Cross border cooperation between securities regulators

by Roger Silvers

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Background

Cross-border investment offers benefits

- Diversification
- Higher yield

Cross-border investment has become commonplace

- New technologies and market configurations
  - Telephone/e-brokerage, the internet, location-neutral electronic trading platforms
- Global consolidations of major stock exchanges
  - NYSE and Euronext, NASDAQ and OMX, and the London Stock Exchange and the Borsa Italiana in Milan.
- Global consolidations of major broker-dealers

Opportunities for exploitation

- Additional risks with cross-border trading
  - Firm is in remote location, which leads to adverse selection
    - Information problems (e.g. poor disclosure)
    - Informed traders (insiders of the firm, customers, suppliers, creditors, market makers in the home market who privately observe information arrival)
    - Uncertainty about investors rights
- Investor protection mechanisms are weakened by regulatory gaps
  - Cross-border enforcement is constrained
  - Informed traders can operate without consequence
  - Liquidity providers are at risk of systematic expropriation by informed traders

Background

Securities regulators' efforts to keep pace with these developments are entirely unexplored

- This paper will…
  - Discuss cross-border enforcement and the frictions that prevent it
  - Describe an unusual research design with important features
  - Test whether regulatory efforts to cooperate impact market liquidity

Background

Multilateral Memorandum of Understanding "MMoU"—
a non-binding cooperative arrangement that serves two functions

- Raise regulatory standards *(domestic and cross-border)*
- Enhance cooperation between regulators *(cross-border)*

Participation in MMoU is fairly broad (118 signatories)

- Anecdotal evidence that the MMoU is helpful in pursuing cross-border cases
- But we really don't know much about quantifiable changes that accompany the MMoU
  - Until now! We're going to talk about the measured changes in enforcement and economic effects of IOSCO's MMoU

General structure of my arguments

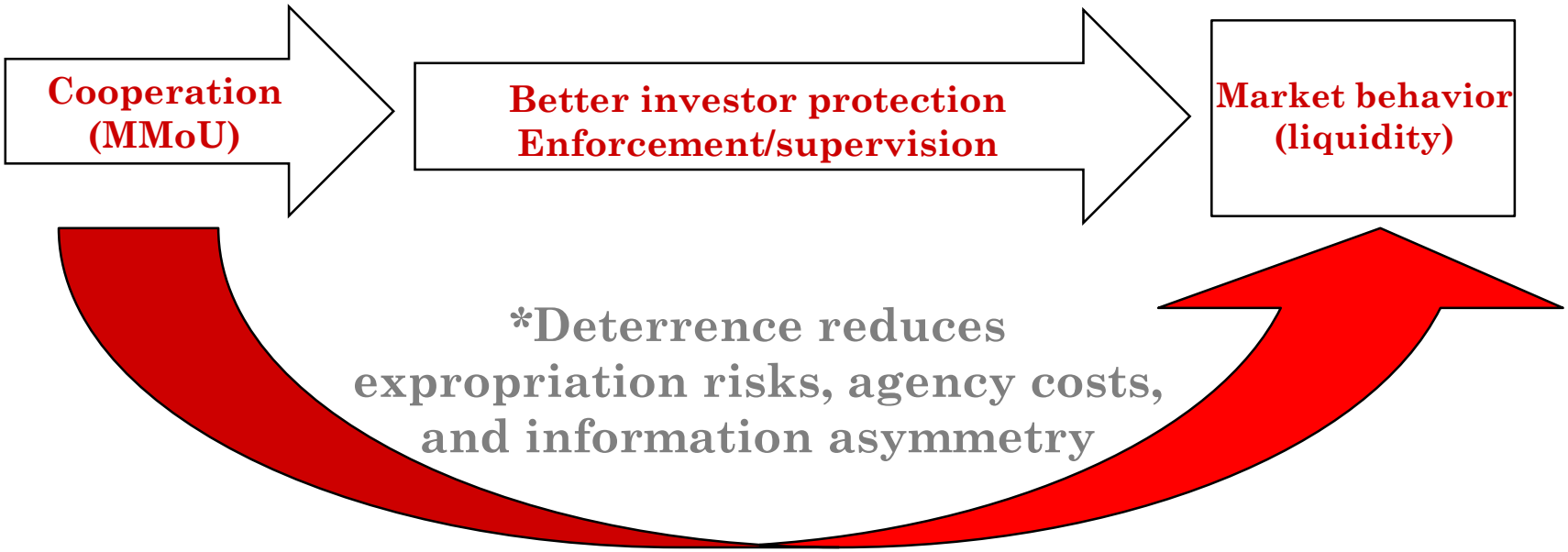
Cooperative statements of intent (MMoU)

- Enforcement activity increases at the precise times and places of the MMoU

General structure of my arguments

Cooperative statements of intent (MMoU)

- Enforcement activity increases at the precise times and places of the MMoU
- Does this achieve "credible deterrence" of malfeasant behaviors?
- If so, cooperation should have capital market consequence (it does)

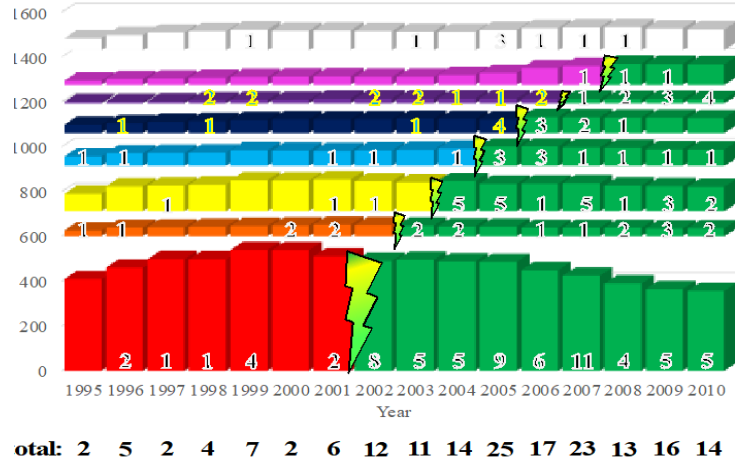


Benefits are measured by liquidity

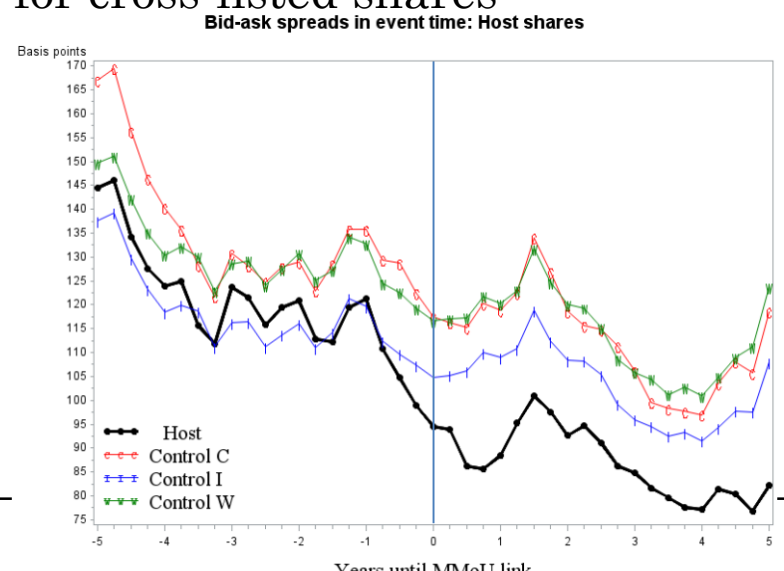
- Transaction costs
- Bid-ask spreads
  - difference between posted buy and sell quotations for a quantity of shares
  - compensates liquidity providers (market makers) for trading with agents that have better information ("adverse selection" Glosten & Milgrom 1985)
- Narrow bid-ask spreads → good (easy to buy and sell)
- Wide bid-ask spreads → bad (hard to buy and sell)
- So if the MMoU enhances markets by reducing investment risks, it should be associated with reduced bid-ask spreads

Preview of results

- Strong support for the idea that MMoU
  - Enhances enforcement



  - Improves liquidity
    - "standard setting" effect 7-13% improvement for the entire market
    - "cross-border effect" additional 18-25% for cross-listed shares



Background: Why is cross-border enforcement is constrained?

- Informational deficiencies
  - Regulators have no legal right to information in other jurisdictions
    - Audit work papers
    - Bank/brokerage/beneficial ownership
    - Witness depositions/testimony
    - Internet/telephone/purchase records
- Jurisdictional complexity
  - Serving a defendant/imposing sanctions/subpoena depositions & testimony/restraining order
- Deference to foreign regulatory systems
  - Sovereignty issues
  - "I believe that international policies should be weighed very carefully before U.S. laws are applied extraterritorially." SEC Commissioner Thomas (1980, p. 3)

Background: Why is cross-border enforcement is constrained?

