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The G20 Derivatives Market Reform in the Aftermath of the Global Financial Crisis: Cross-Country Disparities and Potential Implications for South Korea

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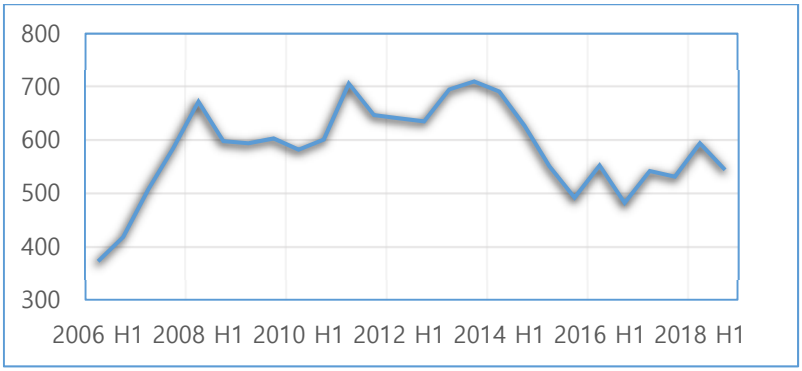
I. Introduction

Over-the-counter (OTC) derivatives markets played a crucial role in the Global Financial Crisis (GFC). Indeed, they are global financial markets in which sizeable and opaque counterparty exposures exist between international market participants. OTC derivatives markets thus served as a cross-country contagion channel during the crisis, disseminating US subprime losses across the world, in particular in Europe through credit default swap exposure. Unlike exchange-traded derivatives which are traded on an organized market, OTC derivatives are negotiated bilaterally between the seller and the buyer, and were a supervisory blind spot prior to the crisis. Only highly aggregated transactions data was accessible, generating strong uncertainty on risk exposure and subsequent distrust between financial institutions, which contributed to the liquidity shortage and the credit crunch. The need for regulation, aiming at increased transparency and reduced systemic risk in the OTC derivatives market, thus became obvious after the GFC. The G20 countries agreed on an international reform of the OTC derivatives market during the 2009 Pittsburgh summit to take into account the global dimension of the market. This brief aims at comparing the implementation of the reform across countries and at analyzing some of the consequences on the location of global derivatives activity and their implications for Korea derivatives market regulation.

II. Overview of the G20 Derivatives Market Reform and Evidence of Cross-Country Disparities

After the GFC, the G20 group called for a new international financial regulatory framework, which includes four priority reform areas: i) banking regulation (known as Basel III), ii) regulation of systemic banks, iii) regulation of OTC derivatives markets, and iv) regulation of non-bank financial intermediation. In what specifically regards the OTC derivatives market, the G20 countries agreed on an international reform agenda aiming at increasing transparency and reducing counterparty risk on this market. The size of the global OTC derivatives market, as measured by total notional amount outstanding (a gauge of financial interconnectedness and systemic risk), is very substantial, representing several hundred trillion US dollars, and has remained so since the crisis (Figure 1).

Figure 1. Notional Amount Outstanding on the Global OTC Derivatives Market (Source: BIS)[1]



The G20 OTC derivatives market reform agenda covers five asset classes (commodity, credit, equity, foreign exchange and interest rate) and includes five regulatory blocks, which were initially scheduled to be implemented by end 2012 at the latest. Firstly, OTC derivatives should be reported to trade repositories. Secondly, standardized OTC derivatives should be centrally cleared through central clearing counterparties. Thirdly, standardized OTC derivatives should be traded on exchanges or electronic trading platforms. Fourthly, non-centrally cleared derivatives should be subject to higher capital requirements. Finally, they should also be subject to minimum standards for margin requirements.

The G20 communiqué in 2009 emphasized the need for international coordination in the implementation of the post-crisis reform. The aim was to establish "global standards consistently in a way that ensures a level playing field and avoids fragmentation of markets, protectionism, and regulatory arbitrage." However, in practice, the implementation of most regulatory areas was postponed in several jurisdictions, generating cross-country disparities in the timing of adoption of the reform.

Table 1 presents the quarter when regulation became fully in force, for each country and each regulatory block. When the regulation was still not implemented by end 2018, the square is left blank. Table 1 reveals important delays and differences between jurisdictions in the implementation of the regulation.

Table 1: Quarter When Regulatory Requirements Became Fully in Force (Source: 13 FSB Progress Reports on Reform Implementation Published Between 2011 and 2018, Ex-Post Assessment)

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

[1] According to the Bank for International Settlements (BIS) definition, notional amount outstanding is the gross nominal or notional value of all derivatives contracts concluded and not yet settled on the reporting date.

