22 May. <https://www.oecd.org/finance/public-debt/oecd-sovereign-borrowing-outlook.htm>.

to avoid undermining its CCP.⁶⁰ These recent examples underline the ultimate reliance for EU financial stability on the ECB, and the borrowing capacity of the Union and its Member States.

⁶⁰ European Central Bank (2022) Banks and CCPs facing stressed derivatives markets. 17 November. <https://www.bankingsupervision-europa/press/publications/newsletter/2022/html/ssm.nl221117.en.html>.

6. INDUSTRY TRANSITION BEHAVIOUR: LIBOR

KEY FINDINGS

LIBOR, a reference interest rate generated by private banks and used to calculate the price of financial derivative contracts ceased to exist on 1 July 2023, despite industry claims that there was no alternative. Public authorities in the US and EU now set reference rates for derivatives. These developments weaken claims that London-based banks are the only entities capable of marking derivative markets work.

A looming question during previous attempts to require clearing within the EU for EU-domiciled businesses was whether companies would redirect their business transactions. This section uses a similar, parallel case of migration, alluded to above, to strengthen evidence that businesses will comply with a migration requirement, but only when it truly becomes mandatory. Market actors will indeed need to negotiate prices for clearing with CCPs, CSDs and TRs. These are not impediments to financial stability as much as questions of struggles between businesses over the price of contracts. The case in question is migration of interest rate derivative contracts from the reference rate provided by LIBOR, the London Inter-Bank Offer Rate, based in London until late 2021, to SOFR, the Single Overnight Financing Rate, set by the Federal Reserve in the United States.

LIBOR, and then SOFR collect reports from banks on interest rates charged for overnight loans and use the average as a benchmark for the wider financial system. LIBOR's slow demise followed a price-fixing scandal in 2008, in which major global banks enriched themselves by reporting higher interest rates than were charged.⁶¹ NYSE Euronext took over LIBOR from the British Banking Association in 2014, but NYSE Euronext ceased to exist the same year after a takeover by Intercontinental Exchange (ICE). Contenders to replace LIBOR in Europe were EURIBOR (set by the European Banking Federation) and Euro Overnight Index Average (EONIA) (set by the ECB based on interbank lending rates), and in October 2019, the ECB launched Euro short-term estimated rate (€STR), which added trading in money market funds, insurance companies and pension funds to data on banks.

Plans for a new standard managed in the US became bogged down in industry resistance, particularly the side dependent on income from variable interest rates, which stood to lose revenue under the new standard. In interest rate swaps and currency swaps, one party pays the other at a fixed rate, while the other pays at a variable rate, referenced to a central rate. Until its dissolution, that central rate was LIBOR.⁶² As part of the reference interest rate reform, US and European public authorities selected rates free of a credit risk surcharge, which would generally be lower than older LIBOR rates. This led the International Swaps and Derivatives Association and its members to complain that SOFR and €STR rates were too low to properly compensate for the risk of default. ISDA proposed a top-up to SOFR on derivative contracts based on a risk assessment of the issuers that would increase their revenue.⁶³

Data from May 2023 show that 53% of US-dollar-denominated interest rate swaps, which form the core of the global swaps market, had been traded based on SOFR.⁶⁴ This affects rates for euro swaps as well.

⁶¹ Hou, D. and Skeie, D. (2014) *LIBOR: origins, economics, crisis, scandal and reform*. Federal Reserve Bank of New York Staff Report No 667. <https://www.econstor.eu/bitstream/10419/120778/1/794146384.pdf>.

⁶² Alsworth, J.S. (1993) *The valuation of US Dollar interest rate swaps*. BIS Economic Papers No. 35. Basel: Bank for International Settlements. <https://www.bis.org/publ/econ35.htm>.

⁶³ Scaggs, A. (2023) The pain and SOFRing are almost over. *Financial Times*, 5 April. <https://www.ft.com/content/5372ea07-5fb8-4ec3-b3bd-28f6139d3b3a>; Clarfelt, H. (2023) Loan market braced for Libor finish line. *Financial Times*, 31 May. <https://www.ft.com/content/564a9c11-ffaf-484d-9176-20f5b962ee11>.

⁶⁴ Robertson, H. (2023) US interest rate swap market embraces new rate as LIBOR deadline nears. *Reuters*, 6 June. <https://www.reuters.com/markets/currencies/us-interest-rate-swap-market-embraces-new-rate-libor-deadline-nears-2023-06-06/>.

