The Long and Short of U.S. Bank Regulations: From the Great Depression to the 2023 Bank Failures

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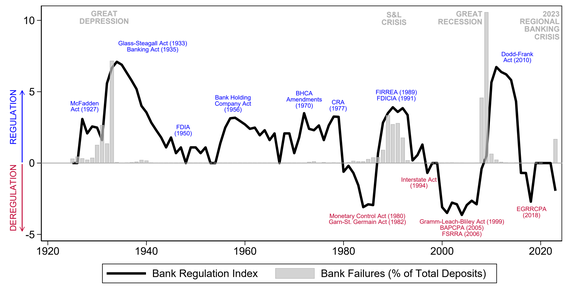
Bank Regulation Index

- This paper develops a Bank Regulation Index (BRI) to quantify U.S. banking regulations
- The BRI is a latent variable that applies ML and NLP on text of historical newspapers to capture the flow of bank regulations for about a century
- BRI is a measure of regulations based on media coverage of banking laws



Main Results

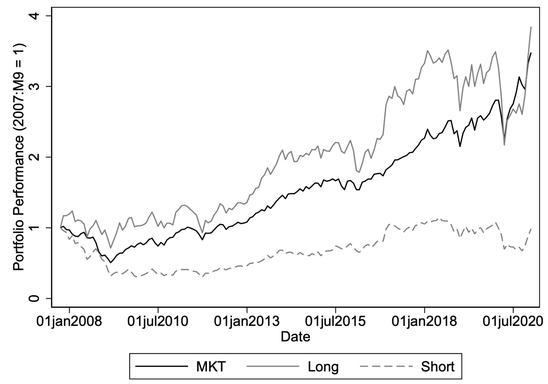
- What are the impacts of bank regulation?
  - Short-term: Profitability ↓, Stock Returns ↓, Idiosyncratic Volatility ↑, Negative media coverage ↑
  - Long-term: Liquidity ↑, Leverage ↓, and Loan-to-Deposit Ratio ↓
- Does BRI have incremental forecasting power?
  - Regulatory changes (ΔBRI) have predictive power over and above well-known *"early warning indicators"* like leverage and credit growth
- What type of regulation is the most important?
  - Applying LDA (Latent Dirichlet Allocation) on Newspaper Articles to decompose regulations into topics reveals *Lending* or *Credit* as the most critical regulatory topic in predicting banking crises
  - This result holds when LDA on Federal Register (FR) is used to model topics
  - Using FR-trained LDA on Earnings Call Transcripts, measures bank-level exposure to different regulation topics
  - Banks more exposed to *Lending- or Credit*-related regulations experience distress: A *Lending*-sorted Long-Short portfolio of bank stocks yields 0.84% monthly return and 0.61%–0.75% alpha

Data

The following materials were required to complete the research:

- **Balance Sheet Data:**
  - Spans 1926-2020
  - Pre-1986: Top 20 banks by Deposits.
  - Pre-1986: *Moody's Manuals* for balance sheet items.
  - Post-1985: FR Y9-C filings.
- **Stock Price Data:**
  - 1926-1963: *Commercial and Financial Chronicle.*
  - Calculated using month-end bid/ask quotes.
  - Post-1963: *New York Times* and *Wall Street Journal*, then CRSP as of 1977

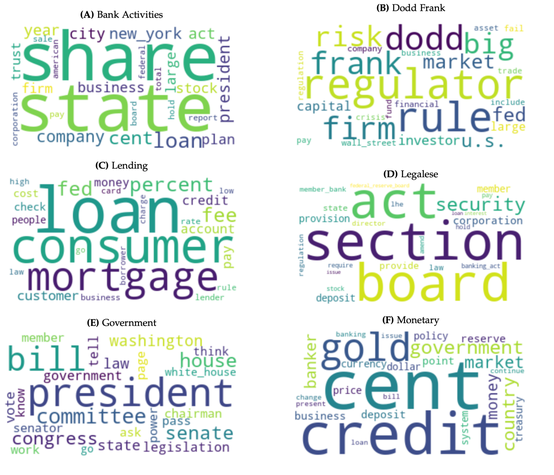
Portfolio Performance



Important Result

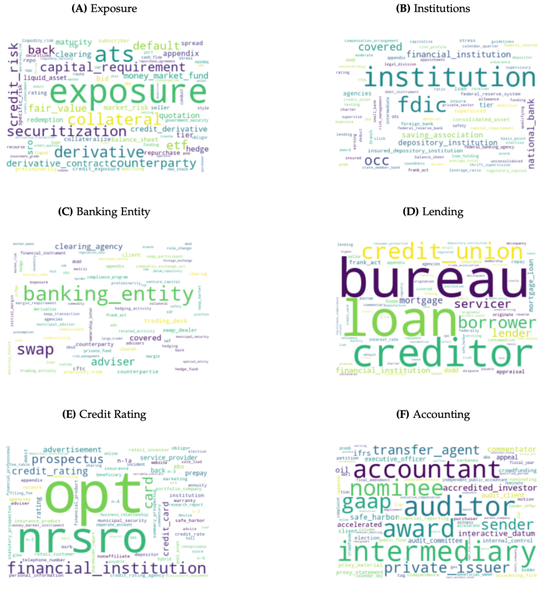
Regulatory changes predict crises beyond traditional indicators like credit growth. LDA analysis highlights lending or credit regulations as most predictive.

Newspaper LDA

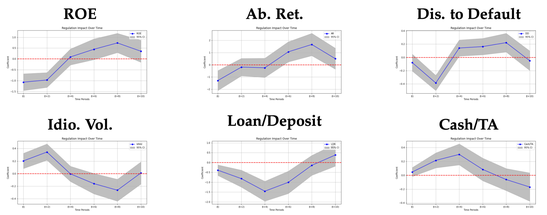


LDA provides two different distributions: a distribution of each document on the topics and a distribution of each topic on a set of words or terms. The term distribution of each topic can be used to create the word clouds associated with the topic. This figure (above) shows topic modeling using the Newspaper text, while the next (right) figure shows topics from the Federal Register text. The topic with Lending or Credit-related terms like *loan, mortgage, lender and borrower* distinctly appears in both Newspaper- and FR-based corpus. This topic's primal importance in predicting crises is robust to both text sources.

Federal Register LDA



Short vs. Long Term Dichotomy



Coefficients (blue) from panel regressions with Bank & Macro Controls, Bank & Decade FE. 95% Confidence Intervals (gray).
Short-term negative effects *reverse* in the long-term.

Conclusions

- The complex nature of regulation leads to conflicting views even among laissez-faire economists
  - John Cochrane's critique of Dodd-Frank Act following the 2023 SVB failure
  - Bob Lucas's positive view on the Glass–Steagall Act
- Main Contributions:
  - I quantify regulation intensity into a latent topics using ML methods
  - I document regulatory cycles and relations with banking crises in ∼100Y
  - Long vs. Short-Term Dichotomy: Effects depend on the time horizon
- Policy Implications:
  - Enhances crisis predictability above and beyond well-known predictors
  - Identifies *Lending or Credit* as a critical regulatory topic in predicting banking crises

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