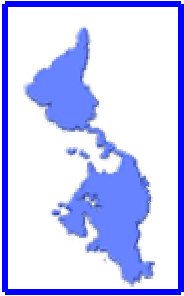


# **A New Era of Financial Integration: Global, Market, and Regional Factors**

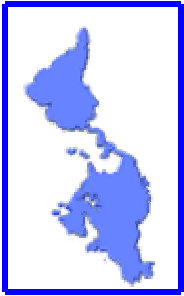
**Graciela Kaminsky**

*George Washington University and NBER*



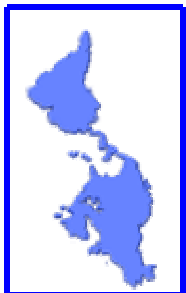
# Motivation

- **The 1990s witnessed a dramatic increase in international financial integration. Many have even claimed that the extent of globalization has surpassed that observed during the Gold Standard Period.**
- **Yet, net capital inflows dwindled to a trickle in most of emerging markets in the aftermath of the Asian crisis**
- **This reversal was not observed in mature economies.**
- **Divergent trends in financial integration?**
- **Alternative measures of financial integration, however, tell a different story. Interest rate differentials are not persistent even for emerging economies, suggesting sophisticated international financial linkages.**



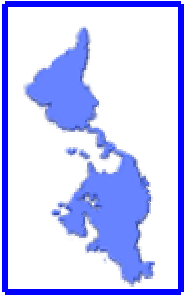
# What Does this Paper Do?

- This paper uses a new methodology (dynamic latent factors) to gauge the extent of globalization.
- Gross issuance in three international markets: bonds, equities, and syndicated loans.
- We identify two measures of international financial integration :
  - **Global Factor:** Captures common fluctuations across regions and instruments.
  - **Market Factors:** Capture common fluctuations across regions for a particular instrument.
- **Country (Region)-Specific Total Issuance:** to evaluate whether a region lags behind other regions in financial integration.
- Examines the role of country-specific economic and political fundamentals as well as indicators of world-market risk in explaining the regional component of issuance.
- Examines the role of trade, GDP, monetary policy, and capital account liberalization around the world in explaining the trends and fluctuations of global and market factors.



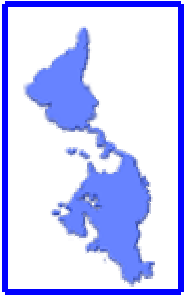
# Findings

- **Fluctuations are highly coordinated in equity markets, with global and market factors explaining about 60 percent of the fluctuations in issuance.**
- **Fluctuations in debt markets are less coordinated, with global and market factors explaining about 30 percent of the fluctuations in issuance.**
- **Japan and Latin America stand out with respect to other regions, exhibiting largely idiosyncratic patterns of issuance.**
- **Transition economies have lagged in financial integration.**
- **Increases in country-specific political risk adversely affect issuance in both mature and emerging markets.**
- **Higher volatility in international capital markets trigger “flight to quality,” with emerging-market issuance declining and international issuance of mature markets increasing.**
- **Increasing world trade does not trigger global financial integration. Still, world trade explains in part the trend toward more integration in debt markets.**



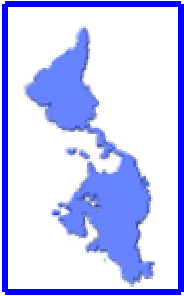
# Why Gross Issuance?

- **Most previous studies of integration use data on net capital inflows.**
- **Net capital inflows provide an incomplete picture of financial integration: zero net capital inflows may reflect complete integration when there is international diversification and inflows are just offset by outflows.**
- **Better to have information on stocks of foreign assets and liabilities.**
- **Yet, stocks of international assets and liabilities do not necessarily capture which countries have more and frequent access to international markets since large borrowings could be offset by equally large repayments.**
- **In order to capture which countries have more and frequent access to international markets we use gross issuance.**
- **Three markets/instruments: international issuance of bonds, equities, and syndicated loans.**



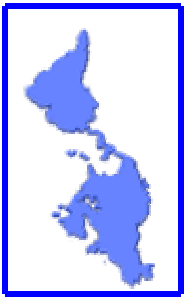
## The Data

- Data on 101 countries, starting in 1980.
- Data Source: Bondware and Loanware.
- We group the data into issuance of nine regions:
  - **The Center:** United States, Germany, Japan, and United Kingdom.
  - **The Periphery:** Asia, Latin America, Middle East, Transition Economies, and Other Mature Markets.
- We only look at international issuance.

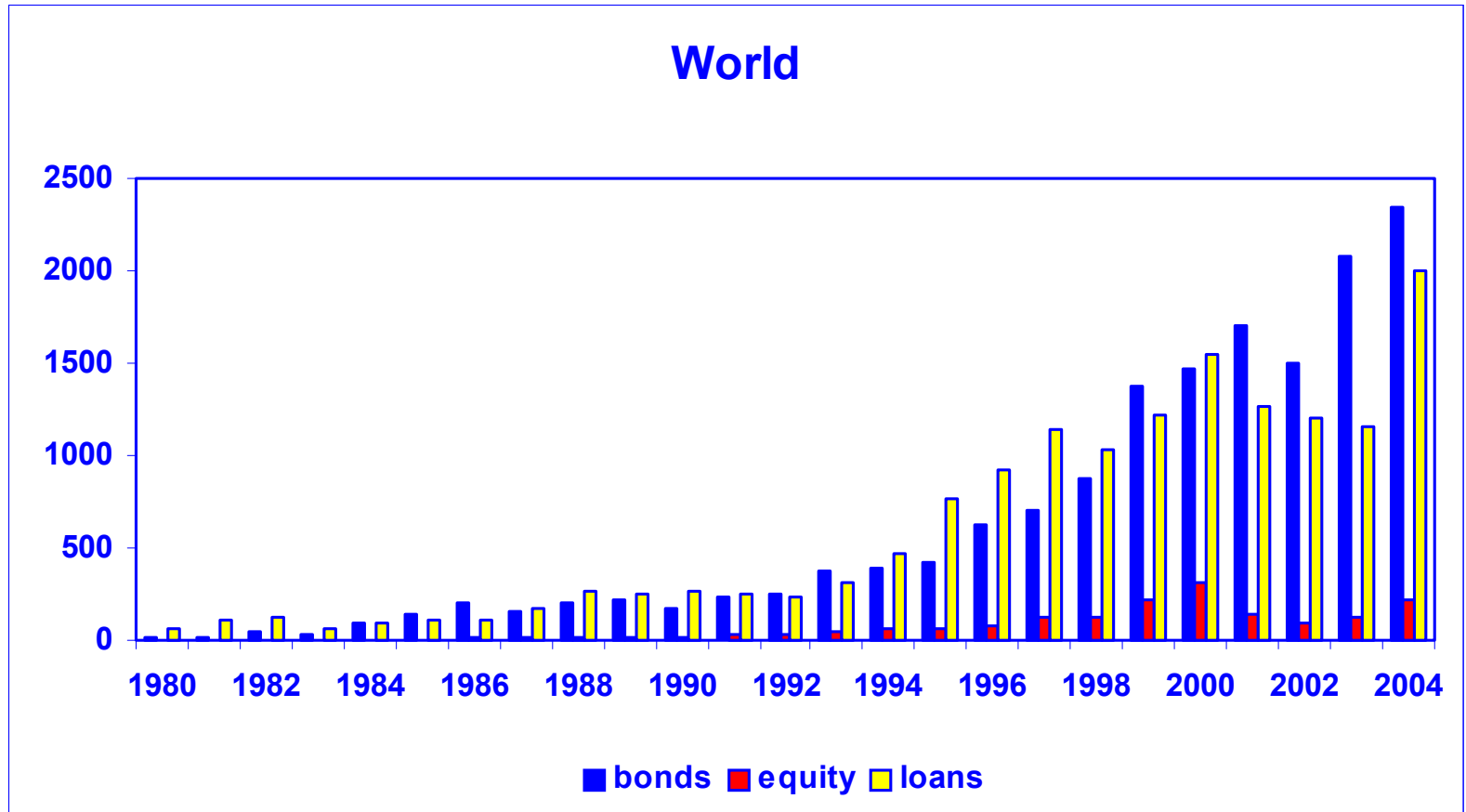


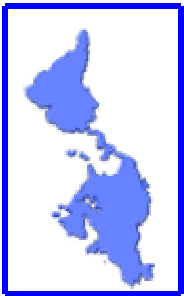
## The Origins of International Capital Markets after WWII

