

Update on recent banking developments

Calendar week 17

This briefing gives an update on and summarises recent events and developments in the Banking Union, based on publicly available information.

The following topics are specifically addressed: recent ECB banking supervision publications (the Targeted Review of Internal Models Project Report, the ECB annual report on supervisory activities and the most recent supervisory statistics); the recent SRB guidance on bail-in for international debt securities; risks and vulnerabilities in the financial sector (ESRB Risk Dashboard; Joint Committee Report on Risks and Vulnerabilities); macroprudential concerns in the non-banking sector; recent ESMA publications (consultation on money market funds; peer review on CCPs supervision); and two reports on climate related risks published by the Basel Committee on Banking Supervision.



1. Recent ECB Banking Supervision publications

Targeted Review of Internal Models Project Report

On 19 April, the ECB Banking Supervisor [published](#) a report of its targeted review of internal models (TRIM). The review, launched in 2016 and conducted in 65 significant institutions, with over 200 on-site investigations, aimed to ensure that internal models used by these banks to calculate their capital needs complied with the rules. Upon its release Andrea Enria [stated](#) that *“This large-scale exercise, the ECB’s biggest project ever, contributes to a level playing field in European banking by ensuring internal models are reliable and their outcomes are comparable”*.

The ECB concludes that *“TRIM confirmed that the internal models of [systemic institutions] can continue to be used for the calculation of own funds requirements, subject to supervisory measures to ensure an appropriate level of own funds requirements at all times”*. The supervisory measures to be implemented by the banks are based on what is termed “findings” – items requiring immediate supervisory attention – with the ECB identifying over 5,800 findings across all risk types, of which approximately 30% were considered as having high or very high severity. The report provides a detailed overview of findings regarding general topics; credit risk; market risk; and counterparty credit risk. To address these findings, the ECB Banking Supervisor is able to issue binding supervisory decisions containing obligations, or remedial action needed to achieve compliance with a legal requirement. Given that 75% of all obligations have an implementation period of over 12 months, some limitations (which restrict or modifies the permitted use of a model) may be required in cases where non-compliance led to an underestimation of capital requirements. Overall, 253 supervisory decisions have been, or are in the process of being, issued. Of these, 74% contain at least one limitation and 30% contain an approval of a material model change.

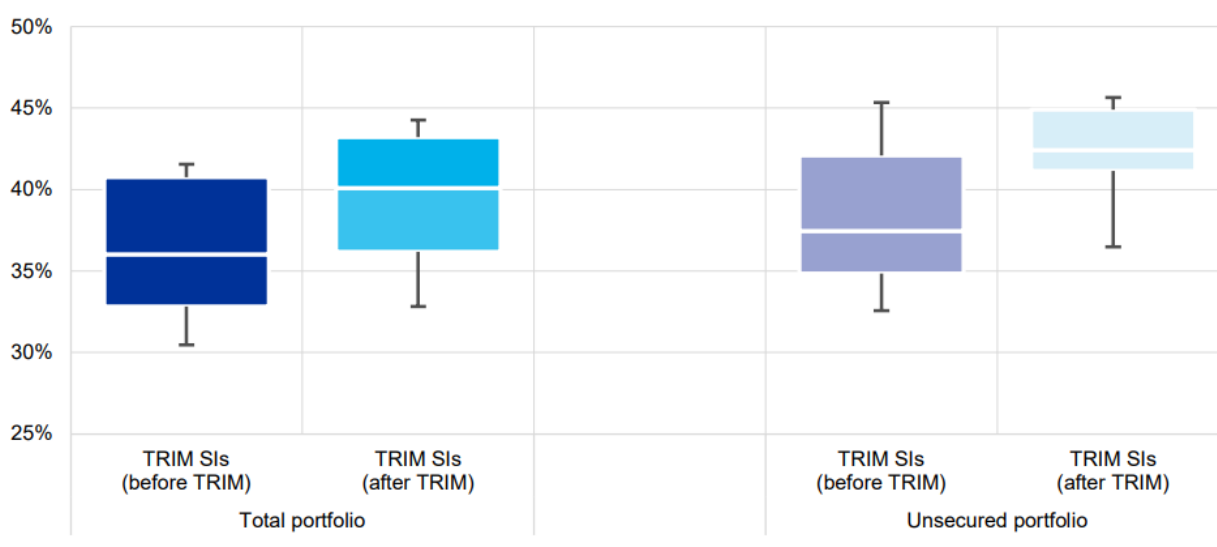
Overall, the ECB finds that the TRIM project has *“fully achieved”* its main objectives of reducing non-risk based risk-weighted assets (RWA) variability and supporting future supervision of internal models within the Single



Supervisory Mechanism (SSM). Regarding the former, it is estimated that the aforementioned supervisory decisions will “lead to a 12% increase in the aggregated RWA covered by the models assessed in the respective TRIM investigations. This corresponds to an overall absolute RWA increase of about €275 billion as a consequence of TRIM and to a median impact of -51 basis points and an average impact of -71 basis points on the CET1 ratios of the in-scope institutions.” At the aggregate SSM level¹, the increase in RWA reduced the CET1 capital ratio by an average of 60 basis points (bps), which can primarily be attributed to the credit risk impacts (-56 bps). It is moreover found that at the institution level, the impact of TRIM decisions was “rather heterogeneous”.

