Liquidity Insurance vs. Credit Provision: Evidence from the COVID-19 Crisis

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Tümer Kapan (IMF) and Camelia Minoiu (FRB)
• As firms faced cash pressures in the early phase of the COVID-19 crisis, banks experienced a surge in credit line drawdowns (CLDDs).
• CLDDs were large by historical standards, far exceeding the GFC levels.

Credit Line Drawdowns reported by S&P
2 March 2020-30 June 2020

Week of March 9

USD billion


Normalized C&I Loans around 2008 and Covid-19 Crises

-4 -3 -2 -1 event +1 +2 +3 +4

weeks before the event weeks after the event

2008 crisis (Lehman event)
Covid-19 outbreak

Motivation – 2

• CLDDs were large and unexpected for banks

  • FT (Mar 25): “Back when the world was *awash with liquidity*, lenders would offer low-cost revolving credit facilities — akin to a credit card — as a perk to win other business. The banks believed that most would never be used in full; such was the stigma of large companies drawing them.”

  • FT (May 27): “We’ve seen an *unprecedented flight to liquidity*, no one ever thought the whole market would draw their credit lines at once,’ said Steven Hunter, chief executive of 9Fin... noting that *most companies are drawing down almost all of their allotted facilities, even those that had never tapped them before.*”

  • Acharya and Steffen (2020) reports utilization rates up to 70% by the end of Q2

  • Compare with the stressed CL utilization assumption of the LCR: “Banks should assume a **10% drawdown** of the undrawn portion of these credit facilities” (likely calibrated with the experience from the GFC)
Motivation – 3

- Banks met these large drawdowns, fulfilling their liquidity insurance function.
- But bank credit has declined, and lending standards have tightened.
Through which channels can CLDDs make banks more cautious in their lending decisions?

- **Liquidity drain**
  - New loans need to be funded (off-BS to on-BS)

- **Reduction in capital ratios**
  1. **Increase in RWA and reduction in capital ratios**
     - Moving CLs from off- to on-balance sheet increases RWs and reduces capital ratios
     - A “short-term revolver” has a credit conversion factor of 20% => fivefold jump in RWA upon draw of CL
  2. **Increase in balance sheet size** reduces the leverage ratio

- Changes in the risk profile of the borrowers drawing down their CLs

- Potential for future losses, hence **higher risk aversion**
Research Questions

• What is the impact of CLEs on banks’ lending decisions vis-à-vis business borrowers?
  • On the supply of new loans
    • Large business loans vs. small business loans
    • Intensive vs. extensive margin
  • On the standards and terms of new business loans
  • On participation in government-sponsored credit subsidy programs

• What are the mechanisms?
  • Risk aversion vs. immediate balance sheet constraints
Evidence from Four Analyses

Drawing on the following data sets on global and U.S. banks’ lending decisions during the pandemic (in 2020:Q2-Q3):

1. Syndicated Loans: DealScan
   Loan-level global database of large syndicated corporate loans
2. Y-14 data on small business lending by large U.S. banks
   Loan-segment level database
3. Lending Standards and Terms: Survey of U.S. Bank Loan Officers (SLOOS)
   Bank-level survey data, quarterly
4. Government credit support programs
   • Paycheck Protection Program (PPP)
   • Main Street Lending Program (MSLP)

Additionally: Fitch Connect (Fitch Solutions) and U.S. Call Reports for bank financials
Bank Exposure to CLDDs

• We need a measure of potential exposure to CLDDs once the outbreak begins and unexpected draws start (measured \textit{ex-ante})
  • \textit{Ex-post} draws could be partially endogenous

• Credit Line Exposure (CLE)
  • For each bank: keep CLs originated during 2016-2019 (in Dealscan) and still outstanding as of end-March 2020, scale by total assets
  • CLEs are sizeable with much variation across banks (8% for GSIBs vs. 3.3% for non-GSIBs; 14.7% for US banks vs. 0.5% for Chinese banks)
  • Strongly correlated with ex-post CLDDs

The chart shows a scatterplot and linear fitted line for the link between ex-ante CLEs measured as the unused C&I credit lines (% assets) in 2019Q4 and the change in variable during 2019Q4-2020Q1 – capturing the actual credit line draws over the period. Sample: 506 banks. Source: U.S. Call Report.
Evidence from Syndicated Loans: Intensive margin

Higher CLEs are associated with a lower growth rate of lending during 2020:Q2-Q3 for all GSIB banks, but esp. US banks

Col 4: A 5.7 ppt increase in CLE (1 st.dev.) is associated with loan growth rate lower by ~11½ ppts

Placebo test indicates no association between CLEs and 2019 outcomes

Additionally:
- Results are similar for the extensive margin: higher CLEs are associated with lower probability of new loan extension and renewals, and lower probability of new relationship formation
- Robust to controlling for pre-pandemic energy exposures

The table shows the link between prepandemic CLEs (at end-2019) and the growth rate of average lending volume during 2020:Q2-Q3. Bank controls include size, capital, ROA, loan/assets, and NPLs. The sample comprise all matched banks between Dealscan and Fitch Connect, of which 30 GSIBs. Firm clusters comprise all individual borrowers in the same country-industry group, where industries are based on the 3-digit SIC classification. Standard errors clustered on bank. Sources: Refinitiv’s Dealscan, Fitch Connect, S&P, Bloomberg.