Glaeser et al. (2001):

- Informational deficiencies ← **Information costs**
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    - Audit work papers
    - Bank/brokerage/beneficial ownership
    - Witness depositions/testimony
    - Internet/telephone/purchase records
- Jurisdictional complexity ← **Incompetence**
  - Serving a defendant/imposing sanctions/subpoena depositions & testimony/restraining order
- Deference to foreign regulatory systems ← **Regulatory bias**
  - Sovereignty issues
  - "I believe that international policies should be weighed very carefully before U.S. laws are applied extraterritorially." SEC Commissioner Thomas (1980, p. 3)

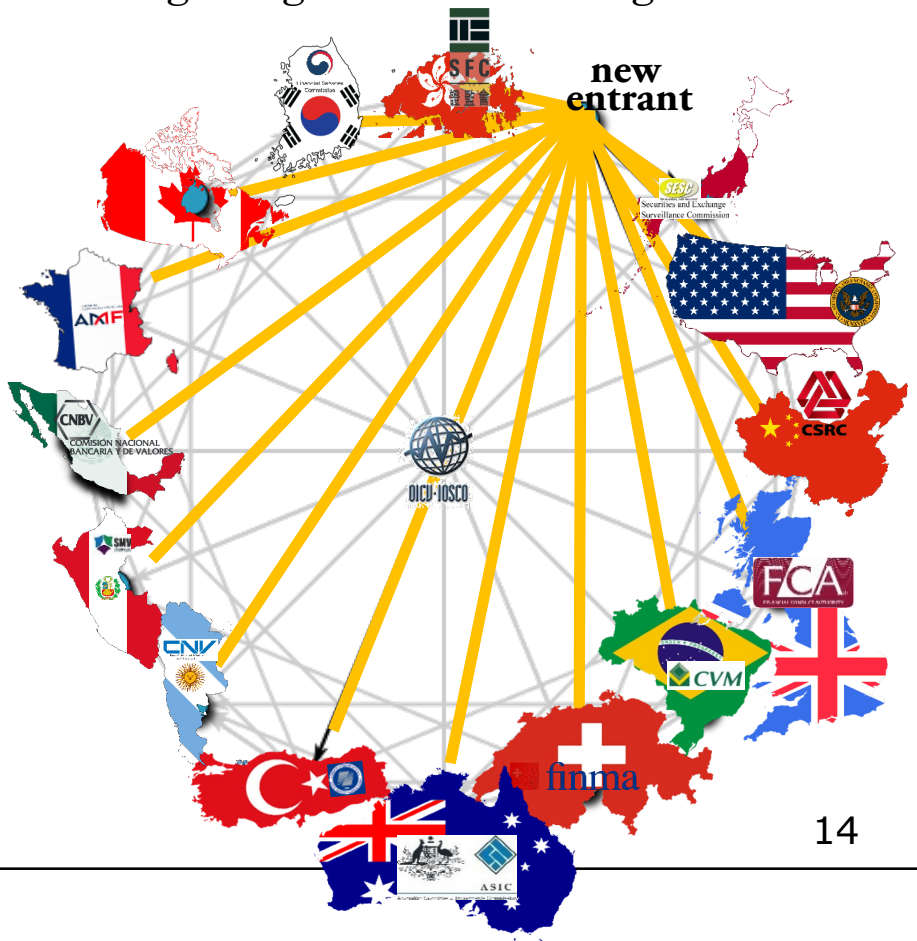
Background: History of cross-border enforcement

- Bilateral agreements-*Memoranda of Understanding (MOU)*
  - Statement of intent between two parties
    - "Soft law"
  - Narrowly negotiated
  - Impractical
    - Boilerplate strategy
    - Little consideration of counterparties' capabilities—No legal basis for sharing
      - Neglected blocking statutes/secrecy laws
      - Most countries (including the U.S.) didn't have legal authority to share domestic intelligence
    - How will information be used?
      - FOIA: shared information could be divulged to public
- Cross-border difficulties **persisted**

A shock to cooperation

- Events of 9/11
  - Exposed vulnerabilities in cross-border regulation
  - Widespread political support for investigating illicit financing
    - Money laundering
    - Terrorist financing

- MMoU



Multilateral Memorandum of Understanding

- ***Reduce* Information costs**
  - Identifies the ***scope***, ***permissible uses***, and ***confidentiality obligations*** associated with information sharing
  - Encourages *voluntary* assistance
  - Eliminates dual-criminality requirements
- ***Increase* competence**
  - Detailed application capability to obtain and share information
  - Rigorous review process from IOSCO screening group
    - Identify/remediate impediments to info-sharing
      - Legal impediments (blocking statutes/secrecy laws)
      - Practical impediments (weak institutional infrastructure)
- ***Reduce* Regulatory biases**
  - Bias from deference (comity) declines
    - regulatory advocates help navigate a foreign legal system
  - Bias from regulatory capture is more costly with information-sharing in place

Important research design features

- Not an obvious endogenous response to market failure, firm malfeasance, or investor dissatisfaction
  - Response to 9/11 (AML and terrorist financing)

OICU-IOSCO

INTERNATIONAL ORGANIZATION OF SECURITIES COMMISSIO

WHICH TYPE OF ASSISTANCE IS NEEDED FROM IOSCO?

- **Political support …** high level meetings with Ministers, members of the Parliament and other relevant parties

  - Criteria for FSB and **World Bank**

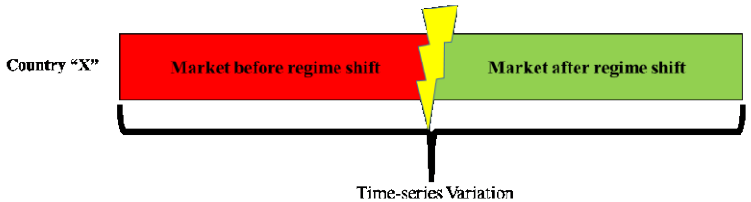
- Timing jointly dependent on…
  - desire to apply (mostly homogenous)
  - ability to comply with ***M***MoU standards
  - arcane laws that prevent information sharing with foreign authorities
  - legislative agility to address (where appropriate)
  - the idiosyncrasies associated with the workload of the verification team members (who have full-time jobs as regulators in their own markets)

- Linkage structure has important properties
  - Incidental linkages formed with ***all*** prior signatories (reduces potential for COV)
  - Triple diff-in-diff, three-dimensional stagger

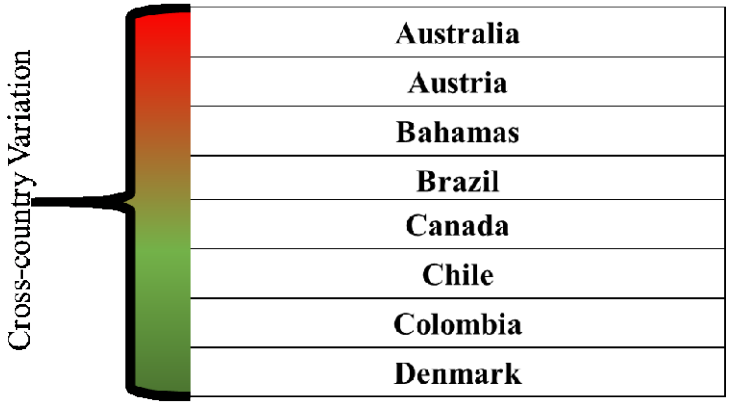
Research designs in the literature

Figure 1
Research designs
This figure describes the types of research designs typically used in most studies of regulation, enforcement, and new laws or mandates. These figures are for illustrative purposes only. They do not necessarily reflect the exact dates of MMoU adoption, nor do they accurately represent the fraction of a given country that is cross listed or the relevant origins of the cross-listed firms.

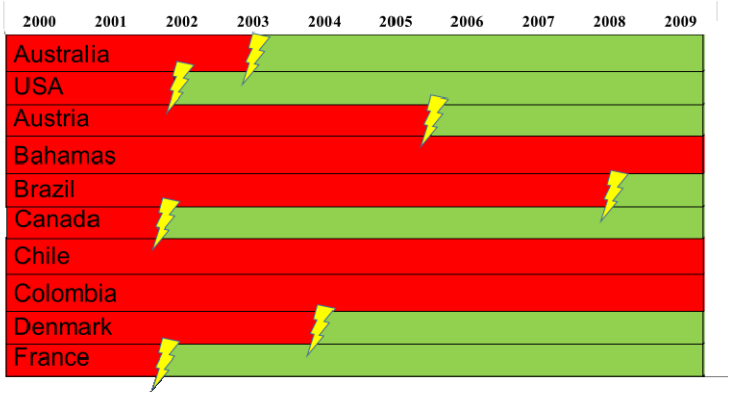
A: Across time
Pre- vs. post-event comparisons of a shock to a given country at a point in time



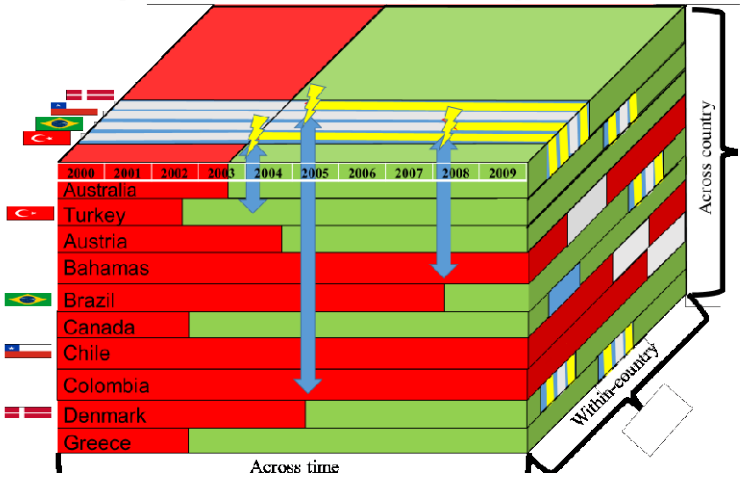
B: Across countries
Comparisons of countries across a range on a given dimension (e.g., indices for governance, legal strength, or enforcement)