The ECB assessed the impact of the TRIM exercise on the variability of estimated losses by comparing estimates that have been calculated after the TRIM exercise with those that have previously been reported to the European Banking Authority (EBA) as part of a benchmark study on internal models for credit risk. That comparison showed that the TRIM lead to a considerable reduction in the dispersion of loss estimates, as well as a considerable increase of the median of loss estimates, in particular for portfolios of unsecured loans (see, for example, figure 1, for loans to large corporations). The need to take supervisory action was also indicated by the results of the EBA benchmarking study on internal models for market risk (Breuer 2016, in a briefing paper commissioned for ECON: “If the results of the EBA benchmarking study are correct, and as far as test portfolio instruments are representative, the internal market risk models currently used by European banks strongly violate the Level Playing Field Principle”).

Figure 1: Variability of LGD for large corporates portfolios (percentages)



Source: ECB (The boxplots show the median (central line), the upper (Q3) and lower (Q1) quartiles (top and bottom of the box) and the 90th and 10th percentiles (upper and lower whiskers).

ECB Annual Report on supervisory activities 2020

The [ECB Annual Report](#) on supervisory activities 2020 focuses on the resilience of the euro area financial sector and the measures taken by the SSM to address the COVID-19 crisis. Apart from this, it also reports that the ECB made changes to its organisational structure: building on 6 years of experience since its establishment in 2013, the banking supervisory arm of the ECB initiated a change to its organisational structure that became effective as of October 2020. The goals of the reorganisation are to strengthen cooperation between bank-specific and thematic supervisory teams, to give procedures a stronger risk-focus, and to improve the transparency of supervisory actions.

¹ At the aggregate level for all institutions included in the review, not for all Significant Institutions under the SSM remit.

The reorganisation, in the words Mr. Enria in the Annual Report, entailed the restructuring of “directorates general for bank-specific supervision according to the business model of supervised banks”, the introduction of a “new Directorate Supervisory Strategy and Risk, which is responsible for strategic planning, proposing supervisory priorities and ensuring consistent treatment of all banks”, and the creation of “a specific directorate general for on-site supervision functions.” Moreover “the Directorate General Horizontal Line Supervision [was tasked] with strengthening the risk expertise of JSTs, conducting benchmarking assessments, developing policies and maintaining methodologies”.

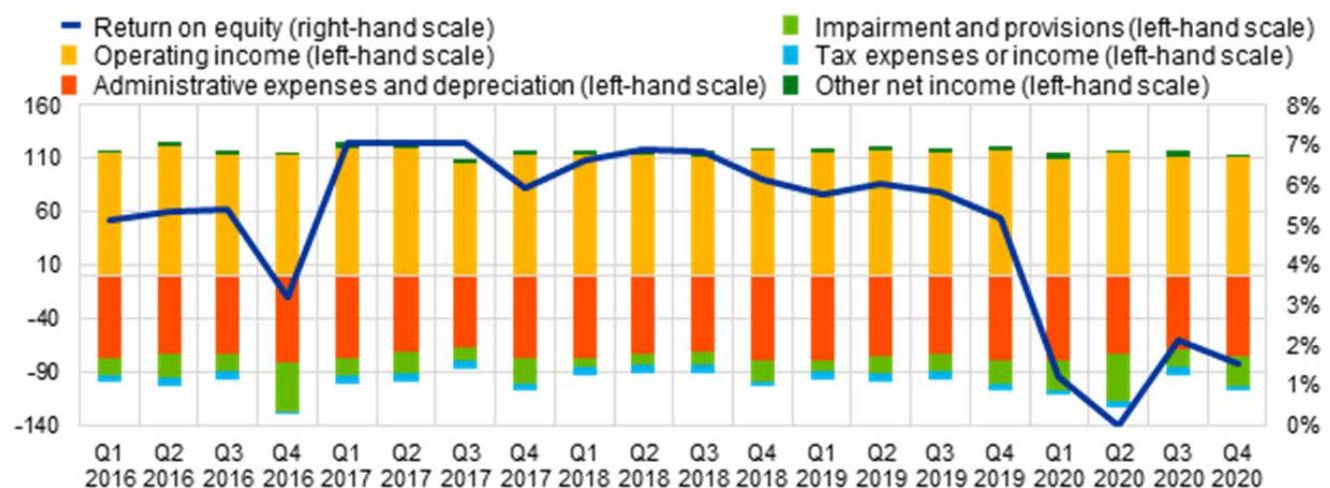
A partner at the law firm Dentons, Michael Huertas, wrote in a [comment](#) that those changes “will likely translate ... into a further sharpening of tone in terms of supervisory engagement”.