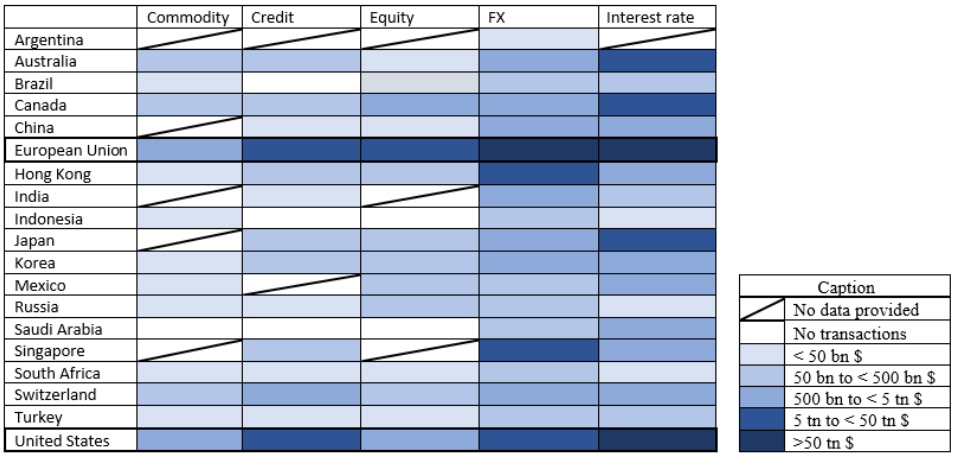
India	Q3 2012			Q1 2013	
Indonesia	Q1 2013		Q1 2013	Q3 2017	
Japan	**Q3 2012**	**Q3 2012**	**Q3 2015**	**Q1 2013**	**Q3 2016**
Mexico	Q1 2013	Q2 2016	Q2 2016	Q1 2016	
Republic of Korea	Q3 2012	Q3 2016		Q3 2017	Q3 2017
Russia	Q4 2015			Q1 2013	
Saudi Arabia	Q1 2013			Q1 2013	Q4 2016
Singapore	Q2 2015	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**

The US was a precursor in the adoption of the reform, following the enactment of the Dodd-Frank Act in July 2010. Four out of the five regulatory blocks were implemented early in the US, with three of them being in force before end 2013. Japan and the European Union were the two other jurisdictions which implemented the reform early relative to the other G20 countries. In Japan, the reform was enacted through the 2010 and 2012 Amendments to the Financial Instruments and Exchange Act of Japan. In the European Union, the EMIR (2012) and MiFID II (2014) regulation were enacted with the aim of covering all EU member states. By end 2018, other advanced economies had all implemented at least four out of the five reform areas. However, important delays relative to the initial 2012 deadline were observed in these jurisdictions. Emerging economies experienced the strongest delays in the implementation of the OTC derivatives market reform. Thus, only one area of the reform is in force in Argentina or Turkey.

The situation of Korea is somewhat intermediate. By end 2018, Korea had implemented four blocks of the reform. Trade reporting was in force quite early because OTC derivatives reporting schemes existed in Korea prior to the G20 agreements. However, introduction of a consolidated trade repository for all transactions was postponed until October 2020 and implementation of the clearing, capital and margin requirements became fully effective only in 2016 and 2017. Most notably, electronic trading is still not in force in Korea.

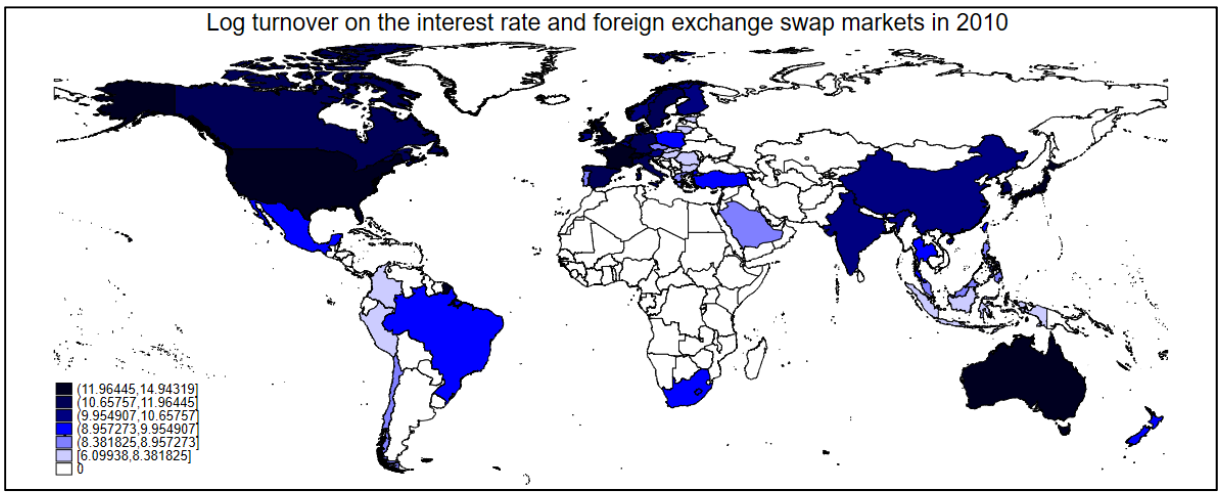
Jurisdictions with the most developed OTC derivatives markets, in terms of both size and liquidity, were the first to implement the G20 reform, as can be seen on Figures 2 and 3. Indeed, the European Union and United States OTC derivatives markets are by far the most developed ones across the world, followed by those of other important financial centers such as Japan, Canada, Australia, Hong Kong and Singapore.

