



BANK OF ENGLAND

Financial Policy Committee



Interim Financial Stability Report

May 2020





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The primary objective of the Financial Policy Committee (FPC), a committee of the Bank of England, is to contribute to the Bank of England's financial stability objective. It does this primarily by identifying, monitoring and taking action to remove or reduce systemic risks, with a view to protecting and enhancing the resilience of the UK financial system. Subject to that, it supports the economic policy of Her Majesty's Government, including its objectives for growth and employment.

This *interim Financial Stability Report (Report)* sets out the FPC's view of the performance of the financial system through the Covid-19-related disruption and outlook for UK financial stability, including its assessment of the resilience of the UK financial system. This *Report* is also the record of the judgements contained in the *Report* taken by the Financial Policy Committee at its meeting held on 5 May 2020.

The Financial Policy Committee:

Andrew Bailey, Governor

Jon Cunliffe, Deputy Governor responsible for financial stability

Ben Broadbent, Deputy Governor responsible for monetary policy

Dave Ramsden, Deputy Governor responsible for markets and banking

Sam Woods, Deputy Governor responsible for prudential regulation

Christopher Woolard, Interim Chief Executive of the Financial Conduct Authority

Alex Brazier, Executive Director for Financial Stability Strategy and Risk

Colette Bowe

Anil Kashyap

Donald Kohn

Elisabeth Stheeman

Charles Roxburgh attends as the Treasury member in a non-voting capacity.

The FPC has co-ordinated with the Prudential Regulation Committee (PRC) closely in preparing the analysis contained in the 'UK banking sector resilience and Covid-19' chapter. The PRC is responsible for the safety and soundness of individual banks within the aggregate picture presented in that chapter. The chapter was finalised on 5 May 2020.

This document, unless otherwise stated, uses data available as at 29 April 2020.

PowerPoint™ versions of the *Report* charts and Excel spreadsheets of the data underlying most of them are available at www.bankofengland.co.uk/report/2020/monetary-policy-report-financial-stability-report-may-2020.

For the avoidance of doubt, this *Report* is not intended to satisfy the requirements of Section 9W of the Bank of England Act 1998.

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UK financial stability and the Covid-19 pandemic

Authorities around the world are taking action to halt the spread of the Coronavirus (Covid-19) pandemic and to support economic activity.

The spread of Covid-19 and the measures taken to contain it are having a significant impact on the United Kingdom and many countries around the world. Activity has fallen sharply since the beginning of the year and unemployment has risen markedly.

This *interim Financial Stability Report (FSR)*⁽¹⁾ presents the Financial Policy Committee's (FPC's) assessment of the risks to UK financial stability and the resilience of the UK financial system to the economic and market shocks associated with Covid-19, based on the illustrative scenario set out in the *May 2020 Monetary Policy Report (MPR)* (hereafter 'the MPR scenario'), also published today.⁽²⁾

Recent performance of the financial system

In March, financial markets reacted to the expected effect on economic activity of the public health measures to contain Covid-19 and the uncertainty around their scope and duration. Since then, there have been very large and sudden changes in a range of financial asset prices. Market liquidity deteriorated and volatility was greater than in the global financial crisis.

A 'flight to safety' in financial markets became an abrupt and extreme 'dash for cash' in which investors sold off even safe assets such as long-term government bonds in order to obtain short-term highly liquid assets. This reflected a set of underlying issues in markets.

Non-banks tried to raise cash to meet margin calls on derivative positions, leveraged investors withdrew from government bond markets, and dealers stepped back from repo markets. Selling pressure in bond markets became acute. Investors seeking liquidity were forced to sell assets and make redemptions from money market funds. Other open-ended funds experienced large redemptions, indicating there may have been potential incentives to redeem investments ahead of others.

Interventions by the Bank of England and other central banks helped to meet the increased demand for cash and, together with fiscal policy measures, helped to calm markets. Long-term government bond yields have fallen back and, although some markets for high-yield corporate bonds and leveraged loans remain closed, large corporates have issued investment-grade bonds into primary bond markets.

The vulnerabilities that contributed to the March 'dash for cash' episode, and which the FPC has in the past highlighted as potential contributors to a stress, continue to pose risks and liquidity stress may resurface as the economic situation evolves. The Committee continues to monitor financial markets closely. The underlying issues will need to be addressed once the immediate problems have passed.

The core banking system has been resilient to these market stresses. This is in large part due to reforms introduced in the decade after the global financial crisis which have significantly improved the resilience of UK and other banking systems. And the resilience of market infrastructure has supported market functioning; for example, the central clearing of derivatives and daily margining of positions has ensured that very sharp price moves did not result in widespread concerns about counterparty credit risks.

(1) This interim FSR is additional to the biannual *Financial Stability Report* produced by the FPC.

(2) www.bankofengland.co.uk/monetary-policy-summary-and-minutes/2020/may-2020.

Supporting the real economy during the period of economic disruption

The *MPR* scenario incorporates a very sharp fall in UK and global GDP and a substantial increase in unemployment. Under that scenario, corporate revenues fall sharply. Household incomes also come under pressure as employees become furloughed or lose their jobs.

The Government has taken policy action to help support employment and household incomes during this disruption, notably through the Coronavirus Job Retention Scheme (CJRS). And payment holidays offered by lenders will help to reduce the number of households in financial difficulty.

Fiscal policy measures put in place by the Government — such as the CJRS, cash grants and rates relief for certain businesses — will provide material support to the corporate sector through this period. Some businesses will need to access additional sources of finance in order to maintain their productive capacity through the shock incorporated in the *MPR* scenario.

After taking into consideration the impact of fiscal support measures but before any bank lending (including through the government guarantee schemes now available), the Committee estimates that the UK corporate sector could face a cash-flow deficit of around £140 billion under the *MPR* scenario. That is around three times the annual net financing extended to UK businesses in 2019.

Although businesses' cash buffers can finance some of this cash-flow deficit, **the banking system, supported by the schemes in place, has an important role in providing credit to businesses to help them weather the economic disruption. This will minimise longer-term economic damage to output and employment.**

Outlook for the financial system

The decline in economic activity illustrated in the *MPR* scenario would be expected to result in significant credit losses for major UK banks on their domestic and overseas loans.

For companies that entered this period of stress with weak balance sheets, additional debt may not be the most appropriate form of finance. If they are unable or unwilling to raise additional finance, corporate insolvencies could rise materially. Rising unemployment will impair consumer and mortgage loans.

Having conducted a desktop stress test, the FPC judges that the usable buffers of capital built up by banks are more than sufficient to absorb the losses under the *MPR* scenario and also, with the support of the Government's lending guarantee schemes, to help the corporate sector finance its cash-flow deficit.

Since 2014, the Bank has, through annual stress tests, been ensuring major UK banks have the capital to withstand very severe recessions and market turmoil. The desktop stress test, which uses prudent assumptions and is based on the *MPR* scenario, generates materially smaller losses for banks than the Bank's 2019 stress test.

Although the *MPR* scenario includes a much sharper fall in output than the scenario for the 2019 stress test, the cumulative loss of output is similar in both. The 2019 stress test embodied a sharp rise in Bank Rate. In the current stress, Bank Rate has been reduced to 0.1%, supporting borrowers' ability to service debts. Extensive fiscal and credit supply support in the *MPR* scenario, that was not included in the 2019 stress-test scenario, dampens banks' credit losses.

The losses in the desktop stress test would draw down part of banks' capital buffers. The FPC reiterates that all elements of the substantial capital and liquidity buffers that have been built up by banks exist to be used as necessary to support the economy in times of stress. In March, the FPC demonstrated this by cutting the UK countercyclical capital buffer rate to 0%, supporting up to £190 billion of business lending capacity. The FPC welcomes the measures taken by the Prudential Regulation Committee to support banks' lending through this period.

The Government loan guarantee schemes now in place mean that banks can extend substantial support to businesses at low credit risk, requiring very little of their own capital. The Bounce Back Loan Scheme guarantees 100% of small loans to businesses, and the two Coronavirus Business Interruption Loan Schemes guarantee 80% of bank loans to businesses of up to £50 million.

In addition, the Bank of England's Term Funding scheme provides additional funding for banks that increase lending, especially to Small and Medium-sized Enterprises. And the Covid Corporate Financing Facility, operated by the Bank of England, provides financing directly to investment-grade companies.

With capital buffers more than sufficient to absorb losses under the scenario, government guarantees for new lending and Bank of England funding, the banking system has the capacity to support the UK economy. There has already been a significant increase in the provision of corporate credit as companies have drawn down committed lines.

Continued lending by the banking system, supported by government schemes, is essential to minimise longer-term economic damage. If banks were to withdraw from credit provision, more businesses would fail due to cash-flow deficits, triggering bigger losses for banks on their existing corporate loans and, by pushing unemployment higher, bigger losses on existing household loans too.

It is in the collective interest of the banking system to continue to support businesses and households through this period.

As discussed in the May 2020 *MPR*, there is considerable uncertainty about the future path for the UK economy which will be dictated by the evolution and impact of the pandemic and consequent public health measures. The FPC will continue to monitor closely financial markets and the credit conditions faced by UK households and businesses and the operation of the UK financial system, and stands ready to take any further actions appropriate to support UK financial stability.

Recent performance of the financial system after the Covid-19 shock

Economic activity has fallen around the world as a result of Covid-19 and the measures taken to contain it. Consistent with the deterioration in, and uncertainty around, the economic outlook, there were very large and sudden changes in the prices of a range of financial assets.

A 'flight to safety', in which prices of risky assets fell and prices of advanced-economy government bonds increased, became an abrupt and extreme 'dash for cash' in mid-March. In this period, investors' demand for cash and near-cash assets rose sharply and it became difficult to find buyers for even safe assets, such as long-term government bonds. This reflected a number of underlying issues in markets.

Non-banks tried to raise cash to meet margin calls on derivative positions, leveraged investors withdrew from government bond markets, and dealers stepped back from repo markets. Selling pressure in bond markets became acute. Investors seeking liquidity were forced to sell assets and make redemptions from money market funds. Other open-ended funds experienced large redemptions, indicating there may have been potential incentives to redeem investments ahead of others.

The sudden demand for liquidity was alleviated by central banks, which have supported market functioning through a series of policy interventions. These actions were complementary to the substantial global fiscal response, which also helped to calm markets. Financial conditions have since eased, but remain tighter than at any time since the global financial crisis.

The vulnerabilities that contributed to the March 'dash for cash', and which the Financial Policy Committee has highlighted in the past as potential contributors to a stress, continue to pose risks, and liquidity stress may resurface as the economic situation evolves. The Committee continues to monitor financial markets closely. The underlying issues will need to be addressed once the immediate problems have passed.

Many parts of the financial system have appeared to function well through the period of extreme volatility. Market infrastructure has been resilient and has supported market functioning. The central clearing of derivatives has ensured that very sharp price moves did not result in widespread concerns about counterparty credit risks.

The regulatory reforms of the past decade, which have made the UK and other banking systems much more resilient, helped to prevent the transmission of market stresses to the core UK banking system.

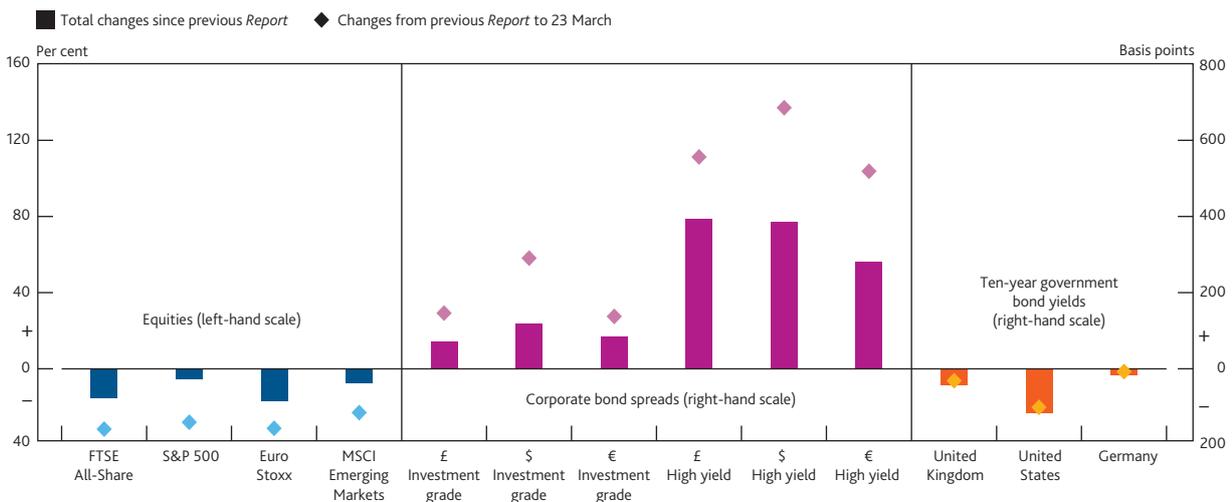
Following a sharp deterioration in the economic outlook, as a result of Covid-19 and the measures taken to contain it, there were very large and sudden falls in the prices of a range of financial assets, and a tightening in market conditions.

The large global economic shock resulting from the measures to combat Covid-19 led to a sudden repricing of financial assets, deterioration of market liquidity and increased volatility. The *May 2020 Monetary Policy Report*, published alongside this *Report*, outlines the sharp reduction in economic activity around the world over the past few months. In addition, Brent crude oil prices fell by 75% from their January peak to their April low of US\$17, reflecting the fall in global demand as well as supply factors. Given the magnitude of the shocks to both economic activity and oil prices, volatility in asset prices and heightened risk aversion among market participants were to be expected.

Financial prices have responded over time to news about the spread of the virus, implications for the real economy, and the global policy response. The largest impacts were in March as the worldwide spread of Covid-19 became apparent, and more widespread public health measures were introduced. Many of the adjustments in asset prices and market indicators were record, or near-record, changes. For example, the FTSE All-Share index fell over 10% on 12 March, the largest one-day fall since 1987. **Chart A.1** summarises asset price changes since the *December Report*, and within that the changes up to 23 March before some moves began to retrace. The FTSE All-Share index is 18% below its level at the time of the *December Report*, and measures of equity price volatility are elevated. Corporate bond spreads increased as risk sentiment weakened, and the outlook for corporates deteriorated. Non-financial investment-grade corporate bond spreads are 72 basis points higher than at the time of the *December Report*, but 74 basis points lower than at their peak in mid-March.

Chart A.1 There have been large and sudden changes in a range of financial asset prices

Changes in equity indices, investment-grade corporate bond spreads and ten-year government bond yields since the *December Report*^(a)



Sources: Bloomberg Finance L.P., ICE/BofAML, Tradeweb and Bank calculations.

(a) Changes are from 4 December 2019 to 23 March 2020 and 4 December 2019 to 29 April 2020.

A 'flight to safety', in which prices of risky assets fell and prices of advanced-economy government bonds increased, became an abrupt and extreme 'dash for cash'...

As is usually the case following negative economic shocks, investor appetite shifted from risky to safe and more liquid assets. As it did so, some risky assets became difficult to sell and markets in these assets became thin. For example, secondary market corporate bond bid-offer spreads widened in a sign that market liquidity had deteriorated. Some high-yield primary debt markets effectively closed, with no US dollar issuance between 4 March and 31 March, and no sterling issuance since 13 February. Even short-term funding markets for corporates, such as the commercial paper markets, became strained.

As demand for safer assets rose, yields on advanced-economy government bonds fell initially as investors sought to de-risk, and expectations of lower short-term interest rates were priced in (**Chart A.2**). However, in mid-March even safe, typically highly liquid assets, such as government bonds, came under forced selling pressure and saw little demand, as markets became characterised by exceptionally high demand for cash and near-cash short-dated assets.⁽¹⁾

(1) 'Cash or near-cash short-dated assets' refers to assets that are redeemable at par or can be liquidated on demand without price impact, such as reserves, sight deposits and assets traded/borrowed against in highly deep and liquid markets.

This 'dash for cash' was underpinned by precautionary demand for liquidity in the real economy and financial markets. But it was catalysed by dramatic changes in the distribution of cash around the system, as for example institutional investors sought to meet margin calls on derivative positions and unwind leveraged positions. US dollar funding became particularly difficult to raise in global capital markets, given the extensive reliance on US dollar liquidity, and the US dollar appreciated sharply (Avdjiev *et al* (2020)).

...in which investors' demand for cash or near-cash assets rose sharply and the pressure of sales of even safe longer-term assets was sufficiently large as to force prices down and raise the cost of trading.

The 'dash for cash' led to a rapid deterioration in functioning of even advanced-economy government bond markets, which are typically among the deepest and most liquid in the world. Large differentials in value appeared between US Treasury instruments. The most liquid ('on-the-run') bonds commanded a premium over less liquid bonds with the same maturity and credit characteristics, but traded at a deep discount to derivatives linked to those bonds, suggesting greater demand for the most easily traded assets. A similar dynamic was seen in the UK gilt market, but to a lesser extent. In the most intense phase in the week beginning 16 March, even ten-year government bond yields — which had initially declined as investors sought safe haven assets — rose sharply, when investors suddenly sought to sell and the lack of buyers resulted in sharp falls in bond prices (Chart A.2).

As volatility and uncertainty increased, and at the same time key financial centres moved to remote working, dealers widened bid-offer spreads, making it more costly to trade. Gilt market bid-offer spreads were around four times their normal levels, widening faster and higher than in the global financial crisis (Chart A.3). And the near one-way demand for US dollars led to a deterioration in foreign exchange market liquidity across all currency pairs, with bid-offer spreads up to three times wider than under normal conditions. Figure A.1 illustrates the 'dash for cash' and the vulnerabilities that contributed to it.

Figure A.1 Illustration of the 'dash for cash'

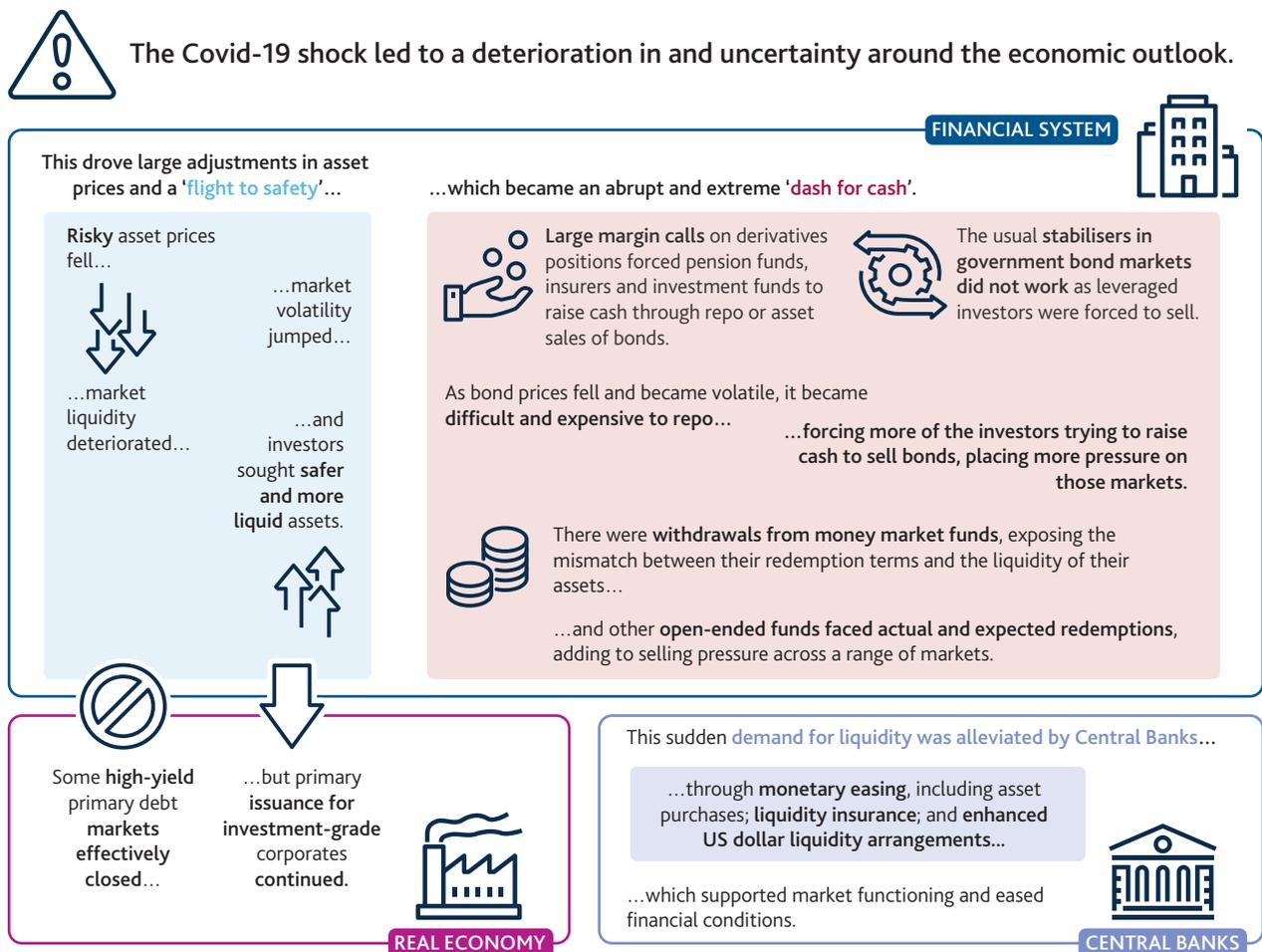
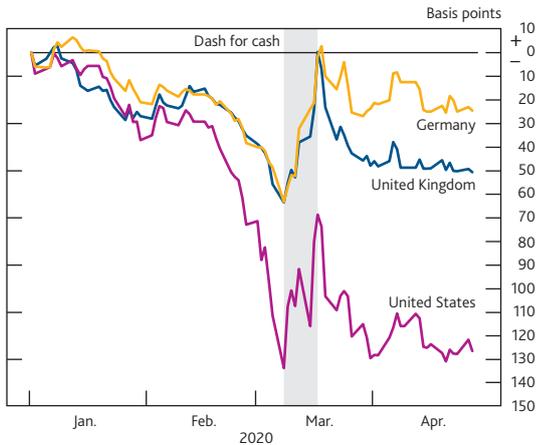


Chart A.2 In mid-March, even 10-year government bonds came under selling pressure

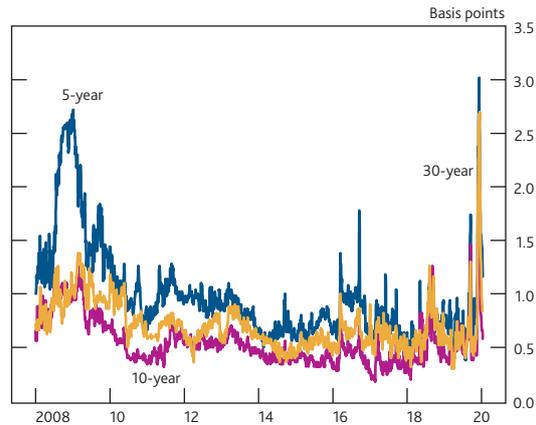
Year to date changes in 10-year nominal yields



Sources: Bloomberg Finance L.P. and Bank calculations.

Chart A.3 Liquidity was strained even in the typically deep UK government bond markets

Bid-offer spreads in selected gilts^(a)



Sources: Eikon from Refinitiv and Bank calculations.

(a) The chart plots the five-day rolling average of the bid-offer spreads.

The episode exposed a number of vulnerabilities that amplified market reactions...

The Financial Policy Committee (FPC) has previously highlighted a number of potential vulnerabilities in market-based finance as the role it plays in the provision of finance to the UK economy has grown. These include: fragilities to liquidity in some markets; risks to liquidity from dependencies on US dollar funding; the potential for abrupt redistribution of liquidity across the system caused by large margin calls on derivatives; and liquidity mismatch in open-ended investment funds. Arguably, each of these liquidity vulnerabilities were evident in the 'dash for cash'.

...such as some investors having smaller buffers of cash-like assets than needed to meet margin calls on their derivative positions.

The risk that derivatives exposures could cause an abrupt redistribution of cash across the system was considered in the FPC's 2018 review of non-banks' leveraged positions.⁽²⁾ This highlighted that for very large shocks, some market participants may not have sufficient buffers of cash-like assets to meet margin calls and may need to sell other assets, which could amplify market moves.

The very large moves in asset prices, increased trading volumes and asset price volatility in the recent episode, mechanically led to significant increases in initial and variation margin calls, on both cleared and uncleared derivatives. At the peak in March, daily variation margin calls — which mirror moves in underlying markets — by UK central counterparties (CCPs) were five times higher than the average in January–February, at around £30 billion (**Chart A.4**). Data on variation margin for uncleared derivatives are less comprehensive, but suggest that daily flows for these derivatives were larger than for cleared derivatives. Variation margin transfers liquidity from derivatives counterparties with loss-making positions to counterparties on the other side of those positions and so does not remove liquidity from the system. It can however strain the liquidity of individual market participants, especially if they have large directional positions. In periods of extreme volatility, the prospect of future variation margin calls also may encourage market participants to hoard cash to ensure that they have sufficient buffers to meet them.

In addition, rising market volatility meant an increase in initial margin demands.⁽³⁾ Initial margin requirements typically adjust gradually in response to changes in market conditions and thus do not result in daily margin calls on the same scale as for variation margin. Relative to the average level over January and February, UK CCPs' initial margin requirements had grown by around £58 billion in March — a 31% increase — with a daily peak increase of around £10 billion.⁽⁴⁾ Around half of the additional initial margin was provided in cash, most of which the CCPs reinvested in the repo market.

(2) See The FPC's assessment of the risks from leverage in the non-bank financial system chapter, *November 2018 Financial Stability Report*.

(3) Derivatives margin requirements have two components. 'Initial margin' is posted at the beginning of a transaction to cover potential future adverse changes in the market value of the contract, and is recalculated on a regular basis. 'Variation margin' is exchanged to cover actual changes in the market value of the contract during its life.

