



The EU-wide stress test: past, present and future



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ABSTRACT

In the aftermath of the 2008 Global Financial Crisis, supervisors have started performing stress testing exercises to assess the resilience of financial institutions to adverse financial and macroeconomic conditions. The EBA has so far conducted and coordinated five EU-wide stress tests. These have helped provide an assessment of banks' vulnerabilities to periods of stress, foster transparency and make stress testing an integral element of both banking supervision and banks' risk management. The results of the 2021 exercise confirmed the strength of banks capital positions even under a very severe scenario. Going forward it is envisaged that the EU-wide stress will rely on a "hybrid" approach combining supervisory and banks' own models to add operational efficiency. The incorporation of new risks such as cyber and ESG risks into stress testing is a priority but also a challenge. This will require the use of new data, modelling and risk management skills for both banks and supervisors.

1. The past: History and objectives

Since its introduction just after the 2008-9 Global Financial Crisis (GFC), the [EBA EU-wide stress test](#) has covered 10 years of stress episodes. These include the EU Sovereign debt crisis, which together with the GFC resulted in increased consolidation of the European banking sector. This was followed by a sustained period of low interest rates coupled with lower growth, which caused concerns for banks' earnings. Then came the Covid-19 crisis and now the Russian invasion of Ukraine. The EU-wide stress test has helped point to potential weaknesses the EU banking sector as has helped underpin financial stability considerations and policy. It has helped induce better risk management practices and risk awareness within the banking industry. There is little



doubt that stress testing is an essential regulatory toolkit that has helped ensure that the EU today has a more robust banking industry.

The EBA successfully conducted its 5th EU-wide stress test in 2021 during the Covid pandemic. The main objective of the EBA EU-wide stress test exercise is to identify risks and vulnerabilities in the banking system. This is done by applying a common methodology and as well common scenarios to all participating banks. This process makes it possible to assess the resilience of banks to the same adverse economic and financial developments. The framework that is in place also supports banks involvement and, therefore, fosters bank stress-testing and risk management capabilities – including models, data quality and risk management practices.

The outcome of the exercise supports supervisory decisions with regard to bank capital requirements and allow regulators to challenge bank capital positions and dividend plans. Both the overall findings as well as individual banks projections, are published, which strengthens market discipline by enhancing transparency and comparability across banks. Overall, this helps ensure that banks, supervisors, investors and the public are better positioned for the next stress period.

2. The present

The [2021 EU-wide stress test exercise](#) was initially planned for 2020 but postponed to allow banks to prioritise operational continuity. As always it helped supervisors assess banks capacity to withstand further shocks. Given the unprecedented macroeconomic shock due to the Pandemic in 2020, the baseline scenario provided a useful yardstick to assess and compare the situation of EU banks assuming an orderly exit of the pandemic. Hence, the stress test also helped provide a perspective on how the banking system would develop after the pandemic.

The exercise was conducted based on a sample of 50 EU banks covering broadly 70% of total EU banking sector assets.

The results show that EU banks have continued building up their capital base, with a CET1 ratio at the beginning of the exercise (i.e. end-2020) of 15%, the highest since the EBA has been performing stress tests, despite the unprecedented decline of GDP and the first effects of the Covid-19 pandemic in 2020.

The adverse scenario for the 2021 EBA EU-wide banking stress test depicted ongoing concerns about the possible evolution of the COVID-19 pandemic framed into a “lower for longer” interest rate environment. With a peak unemployment at 12.1%, a cumulative drop of real GDP in three years by 3.6% in the EU, and a negative cumulative drop in the GDP of every member state, the 2021 adverse scenario was the most severe one compared to previous EBA exercises.

Under this adverse scenario the average impact on the EU banking system was equal to a 485 bps decline in the CET1 ratio for banks (Figure 1). In the baseline scenario, banks’ CET1 ratio would increase by 78bps, bringing the sector’s average CET1 ratio to 15.8% at the end of 2023. It is encouraging to see that the EU banks remained above 10% mark and hence would be able to continue lending despite very severe adverse scenario.

