COVID-19 and the financial system: a tale of two crises

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Abstract: This paper compares and contrasts the resilience of the financial system, in particular banks, during the Global Financial Crisis and COVID-19. We show that banks are now part of the solution, rather than part of the problem, thanks to regulatory and institutional reforms over the past decade. Heeding the lessons from the Global Financial Crisis has paid dividends. We outline some early lessons from the COVID-19 crisis for the financial system going forward.

Keywords: financial stability, macroprudential policy, Basel III, capital requirements, liquidity requirements, Covid-19, CCyB

JEL classification: G01, G18, G21, G28

I. Introduction

COVID-19 has caused a global collapse in activity and loss of jobs that is probably unprecedented in its scale and speed. Small and large businesses across every country in the world have had to close their doors to customers and employees. The sharp accompanying decrease in firms’ revenues and households’ incomes will result in the first global recession since 2009. It will also present the global financial system with its largest stress event since at least the global financial crisis.1

All crises are different. A decade ago, the financial system, and in particular banks, were the epi-centre of the global financial crisis, both its key cause and its key catalyst. This time a pandemic is at the epi-centre of the crisis and the banking sector is now seen as part of the solution rather than the problem. This is evident from the large and rapid flow of new loans to businesses and households during the current crisis, often backed by state guarantees, to support them in the face of cash-flow shortfalls.

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1 For example, Bank of England (2020a).
This paper compares and contrasts these two crises from a financial stability perspective. It begins by repriming some of the events, the lessons and the policy responses during and following the global financial crisis, with a focus on the banking system. It explains how responses to the global financial crisis left the financial system much better-equipped to cope with the COVID crisis while offering support to the wider economy. It concludes by drawing out some financial stability lessons from recent events, including future areas of research and reform.

II. Fault-lines in the global banking system

At the dawn of the global financial crisis, the balance sheets of the major global banks looked very different than today. So too, not coincidentally, did the set of prudential regulatory standards they were required to meet. This combination led to the emergence of excessively low levels of capital and liquidity, and excessively high levels of leverage, in the global banking system. As in crises past, these fault-lines sowed the seeds of the largest financial earthquake since the Great Depression.\(^2\)

Figure 1 shows the evolution of the simple leverage ratio, defined as equity over assets, of UK and US banks over the past 130 years. This fell by a factor of between 3 and 5 during the course of the twentieth century. At the time the crisis broke, many banks had leveraged their common equity capital in excess of 30 times, meaning that even a 2–3 per cent loss in asset values was enough to render them insolvent. Before the crisis, no internationally agreed standards for minimum levels of the leverage ratio had been set.\(^3\)

Banks’ holdings of liquid assets told a similar story. These fell secularly and significantly in the half-century prior to the global financial crisis, by a factor of between 3 and 5. Tellingly, no internationally agreed standards for minimum levels of liquidity had been put in place pre-crisis either, which could have arrested this secular drain of liquidity from the global banking system.

Minimum international standards for banks’ capital ratios had been in place since 1988, under the so-called Basel I and subsequently Basel II agreements.\(^4\) Pre-crisis, these were set at 2 per cent for banks’ common equity relative to their risk-weighted assets. As well as being low, this requirement was a hard floor. The absence of meaningful capital buffers meant there was very limited capacity for banks to run down their capital to cushion losses in the event of stress to protect their capacity to lend to the wider economy.

Moreover, in the run-up to the crisis, at the same time as banks’ leverage and risk-taking was rising, the risk weights from banks’ internal risk models were falling (Figure 2).\(^5\) These risk weights flattered the strength of banks’ capital ratios in the upswing, providing a false signal of strength. They then flattened these same capital ratios during the downswing, as risk weights were revised up at just the point banks were suffering losses.

