A Clear View of Risk and Return

"The OTC Derivatives (R)evolution: Catalysts on the Horizon for the Risk Business"

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Executive Summary

- The Dodd-Frank Act in the USA and the European Market Infrastructure Regulation (EMIR) require **Mandatory Clearing of all Standardised OTC Derivatives** for both Financial and Non-Financial companies

  Precise implementation dates are still to be confirmed but expectations are for **Clearing mandates to take effect in March 2013 for US and in Q4 2013 for EU**

- In **Asia**, Japan will be the first country to implement the Clearing Mandate in 2013, while other Countries will follow (Singapore, Hong Kong, South Korea and China)

- Under the upcoming **Basel 3** rules, **Banks** will have an incentive to migrate positions to Central Clearing Venues given the very low capital requirement (2% Risk Weight), including Smaller Banks with significant OTC Derivatives in their Banking Books

- Furthermore, **Buy-side Clearing** may also prove to be more profitable for CCPs and demand is likely to accelerate materially as mandatory clearing requirements take effect

- At present, the vast majority of cleared OTC Derivatives relates to Dealer-to-Dealer (D2D) trades. By contrast, End user or **Dealer-to-Customer (D2C) Clearing is yet really to take off**

- The goal of this section is to introduce the new **MSCI-RiskMetrics** "**Margin Replication and Risk Transparency**" tool for the OTC Clearing participants (Buy-side and Sell-side Institutions), with a focus on the Dealer-to-Customer (D2C) Clearing space

The OTC Derivatives Reform

❑ The OTC Derivatives Market will soon become regulated:

- The Dodd-Frank Act and the EMIR are the pieces of legislation designed to enact the OTC reform (transparency, electronification, intermediation, central clearing, and margins for non-centrally cleared derivatives)

- Regulators in charge of the implementation:
  - ✓ **US, Dodd-Frank**: CFTC (Commodity Futures Trading Commission) and SEC (Securities Exchange Commission)
  - ✓ **Europe, EMIR**: ESMA (European Securities and Markets Authority) and EBA (European Banking Authority)
  - ✓ **Asia, Local Legislations**: Domestic Regulators

- We'll focus on Central Clearing in the following pages

The Shift to Mandatory Central Clearing: Global Scope

- The **US** will be the first to adopt Centralized Clearing, including early adoption of Client Clearing, followed by **Europe** (also spurred by the Basel 3 implementation process)

  It seems **Japan** is in a position to implement these new rules as well, although initially limited to Yen Interest Rate Swaps and CDS – iTraxx Japan Index Series

- Separately, exchanges in **Singapore**, **Hong Kong**, **South Korea** and **China** are already in the process of launching new OTC Derivatives Clearing Services

- In **Other Countries** the Centralized Clearing process is under review, where an important decision to be taken is also related to the local requirement of the CCPs.
  For example, in **China** (Shanghai Clearing House), **India** (Clearing Corporation of India), and **Japan** (Japan Securities Clearing Corporate) CCPs must be located in the Home Country and subject to the jurisdiction of the local Regulator [*Source*: Financial Stability Board (2012)]

Counterparties subject to Central Clearing

❑ All Entities will be subject to Clearing:

- Financials - Banks, Investment Firms, Insurance Companies, Registered Funds (UCITS), Pension Funds*, Hedge Funds and Private Equity Funds
- Non-Financials - when positions exceed specified clearing thresholds. For example, in EU the following Clearing Thresholds for Non-Financial Companies were confirmed by the ESMA at the end of September 2012:
  - ✓ €1bn in Notional Value for Credit Derivatives
  - ✓ €3bn in Notional Value for Interest Rate Derivatives
- Exceptions: Central Banks (including certain EU public bodies and the BIS) and End-Users that are hedging commercial risks (in the US).

	CLEARING OBLIGATIONS		
	US	**EU**	**ASIA**
OTC Derivatives Dealers	Yes	Yes	Yes, but details still To Be Defined
Other Financial Counterparties	Yes	Yes (*Pension Funds receive a 3-year exemption from Clearing)	Yes, but details still To Be Defined
Non-Financial Counterparties	Yes, but non-financial entities may qualify for exemption for transactions hedging commercial risk	Yes, but only if positions are above specified clearing thresholds	Yes, but details still To Be Defined

Source: **Financial Stability Board**, "*OTC Derivatives Market Reforms*" (2012).