(4) Figures on initial margin collected reflect derivatives exposures only.

The collection of margin is a crucial safeguard in financial markets. By ensuring that derivatives exposures are adequately capitalised as market prices change and volatility rises, margin reduces the risk that the failure of one counterparty causes losses or defaults for other counterparties and therefore systemic problems. Furthermore, greater central clearing over the past decade has reduced aggregate collateral demands by allowing exposures and payment obligations to be multilaterally netted.

However, margin calls do have implications for the distribution of liquidity within the financial system. For example, market intelligence suggests that pension funds, insurers and investment funds were one group affected by margin calls — on both their interest rate and currency hedging positions. Faced with large margin calls, these market participants sought cash, and so turned to repo markets, redeemed their assets in money market funds (MMFs), and sold non-cash assets.

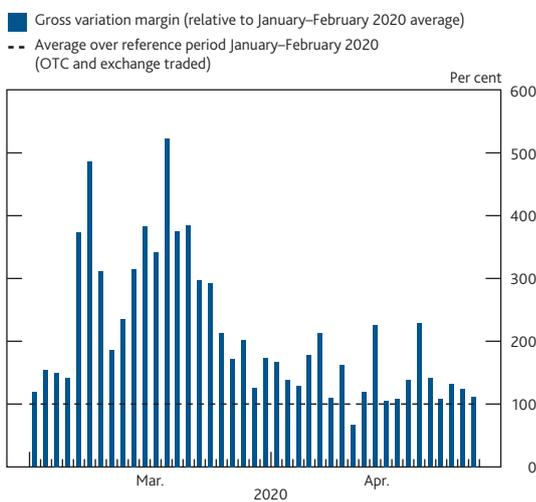
Usual stabilisers in government bond markets dissipated as leveraged investors sought to unwind positions.

Some highly leveraged market participants, such as hedge funds, were forced to exit from large leveraged positions in interest rate markets, which affected the functioning of government bond markets. Leveraged investors can help to stabilise market prices in normal market conditions by placing trades which gain from the closing of small differences in the value of cash bonds, swaps and futures. For example, since end-2018, leveraged investors have bought US Treasury bonds, leveraged via repo markets, and sold bond futures, to take advantage of arbitrage opportunities between bond and bond futures markets (Chart A.5).⁽⁵⁾

However, this mechanism for market stabilisation dissipated in mid-March. With the ‘flight to safety’ having driven up bond futures prices, these hedge fund positions became loss-making, requiring them to meet margin calls and potentially face difficulties in renewing funding for these trades. Large-scale unwinding of these trades, of almost US\$90 billion during March, was one of the contributors to a short period of extreme illiquidity in government bond markets (Schrimpf *et al* (2020)).

Chart A.4 Margin calls on derivatives increased given large market moves and higher volatility

Variation margin on centrally cleared derivatives^{(a)(b)}

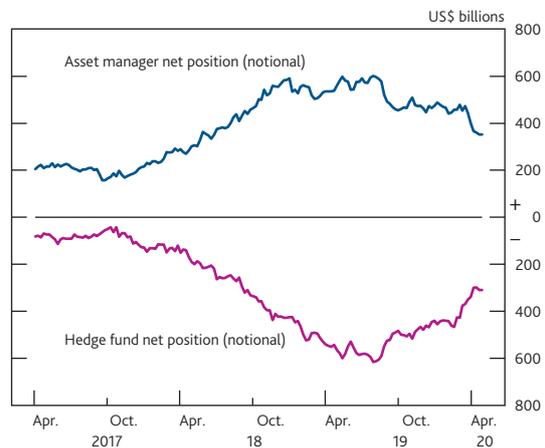


Source: Supervisory returns.

- (a) Chart shows the index of the total profit and loss across clearing member accounts of UK CCPs. This is a proxy for the changes in actual variation margin flows between clearing members and CCPs which could differ due to netting arrangements and for operational reasons.
(b) Data from 2 March 2020 to 28 April 2020.

Chart A.5 Leveraged investors had built significant positions in US Treasury markets, which they partially unwound in March

Asset manager and leveraged investor positioning in Treasury Futures^(a)



Sources: Bloomberg Finance L.P. and Bank calculations.

- (a) Aggregate notional equivalent position across all US Treasury futures contracts of asset managers and leveraged funds as defined by the Commodity Futures Trading Commission's ‘Commitments of Traders’ report.

As government bond prices fell and markets became more volatile, repo markets became stressed.

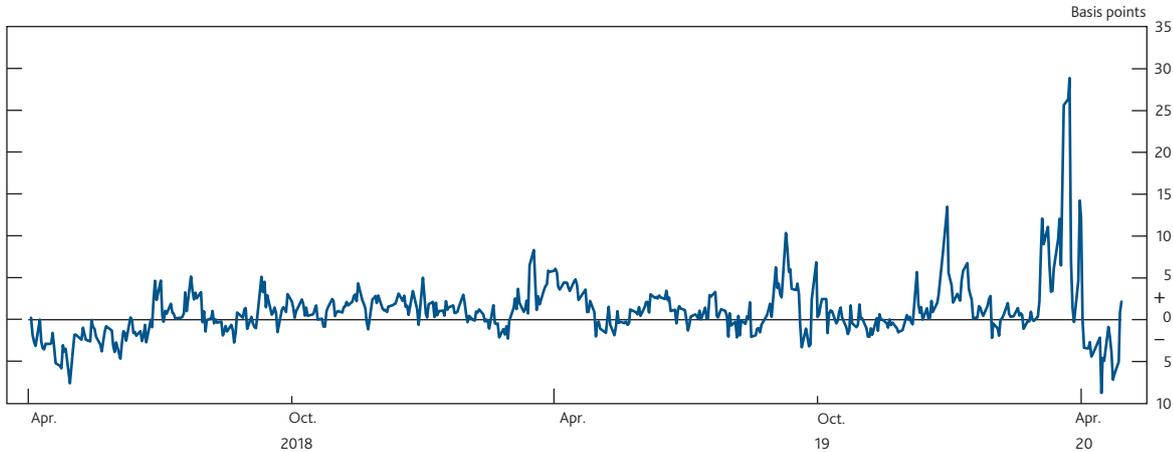
The cost of repo borrowing increased as demand increased, and dealers’ ability and willingness to intermediate was constrained. Average overnight repo rates peaked at around 30 basis points above Bank Rate (Chart A.6). The volume of failed settlements for some banks increased for a short period, driven by large transaction volumes, increased

(5) Survey data show that hedge funds used repo markets to borrow more in 2019. See Bank Overground: Have hedge funds increased their use of repo borrowing?, February 2020.

volatility, as well as operational issues, as key financial centres moved to remote working arrangements.⁽⁶⁾ This reinforced the unwinding of trades financed by repo and forced those seeking liquidity to sell underlying assets, placing further pressure on bond markets.

Chart A.6 Repo rates became elevated in mid-March

Overnight gilt repo rates as a spread to Bank Rate^(a)



Sources: Bank of England Sterling Money Market data collection and Bank calculations.

(a) Volume-weighted spread to Bank Rate of overnight cleared DBV (general collateral) gilt repo and reverse repo transactions.

Demand for cash prompted withdrawals from money market funds and exposed their liquidity mismatch risks...

MMFs are used by a wide variety of investors as part of their cash management strategies as alternatives or complements to bank deposits. Investors in MMFs include non-financial corporations, public authorities, insurers, pension funds, investment funds and households. MMFs invest in short-term money market instruments and are key providers of short-term funding to financial institutions (particularly banks), corporates and governments.

In mid-March, prime MMFs — those that invest largely in non-government assets — experienced large outflows globally. In US funds, outflows were driven primarily by a reallocation from prime MMFs to government funds, as investors became concerned about prime funds' declining net asset values (NAV) and the possibility of liquidity fees or redemption gates as their liquidity positions worsened. In Europe too, MMFs suffered large outflows following withdrawals with sterling MMFs seeing a 9% weekly outflow from 16 March, as investors sought cash, including to meet margin calls (**Chart A.7**).⁽⁷⁾ At the same time, MMFs found their own ability to generate additional liquidity constrained, as some of the assets they hold (such as commercial paper) could not be sold under strained market conditions.

Given investors regard holding MMF units as cash-like and generally redeemable on demand, these outflows exposed a liquidity mismatch and MMFs' liquidity buffers reduced. As market volatility has subsided in response to central bank actions, MMFs have improved their liquidity positions by allowing assets to mature and reinvesting in short-dated deposits, as well as via a resumption of investor inflows. However, their demand for bank-issued paper remains more constrained as they conserve fund liquidity, contributing to elevated Libor rates (see Box 1).

...and other types of open-ended funds also experienced periods of large outflows...

Globally, open-ended funds experienced large outflows during March, particularly in equity, corporate bond and emerging market funds. For these asset classes, outflows were large compared to recent history and previous periods of stress. For example, during March 2020:⁽⁸⁾ global emerging market bond funds saw outflows of around US\$48 billion; global equity large cap fund outflows reached around US\$9 billion; and outflows from US dollar

(6) Operational frictions were in part eased by the Bank's agreement with the Debt Management Office (DMO) to increase the proportion of gilts held in its Asset Purchase Facility that are available to the DMO to use in its market operations. For more information, see [Statement on increase to APF gilt lending limits](#).

(7) Under the EU MMF regulation, if the level of weekly maturing assets of Low Volatility NAV (LVNAV) funds falls below 30% of fund assets, and net redemptions on one day are greater than 10% of assets, the fund's board could decide to apply liquidity fees, redemption gates or suspend the fund.

(8) All data from Morningstar. Outflows are for the following categories: Emerging Market Bond = Global Broad Category Group Fixed Income (with at least 30% of their fixed-income portfolio invested in Emerging Markets); Global Equities = Global Equity Large Cap; US dollar High Yield = US High Yield Bond, EAA USD High Yield Bond and World High Yield Bond US; Sterling corporate bonds = GBP Corporate Bond, GBP Diversified Bond, GBP Diversified Bond — Short Term and GBP High Yield Bond.

high-yield bond funds were around US\$11 billion. Investors withdrew around US\$2 billion from sterling corporate bond funds.

In addition, most UK daily dealing and some non-daily dealing property funds (representing around US\$25 billion of Assets Under Management (AUM)) suspended or deferred redemptions, following the decisions of some Registered Valuers of the Royal Institution of Chartered Surveyors to cite material uncertainty in valuing property. Valuation uncertainty was also cited as the cause for suspension of several EU funds.⁽⁹⁾

Faced with actual and expected redemptions, as well as margin calls, open-ended funds built their cash buffers. The average amount of cash held by open-ended funds increased to 5.9% of AUM in April, up from 5.1% in March, and well above a 10-year average of 4.6%.⁽¹⁰⁾ This, in addition to funds de-risking, added to selling pressures and contributed to the strains in typically liquid markets, such as gilts.

The FPC has previously highlighted that there is a liquidity mismatch between redemption terms and the liquidity of some funds' assets and in 2019 commissioned a joint review by the FCA and the Bank into mitigating the associated financial stability risks. These risks stem from the potential advantage to investors who redeem ahead of others in a stress. The incentive to redeem ahead of others would be particularly strong if investors anticipate that the price of a unit in the fund may not yet factor in the latest information, with further adjustment to come once assets are sold, possibly at a large discount if markets are illiquid. If this causes large redemptions, it could result in forced asset sales by funds, which could test markets' ability to absorb them and may further amplify asset price moves. Funds have discretionary tools to reduce the risk of this dynamic, such as the ability to adjust pricing to reflect the potential dilution effects of redemptions for remaining investors (so-called 'swing pricing') and the ability to suspend redemptions. However, these measures are not applied consistently across funds or across jurisdictions, and fear of future suspension can further reinforce the incentive for investors to redeem.

...with large differentials between headline prices of open-ended funds and exchange-traded funds (ETFs) in equivalent assets indicating the extent of the potential first-mover advantage for investors in open-ended funds...

In contrast to open-ended funds, ETFs' shares trade in secondary markets, often on exchanges. As a result, they offer immediate liquidity at intra-day trading prices. During the period of market stress in March, unlike in some previous stress events, investors may have found it easier to trade ETF shares than the underlying assets held by the ETF, and trading volumes in ETF shares rose significantly. For example, for the largest ETFs referencing US investment-grade corporate bonds, daily trading volumes in March were more than three times their January 2020 average. In light of the relative liquidity in ETF shares compared to the corporate bond market, price discovery was often occurring via ETFs rather than their underlying assets.

During this period, ETF prices appear to have provided information about future changes in underlying asset markets, offering evidence that ETF prices incorporated new information more rapidly than the net asset values (NAV) of assets held within their, and equivalent, funds (Aramonte and Avalos (2020)). There were some large differences between intra-day ETF prices and the measured end-of-day value of their assets. In mid-March, some of the largest ETFs in both the investment-grade and high-yield corporate bond segments recorded NAV discounts in excess of 5%, having been no larger than 0.1% in January.⁽¹¹⁾

The differentials between the prices of ETFs and their daily NAV may suggest that the NAVs of open-ended funds were sometimes not factoring in the latest information during volatile periods.⁽¹²⁾ Lower ETF prices — which more accurately reflected the liquidity and the cost of selling the underlying assets — could have been an indication of the extent of first-mover advantage that was available to investors in open-ended funds holding similar asset portfolios to those ETFs, as investors redeeming from open-ended funds early might receive the potentially higher NAV price. However, some funds in Europe, including in the UK, used swing pricing tools to adjust the price received by redeeming

(9) According to a [Fitch Ratings Report](#), at least 76 funds suspended in the UK/EU, across several asset classes.

(10) Source: BAML monthly funds survey.

(11) ETF's Authorised Participants (APs) have the ability to create or redeem shares with the ETF sponsor. In a creation, the AP provides the ETF sponsor with the basket of underlying securities in return for an ETF share. If a gap opens up between the price of an ETF share and the underlying basket of securities, an arbitrage opportunity arises for the AP, whereby it can exchange the cheaper of the basket of securities or ETF share for the other one. This arbitrage process should keep the ETF price in-line with the price of the underlying price in perfect market conditions.

(12) ETF pricing — due to their secondary trading nature — reflect various factors, including but not limited to investors' view on underlying price and liquidity, authorised participants' risk appetite, e-trading controls and reactions to circuit breakers, where applicable.

investors, particularly during the most volatile periods. There is some evidence that swing pricing adjustments applied during March were high and this could have mitigated the first-mover advantage.

The secondary market trading of ETFs means there is lower risk of a dynamic that incentivises the fire sales of their underlying assets. But some ETFs do pose other risks, as the FPC outlined in the July 2019 *Report*. For example, those ETFs that invest in less liquid assets while offering redemptions in cash can give rise to liquidity mismatch, and result in procyclical investor behaviour. And if ETF liquidity became impaired in a stress, this would pose risks to any market participants who were reliant on them for liquidity and price discovery.

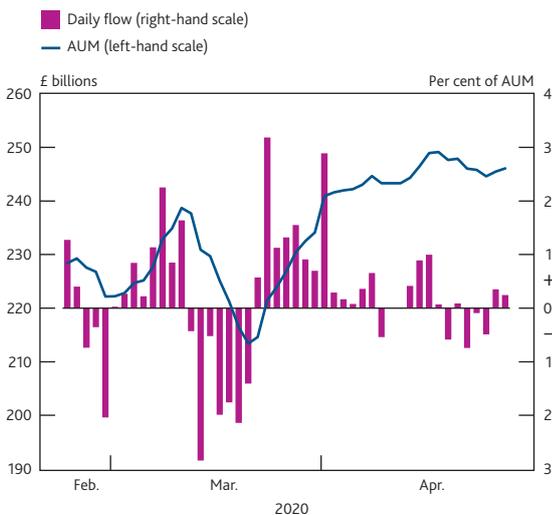
ETF pricing also responded to market interventions by central banks. Discounts for investment-grade bond ETFs closed globally towards the end of March, as the US Federal Reserve announced it would purchase US investment-grade bonds and ETF shares.

... which was evident in the scale of outflows from funds invested in less liquid assets.

During past periods of falls in risky asset prices, open-ended fund investors have tended to act procyclically — ie they are more likely to sell assets following price falls than other investors — and the sensitivity of fund outflows to asset price moves has been greater the more prone to illiquidity the underlying assets are. There is some evidence that this was repeated in the recent episode. **Chart A.8** shows that flows from funds invested in bonds were more sensitive to negative returns than funds invested in equities. Emerging market and advanced-economy bond funds saw greater outflows despite experiencing lower negative returns on average than equity funds.

Chart A.7 Sterling MMFs saw large outflows in mid-March, in part due to investors' margin calls

Sterling MMFs' assets under management and daily flows^(a)

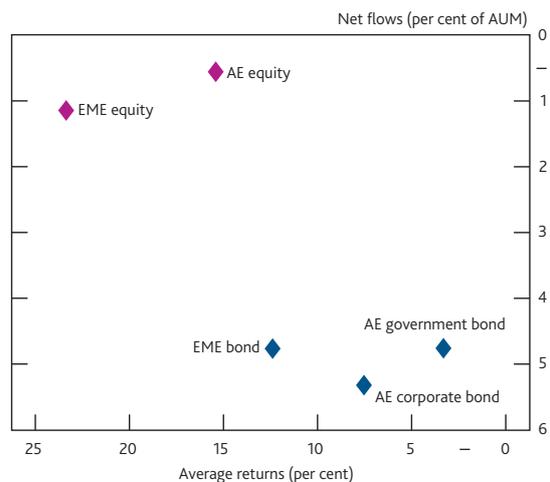


Sources: Crane Data LLC and Bank calculations.

(a) Latest observation (daily): 29 April. Over 95% of the sample are prime (by AUM) and the remainder are government.

Chart A.8 Flows from bond funds were more sensitive to negative returns

Open-ended fund flows and average returns in March 2020^(a)



Sources: Morningstar and Bank calculations.

(a) Funds must have at least 30% of their portfolio invested in the asset class (equity, bond, corporate bond or government bond) and region (advanced economies (AE) or emerging market economies (EME)) to be considered as part of each category.

This sudden demand for liquidity was alleviated by central banks, which have supported market functioning through a series of policy interventions.

The magnitude of the sudden demand for cash could not be met fully by the private sector alone. Banks' intermediation of markets was in part constrained by risk controls and regulation to safeguard the core banking system.⁽¹³⁾ Instead, central banks stepped in to maintain global monetary and financial stability, through monetary easing, liquidity insurance, and enhanced US dollar liquidity arrangements:

- Central banks eased monetary policy, by cutting interest rates and expanding their asset purchase programs. For example, in March, the Bank's Monetary Policy Committee reduced Bank Rate by 65 basis points, from 0.75% to 0.1%, and increased the stock of asset purchases by £200 billion to a total of £645 billion. As central bank asset purchases are financed by the issuance of central bank reserves, this will expand the supply of 'cash', reducing interest rates and improving liquidity in the gilt market.

(13) For example, some analysis has found that the resilience of liquidity in the gilt repo market decreased after the leverage ratio policy was announced. See Bicu, A, Chen, L and Elliot, D (2017), 'The leverage ratio and liquidity in the gilt repo markets', *Bank of England Staff Working Paper No. 690*.

- In response to tightening financial market conditions, central banks also enhanced their liquidity insurance facilities. The Bank activated its Contingent Term Repo Facility, allowing participants to borrow central bank reserves (cash) in exchange for other, less liquid assets as collateral. This facility complements the Bank's existing liquidity facilities. The Federal Reserve launched two facilities aimed at reducing stresses in short-term US dollar funding markets, and the European Central Bank scheduled additional longer-term refinancing operations (TLTROs), while making the terms of these operations more generous.
- Given the particularly heightened demand for US dollars, the Federal Reserve, in co-ordination with other major central banks, announced enhancements to existing swap lines⁽¹⁴⁾ and introduced new temporary swap lines. In addition, the Federal Reserve established a temporary repo facility for Foreign and International Monetary Authorities (FIMA repo facility), to support the smooth functioning of the US Treasury market.

Combined, these central bank actions have supported financial system functioning and eased financial conditions, though conditions remain tighter than prior to the shock. While bid-offer spreads in US Treasury and gilt markets remain high, they are now within ranges observed over recent years. Volatility also remains elevated. The VIX, which rose above its 2008 peak in mid-March, is now substantially lower, but remains around twice its January–February average. And corporate bond spreads in major currencies have also retraced some of their widening in recent weeks, though they also remain elevated.

These central bank actions have been complementary to a substantial global fiscal response, which improved risk sentiment. In the UK, the Government has announced a comprehensive response to the Covid-19 outbreak, supporting businesses and households to minimise the longer-term damage to the economy. This includes measures such as the Coronavirus Job Retention Scheme and policies that support lending to the real economy, which are outlined in the UK corporate sector financing and Covid-19 chapter.

The vulnerabilities that contributed to the March 'dash for cash', which the Financial Policy Committee has highlighted in the past, continue to pose risks, and liquidity stress may resurface as the economic situation evolves...

In line with the growing importance of market-based finance, the FPC has increased its monitoring of risks beyond the core banking system in recent years, and is well positioned to assess any additional vulnerabilities that could weaken the resilience of financial system functioning in the future. In particular, the FPC intends to revisit the drivers of the mid-March 'dash for cash', because although on this occasion their effects were mitigated by central bank actions, they pose risks to future financial stability. These underlying issues will need to be addressed once the immediate problems have passed. The Bank is in close contact with other relevant authorities, in the UK and internationally, on many of the topics discussed in this *Report*.

...including risks from significant proportions of bonds that could drop to a sub-investment grade rating.

One vulnerability the FPC will be closely monitoring as this economic shock evolves is so-called 'fallen angel' risk. There has been a significant increase in the share of BBB-rated bonds in the past few years, creating a large volume of securities that could drop to a sub-investment grade rating in a stress. Some institutional investors may be forced to sell bonds downgraded to sub-investment grade if, for example, their investment mandates prevent them from holding high-yield bonds. In the case of funds, even when mandates do not require selling, holding a large proportion of assets not in the benchmark index may harm the fund's performance or rating, still potentially leading to redemptions and forced sales. Around 50% of UK corporate bonds held in funds are rated BBB, with similar proportions (around 45%) in European and US funds (Aramonte and Eren (2019)). Under reasonable assumptions, that analysis suggests that a return to 2009 downgrade rates could force portfolio rebalancing in excess of daily turnover in US corporate bond markets.

Large scale portfolio rebalancing could further dampen market liquidity and restrict corporates from accessing funds. As the economic consequences of the spread of Covid-19 have started to affect corporates, some firms have already been downgraded to high-yield. So far volumes have been relatively small compared to the size of the BBB stock, and downgrades do not impact eligibility for the Covid Corporate Financing Facility, which uses 1 March 2020 ratings to determine eligibility.⁽¹⁵⁾

(14) In particular, the cost of US dollar funding was reduced, longer-maturity lending operations were introduced, and the frequency of seven-day maturity operations was increased from weekly to daily.

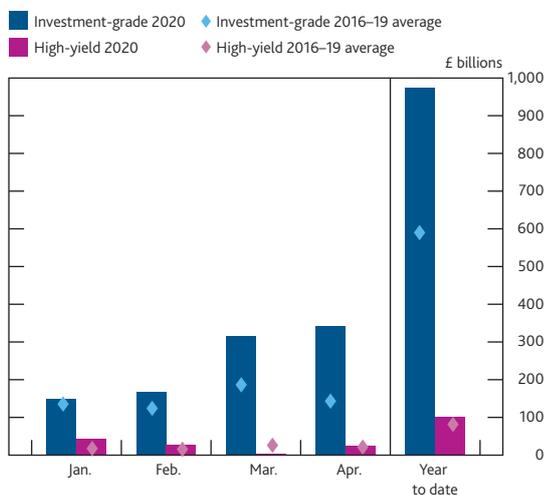
(15) [Covid Corporate Financing Facility \(CCFF\): information for those seeking to participate in the scheme.](#)

Many parts of the financial system appeared to function well during the period of stress. For example, large investment-grade corporates have continued to raise finance in primary bond markets, with long-term investors prepared to provide demand...

Throughout the periods of stress in secondary bond markets, some primary corporate credit markets have continued to be active, particularly investment-grade markets. In March, over £300 billion of corporate bonds were issued globally, with strong issuance in US dollars and euros in particular (**Chart A.9**). Despite sterling issuance being relatively subdued compared to other currencies, UK businesses have continued to issue investment-grade bonds across all currencies, issuing more in the year so far than on average over the same period in 2016–19 (**Chart A.10**). Market intelligence suggests that long-term investors, such as insurers and pension funds, are driving demand for issuance, taking advantage of unusually high yields, including from wider-than-usual new issuance premia in some cases. The Monetary Policy Committee's asset purchases have also likely played a role in stimulating issuance (see Box 2 in the *May Monetary Policy Report*).

Chart A.9 Global primary corporate bond markets have continued to be active, particularly investment-grade markets

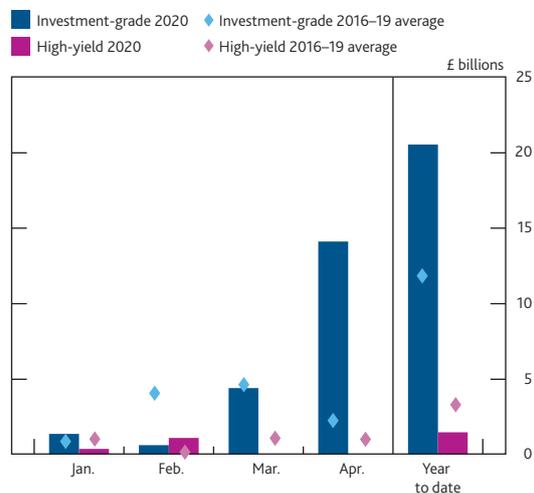
Global PNFC investment-grade and high-yield year to date bond issuance across all currencies



Sources: Refinitiv — Deals Business Intelligence and Bank calculations.

