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First Attempt by U.S. Regulators to Build a Climate Stress Test for Banks

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Trailing their European counterparts on climate-related issues, U.S. banking regulators are playing catch-up, urged by the new administration to do so. Fed Chairman Jerome Powell suggested in a July Senate Banking Hearing that climate stress testing could be on the table. On September 24, 2021, the Federal Reserve Bank of New York (FRB-NY) released a staff report detailing a climate-related stress-testing procedure. The report assessed the resilience of 27 global banks during a one-time shock to fossil fuel prices. While no proposed guidance or requirements has been announced for U.S. institutions, this report is the first step on the path to climate stress testing for U.S. banks following European peers, which are already on track to be tested for their climate-related risks next year.

The report

The stress-test approach applied in FRB-NY's report is meant to capture *transition risk*, which encompasses what will occur as society transitions toward a low-carbon economy. A hallmark of transition risk is stranded assets, which can be defined as holdings the value of which is diminished or suffers unanticipated write-downs from the orderly or disorderly transition away from reliance on fossil fuels. The researchers used *stranded asset portfolio returns* from an index of fossil fuel-related exchange traded funds (ETFs) as a proxy for measuring transition risk. The goal is to extrapolate the impact of systemic climate stress, defined as *CRISK,* on capital positions.

The assessment seeks to correlate this transition risk stress scenario to the collapse in fossil fuel prices in 2020, when oil futures temporarily went negative. It's important to note that this pricing collapse was more a function of a temporary steep misalignment between demand and supply at the onset of the COVID-19 pandemic, without any connection to regulatory or market pressure on climate-oriented decarbonization. Regardless of the cause, it can still highlight potential impact to banks with greater exposure to fossil fuels.

The researchers applied this modeling exercise to large banks that hold more than 80% of syndicated loans made to the oil and gas industry globally. The results of the assessment identified a significant increase in *CRISK* when energy prices collapsed. The FRB-NY noted that the impact of the modeled collapse of energy prices would reduce banks' equity by 20-30%. One U.S. institution would need to raise $73 billion of capital to maintain the minimum regulatory ratio of 8%.

Limitations in methodology

While this exercise is a great first step in U.S. regulatory agencies' attempt to quantify the impact of climate risk on banks, it's not without its limitations and opportunities for further development. For example:

- The *stranded asset portfolio returns* selected by the researchers use the market performance/betas of three ETFs, rather than the individual banks' actual lending or investment portfolios. Just like *SRISK* – a measure of systemic risk developed by New York University academics a decade ago – *CRISK* is more of a stress test proxy than a true stress test methodology.

- As mentioned above, the scenario was grounded in energy price shocks that did not stem directly from transition risk drivers such as investor sentiment, disruptive innovation or public policy. A true transition risk scenario would have other risk factors in play, and impacts would be evidenced over a longer time horizon. By comparison, the recent preliminary climate stress-testing exercise from the European Central Bank (ECB) employed scenarios designed by the Network of Central Banks and Supervisors for Greening of Financial Services (NGFS) over a 30-year period.

Potential future climate stress scenarios

The report suggests other areas of climate stress testing that may be explored in future research, including:

1. Stress testing of physical risk, which includes the risks that arise from changes in weather, sea level and other physical factors because of climate change

2. Incorporating loan-level detail to look at the correlation between loan portfolios and the climate transition risk proxy which, if consistent with this initial report, would be based on market performance

3. Potential exploration of other measures of climate factors in assessment of transition risk, such as historical changes in the climate-related policies across countries

4. Aggregating country-level CRISK as a potential mechanism for identifying macroeconomic distress due to climate risks.

In contrast, the ECB's economy-wide stress test has a vastly different scope: It leverages climate-specific scenarios, creates a comprehensive dataset that includes counterparty-level climate and financial information, and uses a set of models that capture both direct and indirect transmission channels of climate risk drivers for borrowers and banks at a granular level. The ECB plans to require banks to execute individual climate stress tests in 2022, informed by the results and methodology of the recent economy-wide test.

What this means

The FRB-NY's report signals progress toward more formal guidance from regulators on climate risk. Judging from this development, it appears likely that this will include requirements for climate stress testing. To manage portfolios and risk exposure prudently, and to avoid huge hurdles when guidance does come to fruition, banks should be making strategic decisions now to remain ahead of the curve. Here are three steps they can be taking in preparation for those strategic decisions.

- Data plays a central role in measuring climate risk as a key component of both internal-scenario analyses and external requirements for stress testing. Banks should be proactive in assessing potential data expectations and requirements against their existing sources, management and usability.

- Banks should proactively work on incorporating climate risks into their risk management frameworks. This includes developing mechanisms such as ongoing scenario analyses, performing loan-level assessments, calibrating pricing and risk ratings that reflect climate change, and incorporating climate risk elements and metrics into reporting and risk appetite.

- In the spirit of the Paris Agreement's focus on global collaboration and collective management of the commons (sharing responsibility for the protection of the environment), banks should be aware of the policies, scenarios and assessment results coming out of countries that have been more progressive in incorporating climate risk within their financial frameworks.

In closing

In May 2021, President Biden issued an executive order calling for an assessment of climate-related financial risk by financial regulators within 180 days, or mid-November, which is right around the corner. Meanwhile three U.S. regulators have joined the NGFS, one has appointed a point person on climate risk and another formed two committees to monitor macro and micro impacts. It's clear that climate risk mitigation, and quantifying climate-related impacts to lending portfolios, will be at the forefront of U.S. regulatory agenda for the near future. We recommend that banks treat the FRB-NY's stress-testing procedure as a sign of what's to come and begin considering climate risk in their own risk management and stress-testing programs.

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