Wholesale funding dry-ups

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Swissquote conference

EPFL

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Wholesale funding:

- A growing source of bank funding
  - Repurchase agreements, interbank loans, certificates of deposit
Motivation

Wholesale funding:

- A growing source of bank funding
  - Repurchase agreements, interbank loans, certificates of deposit

- Prevailing view: Wholesale funding is fragile
  - Uninsured, short-term, unsecured
Motivation

Wholesale funding:

- A growing source of bank funding
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- Prevailing view: Wholesale funding is fragile
  - Uninsured, short-term, unsecured

- Penalized by new liquidity regulation (LCR, NSFR)
Related literature

- **Aggregate resilience of unsecured markets**
  - U.S.: Schoar et al. (2011)
  - Europe: Gabrieli & Georg (2015)

- **Aggregate resilience of secured markets**
  - U.S.: Krishnamurthy et al. (2014), Copeland et al. (2014)
  - Europe: Boissel et al. (2015), Mancini et al. (2015)

- **Our focus**: Beyond aggregate, explore cross-section
Theory

- Key friction: asymmetric information.
**Theory**

- **Key friction:** asymmetric information.

- **Lenders equally uninformed** (*Akerlof 1970; Stiglitz & Weiss 1981*)
  - High- and low-quality banks indistinguishable by lenders
  - Adverse selection: high-quality banks withdraw as rates increase
    \[ \Rightarrow \text{Relative quality of pool of borrowers decreases in periods of stress} \]
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- **Some lenders are informed** (Gorton & Pennacchi 1990)
  - Debt derives value from being information-insensitive
  - When information-sensitive: uninformed lenders cut funding
  - Informed lenders still lend to high-quality banks
    - Relative quality of pool of borrowers increases in periods of stress
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  - Informed lenders still lend to high-quality banks
  \[\Rightarrow\] Relative quality of pool of borrowers **increases** in periods of stress

- **Test competing theories**
  - Ideal laboratory: European market for certificates of deposits (CDs)
  - Different policy implications: transparency vs. opacity
Main results

- **R1: No market-wide freeze**
  - But many bank-specific funding dry-ups
Main results

- **R1**: No market-wide freeze
  - But many bank-specific funding dry-ups

- **R2**: Low-quality banks are more likely to lose access to wholesale funding in times of stress
  - Inconsistent with adverse selection
  - Consistent with heterogeneity across lenders
Main results

- **R1**: No market-wide freeze
  - But many bank-specific funding dry-ups

- **R2**: Low-quality banks are more likely to lose access to wholesale funding in times of stress
  - Inconsistent with adverse selection
  - Consistent with heterogeneity across lenders

- **R3**: In times of stress, funds are reallocated towards high-quality banks
  - Inconsistent with adverse selection
  - Consistent with heterogeneity across lenders
Data on certificates of deposit

- **Certificate of deposit (CD)**
  - Issued by credit institutions
  - Initial maturity between 1 day and 1 year (median = 33 days)
  - Unsecured
  - Issued over-the-counter, placed mostly to money market funds
Data on certificates of deposit

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- **CD dataset**
  - From Banque de France, over 2008-2014
  - 1,383,202 ISIN-level observations, with 838,703 individual ISINs
  - All events: issuance, re-issuances, buybacks
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- More than 80% of all euro-denominated CDs
CD market versus other wholesale markets

- CD is a large segment of wholesale funding
  - Similar size as the repo market
  - Larger than ECB funding and unsecured interbank market
  - No previous study on the CD market

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Wholesale funding dry-ups
Pricing in the CD market

CD yields vs. Euribor

- CDs are cheaper than close substitutes

CD yields vs. ECB MRO rate
No market freeze

- **R1:** No market-wide freeze in CD market
  - ... even when CDS spreads increase
CD issuers

- 276 individual issuers
- 196 French, 80 from IT, DE, UK, NL, IE, etc.
- Most large European banks
CD issuers

- 276 individual issuers
- 196 French, 80 from IT, DE, UK, NL, IE, etc.
- Most large European banks

Matching with balance sheet and market data

- 263 issuers matched with balance sheet data (Bankscope)
- Short-term credit ratings (Fitch)
- Stock price and CDS spread data (Bloomberg)
The importance of bank-specific dry-ups

- **Definitions of funding dry-ups**
  - Full dry-up: Amount outstanding falls to zero
  - Partial dry-up: Loses 50% or more in 50 days or less
The importance of bank-specific dry-ups