Chart A.10 UK businesses have continued to issue investment-grade bonds across all currencies

UK PNFC investment-grade and high-yield year to date bond issuance across all currencies



Sources: Refinitiv — Deals Business Intelligence and Bank calculations.

... market infrastructure has been resilient and supported market functioning...

Banks and other financial institutions rely upon financial market infrastructure to ensure the provision of financial services. For example, CCPs sit between the buyers and sellers of financial contracts, reducing counterparty risks, supporting confidence in times of stress. Use of CCPs has increased since the global financial crisis. CCPs and other crucial financial market infrastructure have performed effectively under stressed conditions to date. They have coped well with the operational challenges of moving to large scale remote working, and CCPs have dealt with sharp increases in volumes over the past few months. Some increase in settlement fails was observed, along with an increase in volumes, but both measures are now returning to usual levels. Retail payments systems continue to operate well, as consumer spending patterns shift markedly and use of cash sharply declines.

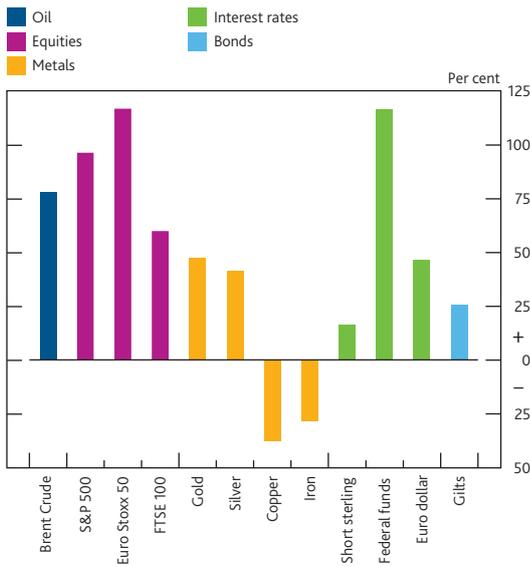
Fast electronic markets, such as exchange-traded derivatives and equity markets, saw higher trading volumes during March (**Chart A.11**). A significant proportion of trading in these markets is by Principal Trading Firms (PTFs), which typically trade at high frequencies and with short holding periods. As described in the November 2017 *Report*, there have been concerns that PTFs withdrawing from markets during stress can amplify market moves and lead to 'flash crashes'. During the recent episode, PTFs appear to have largely remained active, although there was some evidence of them pulling back from trading in certain markets in the most volatile periods. March also saw significant volumes of equity trading move from venues where prices are not shown pre-trade (dark pools and over-the-counter markets) to transparent exchange trading, which helps facilitate price discovery and reduce market fragmentation. Circuit breakers were triggered on some of these trading venues during the most volatile days, pausing trading to allow resumption of orderly conditions. However, the prospect of paused trading may have increased transaction costs and contributed to price volatility.

...and the regulatory reforms of the past decade have helped prevent the transmission of market stress to banks.

The global banking system entered into this shock in a much stronger position than the global financial crisis. Major UK banks, in aggregate, had over three times their pre-crisis common equity Tier 1 capital ratios at end-2019, and have maintained those ratios in 2020 Q1 (Chart A.12). A large number of countries have taken significant macroprudential actions, taking advantage of the flexibility built into post-crisis regulation to support the real economy. The FPC cut the UK countercyclical capital buffer (CCyB) rate to zero, increasing banks' lending capacity. Many other macroprudential authorities also cut their CCyB rates.

Chart A.11 Volumes doubled in some futures markets

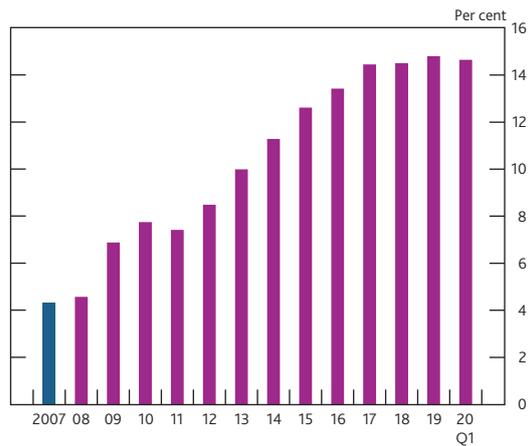
Average futures market volumes in March 2020 as percentage change from March 2019 average



Sources: Bloomberg Finance L.P. and Bank calculations.

Chart A.12 The aggregate CET1 ratio remains more than three times higher than it was before the financial crisis

Aggregate CET1 capital ratio of major UK banks since the financial crisis^{(a)(b)}



Sources: PRA regulatory returns, published accounts, Bank analysis and calculations.

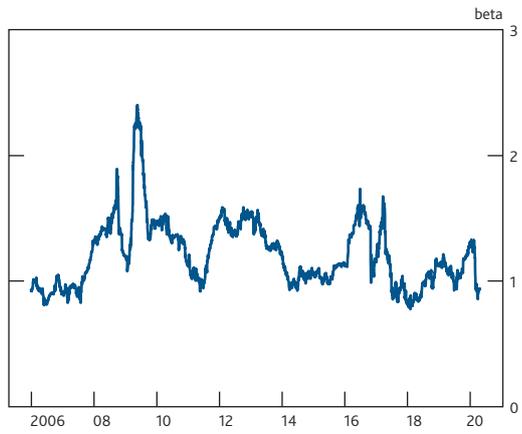
- (a) The CET1 capital ratio is defined as CET1 capital expressed as a percentage of risk-weighted assets. Major UK banks are Barclays, HSBC, Lloyds Banking Group, Nationwide, The Royal Bank of Scotland, Santander UK and Standard Chartered. From 2011, data are CET1 capital ratios as reported by banks. Prior to 2011, data are Bank estimates of banks' CET1 ratios.
- (b) Capital figures are year-end, except 2020 Q1. 2020 Q1 incorporates 2020 Q1 data for banks who published their Q1 results by 1 May 2020, and 2019 Q4 data where they had not.

In addition UK banks' trading books are much smaller now than they were in 2008 which, all else equal, reduces their exposures to market losses. And they are less reliant on short-term wholesale market funding, reducing risk of sudden reductions in funding. At a group level, major UK banks' use of short-term wholesale funding, excluding repo, as a proportion of total funding, has fallen to 4% from around 15% in 2007.

As a result of this resilience, stressed market conditions did not transmit to stress in the core UK banking system. Indeed, bank share price movements relative to the wider market have been small, whereas in 2008 they were much more sensitive to market conditions (Chart A.13). Nevertheless, the weaker economic outlook does also affect the outlook for banks, as implied by their declining price-to-book (PtB) ratios. Domestically focused UK banks' PtB ratios have fallen from an average of 0.75 on 20 February to 0.4. The UK banking sector resilience and Covid-19 chapter outlines the challenges a Covid-19 economic shock consistent with the MPC's illustrative scenario may pose to major UK banks, estimating that they have sufficient buffers above their minimum requirements to absorb losses and continue to provide credit needed by the economy in this scenario.

Chart A.13 Bank equity prices have been less volatile relative to the wider market compared to 2008

90-day rolling beta between FTSE 350 Banks index and FTSE 350 index



Sources: Eikon from Refinitiv and Bank calculations.

Box 1

The continued importance of the transition away from Libor

Recent market volatility has highlighted the long-standing weaknesses of Libor benchmarks, which remain in widespread use. Libor rates — and hence costs for borrowers — rose as central bank policy rates fell, and underlying market activity was low. This has reinforced the importance of completing the transition to alternative rates by end-2021.

Libor rates are among the most widely used benchmarks in global financial markets, determining interest rates for an estimated total of around US\$400 trillion of financial contracts. They are calculated in five currencies across seven separate tenors and aim to produce a representative measure of the rates at which large banks can fund themselves in wholesale, unsecured funding markets based on submissions from a panel of banks.⁽¹⁾

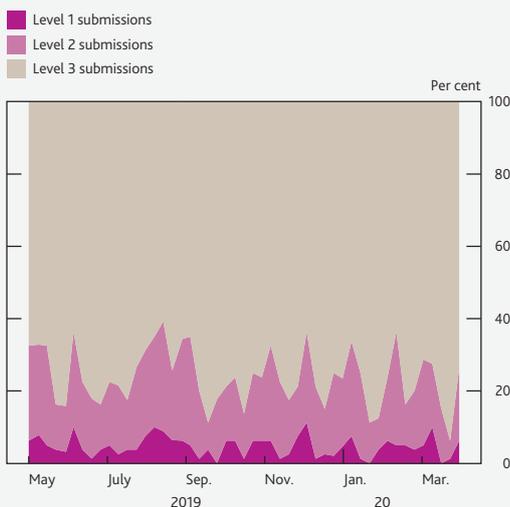
Since the global financial crisis, activity in the underlying market that Libor seeks to measure — the market for unsecured wholesale term lending to banks — is no longer sufficiently active. The low volume of transactions increases Libor's vulnerability to short-term market illiquidity and amplification of price moves. These long-standing concerns have led to a concerted global effort over recent years, co-ordinated by the Financial Stability Board, to transition to increased use of alternative near risk-free rates (RFRs).

In the interim, governance processes for submissions to Libor have been strengthened and its methodology reformed to anchor the rate in panel banks' unsecured wholesale transactions to the greatest extent possible. A waterfall methodology is used, preferring transaction-based submissions where possible (known as 'Level 1'), followed by increasingly judgement-based submissions.⁽²⁾

Overall though, Libor rates remain highly reliant on 'expert judgement'. In the key three-month sterling Libor rate, the proportion of 'transaction-based' (Level 1) submissions has risen above 10% only once over the past year (Chart A). A clear majority of inputs are routinely based on 'expert judgement', due to an absence of sufficient transactions to inform Level 1 and Level 2 submissions.

Chart A The proportion of Libor submissions based directly on market transactions has fallen to very low levels

Proportion of 'Level 1', 'Level 2' and 'Level 3' submissions underlying three-month sterling Libor^(a)

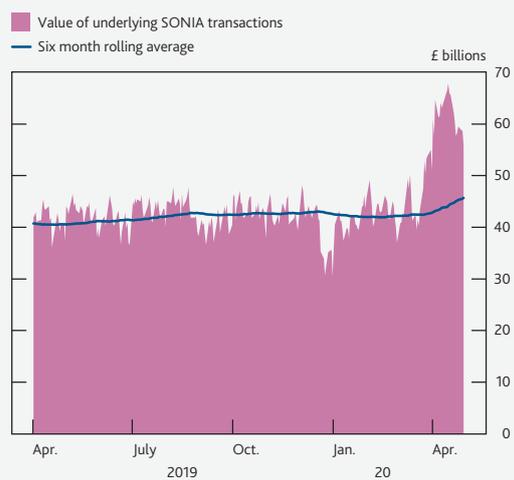


Source: IBA.

(a) Input data to Libor are categorised using a 'waterfall' with increasing levels of judgement, as summarised in footnote (2).

Chart B The value of transactions underpinning SONIA rose in April as market activity shifted to overnight maturities

Value of transactions used to produce SONIA



Sources: Bank of England and Bank calculations.

- (1) There are five Libor currencies (US dollar, sterling, euro, Swiss franc and Japanese yen) and seven Libor tenors for each (overnight, one week, one month, two months, three months, six months and 12 months). Rates are based on funding markets such as unsecured deposits, certificates of deposit and commercial paper. For full definition and details of panel composition, see www.theice.com/iba/libor.
- (2) The waterfall can be summarised as follows: Level 1 is 'transaction-based' submissions — an average of transactions in unsecured deposits and primary issuances of commercial paper and certificates of deposit; Level 2 is 'transaction-derived' data, including information from historical transactions; Level 3 is 'expert judgement' — where a panel bank has insufficient Level 1 or 2 transactions, it estimates the rate at which it could fund itself in the unsecured wholesale funding market, based on an approved procedure. See www.theice.com/publicdocs/ICE_LIBOR_Methodology.pdf.

During March, the limited market transactions underpinning these benchmarks fell away, leaving them almost entirely reliant on expert judgement. In the week of 16 March, Level 1 submissions in three-month sterling Libor fell to zero, leaving no 'transaction-based' inputs supporting the rate. More broadly, over half of the 35 published Libor rates contained no Level 1 submissions during this week, compared to an already material level of around a third the previous week. By contrast, the value of transactions underpinning SONIA, the preferred RFR in sterling markets, has increased since 16 March, from its previous average of around £40 billion per day to over £60 billion in April (Chart B).⁽³⁾⁽⁴⁾

Outflows from money market funds were a key driver of frictions in the markets underpinning Libor. Amid poor liquidity, Libor rates rose while policy rates were reduced, partially offsetting the support provided to households and businesses to bridge the temporary disruption from Covid-19.

Money market funds (MMFs), an important group of investors in unsecured bank funding markets, saw large outflows in mid-March. Reduced demand from these investors for commercial paper and certificates of deposit has contributed to the lack of transactions on which to base Libor submissions. It also put upward pressure on rates as banks factored this lower demand into their estimates of the rate they would have expected to pay if they did access markets.

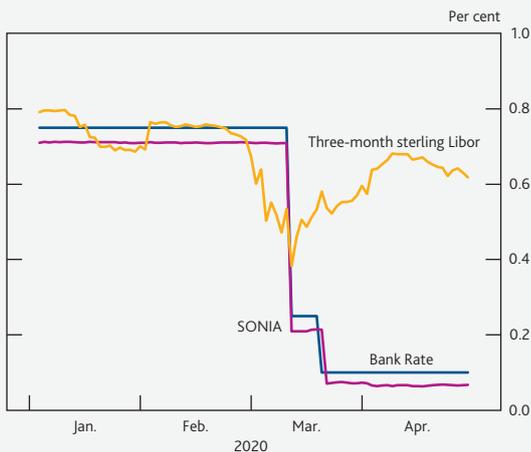
Outflows from MMFs have since reversed but concerns about the potential for further redemptions at short notice remain, so MMFs have sought to keep investments short-dated or backed by government securities, rather than in the unsecured term markets measured by Libor.

As a result, Libor rates increased in the second half of March, while central bank policy rates were being reduced and underlying transactions were diminished. As shown in Chart C, three-month sterling Libor initially fell, tracking expectations of cuts in policy rates, before diverging sharply upwards. It has remained elevated in subsequent weeks at only around 15–20 basis points below its February levels, compared to a 65 basis point fall in Bank Rate. Throughout this period SONIA has remained closely in line with Bank Rate.

This pattern was replicated even more starkly in US dollar markets, which account for the largest volume of Libor-linked products globally. For example, three-month US dollar Libor rose by over 50 basis points in the second half of March, at a time when official US rates were reduced by 100 basis points.

Chart C Sterling Libor has failed to track falls in Bank Rate — unlike SONIA

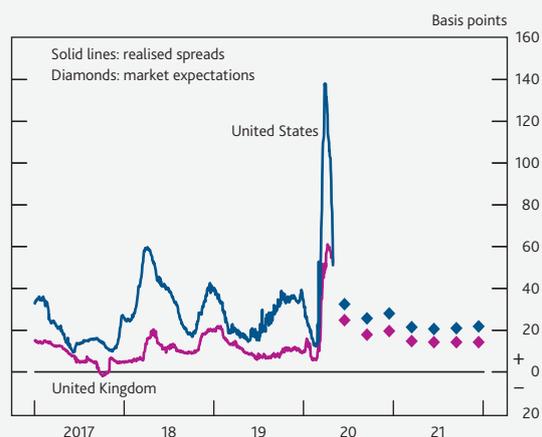
Movements in short-term sterling interest rates since January 2020



Sources: Bank of England, Bloomberg Finance L.P. and Bank calculations.

Chart D US dollar Libor rates rose by even more compared to risk-free rates than in sterling

Realised three-month Libor-OIS spreads and market-implied expectations^(a)



Sources: Bloomberg Finance L.P. and Bank calculations.

(a) All data are as of 29 April 2020. The diamonds represent the forward implied spread between three-month Libor and equivalent maturity overnight index swap (OIS) rates, estimated using Libor futures and instantaneous forward OIS rates.

(3) The Sterling Overnight Index Average (SONIA) is administered by the Bank and reflects the average of the interest rates that banks pay to borrow sterling overnight from other financial institutions. See www.bankofengland.co.uk/markets/sonia-benchmark.

(4) SONIA was selected as the preferred near risk-free interest rate benchmark for use in sterling derivatives and relevant financial contracts by the Working Group on Sterling Risk-Free Reference Rates in April 2017. See www.bankofengland.co.uk/news/2017/april/sonia-recommended-as-the-sterling-near-risk-free-interest-rate-benchmark.

The reduction in market liquidity caused by shifts in MMF activity is likely to have amplified these moves in the Libor rate. As shown in **Chart D**, rates derived from forward markets imply that the gap between Libor and policy rates is largely expected to unwind in the coming months, suggesting that the sharp spike in recent weeks has been heavily influenced by impaired market functioning. With many market participants seeking to sell existing holdings at the same time, those sales may have had a larger price impact than usual. And with lower volumes of new transactions, smaller value trades executed at elevated rates could have had a larger influence on panel bank submissions than they would at other times.

Large liquidity buffers and reduced reliance on short-term unsecured funding meant banks were largely able to avoid paying higher rates in those markets, but the impact on Libor fed directly through to borrowers with Libor-referencing products.

Since the global financial crisis, banks have built significantly more resilient liquidity positions and now draw a very limited proportion of their funding from short-term unsecured markets. As a result, banks have not been under pressure to borrow at the higher rates observed in these markets and, more generally, the direct correlation between Libor and banks' overall borrowing costs has weakened over time.

However, as noted above, changes in Libor continue to impact a wide range of other products with interest rates linked to the benchmark. In particular, banks' estimates of the heightened liquidity and credit risk premia they would have needed to pay if they were to borrow short-term funds have passed through directly to borrowers who have floating-rate loans linked to Libor.⁽⁵⁾ However, households and businesses who have already made the transition to paying interest based on SONIA, or those with loans linked to Bank Rate, will have avoided paying these elevated rates.

So while there may be a need for short-term reprioritisation, market participants should remain focused on the continued importance of removing reliance on Libor by the end of 2021.

The financial system has a key role in ensuring that sufficient liquidity is available to support households and businesses through the disruption related to Covid-19, which may have an impact on some aspects of transition programmes. There remain a number of areas where preparations for transition have been able to continue despite market disruption, including completion of the first SONIA-linked facility in the housing sector and further progress on fallback arrangements for existing Libor-linked contracts, but others may be somewhat delayed. Recognising this, the UK's industry Working Group on Sterling Risk-Free Reference Rates (the Working Group) has already communicated changes in timelines for a number of its interim milestones.⁽⁶⁾

Nonetheless, it remains the central assumption that firms cannot rely on Libor being published after the end of 2021. The Working Group and UK authorities therefore continue to emphasise the importance of completing the transition from Libor within this timeframe. The FPC will continue to monitor progress on transition in the context of the ongoing impact from Covid-19.

(5) Due to their basis in short-term bank funding markets, Libor rates contain a number of additional risk premia such as these, which are largely absent from RFRs.

(6) See www.bankofengland.co.uk/-/media/boe/files/markets/benchmarks/rfr/rfrwg-further-statement-on-the-impact-of-coronavirus-on-timeline-for-firms-libor-transition-plans.pdf.

UK banking sector resilience and Covid-19

The Financial Policy Committee (FPC) has co-ordinated with the Prudential Regulation Committee (PRC) closely in preparing the analysis contained in this chapter. The PRC is responsible for the safety and soundness of individual banks within the aggregate picture presented in this chapter.

The FPC has carried out a desktop stress test of the major UK banks and building societies ('banks') using the economic scenario outlined in the May 2020 *Monetary Policy Report* (the 'MPR scenario'). That scenario illustrates the potential impact of Covid-19 on the economy, based on a set of stylised assumptions.

Banks entered into this period of stress with an aggregate common equity Tier 1 (CET1) capital ratio more than three times higher than before the global financial crisis, and holding approximately £1 trillion of liquid assets.

Banks have the capital buffers to draw on to withstand even greater losses than those that result from the illustrative scenario set out in the *Monetary Policy Report* in the desktop stress test. They would have the capacity to meet the increased need for corporate credit in that scenario, including through the support of government lending guarantee schemes now in place.

As an individual bank's capital is eroded by losses, despite substantial capital buffers, it might seek to protect its own financial position by cutting back lending to viable businesses in need of temporary support. **The UK economy and banking sector would be weakened and, as demonstrated by the desktop stress test, it is in the collective interest of banks as well as the wider economy to continue to support businesses and households through this period.**

The impact of any stress on banks' capital positions depends on: (1) the size of the economic shock faced by households and businesses to which banks have extended loans, which determines the level of impairment on banks' existing loan books; (2) policy measures that are put in place by the Government and authorities to support the ability of borrowers to continue to service loans and avoid default through the economic shock; and (3) the income banks earn, before any losses, on their existing loan books and their trading activities.

The *MPR* scenario embodies a very sharp economic shock, resulting in cash-flow difficulties for businesses and rising unemployment. These developments would generate material losses for banks on their corporate and household loans. Overall, in the desktop stress test based on the *MPR* scenario, banks incur total credit losses of just over £80 billion. This draws down around 45% of the capital buffers banks have available (above their minimum capital requirements) to absorb losses while continuing to provide the credit needed by the economy.

These losses are not even larger because:

- corporate impairments should be reduced by the boost to corporate cash flow from the reduction in Bank Rate, by fiscal measures including the Coronavirus Job Retention Scheme (CJRS), and by bank lending supported by government guarantee schemes now in place;
- the CJRS is also expected to prevent many job losses, and through that, reduce banks' mortgage and consumer credit losses. Impairments should also be further reduced by the reductions in Bank Rate and extensive use of mortgage payment holidays; and
- investment banking revenues have been strong in 2020 Q1, and in part given the outlook for market interest rates, banks' traded risk losses are projected to be modest.

Comparison with the 2019 stress test of major banks

The credit losses that major UK banks could face under the first two years of the *MPR* scenario are materially lower than the over £100 billion in credit losses banks showed that they were able to withstand over the same period in the 2019 stress test. That is because:

- Although the *MPR* scenario incorporates a much sharper initial fall in output than in the 2019 stress-test scenario, the recovery from the initial fall is more rapid, such that the cumulative loss of output over three years is very similar to the 2019 stress-test scenario.
- The CJRS means that despite a much sharper initial fall in output in the *MPR* scenario, the peak level of unemployment is only slightly higher than in the 2019 stress-test scenario.
- In contrast to the 2019 stress test in which there was a very material increase in interest rates, the *MPR* scenario is conditioned on market paths for Bank Rate and long-term interest rates that remain low. As a result, the fall in UK property prices incorporated in the desktop stress test is less severe than that in the 2019 stress test.
- Government guaranteed and direct lending schemes bolster UK businesses' access to credit, mitigating impairments on UK corporate lending. And mortgage payment holidays reduce credit losses. Neither of these were features of the 2019 stress test.

Banks' losses due to non-credit factors were also higher in the 2019 stress test than would be expected under the *MPR* scenario. In particular, in the 2019 stress test banks' traded losses were material, in part reflecting a sharp rise in market interest rates. The 2019 stress test also included a stressed projection of banks' costs associated with past misconduct.

It is in banks' collective interest to continue to support businesses and households through this period.

Overall, banks have the capacity to assist businesses in meeting cash-flow deficits by expanding the supply of credit to the economy.

- The FPC's expectation is that all elements of the substantial capital and liquidity buffers that have been built up by banks since the global financial crisis exist to be used as necessary to support the economy. In March, the FPC demonstrated this by cutting the UK countercyclical capital buffer rate to 0%, enabling up to £190 billion of business lending capacity.
- The government loan guarantee schemes now in place mean that banks can extend material support to businesses attracting very low capital requirements.
- And the Bank of England's Term Funding Scheme provides additional funding for banks that increase lending to UK businesses, especially to small and medium-sized enterprises.

There has already been a significant increase in the provision of corporate credit as companies have drawn down committed lines. Continued expansion of bank credit will be essential to help the corporate sector weather the disruption related to Covid-19 and thereby minimise the medium-term damage to the UK economy (see UK corporate sector financing and Covid-19 chapter).

As the experience of the global financial crisis has demonstrated, if banks were to withdraw from providing credit, more businesses would fail due to cash-flow deficits, triggering bigger losses for banks on their existing corporate loans and, by pushing unemployment higher, bigger losses on existing household loans too.

UK banks' current resilience

Banks have entered into this period of stress in a stronger position due to the regulatory reforms implemented after the 2008 financial crisis.

Major UK banks and building societies (hereafter referred to as 'banks') started 2020 with significantly stronger capital positions than they had ahead of the global financial crisis (GFC).⁽¹⁾ As of 2019 Q4, UK banks' aggregate CET1 capital ratio of 14.8% was over three times higher than its level in 2007 (**Chart B.1**). Global and domestic regulatory reforms over the past decade, coupled with annual stress tests that are used to calibrate banks' capital requirements, have contributed to the increase in bank capital levels over the past decade.

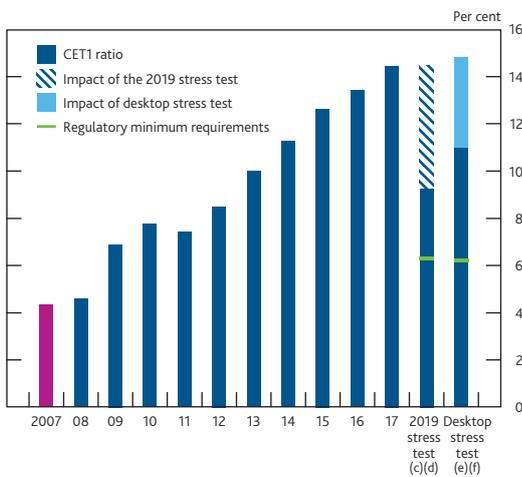
The 2019 stress test showed that banks maintained sufficient capital to continue to supply credit to UK businesses and households through synchronised recessions both in the UK and globally, which would have been more severe overall than the GFC. The 2019 stress-test scenario also incorporated a severe shock to financial markets and a sharp increase in fines and redress costs for past misconduct. Banks were estimated to incur credit losses of over £100 billion in the first two years of the 2019 stress test, alongside a material increase in risk-weighted assets (RWAs) and significant losses on their trading operations. The results of the 2019 stress test showed that banks were able to absorb those losses via the buffers of capital they have in excess of their minimum capital requirements.

