BANK OF ENGLAND

Speech

Lessons from the pandemic: Has the simpler post-2008 financial system held up? And where do we go from here?

Speech given by

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The topic of my talk today is lessons we can draw from the market turbulence we saw in March and April 2020.
But before we get there I want to talk about an earlier crisis.

Let's rewind to 2008. On September 15th, Lehman brothers collapsed taking with it one side of $35 trillion in derivatives contracts. Most of these derivatives were bilateral contracts – a spaghetti bowl of interconnectedness. As Lehman collapsed and others teetered near the edge, no one knew who was holding the bag.

The result was panic, which, as explained by Ben Bernanke, may have been a key driver of the severity of the Great Recession. Its early stages would have been significantly less severe without the confidence collapse on Wall Street.[1]

1. Simpler

Now let's fast forward to 2020.

Pandemic. Economic crisis. Market turbulence. But no panic in the banking system.

There were a number of reasons. Banks were stronger. In the UK they were three times better capitalized than at end 2008. And to be clear –very significant government support and central bank interventions were required. I'll come back to this later.

But there is one other reason for the missing panic that I want to focus in on.

After the 2008 global financial crisis, the G20 put in place reforms designed to make the global financial system simpler - to untangle the spaghetti bowl of bilateral derivatives trades that had fed the 2008 panic.[2] They incentivised - and for many products mandated - central clearing of derivative trades. Global clearing has as a result, grown significantly in the past decade. Today, about 60% of credit default swaps are cleared, as well as 80% of interest rate contracts, up from about 10% and 40% respectively in 2008.[3]

This brought greater stability to derivative markets by ensuring that if a major financial institution were to collapse, you needn't worry about a domino effect – with the failing firm's derivatives contracts potentially threatening the viability of any number of other firms.[4]

[1] Ben Bernanke, Op-Ed at Brookings Institution, 13 September 2018
[2] G20 Leaders' Statement Pittsburgh Summit, September 2009.
[3] Bank of International Settlements Statistical Release, November 2020
[4] Although it's not my focus today, reforms to bilateral derivatives trading have also helped to reduce the chance that bilateral contracts fuel a panic.

One of the key ways central clearing counterparties – CCPs – help prevent panic is to be sure that as markets move, firms quickly pay for changes to their derivatives contracts, and insure against likely further changes.

First, when derivatives contracts change value, the holders of those contracts exchange money right away. Losses and gains are promptly allocated to the firms on either side of the trade. This limits the chance that, if one side of the trade defaults, the other firm is left holding the bag for the defaulter's bad trades. This is called variation margin.

Second, CCPs require firms to place pre-paid self-insurance with the CCP to cover the predicted liquidation costs in the event of their default. Because derivatives markets can be fast moving, a key factor in how large this self-insurance needs to be is how volatile the markets are. This is known as initial margin.

Importantly in times of market turbulence, both losses and gains of individual participants and required pre-paid self-insurance will rise. They are inherently pro-cyclical. As Deputy Governor Jon Cunliffe said last summer, this is a feature, not a bug.[5]

So did the simpler, post 2008- system work?

In March and April 2020, we saw some of the biggest two-day price moves for some cleared products in the past decade. In a number of products the price moves were much larger than ever seen before.

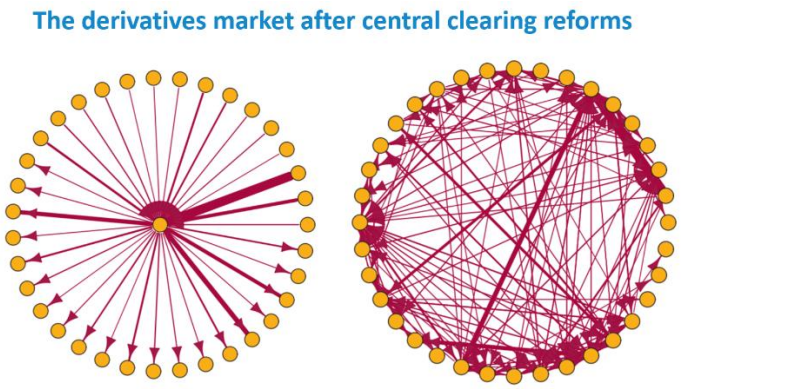
There were no major clearing member defaults during the pandemic, so clearing was not tested to the limit.

