The Countercyclical Role of National Development Banks

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Introduction

1. Motivation and literature review
2. Data description
3. Econometric results
4. Conclusions and policy implications
Motivation

- **Development finance**: NDBs play an important role in economic development, especially in less developed countries.

- **Countercyclical credit policies**: NDBs can also counteract credit slowdowns during recessions or crisis times and mitigate private banks’ procyclical lending.
Literature review on NDB

- Many policy papers argue for countercyclical policy:
  - UN-DESA (2005); Griffith-Jones and Ocampo (2008); Gutierrez et al. (2011); de Olloqui (2013); Rudolph (2010); Griffith-Jones and Gottschalk (2012); World Bank (2012).

- Summary statistics paper: De Luna-Martinez and Vicente (2012)

- Case studies (our book)

- No papers based on econometric evidence for NDB.
  - Exception for State-Owned Commercial Banks: Brei and Schclarek (2013), Bertay et al. (2015), Cull and Martínez Pería (2013) and others.

Scope for an econometric paper on NDB
Data description

- Fitch-BankScope: consolidated and unconsolidated financial statements of deposit-taking banks and national development banks from 31 Latin American and Caribbean countries
- Selection based on registry of licensed banking entities; majority-owned subsidiaries are excluded
- The final sample includes 336 banks, of which 14 are national development banks, 31 public banks, 157 domestic Banks, and 134 foreign Banks.
- Annual data, between 1995-2014 (2835 observations)
- Banking and currency crises: Leaven and Valencia
Table 1: Composition and characteristics of the database

<table>
<thead>
<tr>
<th>Region</th>
<th>No. of banks</th>
<th>No. of dev. banks</th>
<th>No. of foreign banks</th>
<th>No. of public banks</th>
<th>Total assets, 2014 (bil. USD)</th>
<th>Growth of lending (%)&lt;sup&gt;1&lt;/sup&gt;</th>
</tr>
</thead>
<tbody>
<tr>
<td>Caribbean</td>
<td>65</td>
<td>4</td>
<td>27</td>
<td>4</td>
<td>26.9</td>
<td>8.0</td>
</tr>
<tr>
<td>Central America</td>
<td>99</td>
<td>3</td>
<td>51</td>
<td>4</td>
<td>626.5</td>
<td>11.4</td>
</tr>
<tr>
<td>South America</td>
<td>172</td>
<td>7</td>
<td>56</td>
<td>23</td>
<td>3270.5</td>
<td>12.9</td>
</tr>
<tr>
<td>Average/sum*</td>
<td>336*</td>
<td>14*</td>
<td>134*</td>
<td>31*</td>
<td>3923.9*</td>
<td>10.8</td>
</tr>
</tbody>
</table>
Table 2: Bank-specific characteristics across bank types

<table>
<thead>
<tr>
<th>Bank type</th>
<th>National development banks</th>
<th>Foreign banks</th>
<th>Domestic private banks</th>
<th>Local public banks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of banks</td>
<td>14</td>
<td>134</td>
<td>157</td>
<td>31</td>
</tr>
<tr>
<td>Total assets, end-2014</td>
<td>424</td>
<td>994</td>
<td>1448</td>
<td>1058</td>
</tr>
<tr>
<td>Interest income on loans/loans</td>
<td>11.34</td>
<td>20.56</td>
<td>15.95</td>
<td>15.41</td>
</tr>
<tr>
<td>Non-interest income/income</td>
<td>13.04</td>
<td>20.31</td>
<td>21.42</td>
<td>29.45</td>
</tr>
<tr>
<td>Return on equity</td>
<td>5.21</td>
<td>12.59</td>
<td>14.28</td>
<td>16.13</td>
</tr>
<tr>
<td>Liquidity ratio</td>
<td>8.17</td>
<td>18.76</td>
<td>16.18</td>
<td>18.02</td>
</tr>
<tr>
<td>Government securities/assets</td>
<td>16.56</td>
<td>12.30</td>
<td>13.47</td>
<td>22.14</td>
</tr>
<tr>
<td>Lending growth, normal times</td>
<td>3.42</td>
<td>11.72</td>
<td>14.42</td>
<td>6.06</td>
</tr>
<tr>
<td>Lending growth, crisis</td>
<td>10.33</td>
<td>9.42</td>
<td>12.31</td>
<td>15.36</td>
</tr>
</tbody>
</table>
Econometric setup

The econometric model is as follows

\[ \Delta L_{ijt} = \alpha_1 \Delta L_{ijt-1} + (\alpha + \alpha^* C_{jt}) + \\
(\alpha_{DB} + \alpha_{DB}^* C_{jt}) DB_{ijt} + (\alpha_{PB} + \alpha_{PB}^* C_{jt}) PB_{ijt} + \\
(\alpha_{FB} + \alpha_{FB}^* C_{jt}) FB_{ijt} + \beta X_{ijt} + \gamma M_{jt} + u_i + \varepsilon_{ijt} \]

\( \Delta L_{ijt} \): Real growth rate of lending,

\( C_{jt} \): Crisis dummy; \( DB_{ijt}, PB_{ijt}, FB_{ijt} \): Bank type dummies

\( X_{ijt} \): Bank-specific (size, ROE, capital, NPLs, liquidity)

\( M_{jt} \): Macro (real GDP growth, inflation, interest rate, depreciation)
# Differential lending response