ECB Statistics

On 12 April 2021, the ECB published the [supervisory banking statistics for the fourth quarter of 2020](#), including, for the first time, aggregated statistics on cost of risk and on loans subject to COVID-19-related measures.

The latest release of the supervisory banking statistics shows that, based on a year-to-year comparison, the deposits of non-financial corporations and households increased by 8.2%, the banks’ aggregate total capital ratio increased by half a percentage point to 19.5%, and their aggregate NPL ratio fell by 0.6 percentage point to 2.6%. The most notable change, however, concerns a significant drop in the average profitability of significant institutions: the Return-on-Equity fell, at aggregated level, from 5.2% (in Q4 2019) to a mere 1.5% (in Q4 2020). That development is mainly caused by a strong increase in impairments and provisions, which, compared to the previous year, nearly doubled. Figure 2 shows a graph with the average Return-on-Equity in a five-year comparison.

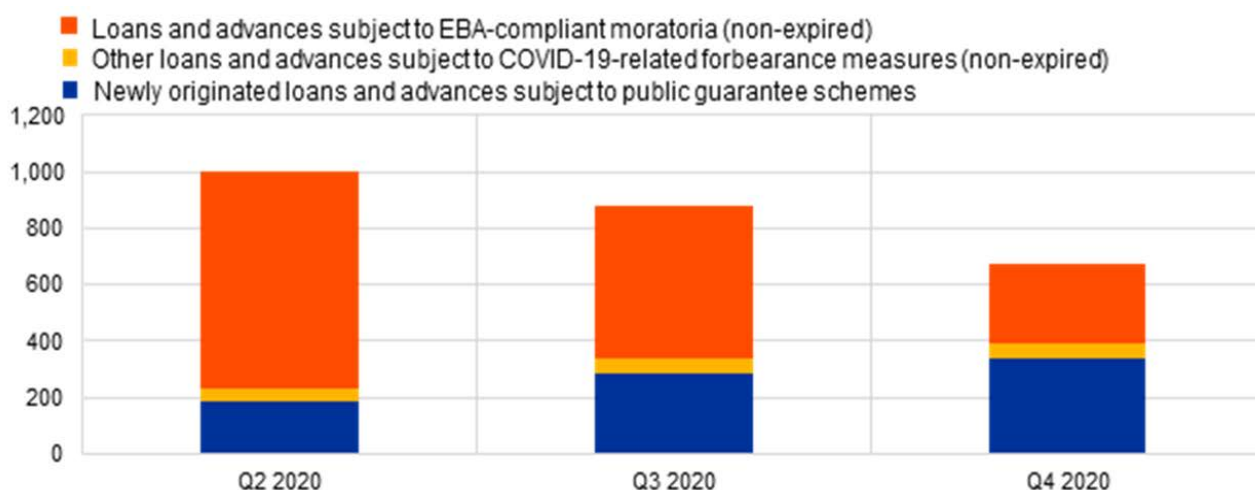
Figure 2: Return-on-Equity of significant banks in a five-year comparison (EUR billions; percentages)



Source: [ECB](#).

The latest supervisory banking statistics also show that in the fourth quarter of 2020, the amount of non-expired loans subject to EBA-compliant moratoria (EUR 282 billion) fell considerably, if compared to the second quarter of 2020 (EUR 766 billion). The importance of public guarantee schemes for newly originated loans, however, significantly increased in the same period, rising from EUR 183 billion in the second quarter to EUR 340 billion in the fourth quarter (see figure 3).

Figure 3: Loans and advances subject to COVID-19-related measures (EUR billions)



Source: [ECB](#).

2. SRB guidance on bail-in for international debt securities

On 30 March 2021, the SRB published (legally non-binding) [guidance](#) that describes the elements that banks should consider for the operationalisation of bail-in in respect of international bearer of debt securities issued through, and safekept in, international central securities depositories (ICSDs). This guidance complements the SRB’s [Expectation for Banks](#), which outlines the requirement for banks under the SRB’s remit to develop bail-in playbooks, in which banks’ need to describe the processes underpinning the execution of the write down and conversion of relevant securities. Banks are expected to reflect the content of the guidance in their bail-in playbooks as from 2021.

