DISSERTATION PROPOSAL

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"Essays on Banking Regulation and Carbon Emission Disclosures"

Wednesday, December 4, 2024
3:00pm
Tepper 4242

Chapter 1: Optimal Interim Asset Value Disclosure under Rollover Risk in the Banking Industry

We investigate how the disclosure of changes in banks' interim asset values affects its stability through depositors' rollover decisions. In our model, a regulator designs an information system that measures the interim value of a bank's assets—information that is not known to depositors—with the goal of promoting financial stability. We find that the optimal reporting system should be fully opaque (i.e., no recognition of value changes) when the ex-ante interim value of the assets is sufficiently high. However, as the ex-ante value worsens, the optimal system should incorporate both opacity and transparency. Specifically, opacity remains optimal for temporary appreciations and slight temporary deprecations. For moderate and severe depreciations, the system pools severe depreciation with appreciation and slight depreciation by adopting opacity, while transparency is prescribed for moderate depreciation when significant ex-post heterogeneity exists in the interim asset value. Otherwise, only severe depreciation requires transparency. Additionally, we show that the quality of banks' assets and deposit insurance policy influence the optimal reporting thresholds. We relate our results to current accounting standards and banking regulations.

Chapter 2: Financed Emissions Disclosure and Bank Lending Behavior

The banking industry faces significant challenges in achieving net-zero emissions by 2050, particularly regarding Scope 3 financed emissions, which constitute over 95% of a bank's total emissions. Despite commitments by 46% of major banks to include Scope 3 in their targets, progress remains slow, with less than 5% on track. While comprehensive greenhouse gas (GHG) disclosures may intuitively encourage banks to reduce emissions, the issue is complicated by trade-offs in their approach. Banks can either assist clients in reducing emissions or divest from high-emission ("brown") firms and invest in low-emission ("green") firms. Divestment, though simpler, may be inefficient as brown firms often have greater potential to reduce emissions if properly financed. Conversely, green firms, already efficient, may yield diminishing returns on additional investment. This research seeks to explore the optimal design of financed emissions disclosure regulations, focusing on how they influence banks' lending decisions and their clients' GHG reduction efforts. The study aims to uncover potential unintended consequences of stricter disclosure rules and propose policies that balance environmental objectives with financial realities.

Proposed Committee: Gaoqing Zhang (Chair), Pierre Liang, Yucheng Liang, and Nick Muller (external reader)

Proposal Documents: https://cmu.box.com/s/qcx3rg95leak42c7ujb42e8lf501whg5