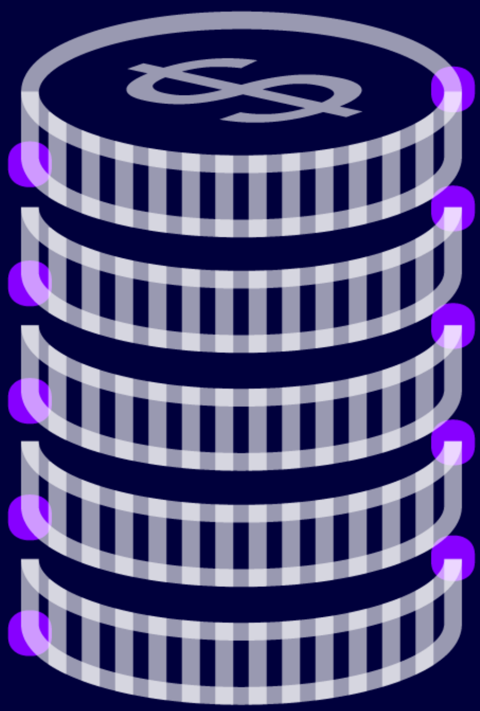
CCAR benchmark 2020

Summary report

August 2020



About this report

This report summarises some of the key findings of the CCAR benchmark 2020, which is an annual study conducted in collaboration with ORX member and non-member firms.

The objective of this study was to provide participants with a benchmark of their CCAR operational risk modelling methods and outputs. The study also took a deeper look at other topics than it had in previous years, such as material risk identification processes.

Following the announcement that banks must resubmit CCAR in 2020, we are conducting an additional phase of the 2020 benchmark to capture the results of the second round of submissions.

Sign up for phase 2 of the CCAR benchmark

We're conducting another shorter survey later this year, following the second CCAR submission to the Fed. All firms who are required to submit for CCAR are welcome to join, and you don't need to have been involved in the project so far or be an ORX member to sign up now. Take part in the project to:

- **Receive a factsheet benchmarking** the results of your April CCAR submissions
- Join our **active CCAR community** for regular calls and webinars
- **Take part in a second benchmark** of the upcoming CCAR submission
- Get the **full version of this summary report** showing key trends and analysis

If you're interested in taking part, or would like to know more about the study and what's involved then email **communications@orx.org**, or visit our website:
managingrisktogether.orx.org/research/ccar-benchmark-2020

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Area of operational risk: Measurement & data

Topics covered:

Coronavirus | Forecasting methods | Idiosyncratic events | Legal losses | Macroeconomic factors | Modelling | Risk identification | Scenario analysis | Stress testing

Executive summary

The Comprehensive Capital Analysis and Review (CCAR) was implemented in 2009 and continues to present challenges to firms who are subject to it because the requirements are continuously changing and evolving.

These changes are reflected in the results of this benchmark, which collected information on submission ratios, forecasting inputs used, modelling approaches, material risks, scenario selection, and top challenges.

New firm categories highlight difference in approach

This year is the first cycle since the Federal Reserve Board (FRB) redefined the requirements for CCAR firms and set new categories for testing based on asset size and complexity. Broadly speaking, the level of bank asset size and complexity decreases from Category I to category IV firms, and the requirements for submissions decrease as well. For instance, Category I firms are the highest asset value and most complex and are therefore subject to higher requirements than the other categories.

To further confound things, many firms are now only required to submit every other year, with 2020 being the first year "back" after not being required to submit in 2019. Because of these factors, notable differences in approach can be seen between the different categories – from modelling and forecasting through to the methods used in more qualitative activities, such as scenario analysis and material risk identification.

New challenges faced this year

In previous years, we had observed top challenge areas identified in activities such as scenario analysis, engagement, or on-going data issues. However, in this cycle there were three new top challenges which surpassed those from previous years:

1. **Timing and resources** – due to the manual nature of the CCAR process coupled with the frequency of the exercise and length of time it takes to produce, it is challenging to obtain and maintain the needed resources to complete a submission
2. **Modelling** – creating models that have the right predictive power and goodness of fit is an area where many are continuing to face difficulties
3. **Macro-economic factors** – firms continue to struggle to make reasonable connections between internal risks/lines of business and macro-economic factors, regardless of correlations

Material risk identification and selection remains a focused challenge

Firms continue to work on identifying their material risks as they recognize that it is critical to their overall risk management. It is also an area where the FRB pointed out deficiencies in overall practice.

There are a variety of approaches used with little standardization in practice. When it comes to selecting material risks to include in submissions, many firms struggle with their methodology as can be seen in this study. Although this area did not make the list of top three challenges, several firms commented that material risk identification and/or selection of risks for inclusion is one of their top challenges and is an area where they are seeking to improve their practice.