The first section of the guidance focuses on the role of the ICSDs in the bail-in of instruments for which they are issuer² and investor³ central securities depositories (CSDs). Banks issue securities in different countries and international securities⁴ in order to access funding in multiple currencies on different markets. In the Banking Union, these international bearer debt securities (“eurobonds”⁵) are issued and registered through ICSDs. For banks under the SRB’s remit, these eurobonds amount to 29% (or EUR 1.11 trillion) of total issuance of equity and debt securities. As the SRB points out however, the size and amount of issuances through the ICSDs vary significantly (see figure 4). Of these eurobond issuances, 68% are denominated in EUR, followed by the USD (18%) and GBP (8%). Given the relative importance of bail-inable securities issued via the ICSDs, the SRB expects them “to play an important role in the execution of the bail-in at the level of the largest banks, as well as many other banks under the remit of the SRB. It is therefore important that the ICSDs, resolution authorities and banks share a common understanding of how the related processes would take place”.

² Defined as a CSD in which securities are issued (or immobilised and safekept). The issuer CSD opens accounts allowing investors (in a direct holding system) and/or intermediaries (including investor CSDs) to hold these securities ([ECB glossary](#)). In this case, the ICSDs act as places of primary deposit for international bearer debt securities. Strictly speaking, the ICSD is not the issuer (the issuer would be the institution responsible for the securities, the debtor towards the investor, which would be the institution under resolution). The ICSD provides the infrastructure that is necessary for issuance, registration and safe keeping of the securities.

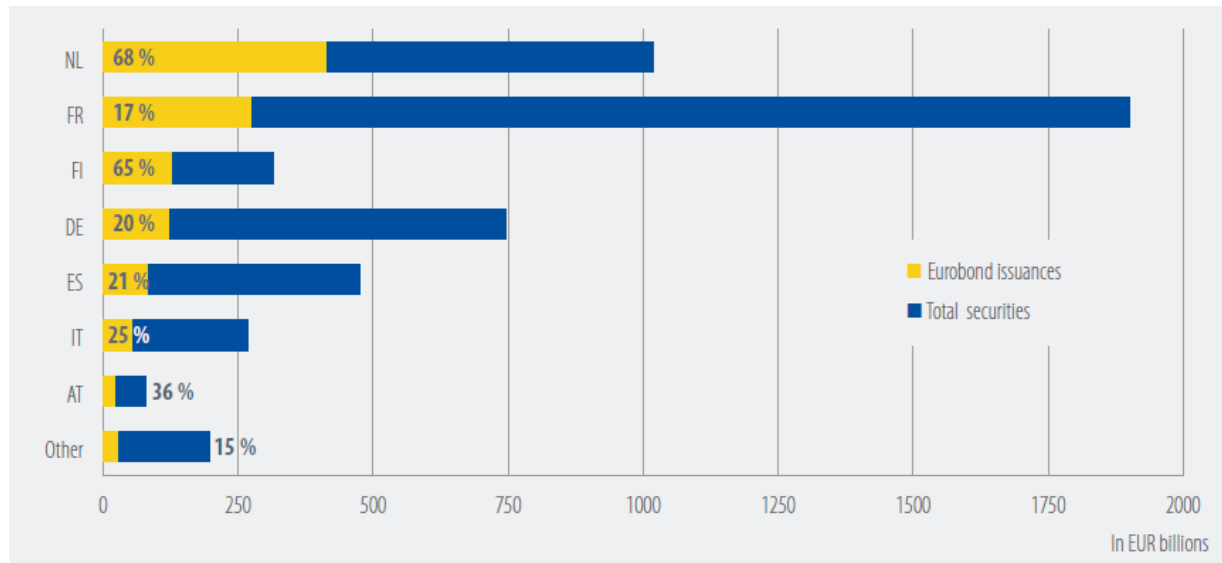
³ This is the case when “ICSDs also accept other securities on their platforms (equities, warrants, national fixed income securities, structured products, etc.) that have been issued in numerous local markets.” ([SRB](#), 2021)

⁴ International securities in accordance with the [standards](#) applicable by the ICSDs, designate “those securities primarily issued through and deposited with Clearstream Banking and Euroclear Bank”.

⁵ In the SRB paper, eurobonds are defined as international securities issued outside the country in whose currency their value is stated. The notion is very different from other current uses of the term, such as government bonds that are issued by EU member states in euros or government bonds issued in euros jointly by the European Union’s euro area countries).

The guidance goes on to identify the processes applied by ICSDs in the execution of bail-in, based on different operational scenarios. For each scenario, the relevant actors, actions and timing thereof have been identified. Moreover, the guidance addresses the possible issues related to bail-in adjustments after a definitive valuation.

Figure 4: Debt securities issued via ICSDs (eurobonds) by banks under the SRB's remit out of total equity and debt securities issued per country in the Banking Union, as of 31 December 2019



Source: [SRB](#).