But UK CCPs were able to provide clearing services without disruption. And, importantly, despite record market moves, UK CCPs had enough prepositioned resources throughout the episode to cover the

[5] Speech by Jon Cunliffe, Financial System Resilience: Lessons from a real stress, 9 June 2020.

simultaneous default of the two largest banks that use them. In other words, CCPs had enough resources at all times to cover *two* defaults of institutions like Lehman.

Evidence from March and April suggests that, when it comes to preventing panic driven by opaque and complicated interlinkages of exposures, **the simpler system is working**. **There were unprecedented market moves. But no spaghetti bowl. No widespread panic about who had exposures to whom, and whether they could pay**.



Left hand side: Centrally cleared trades executed on 20 February 2017 in sterling interest rate swaps referencing six-month Libor.
Right hand side: Illustration of same trades had they not been centrally cleared.
Sources: DTCC Derivatives Repository Ltd, Unavista Ltd and Bank calculations

There's a catch of course. As we think about where we go from here, we will also need to look at CCPs' role in the performance of system as a whole. Indeed one of the key lessons of the 2008 financial crisis was that feedback loops and interlinkages mean the system is not the sum of its parts.[6] I will come back to this.

2. Global

As we turn to that bigger question, however, we should not lose sight of the fact that the reforms we put in place to make the system simpler served their intended purpose.

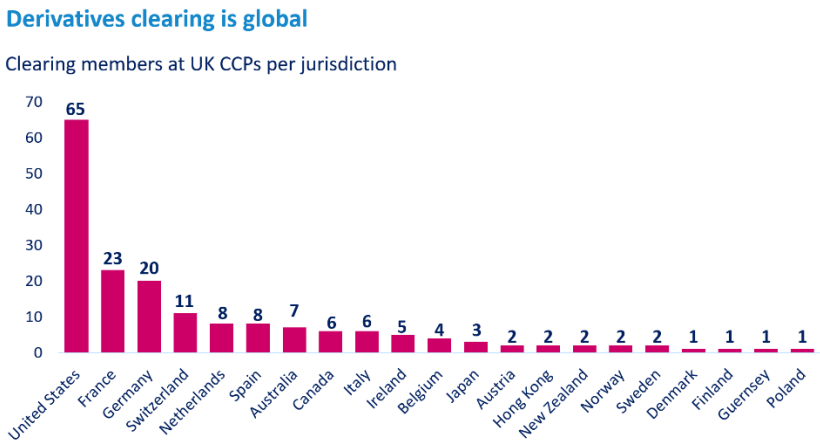
The question now is how to sustain and strengthen this new simpler system. I have two answers:

First of all, keeping the spaghetti bowl untangled means global infrastructure. The deep pools of liquidity that make central clearing economical don't correspond to national borders.

Derivatives clearing is a global service. UK CCPs clear global markets for interest rates, foreign exchange, credit default swaps, and commodities. Foreign clearing members make up 63% of the clearing members at

[6] Speech by Alex Brazier. How to: MACROPRU. 5 principles for macroprudential policy. 13 February 2017.

UK CCPs. At the end of 2020 there were £60 trillion of derivative contracts between UK CCPs and EU clearing members, and £66 trillion between UK CCPs and US clearing members.[7]



The growth of global infrastructure that spans national borders is a direct result of the reforms we put in place after 2008 – again a feature not a bug.

This cross-border nature of clearing means that there must be a consistent approach for the regulation and supervision of cross-border CCPs. The Principles for Financial Market Infrastructure, issued in 2012, provide that foundation.

It also means that regulators and supervisors must do something difficult and for some, radical: we need to trust each other.

This trust should not be blind. As a supervisor and regulator, I have a duty to households and businesses in the UK to preserve financial stability – to protect the UK economy from disruption. So I need to know on an ongoing basis that large CCPs on which the UK financial system relies are robustly regulated and supervised. But that should not necessarily mean I have to do the supervision of non-UK CCPs myself. Indeed if *every* host authority supervised *every* CCP that offers services to its banks and other financial institutions it would be untenable. We cannot have 21 different regulators' hands on the steering wheel when it comes to critical cross-border infrastructure. That would hardly be a good result for financial stability - especially in a crisis, where clear and quick decision-making is critical.