- International capital markets languish in the 1930s and only start to recover in the 1950s.
- The British government introduces financial restrictions in 1957 to stop speculation against the pound. London-based banks create a new market to avoid losing their share of financial transactions: The Eurodollar market is born.
- Cuban crisis and Russian banks moving their dollar reserves to London, adding liquidity to the market.
- Capital account controls in the United States in 1964: U.S banks turn to the Eurodollar market to avoid restrictions.
- Collapse of the Bretton Woods System in 1973: With no need to defend the peg, countries can choose their own monetary policy without the need to restrict capital mobility, fueling financial globalization.
- United States eliminates restrictions in 1973, Germany and Britain partially eliminate restrictions also in 1973, and Japan follows in 1979.
- Latin America joins in the late 1970s. But re-imposes controls following the debt crisis.
- In the mid-1980s the wave of international financial liberalization embraces European countries as they move towards the EMU.
- Brady Bonds in late 1980s create almost overnight a market for sovereign emerging market bonds. Also provides new impetus to the syndicated loan market.
- A new feature of the 1990s: development of an international equity market: ADRs and Euro Equity market.

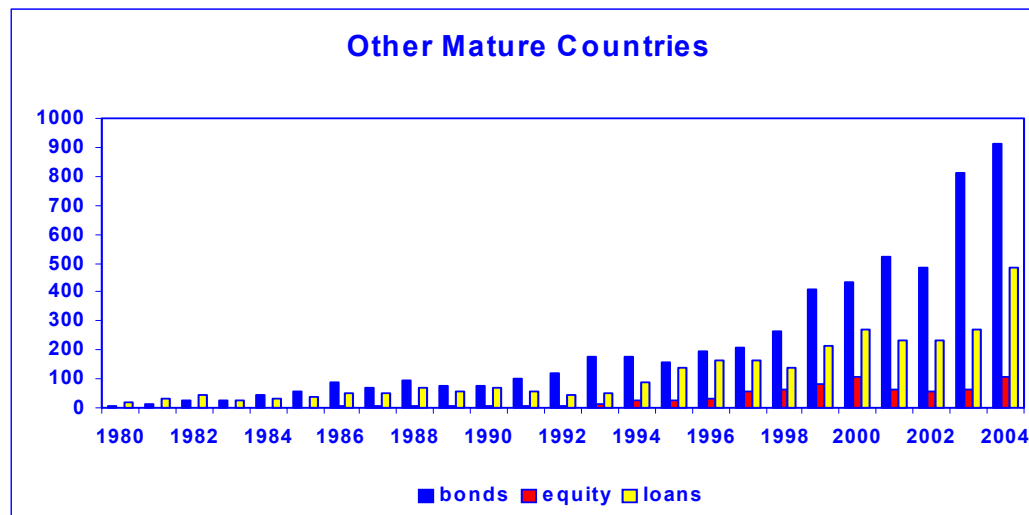
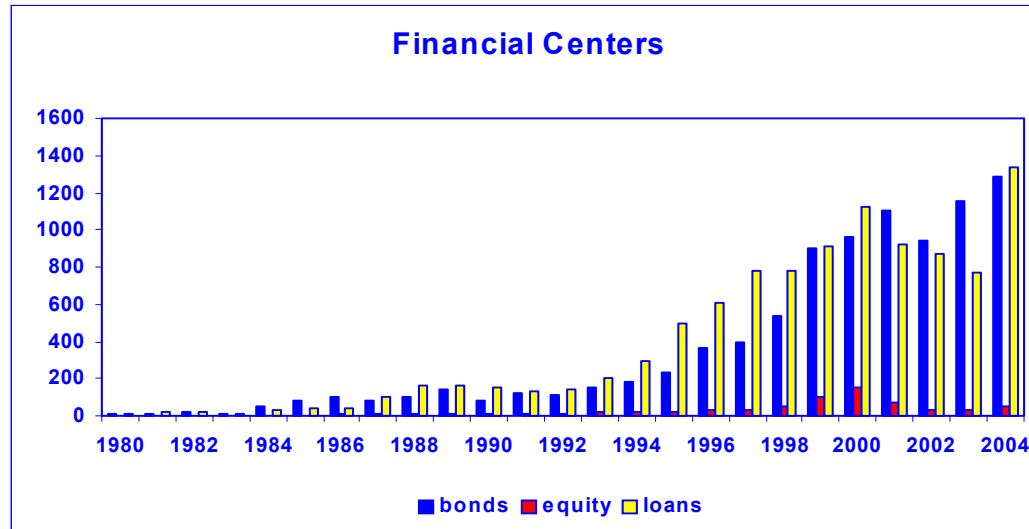


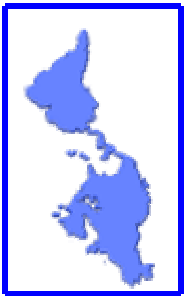
# Gross Issuance in International Capital Markets (Billions of U.S. Dollars)



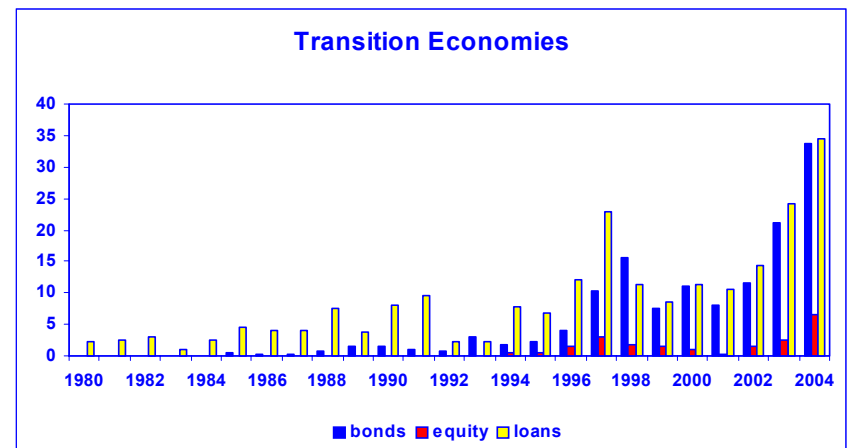
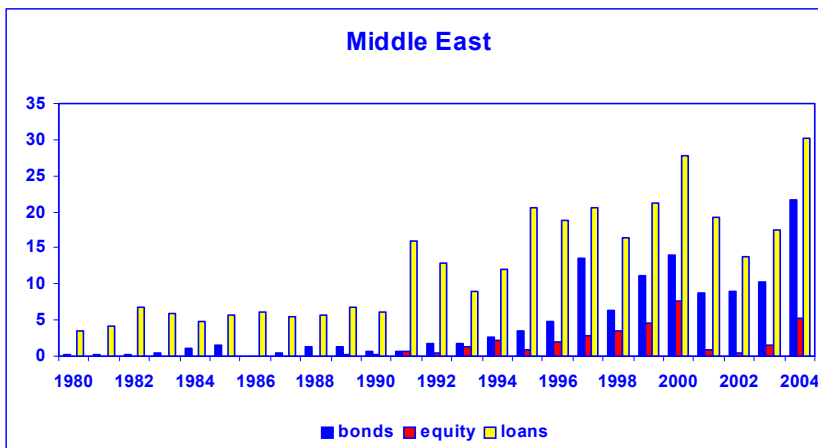
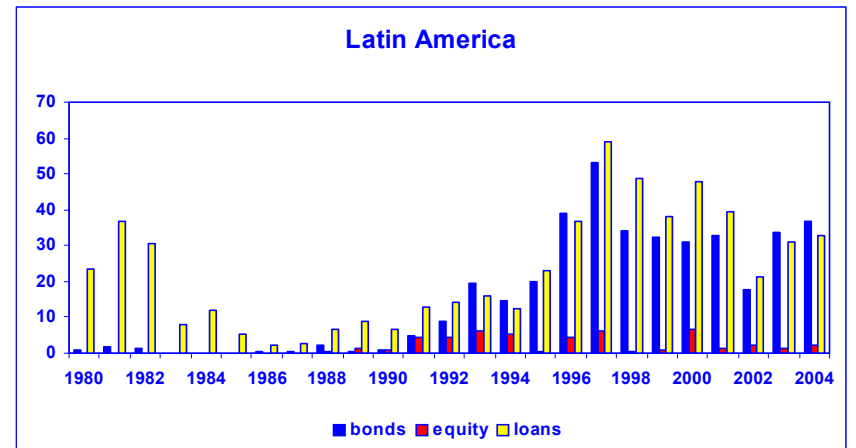
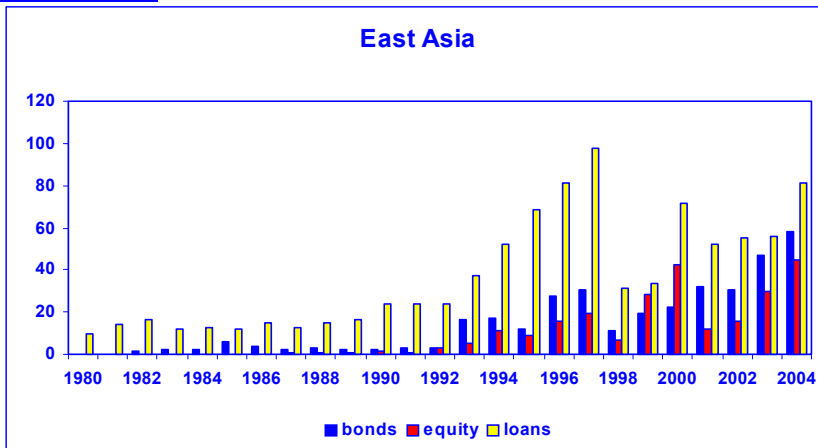