A result is that reference rates are now set by public bodies in the US and Europe, through SOFR and €STR, and on a risk-free basis, though clearing houses try to charge more through credit-sensitive risk surcharges.⁶⁵ The jury is out on whether markets will continue to insist on gold-plating risk-free rates with credit-sensitive rates. Either way, since 2019, these mechanisms have been in place, and a large volume of activity has already migrated away from LIBOR, despite industry resistance. LIBOR ceased to be calculated on 1 July 2023, so that migration needed to take place by then.

⁶⁵ Beaumont, A.E. (2022) One year to go: the state of play in LIBOR transition. *Hedge Fund Law Report*, 23 June. <https://assets.isda.org/media/582f1186/7dea8bf1-pdf/>.

Tuckman, B., 2023, Short-term rate Benchmarks: the post-LIBOR regime. *Annual Review of Financial Economics* 15, <https://doi.org/10.1146/annurev-financial-110921-015054>.

7. CONCLUSIONS

Post-trade financial services are essential components of financial market infrastructure and a mandated part of measures to keep those markets safe: a target known as financial stability. Central counterparties (CCPs) ensure that payments are made in a financial transaction between companies even if the payer is unable to meet its commitments. This prevents single defaults from unleashing chain reactions of default that become systemic crises. This is extremely useful in high-volume financial markets where inability to pay can arise. CCPs not only make markets safer, but they also make them more efficient. Financial stability was a driving factor behind the EU's original EMIR legislation in 2012, which mandated CCPs for the first time. Alongside CCPs, post-trade financial services involve central securities depositories, where all kinds of financial instruments are stored, lent, and used as collateral for lending for institutional investors. Finally, post-trade services include trade repositories, which record all trades and loans undertaken, providing market transparency for investors and supervisors, whose job it is to monitor market activity, apply prudential regulations, and calibrate rules as conditions require. In sum, CCPs ensure that people get paid, securities depositories ensure that investors have accounts to store their assets, trade repositories provide information to those who need it, and supervisors are responsible for quality control. Special attention is reserved here for CCPs, which act as circuit breakers when financial defaults occur in financial markets.

CCP services need to be located in the EU to fully support their financial stability mission. As useful as CCPs are, they cannot provide financial stability alone, and depend on other institutions, especially under extreme conditions. CCPs are meant to handle individual defaults, holding sufficient capital to withstand the default of one of its customers or even one of its members. They do this by holding minimum stocks of capital appropriate for local economic conditions, and by demanding money from clients and members as markets get more volatile. Supervisors can calibrate legal requirements during periods of extreme stress to make a systemic crisis less likely. Similarly, public authorities, including the ECB and the ESM, can organise loans and in extreme cases cash injections to prevent a CCP from collapsing. They also set out procedures for resolving CCPs and transferring their business when they are no longer salvageable. EU institutions should not only be responsible for decisions when CCPs crash, but avert disaster where possible, given the serious consequences of failure. This is only possible where CCPs providing services for the EU market are located in the EU.

The concrete danger to EU markets from non-EU services emanates from both economic and political risks, which are significant in the UK. Economic risks follow where very different economic circumstances prevail inside and outside the EU that affect how CCPs and supervisors behave. Key factors are differences in the rate of inflation, of interest rates, of commodity and energy prices, and of bond prices. All of these risks have been elevated in the UK, which has struggled on all of these areas, leading to state intervention to stabilise fragile CCPs. Political risks follow where animosity between the EU and the country in which a foreign CCPs is located threaten to undermine cooperation over supervision, standards and emergency support. This includes different visions of what regulatory standards for financial stability should look like, which are also becoming less alike in the EU and the UK as Britain adjusts its post-Brexit financial regulation architecture.

Despite industry claims that there was no alternative to CCP services for the EU located in the City of London, most clearing-related financial assets and services moved out of the UK in the second quartile of 2023. Only 15% remained. This migration disproves industry claims that there was no alternative to locating services in London, and that attempts to shift to another country would damage financial stability. This significantly addresses concerns about cliff edge effects. However, while EU counterparties accounted for 35% of clearing by May 2023, a large increase from 2022, American counterparties accounted for just over 50%, gaining the largest share. This shift was made possible by

a prior decision by the Commission to grant equivalency status to US-based CCPs, but also massive political and economic turbulence in the UK, and an impending expiry of EU permission to organise CCP services from London. The large capital reserves of American CCPs and their unparalleled capacity to access new cash from American capital markets if required reduced the costs of transferring business and avoided the cliff-edge scenario that London-based CCPs had warned against.