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2 For example, Tooze (2019).
3 Bank of England (2014).
4 See https://www.bis.org/bcbs/history.htm.
5 Haldane (2015).
Low levels of equity capital in the banking system are, in principle, less of a problem if other forms of capital can be converted into equity in situations of stress. Pre-crisis, non-equity forms of capital were admitted into banks’ capital requirements with just this intention. When losses materialized, however, holders of hybrid instruments were not ‘bailed-in’. Investors quickly disregarded hybrid instruments when assessing banks’ capital adequacy, worsening perceptions of resilience.

These were not the only fault-lines in the pre-crisis banking and regulatory systems. Banks’ capital requirements under Basel II were calibrated based on the idiosyncratic risk of that institution failing, not the risk that institution posed to the financial system as a whole—for example, by dint of their size or complexity or interconnectivity with others in the system. This meant, pre-crisis, the largest and most systemically-important banks typically ran with smaller capital buffers than the small banks.

This had two negative side-effects for financial stability. First, it amplified perceptions that these large, inter-connected institutions would be bailed-out in the event of...
stress—that they were ‘too big to fail’. Indeed, because those perceptions lowered the cost of borrowing for these institutions, they fuelled further growth in their size, complexity and connectivity, a ‘doom loop’ of risk-taking.

Second, those perceptions of ‘too big to fail’ were then validated as the crisis broke, with the biggest banks the largest beneficiaries of state support through liquidity provision, guarantees and equity injections. This state support arose because of an understandable fearfulness among the authorities about the systemic costs of allowing a big bank to fail. This is, of course, the very thing that lay behind perceptions of ‘too big to fail’ in the first place.

These myriad fault-lines in the global banking and regulatory systems could, in principle, have been identified and remediated—for example, had regulatory authorities undertaken comprehensive stress-testing not just of individual institutions but the banking system as a whole. While some stress-testing was carried out pre-crisis, this was done neither comprehensively nor systematically. This meant, when it came, both banks and the regulatory authorities flunked the stress test.

The combination of leveraged and illiquid bank balance sheets on the one hand, and a flawed and poorly-calibrated regulatory regime on the other, were a perfect storm. When it broke, it risked sweeping away the global banking system. It would probably have done so were it not for unprecedented levels of support from governments and central banks around the world, in the form of equity injections, asset purchases, guarantee extensions and liquidity provision.

For example, Kaufman (2013).

Haldane (2012).

Sorkin (2010).

Haldane (2009).

For example, Laeven and Valencia (2010).
Even with that support, the costs of the global financial crisis for the global economy were as large and lasting as any since the Great Depression. The financial sector was both a key cause and a key catalyst. As banks’ lack of resilience was exposed, they cut lending to households and businesses to protect their balance sheets. Those banks with the lowest levels of capital and liquidity reigned in lending most sharply, imposing the largest costs on the economy (Figure 3). This was an aggregate demand externality.\textsuperscript{13} Cutting lending seemed sensible for banks individually, especially those whose resilience was most in question. But the collective consequence of these individual lending decisions constricted aggregate credit, imposing an externality on aggregate demand that was both large and long-lived and fed back to raise losses for the banking system in a vicious cycle.\textsuperscript{14} As in crises past, lack of financial sector resilience imposed huge economic costs.

III. Repairing the financial foundations

The global financial crisis, and the regulatory fault-lines it exposed, also swept away the pre-crisis system of global regulatory rules. Over the past decade, under the auspices of the Basel Committee and the Financial Stability Board (FSB), this regulatory system has been systematically rebuilt—so-called Basel III. The Basel III rebuild has been multi-faceted, reflecting the multi-faceted nature of problems exposed by the crisis.\textsuperscript{15}

\textbf{Figure 3:} Individual banks’ 2006 capital positions and 2006–16 lending growth

\textit{Source: Aikman et al. (2018)} based on S&P Global Market Intelligence and Bank calculations.

