Banking Competition in Latin America

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Trend in the Banking Industry In Latin America

• The number of Banks has been falling in Latin America, increasing concentration.
• As in many Developing economies, Foreign Bank Participation has increased in Latin America.
**Decrease in number of Banks**

<table>
<thead>
<tr>
<th>Country</th>
<th>1996</th>
<th>2002</th>
<th>Change</th>
<th>% Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>Argentina</td>
<td>118</td>
<td>80</td>
<td>-38</td>
<td>-32%</td>
</tr>
<tr>
<td>Brazil</td>
<td>253</td>
<td>180</td>
<td>-73</td>
<td>-29%</td>
</tr>
<tr>
<td>Chile</td>
<td>33</td>
<td>26</td>
<td>-7</td>
<td>-21%</td>
</tr>
<tr>
<td>Colombia</td>
<td>39</td>
<td>28</td>
<td>-11</td>
<td>-28%</td>
</tr>
<tr>
<td>Costa Rica</td>
<td>30</td>
<td>21</td>
<td>-9</td>
<td>-30%</td>
</tr>
<tr>
<td>Peru</td>
<td>23</td>
<td>15</td>
<td>-8</td>
<td>-35%</td>
</tr>
<tr>
<td>El Salvador</td>
<td>18</td>
<td>13</td>
<td>-5</td>
<td>-28%</td>
</tr>
<tr>
<td>Mexico*</td>
<td>41</td>
<td>32</td>
<td>-9</td>
<td>-22%</td>
</tr>
</tbody>
</table>

Source: Superintendencia de Bancos

* in 1994 there were 23 banks.
Increase in Bank Concentration

C5 in 2002
C5 in 1996

ARG  BRA  CHL  COL  PER  SLV  MEX
Foreign Bank Participation

![Bar Graph showing foreign bank participation in various countries between 1996 and 2002.](image)
Foreign Participation In LDC

- Thailand
- Korea
- Malaysia
- Colombia
- Brazil
- Venezuela
- Chile
- Peru
- Argentina
- Mexico
- Turkey
- Poland
- Hungary
- Czech Republic

[Chart showing participation levels from 1994 to 2001 for various countries, with the Czech Republic having the highest participation.]
How did this Process take Place?

• Financial Liberalization (Mexico).
• Tequila (94-95), Russian (98) and Brazilian (98-99) crises have forced authorities to merge and close banks with problems (recapitalization).
  – Colombia 98-99: 4 banks closed & 3 merges.
• Global trend on Banking Consolidation and Cross Banking Activities.
  – Chile 4 merges.
  – Foreign banks typically buy locals. (Argentina 16, Chile 5, Colombia 3 and Mexico 3).
Issues Behind M&A and Bank Consolidation (1)

• Efficiency.
  – Increasing Return to Scale.
    • Overlapped Markets: Overhead Costs, IT
      – No evidence of large Economies of Scale
        » EU, USA
        » Chile. Budnevich et al. (2001)
  – Heterogeneity.
Issues Behind M&A and Bank Consolidation (2)

• Competition Level
  – X inefficiency.
  – Definition of the relevant Market.
    • Overlapped Region or not.
    • Type of Loans:
      – Sectors: Agriculture, Manufacturing, etc.
      – SME v/s Large Firms (access to external resources).
    • Other Financial actors insurance companies and the Stock Market?
  – Asymmetric Information and Competition
    • Informality and Opaque Firms.
Issues Behind M&A and Bank Consolidation (3)

• Competition and Financial Stability
  – Bank Charter Value
    • Reduce agency problem of limited liability banks.
  – To Big to Fail.
    • Increase moral hazard problems. Large Banks Take more risk because they know they will be rescue by the government.
  – Large Capitalization and “perceived” liquidity of foreign Banks.
Implications for Regulation

- **Bank Superintendence or Central Bank:**
  - Focus on banking stability.

- **Competition Authorities:**
  - Focus on competition issues (Efficiency and Monopoly practices).

- **During Financial Turmoil** (frequents events in Latin America) The former predominates.
**Competition Measure**

- Panzar and Rosse’s (1987) methodology:

  \[ H \equiv \sum_j \frac{\partial R_i}{\partial FIP_{j,i}} \frac{\hat{FIP}_{j,i}}{\partial R_i} \]

  - Monopoly: \( H \leq 0 \).
  - Monopolistic competition: \( 0 < H \leq 1 \).
  - Perfect competition: \( H = 1 \).
  - Constant elasticity \( e > 1 \) and a Cobb-Douglas CRS technology \( \Rightarrow H = e - 1 \) \( \Rightarrow \) H as a measure of the degree of competition.
Competition Measure

- We want $H$ to change over time
  - $H$ depends on industry-specific characteristics
    ➔ Cross-country comparisons may be misleading
  - Correlation between consolidation and foreign penetration trends and the evolution of competition ➔ Emphasis on the dynamic dimension