The breakdown of the aggregate results by clusters of banks shows that capital depletion is lower for banks with high NII¹ and for banks less concentrated on domestic markets² (Figure 2). The dispersion in the capital depletion was higher compared to the previous stress test, and ranged decrease of 80 bps to a decrease of 996 bps (Figure 3).

Figure 1: Evolution CET1 capital ratio (%)

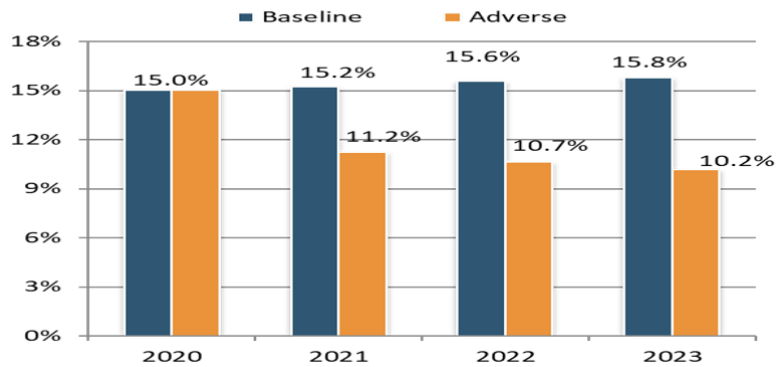
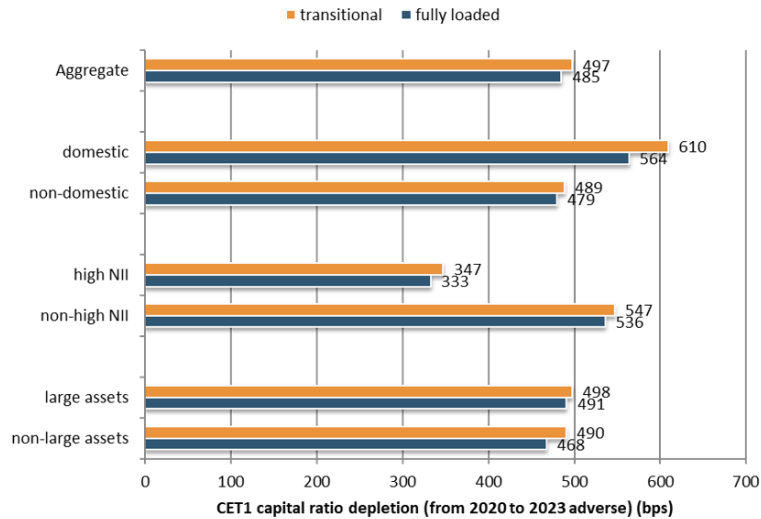


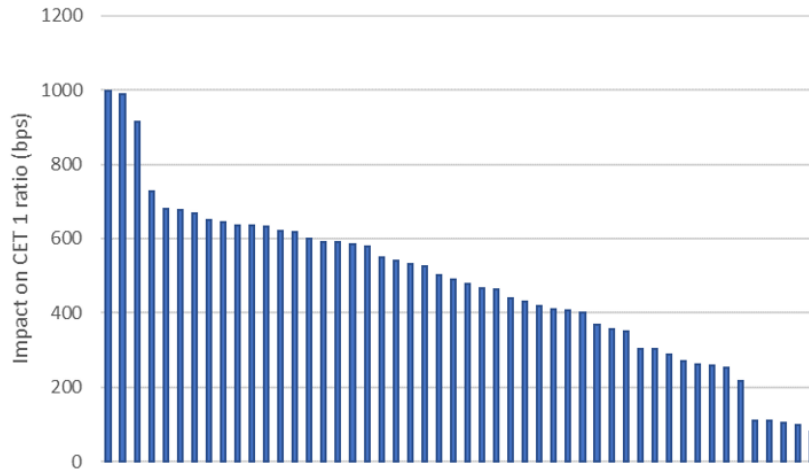
Figure 2: Basis point impact on average CET1 ratio by bank cluster



¹ Banks included in the fourth quartile of the distribution of the indicator NII on total assets, as of 31 December 2020.