\textsuperscript{13} Korinek and Simsek (2016).
\textsuperscript{14} Jorda, Schularick and Taylor (2013).
\textsuperscript{15} For example, Aikman et al. (2018), Carney (2017).
Liquidity and leverage were at the heart of the global financial crisis. For the first time, international regulatory minima have now been put in place covering both. For leverage, this minimum requirement is set at 3 per cent of banks’ assets. For liquidity, a liquidity coverage ratio (LCR) ensures banks have enough high-quality liquid assets to meet 30-day liquidity needs while a net stable funding ratio (NSFR) ensures banks’ funding profiles are sustainable.\textsuperscript{16}

In tandem, minimum regulatory requirements for banks’ common equity capital have been raised, from 2 to 4.5 per cent. The quality as well as the quantity of capital have also been improved, with much tighter eligibility criteria for loss-absorbing capital. For international banks, 2 per cent under Basel II roughly translated to 1 per cent under Basel III.\textsuperscript{17} In addition, a Minimum Requirement for Eligible Liabilities (MREL) has been set, specifying a class and amount of debt to be ‘bailed-in’ in the event of bank stress. The collective consequence of these changes is that the minimum level of loss-absorbing capital for global banks has been raised by a factor of around four since the crisis.

These micro-prudential requirements capture only one element of the new capital regime. Basel III reforms have given this regime, for the first time, an explicitly macro-prudential overlay. New requirements have been set that focus on risks across the financial system (in addition to idiosyncratic risks) and on enabling banks to maintain lending in periods of stress (to limit aggregate demand externalities). In that sense, the key lessons of the financial crisis have been acted on.

Under Basel III, banks are now required to hold buffers of capital over and above their minimum requirements through: a capital conservation buffer; a countercyclical capital buffer (CCyB) that can be raised by the authorities to build resilience during the upswing of a financial cycle and released during stress; and a systemic risk buffer, for banks which are designated by the FSB as systemically-important, based on a set of objective criteria such as size and connectivity.\textsuperscript{18} In principle, banks can dip into these capital buffers during stress, and automatic safeguards to limit distributions of dividends and bonuses apply if breached.

As Figure 4 illustrates, this means that the capital stack for banks under Basel III is much higher than under Basel II. As importantly, macro-prudential buffers, in particular the releasable CCyB, mean this stack is much more flexible than in the past, with half available to support the wider needs of the financial system and economy in averting a credit crunch during a stress event. The new capital regime provides both the global financial system with greater insurance against extreme events and global regulators with extra degrees of policy freedom when dealing with such stress events.

Augmenting and complementing all of these international regulatory actions, the authorities in a number of countries, including the UK, have begun conducting regular, comprehensive stress-tests of their banking systems. The results are typically published to provide an added degree of market discipline on banks’ risk-taking. Doing these stress tests simultaneously across banks in principle allows feedback effects (both between banks and between banks and the economy) to be taken into account when

\textsuperscript{16} See Basel Committee on Banking Supervision (2020).
\textsuperscript{17} See Caruana (2012).
\textsuperscript{18} See Basel Committee on Banking Supervision (2013).
assessing banks’ resilience and lending capacity, consistent with limiting systemic risk and aggregate demand externalities, although modelling these feedback effects is still in its infancy.

In the UK the Bank of England’s Financial Policy Committee (FPC) and Prudential Regulation Committee (PRC) now conduct annual stress tests of the UK banks to determine whether, individually and collectively, their level of capital is adequate to cushion potential losses in stress events, while supporting the wider economy through lending. The FPC also sets the level of the CCyB consistent with these objectives.

These regulatory reforms have largely been implemented across major economies. Their effect is clear. Average Tier 1 capital ratios across economies with large financial systems are more than 400 basis points higher than at the end of 2007. In the UK, banks’ aggregate Common Equity Tier 1 (CET1) capital ratio is over three times higher than in 2007 (Figure 5). Meanwhile, UK banks’ leverage ratio is around double, and their liquid assets around quadruple, their pre-crisis levels.