Coronavirus impacts are still developing

At the time of the survey, most firms' employees had just gone into lockdown and the impacts from a pandemic were "too soon to tell" for late adjustments to forecasts or to create a scenario to include in submissions which were due in April. The realization that there would be impacts in the US from the global pandemic had come after most forecasts had been completed.

Few firms included a pandemic scenario in their forecasts, and many of those who did commented that the impacts were likely not conservative enough to reflect what are now becoming current economic conditions.

Second submission required by the Fed in short timeframe

The FRB released the 2020 CCAR results at the end of June. This year, the FRB did not object to the submissions based on the stressed variables which were released to banks to test against in February 2020 – before coronavirus impacted the US. However, the FRB did recognize that the variables did not reflect what has become current economic conditions (i.e. unemployment rate, interest rates). As a result, they conducted their own sensitivity analysis which resulted in an unprecedented decision – that firms must resubmit CCAR again in 2020.

This second CCAR submission will be tested against new variables which are still pending at the date of this report being published. The new submission will be required within just 45 days from the release of the variables. Given that timing of the process is an identified top challenge, it will be a push for every firm to create a new unplanned submission at such short notice.

Forecasting

As part of this study, participants were asked to estimate the proportion of their forecasts that was comprised of models, expert input based on scenarios and input relying on other expert methods. The scenarios discussed in this study are: BHC Baseline, BHC Stressed, and FRB Severely Adverse.

This year's methodological choices show that Category I and II banks show the largest consistency for loss projections across all surveyed groups. There is increased consistency amongst Category III banks, with SME scenario inputs for the BHC and FRB Severely Adverse Scenarios becoming more comparable across this grouping. With the largest variation across all surveyed groupings, Category IV firms used less modelled and SME scenario inputs in favor of other SME inputs for Baseline and Stressed projections.

Modelling

Firms rely on various modelling approaches to estimate loss forecasts for submissions. Loss forecasting methodologies are based primarily upon the use of both regression and SME input. This year, we observed that all firms have completely moved away from the loss distribution approach (LDA). The process of selecting which models to include in the submission is a mixture of quantitative and qualitative approaches. The average firm selects models from a pool of candidates to represent the appropriate risks; then business intuition and the expertise from SMEs takes on a more prominent role in final selection.

Both internal and external losses are used in forecasting

Overall, historical internal losses are used by all firms in their BHC stressed scenarios, but not necessarily by all firms in stressed scenarios. Economic factors and the expected outcome of pending operational risk events, however, are commonly used in stressed scenarios.

Category I and II firms approach their stressed scenarios slightly differently to their baseline scenarios, rather than using the 9Q plan/budget, they typically employ the expected outcome of pending operational risk events – which is the same approach that Category III firms use for all their scenarios.

Category III and IV firms use the same factors for all their scenarios, but the factors differ slightly. Both use historical operational losses and expected outcomes from pending operational risk events, but Category III firms use economic factors where Category IV firms use their 9Q plan/budget.

Figure 1. Top three factors used in projections for each CCAR category

Category I-II BHC baseline	Category I-II BHC/FRB SA	Category III All scenarios	Category IV All scenarios
• Historical ops losses • Economic factors • **9Q plan/budget**	• Historical ops losses • Economic factors • **Expected outcome of ops risk events**	• Historical ops losses • **Economic factors** • Expected outcome of ops risk events	• Historical ops losses • **9Q plan/budget** • Expected outcome of ops risk events

Macroeconomic factor linkages to operational losses were identified by most firms. Execution, delivery, and process management (EDPM) and external fraud were identified as event types most often linked to macro factors. The strongest linkages to EDPM related to:

- Transaction errors
- Real estate
- US GDP
- Delinquency rates
- Treasury bond rates
- Market drivers

The second strongest relationship between the macro environment and operational risk event types was with external fraud, where over half of all categories were able to make a connection. The linkages to external fraud were:

- Housing price index
- Unemployment rate
- Number of card accounts
- Purchase volume

Idiosyncratic events

We ask firms year over year if there is a distinction between idiosyncratic events and scenario analysis. Historically, most firms did not identify a significant difference but those who did would state that idiosyncratic events would impact multiple risk types, whereas scenarios are more operational risk specific.

Figure 2. Differences seen between idiosyncratic events and scenario analysis

Idiosyncratic event	Scenario analysis
• **Multiple risk types**	• **Ops risk focused**
• In loss history	• Created in workshops
• Higher stress to quantify risk	• Complement to statistical models
• Involves a quantitative process	• Expert judgment
• Realization of risk	• Evaluation of risks

This year, many more defining characteristics were highlighted between the two, which can be seen below. Category I and II firms are more likely to identify a difference between the two, while about a quarter of Category III and IV firms make a distinction.

