The Chilean Experience with (De)Dollarization

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1. Why Chile?
3. The Chilean experience.
4. Policy implications.
I. Why Chile?
Why Chile?

- After the early 80s, low levels of (domestic) financial dollarization, despite history of high inflation => relatively low currency mismatches and associated vulnerabilities:
  - Banking sector
  - Government sector
  - Corporate sector
Bank Dollarization

Dollarization of Public Debt

Bank and Government Dollarization

Source: CLYPS 2006
Corporate Dollarization

Firm Level Liability Dollarization in Tradable and Non-Tradable Sectors in Selected Latin American Economies
(Median Value, Year 2001)

Source: IADB 2004
Why Chile?

- Deep capital markets by EME standards:
  - Private bank loans (70% of GDP)
  - Large (but illiquid) stock market (90% of GDP)
  - Relatively developed (but also illiquid) private bond market (20% of GDP or which 13% corporate)

- Note, however, that 100% of foreign issued debt is in “hard” currencies.

- Low dollarization has not come at the expense of short term debt either.
Maturity of Bonds

Maturity of Private Sector Bonds
Bonds Issued 1995-2004

Source: Braun and Briones 2006 based on SDC data
Maturity of Corporate Debt

II. Causes of Financial Dollarization
What drives dollarization?

- To a large extent domestic financial dollarization can be explained by inflation uncertainty. If inflation risk is high, better to take on the real exchange rate risk of dollar contracts.

- This is the central result of the work on Minimum Variance Portfolios (MVPs) by Ize and Levy–Yeyati (2003) and De Nicolo, Honohan and Ize (2004).
MVP and Dollarization (LA)

Deposit Dollarization and MVP in LAC 1999

Note: Chile is an outlier (significantly so)

What drives dollarization?

- Therefore, part of dollarization is “warranted” (conditional on agents priors of the distribution of prices and RER).
- Explains high correlation STD and dollar debt.
- This suggests that:
  - Policies that restrict dollarization, by increasing the risk of saving/borrowing, will lead to lower intermediation.
  - Cowan & Kamil (2004) find that this is indeed the case (dif–dif approach)
Restricting dollar debt has a larger effect on size of domestic financial market in countries with large “variance loss”
What drives dollarization?

- Regarding foreign debt empirical evidence (Eichengreen et al 2003) suggest that domestic macro outcomes have scarce impact => “original sin”.
- Note, however:
  - Recent issuance in “pesos” (Tovar 2005)
  - Growing importance deliverable forwards (Selaive et al 2006)
  - Despite low variance in EMEs as to debt composition, high variance in overall composition of gross foreign liabilities.
Reducing Dollarization

I. Restrictions => desintermediation

II. Building credibility => timely (and learning possibly hindered by dollarization itself)

III. Indexation: for moderate inflation levels, better hedge than dollar => many unsuccessful attempts (Galindo and Leiderman 2005), additional macro costs.
III. Dollarization in Chile
A Brief History of Indexation in Chile: The Unidad de Fomento

- 1959: Centralized Savings and Loans system established for low income housing. Savings indexed to CPI or wages, annual.
- 1960: Following financial deregulation SINAP and CCAP (private and public savings and loans agencies set up. The CCAP indexed loans to CPI, latter extended to SINAP.
- 64–70: Active promotion of indexation:
  - 65: Large share of state bank deposits indexed.
  - 64: Central bank issues indexed bonds (CAR)
  - UF created (later perfected to monthly and daily….)
• Three periods: 1) Loan dollarization late 1970s
   2) Extensive indexation 1983–2000
   3) Growing nominalization 2001

Source: CBCh
Late 70s: Loan Dollarization

- Late 70s, remaining quantitative restrictions on capital inflows by banks lifted.
- Fixed exchange rate + currency blind bank regulation (necessarily so).
- Implicit bailouts + extensive related lending.
- Large private inflows intermediated by banking system => significant mismatches.
## Currency Mismatches

Share of Bank Loans to Each Sector in Dollars

<table>
<thead>
<tr>
<th>Sector</th>
<th>Share</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agriculture</td>
<td>0.20</td>
</tr>
<tr>
<td>Mining</td>
<td>0.36</td>
</tr>
<tr>
<td>Industry</td>
<td>0.43</td>
</tr>
<tr>
<td>Construction</td>
<td>0.29</td>
</tr>
<tr>
<td>Commerce</td>
<td>0.26</td>
</tr>
<tr>
<td>Transport and Telecom.</td>
<td>0.21</td>
</tr>
<tr>
<td>Financial Services</td>
<td>0.09</td>
</tr>
</tbody>
</table>

Source: SBIF
The UF period

- Financial crisis of 82 marks transition to next stage.
- Large scale bailout of financial system, tied to UF:
  - UF bonds given to banks whose dollar loans were paid with the preferencial (low) dollar.
  - Domestic debt restructured to UF.
  - CBCh grants UF credit lines.
The UF period

- Real macro policy supportive of indexation:
  - Real (UF) interest rate target,
  - Exchange rate band aimed at stabilizing UF/dollar exchange rate,
  - Gradual reduction of inflation,
  - Issuance of CBCh debt in UF => long + liquid yield curve for UF instruments.

