The Financial Center Leverage Cycle: Does it Spread Around the World?

Graciela Laura Kaminsky
George Washington University and NBER

Leandro Medina
International Monetary Fund

Shiyi Wang
George Washington University

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Financial Center Leverage Cycles and Capital Flows

- **The 2007-2009 US Subprime Crisis triggered a surge in research on capital flows.**

- **The focus:**

  - **Leverage Cycle in the Financial Center and its spillovers on booms and busts around the world.**
  - **The Global Cycle.**

- **This empirical research only focuses on the boom-bust cycles of the 2000s. See, for example, Acharya and Schnabl (2010) and Bruno and Shin (2015).**

What We Still Do Not Know

- **Capital Flows restarted in the early 1970s, in the aftermath of the collapse of the Bretton Woods System.**

- **Does the leverage cycle in the financial center also explain boom-bust cycles in the periphery in earlier periods?**

- **In this longer period (early 1970s to the present), are the spillovers of a global or regional pattern?**

- **What triggers the leverage cycle in the financial center?**

- **Is it global investors' increase in risk appetite? Or, is it an increase in the demand of capital in the periphery?**

What We Do

- We study capital flows since the collapse of the Bretton Woods System.
- Countries in the advanced and emerging periphery in three Regions: Asia, Europe, and Latin America.
- We only study capital flows in countries in the periphery that tap heavily in international capital markets.
- We estimate global, regional, and (country-specific) idiosyncratic factors.
- We examine the role of leverage cycles in the Financial Center on Regional Factors, using Path-Dependent Local Projections.
- We jointly examine the evolution of leverage in the financial center, regional capital flows, and yield spreads in the periphery to assess the origin of boom-bust cycles in the periphery.

The Road Map

- The Database
- Decomposing capital flows into global, regional, and idiosyncratic cycles.
- Leverage in the Financial Center: Does it Spread Around the World?
  - State-Dependent Local Projections.
- What triggers the leverage cycle in the financial center?
  - Is it global investors’ increase in risk appetite?
  - Or, is it an increase in the demand of capital in the periphery?
  - Event Studies: Costs of Borrowing
- Reflections

The New Database

- Capital flows restart following the collapse of the Bretton Woods System in the early 1970s.

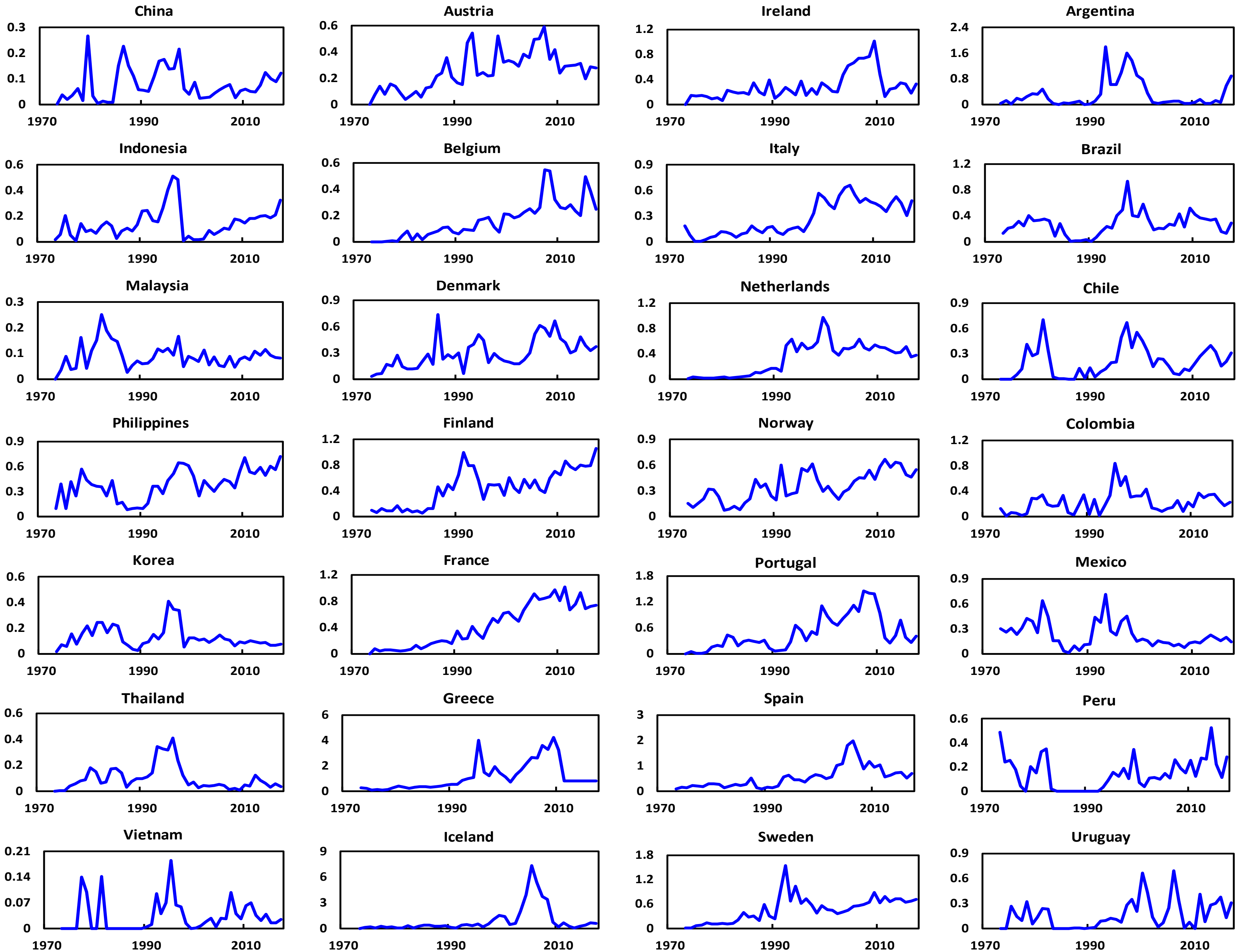
- The IMF database does not cover this long period.