- Definitions of funding dry-ups
  - Full dry-up: Amount outstanding falls to zero
  - Partial dry-up: Loses 50% or more in 50 days or less

- 75 events, including 29 full dry-ups
The importance of bank-specific dry-ups

- **Definitions of funding dry-ups**
  - Full dry-up: Amount outstanding falls to zero
  - Partial dry-up: Loses 50% or more in 50 days or less

- **75 events, including 29 full dry-ups**

- **One full and one partial dry-up**

  ![Graph showing CD outstanding amount (Bn. EUR.) for Banca Monte dei Paschi and Dexia from 2009 to 2012.](image)
Year with highest number of funding dry-ups is 2011
Banks facing a funding dry-up are weaker on observables

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>One year before event</th>
<th>Diff. from mean</th>
<th>Diff. from median</th>
</tr>
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<tbody>
<tr>
<td>ROA</td>
<td>-1.249***</td>
<td>-0.577***</td>
<td></td>
</tr>
<tr>
<td>Net income / Assets</td>
<td>-0.014***</td>
<td>-0.006***</td>
<td></td>
</tr>
<tr>
<td>Impaired loans / Equity</td>
<td>55.879***</td>
<td>52.790***</td>
<td></td>
</tr>
<tr>
<td>Equity / Assets</td>
<td>-0.036***</td>
<td>-0.033***</td>
<td></td>
</tr>
<tr>
<td>CDS spread</td>
<td>82.180</td>
<td>110.245**</td>
<td></td>
</tr>
<tr>
<td>Short-term credit rating</td>
<td>-0.424***</td>
<td>-0.474**</td>
<td></td>
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Dry-ups predict future bank characteristics

- **R2**: Low-quality banks are more likely to lose access to wholesale funding in times of stress
  - Quality: *Unobservable* quality $\rightarrow$ *Changes* in performance
Dry-ups predict future bank characteristics

- **R2:** Low-quality banks are more likely to lose access to wholesale funding in times of stress
  - Quality: *Unobservable* quality $\rightarrow$ Changes in performance

**Base regression**

\[
\Delta ROA_{i,t} = \beta_0 \mathbb{1} \{ t - 1 \leq \tau_{DryUp_i} < t \} + \beta_1 Size_{i,t-1} + \beta_2 Controls_{i,t-1} + \beta_3 Controls_{c,t-1} + FE_c + FE_t + \varepsilon_{i,t},
\]

- $\Delta ROA_{it} = ROA_{it} - ROA_{it-1}$
- Coefficient of interest: $\beta_0$
Dry-ups predict future bank characteristics

\[ \Delta ROA_t = ROA_t - ROA_{t-1} \]

\[ \tau_{DryUp} \]
Dry-ups predict future bank characteristics

- **Facing a dry-up predicts a decrease in ROA**
- Inconsistent with adverse selection being large

<table>
<thead>
<tr>
<th>Dependent variable: $\Delta ROA = ROA_t - ROA_{t-1}$</th>
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<tbody>
<tr>
<td><strong>Baseline</strong></td>
</tr>
<tr>
<td>DryUp</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>Size$_{t-1}$</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>ROA$_{t-1}$</td>
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<tr>
<td>Impaired / Loans$_{t-1}$</td>
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<td></td>
</tr>
<tr>
<td>GDP growth</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>DryUp $\times$ Share CD $\in [4%, 9%]$</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>DryUp $\times$ Share CD $\geq 9%$</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>DryUp $\times$ Crisis</td>
</tr>
<tr>
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</tr>
<tr>
<td>Adj. $R^2$</td>
</tr>
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</table>

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Wholesale funding dry-ups
Dry-ups predict future market outcomes

- Concern for tests of asymmetric information

  - Information of market agents \( \neq \) information of the econometrician

\[ \Delta \text{CDS spread} \]

DryUp

\[
\begin{array}{cccc}
36.443 & 49.033 & 43.824 & 61.896 \\
(15.748) & (17.577) & (25.510) & (28.891)
\end{array}
\]

Size

\[
\begin{array}{cc}
-0.707 & -1.680 \\
(0.901) & (1.770)
\end{array}
\]

ROA

\[
\begin{array}{cc}
-2.354 & 3.948 \\
(1.552) & (2.756)
\end{array}
\]

Impaired / Loans

\[
\begin{array}{cc}
-2.041 & -2.410 \\
(0.787) & (1.180)
\end{array}
\]

