How do FOMC Actions and U.S. Macroeconomic Data Announcements Move Brazilian Sovereign Yield Spreads and Stock Prices?

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• Motivation

- Many studies have investigated relationship between in U.S. interest rates and yields in dollar-denominated sovereign debt issued by Emerging Market Economies (EMEs).

- Focus of attention usually Embi spreads (JP Morgan index of bond yield spreads over U.S. Treasuries).

- Motivated in part by view that U.S. monetary policy tightenings helped trigger the LDC crisis, Mexican 1994 crisis, and other periods of financial turbulence in EMEs.

- These fears were resurrected over first 5 months of 2004 in particular as several events, including FOMC statements, led investors to put higher odds on probability that FOMC would raise interest rates.
• Problems with most of the existing studies

  – look at relationship between *realized* changes in U.S. rates and EME spreads.

  – Realizes changes incorporate both anticipated and unanticipated movements.

Figure 1: Yield on US Ten-Year Treasury Bond vs. EMBI+ Spread

Daily Data

Weekly Data

*Excludes Argentina.
• Over certain periods, U.S. rates and EMBI spreads appear to move together (e.g., 2004-early 2005)…

• …but over longer periods, the relationship is not so clear.

• Relationship not stable because the factors that drive the co-movement change over time
• A rise in U.S. interest rate is thought to lead to a rise in EME credit risk spread because
  
  – Rise in U.S. rates raises the cost of new dollar borrowing for EMEs. Could reduce EME’s ability to service their debts.
  
  – Default possibly more likely, increasing credit risk premiums.
  
  – Rise in U.S. rates would lead to unwinding of “reach for yield.”

• But if U.S. rates rise following news that the U.S. economy is stronger than what investors had previously thought
  
  – investors might be more optimistic on growth prospects in EMEs, raising EME asset prices and consequently lowering credit risk spreads
• Ultimately, which influence dominates is an empirical issue.

• Other work: VAR-based


  – Not a realistic depiction of systematic component of monetary policy, as U.S. ST rate is allowed only to respond to past ST rate. So impulse responses, Variance Decompositions not picking up effects of U.S. monetary policy shock.

  – Miniane and Rogers (2005), VAR employed to look at effect of U.S. monetary shocks on ST rates on local currency denominated instruments. Attempts to deal with identification problem for monetary policy shock with robustness checks (over 200 sets of identifying assumptions).

  – ….whether a monetary policy shock can be adequately isolated in VARs remains controversial.
– Event study: alternative approach

• Armed with measures of surprises associated with FOMC and U.S. macro announcements…

• …and with intradaily data…

• …we study response of Brazilian credit risk spread and stock price index (IBOVESPA) to the surprise component of these announcements.
• FOMC announcements: Surprise measure is market-based (extracted from interest rate futures contracts)

• Surprise change in fed funds target rate measured over one-half hour bracketing the 2:15 announcements (throw out 3 intermeeting moves in 2001—Jan 3, April 18, and Sept 17)

• 10 U.S. Macro announcements
  – surprise measure is survey-based
– Sample: Feb 1999-Apr 2005

– Brazilian C-bond yield spread over U.S. treasuries

  • Data hourly, on the hour
  • C-bond was the most actively traded EME bond
  • Bond market open roughly 3 am-5 pm Eastern Time
  • Some observations dropped (events in Argentina/Brazil)

  • Data not ideal
    » Based on indicative bond prices, not transactions prices
    » missing data for 1 month after 9/11 and on other dates