- We construct a new database on gross capital inflows starting in 1973. The database includes international issuance by public and private entities.

- Sources:
  - World Bank Archive
  - Dealogic and Bloomberg Platforms

- Gross Capital Inflows: International Gross Primary Issuance
  - Syndicated Loans
  - Bonds
  - Equities

Capital Flows/Exports

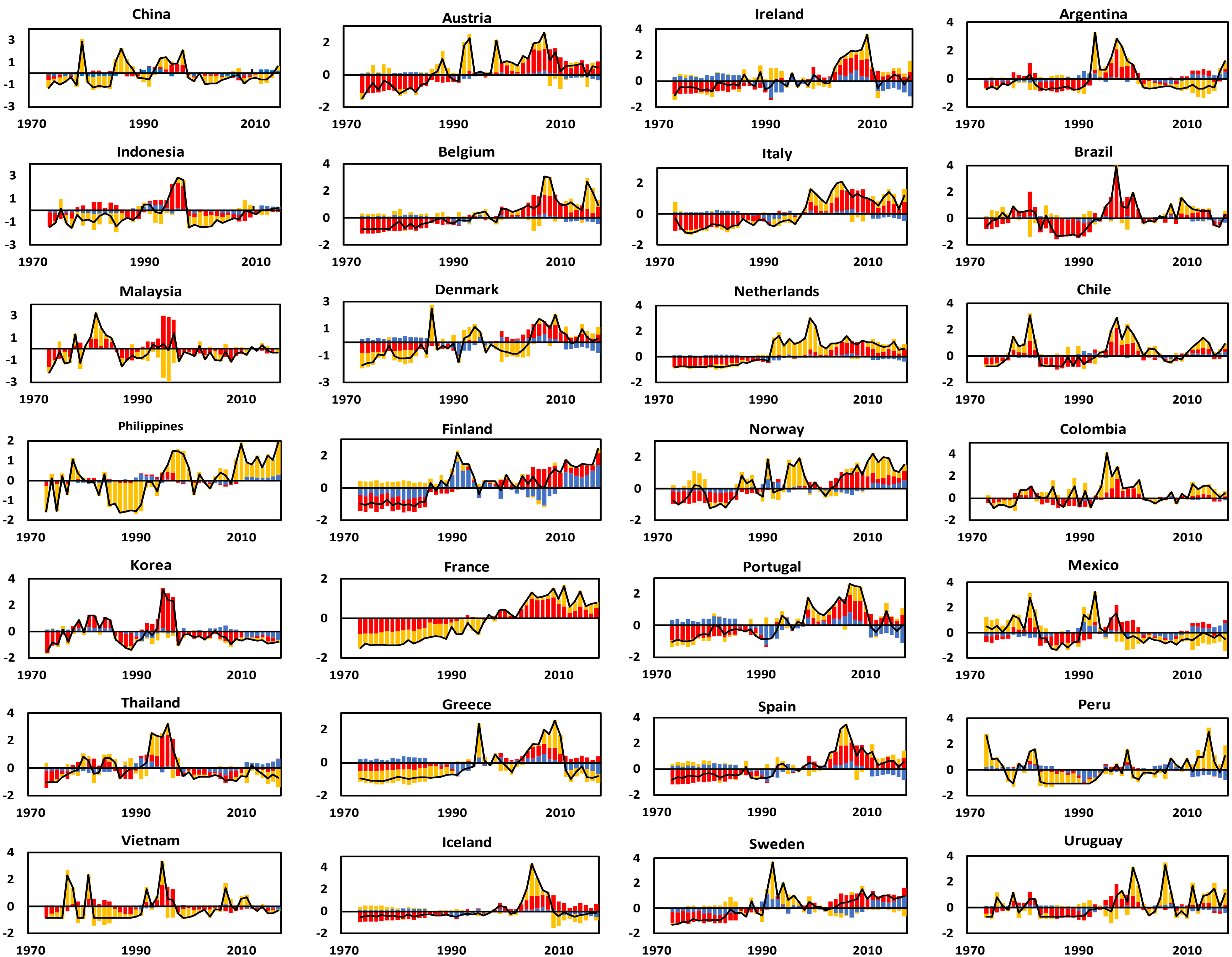


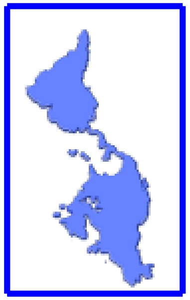
Decomposing Capital Flows:
Global, Regional and Idiosyncratic Components

- We follow Kose, Otrok, and Whiteman (AER, 2003) and estimate a Dynamic Latent Factor Model.

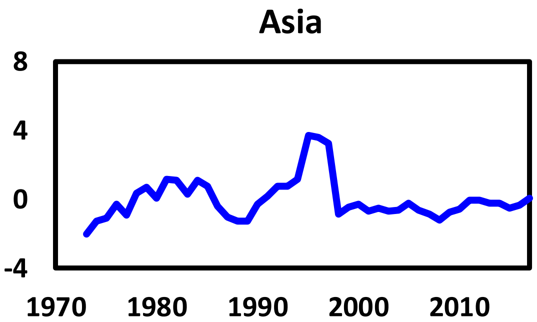
$$y_{i,t} = \alpha_i + \beta_i^{global} \cdot f_t^{global} + \beta_i^{region} \cdot f_t^{region} + \varepsilon_{i,t}$$

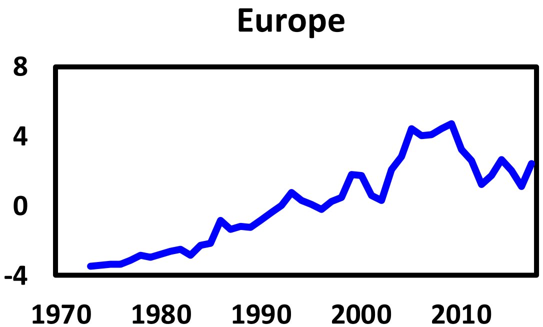
- $y_{i,t}$ is the (normalized) international gross primary issuance (as a share of exports) of country i in year t.
- f_t^{global} is the unobserved global factor affecting all the countries in the sample,
- f_t^{region} is the unobserved regional factor affecting all the countries in a particular region.
- $\varepsilon_{i,t}$ is the unobserved (country-specific) idiosyncratic residual factor.
- All the factors (global, regional, and idiosyncratic) are independent by construction and follow autoregressive processes.