3. Risks and Vulnerabilities in the financial sector

3.1. ESRB Risk Dashboard

As the latest European Systemic Risk Board (ESRB) [risk dashboard](#) shows, “market-based indicators of systemic stress in the European Union (EU) have mostly recovered following an increase in stress levels in 2020 due to the COVID-19 pandemic”. Based on the ESRB estimations, the composite indicator of systemic risk as well as the probability of a simultaneous default of large and complex banking groups and EU sovereigns has recently declined to its pre-pandemic level. However, the volatility observed in the Euro Stoxx 50 index remained elevated.

A renewed surge in COVID-19 infections and containment measures at the end of 2020 are still weighting down the economic growth projections. There are considerable downside risks, mainly “with regard to the extent and duration of the pandemic and its long-term economic consequences” related to the projections. Recent developments, such as significant improvements in the current account balances, made most of Member States more resilient to shocks; however, increasing unemployment levels, increasing credit-to-GDP ratios and surging sovereign debt levels are worrying signs of accumulating vulnerabilities.

Over the fourth quarter of 2020, bank profitability has increased at least partly due to lower cost-to-income ratio, also, the capitalisation level and the non-performing loan ratio have not yet shown any signs of crisis and have marginally improved. “The median solvency ratio ... of the EU insurance sector rebounded in the third quarter of 2020”, even if it is still below the pre-pandemic level and some insurance sectors (like life insurance) were more hardly hit than others. Based on the risk dashboard indicators, “while variation between individual [Central Counterparties] is visible”, latest data suggests that Central Counterparties (CCPs) have been resilient to COVID-19 pandemic shock.

In the overall context one may also note that the ESRB risk dashboard has a specific section on credit risk, which, however, does not elaborate on the threat of a future wave of insolvencies, though that is the key message of the [ESRB report](#) published on 28 April 2021.

3.2. Joint Committee Report on Risks and Vulnerabilities

On 31 March, the Joint Committee of the European Supervisory Authorities⁶ issued a new [Report](#) on Risks and Vulnerabilities in the EU Financial System. The Joint Committee argues that, although the financial market has until now shown resilience to the COVID-19 crisis despite the increased valuation, liquidity, credit and solvency risks, great uncertainty is present regarding the financial market developments once the current policy support ceases. The report questions the sustainability of the quick market recovery, emphasising a lack of reflection of the macroeconomic uncertainty in asset valuations and market volatility, which can lead to a decoupling of financial market performance from underlying economic activity.

Furthermore, according to the report, the pandemic has *“added to pre-existing profitability challenges of financial institutions, led to liquidity challenges in segments of the investment fund sector, and is expected to result in deteriorating asset quality in the EU banking sector”*. European banks are said to have overall maintained strong capital and liquidity positions during the crisis, but the outlook for their profitability is still structurally very challenging. Increased provisioning against credit losses, pressure on interest margins and operating revenues in the economic downturn are altogether further depressing banks’ profitability. The Joint Committee also argues that the increased exposure of EU banks to SMEs and consumer financing renders them more vulnerable to the crisis. This risk is expected to materialise once policy support measures, such as loan moratoria, expire, and the deteriorated asset quality becomes exposed.

Taking into account these enhanced risks and uncertainties, the Joint Committee recommends the following policy actions:

- 1) *Financial institutions and supervisors should prepare for an expected deterioration of asset quality, for instance, banks should adjust their provisioning models and recognise in a timely manner adequate levels of provisions;*
- 2) *Supervisors, policymakers and financial institutions should continue developing further actions to accommodate a “low-for-long” interest rate environment and its risks;*
- 3) *Banks should ensure sound lending practices and adequate pricing of risks despite the importance of continued lending in the crisis, and supervisors should monitor these aspects;*
- 4) *Financial institutions should continue following conservative policies on dividends and share buy-backs, and particular prudence is required to maintain sufficient capitalisation as a necessary condition for the continuous financing of the economy;*
- 5) *Investment funds should further enhance their preparedness in the face of potential increases in redemptions and valuation shocks.*

4. Macroprudential concerns in the non-banking sector

According to the [ECB](#), over the past decade, the prominence of money market funds (MMFs) and investment funds has significantly increased, with the total value of the latter sector assets more than doubling and reaching € 15.5 trillion in mid-2020. The sector *“provide(s) a range of services to the financial system and the wider economy, such as diversified portfolio investment, cash management and funding”*. As MMFs and investment funds play a different role in the financial system, the ECB has provided some policy recommendations for further developments of macroprudential policy for those two sectors.

⁶ Consisting of the European Securities and Markets Authority (ESMA), the European Banking Authority (EBA) and the European Insurance and Occupational Pensions Authority (EIOPA).