Scenario analysis

All firms stated that they incorporate results from scenario analysis exercises into their CCAR submissions, and all firms plan to incorporate scenario analysis results into their future CCAR submissions as well. Scenarios can be used as an overlay to current modelling techniques to account for material risks which are not well captured elsewhere.

Pandemic scenario inclusion

Half of Category I - II firms had accounted for pandemics through including scenario analysis results. Category III firms typically did not, with 13% including a pandemic scenario. None of the firms in Category IV had included a pandemic scenario in their submission.

Through our CCAR working group calls, we found that many firms who included a pandemic scenario in their submissions expressed that the storylines and impacts were not nearly severe enough to represent what has become actual conditions.

Make-up of idiosyncratic events and scenario analysis results

When asked whether firms include all the cost components from scenario analysis exercises in their submissions, the typical answer is yes. However, it is common for some cost components to be excluded from these results as they may go into other risk types, against the general ledger (GL) or are modelled through legal losses.

The top three data types used to support the quantified outputs from scenario analysis exercises are:

- Internal loss data
- External loss data
- RCSA outputs

KRI data is used by about two-thirds of Category III firms, and a smaller percentage of other firm types, while about a quarter of Category I and II firms will also use proxy data to leverage into results. No other data types were identified for use.

Risk Identification

Material risk identification continues to be an area of focus for firms and regulators alike. It is an area where there is variability in practice and little guidance. We observed differences in approach between and within categories on how material risks are identified or defined for CCAR purposes. This indicates that there is not a standardized practice in this area.

Firms were unanimous this year on linkages to their internal taxonomies, which is a change from previous years. Most firms link their taxonomies to Basel categories. Category I and II firms may use a dual mapping approach, using both Basel categories and material risk inventories (MRIs), while about a third of Category III firms link to MRIs exclusively.

Incorporating results into BAU

The CCAR process is both resource and labor intensive. That is why many firms seek to make the inputs or outputs about more than just a yearly test.
Firms in Categories I, II and IV are more likely to align the CCAR baseline scenario with budget or financial planning outcomes than Category III firms. Some firms commented their baseline scenarios are usually their forward forecasts and revenue projections.
Another use for CCAR inputs and outcomes is to help inform management and the business of possible exposure to risks. This allows the business to incorporate these risks into their decision making.
Firms are increasingly utilizing CCAR results to inform the following:

- Risk tolerances and appetite
- Capital and planning actions
- Strategic plans
- Business activities
- Material risks
- Resourcing
- Control effectiveness

Top challenges

We asked participants to identify the top three challenges they were facing relative to this year's CCAR submission. The results related to:

- Timing and resources
- Models
- Macro-economic linkages

Timing and resources

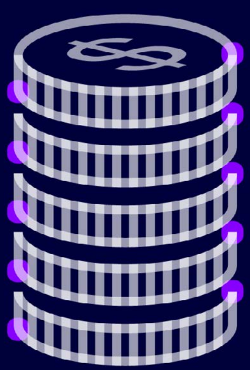
The timeliness of the results is challenged by the length of the process. Much of the work is done months in advance of the FRB release of scenarios so it can be difficult to 'turn the ship' when an event such as coronavirus takes place. This is coupled with the challenges of obtaining and maintaining proper resourcing to focus on an extremely manual process, especially when it occurs on an annual basis (or in some cases bi-annual).

Models

There are a variety of issues that have been identified as model related challenges. The first is that they are not sufficiently stable or lack the predictive power that is desired. It can be difficult for models to address idiosyncratic losses within a firm and even more difficult to get a good fit. Modelling methodologies could be improved upon in order to address accuracy and robustness.

Macro-economic linkages

There are weak to moderate linkages between macro-economic factors and internal operational risks. Finding a strong connection is tedious and may not yield informative results, due to the idiosyncratic nature of operational risks relative to the overall macro-economic environment.



Sign up for phase 2 of the CCAR benchmark

This report summarizes the findings of an annual benchmark that ORX has been running for several years. Following the announcement of a second stress test required this year, we've extended this benchmark to include a second survey in Q4 2020. This means you can still sign up to take part in this study retroactively to benchmark both your first and second CCAR submission.

To sign up, please contact **communications@orx.org**, or for more information visit **managingrisktogether.orx.org/research/ccar-benchmark-2020**

Managing risk together

ORX believes many heads are better than one. We're here to bring the best minds of the international operational risk community together.

By pooling our resources and by sharing ideas, information and experiences, we can learn how best to manage, understand and measure operational risk and become less vulnerable to losses. We work closely with over 100 member firms to develop a deeper understanding of the discipline and practical tools. We set the agenda, maintain industry standards, and garner fresh insights.

ORX is owned and controlled on an equal basis by its members.

For more information about ORX, visit our website at **www.orx.org**

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