The G-20 derivatives market reform in the aftermath of the Global Financial Crisis: cross-country disparities and potential implications for South Korea

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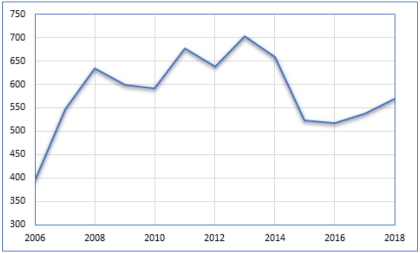
Background

- Major role of over-the-counter (OTC) derivatives markets in the GFC
- Huge and complex counterparty exposures between international market participants $\Rightarrow$ cross-country contagion channel
- **Supervisory "blind spot"** $\Rightarrow$ transactions were not recorded $\Rightarrow$ strong uncertainty on risk exposure
- Clear need for reform $\Rightarrow$ called for by the **Pittsburgh G-20 summit** in September **2009**

Size of the global OTC derivatives markets

- Notional amounts outstanding on global OTC derivatives markets (average per year, **trillion** US dollars, BIS):



- About 80% interest rate derivatives, 16% foreign exchange derivatives (2018)

$\Rightarrow$ a gauge of **financial interconnectedness** and **systemic importance**

Outline of the presentation

1. Overview of the G-20 OTC derivatives markets reform
2. Evidence of cross-country disparities in the implementation of the reform
3. Implications of these disparities, with a focus on Korea

Financial regulation after the GFC

- New financial regulatory framework called for by the G-20
- 4 priority reform areas:
  1. Banking regulation (Basel III)
  2. Systemic/too-big-to-fail banks
  3. **OTC derivatives markets**
  4. Non-bank financial intermediation

The G-20 OTC derivatives reform

- 2009 Pittsburgh summit: agreement on an **international** reform agenda that was supposed to be implemented by end 2012
- **5 main regulatory blocks** covering 5 asset classes: interest rate, credit, foreign exchange, commodity and equity derivatives
- Agreed at the international level, but implemented at the national level

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5. and to minimum standards for **margin requirements** (added at the 2011 Cannes summit)

Call for international coordination

- G-20 communiqué in 2009 $\Rightarrow$ emphasis on the need for **international coordination** in the implementation of the post-crisis reform
- The aim is to establish "global standards consistently in a way that ensures a level playing field and avoids fragmentation of markets, protectionism, and regulatory arbitrage"
- In practice: **many delays** in the implementation of the reform, **many cross-country disparities**

Quarter when regulatory requirements in force

Country	Trade reporting	Central clearing	Electronic trading	Capital requirements	Margin requirements
Argentina				Q1 2013	
Australia	Q2 2015	Q4 2014	Q2 2016	Q1 2013	Q1 2017
Brazil	Q1 2010	Q4 2014		Q1 2013	Q2 2018
Canada	Q4 2014	Q2 2017		Q1 2013	Q1 2016
China	Q1 2013	Q3 2014	Q3 2013	Q3 2017	
European Union	**Q1 2014**	**Q4 2014**	**Q3 2015**	**Q1 2014**	**Q1 2017**
Hong Kong	Q3 2017	Q3 2016	Q3 2018	Q1 2013	Q1 2017
India	Q3 2012			Q1 2013	
Indonesia	Q1 2013		Q1 2013	Q3 2017	
Japan	**Q3 2012**	**Q3 2012**	**Q3 2015**	**Q1 2013**	**Q3 2016**
Mexico	Q1 2013	Q2 2016	Q2 2016	Q1 2016	
Republic of Korea	Q3 2012	Q3 2016		Q3 2017	Q3 2017
Russia	Q4 2015			Q1 2013	
Saudi Arabia	Q1 2013			Q1 2013	Q4 2016
Singapore	Q2 2015	Q4 2014	Q1 2017	Q1 2013	Q1 2017
South Africa		Q1 2018		Q1 2013	
Switzerland	Q4 2017	Q1 2016	Q1 2016	Q1 2013	Q1 2017
Turkey				Q4 2015	
United States	**Q1 2012**	**Q3 2012**	**Q3 2013**		**Q2 2016**

Source: 13 FSB reports, ex-post assessment of progress in the implementation of the reform (can differ from anticipated assessment)

