

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 re-design of the international financial architecture.**
- **Liquidity squeezes singled out as triggering the contagious turbulences of 1998.**

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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

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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**

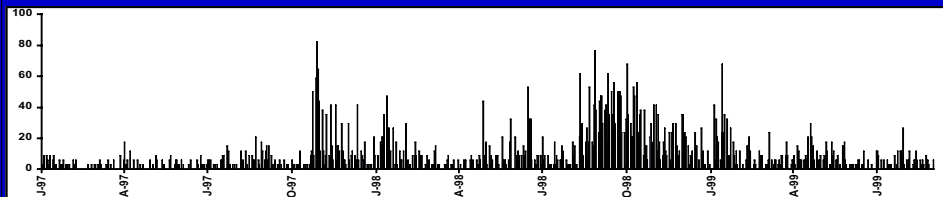
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Data

- **Thirty five mature and emerging countries:**
 - G-7 countries
 - Asia
 - Europe
 - Latin America
 - Transition economies
- **Stock Market Indices**
- **Daily data from January 1, 1997 to August 31, 1999.**

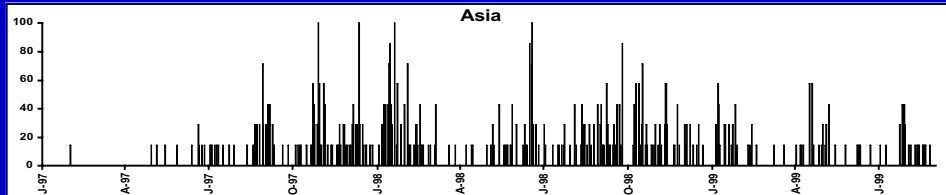
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World Globalization



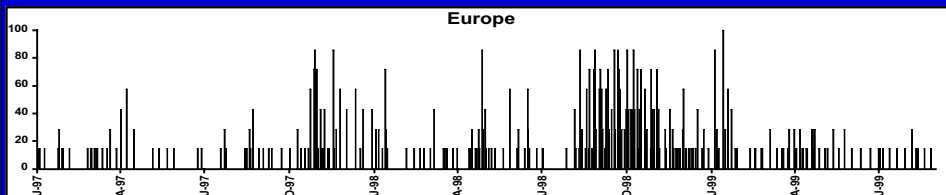
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Regional Globalization



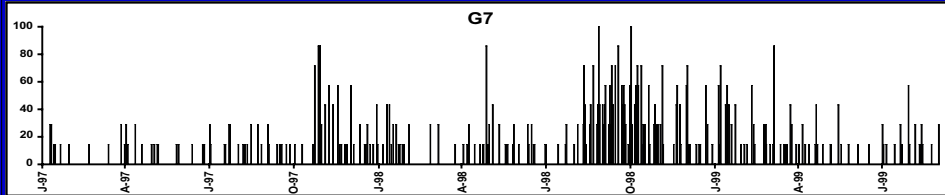
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Regional Globalization



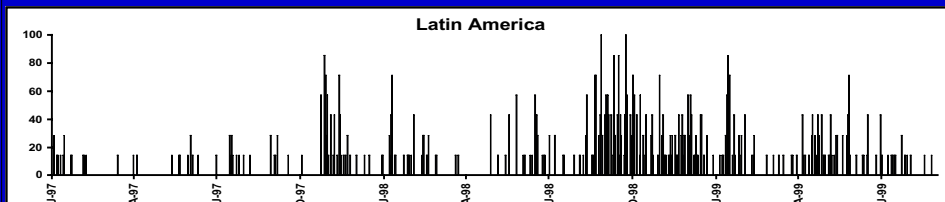
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Regional Globalization



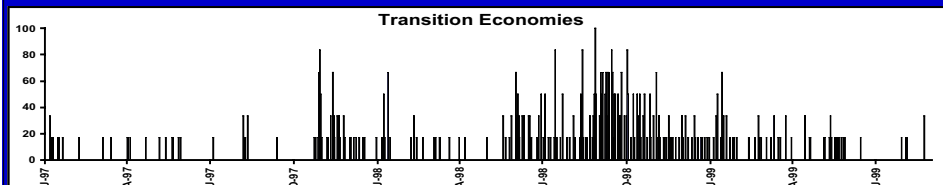
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Regional Globalization



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Regional Globalization



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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 Kolmogorov-Smirnov test.

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Table 4
Weak-Form Globalization of Turmoil
Regional and World Effects

REGIONS	Percentage of Countries with Anomalous Returns when Turmoil in		
	GERMANY	JAPAN	USA
Latin America	43	0	71
Asia	43	71	29
Europe	71	71	71
Financial Centers	100	75	75
Transition Economies	57	14	43
World	59	44	56

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Table 8
Weak-Form Globalization of Turmoil
Regional and World Effects

REGIONS	Percentage of Countries with Anomalous Returns when Turmoil in								
	BRAZIL			RUSSIA			THAILAND		
	With Financial Center	Without Financial Center	W p-value	With Financial Center	Without Financial Center	W p-value	With Financial Center	Without Financial Center	W p-value
Latin America	100	83		86	0		14	14	
Asia	14	0		29	14		67	0	
Europe	100	29		100	0		0	0	
Financial Centers	83	0		67	0		17	14	
Transition Economies	86	14		83	33		0	0	
World	76	24		73	12		18	6	
Wilcoxon Statistic (W)	1320	891	0.00	1452	759	0.00	1188	1023	0.00

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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.

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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.

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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

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Strong Form Globalization

Degree Of Globalization	Probabilities Conditional on		
	TURMOIL IN GERMANY	TURMOIL IN JAPAN	TURMOIL IN USA
Low	41	58	52
Medium	36	27	23
High	23	14	25

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Strong Form Globalization

Degree Of Globalization	Probabilities Conditional on		
	TURMOIL IN BRAZIL	TURMOIL IN RUSSIA	TURMOIL IN THAILAND
Low	40	56	70
Medium	26	23	23
High	34	20	7

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Strong Form Globalization

Degree of Globalization	Probabilities Conditional on								
	TURMOIL IN BRAZIL			TURMOIL IN RUSSIA			TURMOIL IN THAILAND		
	With Financial Center	Without financial Center	No Turmoil	With Financial Center	Without Financial Center	No Turmoil	With Financial Center	Without financial Center	No Turmoil
Low	21	56	87	23	75	92	47	85	90
Medium	21	27	10	27	23	7	40	17	8
High	57	17	2	50	2	1	13	4	3

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Strong Form Globalization

Degree of Globalization	Probabilities Conditional on						
	No Turmoil	TURMOIL IN ONE EMERGING MARKET		TURMOIL IN TWO EMERGING MARKETS		TURMOIL IN THREE EMERGING MARKETS	
Low	77	56	76	19	75	2	73
Medium	21	31	22	20	22	4	21
High	1	13	2	62	4	94	6

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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**

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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.**

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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.**

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