While this provides continuity of service and new clarity about the potential for migration, it leaves open the question of how much can be and should be relocated to the EU in the short to medium term. Some initial observations provide some insight. EU-based companies that migrated business to the United States were the largest players in the field and represented the largest overall volume of financial derivatives clearing. These are also likely to be the most intensive users of US dollar-based financial securities that serve as the foundation for interest rate and currency swap derivatives. The more migration of capital and trading toward the EU has already taken place, the easier large EU financial institutions will find it to clear on EU-based services. In contrast, EU-based companies that migrated business to the EU already were more numerous and collectively represented a smaller overall volume of trading than the larger market players moving to the US. Smaller fish have therefore shifted to the EU market in the short term and larger fish to the US.

Ease of registration in the UE has been the deciding factor for those migrating to the European continent. Meanwhile, access to the world's largest capital markets, particularly in dollar-denominated bonds that form the foundation of the international financial system has been more decisive for those moving across the Atlantic, despite more complicated registration procedures. Looking forward, it should be noted that political and economic risks apply to the US market as well as the UK. Extreme political polarisation and the prospect of debt default that would impact CCPs in the United States cannot be discounted entirely into the future, given lasting transformation of the American political situation.

REFERENCES

- Alsworth, J.S., 1993, *The valuation of US Dollar interest rate swaps*. BIS Economic Papers No. 35. Basel: Bank for International Settlements. <https://www.bis.org/publ/econ35.htm>.
- Armakolla, A., Douady, R. and Laurent, J. P., 2019, Repurchase agreements and the European sovereign debt crises: the role of European clearinghouses. In Boubaker, S. and Khuong Nyugen, D. (eds.) *Handbook of Global Financial Markets: Transformations, Dependence, and Risk Spillovers*. Singapore: World Scientific: 467-492.
- Asgari, N., 2023, US grabs majority of euro swaps trading after Brexit rift. *Financial Times*, 16 May. <https://www.ft.com/content/70024181-4f24-45b8-a47e-33233caf28f4>.
- Asgari, N., 2023a, Euronext to switch derivatives clearing to Italy in 2024. *Financial Times*, 16 January. <https://www.ft.com/content/5cf637f6-52a4-4adf-bafe-fcaa9f0f20a6>.
- Asgari, N., 2022, EU urged to help pension funds on margin calls stress. *Financial Times*, 20 October. <https://www.ft.com/content/1c47de9c-0d6e-4eb4-841c-1b8e8ea96aac>.
- Bank for International Settlements, 2023, *Margin Dynamics in Centrally-Cleared Commodities Markets*. 23 May. <https://www.bis.org/bcbs/publ/d550.htm>.
- Bank for International Settlements, 2022a, *Review of Margining Practices*. 29 September. <https://www.bis.org/bcbs/publ/d537.htm>.
- Bank for International Settlements, 2022b, *OTC derivative statistics at end-December 2021*. 12 May. https://www.bis.org/publ/otc_hy2205.htm.
- Bank for International Settlements, 2022c, *CPMI-IOSCO finalise analysis of margining practices during March 2020 market turmoil*. 29 September. <https://www.bis.org/press/p220929.htm>.
- Beaumont, A.E., 2022, One year to go: the state of play in LIBOR transition. *Hedge Fund Law Report*, 23 June. <https://assets.isda.org/media/582f1186/7dea8bf1-pdf/>.
- Becker, L., 2023, Eurex clearing chief calls for active account carve-outs. *Risk.net*. 16 May. <https://www.risk.net/regulation/7956740/eurex-clearing-chief-calls-for-active-account-carve-outs>.
- Berendsen, R., 2021, Fundamental questions on central counterparties: a review of the literature. *Journal of Futures Markets* 41(12): 2009-2022. <https://doi.org/10.1002/fut.22260>.
- Bingham, C. and Jones, C., 2018, Bank watchdog rules out 'back-to-back' trading ban after Brexit'. *Financial Times*, 18 September. <https://www.ft.com/content/63174f46-b118-11e8-8d14-6f049d06439c>.
- Bounds, A. and Fleming, S., 2023, Brussels agrees to sign regulatory co-operation deal with the UK. *Financial Times*, 17 May. <https://www.ft.com/content/82485b12-0b9b-4d01-b817-177baba60e63>.
- Clancy, L., 2023, ICE and LCH declare victory as CDS migration nears end. *Risk.net*. 4 May. <https://www.risk.net/risk-management/7956646/ice-and-lch-declare-victory-as-cds-migration-nears-end?position=8&total=10>.
- Clarfelt, H., 2023, Loan market braced for Libor finish line. *Financial Times*, 31 May. <https://www.ft.com/content/564a9c11-ffaf-484d-9176-20f5b962ee11>.