Derivatives markets' regulation in Korea

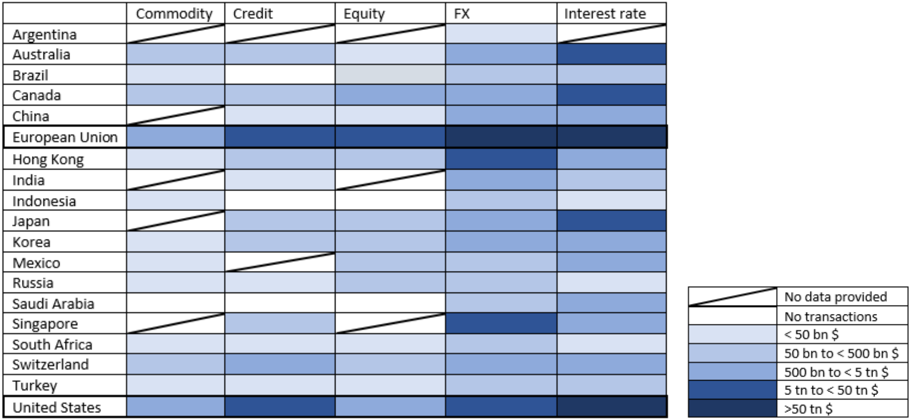
- Existence of an **OTC derivatives** reporting scheme prior to the G-20 agreement but **delays** in the implementation of the clearing and trading requirements

- More progress since 2010 in the regulation of **exchange-traded derivatives** (more developed in terms of international market shares)

  $\Rightarrow$ minimum amount needed and compulsory training for retail investors, transaction tax, capital gains tax etc.

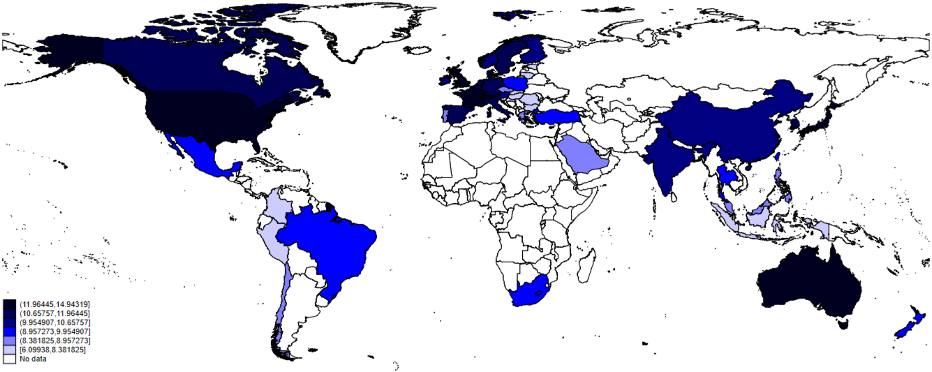
- In addition: leverage caps on banks' FX derivatives positions as part of a large set of macroprudential policy tools (2010)

Size= total OTC notional outstandings (2016)



Data source: FSB, Twelfth Progress Report on Implementation (2017)

Liquidity= daily average turnover (log) on the FX and IR OTC derivatives market



Data source: BIS (2010), categories based on quantiles for non-zero data

Early implementation in biggest and most liquid OTC derivatives markets

- Higher role of the derivatives markets in the local economy, high derivatives risk exposure during the GFC, strong cost of the last crisis
- Availability of required infrastructures (central clearing counterparties, trade repositories)
- Distinct regulatory environments and legislative processes

Consequences of cross-country disparities on the geography of global OTC derivatives activity

- Regulatory-driven geographical **market fragmentation**

  Early implementation of the swap reform in the US $\Rightarrow$ fragmentation in 2 separate liquidity pools, 1 with US counterparties, 1 without US counterparties (IOSCO, 2019)

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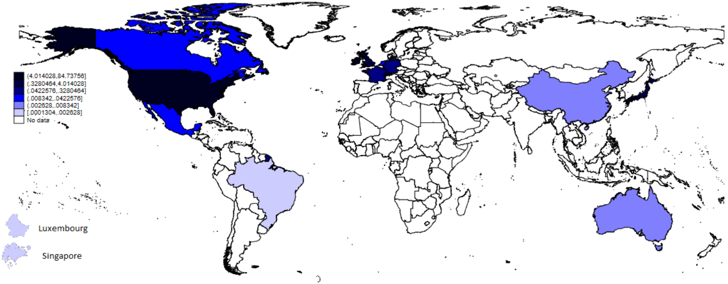
- Cross-border **regulatory arbitrage**

  International banks can shift their derivatives activity to less regulated markets through their foreign subsidiaries (subject to domestic regulation)