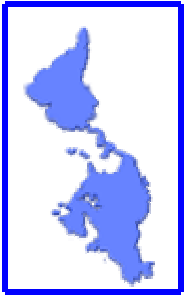
# International Issuance of Developed Countries (Billions of U.S. dollars)





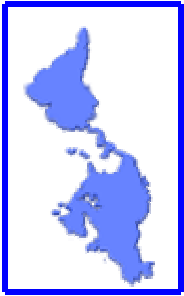
# International Issuance of Emerging Markets (Billions of U.S. dollars)





# The Model

- The econometric model used is a Bayesian multifactor latent model in the spirit of Kose, Otrok, and Whiteman (AER, 2003).
- This type of modeling allows us to identify a global factor and three market factors.
  - The **global factor** captures the common fluctuations across all regions and markets.
  - The **market factors** (one for each market: bonds, equities, and syndicated loans) capture the common fluctuations across regions for each market.
- **Innovations:**
  - **Non-Stationary Data:** We explicitly allow for long run comovements in issuance across markets and regions determined by the permanent components of the factors. Still, we do not impose cointegration.
  - **Permanent and Transitory Fluctuations:** We allow for permanent and transitory shocks in all factors.
  - **Unbalanced Panel** to allow for the openings of markets at different times.



## The Model

$$y_{i,m,t} = a_{i,m} + b_{i,m}^{wP} f_t^{wP} + b_{i,m}^{wT} f_t^{wT} + b_{i,m}^{mP} f_t^{mP} + b_{i,m}^{mT} f_t^{mT} + \varepsilon_{i,m,t}$$

$y_{i,m,t}$  is the logarithm of issuance of region  $i$  and instrument  $m$  in period  $t$ .

$$f_t^{wP} = \alpha^{wP} + f_{t-1}^{wP} + \mu_t^{wP}$$

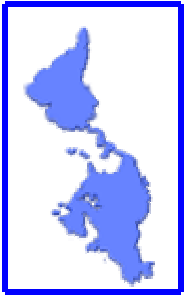
$$f_t^{mP} = \alpha^{mP} + f_{t-1}^{mP} + \mu_t^{mP}$$

$$f_t^{wT} = \phi^1 f_{t-1}^{wT} + \phi^2 f_{t-2}^{wT} + \mu_t^{wP}$$

$$f_t^{mT} = \phi^1 f_{t-1}^{mT} + \phi^2 f_{t-2}^{mT} + \mu_t^{wP}$$

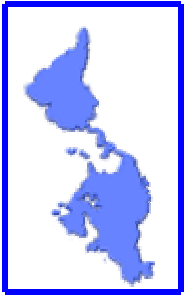
$\mu^{wP}, \mu^{mP}, \mu^{wT}, \mu^{mT}$  are white noise and uncorrelated

$\varepsilon_{i,m,t}$  is an idiosyncratic component uncorrelated across regions and across instruments. It is modeled as an AR(2).



# Estimation

- Parameters are treated as random variables.
- Uninformative Priors for mostly all the parameters (Similar to a uniform distribution)
- Uniform Prior Distribution with the stationary set for the autoregressive parameters.
- Metropolis-Hastings algorithm to estimate the posterior distribution of the parameters.
- Identification:
  - Variance of the unobserved components shocks are normalized to 1.
  - Signs of the US bond factor loadings for the world factor and on the US bond, loan, and equity factor loadings for the market factor are restricted to be greater than zero.
- 1,000,000 runs. We discard the first 100,000 to assure that the posterior we find does not depend on the starting values.
- All the results we present refer to the mean of the posterior distribution. Very similar results are obtained if we analyze the mode.

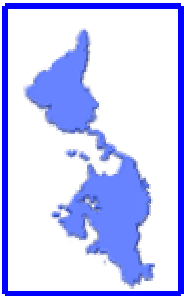


## Capturing Financial Integration for Region $i$ and Market $m$

$$\text{Index of Global Integration} = \frac{(b_{i,m}^{wP})^2 \text{var}(\Delta f^{wP}) + (b_{i,m}^{wT})^2 \text{var}(\Delta f^{wT})}{\text{var}(\Delta y_{i,m})}$$

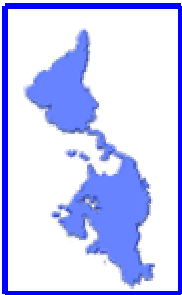
$$\text{Index of Market Integration} = \frac{(b_{i,m}^{mP})^2 \text{var}(\Delta f^{mP}) + (b_{i,m}^{mT})^2 \text{var}(\Delta f^{mT})}{\text{var}(\Delta y_{i,m})}$$

$$\text{Region - Specific Index} = \frac{\text{var}(\Delta \varepsilon_{i,m})}{\text{var}(\Delta y_{i,m})}$$



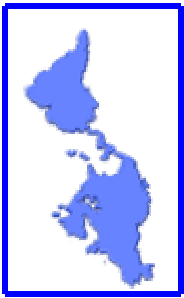
## Variance Decomposition

Issuance		Factors		
Market	Region	World	Market	Idiosyncratic
Bonds	All Regions	0.06	0.33	0.61
Loans		0.13	0.25	0.62
Equities		0.25	0.38	0.37