<table>
<thead>
<tr>
<th>Banks’ credit lines exposures and the intensive margin of lending</th>
<th>(1)</th>
<th>(2)</th>
<th>(3)</th>
<th>(4)</th>
<th>(5)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dependent variable:</td>
<td>Loan growth in 2020 Q2 and Q3</td>
<td>All</td>
<td>All</td>
<td>All</td>
<td>GSIB</td>
</tr>
<tr>
<td>CLE</td>
<td>-2.3751***</td>
<td>-1.2840*</td>
<td>-1.9870**</td>
<td>(0.872)</td>
<td>(0.750)</td>
</tr>
<tr>
<td>CLE X US bank</td>
<td>-1.6766*</td>
<td>-2.1536**</td>
<td>(0.876)</td>
<td>(0.868)</td>
<td></td>
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<tr>
<td>CLE X non-US bank</td>
<td>-0.8921</td>
<td>-1.6038</td>
<td>(0.745)</td>
<td>(1.012)</td>
<td></td>
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<tr>
<td>Observations</td>
<td>2,735</td>
<td>2,374</td>
<td>2,374</td>
<td>1,519</td>
<td>1,519</td>
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<tr>
<td>R-squared</td>
<td>0.019</td>
<td>0.630</td>
<td>0.630</td>
<td>0.669</td>
<td>0.669</td>
</tr>
<tr>
<td>Bank controls</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
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<tr>
<td>Firm country x industry</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
</tbody>
</table>
• Bring together data from quarterly SLOOS surveys during 2020
  • Inquires about banks’ changes in C&I lending standards and terms each quarter
• Match SLOOS respondents with Dealscan and Call Reports (75 US banks)
• Use the following survey questions:
  • **Lending standards:** Over the past three months, how have your bank’s credit standards for approving applications for C&I loans or credit lines changed?
  • **Loan terms:** For applications to C&I loans or credit lines that your bank is currently willing to approve, how have the terms of these loans changed over the past three months?
    • Separate questions for loans to large vs. small firms
  • **Direct measure of demand for loans:** Apart from seasonal variation, how has demand for C&I loans changed over the past 3 months?
    • Add this as a control variable in the regressions
### 3/ Evidence from U.S. Loan Officers’ Opinions

#### Lending Standards

**Banks’ credit lines exposures and extensive margin of lending**

<table>
<thead>
<tr>
<th>Dependent variable:</th>
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<th>(4)</th>
<th>(5)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>A. To small firms</strong></td>
<td></td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CLE</td>
<td>0.0064*** (0.002)</td>
<td>0.0067*** (0.002)</td>
<td>0.0040* (0.002)</td>
<td>0.0017 (0.002)</td>
<td>-0.0000 (0.001)</td>
</tr>
<tr>
<td>Observations</td>
<td>42</td>
<td>45</td>
<td>42</td>
<td>43</td>
<td>165</td>
</tr>
<tr>
<td>R-squared</td>
<td>0.364</td>
<td>0.610</td>
<td>0.161</td>
<td>0.356</td>
<td>0.057</td>
</tr>
<tr>
<td><strong>B. To large firms</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CLE</td>
<td>0.0036* (0.002)</td>
<td>0.0009 (0.002)</td>
<td>-0.0018 (0.001)</td>
<td>-0.0002 (0.001)</td>
<td>0.0006 (0.001)</td>
</tr>
<tr>
<td>Observations</td>
<td>44</td>
<td>48</td>
<td>45</td>
<td>47</td>
<td>180</td>
</tr>
<tr>
<td>R-squared</td>
<td>0.288</td>
<td>0.096</td>
<td>0.278</td>
<td>0.214</td>
<td>0.052</td>
</tr>
</tbody>
</table>

- Higher CLEs are associated with greater likelihood of reporting tighter standards on new business loans, esp. for smaller firms.
- Col 1: A 35 ppt increase in CLE (1 st. dev.) raises the likelihood of tightening standards on C&I loans to:
  - large firms by 13% (40% of mean)
  - small firms by 22% (72% of mean)
- Additionally,
  - Results are similar for the terms of loans: higher CLEs predict stronger tightening of loan terms (esp. spreads and risk premia) to small firms.
- Effects decline starting from Q3.
Role of Policy Support in Mitigating the Aggregate Shock