Figure 2. Notional Amount Outstanding in G20 OTC Derivatives Markets (Source: FSB, Twelfth Progress Report on Implementation, 2017)



The fact that the reform was first implemented in the jurisdictions with the biggest and most liquid OTC derivatives market can be explained by several correlated factors. First, these countries faced high derivatives risk exposure during the Global Financial Crisis. The cost of the crisis, in terms of output loss and fiscal cost, was higher in these jurisdictions. Thus, the latter have strong incentives to regulate OTC derivatives markets to avoid repetition of similar events. In addition, biggest financial centers can make required market infrastructure available more easily, such as central clearing counterparties and trade repositories.

Figure 3. OTC Derivatives Markets Liquidity Prior to the Reform, Proxied by Daily Average Turnover[2] (Source: BIS Triennial Survey, Categories Based on Quantiles for Non-Zero Data)



2 According to the definition of the Bank for International Settlements, daily average turnover is the total amount of derivatives contracts traded in a day.

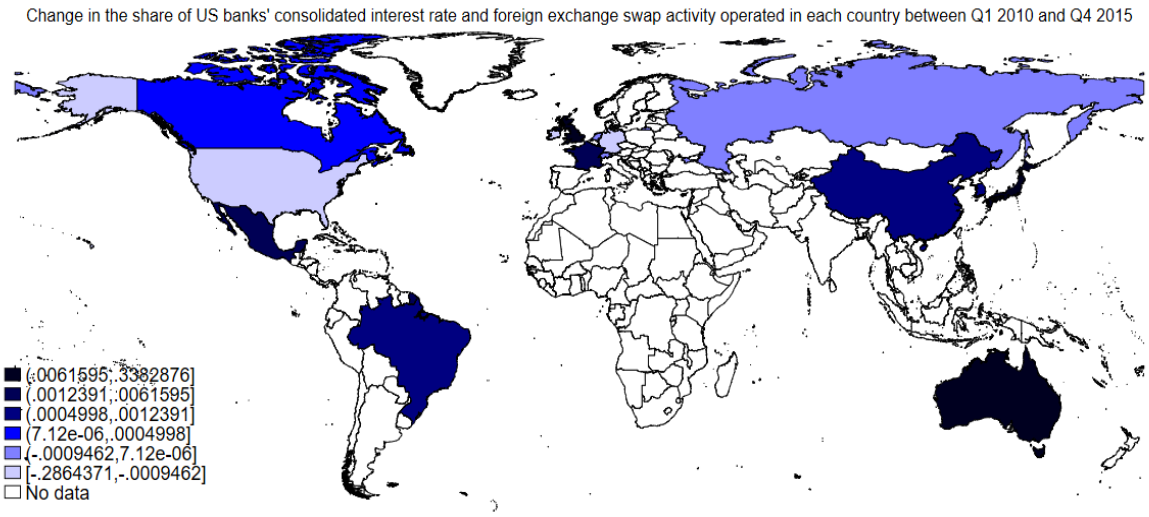
III. Consequences of Cross-Country Disparities on the Location of the Global OTC Derivatives Activity

The OTC derivatives market reform leads to several compliance costs for market participants: infrastructure and IT costs, capital requirement costs and margin requirement costs. When cross-jurisdictions disparities in the implementation of the reform exist, market participants may try to take advantage of these differences to minimize regulatory costs. Given the global nature of the OTC derivatives market, market participants can indeed practice cross-border regulatory arbitrage and shift their derivative activity to less regulated jurisdictions.