Following the pandemic outbreak in March 2020, a number of European MMFs and other investment funds that have invested in illiquid assets experienced severe liquidity issues, which exposed the structural vulnerabilities caused by liquidity mismatches, compromising the ability to absorb shocks. Outflows prompt funds to engage in procyclical behaviour, as they revert to fire sales that increase pressure on market liquidity and asset valuation. As a response to the crisis, some investment funds have suspended redemptions, which, as the [analysis](#) published by the ECB reveals, have had *“spillover effects on other funds within the same asset management company and other asset classes as well”*. As the ECB highlighted, *“suspending redemptions can mitigate stress at the fund level, but it impairs investors’ ability to raise liquidity ... and can result in a decline in confidence and reputational losses”*. The ECB analysis shows that suspensions mainly affected real estate and bond funds domiciled in Denmark, Luxembourg and the United Kingdom, while prevailing uncertainty and the difficulty of accurately pricing the underlying assets were named as the main drivers for introducing suspensions that lasted from 3 days to 6 months depending on the asset type. Low cash holdings and leverage were prominent among those funds and may have further exacerbated vulnerabilities in the sector. Additionally, given the fact that MMFs act as a credit provider to the financial system (as well as an important cash-like asset for investors), when the crisis shock hit the market, the MMFs acted procyclically, contributing to the decline of market liquidity and further amplifying the shock.

According to the ECB [analysis](#), the macroprudential regulatory framework is not capable to sufficiently address risks stemming from liquidity mismatches in investment funds and is absent for MMF sector. As the [ECB](#) notes, the March 2020 turmoil required *“extraordinary central bank intervention by the ECB and other authorities globally”*.

As the [analysis](#) suggest, liquidity management tools for investment funds (such as cash buffers) can reduce the above mentioned risks, however, investment funds’ have incentives to operate with lower buffers (and, as a result, higher level of liquidity mismatch), while existing macroprudential framework *“does not adequately address the liquidity risks in investment funds from a systemic perspective”*. Moreover, as a result of the low interest rate environment, investment funds *“try to boost their performance by altering their liquidity risk profile”* which even further enhances procyclical liquidity volatility. As the ECB estimations suggest, well-designed preemptive tools to better address liquidity risks in investment funds would be more efficient than ex post suspensions of redemptions (even though suspension of redemptions is the only liquidity instrument available to macroprudential authorities under the current framework).

Regarding the MMFs, the ECB [highlights](#) three areas where future work should focus: (i) limiting MMFs that have cash-like features from investing in illiquid assets, (ii) enhancing portfolio requirements (notably by investing in public debt) to strengthen MMFs’ liquidity profile, and (iii) making liquidity buffers more usable during periods of stress (in particular by removing the link between breaching weekly liquidity requirements and the possibility of suspending redemptions). Some of these proposals are taken up in recent ESMA consultation on reforming the EU MMF framework (see point 5.1 below). The ECB recognises, nevertheless, that a balanced approach is needed, insofar as the proposals above may impair the instruments’ ability of providing funds to the real economy.

Acknowledging the systemic risks related to the investment funds, the ESRB in May 2020 has issued two recommendations on [liquidity risks arising from margin calls](#) and on [liquidity risks in investment funds](#). The first recommendation was addressed to ESMA urging it to conduct a supervisory exercise with specific investment funds (i.e. investment funds that have significant exposures to corporate debt and real estate assets) on their preparedness for potential future adverse shocks. The second recommendation was addressed to the competent authorities advising them to ensure smooth operation of CCPs during the periods of stress.

5. Recent ESMA publications

5.1. ESMA consultation on money market funds

Following up on work being done at international level and concerns around systemic risk⁷ arising from the asset management side (see section 4 above)⁸, ESMA has recently published a number of papers addressing MMFs. On December, 2020, the ESMA updated its guidelines on MMFs stress tests⁹ and on 26 March, launched a [consultation](#) on possible reforms to the MMF framework¹⁰. The [MMF Regulation](#) requires the Commission to review the framework by 22 July 2022. ESMA consultation will feed into that process. MMFs invest in short term investment products, mostly issued by banks¹¹, and have distinct or cumulative objectives offering returns in line with money market rates or with preserving the value of the investment. They are highly liquid assets, offering daily redemptions to investors. Investors often see them as comparable to deposits even if not covered by the deposit guarantee scheme that is typical of deposits¹².