**Competition Measure**

\[ H_y = \beta_y + \gamma_y + \delta_y \]

\[ \ln \text{FINR}_{it} = \alpha_i + \sum_y \left( \beta_y \ln \text{AFR}_{it} + \gamma_y \ln \text{PPE}_{it} + \delta_y \ln \text{PCE}_{it} \right) \]

\[ + \eta \ln \text{OI}_{it} + \sum_j \xi_j \ln \text{BSF}_{jit} + \sum_j \lambda_j X_{jt} + \nu_{it} \]

- \( \beta_y, \gamma_y, \delta_y \) are set to 0 if quarter \( t \) does not belong to year \( y \)
- FINR = total financial revenue over total assets
- AFR = annual interest expenses over total funds
- PPE = personnel expenses over total balance sheet
- PCE = physical capex and other expenses over fixed assets
- BSF = Bank fundamentals: Risk (equity, loans and liquidity over total assets); funding mix (demand deposits to total); size (total assets).
- OI = ratio of Other Income to the Total Balance Sheet
- \( X = \) macroeconomic factors (reference interest rate, inflation rate)
### Estimates of time-invariant H

#### Table 2

<table>
<thead>
<tr>
<th>Methodology</th>
<th>Coefficient</th>
<th>Chile</th>
<th>Argentina</th>
<th>Brazil</th>
<th>Colombia</th>
<th>Costa Rica</th>
<th>Peru</th>
<th>El Salvador</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>All banks</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(1) OLS¹</td>
<td>H</td>
<td>0.959*</td>
<td>0.546*a</td>
<td>0.911*a</td>
<td>0.753*a</td>
<td>0.806*a</td>
<td>0.76*a</td>
<td>0.390*a</td>
</tr>
<tr>
<td>FE</td>
<td>H</td>
<td>0.829*a</td>
<td>0.459*a</td>
<td>0.862*a</td>
<td>0.684*a</td>
<td>0.676*a</td>
<td>0.60*a</td>
<td>0.416*a</td>
</tr>
<tr>
<td>(2) FE</td>
<td>H</td>
<td>0.832*a</td>
<td>0.488*a</td>
<td>0.886*a</td>
<td>0.695*a</td>
<td>0.734*a</td>
<td>0.60*a</td>
<td>0.390*a</td>
</tr>
<tr>
<td>(3) FE</td>
<td>H</td>
<td>0.807*a</td>
<td>0.478*a</td>
<td>0.846*a</td>
<td>0.705*a</td>
<td>0.765*a</td>
<td>0.58*a</td>
<td>0.283*a</td>
</tr>
<tr>
<td>Private banks</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(3)</td>
<td>H_L</td>
<td>0.010</td>
<td>0.033*</td>
<td>0.065*</td>
<td>0.016</td>
<td>-0.108*</td>
<td>-0.010</td>
<td>0.109*</td>
</tr>
<tr>
<td></td>
<td>H_F</td>
<td>0.067*</td>
<td>0.010</td>
<td>0.064*</td>
<td>-0.019</td>
<td>-0.096</td>
<td>-0.009</td>
<td>0.643*</td>
</tr>
<tr>
<td></td>
<td>P-value</td>
<td>H_L = H_F</td>
<td>0.114</td>
<td>0.090</td>
<td>0.977</td>
<td>0.491</td>
<td>0.863</td>
<td>0.903</td>
</tr>
<tr>
<td><strong>Period</strong></td>
<td></td>
<td></td>
<td></td>
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<td></td>
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<td></td>
</tr>
</tbody>
</table>

**Notes:**

¹ Excludes inflation rate and reference interest rate.

* significantly different from zero at 5%; a: significantly different from 1 at 5%.

H_L and H_F are large and foreign bank dummies, and measure the deviation from small private domestic banks in the system.

All tests based on robust standard errors.
Estimates of time-varying H – Private banks