The solution is proportionate and informed reliance.[8] Informed reliance means that, with sufficient information and a deep cooperative relationship with the home supervisor, I can defer to them to ensure that a CCP is as safe to operate in UK as those I regulate and supervise directly. Proportionate means that for cross-border CCPs that are very important to the UK financial system, I will need more information and even

[7] BoE calculations.
[8] Principles for Financial Market Infrastructure Responsibility E on Cooperation.

deeper cooperation – and in the event that we are unable to secure this, I may need to resort to supervising the CCP directly.

This approach is underpinned by the 2013 G20 declaration which emphasizes the importance of regulators deferring to one another when justified by the quality of the regulatory and enforcement regimes.[9] It is also exemplified in our ongoing cooperation with the US CFTC, which we enshrined in a revamped MOU last year.

In the UK, we are in the process of designing our approach to our new onshored legal framework for incoming CCPs – known as UK EMIR 2.2. As we do this, we'll be looking to ensure proportionate and informed reliance is at the heart of our approach.

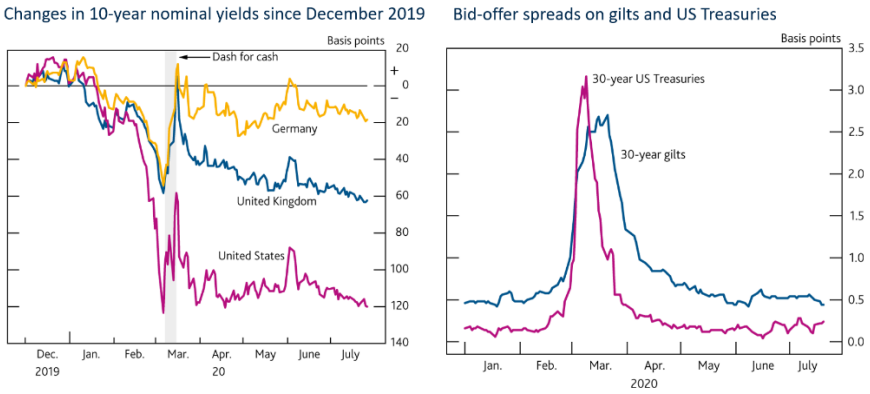
3. Ahead of the curve

My second recommendation for how to sustain the simpler system: **keep it under review.** Since 2008, the financial system has evolved. Reforms have been implemented; innovation, preferences, and changes in our economies have reshaped financial markets. In particular the role of non-banks has grown. We need to be on the lookout for new fault lines.

The market stress we saw in March and April offers the potential to glimpse of where these fault lines might be – a real life stress test.

One of those fault lines may have come into view in March. Sharp moves in asset prices catalysed the sudden and sharp redistribution of liquidity around the system. Market participants were racing to get their hands on cash – and in particular US dollars. This led to a period of severe market dysfunction, spreading even to advanced economy government bond markets.

Dysfunction spread to some of the worlds' most liquid markets



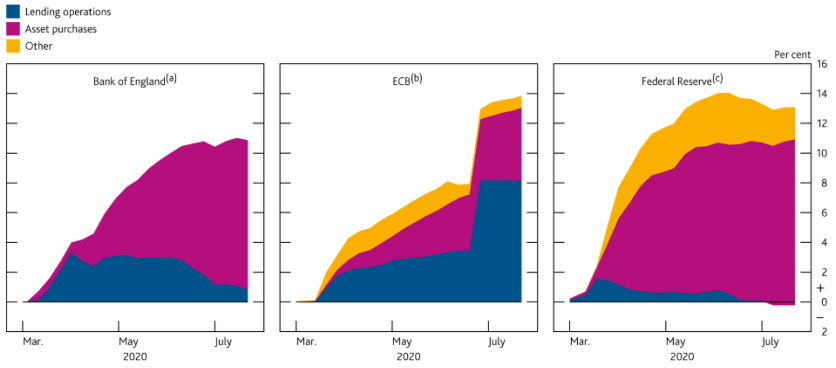
Source of charts: LHS: Bloomberg Finance L.P. and Bank calculations; RHS: Eikon by Refinitiv and BoE calculations.