# Variance Decomposition

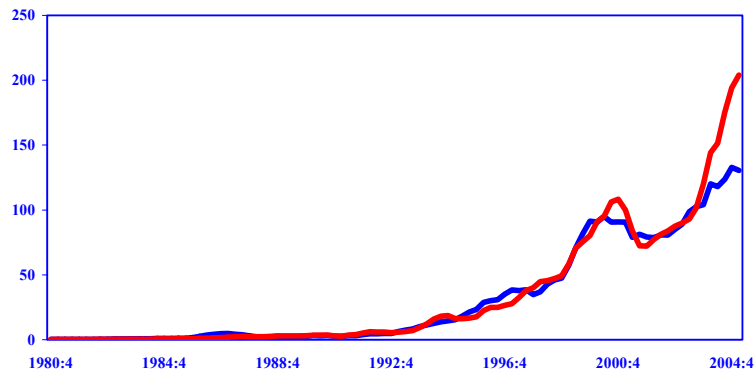
Issuance		Factors		
Market	Region	World	Market	Idiosyncratic
<b>Bonds</b>	United States	0.09	0.24	0.67
	Japan	0.06	0.10	0.84
	United Kingdom	0.03	0.78	0.19
	Germany	0.28	0.07	0.64
	Other Mature Economies	0.01	0.82	0.18
	East Asia	0.03	0.56	0.41
	Latin America	0.02	0.05	0.93
	Middle East	0.02	0.04	0.94
	Transition Economies	0.02	0.33	0.66
<b>Loans</b>	United States	0.34	0.02	0.64
	Japan	0.01	0.10	0.89
	United Kingdom	0.13	0.18	0.69
	Germany	0.04	0.37	0.59
	Other Mature Economies	0.01	0.88	0.12
	East Asia	0.08	0.12	0.80
	Latin America	0.04	0.08	0.87
	Middle East	0.08	0.03	0.89
	Transition Economies	0.44	0.43	0.13
<b>Equities</b>	United States	0.08	0.37	0.55
	Japan	0.33	0.61	0.06
	United Kingdom	0.10	0.23	0.67
	Germany	0.07	0.54	0.39
	Other Mature Economies	0.42	0.23	0.35
	East Asia	0.37	0.17	0.46
	Latin America	0.05	0.64	0.31
	Middle East	0.25	0.25	0.50
	Transition Economies	0.54	0.43	0.03



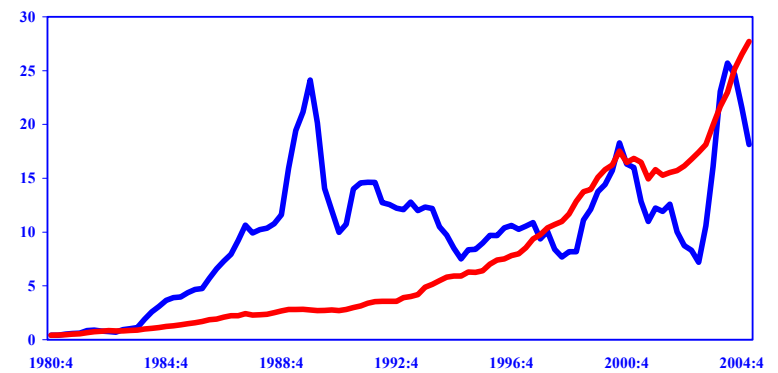
# Total International Issuance: Country Factors

## The Financial Centers

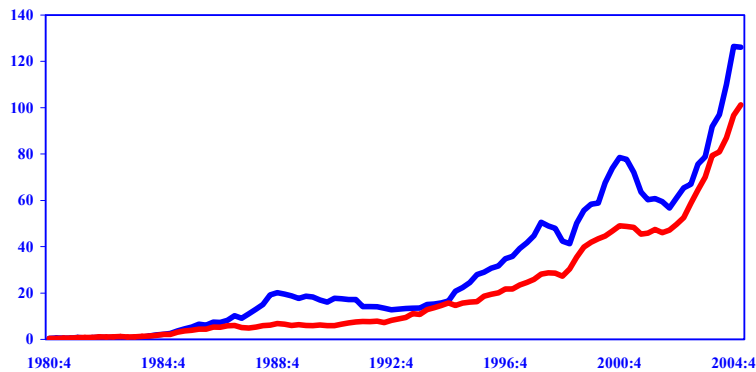
Germany



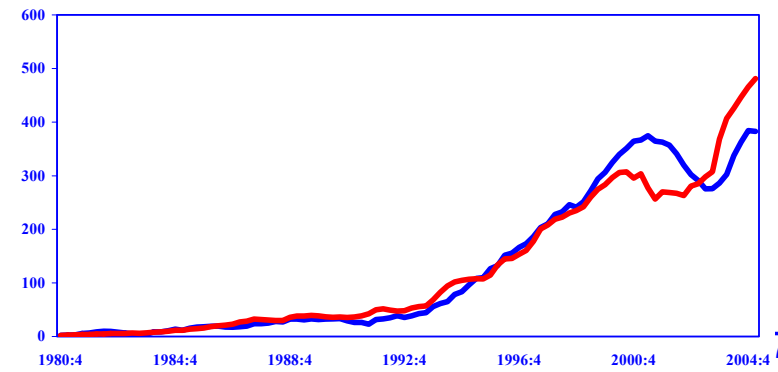
Japan

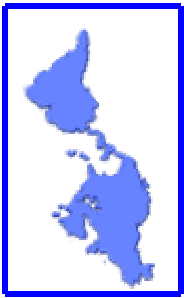


United Kingdom



United States

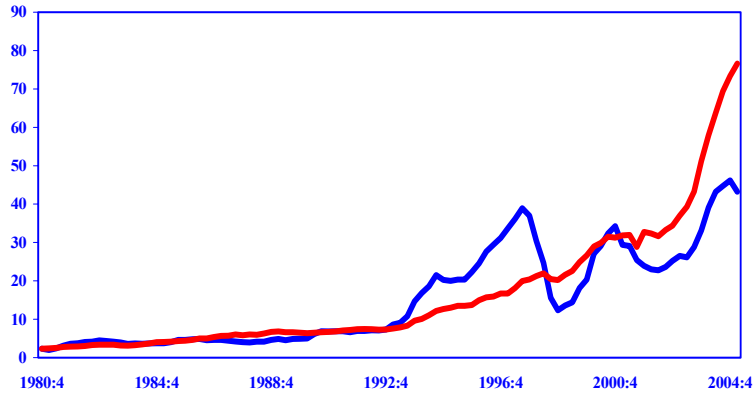




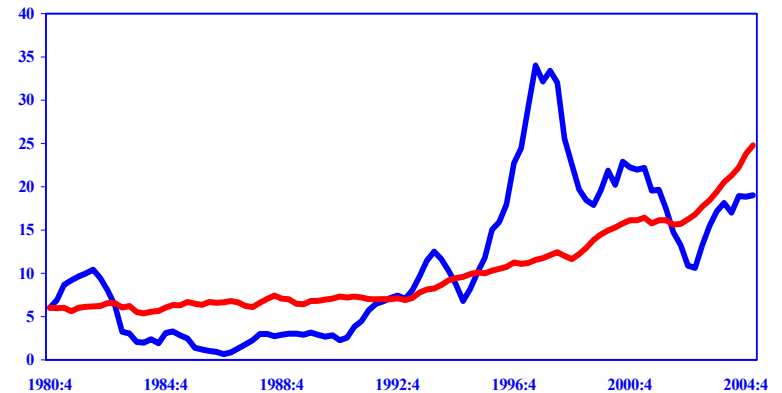
# Total International Issuance: Regional Factors