- Adverse credit supply effects for smaller firms is consistent with the broader findings of Greenwald, Krainer and Paul (2020):
  - large firms’ CL drawdowns after negative macroeconomic shocks create an externality for smaller firms; redistribution of credit amplifies the *decline in aggregate investment* despite rise in total credit growth
- Specific to COVID-19 shock: Extraordinary central bank support starting at end-Q1 (asset purchases and bank credit)
- Darmouni and Siani (2021): After extraordinary corporate bond market support, large issuance by firms, partially used to pay off existing loans and recently drawn CLs
- Thanks to the policy support, CL shock was short-lived this time.
Mechanisms: Why Did Banks with More CLEs Tighten?

- Reduction in capital ratios, liquidity pressures, higher risk aversion?
- Exploit SLOOS questions about the reasons why banks tightened lending standards

Survey question: If your bank has tightened or eased its credit standards or its terms for C&I loans or credit lines over the past three months, how important have been the following possible reasons for the change?

- Own capital and liquidity positions
- Economic outlook
- Industry specific problems
- Risk tolerance
- Secondary market liquidity
- Etc.

The bars represent the fraction of respondents citing each factor as a somewhat or very important reason for tightening lending standards on new C&I loans or credit line approvals. Source: Federal Reserve Senior Loan Officer Opinion Survey.
### Mechanisms: Regression Evidence

**Banks’ credit line exposures and reasons cited for tightening lending standards**

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<thead>
<tr>
<th>Dependent variable</th>
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<th>(5)</th>
<th>(6)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bank cites the following reason for tightening C&amp;I lending standards:</td>
<td>own liquidity</td>
<td>own capital for risk</td>
<td>lower liquidity tolerance for risk</td>
<td>own capital for risk</td>
<td>own liquidity tolerance for risk</td>
<td>lower liquidity tolerance for risk</td>
</tr>
<tr>
<td><strong>A. Full period (2020:Q1-Q3)</strong></td>
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</tr>
<tr>
<td>CLE</td>
<td>0.0009**</td>
<td>-0.0008*</td>
<td>0.0053***</td>
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<tr>
<td>(0.000)</td>
<td>(0.000)</td>
<td>(0.001)</td>
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<tr>
<td>CLE x 2020:Q1</td>
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<tr>
<td>0.0030**</td>
<td>-0.0002</td>
<td>0.0036**</td>
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<td>(0.001)</td>
<td>(0.001)</td>
<td>(0.002)</td>
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<td>CLE x 2020:Q2</td>
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<td>0.0001</td>
<td>-0.0006</td>
<td>0.0084***</td>
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<td>(0.000)</td>
<td>(0.000)</td>
<td>(0.002)</td>
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<tr>
<td>CLE x 2020:Q3</td>
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<tr>
<td>-0.0002</td>
<td>-0.0013*</td>
<td>0.0036*</td>
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<tr>
<td>(0.000)</td>
<td>(0.001)</td>
<td>(0.002)</td>
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<td><strong>B. By Quarter</strong></td>
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<tr>
<td>Bank controls</td>
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<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Loan demand</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Observations</td>
<td>129</td>
<td>125</td>
<td>129</td>
<td>129</td>
<td>125</td>
<td>129</td>
</tr>
<tr>
<td>R-squared</td>
<td>0.127</td>
<td>0.055</td>
<td>0.215</td>
<td>0.265</td>
<td>0.063</td>
<td>0.275</td>
</tr>
</tbody>
</table>

- Higher CLEs are associated with
  - A slightly higher likelihood of citing liquidity problems, but *only in 2020:Q1*
  - No significant association with capital
    - Immediate BS constraints not the main mechanism
  - A higher likelihood of citing lower risk tolerance, persistent over time and significant each quarter
- Additionally,
  - There is no association between CLEs and the probability of citing other factors as playing a role in banks’ lending decisions (economic outlook, industry specific problems, competition from other lenders, etc.)
Summary

Banks with higher ex-ante CLEs:

1. Curtailed the supply of new syndicated loans
2. Tightened the standards and terms of new C&I loans
3. Participated less in low-risk government credit support programs

Main takeaway: Dormant off-balance sheet risks materialized unexpectedly. CLDDs did not pose the systemic risks as in 2008, yet they had a meaningful impact on banks’ intermediation. These off-balance sheet exposures did not go away after COVID-19!

Implications for policymakers:

• Banks’ off-balance sheet credit exposures deserve closer attention.
  • Revisit the stressed credit line usage assumption of the LCR under Basel III: “Banks should assume a 10% drawdown of the undrawn portion of these credit facilities” → likely calibrated with experience from the GFC, but in reality, closer to 20-30%.