GDP growth

\[
\begin{array}{c}
-1214.823
\end{array}
\]

\[
\begin{array}{c}
-2187.640 \\
(650.329) & (1437.262)
\end{array}
\]

Adj. R\(^2\)

\[
\begin{array}{cccc}
0.570 & 0.585 & 0.563 & 0.573 \\
N. Obs. & 2,099 & 956 & 1,937 & 956
\end{array}
\]
Dry-ups predict future market outcomes

- Concern for tests of asymmetric information
  - Information of market agents ≠ information of the econometrician

- Use market data → Incorporate information in real time
  - Dry-ups predict increases in CDS spreads
  - Also predict negative excess stock return, but insignificant

\[ \Delta CDS \text{ spread} \]

<table>
<thead>
<tr>
<th></th>
<th>6 months</th>
<th></th>
<th>1 year</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>DryUp</td>
<td>36.443**</td>
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Wholesale funding dry-ups
Endogeneity concerns

- Evidence consistent with presence of informed lenders

However, reverse causality concern
Can funding dry-ups cause decreases in ROA?
As in models of bank runs (Diamond & Dybvig 1983).

Three solutions
- Use changes in impaired loans as dependent variable → See results
- Interact DryUp dummy with share of CD funding → See results
- Banks do not downsize significantly → No fire sales [See results]
Endogeneity concerns

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- Three solutions
  - Use changes in impaired loans as dependent variable → [See results]
  - Interact DryUp dummy with share of CD funding → [See results]
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Maturity shortening

- Uninformed lenders value information-insensitive securities
- In stress, long-term debt becomes information-sensitive first
- Predicts maturity shortening before dry-ups

<table>
<thead>
<tr>
<th></th>
<th>Panel A: Partial and full dry-ups</th>
<th>Panel B: Full dry-ups only</th>
</tr>
</thead>
<tbody>
<tr>
<td>( \tau - 1 )</td>
<td>(-24.660^{***} )</td>
<td>(-29.732^{***} )</td>
</tr>
<tr>
<td></td>
<td>(2.281)</td>
<td>(4.521)</td>
</tr>
<tr>
<td>( \tau - 2 )</td>
<td>(-17.278^{***} )</td>
<td>(-30.198^{***} )</td>
</tr>
<tr>
<td></td>
<td>(3.939)</td>
<td>(6.004)</td>
</tr>
<tr>
<td>( \tau - 3 )</td>
<td>(-12.134^{***} )</td>
<td>(-14.664^{***} )</td>
</tr>
<tr>
<td></td>
<td>(1.699)</td>
<td>(4.742)</td>
</tr>
<tr>
<td>( \tau - 4 )</td>
<td>(-7.628 )</td>
<td>(-11.610 )</td>
</tr>
<tr>
<td></td>
<td>(4.902)</td>
<td>(7.368)</td>
</tr>
<tr>
<td>( \tau - 5 )</td>
<td>(-7.506^{*} )</td>
<td>(-3.930 )</td>
</tr>
<tr>
<td></td>
<td>(3.750)</td>
<td>(5.243)</td>
</tr>
<tr>
<td>( \tau - 6 )</td>
<td>(-0.689 )</td>
<td>(15.504^{***} )</td>
</tr>
<tr>
<td></td>
<td>(4.132)</td>
<td>(3.858)</td>
</tr>
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Adj. \( R^2 \) 0.166 0.165
N. Obs. 11,420 11,420

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Wholesale funding dry-ups
Reallocation

- **R3**: In times of stress, funds are reallocated to high-quality banks
Reallocation

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- **Issuance in excess of the market**

\[ E_{i,t} = \left[ \log (CD_{i,t}) - \log (CD_{i,t-1}) \right] - \left[ \log (CD_{m,t}) - \log (CD_{m,t-1}) \right] \]

- **CD_{it}**: Outstanding amount by \( i \) in month \( t \)
- **CD_{mt}**: Aggregate size of CD market in month \( t \)
**Reallocation**

- **R3:** In times of stress, funds are reallocated to high-quality banks

- **Issuance in excess of the market**

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  - \( CD_{it} \): Outstanding amount by \( i \) in month \( t \)
  - \( CD_{mt} \): Aggregate size of CD market in month \( t \)