## The Periphery

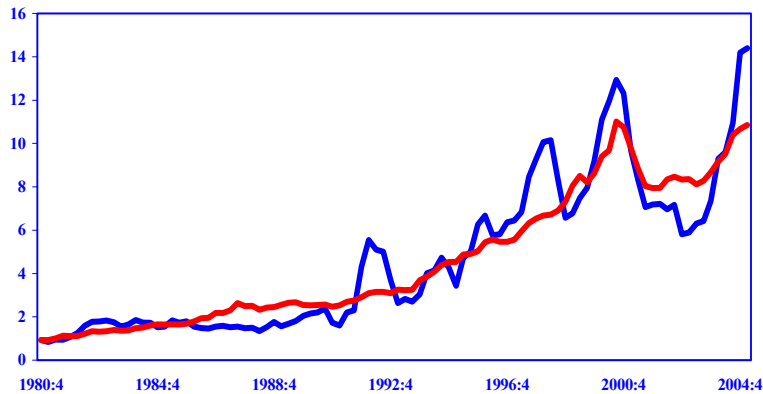
Asia



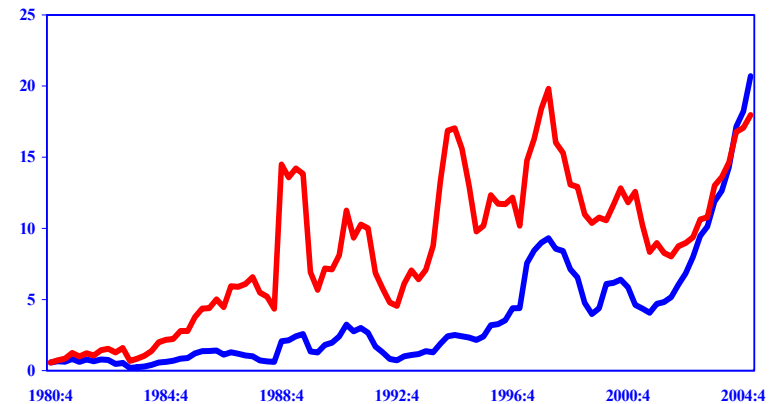
Latin America

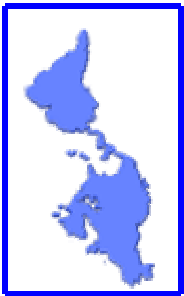


Middle East and Africa



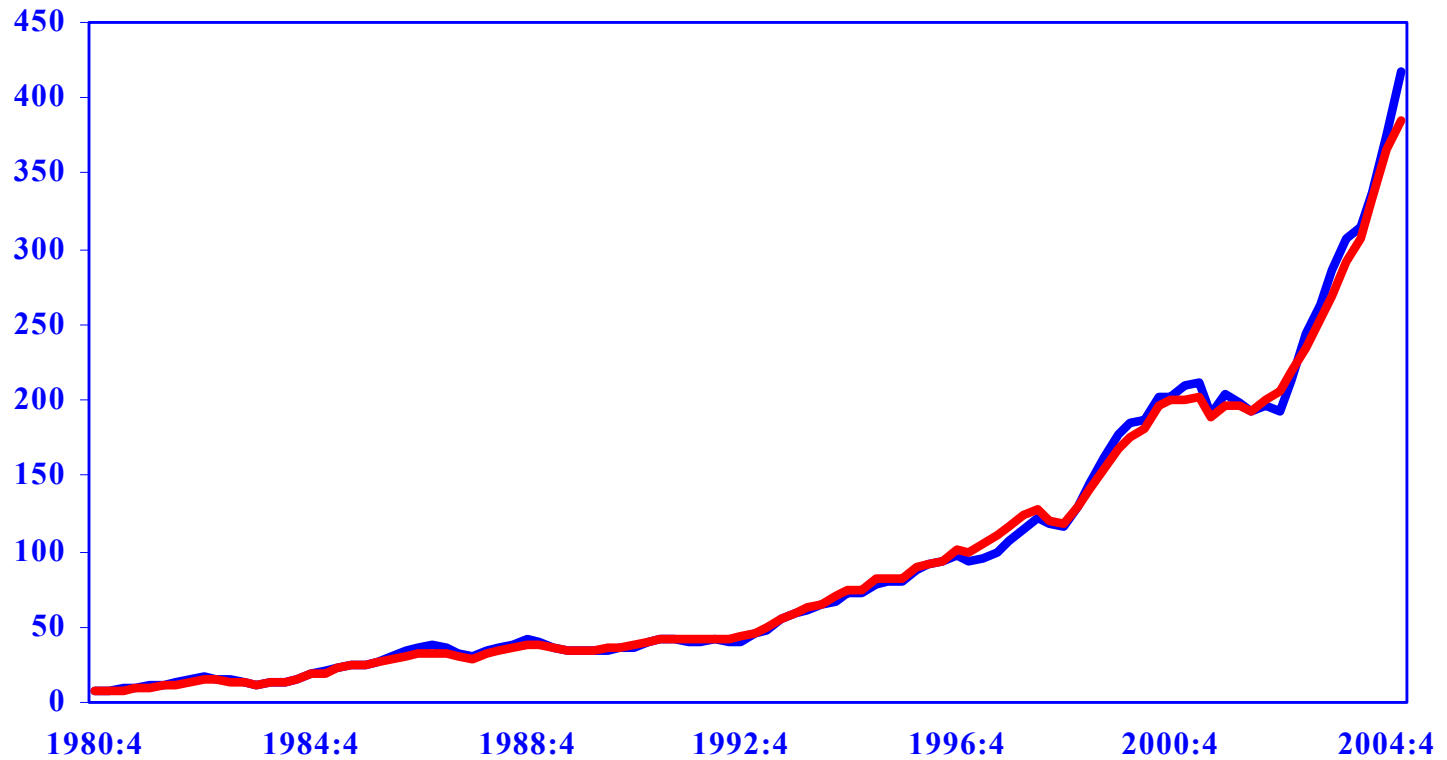
Transition Economies

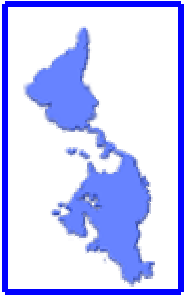




## Total International Issuance: Regional Factors The Periphery

### Other Mature Economies

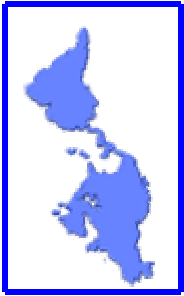




# Explaining Regional Factors

- Financial markets have steadily become more integrated globally. But integration has not proceeded at the same pace around the globe.
- **What explains regional patterns of total issuance?**
- The quality of institutions, the extent of corruption, government's ability to carry out its declared programs, and its ability to stay in office may influence international issuance. To capture this possibility we use the **Index of Political Risk** published in the International Country Risk Guide (ICRG).
- We also include in our estimations two measures of risk in international capital markets.
  - **Volatility of World Stock Prices** calculated as the time-varying variance of the Morgan Stanley Capital International World index.
  - **The term premium** calculated as the difference between the U.S. 10-year-note yield minus the U.S. 1-year Treasury Bill rate.
- Still to do economic fundamentals.





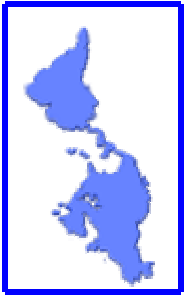
# Explaining Country-Specific Total Issuance

(Pooled Least Squares with Fixed Effects)