² The subsample of banks concentrated on domestic markets includes banks belonging to the fourth quartile of the distribution of the following indicator: exposures granted to borrowers located in the same country of the bank on total exposures, as of 31 December 2020.

Figure 3: Dispersion of fully loaded CET1 ratio impact across banks (in bps)



Like in the previous stress test exercises, credit risk losses were the main driver of the results. The cumulative decrease of bank income also played a role on the final impact on CET1 capital ratio. The impact was however less significant compared to previous exercises. This is mainly driven by lower net interest income in a 'longer for lower' interest environment. The results also showed dispersion across banks. For example, those banks more focused on domestic activities or with lower net interest income at the beginning of the exercise, display a higher depletion.

Given the relevance of the COVID-19 pandemic for the real economy, the 2021 exercise has put a special focus on the impact of the pandemic on credit risk, providing additional disclosures on the exposures that have been subject to Covid-19 support measures. The results showed that loans under moratoria experienced a much higher increase of the stage 3 ratio over the stress test horizon. It is also the case that banks with exposures towards sectors highly affected by the pandemic had to cope with a higher increase in credit risk compared to the overall sample of banks.

In line with previous exercises, the EBA published granular stress test data at a bank-by-bank level, which at times of increased uncertainty in the markets, are even more needed for fostering market discipline, while the results of the exercise represent a key input to the Supervisory Review and Evaluation Process (SREP). In this regard, supervisors have considered banks' impact together with the managerial decisions and capital actions to assess banks' capital position and decide on the potential need to set a Pillar 2 capital guidance. Results from the stress test, in addition to the better economic outlook, have also informed supervisors' decision of to lift their recommendation regarding banks dividends limits.

3. The future

The 2023 EU-wide stress test

Following last year's exercise, the next EU-wide stress test in 2023 is already casting its shadows ahead. As in previous cycles, the EBA launched a process to collect lessons learnt from the supervisory community already shortly after the conclusion of the 2021 exercise and also held a workshop with participating banks to gather views from the industry. The feedback received helps to continuously improve the EU-wide stress test from cycle to cycle.

As part of this regular review, areas for simplifying the methodology and streamlining of the templates have been identified, which will be addressed going forward. This also includes the incorporation of relevant FAQs from the 2021 exercise, the adaptation of the framework for regulatory changes, such as the phasing-out of Covid-19 support measures, as well as the targeted review of methodological constraints. Overall, this process aims at improving the relevance and increasing the efficiency of the EU-wide stress test, while keeping the methodology as stable as possible.

What is special about the 2023 exercise is that the EBA considers introducing for the first time some more targeted changes to the stress testing approach following the [consultation on possible future changes to the EU-wide stress test](#) initiated in early 2020. The revision of the existing stress test framework was triggered by a perceived need to further increase the realism and operational efficiency of the stress test. At the same time, transparency, and comparability of the results, which are key features of the EU-wide stress test, should be guaranteed in the future framework.

Achieving this goal would require a deep reflection on the type of approach to choose. On one hand, a top-down approach would make the exercise more efficient, requiring less effort in terms of quality assurance and banks involvement, guaranteeing a level playing field and so comparability of results.

On the other hand, a bottom-up framework allows for a broader coverage of risk areas, enabling a better idiosyncratic assessment of risks. Finally, it also helps foster improvements in banks' risk management practices. However, these advantages come with a cost in terms of constraints in the methodology and strict quality assurance process for ensuring sufficient conservativeness of results and a level-playing field.

