Segmented Money Markets and Covered Interest Rate Parity Arbitrage

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Discussion
BIS Symposium: CIP-RIP?
May 22-23, 2017
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Paper’s Contributions:

- Provides an in-depth look at funding and transactions costs in enforcing arbitrage arising from CIP violations, focusing on *marginal funding costs*.
- Sheds light on the differences in short-term funding costs (money market segmentation), post-2008 crisis.
- Connects *order flow imbalances* in FX swap markets to price fluctuations in FX swaps.
**Review of results:**

<table>
<thead>
<tr>
<th>Money markets rates used</th>
<th>Violations of LOOP and CIP-arbitrage</th>
<th>Possible Explanations</th>
</tr>
</thead>
<tbody>
<tr>
<td>CP rates, Interbank deposit rates.</td>
<td>Negligible.</td>
<td></td>
</tr>
<tr>
<td>OIS, GC repo, and IBOR rates.</td>
<td>Non-negligible.</td>
<td>Returns may be compensation for balance sheet liquidity risks.</td>
</tr>
<tr>
<td>Highly rated banks with attractive CP rates/Reserve managers</td>
<td>Can exploit CIP violations to reap riskless profits.</td>
<td>Outside options for accessing US$ are very expensive for low quality issuers.</td>
</tr>
</tbody>
</table>
Assessment of the paper

- Paper is a painstaking effort:
  - Many data sets in different currencies;
  - High frequency information.
  - Careful in documenting heterogeneity in money markets.

- Paper is well exposited and easy to understand.

- Sheds a new perspective on CIP violations:
  - The money market rates used in putative arbitrage transactions matter a lot!
  - High quality borrowers in US$ in unsecured markets have an advantage in reaping arbitrage profits, but their actions may be bounded.
Summary

- Carefully executed paper.
- Convincing evidence that the money market rates used in the arbitrage can yield very different results.
- Intermediary’s aversion to order imbalance could result in arbitrage for a few players.
- Previously shown arbitrage profits may be compensations for:
  - Balance sheet risk taken.
  - Only very high quality players with access to unsecured US$ funding may reap benefits.
Limits to Arbitrage in the FX Market: Evidence from FX Trade Repository Data

**Paper’s Contributions**

- Transactions level data (proprietary) on OTC forwards, FX swaps and CCBS.
- Terrific data set with DTCC and other repositories for future research.

- Leverage ratio constraints of dealers matter:
  - De-levering by dealers leads to a fall in liquidity in forwards.
  - In turns this leads to CIP violations, in the short-run.

- Risk-weighted capital requirements affect CCBS spreads.
  - Increase in capital ratios, lead to a widening of CCBS Spreads.
### Review of results:

<table>
<thead>
<tr>
<th>Demand for US$</th>
<th>Supply of US$</th>
<th>Players</th>
</tr>
</thead>
<tbody>
<tr>
<td>Short-term (forwards)</td>
<td></td>
<td>All except hedge funds, and central banks.</td>
</tr>
<tr>
<td>.</td>
<td>Long-term (CCBS)</td>
<td>Hedge funds, corporates and reserve managers.</td>
</tr>
</tbody>
</table>

Positive net buying of US$ against FX leads to a compression in CIP deviations.
Review of results:

- Ability to identify the players is critical and I have not seen this in many data sets.
- It allows the authors to examine who supplies US$ and who demands them.
  - Conclusions here are intuitive and makes sense.
- As we get more time series data, we can examine whether there are shifts in players’ positions.
Summary

- Unique data set with identities of players.

- Ideal for evaluating quantitative transfer of economic rents.

- Connects Dealer balance sheet constraints to CIP violations:
  - Leverage ratios.
  - Risk-weighted capital

- Loss of liquidity in markets due to balance sheet constraints:
  - Implications.
Comments

- The narrative suggests that violations of CIP parity results in:
  - Transfer of economic rents from low quality players to high quality players with access to low cost funding, and risk-free deposits, such as reserves.
  - No position is taken on:
    - Welfare losses, if any as a consequence of CIP violations.
    - Need for public policy intervention by regulators or central banks.
    - Now the central banks have the FX swap lines. They can activate and re-price when they wish to. Should we care about violations?
Comments:

- What are the welfare consequences?
  - Intermediaries, investors, and issuers.
  - Are we trading safety for illiquidity.

- Should policy makers care?
  - As dealers withdraw, other players may step in.
    - In corporate bond markets, dealer inventories are down, but mutual funds and ETFs have stepped in.
      - This may have implications when a next macro shock arrives.
  - Is there a similar concern in FX swaps?
**Comments:**

- Quantitative assessments of magnitude of profits/losses
  - Are they big?
  - Does it lead to excessive risk taking?

- How vulnerable are the markets with respect to:
  - Sustained changes in policy rates [USA, for example]?
  - Unexpected divergences in monetary policies?