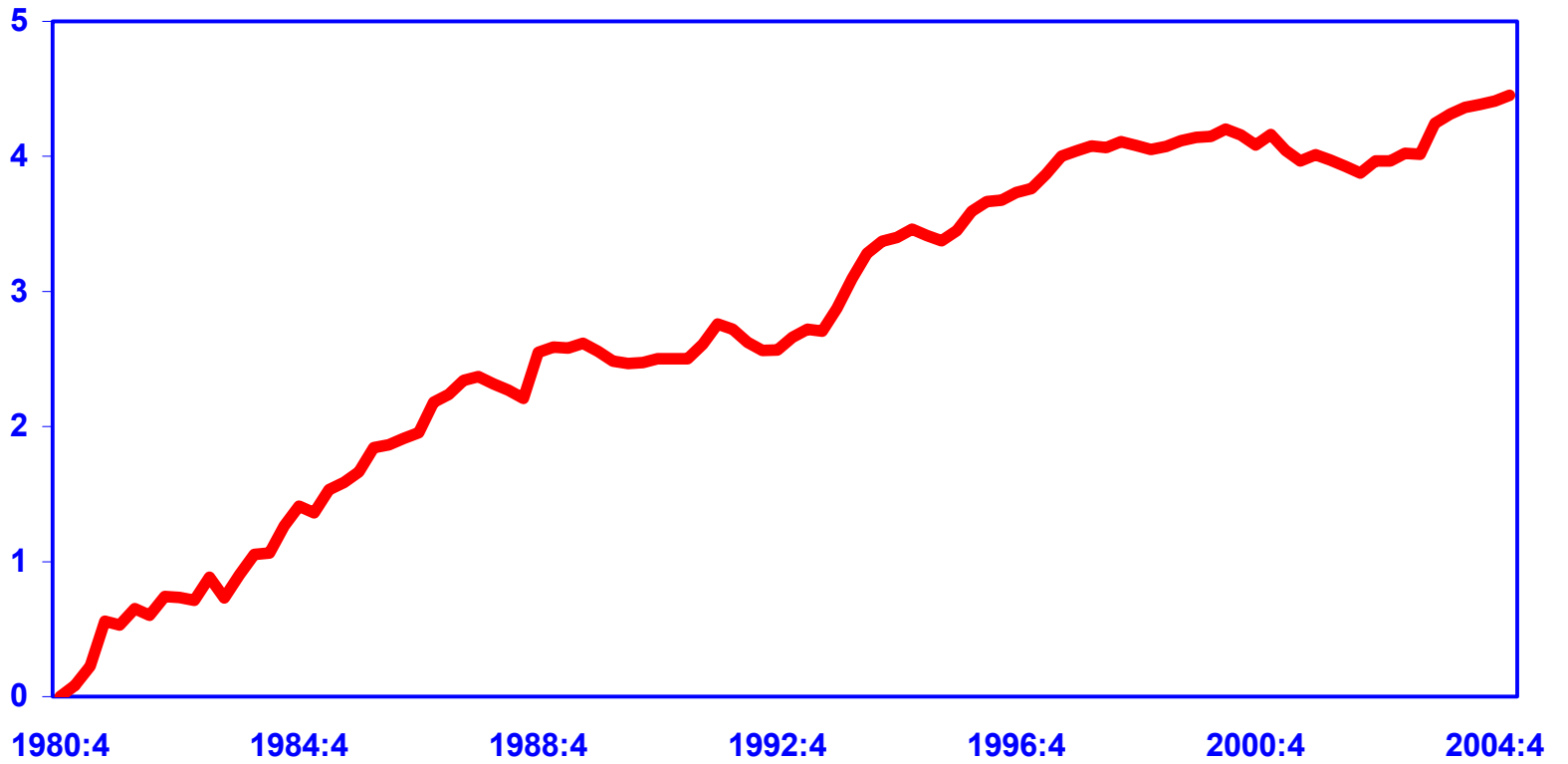
## Mature Economies

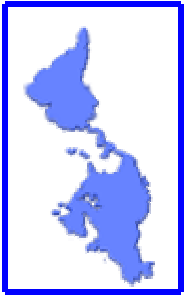
Variable	Coefficient	Std. Error	t-Statistic	Prob.
Constant	-24.831	13.034	-1.905	0.058
Political Risk	0.291	0.157	1.853	0.065
Stock Market Volatility	0.001	0.000	4.721	0.000
Yield Curve Slope	5.212	1.490	3.497	0.001

R-squared	0.236	F-statistic	16.641
Adjusted R-squared	0.222	Prob(F-statistic)	0.000