- Dalla Fontana, S., Holz auf der Heide, M., Pelizzon, L. and Scheicher, M., 2019, *The Anatomy of the euro area interest rate swap market*. ECB Working Paper No 2242. <https://www.ecb.europa.eu/pub/pdf/scpwps/ecb.wp2242~b1f459eb90.en.pdf>.
- Diamond, P., 2021, New Jerusalems? The Labour Party's Economic Policy-Making in Hard Times. *The Political Quarterly*, 92(2), 264-273.
- Donnelly, S., 2023, Bank supervision between risk reduction and economic renewal. *Journal of European Integration*, 45(1), 59-77.
- Donnelly, S., 2022, Post-Brexit financial services in the EU. *Journal of European Public Policy*, 1-20.
- Donnelly, S., 2014, Power politics and the undersupply of financial stability in Europe. *Review of International Political Economy*, 21(4), 980-1005.
- EBA, see European Banking Authority.
- Enria, A., 2022, The desks mapping review – integrating Brexit banks into European banking supervision. *The Supervision Blog*, 19 May. <https://www.bankingsupervision.europa.eu/press/blog/2022/html/ssm.blog220519~3081950bac.en.html>.
- Eurex, 2023, *Market-Making Options*. <https://www.eurex.com/ex-en/trade/participant-list/market-making-options> Consulted 17 June.
- European Banking Authority, 2012. *Regulatory Technical Standards on capital requirements for Central Counterparties (CCPs)* (EBA/RTS/2012/01). <https://www.eba.europa.eu/regulation-and-policy/market-infrastructures/draft-regulatory-technical-standards-on-capital-requirements-for-central-counterparties-ccps->.
- European Banking Authority, 2012a, *Opinion of the European Banking Authority on Capital Requirements for Central Counterparties under the EMIR*. 26 September. EBA/Op/2012/02. <https://www.eba.europa.eu/sites/default/documents/files/documents/10180/604458/5f35a79c-9005-4891-86c0-9a5180886b25/EBA-Op-2012-02--EBA-opinion-on-EMIR-and-CCPs-2.pdf>.
- European Central Bank, 2019, *Overview of the euro short-term rate (€STR)*. Frankfurt: https://www.ecb.europa.eu/stats/financial_markets_and_interest_rates/euro_short-term_rate/html/eurostr_overview.en.html.
- European Central Bank, 2017, 'Relocating to the euro area', Frankfurt. <https://www.bankingsupervision.europa.eu/banking/relocating/html/index.en.html>.
- European Central Bank, 2017, 'ECB recommends amending Article 22 of its Statute', 23 June. <https://www.ecb.europa.eu/press/pr/date/2017/html/ecb.pr170623.en.html>.
- European Central Bank, 2022, Banks and CCPs facing stressed derivatives markets. 17 November. <https://www.bankingsupervision.europa.eu/press/publications/newsletter/2022/html/ssm.nl221117.en.html>.
- European Commission, n.d. *Central securities depositories*. https://finance.ec.europa.eu/capital-markets-union-and-financial-markets/financial-markets/post-trade-services/central-securities-depositories-csds_en. Consulted 15 June 2023.

