Cross border cooperation between securities regulators
by Roger Silvers

Annual Bank Conference on Development Economics

World Bank HQ
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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
Background

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

Cooperation (MMoU) → Better investor protection Enforcement/supervision → Market quality (liquidity)
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)

Cooperation (MMoU) ➔ Better investor protection Enforcement/supervision ➔ Market behavior (liquidity)

*Deterrence reduces expropriation risks, agency costs, and information asymmetry
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 $\rightarrow$ good (easy to buy and sell)
- Wide bid-ask spreads $\rightarrow$ 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 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)
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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)

**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 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
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

Country “X”

Market before regime shift

Market after regime shift

Time-series Variation

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

Cross-country Variation

Australia
Austria
Bahamas
Brazil
Canada
Chile
Colombia
Denmark

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

<table>
<thead>
<tr>
<th>2000</th>
<th>2001</th>
<th>2002</th>
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<td>Australia</td>
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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

# Domestic shares

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<thead>
<tr>
<th>Year</th>
<th>Singapore</th>
<th>Australia</th>
<th>USA</th>
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Note: The diagram shows the staggered research design across different years and countries.
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pre-MMoU       post-MMoU
Effects common to a country, at a point in time (country-quarter)
No obvious bunching (nor correlated shock)
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

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

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

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<tr>
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<th>MEAN</th>
<th>STD</th>
<th>P1</th>
<th>Q1</th>
<th>MEDIAN</th>
<th>Q3</th>
<th>P99</th>
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<tbody>
<tr>
<td>FULL SAMPLE</td>
<td>1,128,392</td>
<td>0.02</td>
<td>0.04</td>
<td>0.00</td>
<td>0.00</td>
<td>0.01</td>
<td>0.03</td>
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<td>DOMESTIC</td>
<td>1,024,751</td>
<td>0.03</td>
<td>0.04</td>
<td>0.00</td>
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<td>HOME</td>
<td>43,980</td>
<td>0.01</td>
<td>0.03</td>
<td>0.00</td>
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<td>HOST</td>
<td>59,661</td>
<td>0.02</td>
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<td>0.00</td>
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<td>0.02</td>
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</table>
Results (multiple fixed-effect structures)

<table>
<thead>
<tr>
<th>Liquidity effects of MMoU linkages</th>
<th>Country &amp; quarter (1)</th>
<th>Country-year-quarter (2)</th>
<th>Share &amp; year-quarter (3)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Home</strong></td>
<td>0.070 (0.82)</td>
<td>0.081 (1.58)</td>
<td>(Absorbed)</td>
</tr>
<tr>
<td><strong>Home*Link</strong></td>
<td>-0.078 (-0.87)</td>
<td>-0.090*(-1.78)</td>
<td>-0.050 (-0.64)</td>
</tr>
<tr>
<td><strong>Host</strong></td>
<td>-0.124 (-0.33)</td>
<td>-0.108 (-0.30)</td>
<td>(Absorbed)</td>
</tr>
<tr>
<td><strong>Host*link</strong></td>
<td>-0.248***(-4.01)</td>
<td>-0.295*(-1.93)</td>
<td>-0.196***(-2.84)</td>
</tr>
<tr>
<td><strong>MMoU</strong></td>
<td>-0.141**(-2.37)</td>
<td>(Absorbed)</td>
<td>-0.079</td>
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<tr>
<td><strong>Frac volume</strong></td>
<td>-0.463**(-2.23)</td>
<td>-0.498**(-2.56)</td>
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<tr>
<td><strong>ln(Market Valuet-4)</strong></td>
<td>-0.299***(-17.04)</td>
<td>-0.296***(-19.93)</td>
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<tr>
<td><strong>ln(Turnovert-4)</strong></td>
<td>-0.171***(-6.57)</td>
<td>-0.192***(-8.39)</td>
<td>(5.93)</td>
</tr>
<tr>
<td><strong>ln(Return variancet-4)</strong></td>
<td>0.286*** (8.76)</td>
<td>0.294*** (8.52)</td>
<td>0.116*** (7.41)</td>
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</table>

Observations: 1,128,392
Fixed effects: I, C, Y-Q; I, C-Y-Q; S, Y-Q
R²: 0.679; 0.729; 0.836
R²-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
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Dramatic growth in regulatory linkages
Dramatic growth in regulatory linkages
Other work: Δ capital market integration

\[ Ret = \alpha_0 + \beta_1 R^L + \beta_2 R^W + \alpha_1 Post + \beta_3 R^L \times Post + \beta_4 R^W \times Post + \varepsilon_t \]

Betas in Event Time