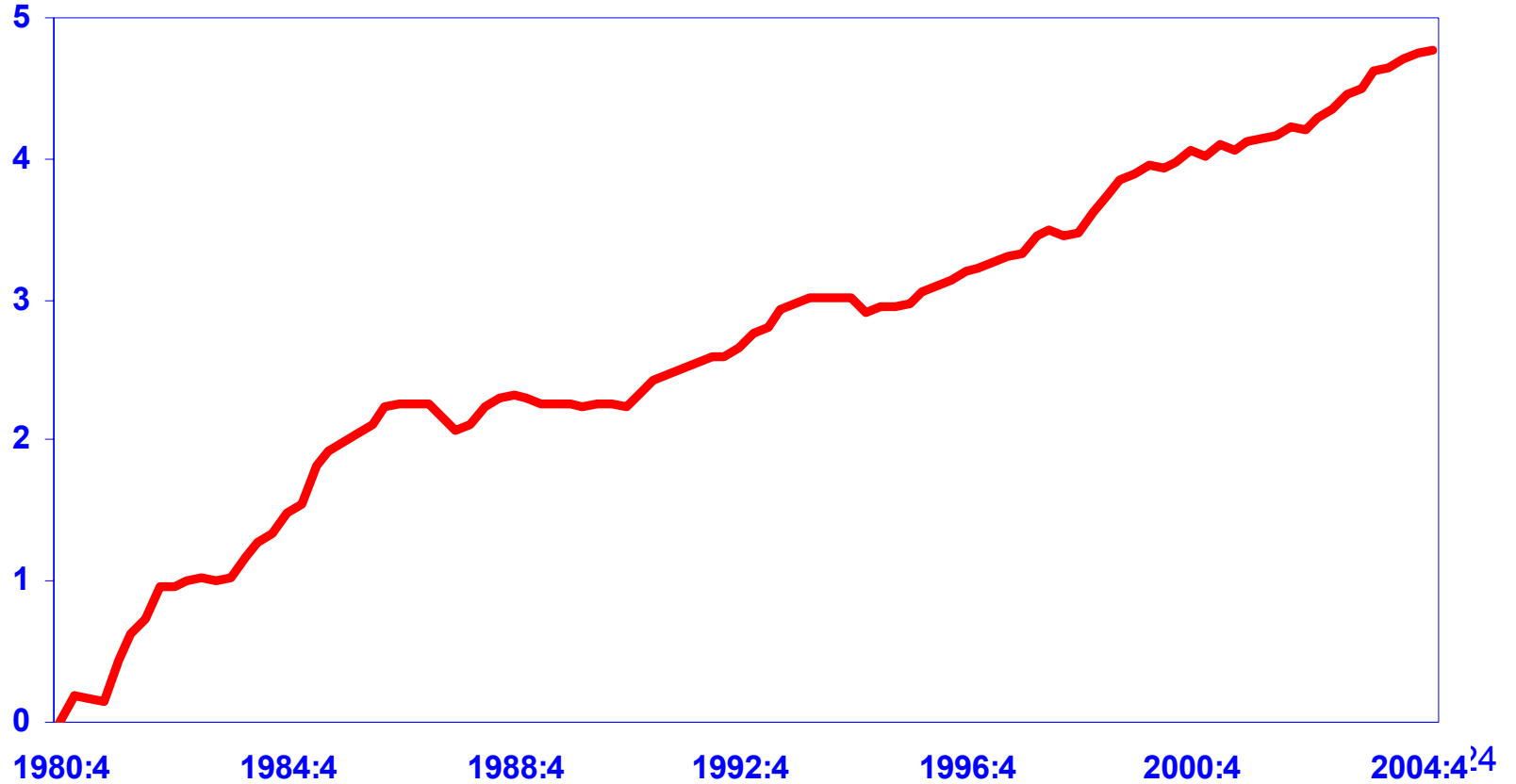
## Global Factor

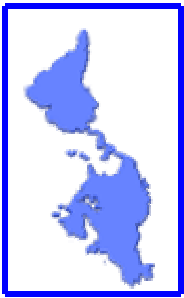




# The Market Factors

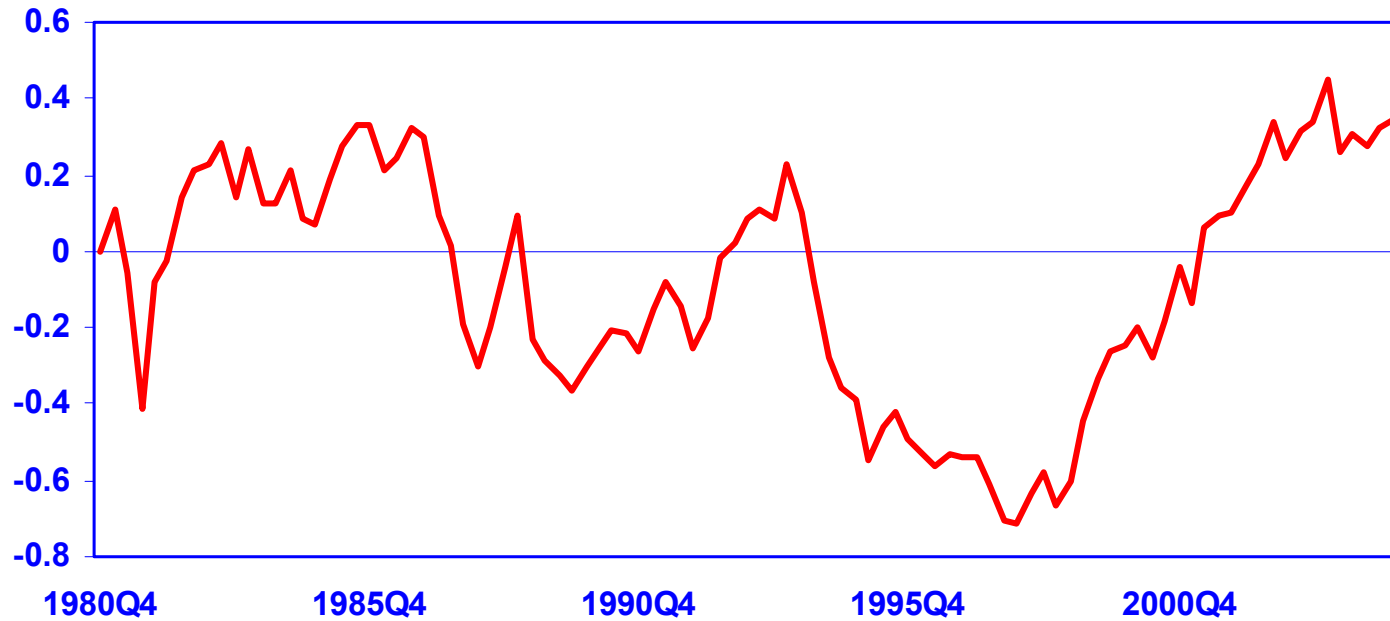
## Bonds

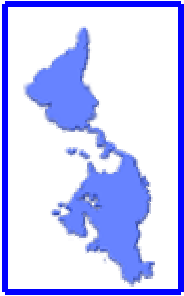




# Global and Market Factors

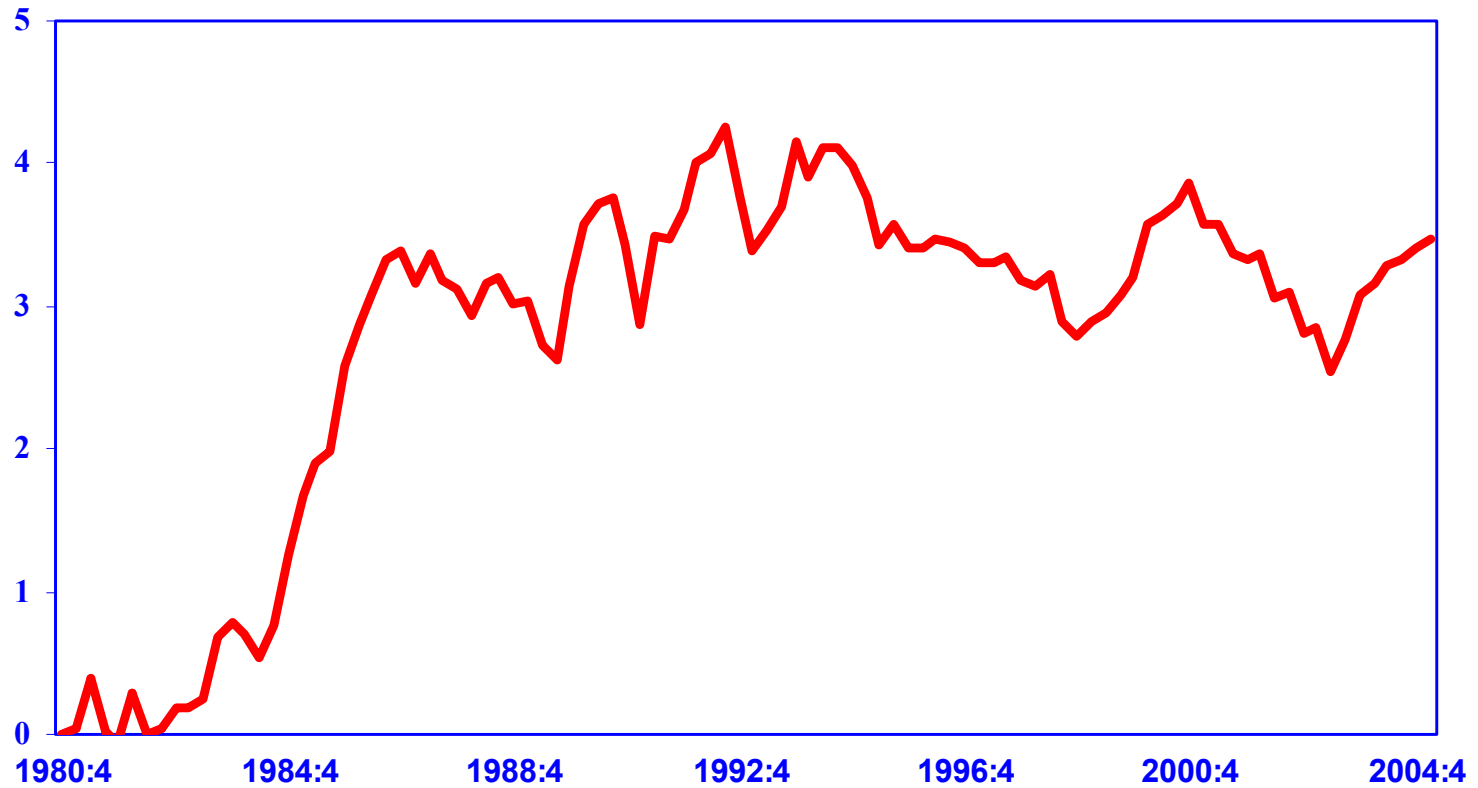
## Bond Factor versus Global Factor

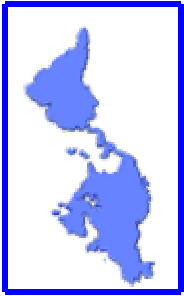




# The Market Factors

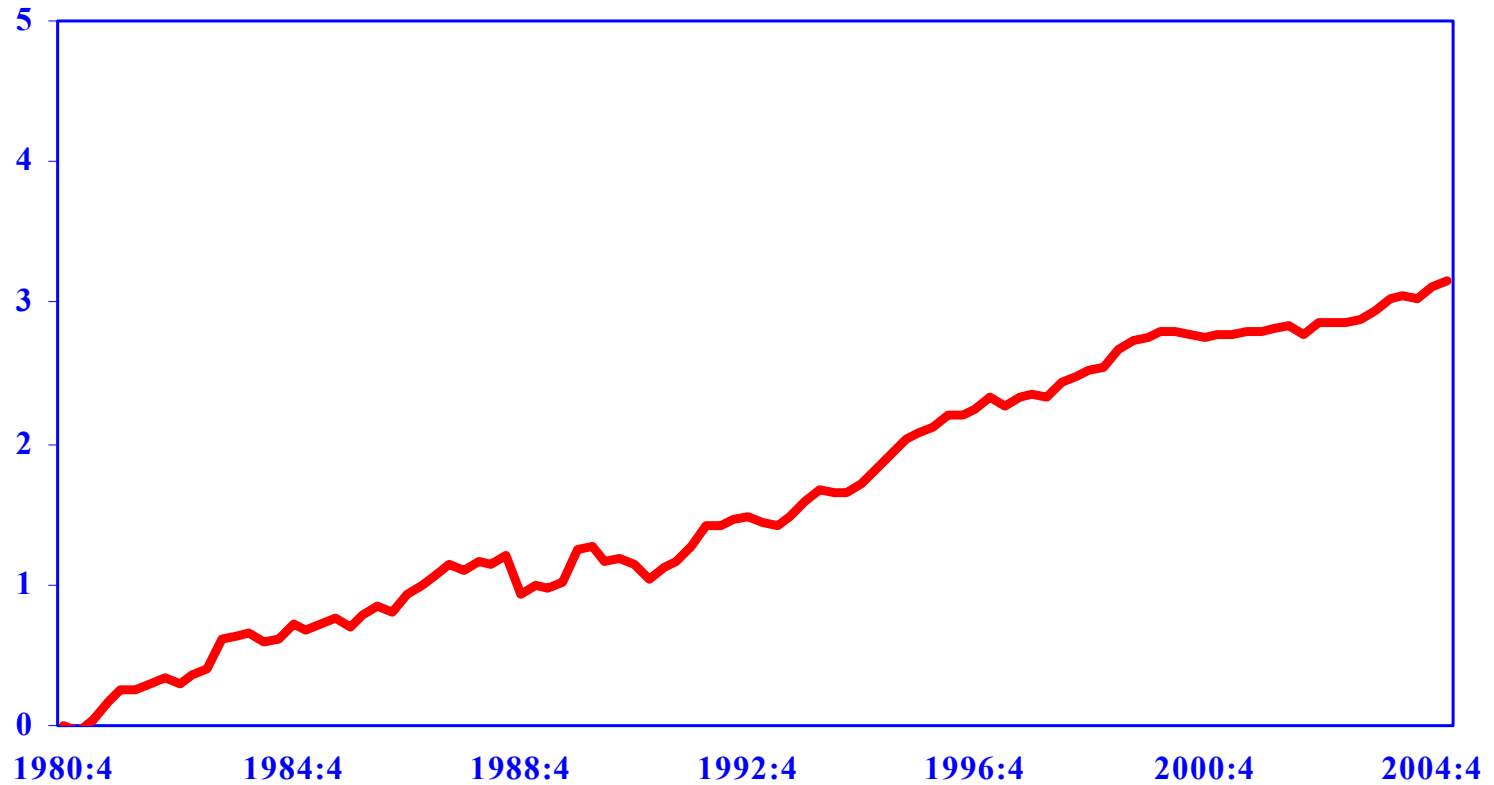
## Equities

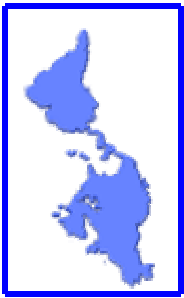




# The Market Factors

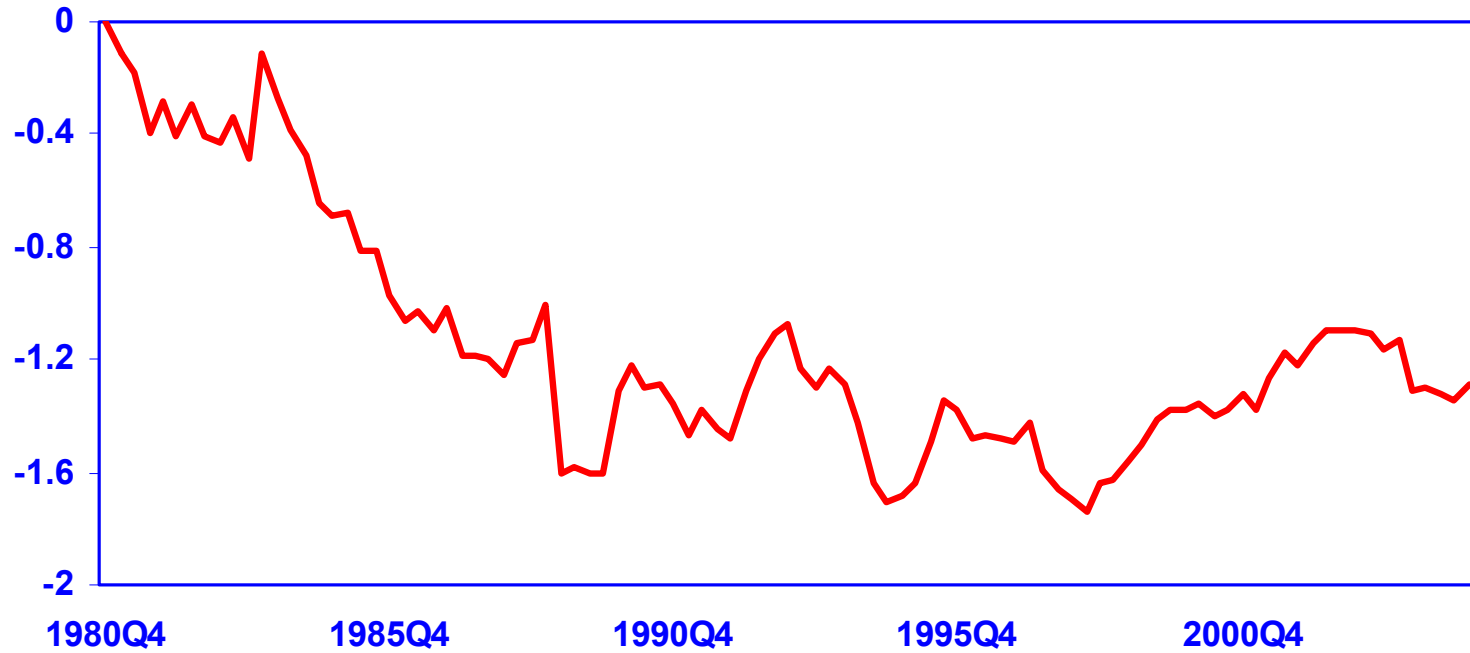
## Loans

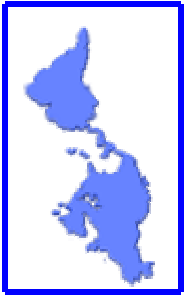




# Global and Market Factors

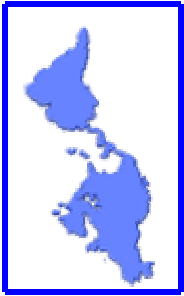
## Loan Factor versus Global Factor





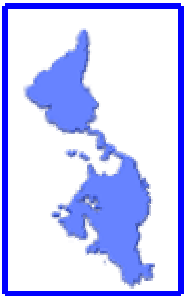
# Explaining Global and Market Factors

- **Capital Account Liberalization** should be at the core of the dramatic rise in international issuance. The index of financial liberalization is from Kaminsky and Schmukler (2005) and covers mature and emerging markets.
- **World Economic Activity** since when economic opportunities arise, finance should follow.
- **World Trade:** International issuance is just one part of total issuance. It is also important to examine why firms and the public sector may be interested in issuing overseas. Cross-border debt issues offer various advantages for firms because they can hedge their exchange risk from for foreign trade by issuing debt in those countries.
- **World Monetary Conditions**, captured by Fed Funds real interest rate.
- **Stock Returns:** Do firms issue more international equity in times of hot markets?



# Methodology

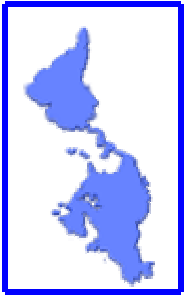
- **Vector Error Correction Estimation**
  - **Impulse Responses**
  - **Variance Decomposition**
- **Estimations for:**
  - **Global Factor**
  - **Bond versus Loan Factor**
  - **Bond versus Equity Factor**



