The Center and the Periphery: The Globalization of Financial Turmoil

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Motivation

• The financial turmoil of the 1990s has agitated academic and policy circles alike.

• Talks of systemic risk have permeated all the debates and prompted new research on contagion.

• Also, intense scrutiny of new proposals for the redesign of the international financial architecture.

• Liquidity squeezes singled out as triggering the contagious turbulences of 1998.
Previous Research

• The literature on contagion has developed along two complementary strands in recent years.
• First, the earlier studies attempted to document the incidence of contagion or establish whether there is such a beast.
• Second, many studies have primarily sought to discriminate among the possible channels of transmission of disturbances:
  – trade links
  – common foreign bank lenders
  – Cross-market hedging
What is different about this paper?

• Origins?
• Patterns of transmission?
• Spillover of extreme events
• What do we need for systemic crises?
  – Is it extreme shocks in financial centers?
  – Or just extreme shocks in crisis-prone emerging markets?
• Two new Measures of Globalization
  – Weak-Form and Strong-Form Globalization
Data

- Thirty five mature and emerging countries:
  - G-7 countries
  - Asia
  - Europe
  - Latin America
  - Transition economies
- Stock Market Indices
World Globalization

[Area chart showing data over the years 1997-1999, with vertical bars indicating the magnitude of some event or measure for each month.]
Regional Globalization

Asia
Regional Globalization

Europe
Regional Globalization
Regional Globalization

Latin America
Regional Globalization

Transition Economies
Weak-Form Globalization

- Focus on days of turmoil, which are defined as days with returns in the 5th and 95th percentiles.
- Examine the degree of spillover conditional on turmoil in:
  - Financial Centers
  - Crisis-prone emerging markets
- Weak-Form Globalization: The frequency distribution of returns around the world changes when conditioning on days of turmoil in one financial center or in one crisis-prone emerging market.
- Degree of Globalization: Proportion of countries with different frequency distributions.
- Use Kolgomorov-Smirnov test.
Table 4
Weak-Form Globalization of Turmoil
Regional and World Effects

<table>
<thead>
<tr>
<th>REGIONS</th>
<th>Percentage of Countries with Anomalous Returns when Turmoil in</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>GERMANY</td>
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<tr>
<td>Latin America</td>
<td>43</td>
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<td>Asia</td>
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<tr>
<td>Europe</td>
<td>71</td>
</tr>
<tr>
<td>Financial Centers</td>
<td>100</td>
</tr>
<tr>
<td>Transition Economies</td>
<td>57</td>
</tr>
<tr>
<td>World</td>
<td>59</td>
</tr>
</tbody>
</table>
Table 8
Weak-Form Globalization of Turmoil
Regional and World Effects

<table>
<thead>
<tr>
<th>REGIONS</th>
<th>Percentage of Countries with Anomalous Returns when Turmoil in</th>
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<tbody>
<tr>
<td></td>
<td>BRAZIL</td>
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<tr>
<td></td>
<td>With Financial Center</td>
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<tr>
<td>Latin America</td>
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<td>Asia</td>
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<td>Transition Economies</td>
<td>76 24</td>
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<tr>
<td>World</td>
<td>1320 891</td>
</tr>
</tbody>
</table>

Wilcoxon Statistic (W)
Patterns of Transmission

Financial Centers:
- Shocks in the United States are transmitted around the globe, but not to Asia.
- Shocks in Japan are transmitted to Asia and Europe, but not to Latin America or the United States.
- Shocks to Germany are transmitted around the globe, but less intensely to Latin America.

Emerging Markets:
- Turmoil in emerging markets is transmitted to the rest of the world only if financial centers are affected.
- Shocks to Brazil (Russia), even when they do not affect financial centers, are transmitted to all Latin American countries (transition economies)
- Shocks to Thailand are not even transmitted to the rest of Asia if Japan is not affected.
Strong-Form Globalization

• Again, focus on days of turmoil, which are defined as days with returns in the 5th and 95th percentiles.