[9] G20 Leaders' Declaration, St. Petersburg Declaration, 6 September 2013.

Central banks stepped in to restore market stability in a big way, carrying out lending operations and asset purchases to limit wider economic consequences. G10 central bank balance sheets have risen by $8 trillion, or 16% of G10 GDP since March 2020.[10] The good news is that extraordinary central bank action succeeded in restoring stability.

Central banks stepped in in a big way

Changes in components of central banks' balance sheets since the end of February 2020 as a proportion of 2019 nominal GDP in their home jurisdictions



Sources: Bank of England, Bureau of Economic Analysis, European Central Bank, Eurostat, Federal Reserve Board, ONS and Bank calculations

But to conclude "all's well that ends well" in this case would be the equivalent of someone who had an electrical fire in their home after a power surge deciding not to bother to look at the wiring because the fire department arrived quickly and managed to put the fire out without too much damage. We need to open up the walls.

So what does this have to do with central clearing?

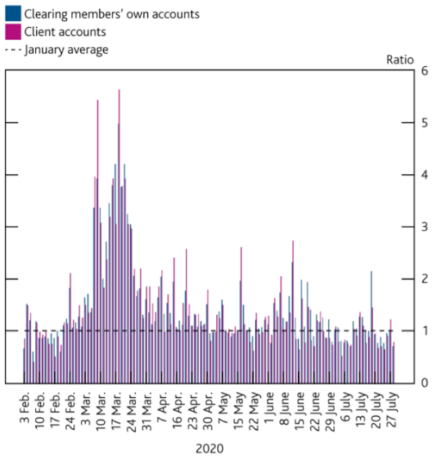
You'll recall earlier I spoke about margin - variation margin (the losses and gains of individual participants) and initial margin (pre-paid self-insurance).

Well in March, UK CCP margin calls grew significantly in response to high levels of market volatility. At their March peak, daily variation margin calls by UK CCPs were over 5 times higher than their average, at around £30bn. And their initial margin requirements grew by over 30%.[11] This is not particularly surprising – as I said earlier, one would expect CCP margin to jump in such a dramatic market stress.

[10] Speech by Andrew Hauser, From Lender of Last Resort to Market Maker of Last Resort via the dash for cash: why central banks need new tools for dealing with market dysfunction, 7 January 2021.
[11] Bank of England calculations.

CCP margin calls grew significantly in response to market volatility

Variation margin on centrally cleared derivatives, as a ratio to the January average



Source: BoE Supervisory Returns

But it also undoubtedly contributed to the liquidity stress some participants faced. At least some of those scrambling to get their hands on US dollars may have been doing so in order to meet their obligations at CCPs

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As a priority for 2021, the Financial Stability Board (FSB) is looking at the role of margin in this episode, as part of its broader work plan to strengthen the resilience of non-bank financial intermediation.[12] The Bank is closely involved.

This is crucial work – we need to understand the role margin played as part of any thorough look behind the walls.

This means we will **need to look beyond aggregate numbers and build up a full and detailed picture to assess what role CCP margin played**

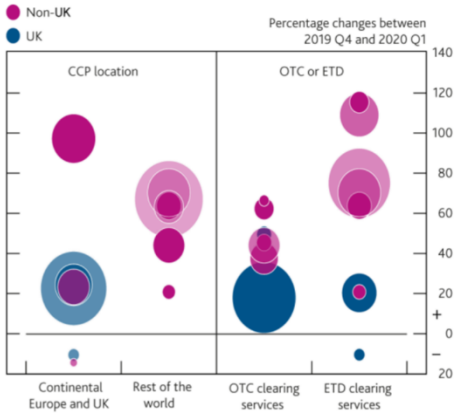
For example:

- We need to look at why all CCPs turned out not to be created equal. What drove variation across firms and are there any lessons learned.

[12] FSB Holistic Review of the March Market Turmoil, 17 November 2020.

All CCPs turned out not to be created equal

Quarterly change in total initial margin received at CCP and service level, size of the bubble denotes total initial margin in 2020 Q1



Source: BoE CCP Disclosures and BoE calculations

- We need to distinguish between variation margin and initial margin. Variation margin flows -which simply reflect losses and gains in the underlying markets were in many cases much larger than the increases in initial margin controlled by CCPs' own models.