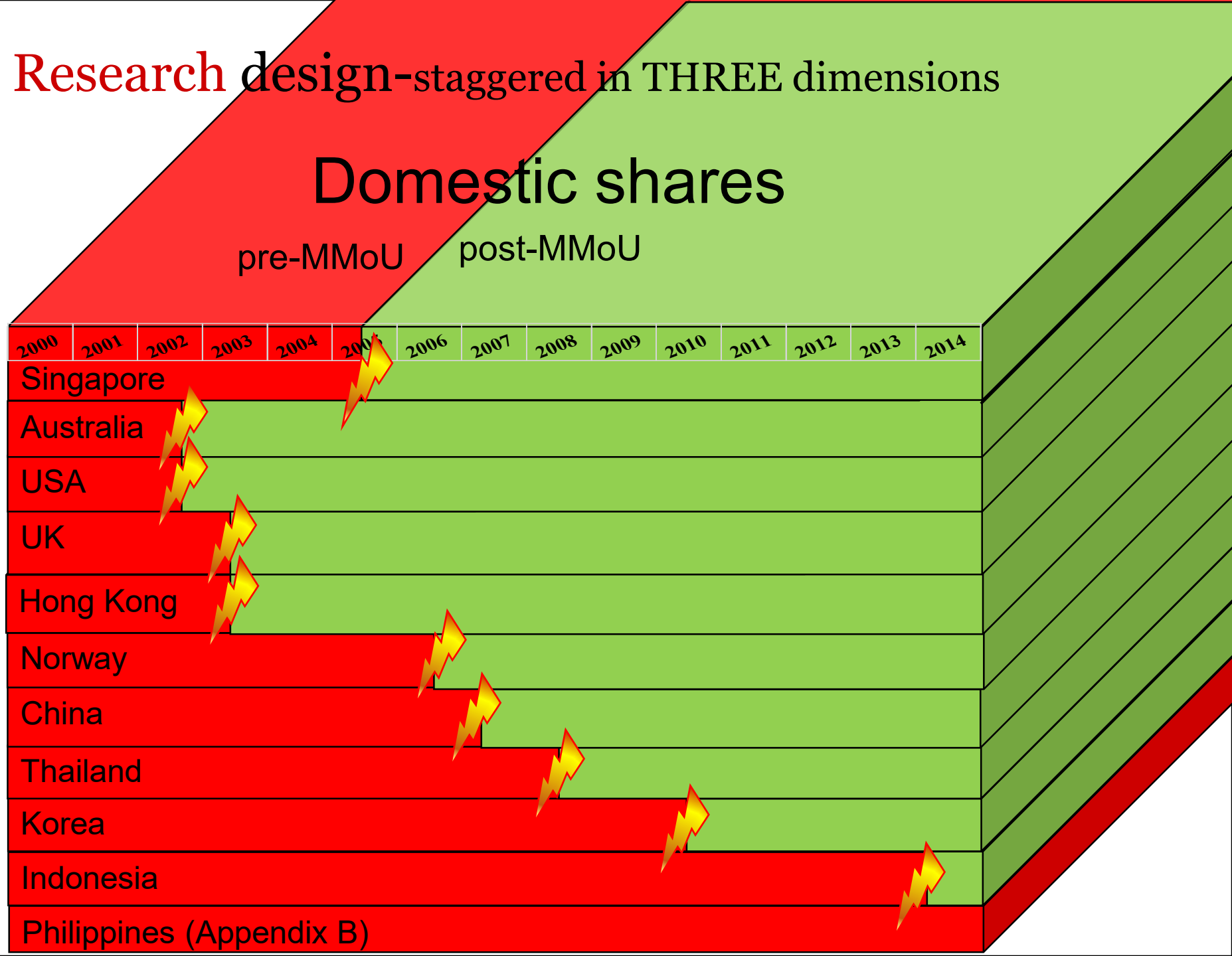
C: Two-dimensional time-series/cross-sectional
Shocks are staggered across (occur at) different times in different countries but are common to all firms in a given country

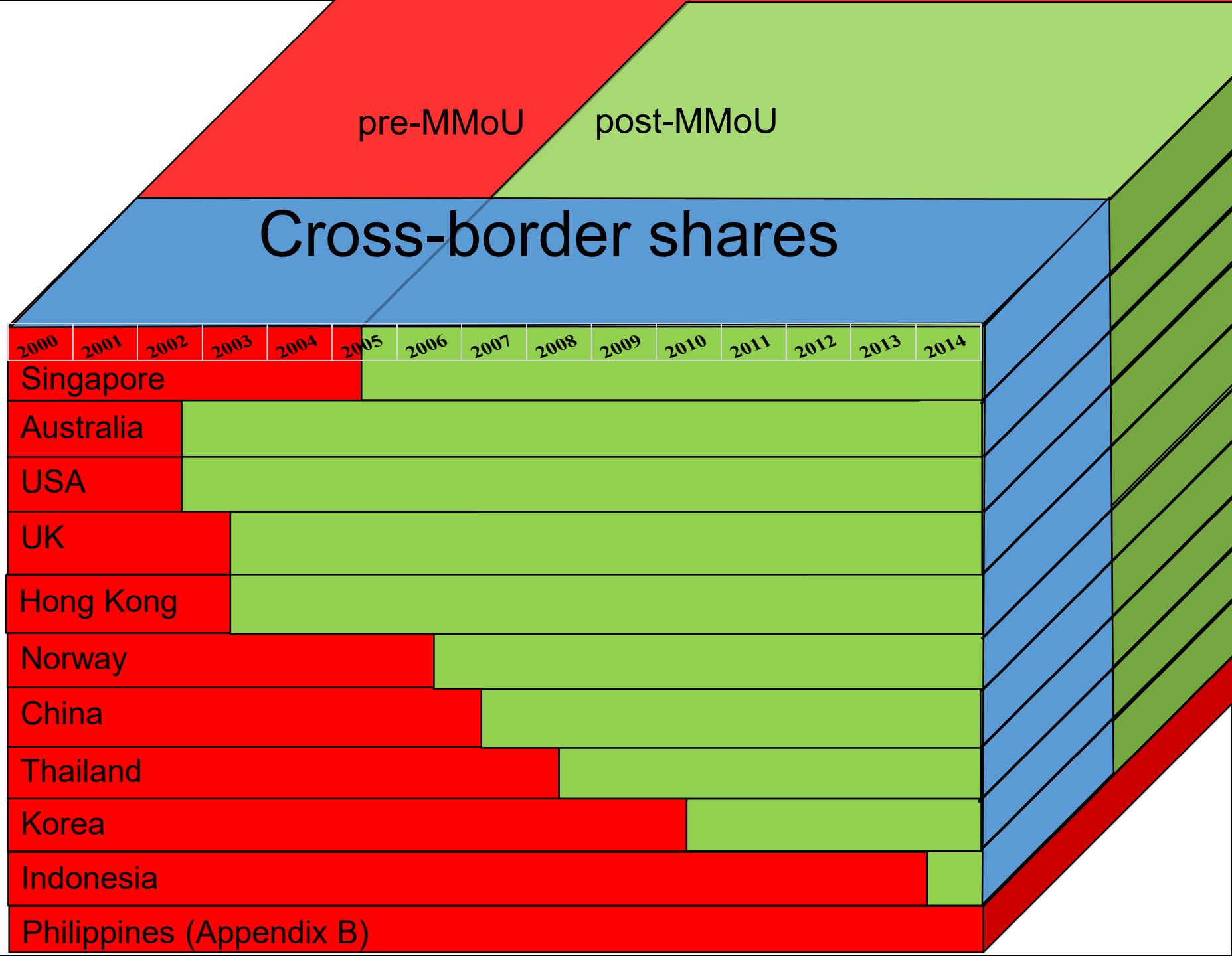


D: Three-dimensional (my design)
Shocks are staggered in three dimensions, creating variation across time, home country, and host country that are separately identifiable using firms that are subject to the cross-border component (e.g. cross-listed firms)