• Examine the degree of spillover conditional on turmoil in:
  – Financial Centers:
  – Crisis-prone emerging markets:

• Strong-Form Globalization: Coincidence of turmoil.

• Degree of Globalization: Proportion of countries with turmoil.
Strong-Form Globalization

We use a multinomial-logit and order-logit regression techniques:
• The dependent variable captures degrees of globalization. There are three categories:
  – Low Globalization: Only up to 25 percent of the countries have turmoil
  – Medium Globalization: 25 to 50 percent of the countries have turmoil
  – High Globalization: More than 50 percent of the countries have turmoil

• The explanatory variables are (0,1) dummy variables that reflect days of turmoil in:
  – A crisis-prone emerging market (no financial center affected)
  – A crisis-prone emerging market (financial center affected)
  – Financial Center
Strong Form Globalization

<table>
<thead>
<tr>
<th>Degree Of Globalization</th>
<th>Probabilities Conditional on</th>
</tr>
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<tbody>
<tr>
<td></td>
<td>TURMOIL IN GERMANY</td>
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<tr>
<td>Low</td>
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<tr>
<td>Medium</td>
<td>36</td>
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<tr>
<td>High</td>
<td>23</td>
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## Strong Form Globalization

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<tbody>
<tr>
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<td>TURMOIL IN BRAZIL</td>
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<tr>
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<tr>
<td>Medium</td>
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## Strong Form Globalization

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<th>Degree of Globalization</th>
<th>Probabilities Conditional on Turmoil in Brazil</th>
<th>Probabilities Conditional on Turmoil in Russia</th>
<th>Probabilities Conditional on Turmoil in Thailand</th>
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<tbody>
<tr>
<td></td>
<td><strong>Turmoil in Brazil</strong></td>
<td><strong>Turmoil in Russia</strong></td>
<td><strong>Turmoil in Thailand</strong></td>
</tr>
<tr>
<td></td>
<td>With Financial Center</td>
<td>Without Financial Center</td>
<td>No Turmoil</td>
</tr>
<tr>
<td>Low</td>
<td>21</td>
<td>56</td>
<td>87</td>
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<tr>
<td>Medium</td>
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<tr>
<td>High</td>
<td>57</td>
<td>17</td>
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## Strong Form Globalization

<table>
<thead>
<tr>
<th>Degree of Globalization</th>
<th>No Turmoil</th>
<th>Turmoil in One Emerging Market</th>
<th>Turmoil in Two Emerging Markets</th>
<th>Turmoil in Three Emerging Markets</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low</td>
<td>77</td>
<td>56</td>
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<td>19</td>
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<tr>
<td>Medium</td>
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<tr>
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<td>2</td>
<td>62</td>
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</table>

Probabilities Conditional on Turmoil in One Emerging Market.
Strong-Form Globalization Results

• When there is turmoil in Financial Centers the probability of at least medium globalization is 50 percent.

• Turmoil in Brazil or Russia
  – Triggers high globalization of turbulences with a 50 percent probability if financial centers are affected
  – Triggers low globalization of turbulences with a 50 percent probability if financial centers are not affected
Origins of Turmoil

• We construct a chronology of news from Bloomberg for the days of high world and regional globalization.
• We find that:
  – News about financial institutions are at the heart of worldwide globalization events.
  – Other economic news or political news trigger mostly regional globalization events.
• Interestingly, 85 percent of all high worldwide globalization events are crashes.
• Also, events of high worldwide globalization are characterized by more drastic shocks.
Conclusions

• An analysis of more episodes is a clear necessity.

• Still, one of the preliminary conclusions we draw from this exercise is that for understanding “systemic” problems we have to understand how a shock to the periphery spreads to the periphery (or to other financial centers), via its impact on a financial center.

• If the shock never reaches the center, it is doubtful it can become systemic, irrespective of the definition of systemic that is used.