- European Commission, 2022a, *Communication from the Commission to the European Parliament, the Council, the European Central Bank and the European Economic and Social Committee: A path towards a stronger EU clearing system*. COM/2022/696 final. 7 December. <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:52022DC0696>.
- European Commission, 2022b, *Speech by Commissioner Mairead McGuinness at the ECB/European Commission Conference on European financial integration, 'An EU financial system for the future'*, 6 April. https://ec.europa.eu/commission/presscorner/detail/en/SPEECH_22_2327.
- European Commission, 2022c, *Financial Services: European Commission adopts additional equivalence decisions for US exchanges*. 4 April. https://ec.europa.eu/commission/presscorner/detail/en/IP_22_2263.
- European Commission, 2021, *Financial Services: Commission adopts equivalence decision for US central counterparties*. 27 January. https://ec.europa.eu/commission/presscorner/detail/en/ip_21_205.
- European Commission, 2020, *Recovery and resolution of central counterparties (CCPs)*. https://finance.ec.europa.eu/capital-markets-union-and-financial-markets/financial-markets/post-trade-services/recovery-and-resolution-central-counterparties-ccps_en.
- European Commission, n.d. *Derivatives/EMIR* https://finance.ec.europa.eu/capital-markets-union-and-financial-markets/financial-markets/post-trade-services/derivatives-emir_en.
- European Parliament, 2023a, *Banking and Financial Markets: some topical issues (study)*. [https://www.europarl.europa.eu/RegData/etudes/BRIE/2022/733717/IPOL_BRI\(2022\)733717_EN.pdf](https://www.europarl.europa.eu/RegData/etudes/BRIE/2022/733717/IPOL_BRI(2022)733717_EN.pdf).
- European Parliament, 2023b, *Public Hearing on Energy Derivatives Markets*. 27 March. <https://www.europarl.europa.eu/committees/en/public-hearing-on-energy-derivatives-mar/product-details/20230321CHE11464>.
- European Securities Markets Authority, 2021, *ESMA's Proposals Regarding the Review of the CSD Regulation (CSDR)*. 20 May. https://www.esma.europa.eu/sites/default/files/library/esma70-156-4519_letter_to_ec_-_csdr_review.pdf.
- European Securities Markets Authority, 2017, *Principles on the supervisory approach on relocations from the UK*, Paris, May.
- European Union, 2014, *Regulation EU 909/2014 on improving securities settlement in the European Union and on central securities depositories and amending Directives 98/26/EC and 2014/6/EU and Regulation (EU) No 236/2012 (consolidated)*. <https://eur-lex.europa.eu/legal-content/EN/TXT/HTML/?uri=CELEX:02014R0909-20220622#tocId27>.
- Ferrarini, G. and Saguato, P., 2014, *Regulating financial market infrastructures*. *European Corporate Governance Institute (ECGI)-Law Working Paper*, (259). https://eprints.lse.ac.uk/59683/1/Ferrarini_Saguato_Regulating-financial-market-infrastructures_2014.pdf.
- Foster, P., Strauss, D., and Parker, G., 2023, *Why the watered-down EU law bill remains mired in controversy*. *Financial Times*, 19 May. <https://www.ft.com/content/d515a617-15d0-457f-a3df-873524a4bc67>.
- Gates, C., 2016, *Understanding Central Counterparties (CCPs)*. Global Financial Markets Institute, 17 April. <https://www.gfmi.com/articles/understanding-central-counterparties-ccps/>.