Based on these considerations, we are currently exploring the possibility to introduce a "hybrid" framework in which top-down and bottom-up methods, applied to different risk areas, coexist. Such a framework would still rely on banks' projections but allowing for some relaxation in the constraints and with a more focused quality assurance. It would also increase efficiency for both banks and supervisors by lowering the reporting burden and reduce the quality assurance, as fewer projections would be needed. On the other hand, it would maintain realism for areas covered by top-down models and increase it by relaxing some constraints in the bottom-up projections.

Net interest income (NII) and net fees and commission income (NFCI), most likely, will benefit from top-down modelling to reduce the cost of the exercise for banks and supervisors. However, before taking any final

decision, this will require additional work, in particular regarding the validation of the supervisory models available, in order to define concrete proposals.

For the moment, the ECB's models for NII and NFCI, initially developed for quality assurance purposes, have been assessed as most suitable candidates in terms of coverage and therefore serve as starting point for developing robust models covering the whole EU sample. The validation and potential recalibration of these models is still ongoing, involving experts from various (national) competent authorities, with a final decision to be expected in Q2 2022. As for previous exercises, an industry consultation on the revised stress testing framework should be held in Q3 2022.

The plan is to have some top-down features introduced already in the 2023 exercise, while possible future changes, for instance, concerning the expansion of the top-down applications to other risk areas, such as credit risk, will be considered beyond this exercise.

Climate-change

In the last couple of years, the European commission has been quickly amending banking regulation for paving the way to a smooth transition towards a low carbon economy through a more sustainable banking sector.

Hence, looking further ahead, the EBA is looking at broadening the risk coverage of the EU-wide stress test by including relatively new risks which might pose additional threats to the financial stability of the banking sector in the future. In this regard, ESG risks have high priority. EBA regulation already reflects this additional perspective and includes a mandate for the EBA to develop common methodologies for assessing the effect of risks stemming from adverse environmental developments on an institution's financial position.

Additionally, the revised CRR/CRD package gives the EBA the mandate to initiating and coordinating a regular climate risk stress test on European banks and developing guidelines for banks and supervisors to assess the impact of ESG risks under adverse conditions. In addition, ESAs and the ECB are called to run a one-off system-wide climate risk stress test to assess the resilience of the financial sector in line with the *Fit for 55 package*.

Based on these mandates, at the EBA we are currently designing our strategy on ESG risk stress testing, starting with climate related ones.

The first step, in line with the EBA action plan on sustainable finance published in 2019, was to launch in 2020 an [EU-wide pilot exercise on climate risk](#), representing the first EU wide assessment on climate related risks. The objective of the exercise was to test methodologies and data, map climate related risks to banks' exposures and raise awareness among the industry. The pilot exercise revealed that there are clear quantitative challenges that supervisors and banks need to address to move forward. Tools and data to assess transition risk are clearly evolving, but the incorporation of forward-looking components (like transition strategies) into scenario analysis and data classification approaches remains a major challenge. This affects the comparability of the results and represents an impediment to any system-wide type of analysis at the current juncture.



Further light should be also shed on physical risk, which is assumed to severely impact the economy in the longer term if no action is taken, it is an area affected by data limitations concerning detailed geographical information. However, as the frequency of physical risk events is increasing in many regions of the world, damages coming from extreme weather conditions, for instance on loans' collaterals, are becoming more and more material. Exploring tools and data to measure and map these risks, even only on exposures to critical geographical areas, would be a major achievement and could help identifying areas where risks are like arise.

Going forward, the results of the EBA pilot exercise and the outcome of other initiatives run by other supervisors will further inform this process and will help calibrating the level of ambition of an EBA climate risk stress test in the future.

Some of these initiatives have already been finalised while others are ongoing. For France the Autorité de Contrôle Prudentiel et de Résolution (ACPR) has published last year the results of [its pilot exercise on climate risk](#) aimed at identifying vulnerabilities, best practices and challenges faced by the French financial institutions when managing climate-related risk³. The 2021 [Biennial Exploratory Scenario](#) by the Bank of England, which is run on both UK banks and insurances, and the 2022 ECB Banking Supervision [climate risk stress test](#) on Euro Area banks, have been launched and are ongoing⁴.