– IBOVESPA index:
  • Data at five-minute intervals
Figure 3: Cumulative Change in C-bond Spread over U.S. Treasuries Following April 2, 2004 Non-Farm Payroll Release
Figure 4: Mean Absolute Change in Spread on Announcement vs. non-Announcement Days
Figure 5: Mean Absolute Brazilian Stock Returns on Announcement vs. Non-Announcement Days (Contemporaneous Markets)
<table>
<thead>
<tr>
<th></th>
<th>no. obs.</th>
<th>surprise units</th>
<th>1 Std. Dev.</th>
<th>Surprise Coefficient (0-1)</th>
<th>Surprise Coefficient (0-2)</th>
<th>R-squared (0-1)</th>
<th>R-squared (0-2)</th>
</tr>
</thead>
<tbody>
<tr>
<td>CPI</td>
<td>53</td>
<td>percent</td>
<td>0.16</td>
<td><strong>0.196</strong></td>
<td><strong>0.230</strong></td>
<td>0.087</td>
<td>0.059</td>
</tr>
<tr>
<td>GDP</td>
<td>68</td>
<td>percent</td>
<td>0.60</td>
<td>0.013</td>
<td>0.035</td>
<td>0.004</td>
<td>0.024</td>
</tr>
<tr>
<td>Nonfarm Payrolls</td>
<td>71</td>
<td>100k</td>
<td>1.1</td>
<td>0.009</td>
<td><strong>0.049</strong></td>
<td>0.007</td>
<td>0.084</td>
</tr>
<tr>
<td>Industrial Prod.</td>
<td>60</td>
<td>percent</td>
<td>0.30</td>
<td>-0.042</td>
<td>-0.041</td>
<td>0.008</td>
<td>0.005</td>
</tr>
<tr>
<td>Trade Balance</td>
<td>72</td>
<td>billions</td>
<td>2.60</td>
<td>-0.004</td>
<td>-0.003</td>
<td>0.021</td>
<td>0.006</td>
</tr>
<tr>
<td>Unemployment</td>
<td>50</td>
<td>percent</td>
<td>0.15</td>
<td>-0.074</td>
<td>0.061</td>
<td>0.011</td>
<td>0.004</td>
</tr>
<tr>
<td>Jobless Claims</td>
<td>294</td>
<td>100k</td>
<td>0.19</td>
<td>-0.026</td>
<td>0.004</td>
<td>0.002</td>
<td>0.000</td>
</tr>
<tr>
<td>Housing Starts</td>
<td>57</td>
<td>percent</td>
<td>0.09</td>
<td>-0.004</td>
<td>-0.053</td>
<td>0.000</td>
<td>0.001</td>
</tr>
<tr>
<td>PPI</td>
<td>57</td>
<td>percent</td>
<td>0.51</td>
<td><strong>0.041</strong></td>
<td><strong>0.042</strong></td>
<td>0.032</td>
<td>0.029</td>
</tr>
<tr>
<td>Retail Sales</td>
<td>67</td>
<td>percent</td>
<td>0.79</td>
<td>-0.003</td>
<td>-0.001</td>
<td>0.001</td>
<td>0.000</td>
</tr>
<tr>
<td>FOMC*</td>
<td>40</td>
<td>percent</td>
<td>0.04</td>
<td><strong>0.433</strong></td>
<td></td>
<td>0.033</td>
<td>0.029</td>
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Figure 7: Spread Response to Changes in U.S. Interest Rates on FOMC Announcements
Figure 8: Brazilian Stock Price Responses to U.S. Macro Surprises
Figure 9: Uncentered R-squared Statistics for Brazilian Stock Price Regressions
Figure 10: Brazilian Stock Price Response to Changes in U.S. Interest Rates on FOMC
Findings

• FOMC announcements:
  – Increases in U.S. rates following FOMC announcements are associated with a rise in Brazilian credit risk spread
  – But FOMC decisions have more mixed effects on Brazilian stock price index. Stock price moves only to the extent that FOMC decision moves long-term U.S. rates.
  – Information about future monetary policy decisions plays an important role in Brazilian asset prices
  – FOMC decisions explain only small portion of movement in Brazilian asset prices
Findings

• U.S. macro announcements..
  – Some U.S. macro announcements move Brazilian spreads and stock prices.
  – Better-than-expected news about U.S. economy, if it matters, is associated with rise in credit risk spread and decline in stock price.
  – Payrolls announcements especially move Brazilian asset prices (similar to other studies).
  – Again, U.S. macro announcements explain only small portion of movements in Brazilian asset prices
• Caveats

  – Sample size small and covers only a recent period

  – As with other event studies, it is difficult to draw conclusions about longer run effects of FOMC decisions and U.S. macro data releases on asset prices.
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