- Genito, L., 2019, Mandatory clearing: the infrastructural authority of central counterparty clearing houses in the OTC derivatives market. *Review of International Political Economy*, 26(5), 938-962.
- Genito, L., 2018, *What Markets Fear: understanding the European sovereign debt crisis through the lens of repo market liquidity*. Ph.D. Thesis, University of Warwick. <https://core.ac.uk/download/pdf/266992522.pdf>.
- High-Level Group on CMU, 2020, *A New Vision for Europe's Capital Markets*. https://finance.ec.europa.eu/system/files/2020-06/200610-cmu-high-level-forum-final-report_en.pdf.
- HM Treasury, 2022, *Building a smarter financial services framework for the UK*. London: December. [https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1122734/Building a smarter financial services framework for the UK .pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1122734/Building_a_smarter_financial_services_framework_for_the_UK.pdf).
- HM Treasury, 2022a, *UK Wholesale Markets Review: a consultation* (updated). London: 1 March. <https://www.gov.uk/government/consultations/uk-wholesale-markets-review-a-consultation>.
- HM Treasury, 2021, *Securitisation Regulation: call for evidence* (updated). London: 13 December 2021. <https://www.gov.uk/government/consultations/securitisation-regulation-call-for-evidence>.
- Hou, D. and Skeie, D., 2014, *LIBOR: origins, economics, crisis, scandal and reform*. Federal Reserve Bank of New York Staff Report No 667. <https://www.econstor.eu/bitstream/10419/120778/1/794146384.pdf>.
- James, S. and Quaglia, L., 2020, Rule maker or rule taker? Brexit, finance and UK regulatory autonomy, *International Political Science Review*, 43(3), 390-403. 10.1177/0192512120967380.
- Jones, H., 2023, Bundesbank, BNP caution over EU euro derivatives clearing curbs in Britain. *Reuters*, 20 June. <https://www.reuters.com/article/britain-eu-derivatives-idUSL8N38C237>.
- Kalaitzake, M., 2021, Resilience in the City of London: the fate of UK financial services after Brexit, *New Political Economy*, 10.1080/13563467.2021.1994540, 27(4), 610-628.
- Lanoo, K., 2023, Mutual funds hold key to a genuine capital union in Europe. *Financial Times*, 23 May. <https://www.ft.com/content/59fee07d-775a-40f9-acd3-dcaa56cf5609>.
- Lysandrou, P., Nesvetailova, A. and Palan, R., 2017, The best of both worlds: Scale economies and discriminatory policies in London's global financial centre. *Economy and Society*, 46(2), 159-184.
- Martill, B. and Staiger, U., 2020, Negotiating Brexit: The Cultural Sources of British Hard Bargaining, *JCMS: Journal of Common Market Studies*, 10.1111/jcms.13059, 59(2), 261-277.
- Martin, K. and Asgari, N., 2023, Why Europe's stock markets are failing to challenge the US. *Financial Times*, 25 April. <https://www.ft.com/content/790a5990-1d25-45c4-9267-466a92c52e02>.
- Mccrank, J., 2023, US SEC proposes plan to bolster clearing houses' resiliency. *Reuters*, 17 May. <https://www.reuters.com/markets/us/us-sec-proposes-plan-bolster-clearing-houses-resiliency-2023-05-17/>.
- McDougall, M and Venkataramakrishnan, S., 2023, How the bond market is driving up UK mortgage rates. *Financial Times*, 20 June. <https://www.ft.com/content/a11ca42c-aa69-470a-9351-a2db3542f57a>.

- Morris, S. and Binham, C., 2021, Bank of England clamps down on Brexit-driven EU relocations. *Financial Times*, 29 March. <https://www.ft.com/content/ba285268-e4ce-42dd-9118-bba24155664c>.
- Noonan, L., 2023, EU banks face punitive charges as expiry of Indian clearing house permit nears. *Financial Times*, 22 March. <https://www.ft.com/content/1659678c-4719-43e7-b785-cd8324111f44>.
- Noonan, L., Parker, G., Fleming, S. and Stafford, P., 2023, EU under pressure to extend access to London clearing houses. *Financial Times*, 14 May. <https://www.ft.com/content/8d1350b8-ac86-43f2-a63a-f893a487a6cb>.
- Organization for Economic Cooperation and Development, 2023, *OECD Sovereign Borrowing Outlook 2023*. Paris: 22 May. <https://www.oecd.org/finance/public-debt/oecd-sovereign-borrowing-outlook.htm>.
- Osttra, 2023, OSTTRA transfers \$190 billion of open interest to support the ICE Clear Europe credit clearing closure. 4 May. https://osttra.com/press_releases/osttra-transfers-190-billion-of-open-interest-to-support-the-ice-clear-europe-credit-clearing-closure/.
- Panetta, L., 2021, *Central clearing and the changing landscape. Welcome address by Fabio Panetta, Member of the Executive Board of the ECB*. Paper presented at the Third Annual Joint Conference of the Deutsche Bundesbank, European Central Bank and Federal Reserve Bank of Chicago on CCP Risk Management. Frankfurt, 3 March. <https://www-ecb-europa-eu/press/key/date/2021/html/ecb.sp210303~3a3d6522b0.en.html>.
- Panitz, R. and Glückler, J., 2022, Relocation decisions in uncertain times: Brexit and financial services. *Economic Geography*, 98(2), 119-144.
- Parker, G. and Foster, P., 2023, Rishi Sunak faces ire of Brexiters after ditching 'trivial' EU-era laws. *Financial Times*, 16 May. <https://www.ft.com/content/e6682422-67cb-47a8-a7d0-fb47f09d4301>.
- Petit, C.A. and Beck, T., 2023, Recent trends in UK financial sector regulation and possible implications for the EU, including its approach to equivalence. PE740.067. [https://www.europarl.europa.eu/RegData/etudes/STUD/2023/740067/IPOL_STU\(2023\)740067_EN.pdf](https://www.europarl.europa.eu/RegData/etudes/STUD/2023/740067/IPOL_STU(2023)740067_EN.pdf).
- Petry, J., 2021, From national marketplaces to global providers of financial infrastructures: Exchanges, infrastructures and structural power in global finance. *New Political Economy*, 26(4), 574-597.
- Quaglia, L., 2020, *The Politics of Regime Complexity in International Derivatives Regulation*. Oxford: Oxford University Press.
- Quaglia, L., 2022, *The Perils of International Regime Complexity in Shadow Banking*. Oxford University Press.
- Quaglia, L., and Spendzharova, A., 2022, Regime complexity and managing financial data streams: The orchestration of trade reporting for derivatives. *Regulation & Governance*, 16(2), 588-602.
- Quaglia, L. and Verdun, A., 2023, The European Central Bank, the Single Supervisory Mechanism and the COVID-19 related economic crisis: a neofunctionalist analysis. *Journal of European Integration*, 45(1), 139-156.