<table>
<thead>
<tr>
<th>Event</th>
<th>Domestic banks, $DB_{ijt} = 0$</th>
<th>Development banks, $DB_{ijt} = 1$</th>
</tr>
</thead>
<tbody>
<tr>
<td>No crisis, $C_{jt} = 0$</td>
<td>$\Delta L_{ijt} = \alpha_1 \Delta L_{ijt-1} + \alpha$</td>
<td>$\Delta L_{ijt} = \alpha_1 \Delta L_{ijt-1} + \alpha + \alpha_{DB}$</td>
</tr>
<tr>
<td>Crisis, $C_{jt} = 1$</td>
<td>$\Delta L_{ijt} = \alpha_1 \Delta L_{ijt-1} + \alpha + \alpha^*$</td>
<td>$\Delta L_{ijt} = \alpha_1 \Delta L_{ijt-1} + \alpha + \alpha^* + \alpha_{DB} + \alpha^*_{DB}$</td>
</tr>
</tbody>
</table>

- The model allows to investigate differential lending responses of the different types of banks during normal and times of crisis.
- If $\alpha_{DB}$ is sig. positive: DB lend at a higher growth rate than domestic banks in **normal times**.
- If $\alpha_{DB} + \alpha^*_{DB}$ is sig. positive: DB lend at a higher growth rate than domestic banks in **times of crisis**.
## Econometric results

<table>
<thead>
<tr>
<th></th>
<th>Macro model</th>
<th>Bank type model</th>
<th>Bank-specific model</th>
<th>Pooled OLS</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(I)</td>
<td>(II)</td>
<td>(III)</td>
<td>(IV)</td>
</tr>
<tr>
<td></td>
<td>Coeff.</td>
<td>Std. error</td>
<td>Coeff.</td>
<td>Std. error</td>
</tr>
<tr>
<td>( \alpha_{DB} )</td>
<td>-10.31**</td>
<td>4.157</td>
<td>-6.153*</td>
<td>3.586</td>
</tr>
<tr>
<td>( \alpha_{FB} )</td>
<td>-3.398**</td>
<td>1.406</td>
<td>-2.962**</td>
<td>1.291</td>
</tr>
<tr>
<td>( \alpha_{PB} )</td>
<td>-5.456***</td>
<td>2.033</td>
<td>-3.377*</td>
<td>1.952</td>
</tr>
<tr>
<td>( \alpha^* )</td>
<td>-3.259**</td>
<td>1.407</td>
<td>-3.190**</td>
<td>1.364</td>
</tr>
<tr>
<td>( \alpha^*_{DB} )</td>
<td>13.10***</td>
<td>4.215</td>
<td>10.60**</td>
<td>4.212</td>
</tr>
<tr>
<td>( \alpha^*_{FB} )</td>
<td>2.818</td>
<td>2.157</td>
<td>2.090</td>
<td>1.996</td>
</tr>
<tr>
<td>( \alpha^*_{PB} )</td>
<td>10.29***</td>
<td>2.662</td>
<td>6.663***</td>
<td>2.324</td>
</tr>
</tbody>
</table>

- **Macro controls**: Yes
- **Bank-specific controls**: No
- **Bank-fixed effects**: Yes
- **Observations**: 2733
- **Banks**: 336
- **Hansen**: 0.155
- **AR2**: 0.730

**R^2 = 0.14**
Discussion of results

• **Normal times:**
  - (Average) domestic bank expanded lending at a growth rate of $\alpha = 9.36$ percent per year
  - National development banks: $\alpha + \alpha_{DB} = 9.36 - 6.15 = 3.21\%$
  - Foreign banks: $\alpha + \alpha_{FB} = 9.36 - 2.96 = 6.4\%$
  - Public banks: $\alpha + \alpha_{PB} = 9.36 - 3.38 = 5.98\%$

• **During crises:**
  - Domestic banks: $\alpha + \alpha^{*} = 9.36 - 3.19 = 6.17\%$
  - National development banks:
    $$\alpha + \alpha^{*} + \alpha_{DB} + \alpha^{*}_{DB} = 9.36 - 3.19 - 6.15 + 10.60 = 10.62\%$$
  - Foreign banks: $\alpha + \alpha^{*} + \alpha_{FB} = 9.36 - 3.19 - 2.96 = 3.21\%$
  - Public: $\alpha + \alpha^{*} + \alpha_{PB} + \alpha^{*}_{PB} = 9.36 - 3.19 - 3.38 + 6.66 = 9.45\%$
Possible explanations for countercyclical behavior during crisis

- NDB and public banks’ objective not only to maximize profits given risk but also avoid crisis and credit crunch

- Dev and Pub banks are more likely recapitalized; govts have more resources than private bankers during crisis

- Dev and Pub banks suffer less deposit withdrawals and rollover problems of ST instruments; govts higher credibility during crisis

- Dev have better funding structure (more equity and LT funding, less deposits): less risk of liquidity problems and freeze of refinancing
Conclusions and policy implications

- Effectiveness of countercyclical lending by NDB:
  - **Size** with respect to financial system
  - **Governance structure** in order to be well run to be able to act
  - **Financial strength** (also govt.) to be able to act in stress situations
  - **Coordination** with other govt. agencies

- Need for special and innovative credit lines that suites companies in crisis times (not focus only on capital investment but also on working capital and liquidity management).

- Credit lines for infrastructure projects that increase productive and export capabilities also advisable.
Thanks!

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