Banks' liquidity positions going into this shock were also strong, with around £1 trillion of high-quality liquid assets. On average over the last 12 months, in aggregate their holdings of liquid assets have been around 1.5 times the severe

(1) The seven banks referred to in this chapter are Barclays, HSBC, Lloyds Banking Group, Nationwide, The Royal Bank of Scotland Group, Santander UK and Standard Chartered.

Chart B.1 Banks' capital positions were over three times higher than their pre-global financial crisis levels

Aggregate CET1 capital ratio of major UK banks since the financial crisis^{(a)(b)}

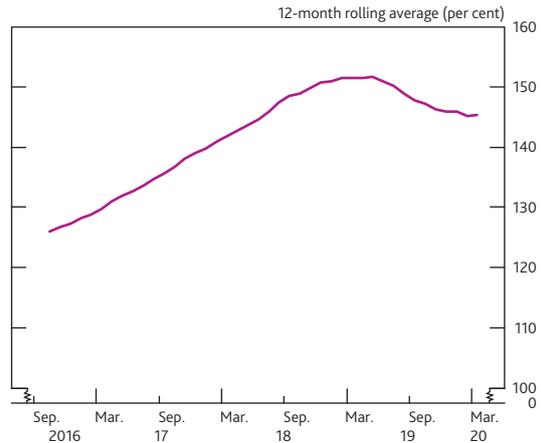


Sources: Participating banks' Stress Testing Data Framework data submissions, PRA regulatory returns, published accounts, Bank analysis and calculations.

- (a) The CET1 capital ratio is defined as CET1 capital expressed as a percentage of risk-weighted assets. Major UK banks are Barclays, HSBC, Lloyds Banking Group, Nationwide, The Royal Bank of Scotland, Santander UK and Standard Chartered. From 2011, data are CET1 capital ratios as reported by banks. Prior to 2011, data are Bank estimates of banks' CET1 ratios.
- (b) Capital figures are year-end.
- (c) The impact of the 2019 stress test does not include the conversion of AT1 instruments.
- (d) The 2019 stress test capital drawdown starts from 2018 Q4.
- (e) The desktop stress test capital drawdown starts from 2019 Q4.
- (f) The risk-weighted minimum requirements in the desktop stress test are based on setting P2A as a nominal amount, in line with the 'PRA statement on temporarily setting P2A as a nominal amount from 7 May 2020'. In this exercise the nominal value of P2A requirements is assumed to remain constant over the horizon.

Chart B.2 Banks held a significant buffer of liquid assets entering into this period of disruption

Major UK banks' aggregate LCR^(a)



Sources: PRA regulatory returns and Bank calculations.

- (a) Major UK banks are Barclays, HSBC, Lloyds, Nationwide, RBS, Santander UK and Standard Chartered.

30-day stressed outflows underlying the Liquidity Coverage Ratio (LCR) (Chart B.2). The UK banking sector has sufficient positioned collateral to borrow around £380 billion through Bank of England liquidity facilities.

The FPC has overseen a desktop stress test to assess banks' resilience to the economic disruption associated with Covid-19.

The FPC, in close co-ordination with the PRC, has overseen a desktop stress test, designed to explore the losses that banks might experience in the illustrative scenario published in the *Monetary Policy Report* ('the MPR scenario'), based on appropriately prudent assumptions. Unlike a regular stress test, the desktop stress test has not drawn on submissions from banks.

The desktop stress test is not a prediction of losses the FPC expects banks to take — it is an examination, subject to considerable analytical uncertainty given the unique circumstances, of capital impacts which might arise in the scenario and how these compare to the capital buffers banks already have in place to absorb losses and maintain lending during economic downturns. The FPC cautions against reliance on point estimates, but is confident based on the analysis that the buffers banks have in place are, in aggregate, much larger than the losses which might arise in the scenario, as illustrated by the desktop stress-test results.

The May 2020 *Monetary Policy Report* illustrative scenario

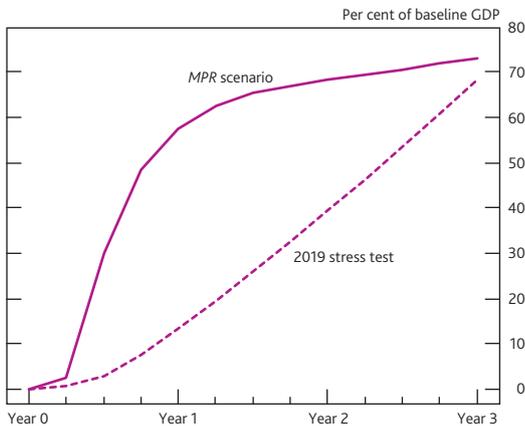
The May 2020 Monetary Policy Report sets out an illustrative scenario that incorporates very sharp falls in activity across both the UK and global economies.

The May 2020 MPR sets out an illustrative scenario showing how the global and UK economies could be impacted by the disruption associated with the outbreak of Covid-19. Underlying the MPR scenario for both the UK and the rest of the world is an assumption that social distancing measures remain in place in their current form until early June. The scenario then assumes they are lifted, gradually, by the end of Q3. The fiscal support measures announced by the UK Government are assumed to remain in place, and then to be unwound, over the same period. These assumptions should not be taken to imply that they are or should be Government policy.

In the *MPR* scenario, UK GDP drops to close to 30% lower in Q2 than it was in 2019 Q4, and recovers as the restrictions are lifted. Although the UK economy begins to recover from the shock in 2020 Q3, lower confidence and higher uncertainty take some time to dissipate, dampening both consumer and investment spending. Therefore, the cumulative shortfall in GDP over the course of the scenario is significant (**Chart B.3**).

Chart B.3 Cumulative GDP losses are significant in the *MPR* scenario

Cumulative UK GDP losses in the *MPR* and 2019 stress-test scenarios^{(a)(b)}

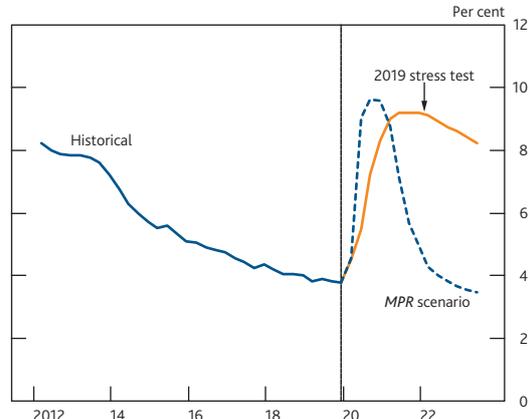


Sources: Key elements of the 2019 annual cyclical scenario publication and Bank calculations.

- (a) The starting point for 2019 stress-test scenarios is 2018 Q4, with both the baseline and stress profiles taken from the 2019 annual cyclical scenario key elements publication. The starting point for *MPR* scenarios is 2019 Q4. The baseline for *MPR* scenarios is taken from the January 2020 *MPR*.
- (b) Cumulative GDP loss is calculated as the sum of quarterly differences between baseline and stressed GDP scenarios. The cumulative GDP loss is expressed as a percentage of the baseline GDP scenario at each point.

Chart B.4 Unemployment rises sharply in the *MPR* scenario

UK unemployment in the *MPR* and 2019 stress-test scenarios^(a)



Sources: Key elements of the 2019 annual cyclical scenario publication, ONS and Bank calculations.

- (a) The profile for unemployment in the 2019 stress test has been rolled forward by four quarters so that it begins in 2019 Q4, in line with the *MPR* scenario.

Global GDP follows a broadly similar path. Global activity recovers over the second half of the year, as social distancing measures are rolled back. The recovery is aided by the macroeconomic policies that have been put in place in many countries, which act to prevent significant longer-term damage to the global economy. There are some variations in the extent of support across countries, however.

*The *MPR* scenario includes the impact of Government and Bank measures to support the economy.*

The package of macroeconomic stimulus and support measures currently in place has been incorporated in the *MPR* scenario:

- The **exceptional fiscal support undertaken by both UK and global authorities**. In particular, the Coronavirus Job Retention Scheme (CJRS) substantially lowers the number of jobs that are lost. Although unemployment rises materially in the scenario — peaking at over 9% of the workforce (**Chart B.4**) — this is significantly less than would be implied by past relationships with economic activity. Informed by survey data, reports collated by the Bank's Agents and early data on claims under the CJRS, the scenario embodies an assumption that around six million employees are furloughed in Q2 on average.
- The **recent loosening in monetary policy**, including the reduction of Bank Rate to historic lows, and the expansion of the stock of asset purchases financed by the issuance of central bank reserves, will support spending. The Bank Rate reduction will also help to offset increases in households' and businesses' debt-servicing ratios as incomes and revenues fall.
- The link between unemployment and mortgage impairments is assumed to be further dampened by **mortgage payment holidays** supporting households in weathering the disruption. UK Finance reports that as of end-April, more than 1.6 million, or one in seven, residential and buy-to-let mortgages in the UK is subject to a payment holiday. Mortgage payment holidays will temporarily reduce the proportion of mortgagors who might otherwise have found it more difficult to meet mortgage payments, given the reduction in household incomes embodied in the scenario (Box 4). Households are also assumed to make use of **consumer credit payment holidays**. Although

take up of these has been smaller than mortgage payment holidays, they are assumed to provide a further support for households.

- **Government-backed lending support schemes** such as the Coronavirus Business Interruption Loan Scheme (CBILS) for small and medium-enterprises (SMEs), its equivalent for larger businesses the Coronavirus Large Business Interruption Loan Scheme (CLBILS), and the Bounce Back Loan Scheme for small businesses (BBLs). Through these support schemes the Government will guarantee all or a large part of new bank lending to businesses. This will materially increase capacity to lend to UK businesses. The **Covid Corporate Financing Facility (CCFF)** provides funds directly from the Bank of England through the purchase of commercial paper issued by companies that were investment-grade or equivalent as at 1 March 2020. The CCFF therefore reduces the need for banks to provide financing to these predominantly large companies, thereby preserving bank lending capacity for other businesses.
- In March, the FPC **cut the UK countercyclical capital buffer rate to 0%**. This reinforced the FPC's expectation that all elements of the substantial capital and liquidity buffers that have been built up by banks since the GFC exist to be used as necessary to support the economy. And the Bank of England has launched the Term Funding Scheme, which provides funding for any new lending undertaken by banks, with additional incentives for lending to small and medium-sized enterprises.
- In addition, the PRC's decision **to set Pillar 2A capital requirements as a nominal amount instead of a percentage of RWAs** will provide more room for banks to lend. Given the lending paths incorporated in the desktop stress test, major UK banks' CET1 capital requirements triggers for restrictions on distributions are 40–50 basis points of RWAs lower than they would otherwise be by 2021.

Desktop stress test of possible impacts of the *MPR* scenario on major UK banks

Under the assumptions underpinning the May 2020 MPR scenario, the banks' aggregate CET1 capital ratio is projected to decrease by 3.8 percentage points, with banks remaining well above their minimum regulatory capital requirements.

Under the appropriately prudent assumptions underlying the desktop stress test, by the end of the second year in the scenario, banks' aggregate CET1 capital ratio could fall from 14.8% to 11.0%. Likewise, banks' aggregate Tier 1 leverage ratio could fall from 5.4% to 4.9%, although the FPC cautions against reliance on point estimates (**Chart B.5**).

Just over half the starting aggregate CET1 capital ratio comprised buffers above minimum capital requirements. These can be used in stress both to absorb losses and promote banks' ability to support the economy by lending, which should reduce future losses. In the desktop stress test, around 45% of this buffer is drawn down.

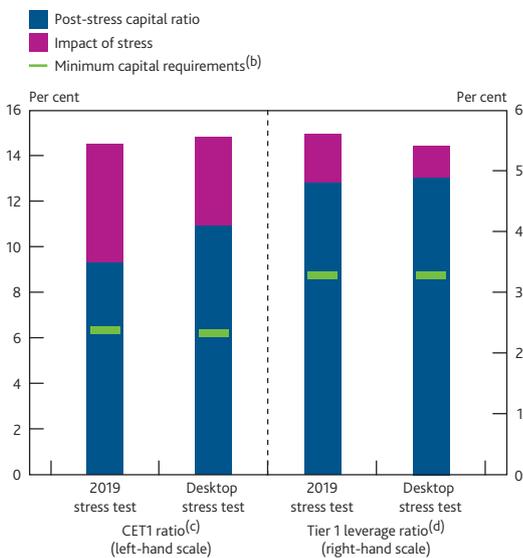
Banks' capital low points would still be well above their minimum CET1 capital ratio and Tier 1 leverage ratio requirements: the FPC therefore judges that banks have the capacity to absorb the effects of the *MPR* scenario while meeting the demands for credit from businesses and households.

There is considerable uncertainty about the precise impact of the economic disruption on the UK banking system, which will depend on the evolution of the pandemic and the public health measures to contain it, the response of a range of asset prices to the economic outlook, and on the behaviour of households and companies. More information about the assumptions made in the desktop stress test, the drivers of possible changes to the banks' capital positions and sensitivities around these drivers is set out in the section below, and Box 2 compares the impact of the desktop stress test on banks' resilience to the 2019 stress test.

Banks are projected to incur impairments of around £80 billion in the first two years of the desktop stress test.

Under the assumptions used in this desktop stress test, banks could incur impairments on 3.5% of their loans to households and businesses, by end-2021. This could reduce their aggregate CET1 capital ratio by almost 5 percentage points in total. Banks' impairments on lending are split broadly evenly between UK and non-UK exposures (**Chart B.6**)

Chart B.5 In aggregate, banks are projected to remain well above their minimum regulatory requirements at the two-year capital low point of the desktop stress test
Impact of the desktop stress test and 2019 stress test on banks' CET1 capital ratios and Tier 1 leverage ratios^(a)



Sources: Participating banks' STDF data submissions, Published accounts, Bank analysis and calculations.

- (a) The desktop stress test incorporates the effect of a European Commission proposal to allow banks 100% IFRS 9 transitional capital relief until end-2021.
 (b) The risk-weighted minimum requirements in the desktop stress test are based on setting P2A as a nominal amount, in line with the 'PRA statement on temporarily setting P2A as a nominal amount from 7 May 2020'. In this stress test the nominal value of P2A requirements is assumed to remain constant over the horizon.
 (c) The CET1 capital ratio is defined as CET1 capital expressed as a percentage of risk-weighted assets, where these are in line with CRR and the UK implementation of CRD IV via the PRA Rulebook.
 (d) The Tier 1 leverage ratio is Tier 1 capital expressed as percentage of the leverage exposure measure excluding central bank reserves, in line with the *PRA's Policy Statement 21/17*.

Just over half the starting aggregate CET1 capital ratio comprised buffers above minimum capital requirements. These can be used in stress both to absorb losses and promote banks' ability to support the economy by lending, which should reduce future losses. In the desktop stress test, around 45% of this buffer is drawn down.

Defaults by more vulnerable businesses unable to finance their cash-flow deficits could result in impairments on UK corporate credit of £19 billion...

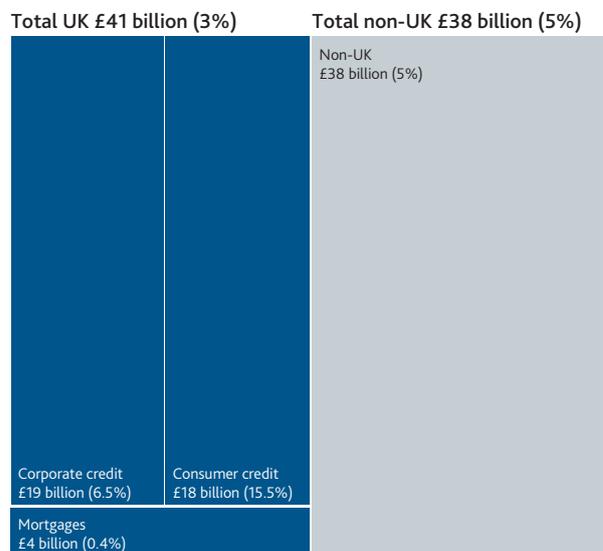
The loss of output incorporated in the *MPR* scenario would place significant pressure on cash flow in the UK corporate sector (see UK corporate sector financing and Covid-19 chapter). In response to this shock, businesses have increased their demand for credit from the banking system.

As set out in the UK corporate financing and Covid-19 chapter, in aggregate, UK businesses have material buffers of cash to draw on to finance cash-flow deficits. In assessing the potential impact of the *MPR* scenario on major UK banks, the FPC has assumed in the desktop stress test that, in addition to this, banks continue to provide a material part of the financing need of the UK corporate sector during the economic disruption. Overall, it has assumed that banks would expand net lending to UK businesses by over £60 billion during 2020 and 2021, with approximately £55 billion of the increase being provided in 2020 (Chart B.7). Although companies are assumed to continue to draw on committed credit lines as they did in Q1, most of banks' lending to UK businesses from Q2 to 2020 Q4 is assumed to take place through the Government's lending guarantee schemes. Banks are therefore assumed to face a materially lower level of additional capital at risk by expanding their lending than they would ordinarily.

As the data set underpinning the estimate of the cash-flow deficit for UK companies does not include smaller SMEs and sole-traders, lending to these companies is not included in the assumptions around banks' expansion of net lending to UK businesses. Therefore any lending to these companies is assumed to be carried out in addition to the assumed expansion of net lending set out above. This includes any lending extended through the BBLS aimed at small businesses. As the lending under BBLS is 100% guaranteed by the government, banks would not take on additional

Chart B.6 Banks' impairments in the desktop stress test are split evenly between exposures to UK and non-UK borrowers

Aggregate cumulative impairment charges (and rates) to the two-year capital low point of the desktop stress test^(a)

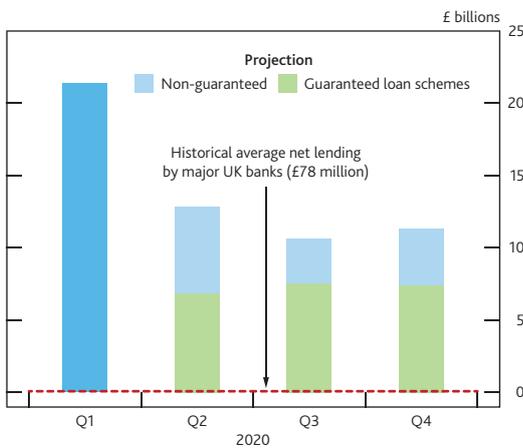


Sources: Participating banks' STDF data submissions, Bank analysis and calculations.

- (a) Cumulative impairment charge rates = (two-year total impairment charge)/(average gross on balance sheet exposure), the denominator is the simple average of the banks' projections of banks' 2019 and 2020 exposures.

Chart B.7 Banks are projected to lend approximately £55 billion to UK corporates over 2020

Projected net lending to UK corporates over the course of 2020^{(a)(b)(c)}

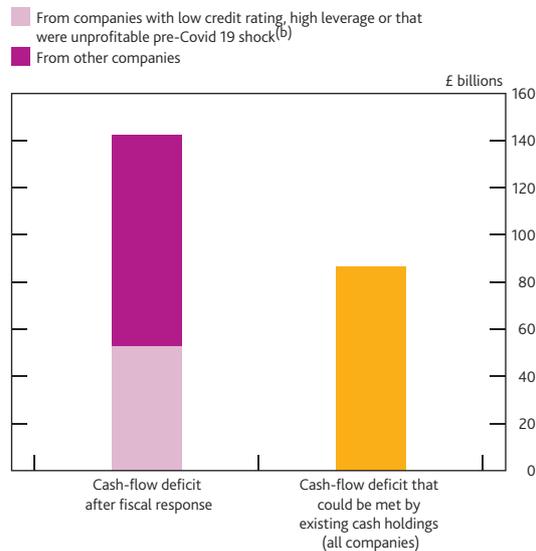


Sources: Bank of England, Fame (Bureau van Dijk), ONS, PRA regulatory returns, S&P Capital IQ and Bank calculations.

- (a) Guaranteed loan schemes encapsulate loans extended under the Coronavirus Business Interruption Loan Scheme and the Coronavirus Large Business Interruption Scheme.
 (b) Net lending for 2020 Q1 is based on data from PRA regulatory returns. Projected net lending for 2020 Q2–Q4 is derived from the corporate financing shortfall detailed in the UK corporate sector financing and Covid-19 chapter that is estimated to be provided by major UK banks.
 (c) Average quarterly net lending by major UK banks is calculated over the period 2016–19. Major UK banks are Barclays, HSBC, Lloyds Banking Group, Nationwide, The Royal Bank of Scotland, Santander UK and Standard Chartered.

Chart B.8 Cash balances can reduce some of the aggregate cash-flow deficit. Additional debt may not be the most appropriate form of finance for some businesses

Estimate of the cumulative corporate sector cash-flow deficit under the MPR scenario^(a)



Sources: Bank of England, Fame (Bureau van Dijk), ONS, S&P Capital IQ and Bank calculations.

- (a) See footnote (a) to Chart C.7.
 (b) Aggregate cash-flow deficit arising from companies that either had a net debt to EBITDA ratio above 4, low credit rating, or made negative profits on average in the past three years. Credit ratings are proxied where unavailable. Companies with these characteristics would have likely found it more difficult to get a loan from the core banking system even in the absence of the Covid-19 shock and in many cases would have been unwilling to take on additional debt.

credit risk by extending lending through the scheme, therefore its omission from the path of net lending to UK businesses does not have a material impact on the results of the desktop stress test. In addition, loans extended under the BBLS will not add to banks' leverage exposure measures.

To make a prudent examination of banks' resilience, the FPC has assumed that some businesses are unwilling or unable to access additional credit, partly because banks decrease their lending to vulnerable corporate sectors. This has the effect of pushing up on the level of corporate impairments in the desktop stress test. Banks are assumed to make provisions for losses on corporate exposures of around £19 billion; an impairment rate of 6.5%.

However, sectoral-level data can disguise the vulnerability of individual companies. It is possible that companies that were highly leveraged or unprofitable before the disruption associated with the outbreak of Covid-19 will not have access to any new bank lending. These companies account for around one third of the estimated cash-flow deficit of the corporate sector (Chart B.8) (see UK corporate sector financing and Covid-19 chapter).

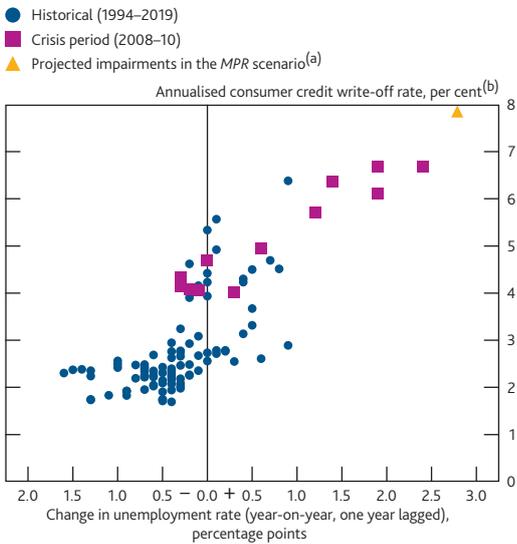
Therefore, in a separate exercise, the FPC has assumed that new loans to such companies fall outside of banks' risk appetite. This exercise, which uses the company level data on cash-flow deficits, assumes companies that were already highly leveraged or unprofitable enter financial difficulty, if a) they have not already raised cash in public equity and bond markets, or b) if their cash-flow deficit exceeds the amount they can save through simple cost reduction measures (see UK corporate sector financing and Covid-19 chapter).⁽²⁾

This exercise suggests a broadly similar level of corporate impairments as the sectoral-level assessment that informs the projected level of corporate impairments in the desktop stress test. The result is, however, very sensitive to assumptions made about access to finance of companies in a more vulnerable financial position. If they were able to

(2) Whether a company with a cash-flow deficit enters distress will depend on their ability to generate additional liquidity and/or cut costs. The additional liquidity available to individual companies with a cash-flow deficit has been estimated by aggregating (i) the cash they have raised in public equity and bond markets in March and April 2020, (ii) the value of a cash injection from existing private equity sponsors equivalent to 17% of existing debt and (iii) the value of inventory assets, sold at a haircut of 75%. The ability of individual companies to cut costs has been estimated by assuming they (i) stop all capital expenditure, (ii) are able to reduce their remuneration costs by up to 10% without affecting sales and (iii) receive up to six months of interest payment holidays from their bank lenders. Any company for which the above actions are insufficient to fully address its cash-flow deficit is assumed to fail. These firm failures are aggregated to estimate impairment rates by economic sector, which are then applied to the exposures of UK banks. This approach may overestimate potential corporate distress; there are other actions companies could take.

Chart B.9 The level of projected impairments on UK consumer credit is in line with its historical relationship with unemployment

Write-off rates of consumer credit compared to change in unemployment

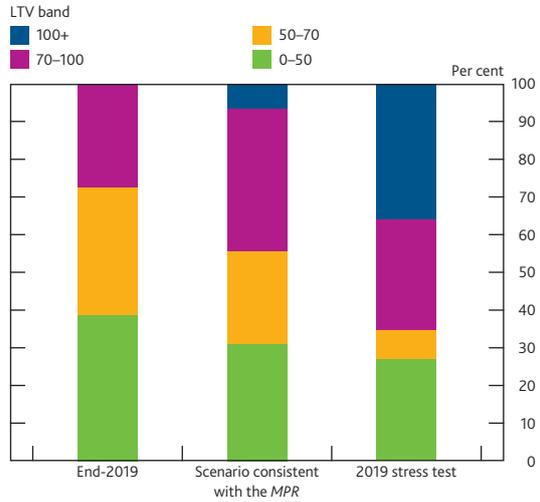


Sources: Bank of England, ONS and Bank calculations.