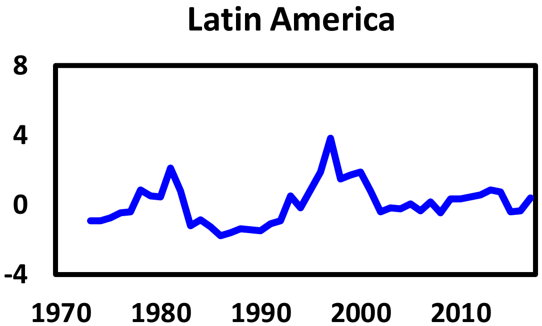

China
Austria
Ireland
Argentina
Indonesia
Belgium
Italy
Brazil
Malaysia
Denmark
Netherlands
Chile
Philippines
Finland
Norway
Colombia
Korea
France
Portugal
Mexico
Thailand
Greece
Spain
Peru
Vietnam
Iceland
Sweden
Uruguay
1970
1990
2010

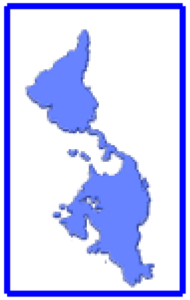


Regional Factors









Financial Center Leverage Cycle: Effects on Capital Flows to the Periphery

- **To compare our estimations (with far longer data on capital flows) with those of previous research (with a focus on capital flows in the 2000s), we estimate separately the effects of the Financial Center Leverage Cycle on regional capital flows for two periods: the earlier period (1973-1998) and the recent period (1999-2017).**

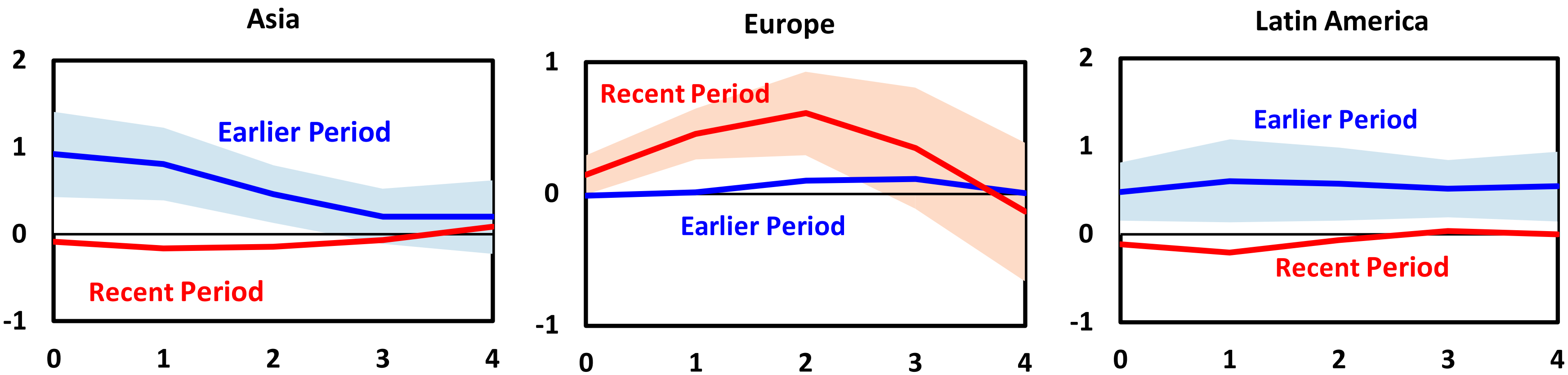
- **We use Jordà (AER, 2005) Local Projections and Ramey and Zubairy (JPE, 2018) modifications to estimate the effect of Leverage Cycles in the Financial Center on the Regional Factors in the three regions allowing for time-varying effects:**

$$F_{t+h} = I^{e}\left[\alpha_h^{e} + \beta_h^{e}(L)F_{t-1} + \gamma_h^{e} fc_t\right] + I^{r}\left[\alpha_h^{r} + \beta_h^{r}(L)F_{t-1} + \gamma_h^{r} fc_t\right] + \varepsilon_{t+h}$$

- **Where *F* is alternatively the Asia, Europe, or Latin America Regional factor, *fc* is the financial center leverage cycle, and I^{e} (I^{r}) is a dummy variable equal to one during the earlier (recent) period. The coefficient γ_h gives the response of F_{t+h} to fc_t.**

- **The superscript *e (r)* refers to the earlier (recent) period.**

Does the Financial Center Leverage Cycle Spread Around the World?