In parallel the Network of Central Banks and Supervisors for Greening the Financial System (NGFS) has been developing [climate scenarios](#) which represents a common reference point for understanding how climate change (physical risk and transition risk) could evolve over time. The NGFS has already released a second vintage of the scenarios which will support financial institutions, supervisors, and central banks in exploring the possible impacts of climate shock on the economy and financial system.

Finally, supervisor can help nudge and steer the banking as well as wider financial industry towards better risk management when it comes to climate-change. Banks and other financial institutions recognise this and are continuing their work to enhance their internal ESG risk measurement, modelling and risk management skills. The introduction of better metrics is a fundamental step forward needed to achieve perform fully-fledged climate risk stress tests that capture the main drivers across the entirety of bank balance sheets. This will no doubt require substantial investments, time and collaboration among authorities as well as banks. In the meantime, keeping an active dialogue with the industry by exploring further banks' current capabilities to collect, to process and analyse information for mapping accurately climate related risks should inform this process.

³ In its pilot exercise on climate risk the ACPR has performed a bottom-up exercise on French banks, funds and insurances testing also a dynamic balance sheet framework.

⁴ The results of these two exercises are expected to be published respectively in May 2022 and July 2022.

Cyber risks

Cyber risk is another risks which is also on the EBA radar. The increased digitalisation of banks and wider use remote working combined with the general cyber situation has accelerated the relevance of cyber risks and institutions' preparedness to ensure business continuation.

Recent geopolitical developments and tensions clearly adds to the importance of cyber risk. Together with the other ESAs, the ESRB and national supervisors and other competent authorities, work is ongoing to find a suitable stress test framework for assessing institutions resilience to risks connected to cyber-attacks. With such risks, once again, the industry best placed to provide us with valuable input, therefore, we expect a close cooperation as it has been the case until now.

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References

EBA 2021 EU-wide stress test: final results published in July 2021.

https://www.eba.europa.eu/sites/default/documents/files/document_library/Risk%20Analysis%20and%20Data/EU-wide%20Stress%20Testing/2021/ST%20results/1017864/2021-EU-wide-stress-test-Results.pdf

EBA 2020 pilot exercise on climate risk, final report, "Mapping climate risk: Main findings from the EU-wide pilot exercise", May 2021.

https://www.eba.europa.eu/sites/default/documents/files/document_library/Publications/Reports/2021/1001589/Ma-pping%20Climate%20Risk%20-%20Main%20findings%20from%20the%20EU-wide%20pilot%20exercise%20on%20climate%20risk.pdf

EBA 2020: Discussion paper on the future changes to the EU-wide stress test.

https://www.eba.europa.eu/sites/default/documents/files/document_library/Calendar/EBA%20Official%20Meetings/2020/Discussion%20Paper%20on%20the%20future%20changes%20to%20the%20EU-wide%20stress%20test/Discussion%20Paper%20on%20the%20future%20changes%20to%20the%20EU-wide%20stress%20test%20-%20FINAL%20-.pdf

ECB Banking Supervision: launch of the 2022 climate risk stress test

<https://www.bankingsupervision.europa.eu/press/pr/date/2022/html/ssm.pr220127~bd20df4d3a.en.html>

ACPR 2020 pilot exercise on climate risk, final report, "A first assessment of financial risks stemming from climate change: the main results of the 2020 climate pilot exercise", June 2021. https://acpr.banque-france.fr/sites/default/files/medias/documents/20210602_as_exercice_pilote_english.pdf

BoE 2021: "Key elements of the 2021 Biennial Exploratory Scenario: Financial risks from climate change", June 2021

<https://www.bankofengland.co.uk/stress-testing/2021/key-elements-2021-biennial-exploratory-scenario-financial-risks-climate-change>

NGFS scenarios, June 2021.

<https://www.ngfs.net/ngfs-scenarios-portal/>