Research design-staggered in THREE dimensions




pre-MMoU
post-MMoU
Cross-border shares
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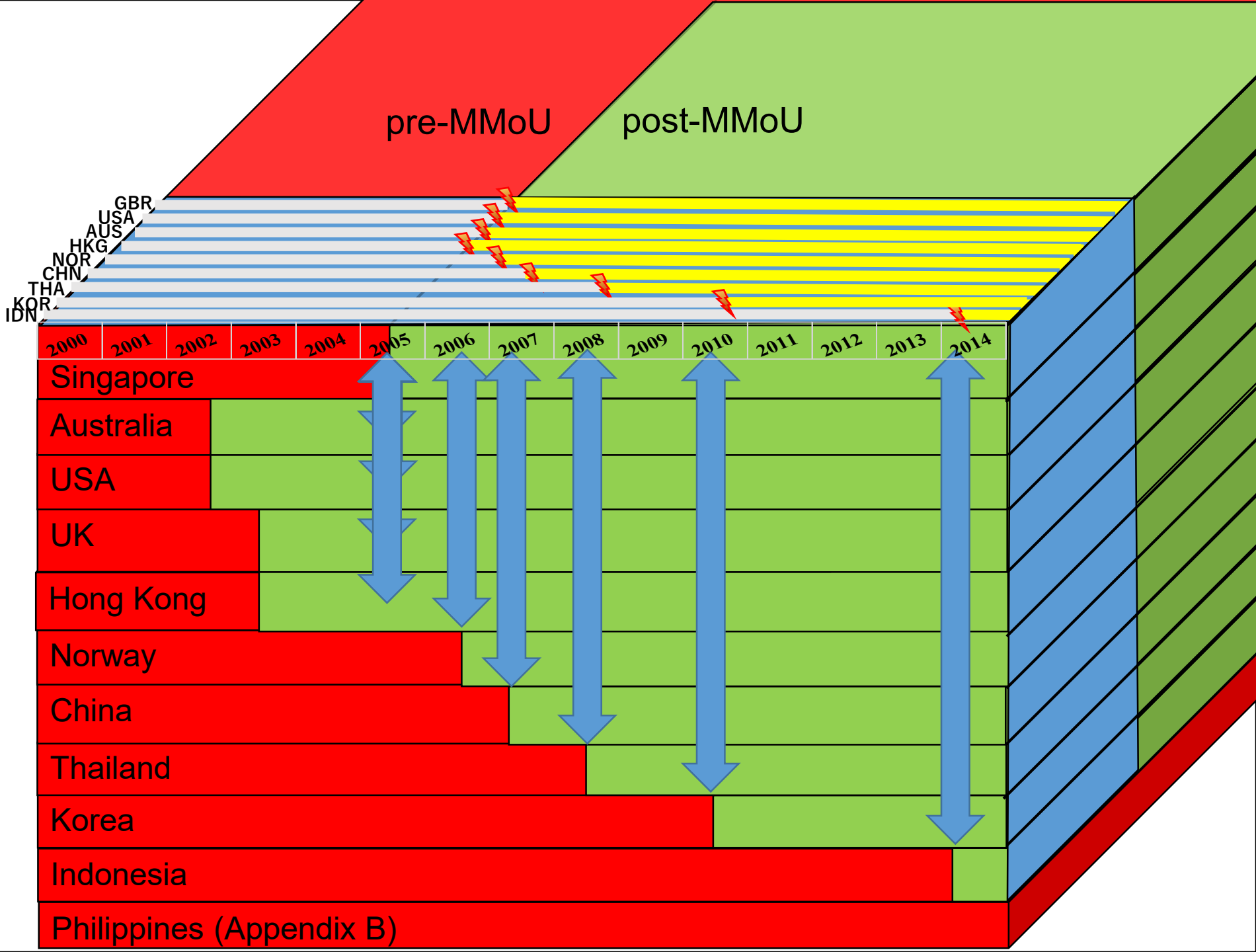
Indonesia
Philippines (Appendix B)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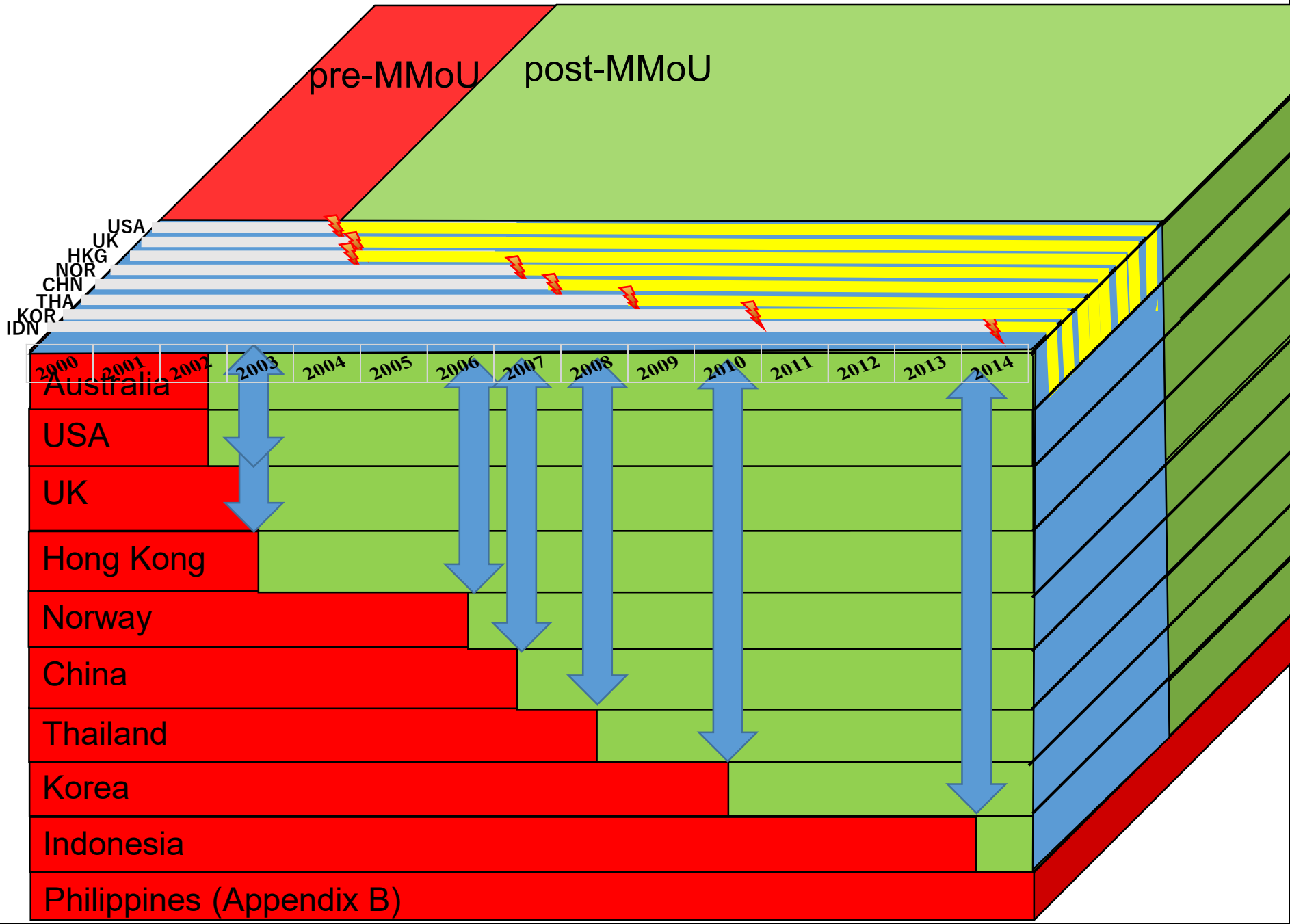
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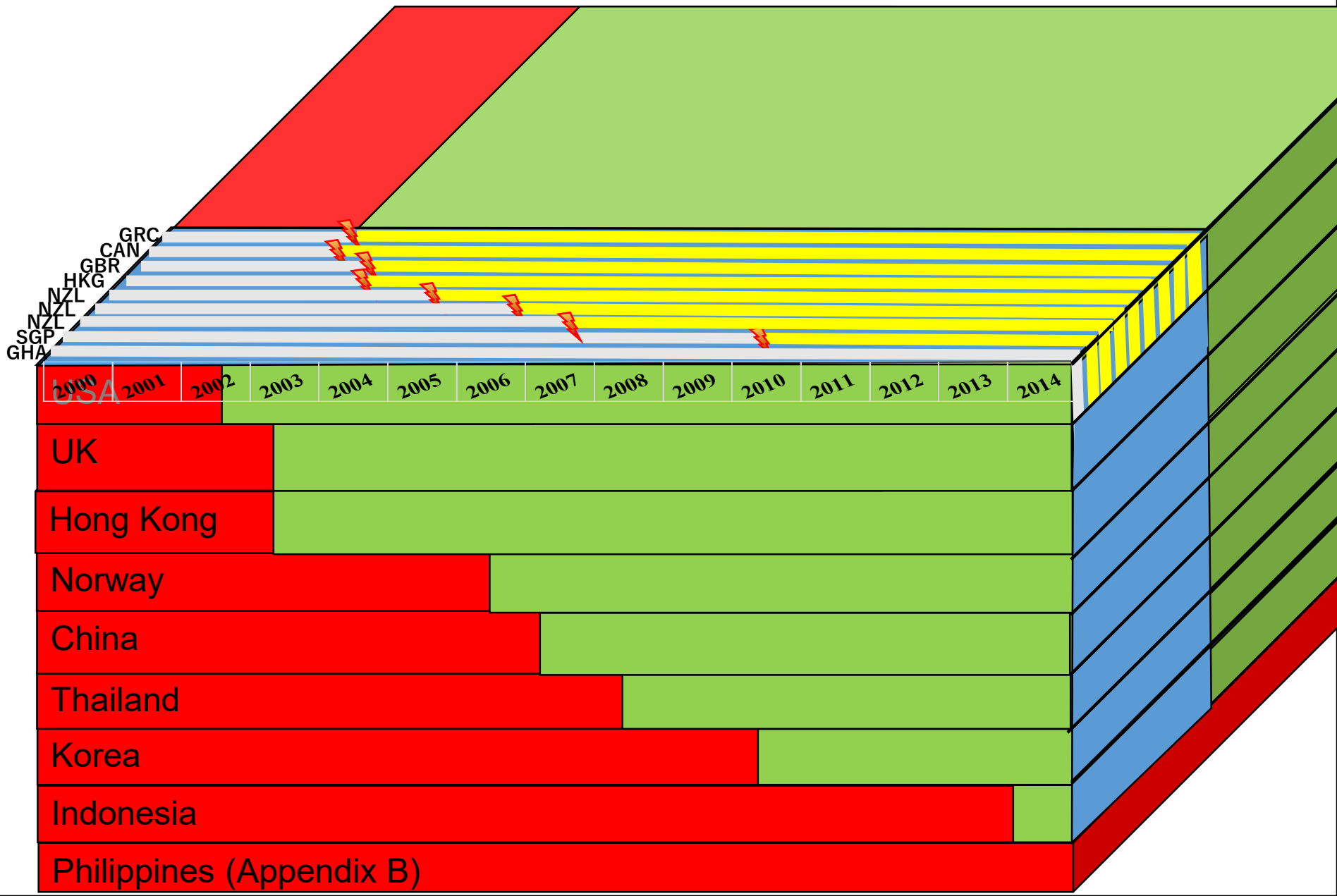
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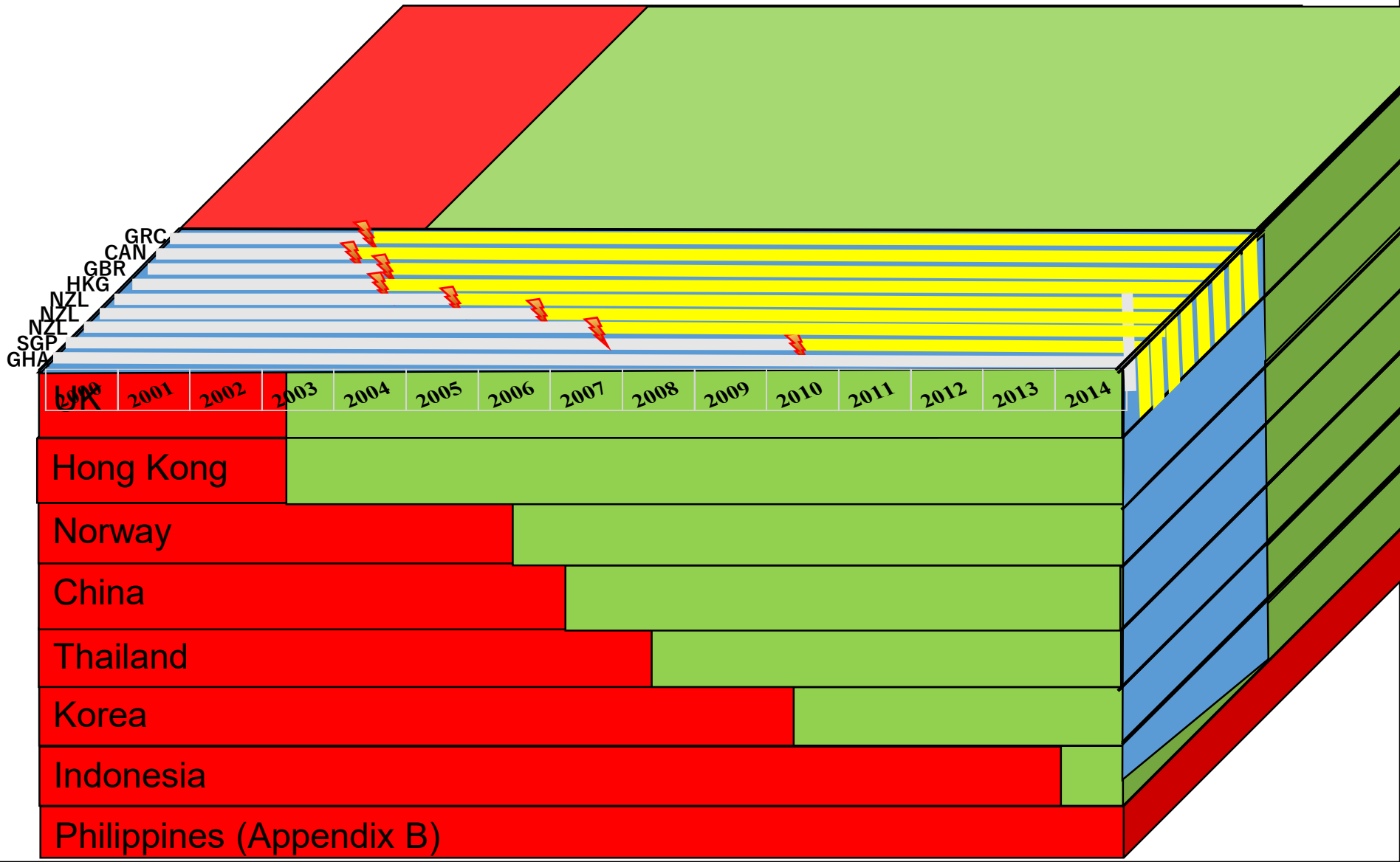
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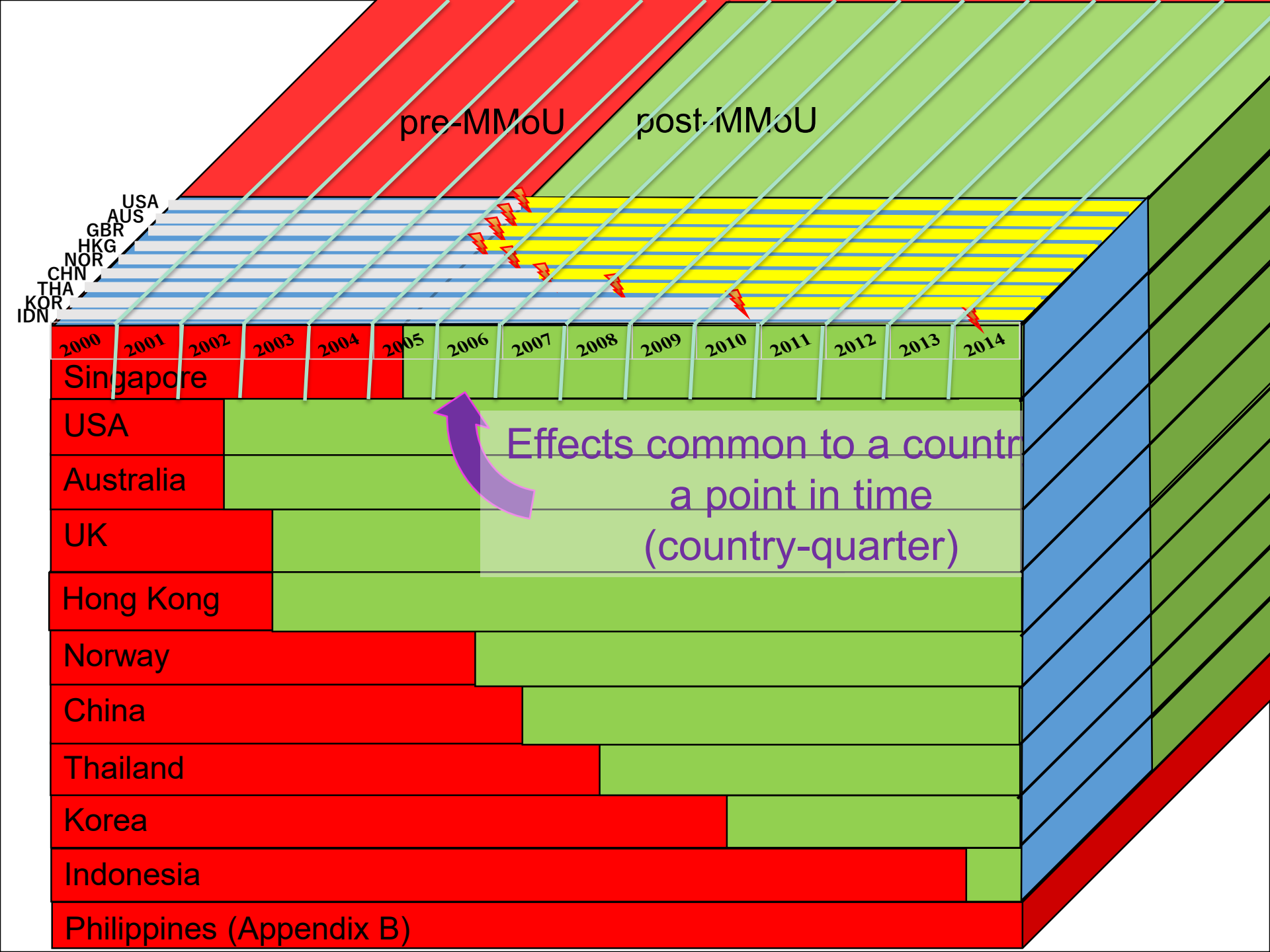
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Philippines (Appendix B)
Effects common to a countr
a point in time
(country-quarter)