- **The Emerging Periphery:**
  - **Shocks to the FC Leverage Cycle only affect these regions during the earlier period, with a one-standard deviation positive shock to the FC leverage cycle fueling (on average) changes of the regional cycle equivalent to about 60 percent of the standard deviation of the Regional Factors in Asia and Latin America.**
- **The Advanced Periphery**
  - **Shocks to the FC Leverage Cycle only affect the advanced periphery during the recent period, with a one-standard deviation shock to the FC leverage cycle fueling an increasing effect on Europe's regional factor peaking after two years to about 50 percent of the standard deviation of Europe's Regional Factor.**

What Triggers Boom-Bust Capital Flow Cycles in the Periphery?

Supply or Demand Shocks?

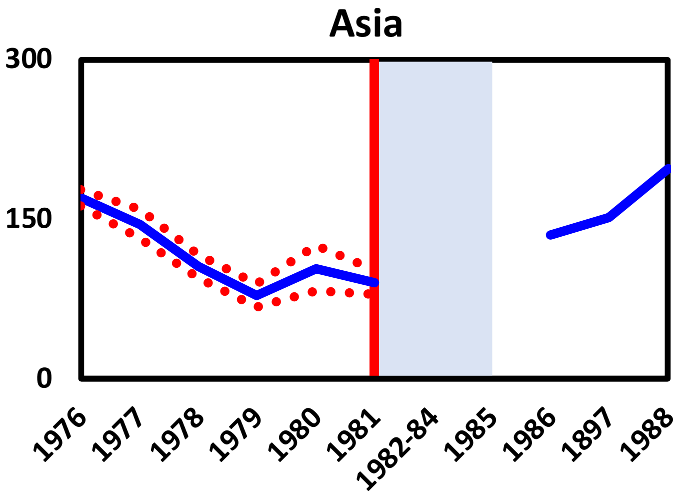
- **To assess the origin of shocks to leverage in the Financial Center and to boom-bust capital flow cycles, we examine the evolution of borrowing costs around the regional factor peaks in 1981, 1997, and 2007.**

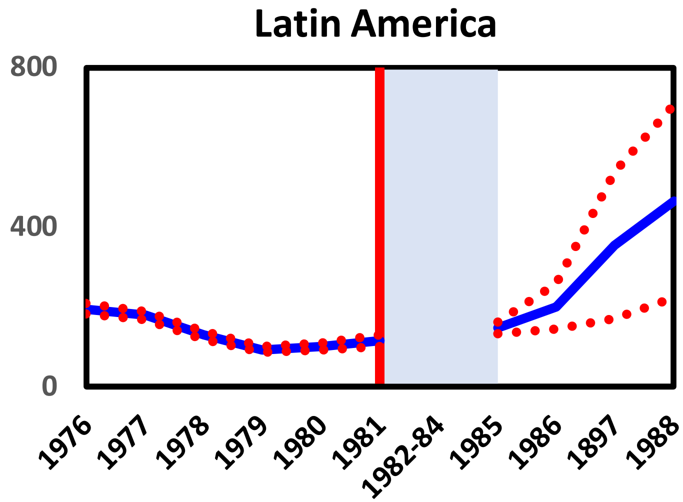
- **If capital flow bonanzas are driven by an increase in the demand of capital, borrowing costs would tend to increase as the level of capital inflows increases.**

- **On the other hand, borrowing costs would decline as capital inflows increase when they are fueled by an increase of global investors' risk appetite (a supply shock).**

- **Since we are studying the allocation of capital from the financial center to the periphery, we capture borrowing costs by calculating the spreads between the yield of bonds and syndicated loans of each country in the periphery and the corresponding yield in the financial center.**