- **Probit specification**

  \[
  \Pr (I_{i,t} = 1 | X_t) = \Phi \left( \beta_0 \Delta ROA_{i,t} + \beta_1 \text{Controls}_{i,t-1} + \beta_2 \text{Controls}_{c,t-1} + FE_c + FE_m \right)
  \]

  - \( I_{it} = 1 \) if \( E_{it} \) above median or 75th percentile
Banks increasing ROA increase relative CD funding

... Regardless of whether market is stressed

<table>
<thead>
<tr>
<th></th>
<th>Above median</th>
<th>Above 75th percentile</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Δ ROA</strong></td>
<td>0.024****</td>
<td>0.031**</td>
</tr>
<tr>
<td></td>
<td>(0.005)</td>
<td>(0.014)</td>
</tr>
<tr>
<td><strong>Controls</strong></td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Month FE</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Country FE</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>N. Obs.</td>
<td>10,979</td>
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Dependent variable:
Prob. of CD issuance in excess of the market

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Wholesale funding dry-ups
Reallocation in times of stress

**Stress Index**

\[
Stress\ Index_t = \frac{\sum_i R_{i,t}}{C D_{m,t}},
\]

- \(R_{i,t}\): Euro amount of dry-up by \(i\) at \(t\)
- \(C D_{m,t}\): Aggregate CD market size at \(t\)
- Computed at monthly frequency → [See index]
Reallocation in times of stress

- **Stress Index**

\[
Stress\ Index_t = \sum_i \frac{R_{i,t}}{CD_{m,t}},
\]

- \(R_{it}\): Euro amount of dry-up by \(i\) at \(t\)
- \(CD_{mt}\): Aggregate CD market size at \(t\)
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- **Interact \(\Delta ROA\) with quantiles of Stress Index**
  - If effect magnified → Accelerated reallocation
  - If effect disappears → Adverse selection worsens

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Wholesale funding dry-ups
# Reallocation in times of stress

- **Reallocation magnified when market stress is high**
  - ... Increasing in quantiles of the Stress Index

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<tr>
<td>Δ ROA * Stress Index in Quartile 2</td>
<td>-0.003 (0.016)</td>
<td>0.008 (0.006)</td>
</tr>
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<td>Δ ROA * Stress Index in Quartile 3</td>
<td>0.033*** (0.012)</td>
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</tr>
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<td>Δ ROA * Stress Index in Quartile 4</td>
<td>0.048** (0.020)</td>
<td>0.030** (0.015)</td>
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- Controls: Yes
- Month FE: Yes
- Country FE: Yes
- N. Obs.: 10,979

High-quality banks do not reduce but increase funding, inconsistent with adverse selection being first-order.

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Wholesale funding dry-ups
Reallocation in times of stress

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- Controls: Yes, Yes, Yes, Yes
- Month FE: Yes, Yes, Yes, Yes
- Country FE: Yes, Yes, Yes, Yes
- N. Obs.: 10,979, 10,979, 10,979, 10,979

- High-quality banks do not reduce but *increase* funding
  - Inconsistent with adverse selection being first-order
Conclusion and implications

**Frictions on wholesale funding markets**

- No evidence that asymmetric information is first-order
  - No market freeze
  - Dry-ups predict low future performance
- Investors value information-insensitive ("safe") securities
  - Dry-ups occur when debt turns information-sensitive
  - Reallocation not random → From low- to high-quality banks

Implications of our results

- Disciplinary role of wholesale funding ("tough creditors")
- Challenge to liquidity ratios?... No account for externalities
- Lender of last resort most likely to benefit weakest banks
- Private production of safe assets

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  ■ Challenge to liquidity ratios?... No account for externalities
  ■ Lender of last resort most likely to benefit weakest banks
  ■ Private production of safe assets
The absence of market freeze

- **No system-wide drop in volume**
- ... Even when CDS spreads increase
Average maturity of new issues

- No system-wide drop in average maturity
CD Yields

- Negative spread with the Euribor of same maturity
Yields on CDs with initial maturity up to 7 days
Dry-ups predict future bank characteristics