Implementation Dates

- In the US, Clearing implementation will come in 3 phases:
  - ✓ 90 days after publication of the final CFTC clearing determination for Dealers and Major Swap Participants;
  - ✓ 180 and 270-day lags for Other Entities
- In Europe, it will come in 1 phase, through EMIR and Capital Adequacy Directive 4
- In Asia, the dates will be set by the Local Regulators

ENTITY	US	EU	ASIA
Dealers and "Active Funds" (*executing at least 200 positions per month*)	March 11, 2013*	Q4 2013* *(3 years later for Pension Funds)*	To Be Defined
Funds and **Asset Managers**	June 10, 2013*		
Other Entities (*Accounts Managed by third party investment managers and ERIS Pension Plans*)	September 9, 2013*		

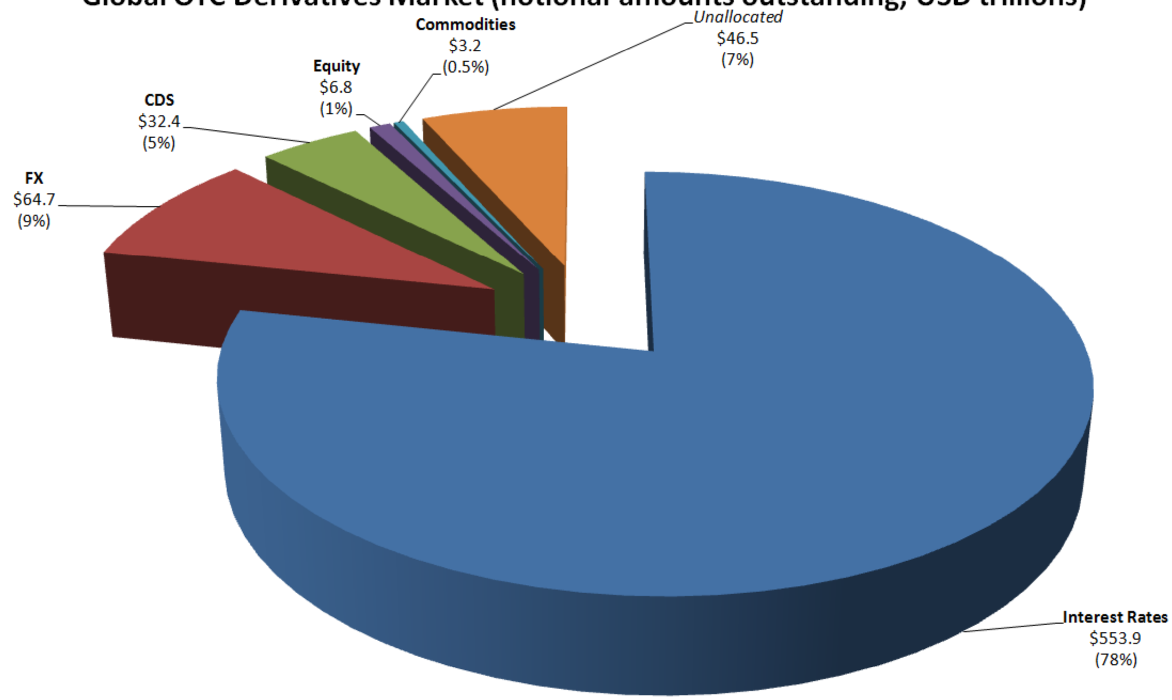
Source: **Financial Stability Board**, "*OTC Derivatives Market Reforms*" (2012).

** Update as of November 28, 2012. These dates are subject to change and could be delayed (for example, the CFTC has already extended the effective date four times…).*

Crunching the Numbers: Sizing the OTC Derivatives Market

- As of June 2012, the Notional Outstanding is $648 Trillions, with Interest Rate, FX and Credit Derivatives accounting for about 92% of the Total
- **Standardized Rate and Credit Products will be cleared**, while most FX Derivatives (such as, Swaps, Deliverable Forwards and Options) appear exempt/unable to clear. Only Non-deliverable Forwards will be clearable