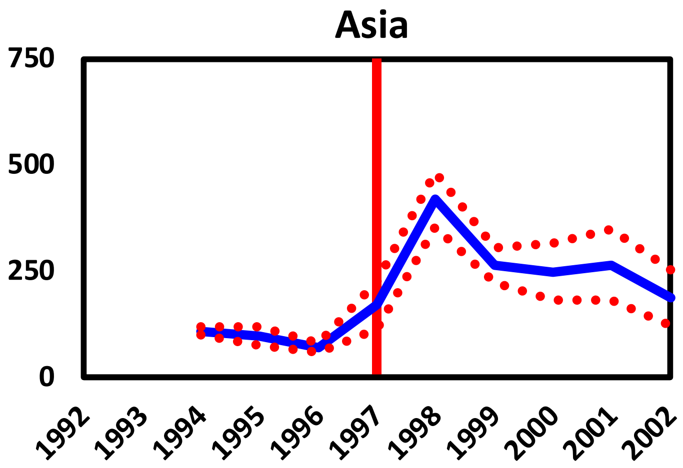
Syndicated Loan Spreads
1976-1988

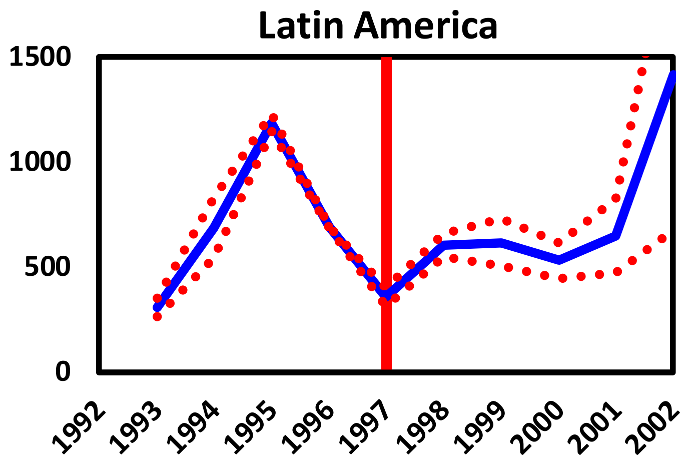




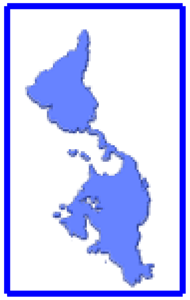
- **Syndicated loans are the only instrument used in international capital markets in the 1970s and 1980s. We construct country spreads using data on syndicated loans from both the primary and the secondary markets.**
- **For the years of the bonanza, we use information from the primary market.**
- **Following the defaults in the emerging periphery, the syndicated loan market collapsed. We construct the spreads as the ratio of the face value of syndicated loans relative to their market value.**
- **Spreads during the bonanzas decline and increase during busts, suggesting supply shocks.**

EMBIG Spreads
1992-2002

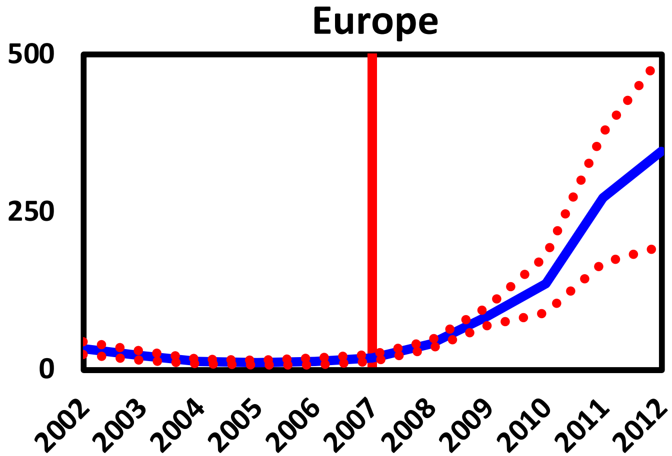




- **Bond issuance surges in the 1990s.**
- **We construct country spreads using J.P Morgan EMBIG spreads.**
- **Spreads during the bonanzas decline and increase during busts, suggesting supply shocks.**