The ESMA consultation addresses four areas:

- *Reforms targeting the liability side of MMFs – such as decoupling regulatory thresholds from suspensions/gates to limit liquidity stress, and to require MMF managers to use liquidity management tools such as swing pricing;*
- *Reforms targeting the asset side of MMFs by e.g. reviewing requirements around liquidity buffers and their use;*
- *Reforms targeting both the liability and asset side of MMFs by reviewing the status of certain types of MMFs such as stable Net Asset Value (NAV) MMFs and Low Volatility Net Asset Value (LVNAV); and*
- *Reforms that are external to MMFs themselves by assessing whether the role of sponsor support should be modified. In addition, ESMA is also gathering feedback on other potential changes, particularly linked to ratings (considering, in particular, that ratings issued for MMFs are not covered by the [EU credit rating agencies Regulation](#) and the impacts ratings have in MMF portfolio composition), disclosure and stress testing. ESMA consultation also discusses the possibility of setting up a liquidity exchange facility (“LEF”) funded by MMF or asset managers or third parties, on an on-going basis.*

Whilst most of ESMA proposals relate to the MMF regulation, others may expand beyond that. That is the case of proposals around changes to the prudential treatment of bank exposures to MMFs and money market instruments; central bank liquidity provision to MMFs and short-term funding markets; or the disclosure of commercial paper or certificates of deposits issuance and outstanding amount to the market. Results of this consultation may, therefore, impact the banks’ prudential regulation framework. ESMA underlying rationale

⁷ The ESRB General Board discussed in its [25 March](#) meeting risks arising from MMFs and the impacts of March 2020 turmoil events. The General Board “will further consider a range of issues, including the wider markets in which MMFs operate, the behaviour and expectations of investors in MMFs, as well as the structure of MMFs and the liquidity management tools available to them, with a view to adopting a Recommendation by the end of 2021. An ESRB note summarising the initial considerations in this regard will be published in the spring”.

⁸ ESMA, issued in [December 2020](#) guidelines on the use of leverage by alternative investment funds with the aim of ensuring that competent authorities adopt a consistent approach when assessing whether the condition for imposing leverage-related measures are met. These are a response to an ESRB recommendation ([ESRB/2017/6](#)). ESMA signalled on [8 April 2021](#) that the alternative investment funds sector suffered strong impacts from the COVID crisis and that liquidity risks are still relevant (being the “mismatch between the potential liquidity of the assets, and the redemption timeframe offered to investors” particularly highlighted).

⁹ In particular, [ESMA](#) re-calibrated the risk parameters underpinning the stress tests to cater for stress situations similar of those occurring in March 2020 when funds were under extreme stress due to COVID-related issue (very high outflows, and challenges to dispose of their assets due to the lack of liquidity in assets where they were invested). ESMA worked closely with the ESRB and the ECB to develop such revised risk parameters.

¹⁰ ESMA notes that the consultation is influenced by the March 2020 events, where “A number of EU MMFs faced significant liquidity issues during the period of acute stress in March 2020 with large redemptions from investors on the liability side, and a severe deterioration of liquidity of money market instruments on the asset side”.

¹¹ These are mostly Commercial Paper (CP), Certificate of Deposits (CDs), short-term government debt, bank deposits or repurchase agreements (repo). MMFs are mainly exposed to financial institutions and in particular to banks. Being exposed to banks, they may amplify banks’ problems or be affected by it, thus reinforcing stress in the financial sector overall.

¹² Compared to other assets, MMFs generally offer higher yields than bank deposits and higher liquidity than short-term bond funds. They are, thus, used for cash reserve management. They are mostly held by institutional investors, even if they can be offered to (and held by) retail.

for the consultation is that a reform should make MMFs more resilient and less reliant on extraordinary central bank intervention in crises, while allowing the instrument to maintain its economic functions. That would, in any case, be in line with the EU Capital Markets Union agenda of ensuring diversified sources of financing and funding for both retail and institutional investors.

5.2. ESMA peer review on CCPs supervision

On [8 April 2021](#), ESMA published its annual [peer review report](#) (dated from 23 March) on EU CCPs supervision. The report assesses how national supervisory authorities have supervised CCPs. In addition, this year report focuses on liquidity stress testing of CCPs. This is particularly relevant for the banking sector, as CCPs' members are banks. Therefore, CCP liquidity stress testing results may have an impact on its members; likewise, the CCP stress testing also assesses the impacts failure of some of its members may have on the CCP.

The [European Markets Infrastructure Regulation](#) (EMIR) requires national competent authorities to assess and review the compliance of CCPs with the EMIR requirements, including those on liquidity stress testing. For the peer review assessment, ESMA required national competent authorities to provide responses to a number of questions on their supervisory approach and practices, as well as on their organisational set-up.

ESMA concludes that the review of colleges' activities during the reporting period (July 2018 to June 2020) remains overall positive. Regarding supervisory activities on the liquidity stress testing, the overall outcome of the peer review is overall also satisfactory. However, the peer review showed that the assessment of some areas of liquidity stress testing was not always performed or being sufficiently evidenced. In particular, ESMA recommended that national competent authorities should make sure that the settlements of obligations of defaulting clearing members are reflected in full in the liquidity stress testing framework and that less reliance on desk-supervision should be conducted.