<table>
<thead>
<tr>
<th>(baseline specification)</th>
<th>Argentina</th>
<th>Brazil</th>
<th>Chile</th>
<th>Colombia</th>
<th>Costa Rica</th>
<th>El Salvador</th>
</tr>
</thead>
<tbody>
<tr>
<td>1993</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1994</td>
<td></td>
<td>0.775</td>
<td>0.805</td>
<td>0.621</td>
<td></td>
<td></td>
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<tr>
<td>1995</td>
<td>0.395</td>
<td>0.788</td>
<td>0.870</td>
<td>0.547</td>
<td>0.750</td>
<td></td>
</tr>
<tr>
<td>1996</td>
<td>0.442</td>
<td>0.803</td>
<td>0.848</td>
<td>0.518</td>
<td>0.757</td>
<td></td>
</tr>
<tr>
<td>1997</td>
<td>0.458</td>
<td>0.834</td>
<td>0.851</td>
<td>0.507</td>
<td>0.730</td>
<td>0.326</td>
</tr>
<tr>
<td>1998</td>
<td>0.456</td>
<td>0.851</td>
<td>0.758</td>
<td>0.562</td>
<td>0.723</td>
<td>0.326</td>
</tr>
<tr>
<td>1999</td>
<td>0.448</td>
<td>0.860</td>
<td>0.834</td>
<td>0.509</td>
<td>0.743</td>
<td>0.304</td>
</tr>
<tr>
<td>2000</td>
<td>0.451</td>
<td>0.849</td>
<td>0.800</td>
<td>0.522</td>
<td>0.727</td>
<td>0.319</td>
</tr>
<tr>
<td>2001</td>
<td>0.844</td>
<td>0.803</td>
<td>0.494</td>
<td>0.729</td>
<td>0.404</td>
<td></td>
</tr>
<tr>
<td>2002</td>
<td>0.869</td>
<td>0.837</td>
<td>0.490</td>
<td>0.723</td>
<td>0.390</td>
<td></td>
</tr>
<tr>
<td>Average</td>
<td>0.442</td>
<td>0.830</td>
<td>0.823</td>
<td>0.530</td>
<td>0.735</td>
<td>0.345</td>
</tr>
</tbody>
</table>

In all cases, H = 0 (monopoly), and H = 1 (perfect competition) are rejected at the 5% significance level, based on robust standard errors.
## Concentration, Foreign Penetration and Competition

<table>
<thead>
<tr>
<th></th>
<th>H</th>
<th>H (private)</th>
<th>H</th>
<th>H (private)</th>
<th>H</th>
<th>H</th>
<th>H</th>
<th>H (private)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ln num. of banks</td>
<td>-0.156</td>
<td>-0.163</td>
<td>(2.24)**</td>
<td>(2.26)**</td>
<td>0.075</td>
<td>0.160</td>
<td>0.060</td>
<td>0.137</td>
</tr>
<tr>
<td></td>
<td>(0.98)</td>
<td>(1.95)*</td>
<td>(0.77)</td>
<td>(1.66)</td>
<td>(0.69)</td>
<td>(1.73)*</td>
<td>(0.99)</td>
<td>(2.02)*</td>
</tr>
<tr>
<td>Foreign Penetration</td>
<td>0.531</td>
<td>0.706</td>
<td>(2.05)**</td>
<td>(2.85)***</td>
<td>0.230</td>
<td>0.275</td>
<td>(2.04)**</td>
<td>(2.36)**</td>
</tr>
<tr>
<td>HHI (Assets)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0.236</td>
<td>0.280</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>(2.30)**</td>
<td>(2.64)**</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Observations</td>
<td>57</td>
<td>57</td>
<td>57</td>
<td>57</td>
<td>57</td>
<td>57</td>
<td>57</td>
<td>57</td>
</tr>
<tr>
<td>R-squared</td>
<td>0.98</td>
<td>0.98</td>
<td>0.98</td>
<td>0.98</td>
<td>0.98</td>
<td>0.98</td>
<td>0.98</td>
<td>0.98</td>
</tr>
</tbody>
</table>

~ significant at 15%;* significant at 10%; ** significant at 5%.
Robust t-statistics in parentheses.
Concentration, Foreign Penetration and Competition Indicators
(changes over the period of analysis; in percent)
Competition and Bank Margins
(changes over the period of analysis)
Main results

• Consolidation and foreign penetration, if anything, led to more competition.

What is behind these results?
• Overpopulation of banks before consolidation ➔ concentration levels suboptimally low
• Product homogeneization (ATMs, PC banking, universal banks) eliminates non-competitive rents.

Both effects may still be at play ➔ More consolidation to come
Policy Discussion

Financial bias

- M&A and foreign entry triggered by financial concerns: What role did competition concerns play in the analysis of M&A?
- Is there a regulatory body and institutions that may cope with the problem should these concerns arise in the future?
- What weight, if any, is the competition authority given in the final decision?
Policy Discussion

*Open questions*

- How do consolidation & internationalization affect the distribution of credit
  - Disaggregation of loans and interest rate data according to variables such as sector, size, borrower’s location and risk class.
- Are some markets more collusion-prone than others?
  - Credit cards
  - Access to ATM networks
  - Location as a natural barrier: small towns and public banks
Policy Discussion

Open questions

• What is the relevant market?
  o Cross-elasticities ➔ Lack of reliable data ➔ Focus on regional (local) markets
  o Legal standards ➔ Trade-off between flexibility and legal contestability
  o Do we need a common benchmark?

• Coordination of policy actions
  o Balance between financial stability and pro-competition considerations
  o The Bank Law should spell out the precise form of coordination between the supervisory and competition agencies.