- Facing a dry-up predicts an increase in impaired loans

<table>
<thead>
<tr>
<th>Regression Results</th>
<th>Baseline</th>
<th>Share CD</th>
<th>Crisis</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Dependent variable:</strong> <strong>Δ Impaired loans / Loans</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>DryUp</strong></td>
<td>0.582*** (0.139)</td>
<td>0.507*** (0.138)</td>
<td>0.640*** (0.177)</td>
</tr>
<tr>
<td><strong>Size_{t−1}</strong></td>
<td>-0.038 (0.025)</td>
<td>-0.042* (0.025)</td>
<td>-0.040 (0.025)</td>
</tr>
<tr>
<td><strong>ROA_{t−1}</strong></td>
<td>-0.011 (0.038)</td>
<td>-0.010 (0.038)</td>
<td>-0.007 (0.038)</td>
</tr>
<tr>
<td><strong>Impaired / Loans_{t−1}</strong></td>
<td>-0.017* (0.009)</td>
<td>-0.017* (0.009)</td>
<td>-0.017* (0.009)</td>
</tr>
<tr>
<td><strong>GDP growth</strong></td>
<td>-24.918*** (5.044)</td>
<td>-24.463*** (5.068)</td>
<td>-24.706*** (5.031)</td>
</tr>
<tr>
<td><strong>DryUp * Share CD ∈ [4%, 9%]</strong></td>
<td></td>
<td>-0.490 (0.385)</td>
<td></td>
</tr>
<tr>
<td><strong>DryUp * Share CD ≥ 9%</strong></td>
<td></td>
<td>-0.233 (0.306)</td>
<td></td>
</tr>
<tr>
<td><strong>DryUp * Crisis</strong></td>
<td></td>
<td></td>
<td>-0.052 (0.093)</td>
</tr>
<tr>
<td><strong>Adj. R^2</strong></td>
<td>0.100</td>
<td>0.140</td>
<td>0.140</td>
</tr>
<tr>
<td><strong>N. Obs.</strong></td>
<td>676</td>
<td>675</td>
<td>675</td>
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</tbody>
</table>

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Endogeneity checks

- Effect not magnified for banks with large CD exposure

DEPENDENT VARIABLE: $\Delta ROA = ROA_t - ROA_{t-1}$

<table>
<thead>
<tr>
<th>Baseline</th>
<th>Share CD</th>
<th>Crisis</th>
</tr>
</thead>
<tbody>
<tr>
<td>DryUp</td>
<td>-0.341** (0.135)</td>
<td>-0.874*** (0.176)</td>
</tr>
<tr>
<td>Size$_{t-1}$</td>
<td>-0.018 (0.025)</td>
<td>-0.004 (0.025)</td>
</tr>
<tr>
<td>ROA$_{t-1}$</td>
<td>-0.713*** (0.038)</td>
<td>-0.717*** (0.037)</td>
</tr>
<tr>
<td>Impaired / Loans$_{t-1}$</td>
<td>-0.025*** (0.009)</td>
<td>-0.026*** (0.009)</td>
</tr>
<tr>
<td>GDP growth</td>
<td>38.957*** (4.969)</td>
<td>37.561*** (4.955)</td>
</tr>
<tr>
<td>DryUp * Share CD $\in [4%, 9%]$</td>
<td>0.372 (0.407)</td>
<td>0.351 (0.302)</td>
</tr>
<tr>
<td>DryUp * Share CD $\geq 9%$</td>
<td>0.407 (0.302)</td>
<td>0.415 (0.302)</td>
</tr>
<tr>
<td>Adj. $R^2$</td>
<td>-0.001</td>
<td>0.407</td>
</tr>
<tr>
<td>N. Obs.</td>
<td>948</td>
<td>684</td>
</tr>
</tbody>
</table>