6. BIS research on climate related risks for the banking sector

In April 2021, the Basel Committee on Banking Supervision published two reports on climate related risks. The first, on [Climate-related risk drivers and their transmission channels](#) investigates how climate-related risks can impact the financial system via traditional risk categories (i.e. credit, market, operation, liquidity, and reputational risk).

Climate risk drivers are defined as *physical* and *transitional*, the former consisting of episodes of intense weather and climate change that can affect the economy and the latter representing societal changes arising from a transition to a low-carbon economy and include climate policies (e.g. carbon taxes), technological change, investor and consumer sentiment.

By reviewing existing literature, the analysis finds that:

- **Credit risk** increases if climate risk drivers hamper the ability of borrowers to repay their debt (income effect) or banks' ability to recover the full value of the loan in case of default (wealth effect).
- **Market risk** can arise when climate risk is not incorporated into prices and a reduction in financial asset values can trigger large price adjustments.
- **Liquidity risk** can impact banks directly, by impeding banks to raise funds or liquidate assets, or indirectly, due to consumers' higher demand for liquidity.
- **Operational risk** is represented by an increase in legal and regulatory compliance risk associated with climate-sensitive investments and businesses.
- Changes in consumer and investor sentiment can lead to an increasing **reputational risk** for banks.

The paper also highlights how the impact of physical and transition risks can vary according to geography, economic sector, and financial system developments according to their exposure to climate change. Moreover, there is a high degree of uncertainty surrounding these risks, which can be subject to non-linearities. For these

reasons, the paper concludes, banks and regulators should integrate into their analysis of climate-risk scenarios granular data to capture the climate sensitivity of their exposures.

An appropriate methodology for this purpose is discussed in the second [paper](#), and includes an overview of practical implementation issues faced by banks and their supervisors. The report outlines general issues in measuring climate-related financial risks, evaluates strengths and weaknesses of the existing measurement approaches, and presents findings of a survey conducted by supervisors and workshops with the banking industry in 2020.

The report finds that, firstly, given the need for granular and forward-looking measurement methodologies, conventional risk management tools are rendered insufficient. Secondly, assessing banks' exposures to physical risks of climate change is found to be in an earlier stage of development than measuring climate-related financial risks stemming from near-term transition risk drivers. Thirdly, banks and supervisors have so far mainly focused on assessing credit risk related to climate exposures, specifically on quantitative assessment of risks related to corporate lending and real estate exposures, and qualitative assessment of risks such as the reputational one. A lesser focus has been put on market risk, and especially on liquidity and operational risk. Fourth, the report finds that the translation of climate-related risks into robust quantifiable financial risk measurements is in its earliest stages, but the progress is accelerating. Banks currently extensively rely on third-party providers since internal risk frameworks are generally not in place and require a mix of approaches.

Key areas for future research relate to measurement gaps in the data and risk classification methods, as well as methodologies suitable for assessing non-standard long-term climate phenomena. Regarding measurement, the key areas of improvement are the translation of climate risk drivers data into economic risk factors, data linking between climate-adjusted economic risk factors and exposures, and data translation of climate-adjusted economic risk into financial risk. When it comes to methodologies, uncertainty is inherent due to data gaps, intrinsic uncertainty related to future projections of physical and transition risk drivers, and model-based uncertainties. Many interconnections, feedback loops, non-linearities and tipping points related to climate change present additional challenges in measuring climate-related financial risks.

These findings echo those of the October 2020 EBA Discussion [paper](#) on management and supervision of ESG risks for credit institutions and investment firms, which noted that *"the existing assessment under supervisory reviews might not sufficiently enable supervisors to understand the longer term impact of ESG risks, its breadth and magnitude, on future financial positions and related long-term vulnerabilities"*. A final report on the topic from the EBA is expected in June 2021. In November 2020, the ECB also published two reports on climate-related and environmental risks: a '[snapshot report](#)' that sets out to what extent those risks are already disclosed, and the final (non-binding) [guide](#) to climate-related and environmental risks that sets out what the ECB expects banks to do over the course of time. In the snapshot report on the status quo, the ECB *"concludes that, in general, institutions do not yet comprehensively disclose their risk profile and that significant efforts are needed to promote transparency in the financial markets on the climate-related and environmental risks institutions are exposed to. As of yet, virtually none of the institutions in the scope of the assessment would meet a minimum level of disclosures set out in the "ECB Guide on climate-related and environmental risks" (see [EGOV briefing](#) for more details).*

Disclaimer and copyright. The opinions expressed in this document are the sole responsibility of the authors and do not necessarily represent the official position of the European Parliament. Reproduction and translation for non-commercial purposes are authorised, provided the source is acknowledged and the European Parliament is given prior notice and sent a copy. © European Union, 2021.

Contact: egov@ep.europa.eu

This document is available on the internet at: www.europarl.europa.eu/supporting-analyses