# Explaining the Global Factor

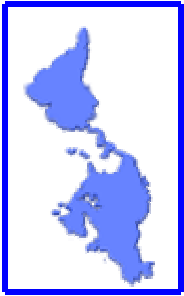
Cointegrating Equation	
Global Factor(-1)	1.00
Financial Liberalization(-1)	-1.11 [-6.09]
C	-2.58 [-5.66]

Error Correction:	Global Factor	Financial Liberalization
Cointegrating Equation	-0.06 [-4.88]	-0.03 [-3.71]
$\Delta(\text{Global Factor})(-1)$	-0.03 [-0.34]	0.03 [ 0.46]
$\Delta(\text{Global Factor})(-2)$	0.05 [ 0.52]	-0.06 [-0.87]
$\Delta(\text{Financial Liberalization})(-1)$	-0.23 [-1.64]	-0.20 [-1.88]
$\Delta(\text{Financial Liberalization})(-2)$	-0.40 [-2.78]	-0.19 [-1.73]
World Real Interest Rate(-1)	0.03 [ 2.30]	-0.01 [-1.31]
World Real Interest Rate(-2)	-0.04 [-3.16]	0.00 [ 0.32]
R-squared	0.24	0.10
Adj. R-squared	0.18	0.03



# Summary of Results

- **The Global Factor:**
  - Financial liberalization explains about 20 percent of the variance.
  - World Real interest rate also explains about 20 percent of the variance.
  - World economic activity only explains 10 percent of the variance.
- **Bonds versus Loans:**
  - Bond factor is more responsive to growth in world economic activity and trade than loan factor.
- **Bonds versus Equity:**
  - Switch towards equity in times of high world stock market returns.



# Conclusions

- **We estimate a global factor and three instrument specific factors. They account, on average, for more than one third of the variance of the original series.**
- **Not all regions participate equally in the new era of financial integration. For example, international issuance in Japan and Latin America is dominated by these two regions' idiosyncratic shocks.**
- **Political risk affects international issuance of emerging markets, but it does not affect industrial countries.**
- **Flight to quality in times of turmoil.**
- **Financial liberalization and cycles of easing/tightening of world monetary policy are at the core of trend and cycles fluctuations in the global factor.**