In the US, banks' foreign subsidiaries are subject to the host country regulation, unlike foreign branches, which are subject to the US regulation. Therefore, international banks can shift their derivatives activity to less regulated markets through their foreign subsidiaries. In a recent research paper (Gandré, Mariathasan, Merrouche and Ongena, 2019), we show that the five main US derivatives dealers (namely Bank of America, Citigroup, Goldman Sachs, JP Morgan and Morgan Stanley) have shifted a significant part of their interest rate and foreign exchange swap activity to less regulated markets through their foreign affiliates, following the early implementation of the reform in the US relative to other G20 countries.

Figure 4 shows the change in the average share per country of the consolidated foreign exchange and interest rate swap activity of the five main US derivatives dealers between Q1 2010, before the enactment of the Dodd-Frank Act, and Q4 2015, after the full implementation of most of the reform blocks in the US.

Figure 4. Evolution of the 5 Main US Derivatives Dealers' Swap Activity Overseas Between 2010 and 2015 (Source: FED[3], Categories Based on Quantiles for Non-Zero Data)



[3] Calculations based on data from the FED Financial Statements of Foreign Subsidiaries of US Banking Organizations and Consolidated Financial Statements for Holding Companies.

The share of the interest rate and foreign exchange swap activity of the five main US derivatives dealers increased in 13 out of 18 foreign countries in which US dealers have subsidiaries between Q1 2010 and Q4 2015, and decreased the most in the US. The share of the consolidated swap activity of US banks operated by foreign affiliates was the highest in the UK both in 2010 and 2015 and the increase in the share over the period was the strongest in the UK, Japan, Australia and Mexico. In Korea, the rise in the swap derivative activity of the five main US dealers' affiliates was lower, but US banks' affiliates interest rate swap activity nevertheless increased from 0 in Q1 2010 to more than 57 billion USD in Q4 2015. As for US banks' affiliates foreign exchange swap activity, it has increased from 0 in Q1 2010 to more than 44 billion USD in Q4 2015. The rise was driven by the activity of Citigroup's foreign subsidiary in Korea.

In the paper previously mentioned, we relate progress in the adoption of the derivatives market reform over time in a given country – measured through an index based on regular assessment provided in Financial Stability Board progress reports – to the share of US overseas affiliates' swap activity in this country. By controlling for the main other determinants of the location of the OTC derivatives activity of US banks, we provide evidence of cross-jurisdictional regulatory arbitrage by showing that the higher the progress in the implementation of the reform in a given country, the lower the share of US banks' swap activity in this country. Therefore, cross-country disparities in the implementation of the reform affect the location of OTC derivatives activity and induce worldwide risk-shifting.

IV. Conclusion: Policy Implications for Korea

As emphasized above, delays in the implementation of the OTC derivatives market reform were observed in Korea, and electronic trading is not yet in force. In comparison with countries with more developed OTC derivatives markets, Korea has adopted an opposite approach to derivatives market regulation. Indeed, regulatory authorities have concentrated their effort on exchange-traded derivatives – which are more developed in Korea in terms of international market shares – rather than on OTC derivatives. Since 2011, several regulatory measures dealing with exchange-traded derivatives have been gradually implemented, including minimum deposit requirement, margin requirements, compulsory training for retail investors, and taxes on derivatives financial transactions and capital gains. In addition, in 2010, leverage caps on banks' foreign exchange derivatives positions were introduced as part of a large set of macroprudential policy tools. However, stronger regulation in the Korean exchange-traded derivatives market has generated a net decrease in the market trading volume since 2011. Therefore, financial authorities recently announced a loosening in these regulatory requirements to vitalize market activity (Financial Services Commission, 2019). Besides, they have expressed their intention to gradually expand the scope of centrally-cleared OTC derivatives, notably to include credit default swaps in addition to interest rate swaps. The new regulatory stance thus focuses more on OTC derivatives than on exchange-traded derivatives.

Indeed, even if delays in the adoption of the global reform can temporarily limit the compliance costs for market participants and contribute to fostering the development of the Korean

OTC derivatives market, they most of all postpone sound risk management in what regards derivatives transactions. Delays in the implementation of the regulation prevent from increasing transparency and decreasing systemic risk in the Korean OTC derivatives market, where many Korean companies hedge against foreign exchange volatility. In addition, keeping with the US, EU and Japanese regulatory requirements will increase the international credibility of Korea's financial market infrastructure and facilitate the participation of the foreign investors subject to their home country regulation (such as banks' foreign branches) in the Korean derivatives market thanks to compatible regulatory frameworks. Therefore, financial regulation in Korea should now focus on converging to international regulatory standards in what regards OTC derivatives markets.

As called for by the G20 commitments, international convergence in the adoption and scope of the reform is urgently needed to limit global risk exposure, prevent a regulatory race to the bottom and facilitate cross-border derivatives transactions. In the absence of global coordination, unintended consequences of regulation occur, and risk moves to other markets instead of decreasing.

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