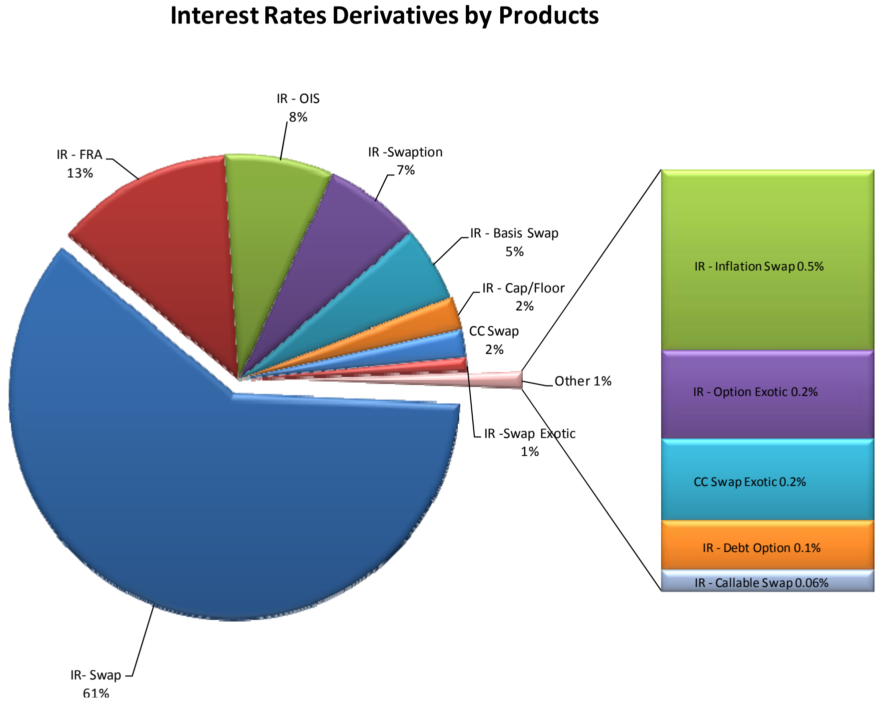
Global OTC Derivatives Market (notional amounts outstanding, USD trillions)

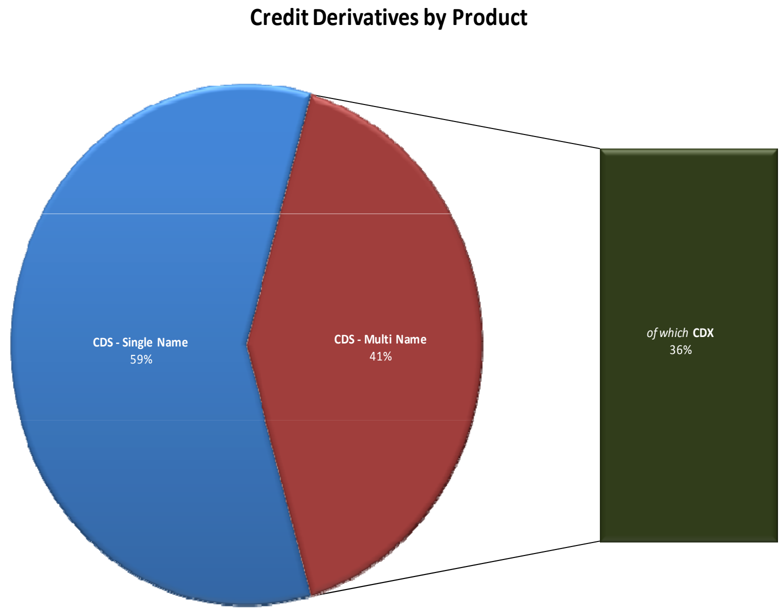


Source: **BIS**, "*OTC Derivatives Statistics at end-December 2011*" (2012), **Financial Stability Board**, "*OTC Derivatives Market Reforms*" (2012).

Crunching the Numbers: Interest Rate and Credit Derivatives by Product

- As of December 2012, Vanilla Interest Rate Swaps account for 61% of the total Interest Rates Derivatives , followed by FRAs, OISs, Swaptions and Basis Swaps that together represent 34%. The remaining 5% of the Notional Outstanding is split among Cross Currency Swaps, Caps/Floors, Inflation Swaps and other products
- On the Credit side, Single-name CDS products account for 59% of the Outstanding Notional, while the rest (41%) is split between CDXs (36%) and Multi-Name CDSs (5%). This latter category is made up of bespoke baskets of Single-Name CDSs





Source: our elaborations on **TriOptima** (2012) for Rates and **BIS** data (2012) for Credit.