- Early 80s: pension reform => “captive” demand for UF indexed debt.
The UF period

▪ Stable RER and high domestic rates => large capital inflows.
▪ Reflected in part in an upward trend in corporate external borrowing in 90s
▪ Pervasive real indexation, in particular for wages:
  ▪ 2 year contracts
  ▪ 6 month indexation
Nominalization

- Transition again marked by period of instability (1998=>) following Asia Crisis.
- Macro preconditions:
  - Fiscal prudence over almost 3 decades
  - Steady fall in inflation (partial targeting since early 90s)
Inflation in Chile
Nominalization

- Nominalization of CBCh monetary policy:
  - Nominal target rate (TPM),
  - CBCh issues peso bonds in short end of curve.
Nominalization

- Increased exchange rate variance after float.
- Falling corporate mismatches:
  - Less borrowing
  - More derivative hedging
Mismatches in the Chilean Corporate Sector Fall

Dollar debt adjusted by forward position
(% total assets)


dollar debt dollar debt adj. dollar debt - forw. (dollar debt - forw.) adj.

Source: SVS, BCdeCH)
Nominalization + Float

- Increased exchange rate variance after float.
- Falling corporate mismatches:
  - Less borrowing
  - Better matching $\Rightarrow$ similar results by Martinez and Werner for Mexico and by Kamil (2006) for 6 LA countries.
  - More derivative hedging
- Growth of FOREX derivative markets $\Rightarrow$ consistent with cross country results by Selaive et al 2006.
Derivative Forex Market Grows

Notional Derivative Positions and Exchange Rate Volatility

Annualized SDev of $/USD (GARCH 1,1)

Source: CBCH
### Derivative Market Grows

#### Turnover in Spot and Derivative FOREX Markets 1998–2004

(as % of nominal GDP)

<table>
<thead>
<tr>
<th>Year</th>
<th>Industrial Economies</th>
<th>Emerging Economies</th>
<th>Emerging Economies wo SGP, HK</th>
<th>LAC</th>
<th>Chile</th>
</tr>
</thead>
<tbody>
<tr>
<td>1998</td>
<td>9.0</td>
<td>17.1</td>
<td>3.1</td>
<td>2.4</td>
<td>2.4</td>
</tr>
<tr>
<td>2001</td>
<td>6.0</td>
<td>15.4</td>
<td>3.2</td>
<td>0.9</td>
<td>2.5</td>
</tr>
<tr>
<td>2004</td>
<td>5.6</td>
<td>14.7</td>
<td>2.6</td>
<td>1.7</td>
<td>4.1</td>
</tr>
</tbody>
</table>

Banks and Pension Funds play an key role in these markets:

- Banks intermediate
- Pension funds provide long positions
III. Policy Lessons
Policy Conclusions

1. Domestic indexation played an important role in limiting domestic financial dollarization:
   - UF important
     - Indexed unit
     - By early 80s 20 years of history + clean track record
   - But also supported by:
     - Real macro policy + public yield curve in UFs
     - Real indexation (causal?) => large costs when faced by real shocks (e.g. wage rigidity following 98 ToT shock)

Important public sector role:
   - All initial indexation state related
   - Key role played by UF in rescue of financial system

2. Context of prudent macro policies
Policy Conclusions

- Domestic nominalization:
  1. Nominalization of CBCh monetary policy and IT framework have coincided with falling share of short term UF debt contracts:
     - Credibility => inflation track record + IT have reduced inflation uncertainty in medium term horizon.
     - Peso yield curve (up to 10 years).
     - Nominal target rate (stabilizes nominal rates…).
  2. Does not imply need to eliminate UF (works very well for long term contracts!)
Policy Conclusions

- Foreign dollarization

1. In Chile less an issue of the currency composition of external debt than level and allocation of risk in the economy:
   - Exchange rate regime has played important role (pre 82, post 99): float has reduced borrowing and improved matching.
   - Bank regulation played key role in 1982 episode.

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