No obvious bunching (nor correlated shock)

Host Country Home Country	2002.4 AUS	2002.4 CAN	2002.4 GRC	2002.4 PRT	2002.4 TUR	2002.4 USA	2003.1 ESP	2003.1 FRA	2003.1 GBR	2003.1 HKG	2003.1 JEY	2003.1 MEX	2003.1 ZAF	2003.2 IND	2003.3 HUN	2003.3 ITA	2003.4 DEU	2003.4 NZL	2003.4 POL	2005.2 BEL	2005.4 SGP	2006.2 NGA	2006.3 DNK	2006.3 ISR	2006.4 NOR	2007.1 CZE	2007.2 BMU	2007.2 CHN	2007.2 LUX	2007.2 MYS	2007.4 FIN	2007.4 MAR	2007.4 NLD	2008.1 BHR	2008.1 JPN	2008.2 THA	2009.1 CYM	2009.1 KEN	2009.4 AUT	2009.4 BRA	2009.4 CYP	2010.1 CHE	2010.2 ISL	2010.2 KOR	2011.1 TWN	2011.2 SWE	2012.1 COL	2012.2 EGY	2012.2 MUS	2012.2 PER	2012.4 ARE	2012.4 BHS	2012.4 IRL	2013.1 QAT	2014.1 IDN	2014.2 ARG	2015.1 RUS	Total
Total	97	353	2	1	2	237	27	57	183	35	2	29	25	11	1	19	47	39	1	13	25	1	4	87	32	2	46	175	38	4	11	1	61	4	98	3	108	1	8	52	6	39	2	11	7	40	4	1	2	2	2	3	68	1	2	14	11	2,220
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2002.4 CAN	31					50		1	16	1			1																													1				2	1											104
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2003.1 FRA		5				32	4		13				8			2	11			4					1				6		1	1	7		28				1	1		3				3												131
2003.1 GBR	4	12	1		1	23	3	9		2			2	1		1	10			1	2			1	3	1		2	3	1	3		5		5			1			1	5		1		8		1			2		43				7	166
2003.1 HKG		3				2			5												14							150																														174
2003.1 ZAF	4	9				3			14													1							3																				1									37
2003.2 IND						1																							1																													2
2003.3 ITA						1	1	1																					2													1																6
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2003.4 NZL	37	3							2												1																																					43
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Research design: Three types of shares contrasting liquidity with benchmark shares

- Purely domestic: listed in home country (no other listings)
- Home: listed in home market, but also in other markets
- Host: listed in markets other than their home country

$$log(BAS) = \beta_0 + \beta_1 Home + \beta_2 Home * Link + \beta_3 Host + \beta_4 Host * Link + \sum_{k=1}^{K} \beta_k \, Controls + \sum_{l=1}^{L} \beta_l \, Fixed\ effects + \varepsilon$$