- (a) Average estimated impairment rate in the first two years of the MPR scenario against the average annual increase in unemployment between 2018 Q4 and 2020 Q4 in the MPR scenario.
- (b) Four-quarter moving sum of consumer credit write-offs of MFIs, divided by the outstanding stock of consumer credit at MFIs one year earlier.

Chart B.10 The distribution of banks' LTV ratios is much less adversely affected by a 16% HPI shock than the 33% shock in the 2019 stress test

Index of loan to value ratios at end-2019, after a decrease in house prices consistent with the MPR scenario, and after a decrease in house price consistent with the 2019 stress test^(a)



Sources: Participating banks Portfolio Quality Review data submissions, Bank analysis and calculations.

- (a) Applies a house price shock to the end-2019 LTV distribution of participating banks' UK mortgage exposures.

access finance, for example because they were able to restructure or raise additional equity, then the rate of corporate impairment could be lower.

...and the impairments on banks' UK consumer credit exposures are projected to be around £18 billion...

Banks are projected to incur £18 billion of impairments on their exposures to UK consumer credit in the desktop stress test, translating to an impairment rate of 15.5%. This impairment rate would be in line with the historic relationship between consumer credit losses and unemployment (Chart B.9).

Given that unemployment is such an important determinant of consumer credit losses, the assumed effectiveness of the CJRS in reducing overall unemployment, which is incorporated in the MPR scenario, is a key judgement in this assessment of potential consumer credit losses.

...while the remaining £4 billion of impairments on UK lending are projected to be incurred on mortgages.

Despite accounting for 73% of banks' UK exposures as of 2019 Q4, projected impairments on mortgage loans account for only 10% of impairments on UK exposures in this stress test. The impairment rate on UK mortgage lending in the desktop stress test is 0.4%.

The rate of household default in the desktop stress test is assumed to be dampened by three factors:

- First, the fiscal and monetary policy interventions in the MPR scenario help limit the increase in the number of households with high debt-servicing burdens in the desktop stress test. The CJRS allows firms to retain staff on furlough rather than laying them off, keeping the increase in unemployment below the level that might have been expected given the reduction in demand in the MPR scenario.
- Second, the household sector entered this stress with a more resilient balance sheet overall. In part due to the measures put in place by the FPC to limit the growth of high loan to income mortgage lending, the share of households with a high debt-servicing ratio was 1% in 2019 compared to 2.7% in 2007 (Box 4).

- Third, banks offer three-month mortgage payment holidays. Where necessary, borrowers are assumed to be able to defer mortgage repayments until output begins to grow and household incomes begin to recover. If the banks did not offer mortgage payment holidays, their projected impairments would likely increase.

Additionally, the losses banks incur on mortgages that do default are determined by the level of house prices, since these determine the value a lender can recover after a home is repossessed. For the purposes of the desktop stress test, Bank staff have modelled residential property prices to be driven by unemployment and long-term interest rates. In this framework, the downward pressure on residential property prices from the increase in unemployment in the MPR scenario is judged to be offset, to some extent, by the impact of persistently low long-term interest rates embodied in current market prices.

Taking these two effects together, the FPC judges that a fall of 16% in UK residential property prices could be consistent with the MPR scenario. After falling, prices are then assumed to rise gradually as economic activity in the UK recovers and unemployment falls in the scenario. By comparison, in the GFC, which followed a period of rapid expansion of mortgage credit, residential property prices in the UK fell by a similar amount.

Given the loan to value distribution on banks’ mortgage books at the end of 2019, a 16% house price fall would not be likely to lead to very material losses in the event of default. Even after a 16% fall in prices, only 6% of banks’ mortgage lending would have a loan to current value ratio in excess of 100% (Chart B.10).

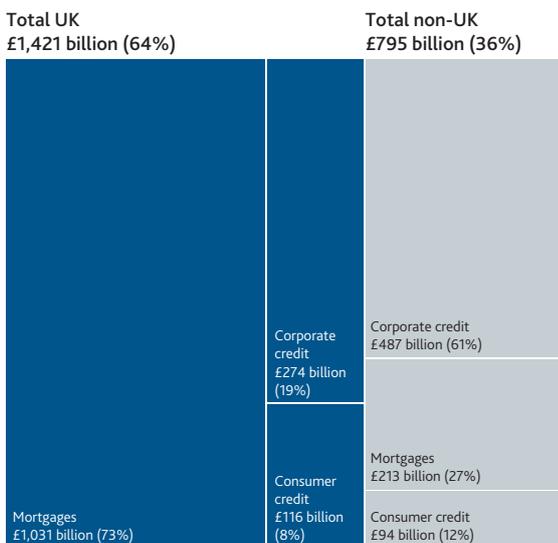
And impairments on non-UK lending are £38 billion.

Analytical uncertainties around non-UK exposures are higher than for UK exposures given the more limited tools at the FPC’s disposal for assessing the macroeconomic impact of measures taken by authorities in other jurisdictions to combat the spread of Covid-19. Despite these limitations, however, some differences in the effectiveness of government interventions around the world have been assumed. The FPC has taken account of this with additional prudence in the analytical approach for the purposes of the desktop stress test.

Banks are projected to incur impairments of around 5% on their exposures to borrowers outside the UK, slightly higher than the overall UK impairment rate of 3%. This difference is primarily driven by compositional differences in banks’ aggregate UK and non-UK exposures. For example, mortgage lending, on which the impairment rate is relatively low at 1.0% compared to other asset classes, comprises a relatively small proportion of banks’ exposures to non-UK borrowers (27% versus 73% for UK exposures), whereas riskier corporate and consumer lending, with an impairment rate of 6.1%, accounts for the majority of non-UK exposures (Chart B.11).(*)

Chart B.11 Banks’ non-UK exposures are more heavily weighted towards corporate credit than UK exposures

Aggregate drawn balances as of end-2019^(a)

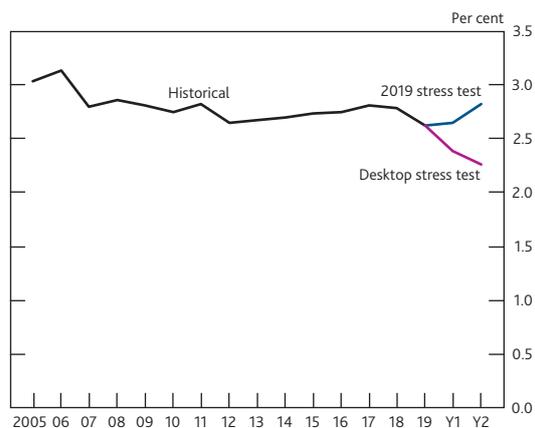


Sources: Participating banks STDF data submissions, Bank analysis and calculations.

(a) Percentage figures in parentheses show proportion of total exposure.

Chart B.12 Banks’ loan margins are squeezed in the desktop stress test

Loan margins in the desktop stress test and 2019 stress test^(a)



Sources: Participating banks STDF data submissions, Bank analysis and calculations.

(a) Loan margin is calculated as net interest income received on loans minus that paid on deposits, divided by loans.

(*) The impairment rate of non-UK corporate and consumer credit has been corrected from 4.1% in the original publication to 6.1%. Additionally the sentence has been clarified to refer to the impairment rate on both corporate and consumer credit.

The desktop stress test takes into account the impact of IFRS 9 transitional arrangements.

Banks are required to base their accounts on International Financial Reporting Standard 9 (IFRS 9). Under IFRS 9 banks set aside provisions for expected credit losses on all loans, not just where a loan is past due or has fallen into default. The provisions for all credit impairments described above reflect the forward-looking requirements of IFRS 9.

Under current EU law, transitional arrangements mean that the full capital impact of IFRS 9 will be phased in over time. As such, banks are allowed to 'add-back' to their reported capital ratio a portion of expected credit losses. On 28 April, the European Commission proposed to amend the transitional arrangements to allow 100% relief of eligible provision until the end of 2021. As such, the desktop stress test assumes 100% transitional relief, raising the aggregate capital ratio by 0.5 percentage points.

Despite applying 100% IFRS 9 transitional relief, banks get only a modest boost to their aggregate CET1 ratio. That is because, due to the sharp nature of the economic shock, most of the impairment projected in the desktop stress test actually materialise through defaults in 2020 and 2021, and IFRS 9 transitional relief only applies on a portion of the expected credit losses that have not yet materialised.

Rising risk weights on banks' assets also reduce the aggregate CET1 capital ratio.

Banks' aggregate RWAs are projected to rise by 33% under the desktop stress test. This reduces banks' aggregate CET1 capital ratio by 3.7 percentage points at the capital low point in the desktop stress test. A rise in risk weights on banks' existing exposures as credit quality deteriorates accounts for the majority of that increase, rather than the expansion of lending.

An expansion of net lending to UK households of £70 billion is assumed in the desktop stress test, this compares with an outstanding stock of £1.1 trillion and is an increase on net lending of £32 billion in 2019. This comes predominantly in the form of expanded mortgage lending in 2021, as consistent with the *MPR* scenario, the housing market starts to recover during the second half of 2020. Net lending to UK households adds approximately 1% to total RWAs in the desktop stress test.

The additional £60 billion of net lending to UK businesses would ordinarily be expected to add just under 4% to aggregate RWAs. As outlined above, around £20 billion of this has already taken place, largely via committed credit facilities. Most of the remaining corporate lending in 2020 is assumed to take place through government guarantee schemes now in place. As the guaranteed share of banks' lending under these schemes attracts zero risk weight, the impact of the assumed corporate net lending expansion over 2020 and 2021 on aggregate RWAs is instead under 3%.

Banks are assumed to generate losses of only £7 billion on their trading and investment banking operations, with strong 2020 Q1 investment banking performance helping to reduce the impact of decreasing asset prices and increased volatility.

Banks have reported that 2020 Q1 investment banking revenue was around £6 billion, a 45% year-on-year increase. This is a result of the increased volatility and trading volume over the course of the quarter. This has been incorporated into the desktop stress test, but the effect is assumed to be temporary, and as investor uncertainty sets in, revenue from investment banking is projected to fall back.

Against this revenue strength, in the desktop stress test banks are projected to incur losses on their own trading portfolios totalling around £7 billion over 2020 and 2021. Those projections are based on financial market adjustments observed to date. These losses have been dampened by the moves in government bond prices, which have broadly increased, raising the value of banks' government bond holdings. For example, ten-year gilt prices have increased by around 5% since the start of 2020.

Net interest income offsets a major part of banks losses but, due to an assumption of lower margins, in aggregate banks are projected to earn around £8 billion less over 2020 and 2021 than they did in 2019.

The pressure on banks' capital through the channels set out above could be partially offset by banks' underlying earnings. A key source of earnings for banks is Net Interest Income (NII). Banks earn NII by receiving higher interest rates on assets such as loans, than they pay on liabilities such as deposits. The difference between the two rates is the main driver of the Net Interest Margin (NIM) banks earn and total NII is the product of NIM and the volume of interest earning assets available to the bank. In 2019, banks earned £65 billion of NII in total.

The low level of policy interest rates and market expectations that they will remain low, in the *MPR* scenario would squeeze banks loan margins (**Chart B.12**). While lower interest rates reduce banks' earnings on assets, banks are to some extent constrained in their ability to pass on reductions in policy rates, such as Bank Rate, to some types of depositors, where the interest they are paying on these accounts is already at or close to zero.

The Bank's term-funding scheme with additional incentives for SMEs (TFSME) should help to offset some of this squeeze on loan margins, however, by providing banks with long-term funding at an interest rate lower than some other potential sources of bank funding.⁽³⁾

In the desktop stress test, it has been assumed that banks earn approximately £8 billion less NII in 2020 and 2021 than they would have done if they continued to earn a similar level to 2019. That means the CET1 capital ratio uplift from NII in this stress test is, at 7.5%, around 0.5 percentage points lower than it would have been if NII had stayed constant at its 2019 level.

Banks are assumed to retain earnings rather than distribute them through dividends.

In 2020 Q1, banks cancelled payment of any outstanding 2019 dividends in line with the Bank's guidance and in doing so wrote back £7.1 billion of CET1 capital. In this stress test it has been assumed that banks pay no dividends in 2020/2021 because they would, on a cumulative basis, be loss making in aggregate. It has also been assumed that variable remuneration is reduced by 50%, consistent with the PRA's expectation that no cash bonuses be paid to material risk-takers. Banks also cut coupons on their additional Tier 1 (AT1 instruments) where required.

Overall, this means banks are assumed to pay approximately £11 billion in distributions over 2020 and 2021, which reduces the aggregate CET1 capital ratio by 0.7 percentage points at the low point. Had banks continued to make distributions in line with their intended 2019 level, they might have paid out around £56 billion over that period, which could have diminished their capital position by 3.5 percentage points. Banks are therefore projected to make a substantial contribution to maintaining their resilience by cutting distributions in the desktop stress test.

Sensitivity of the results to different assumptions

More prolonged economic disruption than assumed in the May 2020 MPR scenario would further affect banks' capital positions.

The outlook for the economy is unusually uncertain at present, and is highly dependent on the evolution of the pandemic and how governments, households, businesses and financial markets respond to it. The timing, speed and extent of the recovery in activity will be affected by the measures that are taken around the world both to contain the spread of Covid-19 and to support the economy.

Underlying the illustrative scenario for both the UK and the rest of the world is an assumption that the current social distancing measures remain in place until early June. They are then lifted, gradually, by the end of Q3. The fiscal support measures announced by the Government are assumed to remain in place, and to be then unwound, over the same period. These assumptions should not be taken to imply that they are or should be Government policy (see May 2020 *MPR*).

If, however, social distancing measures were to remain in place for longer before being relaxed, that would have a number of potential consequences for the macroeconomic outlook, with a knock on effect to banks' capital positions.

A sensitivity set out in the *MPR*, suggests that if an additional two weeks of current social distancing and policy support measures were announced (both in the UK and globally), activity in that quarter would fall by around 1¼% of annual GDP.⁽⁴⁾ That would lead to a relatively rapid rise in unemployment.

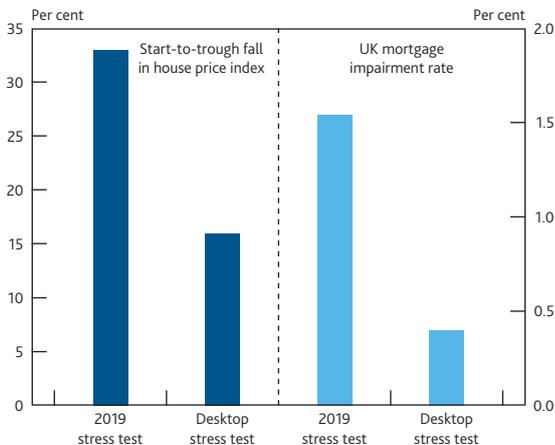
Such a revision to the macroeconomic outlook would impact banks' capital positions, primarily by increasing impairments. It is estimated that impairment charges could rise by just under 4% overall, with corporate impairments rising by 5%, and impairments on household lending rising by 2% relative to the results of the desktop stress test. With risk weights on banks' assets rising by 0.5%, the combined impact would result in an additional 20 basis point drawdown of banks' CET1 capital ratios.

(3) For more information on the Term Funding Scheme, see the Bank's March 2020 [Market Notice](#)

(4) Given the sharp changes in GDP in the scenario, we have used 2019 GDP to scale the impact of the sensitivities on activity.

Chart B.13 The house price path judged to be consistent with the May 2020 MPR scenario is significantly less severe than that in the 2019 stress test

Start-to-trough fall in UK residential property price index and aggregate cumulative UK mortgage impairment rate^(a)



Sources: ONS, Participating banks' STDF data returns and Bank analysis and calculations.

(a) Cumulative impairment charge rates = (total impairment charge for the length of the scenario) / (average gross on balance sheet exposure), where the denominator is a simple average of year-end positions.

There is considerable uncertainty about the effects on the UK banking system of more prolonged restrictions on activity, or a slower recovery in demand more generally. Given the large share of mortgage loans in banks' assets, uncertainty around the outlook for residential property prices is particularly important: as discussed above, house prices are a key determinant of banks' losses on mortgage portfolios.

Larger falls in house prices have a disproportionate effect on banks' mortgage losses because, as property values reach close to, or fall below mortgage loan size, banks incur losses if a borrower defaults. In the 2019 stress test for example, house prices were assumed to fall by 33% — around twice as much as assumed in the desktop stress test. That tipped almost a third of mortgage balances into negative equity, as opposed to just over 6% in the desktop stress test. That contributed to a projected mortgage impairment rate four times greater in the 2019 stress test than in this desktop stress test (Chart B.13).

It is in the collective interest of banks to continue to supply credit to the wider economy.

Banks have already increased their net lending to UK businesses in 2020. In the first quarter, as businesses drew down committed credit lines, the major UK banks expanded their net lending by around £20 billion. In 2019, these banks reduced net lending by around £3 billion.⁽⁵⁾ Continued expansion of bank credit is essential if deeper and longer lasting damage to the economy is to be mitigated. Banks are therefore assumed in the desktop stress test of their resilience to play a key role in helping businesses weather the disruption associated with the outbreak of Covid-19.

As banks' capital is eroded by losses, they might seek to protect their own financial position, despite substantial remaining buffers of capital, by cutting back lending to viable businesses in need of temporary support. This would mean less expansion of their risk-weighted assets, and potentially lower impairment charges on new lending made during this period of disruption. Those direct effects might appear, therefore, to strengthen their capital position. The direct gain from this would be small, however, and the costs to the wider economy — and hence the banking system — much larger.

In the desktop stress test, most of the new lending to UK businesses assumed to be undertaken over the remainder of 2020 is also assumed to be through the CBILS and CLBILS government guarantee schemes.⁽⁶⁾ These schemes guarantee 80% of credit losses on new loans. Only 20% of banks' lending through these schemes therefore results in additional credit risk for banks. Reducing lending that would otherwise happen through these schemes has minimal effect on banks' RWAs as a result. Similarly, banks' credit losses would be expected to be lower, for example, because some of the companies they might have lent to would have subsequently failed. But the impact of government

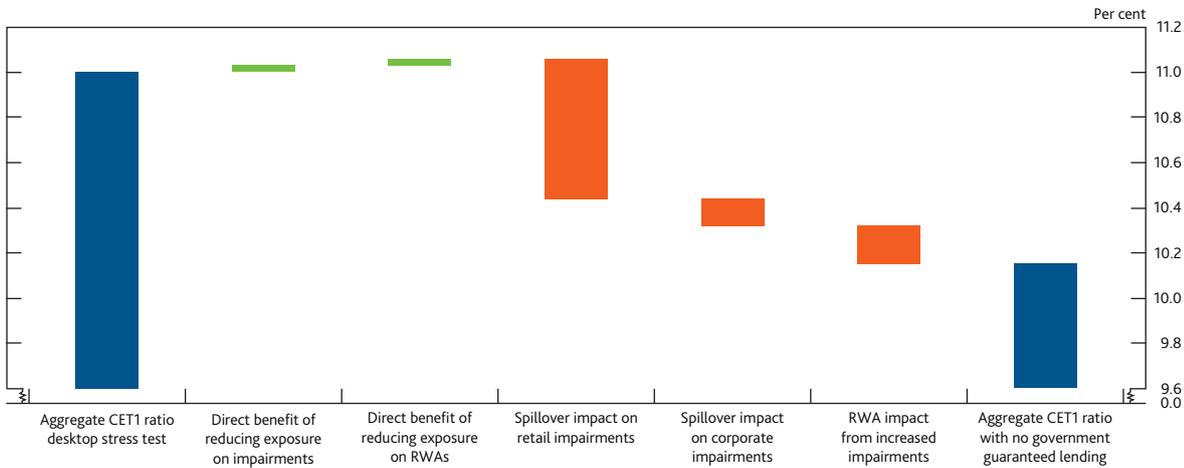
(5) Total net lending to businesses by UK-resident banks in 2019 was just under £15 billion.

(6) As described above, Bank staff corporate net lending estimates and associated estimates of potential corporate cash-flow deficits do not include small firms. As a result, the desktop stress test net lending assumption do not include lending via the government's Bounce Back Loan Scheme, which is aimed at smaller firms. Loans made under this scheme are 100% guaranteed and therefore do not add to banks' RWAs.

guarantees means that benefit would be very small. Indeed Bank staff estimate that if banks did not undertake this lending in 2020, the direct boost to their aggregate CET1 capital ratio would be less than 0.1 percentage point (see 'direct benefit' bars, **Chart B.14**).

Chart B.14 Cutting back government guaranteed lending would have negative consequences for bank capital

Illustrative CET1 ratio impact of cutting lending by banks assumed via government guaranteed schemes^(a)



Sources: Bank of England, Eikon from Refinitiv, Fame (Bureau van Dijk), LCD, an offering of S&P Global Market Intelligence, ONS, Participating banks' STDF data submissions and S&P Capital IQ.

(a) Reduced lending would also result in lower net interest income (NII). This effect is not expected to be significant, so it has not been included in the chart above.

Against the perceived benefits to any individual institution from cutting credit, there is likely to be a cost to the overall economy. This indirect effect is likely to be large. As demonstrated in the GFC, a shortfall in credit supply can have a material effect on the path of economic activity. Averaging across five academic studies, *Aikman et al (2018)* estimate that the credit crunch in that period can explain around 35% of the shortfall in US GDP at the end of 2010 relative to its long-run trend, equivalent to around 3% of GDP.

Restricting lending to viable and productive businesses in this way would mean that UK businesses would face greater difficulty meeting their cash-flow deficits (see UK corporate sector financing and Covid-19 chapter). Assuming that firms are unable to raise finance outside the UK banking system, that would be expected to result in financial difficulties for more companies than assumed in the desktop stress test.

Based on Bank staff analysis of corporate finances, this cash-flow deficit is estimated to generate an additional £2 billion of losses for the UK banking system on its existing loans to the corporate sector.⁽⁷⁾ This would reduce the aggregate CET1 capital ratio by around 0.1 percentage point (see 'Spillover impact on corporate impairments' bar, **Chart B.14**).

A higher rate of corporate failure would also result in lower employment. The additional corporate failures implied in this experiment could result in a 2 percentage point increase in the unemployment rate. And based on past relationships, this could prompt a further 7% fall in the predicted level of house prices. Together, these developments could raise banks' impairments on unsecured and secured household lending by £10 billion, drawing down capital ratios by a further 0.6 percentage points (see 'Spillover impact on retail impairments' bar, **Chart B.14**).

The net impact of reducing the supply of credit on banks' aggregate capital ratio could be a fall of around 0.8 percentage points (**Chart B.14**). Overall therefore, a significant shortfall in bank lending to the level assumed could have a material **negative** effect on banks' capital positions, as well an adverse impact on the ability of the economy to recover following the shock.

(7) Assuming UK banks do not lend to companies under the government guarantee schemes, an additional 5% of companies (by number of employees) could enter distress over the next two years. This estimate is based on the corporate cash-flow deficit exercise described above. It assumes that firms enter financial difficulty if they have not already raised sufficient cash in public equity or bond markets or their cash-flow deficit exceeds the amount they can save through simple cost reduction measures. It may overestimate corporate defaults if companies are able to raise finance outside of the banking sector. The impact on unemployment would depend on the speed with which these employees were reabsorbed into the labour force. If, for example, 20% of these employees were rehired each quarter — the rate observed following the GFC — unemployment could be around 2% higher.

Box 2

Comparing the impact of the desktop stress test with the Bank's 2019 stress test

This box explains the key differences between the desktop stress test and the 2019 stress test of major UK banks.

Overall, banks started the desktop stress test with a higher aggregate CET1 capital ratio (14.8% at end-2019) than the starting point of the 2019 stress test (14.5% at end-2018). Moreover, the potential capital drawdown in the desktop stress test is assessed to be somewhat lower than the 2019 stress test. The desktop stress test showed that banks' aggregate CET1 capital ratio could fall by 3.8 percentage points by the end of the second year of the test. By comparison, in the 2019 stress test, the aggregate CET1 capital ratio fell by 5.2 percentage points by the end of the second year. This difference is mostly driven by less severe losses on credit, less severe misconduct costs, and the stronger performance of banks' trading operations. These factors were partially offset by a lower cushion from banks' non-trading income, and in particular NII (Table 1).

Table 1 Credit impairments on lending are major drivers of losses in the desktop stress test

Key drivers of the decrease in CET1 capital ratio in the desktop stress test and the 2019 stress test^{(a)(b)(c)(d)}

	Desktop stress test	2019 stress test
Start CET1 capital ratio	14.8%	14.5%
Impairments	-4.9	-6.1
of which UK	-2.5	-3.4
of which corporate	-1.2	-1.3
of which consumer credit	-1.1	-1.2
of which mortgages	-0.3	-1.0
of which non-UK	-2.3	-2.7
IFRS 9 transitional relief ^(e)	0.5	0.9
RWA	-3.7	-3.2
Trading operations ^(f)	1.7	0.6
Dividends ^(g)	0.4	0.0
Other ^(g)	2.1	2.7 ^(*)
End CET1 capital ratio ^(h)	11.0%	9.3%

Sources: Participating banks' STDF returns, Bank analysis and calculations.

