FX Solutions in EM Infrastructure

Innovative Approaches to Mitigating Currency Risk in Emerging Markets

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Agenda

I. Objective and Constraints

II. Preliminary DFI Feedback

III. Solutions

IV. Synopsis
Objective: Unlock off-shore capital to EM local currency-generating infrastructure projects

I. Objective and Constraints

- **Jurisdiction-agnostic** Conceptual Solutions, Adaptable to Specific Jurisdictions or Industries
- Participation by Foreign Investors Averse to Local Currency Risk
- Increase Sovereign and DFI Participation in Risk Defeasance, but Limited to “Right-Way”, Residual Exposure
- Elimination of Currency Risk Beyond the Limits of the Long-Term Swap Market
- Avoid Solutions Passing the Local Currency Devaluation Risk to Local Sovereign and/or End-Users
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Emphasis on simplicity, new roles of the multilaterals and needs of the most undeveloped emerging markets

- **Support** for simple solutions
  - Short-Tenor Hedges with DFI Conditional Liquidity Facility
  - Proxy-Currency Solutions - EM-to-EM (aka “South-to-South” in LATAM)
  - Local Development Bank local Currency Loans to International Investors

- **DFIs** play critical role in the solutions, as well as in further development of the emerging derivatives markets

- Mitigation of FX risk in the **least developed jurisdictions** – devoid of any swap market – is most pressing
  - Tripartite division of jurisdictions to: “Developed”, “Frontier” and “Undeveloped” (non-existent) Swap Markets

- Project’s **credit risk in a swap** continues as a key theme in developed EMs
II. Preliminary DFI Feedback

Three Types EM Jurisdictions – by Swap Market Liquidity

Developed Emerging Markets (e.g. Brazil)
Liquid Forward Market
USD 1-3 BLN / trade
Shorter Tenor (< 1 year)

Frontier Markets (e.g. Costa Rica)
Small Forward Market
USD 50 MM / trade
Increasing Tenor

Undeveloped Markets (e.g. Haiti)
No Liquidity
Longer Tenor

Less Liquid Swap Market
USD ½ BLN / trade

No Liquidity

No Liquidity
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- Short-Term Hedges with DFI Conditional Liquidity Facility
- Proxy Currency (“EM to EM”) Approach
- Development Bank Local Currency Funding to Off-Shore FIs
  - Sub-Variation with Expanded Investor Base

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1. Short-Term Hedging with DFI “Conditional Liquidity Facility”

**Strategy:** Hedge FX risk with short-term (forward) contracts to achieve greater amounts and engage in periodic (historical rate) rollovers.

- EM swap liquidity concentrated in short-tenors (<= 1-yr).
  - Example - Colombia:
    - COP-USD Forward (1yr) max: USD 2 billion
    - COP-USD 10-yr Swap max: USD 0.5 billion

- Key Risk: Increase in carry cost (local currency interest rates) at each rollover
  - Risk idiosyncratic of EMs
  - Increased carry might preclude project from servicing debt

- Conditional DFI Liquidity Facility
  - Subordinated loan provided to the project, conditional upon increase in carry cost beyond certain level
  - Enables the project to roll-over the hedge and service debt
  - Repayment schedule may stretch over the project’s life
  - EM carry cost inevitably reverts to pre-crisis levels – bolstering the project’s debt-repayment capacity.
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2. Proxy Currency Strategies (“EM to EM”)

**Strategy:** Hedge EM currency risk via funding or hedging in more liquid correlated EM currency(s).

- **Rationale**
  - mitigate exchange rate risk, when choice is between funding in USD or a correlated local currency
  - EM currencies moving in tandem
    - Regional benchmarks (e.g. COP and MXN)
    - Trading partners (e.g. NPR and INR)
    - Commodity-exporters (e.g. KZT and RUB)
  - if eventually swapping proxy currency to local currency - lower credit risk on the swap

- “Alianza del Pacifico” (Chile, Colombia, Mexico, Peru)

- DFI wrap of the construction risk might be critical to bring local investors to infrastructure projects.

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**Diagram:***

- **Off-shore**
  - Construction Period Guarantee
  - Mexican Banks / Investors

- **Mexico**
  - Colombia
  - Cross-Currency Swap

- **Dealer / Swap Market**
  - COP P + I
  - SUBSEQUENT SWAP EXECUTIONS DURING PROJECT TENOR: Add hedges to COP as swap liquidity becomes available.
III. FX Solutions in EM Infrastructure

2. Proxy Strategies: Funding or Hedging in more a liquid and correlated local currency (cont’d)

Historical FX volatility when funding a Colombian Peso Project in: USD vs Chilean Pesos vs Mexican Pesos
Jan 93 – Present, Daily COP/USD, COP/MXN and COP/CLP Exchange Rates, Daily Series
Strategic Plan: Local development bank provides local currency liquidity to international banks, who on-lend it to the project.

- Compact and elegant solution - for elimination of both currency and cross-border risk
- No derivative execution at project level
- Relevant for undeveloped markets
- Executed in Kazakhstan, with variations promoted in Colombia, Paraguay
- Proxy currency should be liquid and with expanded yield curve

Variations
- **Local currency loan** by local development bank to international banks
  - Development Bank has exposure to the bank lenders
- **Local currency repo** on G-10 treasuries
  - Reduced Development Bank’s exposure to the international bank lenders, yet bank lenders face “wrong way” credit exposure to CB
Strategy: Development Bank provides local currency liquidity to international banks, who on-lend it to the project. Banks buy protection from international investors.

- Dynamics
  - International investors’ hard currency kept off-shore (in a trust), providing USD return;
  - Project funded locally in local currency.

- Benefits
  - Access to investors unwilling to run FX risk
  - No exchange rate risk (as project is funded locally)
  - Cross-border risk isolated to an event of default
  - No swap involved

- Challenges
  - Residual local currency appreciation risk in project EOD ("right-way" risk)
  - Reliance on local currency funding sources.
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## IV. Synopsis

### Solutions - Jurisdictions Matrix

<table>
<thead>
<tr>
<th>Solution</th>
<th>Developed</th>
<th>Frontier</th>
<th>Undeveloped</th>
<th>Residual Risk</th>
<th>Potential Risk Absorbers...?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Short-Term Forward with DFI Liquidity Facility</td>
<td></td>
<td></td>
<td></td>
<td>Increase in Carry (LCY interest rates)</td>
<td>Supranational, Sovereign, TCX, Dealers</td>
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<tr>
<td>Proxy Currency Strategies</td>
<td></td>
<td></td>
<td></td>
<td>Basis Risk (between 2 EM currencies)</td>
<td>Basis Risk – Sovereign</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td>Construction Risk</td>
<td>Construction Risk – Supranational</td>
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<tr>
<td>Development Bank Local Currency Funding or Repo</td>
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<td></td>
<td></td>
<td>Development Bank (Repo) Credit Risk</td>
<td>Supranational, Dealers</td>
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<td></td>
<td></td>
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<td></td>
<td>Floating Rate Risk</td>
<td>TCX</td>
</tr>
<tr>
<td>Development Bank Local Currency Funding w Expanded Intl Investor Base</td>
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<td></td>
<td></td>
<td>DB (Repo) Credit Risk</td>
<td>CB credit risk – Supranational, Dealers</td>
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<td></td>
<td>Local currency appreciation in project EOD</td>
<td>LCY Appreciation – Sovereign, Dealers</td>
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<td></td>
<td></td>
<td></td>
<td>Floating Rate Risk</td>
<td>Floating Rate - TCX</td>
</tr>
</tbody>
</table>

- **Applicable**
- **Selective**
- **Challenging**
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