Explained by firm-specific factors (lagged size, turnover, return volatility, and fraction of volume in country

Explained by industry, country-quarter

Sample data: Descriptive statistics for liquidity

- 38 host countries and 70 home countries (97% of global equity)
- DV is the log of the quarterly average of the bid-ask spread (divided by the midpoint)
  - Other measures of liquidity are difficult
    - Price impact is distorted by arbitrage price movements with thin trading
    - Microstructure data is limited to fewer countries and time periods

		MEAN	STD	P1	Q1	MEDIAN	Q3	P99
FULL SAMPLE	1,128,392	0.02	0.04	0.00	0.00	0.01	0.03	0.19
DOMESTIC	1,024,751	0.03	0.04	0.00	0.00	0.01	0.03	0.19
HOME	43,980	0.01	0.03	0.00	0.00	0.00	0.01	0.13
HOST	59,661	0.02	0.03	0.00	0.00	0.01	0.02	0.19

Results (multiple fixed-effect structures)

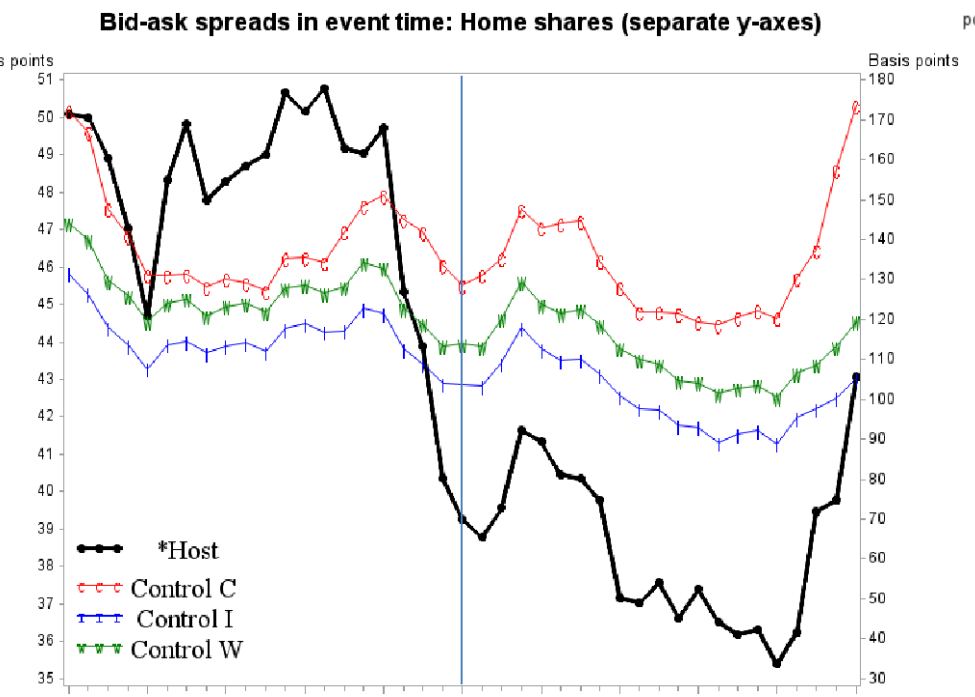
Liquidity effects of MMoU linkages

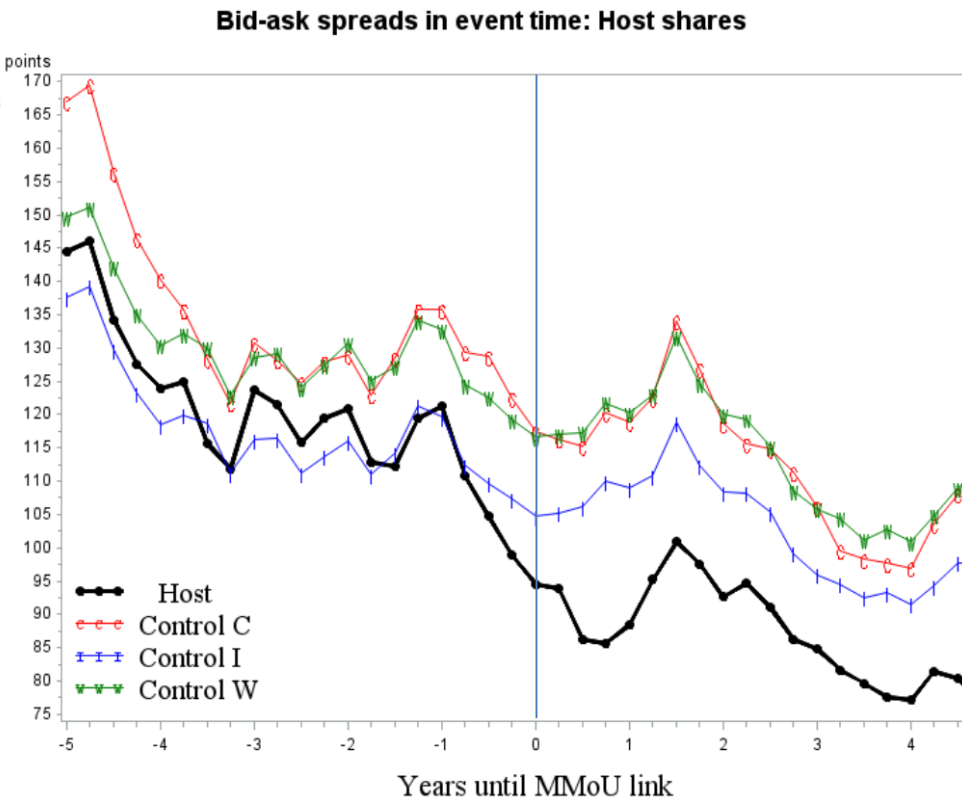
	Country & quarter (1)	*Country-year-quarter* (2)	*Share & year-quarter* (3)
Home	0.070	0.081	*(Absorbed)*
	(0.82)	(1.58)	
*Home*Link*	-0.078	-0.090*	-0.050
	(-0.87)	(-1.78)	(-0.64)
Host	-0.124	-0.108	*(Absorbed)*
	(-0.33)	(-0.30)	
*Host*link*	-0.248***	-0.295*	-0.196***
	(-4.01)	(-1.93)	(-2.84)
MMoU	-0.141**	*(Absorbed)*	-0.079
	(-2.37)		
Frac volume	-0.463**	-0.498**	
	(-2.23)	(-2.56)	
ln(Market Valuet-4)	-0.299***	-0.296***	
	(-17.04)	(-19.93)	
ln(Turnovert-4)	-0.171***	-0.192***	
	(-6.57)	(-8.39)	
ln(Return variancet-4)	0.286***	0.294***	0.116***
	(8.76)	(8.52)	(7.41)
Observations	1,128,392	1,128,392	1,128,392
Fixed effects	I, C, Y-Q	I, C-Y-Q	S, Y-Q
R^2	0.679	0.729	0.836
R^2-within	0.482	0.524	0.088

"cross-border effect" additional 18-35% for cross-listed shares

Results in event time

- Timing of drop in bid-ask spreads corresponds to the MMoU





Country cross-sectional tests

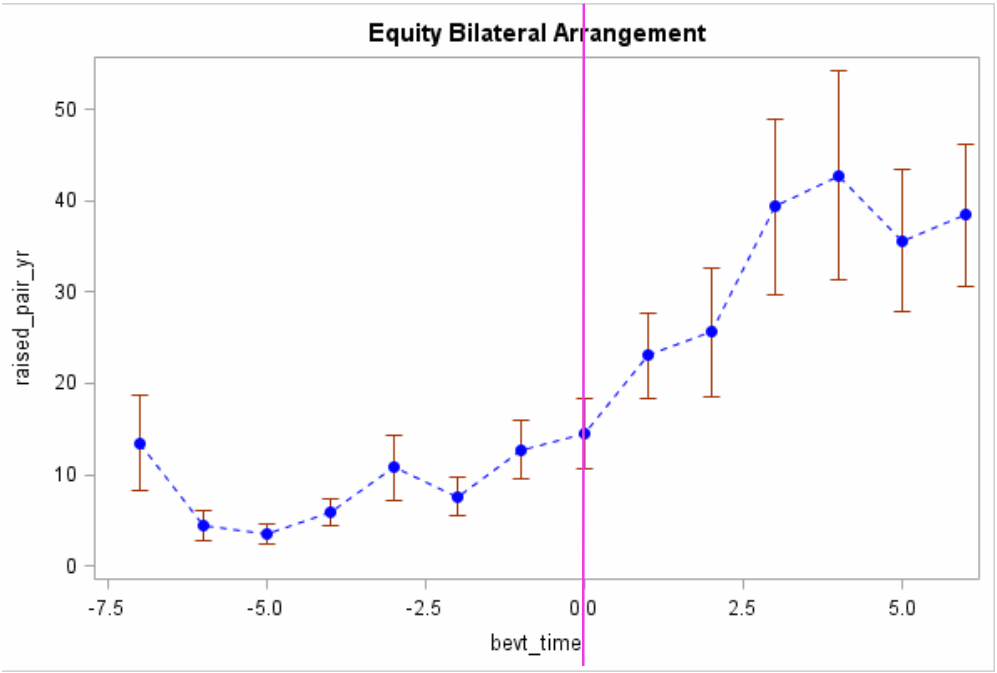
- Find strongest results where I predict:
  - Legal attributes
    - Legal origins (common law, code law)/Disclosure quality
    - Strong host regulators (US, UK, etc.) achieve stronger liquidity effects
  - Blocking statutes
    - Countries that historically constrain cooperation via blocking statutes experience even larger benefits
  - Culture (trust, views on assertiveness/cooperation)

Conclusion

- First paper to consider the market consequences of links between regulators
  - Establishes important institutional details of setting
  - Economically important improvements in liquidity
    - For entire market
    - Even stronger for cross-listed shares
  - Useful design features that may be useful to others in trade or related topical areas
- Has implications for
  - Market development
  - Regulators/supervisory structures
  - Negotiation/cooperation literature
  - Practitioners and academics
    - Law, finance, economics, international relations, accounting, etc.