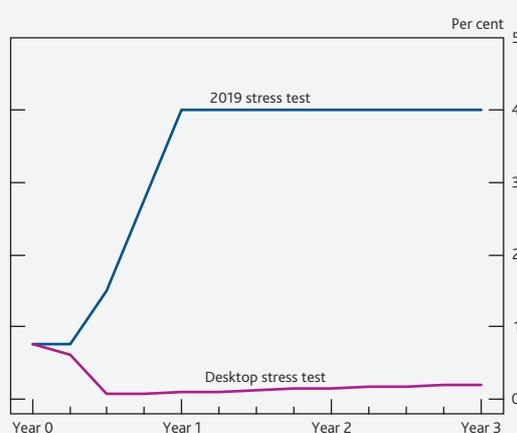
- (a) The figures in this table set out the drivers of capital drawdown from the start of the respective projection. Previous publications have set out these figures on the basis of a stress to baseline scenario comparison.
- (b) The Start point for the desktop stress test is end-2019. The 2019 stress test start point is end-2018. The CET1 capital low point for both scenarios is in year 2 of the projection.
- (c) The CET1 capital ratio is defined as CET1 capital expressed as a percentage of risk-weighted assets (RWAs), where both terms are defined in line with CRR and the UK implementation of CRD IV via the PRA Rulebook.
- (d) To produce the aggregate results of the desktop stress test in a single currency, the Bank has converted the results of US dollar reporters HSBC and SCB into sterling assuming exchange rates remain fixed at their end-2019 level over 2020 and 2021. For comparison purposes, the 2019 stress test results in this table have also been presented on a constant exchange rate basis, except for the 'End CET1 ratio'. This row alone has been calculated on a dynamic exchange rate basis ie based on the exchange rate paths specified in the ACS 2019 scenario.
- (e) The desktop stress test incorporates the effect of a European Commission proposal to allow banks to 'add-back' 100% of new IFRS 9 provisions until end-2021.
- (f) Trading operations comprise: market risk losses, counterparty credit risk losses, losses arising from changes in banks' fair value adjustments, prudential valuation adjustments (PVA) and losses on fair value positions not held for trading. Investment banking income comprises of the revenues and excludes costs.
- (g) 'Other' comprises other profit and loss and other capital movements, other profit and loss includes misconduct, Net interest income, expenses, fees and commission, other wholesale impairments, share of profit/loss in investments in associates, and other income. Other capital movements include pension assets devaluation, prudential filters, accumulated other comprehensive income, IRB shortfall of credit risk adjustment to expected losses, and actuarial gain/loss from defined benefit pension schemes.
- (h) The CET1 capital ratio at the end point is shown before the conversion of additional Tier 1 instrument.
- (*) The duplicate footnote (g) next to 'Dividends' which appears in the original publication has been removed. Additionally the CET1 capital ratio impact of 'Other' in the '2019 stress test' column has been corrected from 2.6 in the original publication to 2.7.

The MPR scenario incorporates a sharper macroeconomic shock than the 2019 stress-test scenario, but the overall severity of the macroeconomic scenario is broadly similar.

The MPR scenario, on which the desktop stress test is conditioned, incorporates a much sharper initial fall in output than in the 2019 stress-test scenario. UK GDP contracts by close to 30% in 2020 Q2 relative to the end of 2019, in the MPR scenario. Over the first two quarters of the 2019 stress test, GDP contracted by around 2%. The recovery

Chart A Bank Rate is assumed to remain broadly flat in the desktop stress test

Bank Rate in the MPR and 2019 stress-test scenarios



Sources: Key elements of the 2019 annual cyclical scenario publication and Bank calculations.

incorporated in the *MPR* scenario is more rapid, however, as social distancing measures are relaxed. As a result, the cumulative loss of output over three years relative to trend is very similar in both scenarios (**Chart B.3**).

Despite the sharper initial fall in output in the *MPR* scenario, the rise in unemployment is very similar to the 2019 stress-test scenario. This primarily reflects the effect of the CJRS. In both scenarios, the UK unemployment rate peaks at around 9.5% (**Chart B.4**).

Interventions by UK authorities significantly mitigate the impact of the shock; the 2019 stress test factored in no such response.

In the 2019 stress-test scenario Bank Rate increased to 4%. Long-term interest rates also rose, in part reflecting increasing term premia. The tightening in monetary policy in that scenario reflected higher inflation expectations, driven by a sharp depreciation in sterling. Ten-year gilt yields increased by 5.5 percentage points, peaking at 6.9%.

However, since the outbreak of the pandemic, many central banks around the world have lowered short-term interest rates in response. Long-term rates have also decreased; for example, since 2019 Q4 10-year gilt yields have fallen to around 0.2% and the yield curve is relatively flat beyond that point.

Relative to the 2019 stress test, this lower path for interest rates helps households and businesses to continue to service debts. Debt servicing is further assisted in the desktop stress test by both mortgage and consumer credit payment holidays for households and an expansion of bank credit, largely through government guarantee schemes. These factors did not feature in the 2019 stress test.

The differing path for interest rates are reflected in differing paths for a range of asset prices. These paths have been developed by Bank staff, drawing on models used to produce scenarios for previous stress tests, and are calibrated to be broadly consistent with the *MPR* scenario (**Chart B**). Specifically:

- staff modelling suggests a fall in residential property prices of around 16%, compared to 33% in the 2019 stress-test scenario;
- staff modelling of UK CRE prices is consistent with a fall of around 23% in the desktop stress test, in comparison to a fall of nearly 41% in the 2019 stress test; and
- in the scenario, UK equity prices fall by 21% reflecting moves since the start of the year, and remain flat, compared to a 41% fall in the 2019 stress-test scenario.

Chart B The shocks to some variables incorporated in the desktop stress test are less severe than the 2019 stress test

Start-to-trough changes, or stressed levels, of key macroeconomic variables incorporated in the desktop stress test and 2019 stress-test scenarios^{(a)(b)}



Sources: Eikon from Refinitiv, Halifax/Markit, IMF *World Economic Outlook*, MSCI Global Intel, Nationwide, ONS and Bank calculations.

(a) Residential property prices, Equity prices and CRE prices are start-to-trough changes under the Desktop stress test and 2019 stress-test scenarios.

(b) Unemployment, Bank rate and 10-year gilt yields are the stressed level in the *MPR* and 2019 stress-test scenarios.

These differences drive lower impairments in the desktop stress test, relative to the 2019 stress test.

Banks incur approximately £4 billion of impairments on UK mortgages in the desktop stress test — a quarter of the £16 billion in the 2019 stress test (Chart C). This reflects:

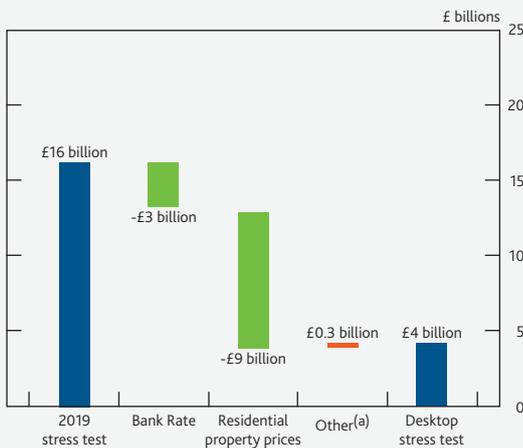
- The lower path for Bank Rate helps ensure households' debt-servicing burdens remain lower than in the 2019 stress test (Box 4), together with mortgage payment holidays, which are estimated to reduce UK mortgage impairments by £3 billion.
- The smaller fall in residential property prices, which reduces banks' losses in the cases where mortgage borrowers do default, lowering mortgage losses relative to the 2019 stress test by £9 billion.

Impairments on UK corporate lending are £3 billion lower than in the 2019 stress test. This is due to two key factors:

- As described above, government direct lending and loan support schemes help businesses meet their cash-flow deficit.

Chart C Impairments on UK mortgages are projected to be lower than in the 2019 stress test

Factors influencing the projection of impairments on UK mortgages

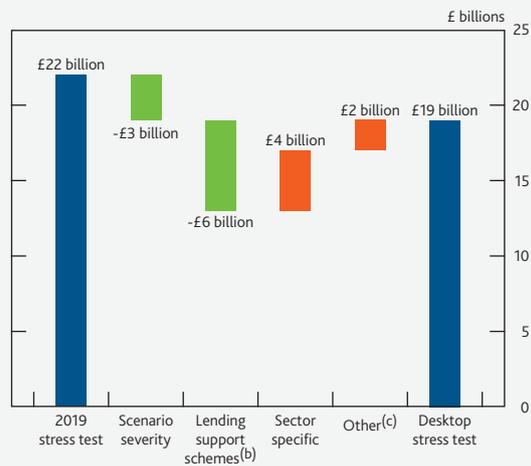


Sources: Participating banks' STDF data submissions, Bank analysis and calculations.

(a) Other includes the impact of other macroeconomic factors and impairments on additional net lending banks carry out in the desktop stress test.

Chart D Impairments on UK corporate lending are projected to be lower than in the 2019 stress test

Factors influencing the projection of impairments on UK corporate lending^(a)



Sources: Participating banks' STDF data submissions, Bank analysis and calculations.

(a) Does not include other wholesale impairments.

(b) Lending support schemes include the Coronavirus Business Interruption Loan Scheme, the Coronavirus Large Business Interruption Loan Scheme and the Covid Corporate Financing Facility.

(c) Other includes the impact of other macroeconomic factors and impairments on additional net lending banks carry out in the desktop stress test.

- Consistent with the MPR scenario, the lower path for Bank Rate, and the TFSME help put downward pressure on the interest rates businesses face on their existing loans, relative to the 2019 stress test. In that test, rises in Bank Rate and bank funding costs put upward pressure on the interest rates businesses faced.

These factors are partially offset by an increased level of impairments on lending to firms that are particularly severely impacted by the nature of the shock such as construction, accommodation and hospitality, and travel (Chart D).

Banks' impairments on their exposures to UK consumer credit are broadly similar to those in the 2019 stress test at £18 billion. Unemployment — the primary driver of consumer credit impairments — rises to a similar level in both scenarios (Chart B.9).

Overall, impairments on UK credit exposures are £18 billion lower in the desktop stress test than in the 2019 stress test.⁽¹⁾ This means UK credit impairments reduce banks' aggregate CET1 capital ratio by 2.5 percentage points in the desktop stress test rather than 3.4 percentage points in the 2019 stress test.

(1) The difference in impairments on UK credit exposures between the desktop stress test and 2019 stress test has been corrected from £17 billion lower in the original publication to £18 billion lower.

Impairments on **non-UK lending** are also to be similarly reduced relative to the 2019 stress test. They are £38 billion in the desktop stress test, compared to £46 billion in the 2019 stress test. As with UK impairments, this difference reflects the role played by policy actions.

Overall, bank credit losses were over £100 billion in the 2019 stress test and around £80 billion in the desktop stress test.⁽²⁾ Credit losses draw down banks' capital ratios by just under 5 percentage points in the desktop stress test, rather than the 6.1 percentage points in the 2019 stress test.

The effect of lower credit losses is partially offset by lower capital add-backs associated with IFRS 9 transitional arrangements and by greater increases in RWAs.

The impact of the internationally agreed IFRS 9 transitional arrangements on banks' aggregate CET1 capital ratio at the low point is also somewhat lower than in the 2019 stress test, increasing the aggregate CET1 capital ratio by 0.5 percentage points, compared to 0.9 percentage points in the 2019 stress test.

The difference would have been even more pronounced had the proportion of transitional relief not been assumed to be 100% in the desktop stress test. In the 2019 stress test, at the two-year low point, the average proportion IFRS 9 transitional relief applied was 70%.

Although banks' credit losses are lower than in the 2019 stress test, RWAs increase by approximately 33%, compared to 28% in the 2019 stress test. Such a rise would reduce banks' aggregate CET1 capital ratio by 3.7 percentage points by the end of 2021. In the 2019 stress test, higher RWAs accounted for a 3.2 percentage point reduction in the aggregate CET1 ratio.

That difference is driven by the increase of around £130 billion in net lending to both corporates and households in the desktop stress test, in contrast to the contraction in lending during the first two years of the 2019 stress-test scenario. This is only partially offset by the fact that the corporate lending under guarantee schemes in the desktop stress test attracts materially lower risk weights.

The strong demand for corporate credit in the desktop stress test is due to a sharp increase in the number of firms needing to finance cash-flow deficits during a temporary drop in output. Conversely, in the 2019 stress test, the downturn was more prolonged and associated with a steep rise in borrowing costs, which reduced the demand for credit.

The demand for mortgage lending is to be much stronger in the desktop stress test, than in the 2019 stress test scenario, reflecting the greater pace of recovery in economic activity as well as the lower level of interest rates.

Banks' losses due to non-credit factors are lower than in the 2019 stress test.

Banks generate traded risk losses of £7 billion in the desktop stress test, compared to £25 billion in the 2019 stress test. A significant proportion of the 2019 stress-test losses were related to the tightening of monetary policy and sharp rise in term premia in the 2019 stress-test scenario, leading banks to make losses on their government bond holdings. Given the low level of interest rates in the *MPR* scenario, these losses do not materialise.

In addition, banks also reported significantly increased investment banking revenue during 2020 Q1, which was a result of higher trading volumes due to increased volatility at the start of the year. This is factored into the desktop exercise, though revenues fall back after 2020 Q1. In the 2019 stress test, the ability of banks to assume they benefited from similar increases in market volatility was constrained under the rules of the 2019 stress test.

These differences mean that banks' trading income net of losses is much greater in the desktop stress test than in the 2019 stress test. Trading operations are therefore assessed to add 1.7 percentage points to the aggregate CET1 capital ratio at the low point; compared to 0.6 percentage points in the 2019 stress test.

(2) To produce the aggregate results of the desktop stress test in a single currency, the Bank has converted the results of US dollar reporters HSBC and SCB into sterling assuming exchange rates remain fixed at their end-2019 level over 2020 and 2021. For comparison purposes, the 2019 stress-test results in this table have also been presented on a constant exchange rate basis, except for the 'End CET1 ratio'. This row alone has been calculated on a dynamic exchange rate basis ie based on the exchange rate paths specified in the 2019 stress-test scenario.

Redress costs and fines for past misconduct have been a material drag on bank profits since 2011, and there is a high degree of uncertainty about their future path. In line with the purpose of the Bank's annual stress test to capitalise banks against tail risks, it includes a stressed projection for costs associated with past misconduct. In contrast, the desktop stress test assumes a lower path for past misconduct redress costs and fines. Lower misconduct costs in the desktop exercise also reflect the anticipated reduction in costs associated with past Payment Protection Insurance (PPI) mis-selling following last year's FCA time bar for claims.

Banks also cut distributions such as dividends, variable remuneration, and AT1 coupons, in the desktop stress test. Banks wrote back £7.2 billion of capital in 2020 Q1 due to cancelling their outstanding 2019 dividends, which added 0.4 percentage points to the aggregate CET1 capital ratio at the low point in the desktop stress test. No capital write backs based on cutting dividends took place in the 2019 stress test, hence no capital was added to the aggregate position, despite the significant cuts to dividends banks make in that test.

Partly offsetting these factors, the boost to banks' capital from net interest and other non-investment banking income, net of costs, is less pronounced than in the 2019 stress test.

Banks' net interest income is £21 billion lower over 2020 and 2021 than in the first two years of the 2019 stress test. This largely reflects the very different path for Bank Rate and HIBOR, as well as the outlook for long-term sterling interest rates between the two scenarios (Chart B.12). Rising interest rates, as in the 2019 stress test, allow banks to expand net interest margins. As interest rates rise, banks increase the interest they receive on assets such as loans, but because a portion of their liabilities, such as some current accounts, pay no interest, banks' interest costs do not expand as rapidly. Bank Rate and long-term interest rates remain at their current low levels in the desktop stress test, so instead of expanding there is downward pressure on net interest margins. Non-interest income net of expenses (excluding investment banking) is estimated to be more similar across the two tests.

The resilience of other UK lenders and insurers

The desktop stress test was designed to test the resilience of the major UK banks, which account for the vast majority of lending to the UK real economy. These banks have a diverse range of business models and some operate in a broad range of international markets.

The large number of non-systemic UK deposit-takers supervised by the PRA have a wide range of business models at different stages of development and will therefore be impacted by Covid-19 in different ways. They are held to robust capital standards and typically capitalised to maintain adequate capital resources through idiosyncratic scenarios of equivalent severity to the 2019 stress test — although they are not required to hold capital to ensure they can maintain credit supply through stress scenarios. Non-systemic firms hold an aggregate CET1 ratio of around 17% and an aggregate liquidity coverage ratio of over 200%. The Bank has mechanisms for ensuring that stresses in this sector would not be systemic.

The FPC, alongside the PRC, is also monitoring closely the resilience of insurers to the pandemic.

Under the Solvency II capital regime, insurance capital requirements are calculated with reference to a stressed balance sheet. In assessing the stressed position, insurers are required to consider adverse scenarios that reflect all potential balance sheet risks, such as market, credit or underwriting risks. The latest available solvency coverage ratios from the largest PRA-regulated general and life insurers indicate that the industry held approximately 50% more capital than it needed to meet the Solvency II capital requirements, a decline in the ratio of around 10 percentage points since the end of 2019 (Table B.A).

Life insurance firms' solvency ratios have been resilient to market conditions over 2020 Q1. This has been helped by: the transitional measure on technical provisions, which offsets to some extent the impact of falls in nominal interest rates; and the matching adjustment, which significantly cushions the impact of spread widening. However, life insurance firms remain exposed to possible losses on their assets from rating downgrades and defaults as a result of the economic effects of Covid-19. This could directly reduce their own funds and increase the Solvency Capital Requirement, thus reducing solvency coverage ratios.

Table B.A Insurers have a significant surplus of capital above their requirements

Solvency coverage ratios from the largest PRA-regulated general and life insurers^(a)

	Solvency ratios 31 December 2019	Solvency ratios March/April 2020
General insurers	160%	152%
Life insurers	160%	151%

Sources: Firms submissions and Bank calculations.

(a) For life insurers, ratios are reported at the solo legal entity level, post transitional measure on technical provisions.

For non-life insurance firms, solvency coverage ratios have also been resilient to the market conditions over 2020 Q1. The investment profile of most non-life insurers is likely to mean asset stresses arising from a downturn would be more limited. However, non-life insurers are already beginning to see the impact of claims coming through as a result of Covid-19. It is possible that these claims may accelerate further. While most policies deliberately do not cover pandemics, the scope of coverage is uncertain in some cases. Given the wide range of policy terms and conditions, it is in the interest of policyholders that this uncertainty be resolved in a timely way. The PRA welcomes the steps recently announced by the FCA which aim to achieve this.

Furthermore, some non-life insurers will also be exposed to unrelated natural catastrophe events that might occur later in the year or have material reinsurance exposures; the PRA expects insurers to allow for these sensitivities when considering their forward-looking capital position.

Given the unprecedented nature of the current crisis, firms are expected to increase their monitoring of the additional risks presented by Covid-19, and where necessary to update their risk and capital assessments accordingly. For life insurers this additional focus should include the potential for downgrades and defaults in their investments; and for general insurers it should include developments in respect of product coverage in business interruption, professional lines, event cancellation, trade credit and travel.

UK corporate sector financing and Covid-19

The spread of Covid-19 and the measures taken to contain it have led to a sharp fall in economic activity. Lower demand for goods and services and disruptions to production and supply chains have caused many companies' revenues to decline. As a result, corporate cash flows are coming under pressure.

Fiscal policy measures put in place by the Government — such as the Coronavirus Job Retention Scheme, cash grants and rates relief for certain businesses — will provide material support to the corporate sector through this period. After taking into consideration the impact of these measures, the Committee estimates that many UK companies could face a cash-flow deficit under the *May 2020 Monetary Policy Report* illustrative scenario (the *MPR* scenario), summing to around £140 billion in total for the 2020–21 financial year.

Some businesses will need to access additional sources of finance in order to maintain their productive capacity through the shock. The UK banking system, supported by policy measures such as government guarantee schemes now in place for new lending, the release of the UK countercyclical capital buffer, and the Bank of England's Term Funding scheme, has an important role in providing credit to businesses to help them weather the economic disruption. This will minimise longer-term economic damage to output and employment.

Given the unprecedented nature of the shock and the scale of the policy response, estimating the impact of the Covid-19 shock on the corporate sector carries a high degree of uncertainty. A 'Technical annex' published alongside this *Report* provides a detailed account of the data and assumptions underlying the analysis set out in this chapter.

The Covid-19 shock and the UK corporate sector

The UK corporate sector is facing an unprecedented shock.

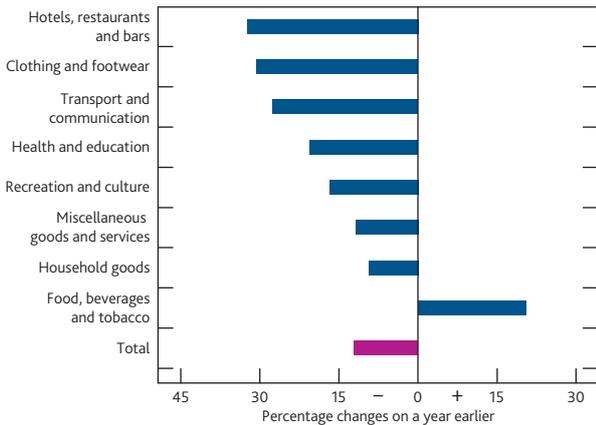
The spread of Covid-19 and the measures taken to contain it have had a significant impact on many UK private non-financial corporations (referred to as companies or businesses in this chapter). Activity has fallen sharply and a number of sectors have seen material reductions in their revenues reflecting declines in spending (**Chart C.1**). As set out in the *May 2020 Monetary Policy Report*, the fall in activity should be temporary, and activity should pick up relatively rapidly as social distancing measures are relaxed. But the short-term reduction in cash flow will make it more difficult for companies to maintain their capital, such as upkeep of properties or equipment, and pay their workers, creditors and suppliers. As a result, many businesses are likely to demand additional financing through the period of economic disruption. The *2020 Q1 Credit Conditions Survey* was carried out in March before the most stringent social distancing measures came into force but UK banks were already expecting a spike in demand for credit from companies of all sizes in Q2 (**Chart C.2**).

In aggregate, the UK corporate sector was in a strong financial position before the Covid-19 shock...

The UK corporate sector as a whole had relatively strong profitability and liquidity positions before the Covid-19 shock. The aggregate profit margin of UK companies was large enough to absorb a 16% fall in turnover while still paying labour costs in full. On top of this, businesses had £750 billion of cash and equivalents on their balance sheets and £260 billion of undrawn credit facilities from banks which, taken together, could absorb a further 42% fall in turnover.

Chart C.1 Spending declined markedly across all sectors apart from food and drink in March

Consumer spending in March 2020, by sector^(a)

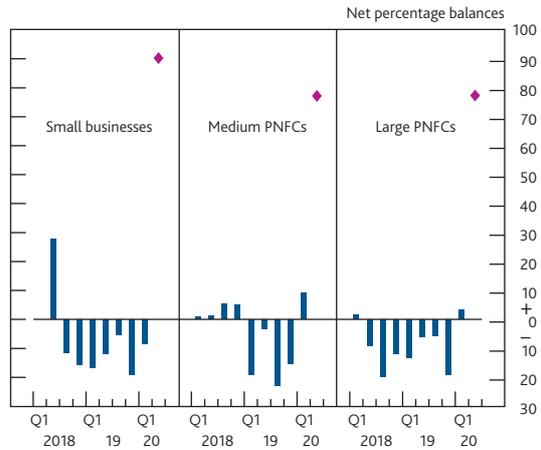


Sources: Visa.

(a) Volume measures. Data are not adjusted for seasonality or trading days.

Chart C.2 Corporate demand for credit was expected to increase at the outset of the shock

Private non-financial corporation (PNFC) demand for lending by firm size^{(a)(b)}



Sources: Bank of England Credit Conditions Survey.

(a) Responses to the Bank's Credit Conditions Survey reporting an increase/reduction in corporate demand for lending over the previous quarter and expected corporate demand for lending over the next quarter. Weighted by market shares. Net percentage balances are calculated by weighting together the responses of those lenders who answered the question. A positive net balance indicates an increase in demand. The blue bars show the responses over the previous three months. The magenta diamonds show the expectations over the next three months. Expectations balances have been moved forward one quarter.
 (b) The 2020 Q1 survey was conducted between 2 March and 20 March 2020.

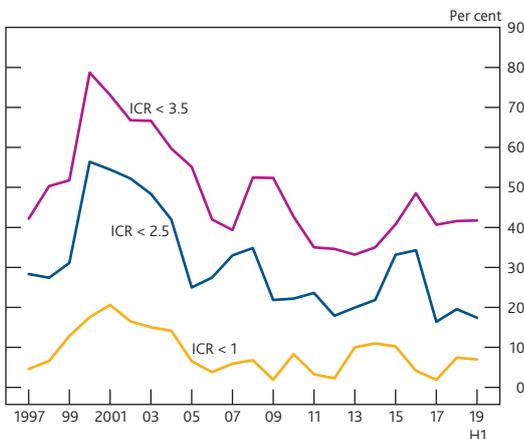
Separately, UK corporate debt servicing had been improving in recent years, supported by low interest rates. The share of debt owed by companies with interest coverage ratios (ICRs) less than 2.5 — a level below which companies are more likely to experience repayment difficulties — was low by historical standards (Chart C.3).

...but within that overall picture, some companies were operating with small liquidity buffers...

The aggregate positions described above concealed vulnerabilities in particular companies. Many businesses had little existing liquidity buffers in the form of cash or undrawn credit that they could rely on through a period of disruption. Only around one third of companies held liquidity buffers that were larger than three months' worth of turnover before the Covid-19 shock (Chart C.4). Research suggests that corporate cash holdings are important drivers of corporate investment during periods of stress and subsequent recovery. Companies with smaller cash holdings had to reduce investments during the global financial crisis and lost market share when demand returned (Joseph et al (2020)).