Back
Endogeneity checks

- **Facing a dry-up does not predict a decrease in size**

<table>
<thead>
<tr>
<th></th>
<th>Baseline</th>
<th>Share CD</th>
<th>Crisis</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Dependent variable:</strong></td>
<td>$\Delta \text{ Size}$</td>
<td>$\Delta \text{ Size}$</td>
<td>$\Delta \text{ Size}$</td>
</tr>
<tr>
<td>DryUp</td>
<td>-0.039</td>
<td>-0.014</td>
<td>-0.008</td>
</tr>
<tr>
<td></td>
<td>(0.035)</td>
<td>(0.013)</td>
<td>(0.017)</td>
</tr>
<tr>
<td>$\text{Size}_{t-1}$</td>
<td>-0.005**</td>
<td>-0.005**</td>
<td>-0.005**</td>
</tr>
<tr>
<td></td>
<td>(0.003)</td>
<td>(0.002)</td>
<td>(0.002)</td>
</tr>
<tr>
<td>$\text{ROA}_{t-1}$</td>
<td>0.008**</td>
<td>0.008**</td>
<td>0.008**</td>
</tr>
<tr>
<td></td>
<td>(0.003)</td>
<td>(0.003)</td>
<td>(0.003)</td>
</tr>
<tr>
<td>Impaired / Loans$_{t-1}$</td>
<td>-0.000</td>
<td>-0.000</td>
<td>-0.000</td>
</tr>
<tr>
<td></td>
<td>(0.001)</td>
<td>(0.001)</td>
<td>(0.001)</td>
</tr>
<tr>
<td>GDP growth</td>
<td>0.028</td>
<td>0.054</td>
<td>0.014</td>
</tr>
<tr>
<td></td>
<td>(0.497)</td>
<td>(0.500)</td>
<td>(0.497)</td>
</tr>
<tr>
<td>DryUp * Share CD $\in [4%, 9%]$</td>
<td>-0.009</td>
<td>-0.009</td>
<td>-0.009</td>
</tr>
<tr>
<td></td>
<td>(0.041)</td>
<td>(0.041)</td>
<td>(0.041)</td>
</tr>
<tr>
<td>DryUp * Share CD $\geq 9%$</td>
<td>-0.017</td>
<td>-0.017</td>
<td>-0.017</td>
</tr>
<tr>
<td></td>
<td>(0.030)</td>
<td>(0.030)</td>
<td>(0.030)</td>
</tr>
<tr>
<td>DryUp * Crisis</td>
<td></td>
<td></td>
<td>0.008</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>(0.007)</td>
</tr>
<tr>
<td>Adj. $R^2$</td>
<td>0.031</td>
<td>0.197</td>
<td>0.195</td>
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<td>N. Obs.</td>
<td>950</td>
<td>685</td>
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</tbody>
</table>
### Consistency checks

**Predictability remains when market stress is high**

Dependent variable: \( \Delta ROA = ROA_t - ROA_{t-1} \)

<table>
<thead>
<tr>
<th></th>
<th>Baseline</th>
<th>Share CD</th>
<th>Crisis</th>
</tr>
</thead>
<tbody>
<tr>
<td>DryUp</td>
<td>-0.341**</td>
<td>-0.508***</td>
<td>-0.874***</td>
</tr>
<tr>
<td></td>
<td>(0.135)</td>
<td>(0.139)</td>
<td>(0.176)</td>
</tr>
<tr>
<td>Size(_{t-1})</td>
<td>-0.018</td>
<td>-0.004</td>
<td>-0.017</td>
</tr>
<tr>
<td></td>
<td>(0.025)</td>
<td>(0.025)</td>
<td>(0.025)</td>
</tr>
<tr>
<td>ROA(_{t-1})</td>
<td>-0.713***</td>
<td>-0.717***</td>
<td>-0.717***</td>
</tr>
<tr>
<td></td>
<td>(0.038)</td>
<td>(0.037)</td>
<td>(0.038)</td>
</tr>
<tr>
<td>Impaired / Loans(_{t-1})</td>
<td>-0.025***</td>
<td>-0.026***</td>
<td>-0.026***</td>
</tr>
<tr>
<td></td>
<td>(0.009)</td>
<td>(0.009)</td>
<td>(0.009)</td>
</tr>
<tr>
<td>GDP growth</td>
<td>38.957***</td>
<td>37.561***</td>
<td>38.732***</td>
</tr>
<tr>
<td></td>
<td>(4.969)</td>
<td>(4.955)</td>
<td>(4.954)</td>
</tr>
<tr>
<td>DryUp * Share CD ( \in [4%, 9%] )</td>
<td></td>
<td></td>
<td>0.372</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>(0.407)</td>
</tr>
<tr>
<td>DryUp * Share CD ( \geq 9% )</td>
<td></td>
<td></td>
<td>0.351</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>(0.302)</td>
</tr>
<tr>
<td>DryUp * Crisis</td>
<td></td>
<td></td>
<td>0.133</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>(0.192)</td>
</tr>
<tr>
<td>Adj. ( R^2 )</td>
<td>-0.001</td>
<td>0.407</td>
<td>0.415</td>
</tr>
<tr>
<td>N. Obs.</td>
<td>948</td>
<td>684</td>
<td>684</td>
</tr>
</tbody>
</table>

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Christophe Pérignon, David Thesmar, Guillaume Vuillemey

Wholesale funding dry-ups
Stress Index

- Captures number and magnitude of dry-ups
  - Both partial and full

run_index.pdf

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