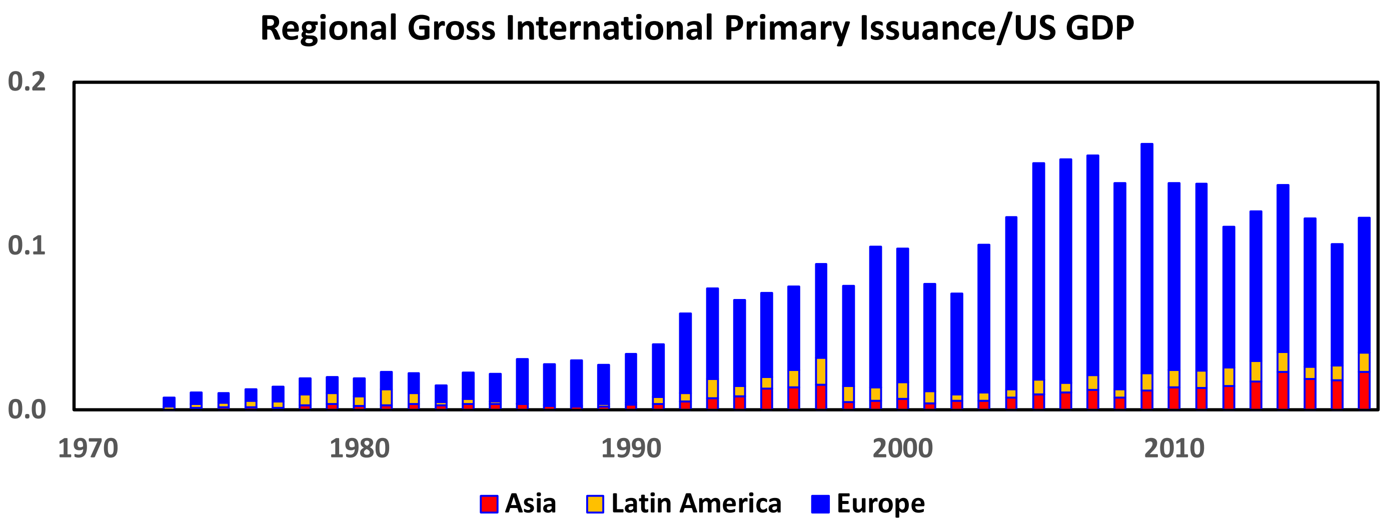


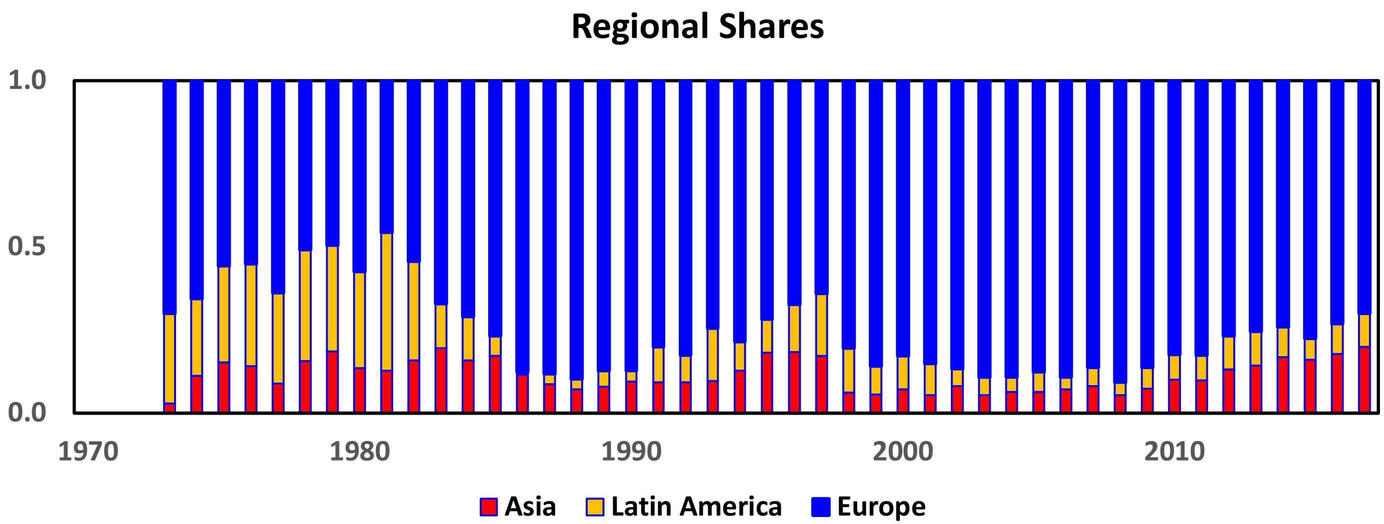
10-Year Bond Spreads
2002-2012



- **We use 10-Year Bond yields in the countries in the advanced periphery relative to the 10-Year Bond Germany yield.**
- **As with the emerging periphery, spreads during the bonanzas decline and increase during busts, suggesting supply shocks.**

Change in Capital Allocation





Reflections

- Our estimations indicate that capital flows around the world do not move in unison.

- Still, there is a common a supply shock at the core of all these regional capital flow cycles, but with a twist. Shocks to leverage affect the emerging periphery in the earlier period but affect the advanced periphery in the recent period.

- We have left unanswered why there is a movement away from lending to the emerging periphery in the earlier episode towards lending to the advanced periphery in the 2000s.

- Future research needs to study the route through which leverage cycles in the financial center spread around the world.