Chart C.3 The share of debt held by large companies with low interest coverage ratios (ICR) has been low by historical standards

The share of total debt owed by listed corporates at different ICR thresholds^{(a)(b)}

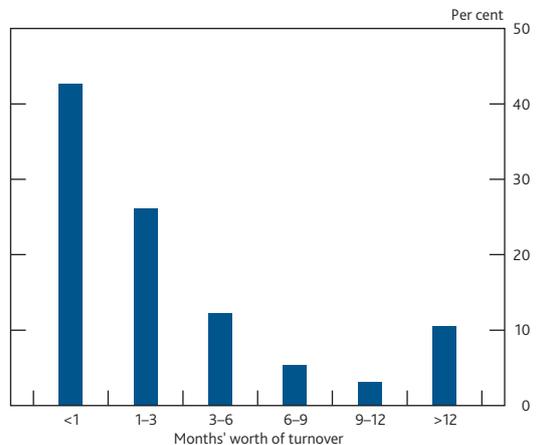


Sources: S&P Capital IQ and Bank calculations.

(a) Interest coverage ratio is calculated as the three-year moving average of earnings before interest and tax as a share of interest expenses and interest capitalised.
 (b) The sample includes non-financial corporates, outside of those engaged in real estate, oil, gas and mining, and for each year, includes only those companies that were listed at that point in time.

Chart C.4 Only around one third of companies held liquidity buffers larger than three months' worth of turnover before the Covid-19 shock

The share of UK companies at different levels of liquidity sources^{(a)(b)}



Sources: Bank of England, Fame (Bureau van Dijk), S&P Capital IQ and Bank calculations.

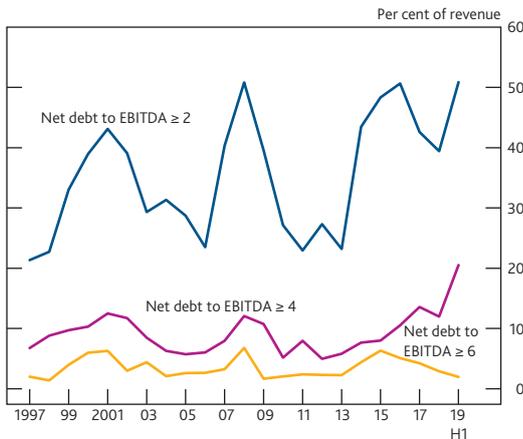
(a) Based on latest available financial accounts covering 2017–19 for a sample of 85,000 companies. Nearly all turnover in the data set is generated by companies that have an annual turnover in excess of £10 million. Shares are estimated based on around 54,000 companies that report cash holdings or short-term debt values.
 (b) Liquidity sources include cash and equivalents, and undrawn committed credit facilities.

...and the share of highly leveraged companies had been increasing.

Although debt-servicing burdens remained low, total debt owed by UK corporates had grown steadily in recent years. The ratio of UK corporate debt to GDP was 59% in 2019, up 7 percentage points from the post-crisis low in 2015 but below its historic peak of 69% in 2009. The share of total turnover generated by highly leveraged companies had been increasing rapidly, in part reflecting the rapid growth of leveraged lending. Highly leveraged listed companies, with a ratio of net debt to earnings before interest, tax, depreciation and amortization (EBITDA) greater than or equal to four, accounted for 21% of turnover in 2019 H1, compared to 12% in 2018 (Chart C.5). More highly leveraged companies may find it more difficult to access new credit and refinance existing debt, particularly in a stress when credit conditions tighten.

Chart C.5 Turnover generated by large companies with net debt to EBITDA at or above 4 has increased

Share of total turnover generated by listed companies at different net debt to EBITDA thresholds^{(a)(b)}



Sources: S&P Capital IQ and Bank calculations.

- (a) Net debt to EBITDA is calculated as the three-year moving average of earnings before interest, tax, depreciation and amortisation as a share of total debt net of cash and cash equivalents. Net debt excludes operating leases. An accounting change under IFRS 16 brought operating leases on balance sheet thereby increasing companies' net debt in 2019. Operating leases are excluded to preserve the like-for-like comparison over time.
- (b) The sample includes non-financial corporates, outside of those engaged in real estate, oil, gas and mining, and for each year, includes only those companies that were listed at that point in time.

UK corporate sector cash flows under the Monetary Policy Committee's illustrative scenario

Companies' reactions to the sudden reduction in turnover are a key factor in assessing how the Covid-19 shock could affect the economy and financial stability of the UK. They could take action in the face of cash-flow pressures that may amplify the impact of the stress, such as making staff redundant or discarding productive capital. At the limit, these pressures could translate into widespread corporate insolvencies, generating losses for the UK banking system (see UK Banking sector resilience and Covid-19 chapter).

The FPC has considered estimates of how UK corporate cash flows could evolve under the illustrative scenario set out in the Monetary Policy Report.

Bank staff have estimated how the UK corporate sector 'cash-flow deficit' could evolve assuming turnover shocks designed to be broadly consistent with the illustrative scenario set out in the *May 2020 Monetary Policy Report* (the 'MPR scenario'). This 'cash-flow deficit' is a mechanical estimate of how much financing companies could require to maintain their productive capacity at pre-Covid-19 levels between 2020 Q2 and 2021 Q1 under the MPR scenario. Although some productive capacity is likely to be lost, this mechanical exercise is designed to provide an indication of the amount of financing the corporate sector could need to weather the economic disruption while minimising longer-term economic damage to output and employment.

Bank staff have modelled the estimated cash-flow deficit using a large data set of individual companies.

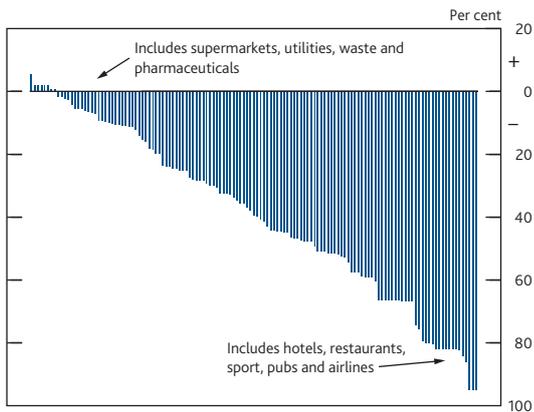
Bank staff have projected the cash flow of individual UK companies using accounting information collected from Companies House and listed company filings for the latest available financial year, which in most cases is 2018–19. The data set consists of a sample of around 85,000 companies turning over more than £4 trillion in annual sales.

Nearly all turnover in the data set is generated by companies that have an annual turnover in excess of £10 million. The cash-flow deficit estimates do not, therefore, include smaller SMEs and sole-traders. Box 3 discusses the impact of the Covid-19 shock on these smaller businesses.

In the *MPR* scenario, UK GDP falls sharply in H1 and recovers relatively rapidly in Q3 when social distancing measures are assumed to be lifted gradually, before rising further in Q4. GDP remains below pre-shock levels throughout the first year of the scenario. For the purpose of the analysis set out in this chapter, Bank staff have mapped out how output could vary across sectors of the economy and applied turnover shocks at the sector and, in some cases, the subsector level. Companies in sectors judged most likely to be affected by the Covid-19 related disruption face the largest reductions (**Chart C.6**).⁽¹⁾

Chart C.6 The shock to turnover varies by sector

Average turnover shock applied by sector and subsector in 2020 Q2^{(a)(b)}



Sources: Bank of England, Fame (Bureau van Dijk), ONS, S&P Capital IQ and Bank calculations.

- (a) See the 'Technical annex' for more detail on the methodology.
 (b) Change in turnover compared to turnover before the Covid-19 shock. Bank staff map how output might vary across sectors of the economy in the *MPR* scenario and apply turnover shocks at the sector and, in some cases, the subsector level.

The estimates of how those turnover shocks affect individual companies' cash flows embody a number of assumptions, summarised in **Table C.A**. Individual companies are assumed to maintain productive capacity by retaining staff and maintaining their capital stock, including properties and equipment, at pre-Covid-19 levels. They are also assumed to continue to pay rental costs, taxes and meet interest payments. Other non-labour costs — the cost of goods and services used as inputs in production — are assumed to fall in line with turnover. Trade credit is also assumed to evolve in line with turnover, which means that there is a cash transfer from trade debtors to creditors as turnover falls, and then a transfer in the opposite direction as turnover recovers. Finally, companies with negative cash flows are assumed to cut dividends and share buybacks to zero. Given these assumptions, Bank staff calculated net cash flows for each company in the sample. The aggregate 'cash-flow deficit' is the sum of deficits of all companies that have one. See the 'Technical annex' for a detailed description of the data and methodology.

Given the unprecedented nature of the shock, estimating the impact of the spread of Covid-19 and the measures taken to contain it on the corporate sector carries a high degree of uncertainty.

The unprecedented situation means that the outlook for the economy is unusually uncertain and therefore so is the impact of Covid-19 on the UK corporate sector. Moreover, there are several limitations to the cash-flow deficit analysis:

- The data set only accounts for around 8% of the total UK turnover of companies with less than £10 million in annual turnover. This means that the cash-flow deficits of most of the smaller UK companies are not included in the overall estimate.
- The estimated cash-flow deficit does not take into account cash-flow problems that might arise at a higher frequency than quarterly.
- The data set does not include sufficient detail to form a fully accurate assessment of how individual companies' costs may evolve. The assumptions used, including the sector-level turnover shocks applied, are more likely to hold on average than for any individual business.
- Finally, the finances of companies will have evolved since their last reported accounts.

(1) Evidence from the Bank's April Decision Maker Panel survey suggests sectoral shocks broadly align with respondents' expected sales impact.

Table C.A Calculations and key assumptions underpinning the cash-flow deficit estimate**Assumptions to estimate the cash-flow deficit at individual company level**

Turnover	Modelled by Bank staff to be broadly consistent with the May 2020 <i>Monetary Policy Report</i> illustrative scenario, with different profiles across sectors and, in some cases, subsectors.
- Operating costs, of which:	
Labour costs	Companies maintain employment, hours and compensation at pre-shock levels absent furloughing (see CJRS treatment below).
Property rental costs	Companies continue to pay 100% of property rental costs.
Other operating costs	Change in line with turnover, consistent with proportional decline in the use of intermediate inputs (and value-add falling in line with output).
- Other impacts on cash flow, of which:	
Interest paid	Companies pay interest expenses on their outstanding debt, taking into account the recent cuts to Bank Rate.
Corporation tax	No change in corporate taxes (also see VAT treatment below).
+/- Change in working capital	Trade debtors and trade creditors change in proportion to turnover. Inventories maintained.
Capital expenditure	Cut to a maintenance level, equal to depreciation.
Dividends/buybacks	Cut to zero, unless company has positive cash flow.
= Cash-flow deficit before policy response	
+ Coronavirus Job Retention Scheme (CJRS)	Estimate number of furloughed employees proportional to 75% of the fall in turnover over the period of the shock. 25% of the fall in output is explained by a fall in productivity. Assume companies do not pay the remainder of labour costs.
+ Business rates relief and cash grants for certain sectors	Estimate 'rateable value' — the commercial rents measure to which business rates apply — for companies in eligible sectors to estimate eligibility.
+/- Value Added Tax (VAT) deferral	Estimate current VAT receipts and payments. Assume lag between cash inflow and cash outflow when company pays HMRC.
= Cash-flow deficit after fiscal response	

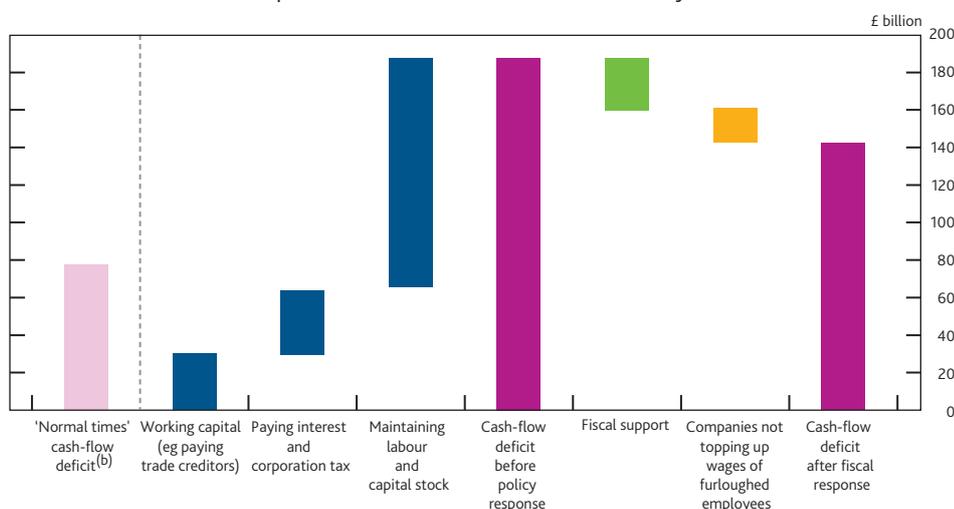
Sources: Bank of England, British Business Bank, HM Government and Policy announcements.

The corporate sector cash-flow deficit could rise steeply under the MPR scenario...

Many companies in the sample had a cash-flow deficit before the shock occurred. Even in the absence of sharp falls in turnover, a number of companies normally have negative cash flows, reflecting standard fluctuations in their turnover, costs or investment plans over time. Negative cash flows before dividend distributions and share buybacks amounted to around £80 billion in aggregate according to the latest available data. Using the assumptions set out above, the aggregate cash-flow deficit would be around £110 billion higher in this exercise, at nearly £190 billion in total in the 2020–21 financial year (**Chart C.7**).

Chart C.7 Fiscal policy measures, such as the Coronavirus Job Retention Scheme, support businesses and reduce the estimated cash-flow deficit

Estimate of the cumulative corporate sector cash-flow deficit under the first year of the MPR scenario^(a)



Sources: Bank of England, Fame (Bureau van Dijk), S&P Capital IQ and Bank calculations.

(a) Bank staff's estimates of how the UK corporate sector 'cash-flow deficit' could evolve assuming turnover shocks consistent with the illustrative scenario set out in the *May 2020 Monetary Policy Report*. See the *Technical annex* for more detail on the data, methodology and results.

(b) Aggregate negative cash flows based on the latest available data, measured before dividend distributions and share buybacks.

...but fiscal measures that the Government has put in place will provide material support to companies through the economic disruption.

The Government has put in place a number of important fiscal measures to support employment and corporate cash flow. The measures include the Coronavirus Job Retention Scheme (CJRS), cash grants and rates relief for smaller businesses, and allowing companies to defer their Value Added Tax (VAT) payments (see Box 3 — Fiscal Policy since the last Report in the *May 2020 Monetary Policy Report*). Early data suggest that applications for furlough have been received from 800,000 companies covering over 6 million jobs. The number of employees furloughed might be somewhat lower, though, as some people could have multiple furloughed jobs.

At the same time as furloughing employees through the CJRS, businesses may opt not to top up the wages of those furloughed employees. This reduces their own cash-flow deficit but to the detriment of households' finances (see Box 4 — on the impact of Covid-19 on household debt). Information from the Bank's Agency contacts suggests that topping up of wages is limited.

On the assumption that companies take full advantage of these fiscal measures and do not top up the wages of furloughed employees, the aggregate cash-flow deficit under the scenario is reduced by around £50 billion, leaving a total deficit of around £140 billion for the 2020–21 financial year (green and yellow bars, **Chart C.7**). Fiscal measures provide the most support in Q2 and Q3 of the MPR scenario, but the overall cash-flow deficit is likely to be largest in Q2, when the impact of the shock is most severe. The cash-flow deficit is then estimated to decline gradually over the remainder of the financial year under the scenario (**Chart C.8**).

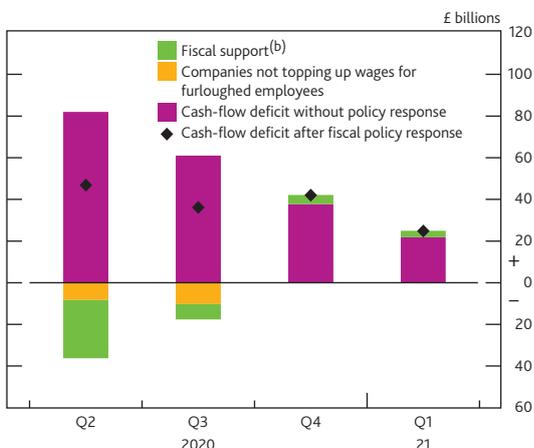
The cash-flow deficit varies across sectors and individual companies...

Within that aggregate picture, the estimated cash-flow deficit is distributed unevenly across individual firms:

- For many companies the deficit is small relative to turnover. Over half of businesses in the analysis have a cumulative cash-flow deficit that amounts to less than 2.5% of their annual turnover, or have no deficit at all (**Chart C.9**).
- Companies in sectors suffering sharper turnover shocks tend to have a larger cash-flow deficit relative to turnover (**Chart C.10**). Moreover, a greater share of companies within those sectors are estimated to have a deficit.
- On average, companies that face a cash-flow deficit have higher net debt to EBIDTA ratios and lower ICRs.

Chart C.8 The estimated cash-flow deficit declines over the 2020–21 financial year

Estimate of the cumulative corporate sector cash-flow deficit under the MPR scenario per quarter^(a)

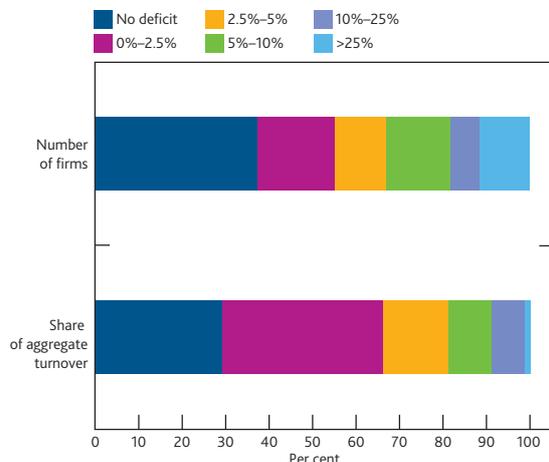


Sources: Bank of England, Fame (Bureau van Dijk), ONS, S&P Capital IQ and Bank calculations.

- (a) This chart summarises the estimates from **Chart C.7** on a quarterly basis.
 (b) Fiscal support contributes positively to the cash-flow deficit in 2020 Q4 and 2021 Q1 as companies are assumed to pay the VAT that they owed in 2020 Q2, as part of the VAT deferral policy.

Chart C.9 Less than half of companies have a cash-flow deficit larger than 2.5% of their annual turnover

Distribution of companies' estimated cash-flow deficit as a share of annual turnover under the first year of the MPR scenario^(a)

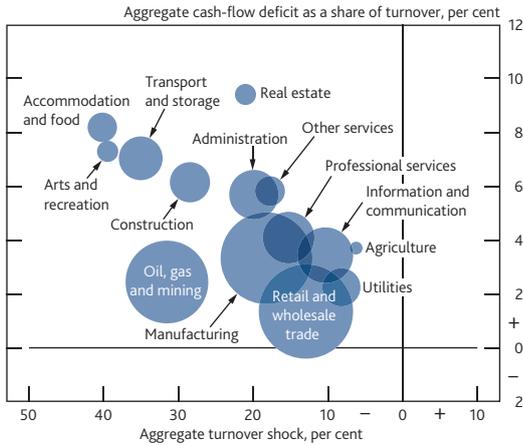


Sources: Bank of England, Fame (Bureau van Dijk), ONS, S&P Capital IQ and Bank calculations.

- (a) See footnote (a) to **Chart C.7**.

Chart C.10 The sectors suffering larger turnover shocks tend to face larger cash-flow deficits

Estimated cash-flow deficit as a share of turnover relative to turnover shock applied in 2020 Q2–2021 Q1^{(a)(b)}



Sources: Bank of England, Fame (Bureau van Dijk), ONS, S&P Capital IQ and Bank calculations.

- (a) Bubble size is in proportion to total sectoral turnover based on the latest available financial accounts.
 (b) Other services include public administration and defence, compulsory social security, education, human health and social work activities, and other services.
 (c) See footnote (a) to Chart C.7.

...and depends on the assumptions about how the shock affects companies' finances.

The Committee also considered how alternative assumptions could affect the estimated cash-flow deficit under the MPR scenario. For example, non-labour, non-rent costs may adjust more slowly than assumed. If those costs fall by 85% of turnover, instead of falling by 100% as assumed in the analysis above, then the total deficit would be around £50 billion larger. Separately, companies adjust their inventories, selling off stock to generate cash. This could dampen the cash-flow deficit in Q2 but increase it later in the year if businesses seek to rebuild their stock as turnover recovers, leading to little change across the year as a whole. Alternatively, companies may delay payments to suppliers, which would benefit net trade debtors at the expense of net trade creditors. An extreme assumption that trade credit does not adjust at all with turnover in the coming quarters, consistent with all companies postponing all outstanding pre-shock payments until turnover recovers, would lead to a £45 billion reduction in the aggregate cash-flow deficit.

How companies could finance the cash-flow deficit

The estimated £140 billion aggregate cash-flow deficit after taking into account fiscal measures is around three times annual net financing to UK corporates in 2019, which stood at around £45 billion. Individual companies' cash-flow deficits would need to be financed in order to avoid cost-cutting actions, like making staff redundant or allowing capital to depreciate. Such actions would reduce the productive capacity of the economy and increase the risk of longer-term economic damage.

Cash balances could reduce some of the cash-flow deficit...

There are various ways in which the deficit could be met without recourse to new financing, such as using cash balances or selling assets. Existing cash balances could play an important role through the period of disruption. At one extreme, if companies with a deficit used all cash balances available before the Covid-19 shock they could reduce the aggregate cash-flow deficit in the scenario by around £85 billion.

...nevertheless, the UK banking system has an important role to play in providing credit to businesses to help them weather the economic disruption.

Many businesses will seek to take on additional debt, both to maintain their productive capacity and to build precautionary cash buffers. Bank lending makes up around a half of the estimated stock of outstanding debt for UK corporates (Chart C.11). Net bank lending to UK corporates spiked to over £30 billion in March, up from an average of just over £1 billion per month over the past three years. The pick-up was mainly driven by draw downs of existing facilities and net corporate deposit flows picked up by around the same amount, which might suggest a precautionary motive.

The UK banking system, supported by the lending schemes now in place, has the capacity to support businesses in meeting cash-flow deficits by expanding the supply of credit to the economy.

The FPC reiterates that all elements of the substantial capital and liquidity buffers that have been built up by banks exist to be used as necessary to support the economy. In March, the FPC demonstrated this by cutting the UK countercyclical capital buffer rate to 0%, enabling up to £190 billion of business lending capacity. As set out in the UK Banking sector resilience and Covid-19 chapter, UK banks will be supported by the extensive package of measures put in place by UK authorities:

- The Covid Corporate Financing Facility (CCFF), for which the Bank acts as HM Treasury's agent, provides funds through the purchase of commercial paper issued by companies that were investment grade or equivalent as of 1 March 2020. The CCFF therefore reduces the need for banks to provide financing to these predominantly large companies, thereby preserving bank lending capacity for other businesses. Companies that might be eligible for the scheme are estimated to account for 28% of total turnover and 14% of aggregate employment in the UK. There was around £18 billion of commercial paper outstanding as of 6 May that had been purchased under the CCFF.
- The government loan guarantee schemes now in place mean that banks can extend material support to businesses attracting very low capital requirements. These include the Bounce Back Loan Scheme (BBLs), the Coronavirus Business Interruption Loan Scheme (CBILs) for SMEs and its equivalent for larger businesses (CLBILs). Through these support schemes the Government will guarantee all or a large part of new bank loans to businesses (Table C.B). These schemes expand the supply of credit from banks and non-banks that sign up to the schemes, including to SMEs that are not covered in the analysis set out in this chapter.
- And the Bank of England's new Term Funding scheme with additional incentives for SMEs (TFSME) announced by the MPC, provides a cost-effective source of funding for banks and building societies to support additional lending to the real economy, particularly SMEs. As of 6 May, participants had drawn around £11 billion from the TFSME.

Table C.B Government and Bank of England loan schemes in place providing additional support to the corporate sector

Details of the loan schemes announced to date

	For large companies		For SMEs	
	CCFF	CLBILs	CBILs	BBLs
Instrument	Commercial paper	Loans issued by lenders accredited to the scheme by British Business Bank	Loans issued by lenders accredited to the scheme by British Business Bank	
Guarantee	100%	80%	80%	100%
Eligibility criteria	<ul style="list-style-type: none"> • Investment-grade rated as at 1 March 2020 • Material contribution to UK economy 	<ul style="list-style-type: none"> • Annual turnover >£45 million • UK-based • Viable were it not for Covid-19 and likely to survive • Affected by the Covid-19 shock 	<ul style="list-style-type: none"> • Annual turnover <£45 million • UK-based • Affected by the Covid-19 shock • Viable were it not for Covid-19 • Not classed as a 'business in difficulty' on 31 December 2019 if applying to borrow £30,000 or more 	<ul style="list-style-type: none"> • Affected by Covid-19 shock • Not classed as a 'business in difficulty' on 31 December 2019^(b)
Companies potentially eligible (per cent of UK turnover) ^(a)	28%	36%	36%	

Sources: Bank of England, British Business Bank, Fame (Bureau van Dijk), HM Government and Policy announcements, ONS, S&P Capital IQ and Bank calculations.

(a) Estimated share of UK turnover accounted for companies eligible for each scheme, without taking into account lenders' appetite to extend loans or companies' cash-flow deficit.

(b) If a business was classed as a business in difficulty on 31 December 2019 it needs to confirm that it is complying with additional state aid restrictions.

It is in the collective interest of the banking system to continue to support businesses through this period.

As the experience of the global financial crisis has demonstrated, if banks were to withdraw from credit provision, more businesses would fail due to cash flow shortfalls, triggering bigger losses for banks on their existing corporate loans and, by pushing unemployment higher, bigger losses on existing household loans too. In assessing the potential impact of the MPR scenario on major UK banks, the FPC has assumed in the exercise that banks continue to provide a material part of the financing need of the corporate sector during the economic disruption. Overall, it has assumed that banks would expand net lending to UK corporates by over £60 billion during 2020 and 2021, with approximately £55 billion of the increase being provided in 2020. Although companies are assumed to continue to draw on committed credit lines as they did in Q1, most of banks' lending from Q2 to Q4 2020 is assumed to take place through the Government's lending guarantee schemes. Banks are therefore assumed to face a materially lower level of additional capital at risk by expanding their lending than they would ordinarily (see UK banking sector resilience and Covid-19 chapter).

