

Bank Funding Risk, Reference Rates, and Credit Supply

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Summary

- ▶ Banking industry moving from LIBOR, risky rate reflecting bank funding costs, to SOFR, secured risk-free rate.
 - This paper: how does this affect market for credit lines, and ultimately, welfare?
- ▶ Calibrated model of credit line market + supervisory data show this leads to:
 - Increased drawdowns, debt overhang, bank losses in bad times.
 - Higher spreads, smaller credit lines ex ante.
 - Welfare losses.
- ▶ My evaluation:
 - Great paper, identifies subtle yet important issue.
 - This discussion: unmodeled features may imply true costs even higher.

Background: Fragility of the Credit Line System

- ▶ Banks allow enormous amounts of undrawn credit line commitments, larger than all drawn credit lines and term loans combined (Chodorow-Reich et al 2022, Greenwald et al 2022).
 - Offered at reasonable spreads even though often drawn in bad times. Why?
 - My conjecture: important that also commonly drawn in normal times or with low risk.
- ▶ With lower reference rate in bad times, banks can still break even by raising spreads.
 - However, this disincentivizes using credit lines in normal times.
 - If firms only use credit lines in bad times or distress, spreads need to be even higher.
 - This can repeat in a feedback loop until credit line provision is severely restricted.
- ▶ These forces are present in this paper, and contribute to welfare losses under SOFR.
 - However, unraveling doesn't happen, commitments \sim 3% lower under SOFR.
 - This is good news! But ignores some potential risks...

How Much Do Deposits Help?

- ▶ Substantial share of drawdowns redeposited at same bank, esp. during COVID crisis.
 - In model, always good for banks since firms never default and deposit rate $<$ credit line rate.
 - Helps offset costs of increased drawdowns in bad times under SOFR.
- ▶ But in reality, even redeposited drawdowns can have welfare costs.
 - Greenwald, Krainer, Paul (2022): drawdowns crowd out term lending to small firms, even when fully offset by deposits. Potentially large unmodeled welfare cost.
 - Appears due to capital requirements. Drawing a credit line increases its risk weight by 2x or more, which cannot be offset by deposits.
- ▶ Acharya, Engle, Steffen (2021): drawdowns also depress bank equity values.
 - Even when offset by deposits: gross drawdowns, not net drawdowns (net of deposits), matter.
 - Tightening capital requirements also hurt banks by preventing profitable lending.

Greenwald, Krainer, Paul (2022) Results

- ▶ We regress term lending to firms without credit lines on **bank-level drawdowns** and firm (Khwaja-Mian) fixed effects.

	(i) 2020:Q1	(ii) 2020:Q1	(iii) 2020:Q1	(iv) 2020:Q2	(v) 2020:Q3	(vi) 2020:Q1
Δ Credit Line Usage	-1.96** (0.72)	-2.28*** (0.65)	-2.57*** (0.91)	-3.03** (1.14)	-3.63** (1.62)	-1.70** (0.66)
Δ Deposits						0.14 (0.20)
Fixed Effects						
Firm × Rate	✓			✓	✓	✓
Firm × Rate × Maturity		✓				
Firm × Rate × Purpose			✓			
Bank Controls			✓			✓
R-squared	0.51	0.51	0.55	0.51	0.53	0.51
Observations	1,678	1,596	1,007	1,519	1,390	1,638
Number of Firms	749	712	464	682	624	733
Number of Banks	28	28	27	28	28	26

Standard errors in parentheses are clustered at the bank level.

Greenwald, Krainer, Paul (2022) Results

- Evidence of crowding out: \$1 of drawdown leads banks to contract lending by 10-30 cents.

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Greenwald, Krainer, Paul (2022) Results

- ▶ Deposits don't help! Drawdowns crowd out even if fully funded by deposits.

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Risks to Banks and Firms

- ▶ Paper ignores default risk by borrowers. In reality, default risk is often above average when credit lines are drawn.
 - Increases costs to banks of additional drawdowns in bad times.
 - Makes adverse selection problem worse, potentially contributing further to unraveling.
- ▶ Drawdown “runs” can occur if firms draw on struggling banks “while they still can.”
 - Authors actually model this as an extension, but not part of main quantitative results.
 - Very unlikely to deposit funds at same bank in this case.
 - If falling bank net worth triggers runs, could increase welfare costs.

Traded Prices as Public Goods

- ▶ If moving to SOFR is problematic, and particularly harms banks, why are they doing it?
 - Capital One: *“Over time, the underlying market that determines LIBOR **has stopped having a significant transaction volume**. This means LIBOR is often based on the judgement of a panel of banks rather than on robust market data, impacting its credibility...The Repo market’s **large transaction volume** gives the ARRC confidence that SOFR will be reliable through a wide range of market conditions, making it a good long-term option to replace LIBOR.*
- ▶ Financial contracts have a strong preference for simplicity and benchmarking to the prices of widely traded assets.
 - Set of priced, widely traded assets, can shape contract space.
 - In this case, has become very difficult to find widely traded benchmark that varies in the right way with bank funding costs, leading to nontrivial welfare consequences.
- ▶ Since existence of high-volume assets can expand the contract space, they can be considered a public good.
 - If and how central banks or governments should try to shape or support this set of assets is an interesting question for future research.

Conclusion

- ▶ Paper combines model of credit line provision with detailed supervisory data to study consequences of moving from LIBOR to SOFR:
 - Worsens debt overhang, shrinks credit line market, reduces welfare.
- ▶ True costs could be even higher due to:
 - Crowding out of term lending and falls in bank net worth due to tighter capital requirements.
 - Interaction with firm defaults and drawdown runs.
- ▶ Spillovers from trading volume to asset terms may deserve policy consideration.