- We need to go more granular than quarterly data to understand the speed of margin increases over that crucial period in mid-March.

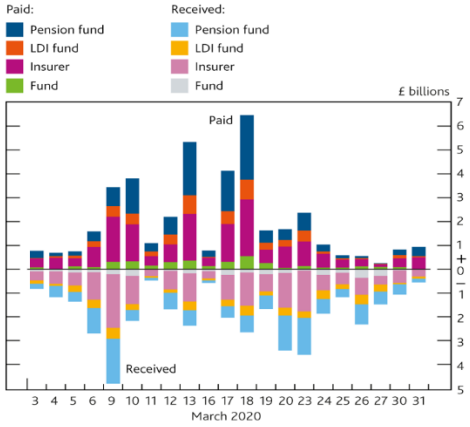
- We also need to understand how much of the headline increase in initial margin resulted from members simply trading more. Our analysis suggests this varied widely across UK CCPs and over the crisis period. We already know that changing portfolios don't tell the whole story. For almost all services, volume accounted for well less than half of CCP initial margin increases over March as a whole, with CCP models a much more important driver.[13]

- Finally, to really get into the walls of the dash for cash, we need to look beyond service-level aggregates to understand if particular groups of firms saw their margins increase more than across the service as a whole.

[13] Bank of England calculations.

We need to examine how well prepared firms were.

Total estimated variation margin payments on some interest rate and FX derivatives for some UK non-banks



Sources: Sources: Trade Repositories — DTCC Derivatives Repository plc, ICE Trade Vault Europe Ltd, Regis-TR S.A and UnaVista Limited Trade Repositories; Bloomberg Finance L.P. and Bank calculations.

But even as we delve into margin data, we need to keep in mind that the increase in margin is only one piece of the puzzle. **What matters is that the system as a whole has the right level of liquidity to cope with volatility in derivatives markets in a stress and that liquidity is in the right place**

We need to understand which market participants were caught flat-footed and why.

Thanks to post- 2008 liquidity reforms, banks seemed able to handle the liquidity pressures they faced in March, including from margin calls. But non-banks such insurers, pension funds, hedge funds and asset managers have grown in importance over the past decade - we need to examine how well prepared they were to face the liquidity demands around margins.

It's too early to reach policy conclusions. But to preview the options in front of us:

It's possible we'll want to explore solutions that could reduce the need for CCP margin to rise as much in stress by pre-positioning more liquidity at CCPs during quiet periods. It's possible we could accomplish this by spreading existing good practices in CCP model design. It's equally possible we'll want to focus on better liquidity risk management, particularly for non-banks. This could make sure market participants self-insure against margin calls on their own balance sheets – rather than pre-positioning initial margin at the CCP. Improving transparency around potential margin calls could help support this.

It's possible that we'll want to do some of both.

The right balance of policy responses will depend on what evidence we find. To be clear, the question here is not about whether CCP margin is to "blame" for the dash-for-cash. The question is did the system have enough liquidity ready in the right places to respond to derivative market volatility without adverse consequences for financial stability.

Whatever we conclude, our policy response will need to take into account the whole story- including the essential role that margin played in preventing panic. We don't want to return to the pre-Lehman world of a spaghetti bowl of counterparty credit risk.

4. Conclusion

So going back to my original questions.

First, what has the experience of March and April told us about the reforms we put in place post-2008 to make the global financial system simpler?

A: The headline answer is: It worked. When it comes to the crucial goal of preventing panic fuelled by a spaghetti bowl of bilateral derivatives exposures, the new system held up despite unprecedented stress.
Second, where do we go from here?

A: I have two recommendations:

First, we need global regulatory cooperation in order to avoid reverting to fragmentation and spaghetti. Trust based on proportionate, informed reliance.

Second, if we want the simpler system to keep working, global regulators need to stay ahead of the curve and keep the system under review.

We cannot ignore the fire the financial system experienced in March and April last year just because central banks did a good job putting it out. We need to look behind the walls and address any faults in the wiring.

Fortunately the FSB – working with the Committee on Payments and Market Infrastructure (CPMI) and the International Organization of Securities Commissions (IOSCO) are doing just that.