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Research Statement

I am a financial economist with research interests in banking and corporate finance. The primary aim of my research is to contribute a deeper understanding of financial and real implications of regulatory tools designed to address market distortions. To achieve this, I employ a broad toolkit of theoretical and quantitative methods. In this statement, I summarize my ongoing research and share my plans/goals for the near future.

Banks, regulation, and the macroeconomy

A canonical bank balance sheet is characterized by *maturity mismatch:* illiquid loans on the asset side and demand deposits on the liability side. This intrinsic feature of banks' economic model enhances the flow of credit in the economy and provides liquidity to depositors. At the same time, it gives rise to several vulnerabilities. One line of my research quantifies the trade-offs associated with regulatory tools to address these vulnerabilities.

Optimal deposit insurance in a quantitative model with runs (*Job market paper*). The seminal work of Diamond and Dybvig (1983) provides the first rigorous foundation for the possibility of (rational) bank runs arising due to maturity mismatch. In the four decades since, empirical studies have emphasized the profound macroeconomic consequences of bank runs (Jamilov, König, Müller, and Saidi, 2024). While credible provision of deposit insurance is considered the leading remedy to reduce depositors' run-incentives, there is little quantitative guidance to determine its optimal level. My job market paper investigates the impact of varying deposit insurance coverage on bank stability, credit provision, and broader economic performance.

I develop a quantitative dynamic general equilibrium model in which self-fulfilling bank runs can occur as a recurring equilibrium phenomenon. The model incorporates banks' (unobservable) risk choices, and elements from real-world regulatory environment – insurance on deposits up to a limit and minimum capital requirements. Calibrating the model to the U.S. economy and its banking sector, I derive several insights. First, I find a *U-shaped* relationship between the level of deposit insurance coverage and the risk of bank failure. This finding is the result of a large decline in panic-induced failures from increasing the level of coverage when starting from low levels, which is eventually dominated by increasing risk of fundamental insolvencies from a weakening of banks' risk management incentives. Second, the welfare-maximizing level of deposit insurance coverage for the U.S. in 2008 – roughly 60% of aggregate deposits insured by U.S. FDIC – aligns closely with the level observed in the data. This level weighs less severe deadweight costs and macroeconomic losses during the infrequent episodes of bank panics against higher deadweight costs due to fundamental bank insolvencies in normal times. Finally, the model delivers novel insights into determinants of optimal deposit insurance, including the roles of capital requirements, fiscal capacity, and depositor alertness.

Interest rate risk and bank capital requirements (*with Jan Schäfer*). *Interest rate risk* is another source of vulnerability arising from maturity mismatch in banks' balance sheets: an unexpected

increase in rates reduces the underlying value of their assets relative to their liabilities. The potentially destabilizing effects from exposure to interest rate risk were exemplified in 2023, when Silicon Valley Bank (SVB) failed amidst rapid increases in U.S. monetary policy rates, which had caused sizeable losses in the market value of long-term securities held by banks.[1] As a consequence of the SVB failure and broader market turmoil, regulators have recognized the importance of evaluating adjustments in bank capital requirements.[2] In ongoing research, Jan Schäfer (CEMFI) and I examine the implications of interest rate risk for financial stability and credit provision in a quantitative macro-banking model.

Our analysis addresses a crucial question: should banks' gains or losses in net worth due to changes in interest rates affect their regulatory capital base? Calibrating the model to the Euro Area data, we quantify the non-trivial trade-offs involved in answering this question: On the one hand, shielding banks' regulatory capital from temporary fluctuations in interest rates allows them to maintain a steady provision of credit. On the other hand, prolonged periods of increasing interest rates due to a structural shift in monetary policy stance may make the banking system more fragile, as evidenced by the failure of SVB in 2023.

Firm financing, externalities, and regulation

The perception that current carbon taxes may be insufficient to address the exernalities associated with carbon emissions has prompted a growing interest in policy actions on related fronts. This includes a call for imposing climate-related disclosure requirements on firms – which might support a more explicit and discriminatory pricing of carbon by investors (Bolton, Despres, Da Silva, Samama, and Svartzman, 2020). In our paper, **"Climate conscious investors, carbon disclosures, and efficiency,"** Javier Suárez (CEMFI) and I examine the notion that carbon disclosure requirements might act as a substitute for carbon taxation in addressing emission externalities.

We develop a parsimonious heterogeneous-firms model in which firms, differing in carbon intensity, decide whether to disclose their emissions at a cost. In our setup, *climate conscious investors* adjust their funding terms based on their beliefs about firms' carbon intensities. In the unregulated equilibrium, the least carbon-intensive firms disclose and are financed at terms based on their true carbon intensity, while non-disclosing firms are financed at more expensive pooling terms. We show that encouraging disclosures reduces investment and therefore emissions by non-disclosing firms, but may increase investment and emissions by newly disclosing firms, overall having ambiguous effects on total emissions and social welfare. Our analysis yields novel predictions on the cross-sectional and aggregate effects of changes in investors' climate consciousness, carbon taxes, disclosure costs and disclosure policies on firms' emissions, investment, private value and social value, as well as on the determinants of their disclosure decisions.

[1] See Laliberte and Marsh (2023) and Greenwald, Krainer, and Paul (2023).

[2] See Barr (2023): "With respect to capital, we are going to evaluate how to improve our capital requirements in light of lessons learned from SVB. For instance, we should require a broader set of firms to take into account unrealized gains or losses on available-for-sale securities, so that a firm's capital requirements are better aligned with its financial positions and risk."

Research plans

In future research, I plan to investigate how both observed and unobserved sources of heterogeneity across banks shapes the transmission of aggregate shocks (e.g., monetary policy shocks) to the real economy. A crucial aspect of this line of inquiry will be identifying which sources of heterogeneity – whether in size, asset composition, or risk-taking behavior – play a quantitatively significant role. I anticipate that examining these sources will yield valuable insights, especially given the scarcity of research focusing on unobserved bank-level heterogeneity and its impact on financial stability and the broader economy.

Additionally, understanding these factors can shed light on how regulatory policies should account for bank differences to optimize the stability and responsiveness of the financial system. My training at CEMFI has equipped me with a robust foundation in theory, empirical techniques, and quantitative modeling, which I believe are essential to tackle these questions rigorously. Through this research, I hope to contribute a nuanced perspective that informs both regulatory frameworks and the design of effective macroprudential policies.

References

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