Capital markets will also continue to play a key role in supporting corporates.

Market-based funding plays a particularly important role in lending to large UK corporates, accounting for more than half of debt outstanding in 2019 (Chart C.11). Although the cost of market-based funding for corporates increased sharply in March, market conditions stabilised a little towards the end of March as policy measures calmed markets. Capital market issuance, which had stalled throughout much of March, increased sharply as large companies were able to issue in investment-grade bond markets (Chart C.12). The Monetary Policy Committee's asset purchases have likely played a role in stimulating issuance in corporate bond markets (see Box 2 in the [May 2020 Monetary Policy Report](#)).

Chart C.11 Capital markets play a key role in the provision of finance to large corporates

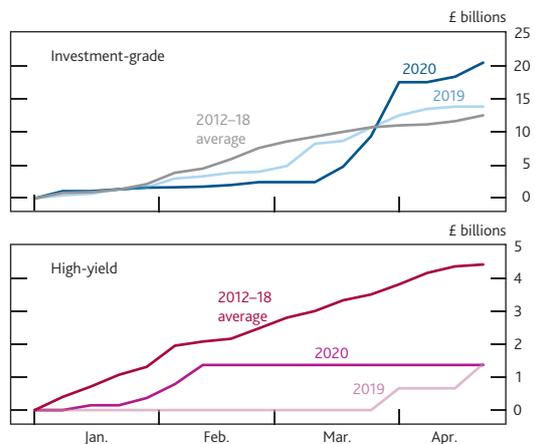
Estimated stock of UK private non-financial corporate (PNFC) sector debt^{(a)(b)(c)(d)(e)(f)}



Sources: Association of British Insurers, Bank of England, British Business Bank, Cass Commercial Real Estate Lending survey, Deloitte, Finance & Leasing Association, firm public disclosures, Integer Advisors, LCD an offering of S&P Global Market Intelligence, London Stock Exchange, ONS, Peer-to-Peer Finance Association, Eikon from Refinitiv and Bank calculations.

- (a) SMEs are defined as companies with turnover of up to £25 million.
- (b) Bank loans by 'Large UK banks' and 'Other UK-based banks (including foreign branches and subsidiaries)' include lending to both private and public businesses and so are not fully comparable to aggregate lending to PNFCs.
- (c) Debt securities include bonds, private placements and commercial paper. Non-bank loans to large corporates includes lending by securities dealers and insurers, non-monetary financial institution syndicated loans, asset finance (lease and hire purchase) provided by the non-bank sector, and direct lending funds.
- (d) Non-bank loans to SMEs includes asset finance (leasing and hire purchase) provided by the non-bank sector (£11 billion, covering 90%–95% of the market); asset-based finance such as invoicing (indicative estimate: £2 billion); business lending (indicative estimate: £3 billion); and peer-to-peer business lending (£3 billion).
- (e) Bank lending may not cover some forms of financing, such as asset finance and asset-based finance provided through separate entities linked to banks.
- (f) Where available data are as of end-2019; where end-2019 data were unavailable, the latest data have been used. Where available data did not give a complete picture, additional data sources such as firm public disclosures were used on a best-efforts basis.

Chart C.12 Corporate capital market issuance halted during March before investment-grade issuance surged
Cumulative bond issuance by UK corporates^(a)



Sources: Refinitiv — Deals Business Intelligence and Bank calculations.

(a) Euro, sterling and US dollar issuance.

However, additional debt may not be the most appropriate form of finance for some businesses.

Some of the companies estimated to have a cash-flow deficit may not be able to or may choose not to take on additional debt. Around £50 billion of the aggregate cash-flow deficit arises from companies that were highly leveraged, had low credit ratings or were unprofitable before the Covid-19 shock (**Chart C.13**). These businesses would have likely found it more difficult to get a loan from the core banking system even in the absence of a stress. Demand for credit from these companies could therefore be lower than their cash-flow deficit under the *MPR* scenario.

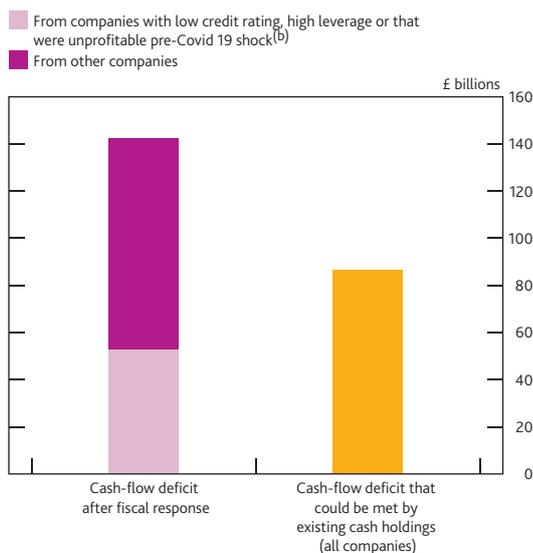
A subset of these companies may previously have been able to access leveraged finance. Despite the improvement in investment-grade markets, conditions have not improved in high-yield markets to the same extent where corporate bond issuances have stalled (**Chart C.12**). Spreads on high-yield corporate bonds widened and leveraged loan spreads spiked to double previous levels. Market intelligence suggested that primary high-yield and leverage loan funding markets were effectively closed for most of March. These two markets accounted for around 20% of UK corporate debt as of end-2019.

Some of the cash-flow deficit of these companies may be met in other ways. For example, some companies may be able to get cash injections from their private owners. Others may be able to raise equity. Equity markets remain open and a wide range of UK companies raised capital in April. There is also evidence that private equity markets are active and capable of providing further finance to UK corporates. Globally, private equity funds are estimated to have \$1.5 trillion of unused committed capital that could be used to inject equity into companies that require finance, including those in the UK.

Businesses may also meet a cash-flow deficit via forbearance, either from lenders, landlords or supplier. But some companies may go bankrupt, pushing up the level of corporate impairments for banks. For the desktop stress test, banks are assumed to make provisions for losses on corporate exposures of around £19 billion; an impairment rate of 6.5%. But overall, corporate impairments under the *MPR* scenario should be reduced by the boost to corporate cash flow from the reduction in Bank Rate, by fiscal measures including the CJRS and by bank lending supported by government guarantee schemes now in place (see UK banking sector resilience and Covid-19 chapter).

Chart C.13 Cash balances can reduce some of the aggregate cash-flow deficit. Additional debt may not be the most appropriate form of finance for some businesses

Estimate of the cumulative corporate sector cash-flow deficit under the *MPR* scenario^(a)



Sources: Bank of England, Fame (Bureau van Dijk), ONS, S&P Capital IQ and Bank calculations.

(a) See footnote (a) to **Chart C.7**.

(b) Aggregate cash-flow deficit arising from companies that either had a net debt to EBIDTA ratio above 4, low credit rating, or made negative profits on average in the past three years. Credit ratings are proxied where unavailable. Companies with these characteristics would have likely found it more difficult to get a loan from the core banking system even in the absence of the Covid-19 shock and in many cases would have been unwilling to take on additional debt.

Box 3

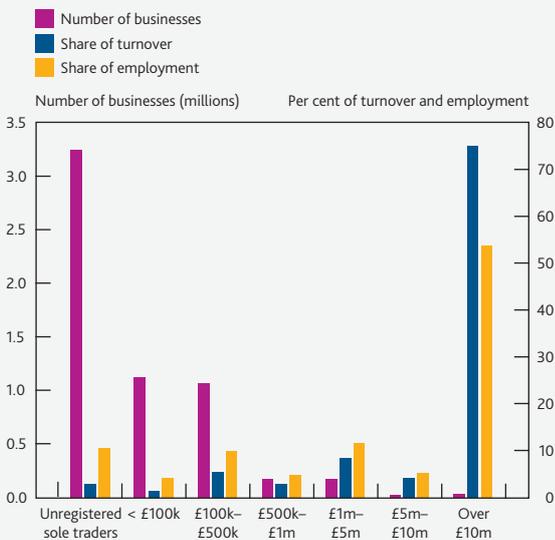
The finance needs of smaller businesses

The UK has around 5.8 million smaller businesses, each with less than £10 million in annual turnover and fewer than 250 employees. These businesses account for 25% of UK turnover. Through paid employment they account for 11.6 million jobs (35% of total employment). These smaller businesses also include the self-employed. There are 3.2 million unregistered sole traders and a further 1.2 million zero-employee firms, which together account for a further 14% of UK employment (**Chart A**).

Only a small proportion of these businesses feature in the data set used to calculate the corporate sector cash-flow deficit in the chapter, so they are considered separately here.

Chart A Smaller businesses make up a quarter of turnover

Firms' contribution to employment and turnover^{(a)(b)(c)}

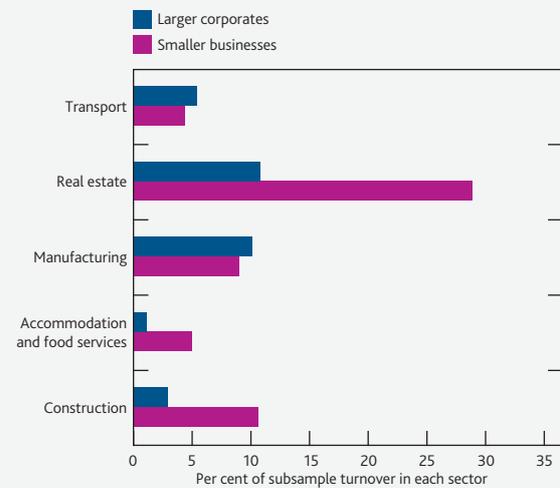


Sources: ONS and Bank calculations.

- (a) The data set covers companies, partnerships, sole traders, charities and national entities. 'Unregistered sole traders' refers to zero-employee businesses that are not registered for VAT or PAYE. Registered zero-employee firms are included within the relevant turnover brackets.
- (b) The chart combines figures from the Inter-Departmental Business Register and the Business Population Estimates; there are some inconsistencies across these data sets due to differences in data collection.
- (c) This work was produced using statistical data from ONS. The use of the ONS statistical data in this work does not imply the endorsement of the ONS in relation to the interpretation or analysis of the statistical data. This work uses research data sets which may not exactly reproduce National Statistics aggregates.

Chart B Smaller businesses are more likely to be concentrated in sectors vulnerable to the Covid-19 shock

Proportion of turnover in vulnerable sectors, by firm size^(a)



Sources: ONS and Bank calculations.

- (a) The data set covers companies, partnerships, sole traders, charities and national entities. 'Smaller businesses' refers to those with annual turnover of less than £10 million. 'Large corporates' refers to those with annual turnover of over £10 million.

Smaller businesses are facing an unprecedented shock to their cash flows.

The Covid-19 shock is likely to have a significant impact on smaller businesses. A higher proportion of them operate in the sectors that are more directly affected by the shock, including the hotel and restaurant sector and construction, than is the case for companies overall (**Chart B**). If turnover evolves in line with the scenario used in the corporate cash-flow calculation in the chapter, many of these smaller businesses will experience cash-flow pressures similar to those of larger companies in these sectors, creating difficulties in paying staff wages, rents and suppliers.

As a group, smaller businesses have fewer external financing options available to them than larger corporates. They are less likely to have existing banking relationships, which could make it difficult to access external financing when needed. The BVA BDRC *SME Finance Monitor* survey in 2019 Q4 found that 42% of all smaller businesses had not borrowed in the past five years and had no inclination to do so in the next 12 months. This proportion is likely to be even higher among the smallest businesses. In addition, recent downward movements in the equity prices of housebuilders and real estate investment trusts indicate that property prices could fall in the coming months. Since real estate is widely used as collateral for borrowing by smaller businesses, a downturn in real estate valuations or tighter mortgage credit conditions could further reduce smaller businesses' access to funding (see [Foulis et al \(2016\)](#)).

However, many smaller businesses have built precautionary cash buffers. A 2020 British Chambers of Commerce survey found that over three quarters of smaller businesses hold at least one to three months' turnover as cash, a higher proportion than larger firms. And a comprehensive package of measures now in place should address many of the cash-flow pressures on smaller businesses.

Government income support schemes and cash grants should help to reduce cash-flow pressures for smaller businesses.

The Government has put in place a number of fiscal measures for smaller businesses to support cash flow, smaller businesses' employees and the incomes of the self-employed. As well as the Coronavirus Job Retention Scheme (CJRS) (see Box 4 in Section 2 of the *MPR* for further information), sole traders can benefit from the Self-Employment Income Support Scheme (SEISS) and those with small premises are eligible for cash grants. Firms can also defer VAT and self-assessed income tax payments to manage shorter-term need.

The SEISS provides support targeted at sole traders and the self-employed. Currently available for three months, the scheme offers a grant worth up to 80% of previous trading profits, up to a maximum of £2,500 per month. 82% of those who receive the majority of their income from self-employment are expected to be eligible to benefit (see *Institute for Fiscal Studies (2020)*).

Cash grants are also available to smaller businesses and businesses in vulnerable sectors. In England, the Small Business Grant Fund provides £10,000 to businesses with premises that have a rateable value of less than £15,000 or is eligible for rural rates relief. For businesses in the retail and hospitality sectors, grants of £25,000 are available for premises with a rateable value between £15,000 and £51,000, in addition to the smaller grants.⁽¹⁾ About 70% of premises are eligible for the Small Business Grant Fund. And a further 21% of retail premises qualify for the £25,000 grant.

And government-backed loan schemes will provide further support.

Smaller businesses requiring further financing may also opt to borrow via the Coronavirus Business Interruption Loan Scheme (CBILS) or the Bounce Back Loan Scheme (BBLs) (see **Table C.B** for further information). The BBLs is targeted towards smaller firms, with a maximum loan size of £50,000. And these loans will be 100% guaranteed by the Government, with the aim of expediting approvals by banks. The Prudential Regulation Authority also announced that BBLs loans will be excluded from the UK leverage exposure measure, which will further help banks to continue to supply credit. Initial HM Treasury figures indicate high demand for BBLs loans, with over 130,000 applications received on the day the scheme launched.

Businesses may also be able to reduce cash-flow pressures through payment holidays on existing loans and commercial rents. And some of the smallest businesses may be able to take advantage of payment holidays on mortgages and consumer credit.

Taken together, this package of measures should materially reduce the cash-flow pressures on smaller businesses.

(1) Similar support via cash grants is available in Scotland, Wales and Northern Ireland, although slightly different eligibility criteria apply.

Box 4

The impact of Covid-19 on household debt

UK households entered this period of economic disruption in a stronger position than before the global financial crisis.

In the UK, mortgages are households' largest financial liability and lenders' largest loan exposure in aggregate. The housing market can be a source of risk to borrowers' resilience and UK financial stability. The resilience of lenders could be tested if highly indebted households default on their debt, resulting in losses. And highly indebted households are more likely to make sharp cuts in consumption during a stress, which may amplify a downturn and, in turn, the risk of losses to lenders on all forms of lending.

At the outset of the Covid-19 pandemic, UK households' balance sheets were in a stronger position than prior to the global financial crisis. The share of households with a mortgage debt-servicing ratio (DSR) at or above 40% — a level above which households are more likely to experience payment difficulties — has remained at around 1% over the past two years, compared to 2.7% in 2007, according to the NMG Consulting survey (**Chart A**).

The Financial Policy Committee's (FPC's) mortgage market Recommendations have guarded against a material deterioration in borrower resilience.⁽¹⁾ The loan to income (LTI) flow limit has limited the number of mortgages extended at high LTI ratios, and the affordability test Recommendation has helped to build a 'safety margin' so that households are better able to withstand adverse shocks to income, employment and mortgage interest rates. Together, these Recommendations protect UK households' ability, in aggregate, to service their debt.

While the policy response will provide substantial support to households...

The Government has taken unprecedented policy action to help mitigate the effects of the economic disruption on households. Policies such as the Coronavirus Job Retention Scheme (CJRS) and the Self-Employment Income Support Scheme will provide substantial support to employment and household incomes and dampen the impact of the shock on household spending. The Monetary Policy Committee's (MPC's) decision to reduce Bank Rate to 0.1% should also support borrowers with floating-rate mortgage contracts or those able to refinance onto a lower interest rate.

...the sharp fall in economic activity will put pressure on some households' finances...

The spread of Covid-19 and the measures taken to contain it are having a sharp impact on economic activity. These measures temporarily reduce production and demand, which may exert downward pressure on some households' incomes if employees lose their jobs. In addition, employees furloughed via the CJRS also face temporary reductions in income if their employers opt not to top up their wages beyond the 80% paid by the Government.⁽²⁾ In the illustrative scenario set out in the *Monetary Policy Report (MPR)* (hereafter 'the MPR scenario'), the UK unemployment rate rises to around 9% in 2020 Q2. In addition, around 6 million private sector employees are assumed to be furloughed in 2020 Q2 on average (See Section 1 of the MPR).

This means the ability of some households to service their debts will be challenged by a period of higher unemployment and weaker income growth. Estimating the impact of any given Covid-19 scenario on household finances carries a high degree of uncertainty, given the exceptional nature of the shock and the scale of the policy response. Estimates by Bank staff show that for a shock consistent with the MPR scenario, the share of households with high mortgage DSRs might rise from 1% in 2019 to 2% during 2020 Q2 — this is below its peak prior to the global financial crisis (**Chart A**). As furloughed employees return to work, this share should fall to just above 1.5% in 2020 Q4. If unemployment falls back in line with the MPR scenario, then this share would decline gradually to just over 1% by the end of 2021.

In the absence of government support, UK unemployment would be materially higher in the MPR scenario. As a result, the share of highly indebted households would have been expected to rise by significantly more, posing the risk of widespread difficulties in servicing mortgage payments.

(1) For more detail on the FPC's mortgage market Recommendations, see the *December 2019 Financial Stability Report*.

(2) Under the Coronavirus Job Retention Scheme (CJRS), the Government pays 80% of furloughed individuals' wages up to £2,500 a month, plus National Insurance and minimum pension contributions. Some furloughed individuals will receive less than 80% of their income, given the £2,500 limit.

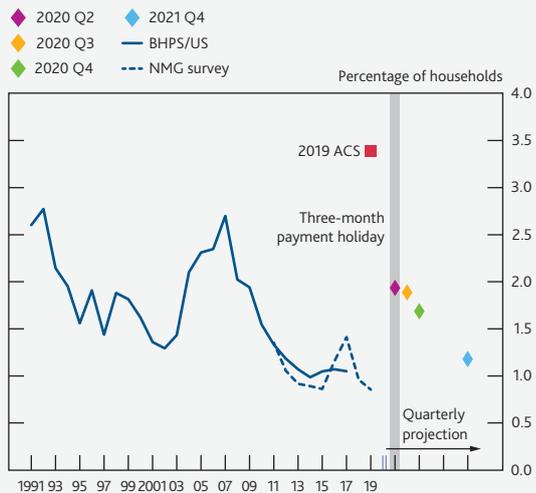
These estimates do not reflect the impact of payment holidays (see below), which temporarily reduce households’ debt-servicing burdens. Nevertheless, estimates of the proportion of households with high mortgage DSRs conditioned on the *MPR* scenario remain below those implied by the 2019 Annual Cyclical Scenario (ACS) (as shown by the red square in **Chart A**). The 2019 ACS included a sharp rise in Bank Rate. The loosening of monetary policy announced by the MPC and the lower path for interest rates in the *MPR* scenario should help households’ debt-servicing burdens remain lower than in the 2019 ACS.

...including on consumer credit...

Historically, UK consumer credit impairment rates have tended to move in line with UK unemployment. As economic conditions deteriorate, some borrowers will likely have difficulties servicing their debts. As reported to the Bank/Ipsos MORI survey,⁽³⁾ around a quarter of individuals have experienced some financial difficulty — in terms of meeting payments or increasing demand for credit — since February (**Chart B**). Consumer credit is an important determinant of bank losses in a downturn, because borrowers are more likely to default on unsecured debt and lenders do not have collateral to cushion losses. In the Bank’s desktop stress test, losses on banks’ UK consumer credit exposures are around £18 billion (see UK banking sector resilience and Covid-19 chapter). This includes impairments of £1.5 billion on car finance, the market for which has almost completely shut down following the Covid-19 shock.

Chart A There might be a significant rise in the number of highly indebted households, excluding the impact of payment holidays

Percentage of households with mortgage debt-servicing ratios (DSRs) at or above 40%(a)(b)(c)(d)(e)(f)

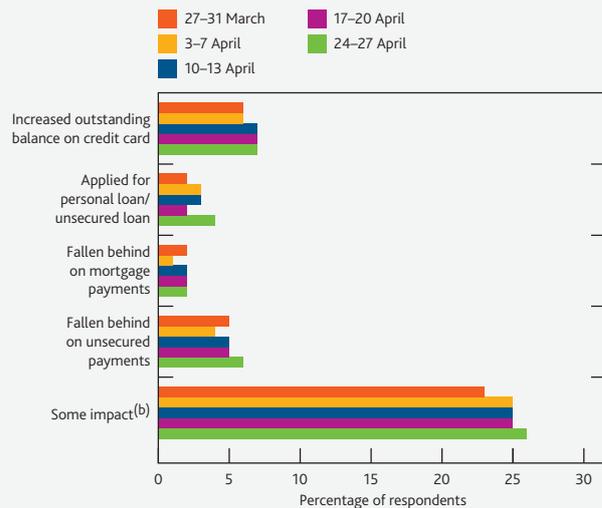


Sources: British Household Panel Survey/Understanding Society (BHPS/US), NMG Consulting survey and Bank calculations.

- (a) Percentage of households with mortgage DSR at or above 40% calculated using BHPS (1991–2009), US (2009–18), and the online waves of NMG Consulting survey (2011–19). NMG data are from H2 surveys only.
- (b) Mortgage DSR calculated as total mortgage payments as a percentage of pre-tax income.
- (c) A new household income question was introduced in the NMG survey in 2015. Adjustments have been made to data from previous waves to produce a consistent time series.
- (d) The shaded area marks the announced period during which mortgagors can apply for three-month payment holidays.
- (e) Quarterly projections account for the Coronavirus Job Retention Scheme, Self-Employment Income Support Scheme (SEISS), and an increase in unemployment consistent with the illustrative scenario as set out in the May 2020 *Monetary Policy Report*. Furloughed workers are assumed to receive 80% of their monthly labour income, up to a maximum of £2,500. Eligibility for the SEISS determined using job status in preceding year and labour income. Individuals made unemployed and those ineligible for the SEISS receive standard Universal Credit for singles aged 25 or over.
- (f) 2019 ACS estimate accounts for the peak to trough increase in Bank Rate and unemployment implied by the 2019 ACS. Assumes full and instantaneous pass through of Bank Rate to mortgagors’ interest rates.

Chart B Some people have reported financial difficulty as a result of Covid-19

Proportion of individuals reporting they have missed payments or increased demand for credit^(a)



Sources: Bank of England, Ipsos MORI and Bank calculations.

- (a) Question: ‘Since the start of the outbreak of coronavirus in the UK in February, which, if any, of the following, have you experienced?’. Respondents were able to select other responses in addition to those shown in the chart. These were related to being granted a temporary mortgage holiday, falling behind on bills or rent, increasing the amount spent using overdrafts and also allowed respondents to select ‘none of these’, ‘don’t know’ and ‘prefer not to answer’. Data are not seasonally adjusted.
- (b) ‘Some impact’ calculated by subtracting the proportion of respondents who selected ‘none of these’, ‘don’t know’ and ‘prefer not to answer’ from the total.

(3) Research was carried out by Ipsos MORI on behalf of the Bank of England. It surveyed a nationally representative quota of over 2,200 adults in the United Kingdom aged 16–75 using its online i:omnibus on the dates indicated in 2020. Data has been weighted to the known offline population proportions for age, gender, government office region, working status and social grade.

...but payment holidays will provide support for some households to weather the disruption.

The payment holidays offered by lenders — for both mortgages and unsecured products — can help support households through temporary reductions in income and mitigate the risk of significant consumption cuts to keep up with repayments. According to UK Finance, more than 1.6 million mortgage payment holidays have been granted to households. This means that one in seven residential and buy-to-let mortgages in the UK is subject to a payment holiday. Supervisory intelligence suggests that, for the time being, many of these applications appear to be precautionary to help manage future risks, rather than indicative of current levels of household distress.

Taken together, these measures significantly increase the ability of UK households to weather this shock in the near-term, reducing the extent to which household indebtedness would be expected to amplify the downturn and generate further losses for banks.

Looking ahead, risks remain for existing borrowers seeking to refinance in the coming months...

With social distancing measures in place, the UK housing market has stalled. This has led to a steep reduction in the demand for new mortgages, while also affecting banks' lending capacity in the mortgage market (see Section 2 of the MPR). Risks may arise for existing borrowers if they are unable to refinance and end up paying a higher contractual reversion rate on their mortgage. So far, many lenders have said that they will continue to offer internal product transfers on a like-for-like basis to existing customers, which should help guard against a large number of borrowers ending up on higher reversion rates.

The FPC supports action by lenders to offer mortgage payment holidays and to continue to offer product transfers to existing customers. As confirmed in September 2017, lenders do not have to apply the FPC's affordability test to any remortgaging where there is no increase in the amount of borrowing.

...and the FPC is vigilant to risks that could emerge once payment holiday measures end.

Given that mortgages are lenders' largest loan exposure in aggregate, it is in the collective interest of the UK banking system to support households through this period of disruption. Payment holidays offered by lenders should help UK households alleviate temporary cash-flow problems, but uncertainties remain around how and when these measures will be unwound. This could put pressure on households' debt repayment capacity over a longer horizon, as some households may struggle to service their debt once the payment holiday measures end. The magnitude of the future impact will depend on the duration of the economic disruption, lenders' plans to transition away from payment holidays, and the form of forbearance lenders will be willing to offer after payment holidays end.