-
- Robertson, H. (2023). US interest rate swap market embraces new rate as LIBOR deadline nears. *Reuters*, 6 June. <https://www.reuters.com/markets/currencies/us-interest-rate-swap-market-embraces-new-rate-libor-deadline-nears-2023-06-06/>.
 - Scaggs, A., 2023, The pain and SOFRing are almost over. *Financial Times*, 5 April. <https://www.ft.com/content/5372ea07-5fb8-4ec3-b3bd-28f6139d3b3a>.
 - Servais, Jean-Paul, 2023, Statement to European Parliament. https://www.europarl.europa.eu/cmsdata/267719/European%20Parliament_Opening%20Remarks_For%20publication.pdf
 - Stafford, P., 2021a, Euronext to pull trading servers out of UK after Borsa Italiana deal. *Financial Times*, 29 April, <https://www.ft.com/content/bda3bf7e-4393-4517-b311-86854572523a>.
 - Stafford P., 2021b, EU financial watchdog says banks can continue to use UK clearing houses. *Financial Times*, 17 December. <https://www.ft.com/content/0fda2f0a-f2a5-40ab-b47a-8c7c5a7c2cae>.
 - Stafford, P. and Hancock, A., 2022, ICE warns it may pull gas market from EU over Brussels price cap. *Financial Times*, 15 December. <https://www.ft.com/content/f32d077f-7aa9-403c-b51d-6aa8d8b02e19>.
 - Thiemann, M., 2018, Is resilience enough? The macroprudential reform agenda and the lack of smoothing of the cycle. *Public Administration* 97(3): 561-575. <https://onlinelibrary.wiley.com/doi/abs/10.1111/padm.12551>.
 - Tuckman, B., 2023, Short-term rate Benchmarks: the post-LIBOR regime. *Annual Review of Financial Economics* 15, <https://doi.org/10.1146/annurev-financial-110921-015054>.
 - UK Government, 2022, *Future Regulatory Framework Review*. London: 9 December. <https://www.fca.org.uk/publications/corporate-documents/future-regulatory-framework-review>.
 - Walker, O., Noonan, L., McCrum, D., Bingham, C. and Wiggins, K., 2022, How banks and regulators reacted to the UK bond market meltdown. *Financial Times*. 22 October. <https://www.ft.com/content/0382680a-6081-4ad0-af2d-52c3c7c105a6>.
 - Wendt, F., 2015, *Central counterparties: addressing their too important to fail nature*. International Monetary Fund Working Paper WP/15/21. <https://www.imf.org/en/Publications/WP/Issues/2016/12/31/Central-Counterparties-Addressing-their-Too-Important-to-Fail-Nature-42637>.

This research paper outlines how post-trade financial services work and how relying on central counterparties outside the EU poses political and economic risks to the financial stability of the Union. It demonstrates recent migration away from established venues in London to the EU and the United States, and evaluates prospects for further establishment of post-trade services in the EU.

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