"***Stress Testing, Design, Interpretation and Quality Control***".

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Stress tests have become a major tool of banking supervision. I analyze their use in bad times and in good times, in theory and in practice. I consider first the optimal use of disclosure during financial crises. Providing information can reduce adverse selection in credit markets, but negative disclosures can also trigger inefficient bank runs. Governments are thus forced to choose between runs and lemons. A fiscal backstop mitigates the cost of runs and allows a government to pursue a high disclosure strategy. This explains why governments with strong fiscal positions are more likely to run informative stress tests, and, paradoxically, how they can end up spending less than governments that are more fiscally constrained.

I then analyze empirically the quality of banking stress tests in the European Union, using stress tests scenarios and banks' estimated losses to recover bank level exposures to macroeconomic factors. Once macro outcomes are realized, one can predict banks' losses and compare them to actual losses. I argue that European stress tests are informative and unbiased on average (at the EU level). Model-based losses are good predictors of realized losses and of banks' equity returns around announcements of macroeconomic news. There is, however, some evidence that exposures are underestimated in countries with ex-ante weaker banking systems.

I finally consider the design of stress scenarios in good times. I analyze the optimal design by a risk-averse principal (e.g, a risk officer, a regulator) who seeks to learn about the exposures of agents (e.g., traders, banks) to a set of risk factors. I decompose the problem into a learning part, and a design part. Conditional on the stress scenarios, one can apply a Kalman filter to solve the learning problem. The design of optimal scenarios is then a function of what the regulator wants to learn and of how she intends to intervene if she uncovers excessive exposures. The optimal design depends on the correlation of exposures within and across agents, and on the non-linearities in potential losses.

To conclude, I discuss the implications for the modeling of credit losses, quality controls of supervision, and the political economy of financial regulation.