In many countries, the regime for resolving banks facing acute stress has also been transformed. Pre-crisis, many countries did not have a special resolution regime in place for banks that recognized the different risks they posed and the different tools needed to resolve them safely. That gap was only too evident in the UK around the time of the failure of Northern Rock in 2007. Those special bank resolution regimes are now in place in many more countries, including in the UK.

Finally, central banks overhauled the way in which they provided liquidity to the market, to support banks’ liquidity needs. For example, the Bank of England re-designed its existing long-term repo operations in order to increase the availability and flexibility of liquidity insurance provision, against a wider range of collateral. It also

19 See IMF (2020).

20 See Bank of England (2017a).

21 See Bank of England Market Operations Guide, available online.
introduced a more flexible and on demand Contingent Term Repo Facility, in addition to the Discount Window Facility. Facilities through which the Federal Reserve supplied other banking systems with US dollars during the crisis were made permanent through swap lines with the European Central Bank, Bank of Canada, Bank of Japan, Swiss National Bank and the Bank of England.22

In summary, the entire system of financial regulation, in particular around banks, has been reformed over the past decade. The open question, until recently, is how the reformed financial system would fare under stress. The COVID crisis presents a first set of answers to that question.

### IV. The outbreak of the COVID crisis

The economic shock induced by COVID-19 is the largest stress-test to have faced the financial system since the global financial crisis. This is also the set of circumstances in which the financial reforms put in place over the past decade would be expected to yield a dividend in improved financial sector resilience and, relative to a counterfactual, a lower cost and greater availability of credit to businesses and households. Although the crisis is still in its early stages, there is already evidence of these dividends paying out.

Figure 6 plots a market-based measure of UK banks’ resilience—credit default swap (CDS) spreads on UK banks’ debt. While these spreads have risen in response to the COVID crisis, they remain at far lower levels than at the time of the global financial crisis. This suggests a much greater degree of banking resilience in the eyes of investors in banks. The same is true, by and large, of perceptions of other global banks. Rapid injection of liquidity by central banks will also have played a role in limiting increases.

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22 See Committee on the Global Financial System (2019).
in CDS spreads, although this was in response to signs of more general market dysfunction and not directed at stabilizing banks. Improved resilience and a lower cost of capital can be seen in measures of the cost and availability of credit by banks. The COVID-crisis has squeezed the cash-flows of many businesses and households, increasing their demand for credit. Supported by government schemes, global banks have been able to supply that credit to millions of companies so far during the COVID crisis.

In the UK, the Government-guaranteed Coronavirus Business Interruption Loans Scheme (CBILS) and Bounce-Back Loans Scheme (BBLS) had collectively provided around £30 billion of new credit to more than half a million businesses across the UK up to the end of May 2020. The Government’s Coronavirus Corporate Financing Facility (CCFF) had provided a further £20 billion in funding to larger companies. Net bank lending to UK non-financial corporates increased by over £30 billion in March alone, from an average of £1 billion per month over the past 3 years.23

The provision of credit to companies and households has been possible in part because of banks’ strong capital and liquidity positions before the COVID crisis struck, which has helped maintain confidence in financial sector resilience and kept banks’ cost of funding low. Absent regulatory reforms, a shock of this scale would have resulted in an illiquid and prospectively insolvent banking system.24 Instead, larger buffers of capital and liquidity meant regulatory authorities could make use of the flexibility in the capital regime introduced under Basel III to support the economy.25

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23 See Bank of England (2020b).
24 See Cunliffe (2020).
25 See Drehmann et al. (2020).
Since the crisis, a number of countries have cut their CCyB requirements, providing banks with the capital space to support lending. In the UK, the FPC has reduced the CCyB by 2 percentage points, enabling banks to support up to £190 billion in extra business lending. Regulatory authorities around the world have followed suit, although only a limited number of countries had set a positive CCyB in the first place (Figures 7 and 8). The reciprocity arrangements in the CCyB mean this relaxation has had spill-over benefits internationally as well as nationally. Regulatory authorities have also taken actions to encourage banks to make use of other capital buffers, as well as asking banks to refrain from distributing dividends.