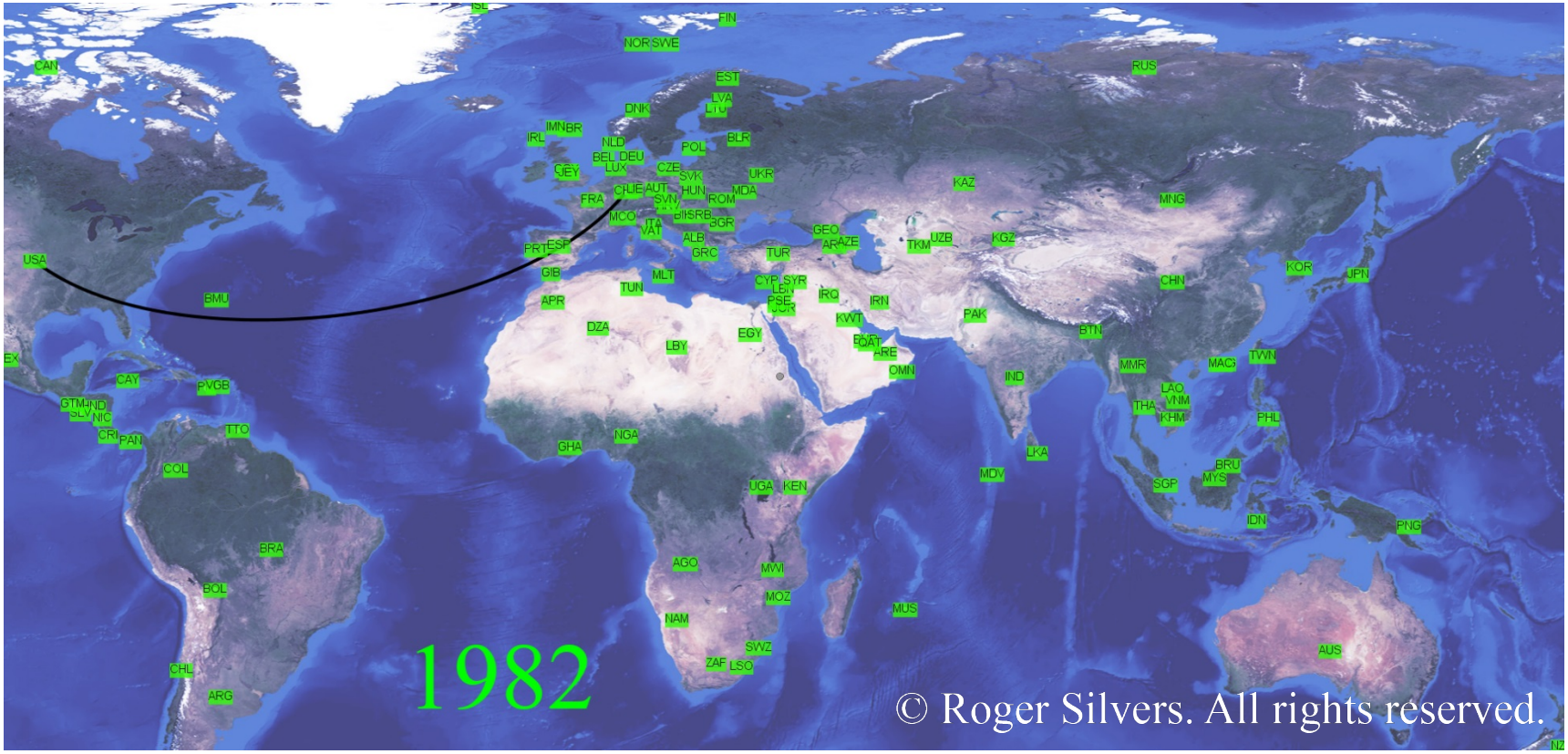
Other related research

- Capital mobility: Cross-border equity and debt capital

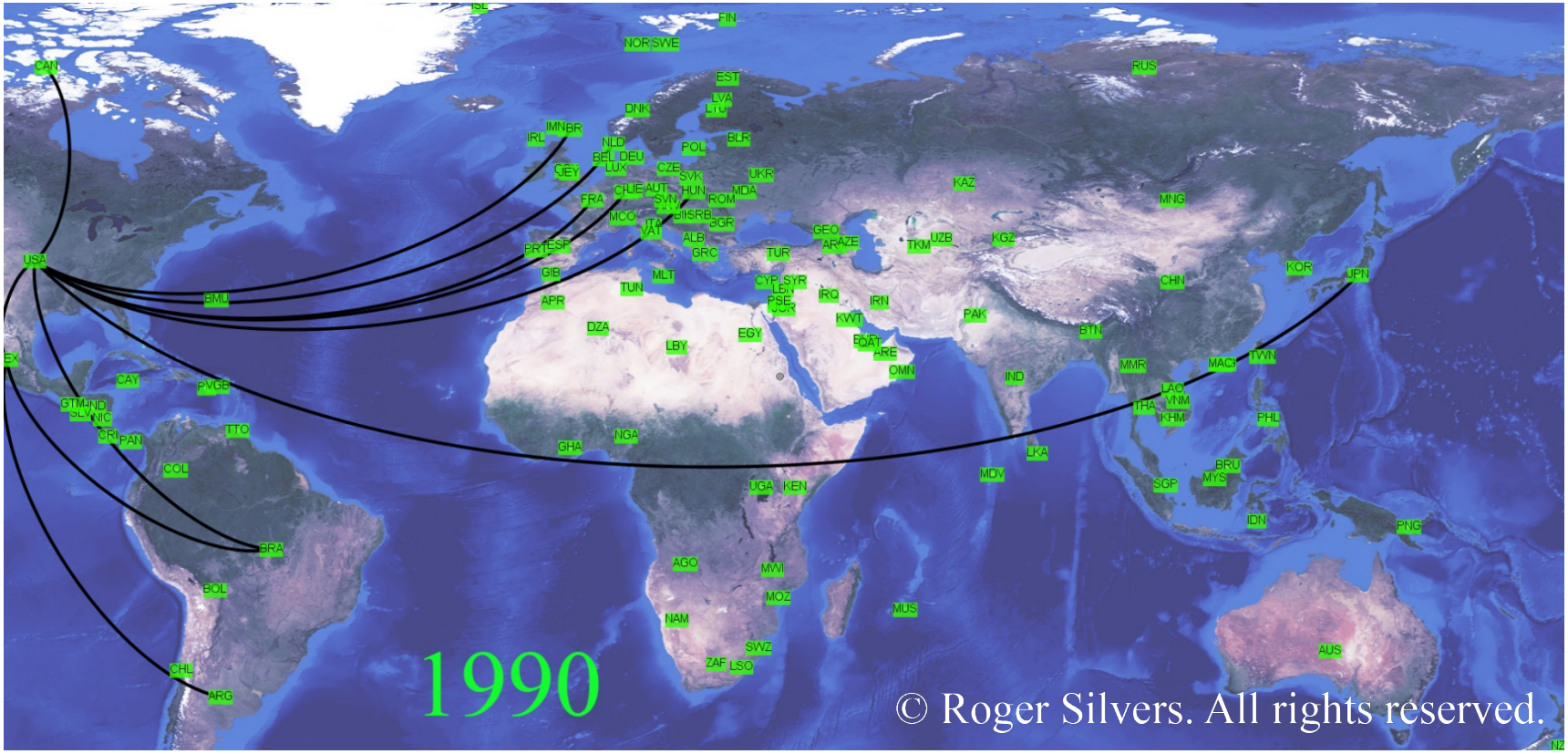


- Evidence of enhanced market integration
- Evidence of more transparent disclosure by firms
- Descriptive evidence of the expanding network of regulatory cooperation