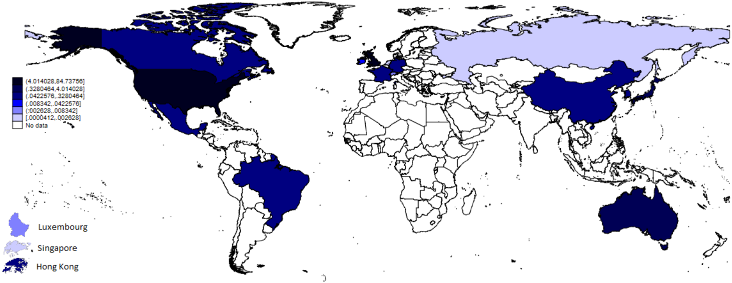
Cross-border regulatory arbitrage

- We document such practices from the 5 main US derivatives dealers for IRS and FXS in a recent research paper, **"Unintended consequences of the global derivatives market reform"**, 2019
- Joint work with Mike Mariathasan (KU Leuven), Ouarda Merrouche (U. Paris Nanterre & EconomiX) and Steven Ongena (U. Zurich & SFI)
- We show that the 5 main US dealers shifted a significant part of their IRS and FXS activity to less regulated markets **through their foreign affiliates** following the early implementation of the reform in the US

Share (in %) of US banks' interest rate swap activity operated in each country in Q1 2010



Share (in %) of US banks' interest rate swap activity operated in each country in Q4 2015



Data source: FED, categories based on quantiles for non-zero data

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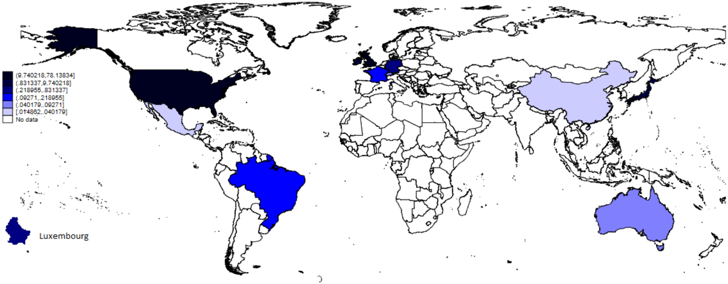

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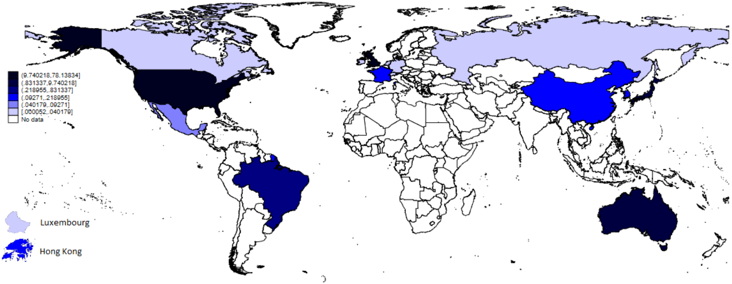

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The Korean case

- Growth rate in the derivative activity of 5 main US dealers' Korean affiliates less pronounced than in other countries (in particular Australia, Brazil and Mexico)

- However, US banks' affiliates IRS activity in Korea increased from 0 in Q1 2010 to more than 57 billion $ in Q4 2015

- US banks' affiliates FXS activity increased from 0 in Q1 2010 to more than 44 billion $ in Q4 2015

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- Control variables:
  - Country-specific macro controls
  - Volatility in domestic short-term interest rate and exchange rate with USD
  - Turnover in the OTC derivatives market
  - Bank fixed effects
  - Quarter fixed effects
  - Interaction effects between regulatory progress index and turnover

Main result

- A 1-unit increase in the regulation progress index is associated with a decrease of **0.09** in the share of US banks' IRS activity in a given country

- A 1-unit increase in the regulation progress index is associated with a decrease of **0.14** in the share of US banks' FXS activity in a given country

$\Rightarrow$ Marginal effects quantitatively important (average shares: 0.022 and 0.032)

Conclusion: policy implications

- Delays in regulation can temporarily limit the compliance costs for market participants and contribute to foster the development of Korean OTC markets
- But delays can prevent from limiting risk-taking and risk exposure in the Korean OTC derivatives market where many Korean companies hedge against FX risk

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- But delays can prevent from limiting risk-taking and risk exposure in the Korean OTC derivatives market where many Korean companies hedge against FX risk
- Importance of **worldwide coordination of regulation** to limit global risk exposure and prevent a regulatory "race to the bottom"
- Unintended consequences of international financial regulation $\Rightarrow$ in the absence of global coordination, **risk is not eliminated but moves around**