In the UK, the FPC recently conducted a desk-based stress test to assess the effects of the COVID crisis on banks. It judged that the usable buffers of capital built up by banks were more than sufficient to absorb the losses under a plausible, illustrative scenario and also, with the support of the Government’s lending guarantee schemes, to help the corporate sector finance its cash-flow needs. Moreover, the FPC stated it was in the best interests of the banks themselves to extend such lending to support the economy and avoid credit losses. This is an example of a positive aggregate demand externality at work—the reverse of the situation during the financial crisis.

Overall, then, the structural improvements in banks’ liquidity and leverage positions over the past decade, in combination with the additional flexibility built into the Basel

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26 Other actions taken by the Bank of England since the crisis to support credit conditions include: a cut in Bank Rate by 65 basis points to 0.1 per cent; a new Term Funding for Small and Medium-Sized Enterprises facility, providing incentives for banks to lend to the economy and especially small businesses; additional purchases of both Government securities and investment grade corporate bonds of £200 billion; the provision of liquidity through ILTR operations; and the provision of US dollar liquidity through existing swap lines.

27 The authors would like to thank Dennis Reinhardt and Carlos van Hombeeck for this analysis.

28 See Aikman (2020).
III regime, have meant that the global banking system has so far made good on the hope expressed by Mark Carney at the point the crisis broke: banks have been part of the solution rather than part of the problem and, supported by government schemes and central bank facilities, have been able to provide funds to support businesses and the wider economy.29

V. Forward-looking—lessons for the future

Financial regulators heeded the lessons of the last war, the global financial crisis. The result has been a financial system, in particular on the banking side, much better equipped to fight this one. At the same time, all crises contain lessons for the future. The COVID crisis is no exception, re-opening old fault-lines and exposing some new ones. Looking ahead, this calls for both further research to better understand these fault-lines, and potentially further regulatory reform to repair them. We conclude by discussing a number of these fault-lines.

One area of the financial system needing further consideration is non-bank, market-based finance, including asset managers, hedge, investment and money market funds. These have taken on even-greater significance since the global financial crisis, rising as a share of global assets (Figure 9). There were several incidents, pre-COVID, when these non-bank markets and institutions appeared to be aggravating and amplifying stresses and instabilities in the financial system.30

Experience during the COVID crisis has re-emphasized these risks. The early part of the crisis saw severe bouts of asset price volatility and market dislocation. The so-called ‘dash-for-cash’ saw investors substitute away, rapidly and at scale, from long-dated

Figure 8: Global banks required capital due to CCyBs ($ billion)

Source: ESRB, HKMA, BIS consolidated banking statistics, and Bank of England calculations.

29 Carney (2020).
30 For example, Bank of England (2018a).
Julia Giese and Andy Haldane

government securities towards shorter-duration assets, including central bank reserves. Asset price dislocation occurred even in the most liquid markets such as the US Treasury market, and government yields increased. Market turbulence was only remedied by the actions of central banks, providing liquidity to the system and purchasing assets. The dash-for-cash episode was striking both in its source (some of the safest and most liquid markets in the world) and severity.31

Particular concerns were, once again, raised about the performance during this episode of investment funds operating with balance sheet mismatches, having promised their investors immediate, or near-immediate, redemption but investing in illiquid assets—for example, property funds, leveraged loans and emerging market funds.

This experience suggests, at a minimum, greater routine monitoring of market-based financing vehicles to assess these risks; it also strengthens the case for applying stress-tests to them.32 As well as improving understanding of the vulnerabilities of individual firms, comprehensive stress-tests of the non-bank financial sector could also begin to quantify spillovers between non-bank institutions, nationally and globally, that have the potential to generate systemic risk.33 A prior step would be comprehensive mapping of the non-bank financial sector and interconnections within it.