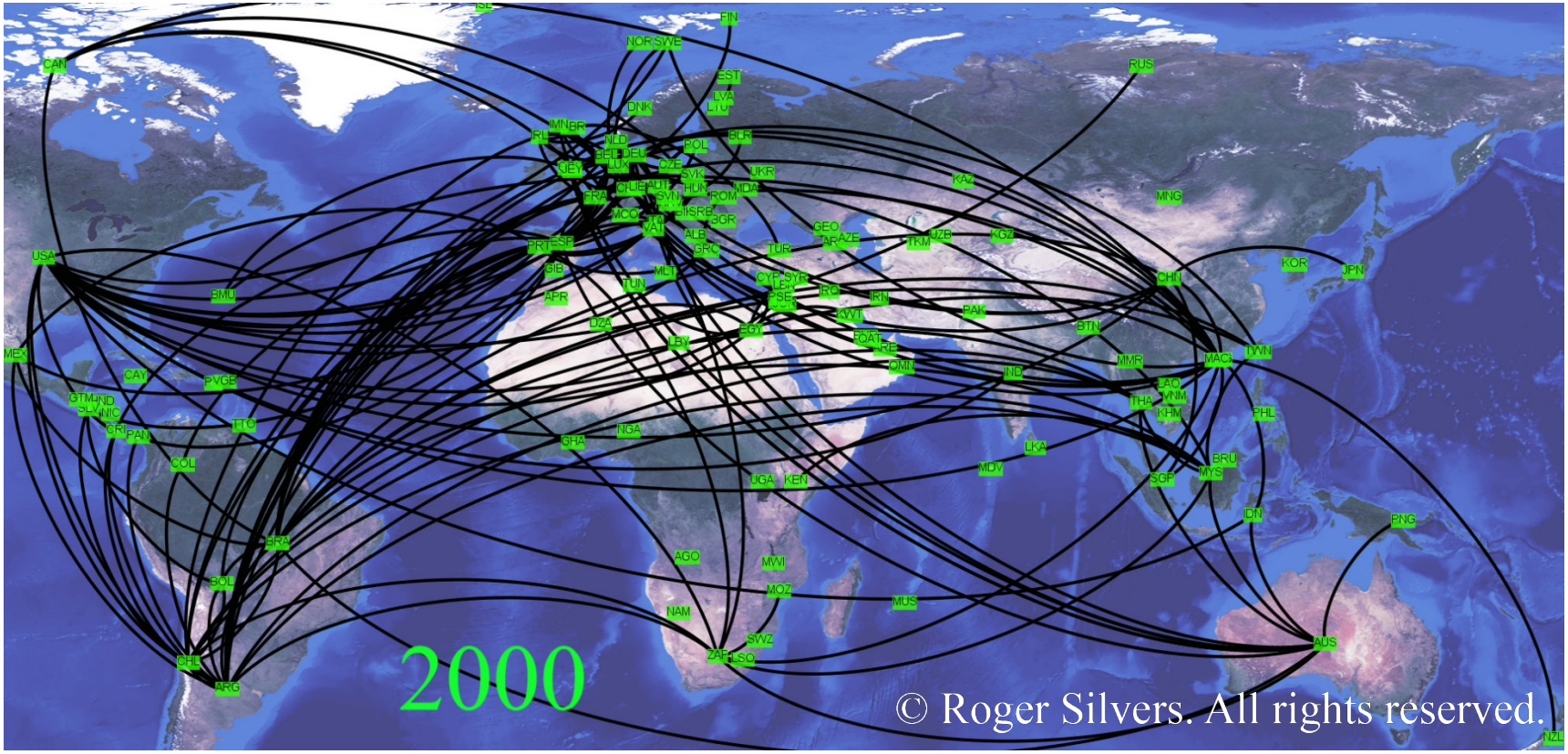
Dramatic growth in regulatory linkages



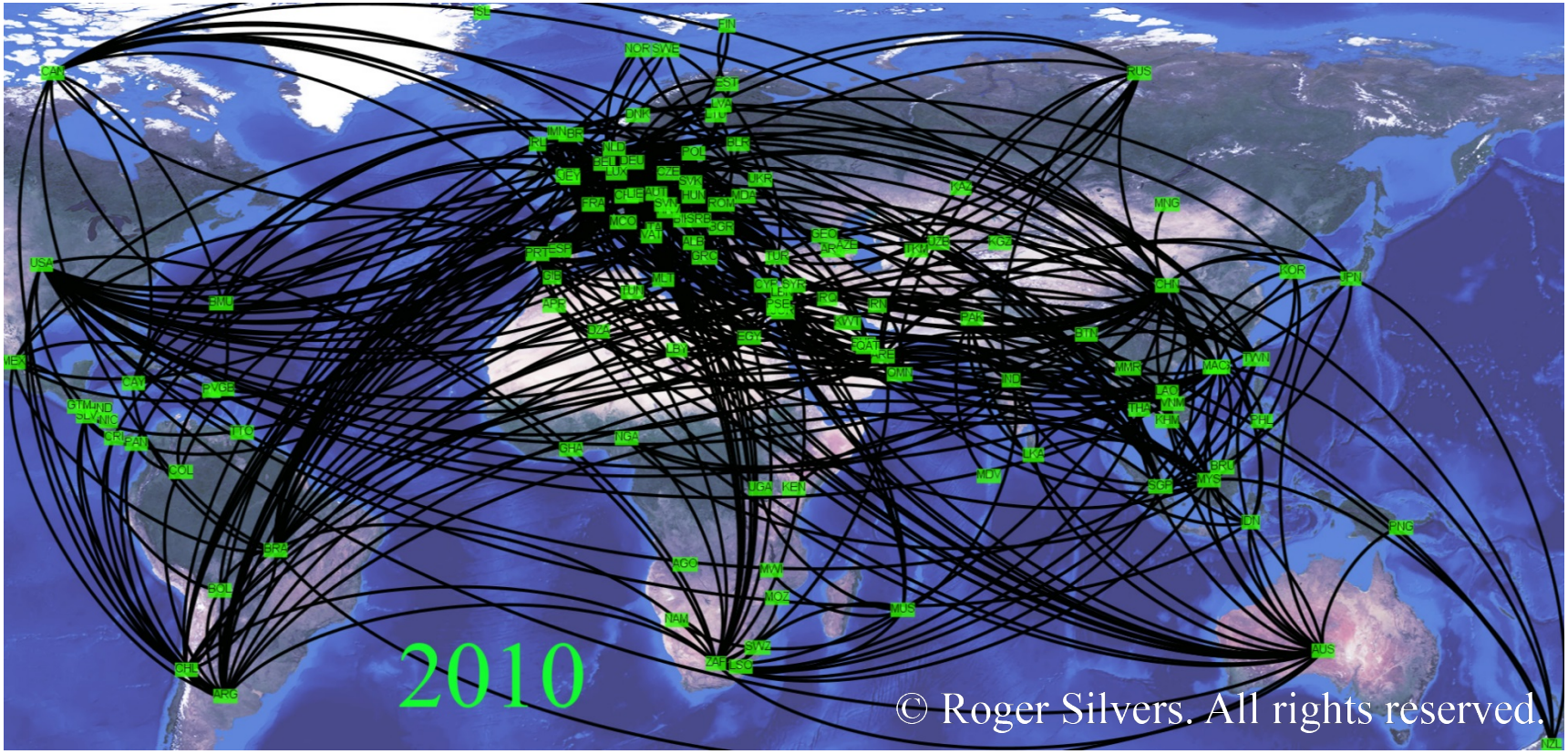
Dramatic growth in regulatory linkages



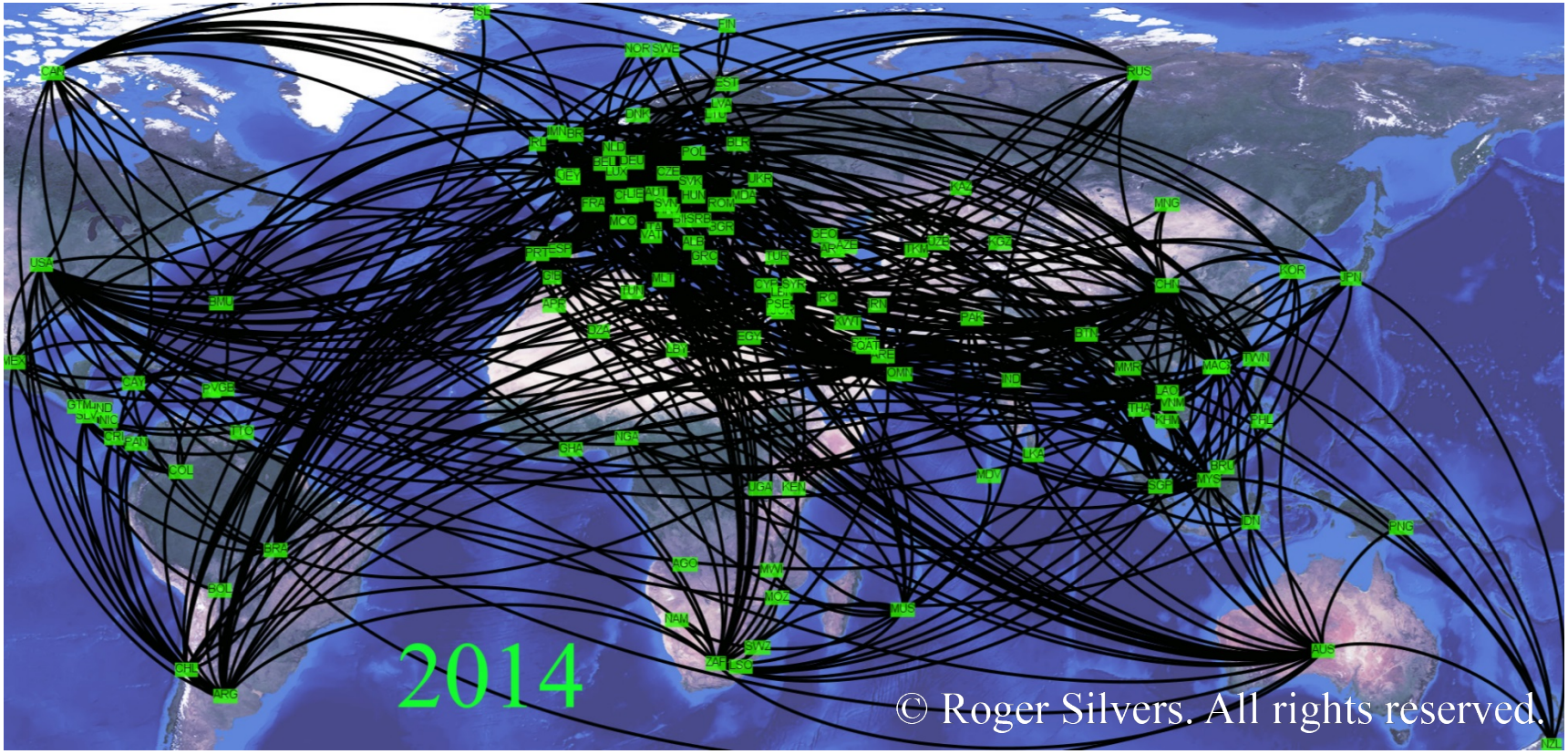
Dramatic growth in regulatory linkages



Dramatic growth in regulatory linkages



Dramatic growth in regulatory linkages



Other work: Δ capital market integration

$$Ret = \alpha_0 + \beta_1 R^L + \beta_2 R^W + \alpha_1 Post + \beta_3 R^L * Post + \beta_4 R^W * Post + \varepsilon_t$$