But other factors likely also contributed to this unusual bout of market turbulence. These include extreme but potentially rational uncertainty and risk aversion on the part of market participants given the unprecedented nature of the shock, and limits on the intermediation capacity of the world’s largest financial institutions potentially partly due to regulation. Further research is needed to better understand this episode and to identify those factors most important for having caused it, as well as the role of ample

31 See Cunliffe (2020).
32 For example, Brazier (2018). ESMA have also released guidance on liquidity stress tests for investment funds—see ESMA (2019).
33 Brazier (2015).
central bank liquidity provision relative to improved banking regulation and macro-prudential actions in alleviating amplification across the financial system.

A second area for further research, and potential reform, is the design of stress tests. There has been a marked shift in the technological frontier of stress-testing over the past decade.\textsuperscript{34} So far, however, the stress scenarios considered have tended to be macro-economic tail events. One exception to this is the Bank of England’s biennial exploratory exercise. In 2019, the Bank of England used this exercise to explore the implications of a severe and broad-based liquidity stress.\textsuperscript{35} The results of this exercise were due to be published in mid-2020, but work has been paused due to the COVID crisis. The next exercise, which has been postponed from the end of this year, will be used to test the resilience of the largest UK banks and insurers to climate-related risks.

After the crisis abates, it will be important to reconsider the case for broader stress scenarios. This might include pandemics, floods and other extreme weather events. It would also include operational risks, in particular around technology. The COVID crisis has increased the reliance, and will probably accelerate the shift, towards digitalization. This will increase the potential vulnerability of the financial system to operational outages and cyber threats. Exploratory stress tests exercises, such as the one run by the Bank of England in 2019 that tested banks’ operational resilience to disruptions of payment systems, can help increase resilience to such threats.\textsuperscript{36}

A third, closely related, area is the interplay between technology and financial services—fintech. Pre-COVID there had been a surge in interest internationally in developing new payments and lending technologies, including digital payments and currencies and online lending platforms, sometimes provided by non-bank suppliers.\textsuperscript{37} These initiatives hold the promise of lowering the cost and improving access to finance for a larger number of under-served households and businesses. The Bank of England used its first biennial exploratory exercise in 2017 to examine major UK banks’ long-term strategic responses to an extended low growth, low interest rate environment, together with increased competition within the financial services sector.\textsuperscript{38}

As with any financial innovation, however, these initiatives give rise to new sets of financial stability risk, as well as opportunity. Alongside intensified monitoring of these risks, there may also need to be a rethink and reform of the regulatory structures needed to contain these risks, including the appropriate boundary between bank and non-bank activities when setting regulatory standards and providing access to the central banks’ balance sheet.\textsuperscript{39}

A final key lesson from this crisis is in underscoring, once again, the crucial importance of financial, and specifically banking sector, resilience for the economy. The COVID crisis would be much worse, economically and financially, had the banking sector been a shock-transmitter (as it was a decade ago) rather than a shock-absorber (as it has this time) due to a lack of resilience. The ability to use buffers of capital and liquidity to support the economy will be a key ingredient in avoiding larger losses.

\textsuperscript{34} See Anderson et al. (forthcoming).
\textsuperscript{35} Bank of England (2019\textsuperscript{a}).
\textsuperscript{36} See Box 1 in Bank of England (2018\textsuperscript{b}).
\textsuperscript{37} Van Steenis (2019).
\textsuperscript{38} Bank of England (2017\textsuperscript{b}).
\textsuperscript{39} Carney (2019).
There are inevitable pressures over time to lower regulatory standards as memories of past crises fade. The COVID crisis has reminded us of the importance of financial resilience, and a strong but flexible prudential regulatory regime, as necessary conditions for stability in incomes and living standards—and never more so than at the times of stress we find ourselves in today.

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COVID-19 and the financial system: a tale of two crises

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