System and Infrastructure for Central Clearing mostly already in place

❑ CCPs are already clearing many Vanilla Interest Rates and Credit Derivatives

- Interest Rates Clearing infrastructure is relatively developed, with **Interest Rates Swaps** (50% of Notional Out.), **Overnight Index Swaps** (53%), **Basis Swaps** (19%), and **FRAs** (3%) being currently cleared by major CCPs
- Credit CDS Clearing has begun, but it is currently **Index denominated** (18% of Notional Outstanding). This latter is essentially all Dealer-to-Dealer trades based on FSB data

As of December 2011	Market Volumes (Notional Outstanding, USD Trillions)	Cleared
Interest Rate Derivatives	**504**	**35%**
of which:		
- Interest Rate Swaps	*305*	*50%*
- Basis Swaps	*27*	*19%*
- Overnight Index Swaps	*39*	*53%*
- Forward Rate Agreement	*65*	*3%*
- Other	*68*	*N.A.*
Credit Default Swaps	**29**	**12%**
of which:		
*- Multi Name/INDEX**	*12*	*18%*
*- Single Name**	*17*	*8%*
TOTAL	**533**	**34%**

Source: **Financial Stability Board**, "*OTC Derivatives Market Reforms*" (2012).

** In the US, Credit Index Clearing is regulated by the CFTC, while Single-name Clearing is regulated by the SEC.*

What "Standardized" Products will be Cleared? Matching with Market Practice

- In the US there are specific indications from the CFTC; in Europe the list of Clearable products is still to be published. However, it should be similar in terms of coverage
  - Phased approach: Interest Rates and Credit Derivatives in the first phase, FX and Commodity Derivatives down the road
  - List of **Interest Rates Products** to be **Cleared** in the **USA**:

Specification	Fixed-to-Floating Swap Class			
1. Currency	U.S. Dollar (USD)	Euro (EUR)	Sterling (GBP)	Yen (JPY)
2. Floating Rate Indexes	LIBOR	EURIBOR	LIBOR	LIBOR
3. Stated Termination Date Range	28 days to 50 years	28 days to 50 years	28 days to 50 years	28 days to 30 years
4. Optionality	No	No	No	No
5. Dual Currencies	No	No	No	No
6. Conditional Notional Amounts	No	No	No	No

Specification	Basis Swap Class			
1. Currency	U.S. Dollar (USD)	Euro (EUR)	Sterling (GBP)	Yen (JPY)
2. Floating Rate Indexes	LIBOR	EURIBOR	LIBOR	LIBOR
3. Stated Termination Date Range	28 days to 50 years	28 days to 50 years	28 days to 50 years	28 days to 30 years
4. Optionality	No	No	No	No
5. Dual Currencies	No	No	No	No
6. Conditional Notional Amounts	No	No	No	No

Specification	Forward Rate Agreement Class			
1. Currency	U.S. Dollar (USD)	Euro (EUR)	Sterling (GBP)	Yen (JPY)
2. Floating Rate Indexes	LIBOR	EURIBOR	LIBOR	LIBOR
3. Stated Termination Date Range	3 days to 3 years	3 days to 3 years	3 days to 3 years	3 days to 3 years
4. Optionality	No	No	No	No
5. Dual Currencies	No	No	No	No
6. Conditional Notional Amounts	No	No	No	No

Specification	Overnight Index Swap Class		
1. Currency	U.S. Dollar (USD)	Euro (EUR)	Sterling (GBP)
2. Floating Rate Indexes	FedFunds	EONIA	SONIA
3. Stated Termination Date Range	7 days to 2 years	7 days to 2 years	7 days to 2 years
4. Optionality	No	No	No
5. Dual Currencies	No	No	No
6. Conditional	No	No	No

Source: **CFTC**, *"Clearing Requirement Determination under Section 2(h) of the CEA"* (2012).

What "Standardized" Products will be Cleared? – cont'd

- List of **Credit Derivatives Products** to be **Cleared** in the **USA**:

Specification	North American Untranched CDS Indices Class
1. Reference Entities	Corporate
2. Region	North America
3. Indices	CDX.NA.IG CDX.NA.HY
4. Tenor	CDX.NA.IG: 3Y, 5Y, 7Y, 10Y CDX.NA.HY: 5Y
5. Applicable Series	CDX.NA.IG 3Y: Series 15 and all subsequent Series, up to and including the current Series CDX.NA.IG 5Y: Series 11 and all subsequent Series, up to and including the current Series CDX.NA.IG 7Y: Series 8 and all subsequent Series, up to and including the current Series CDX.NA.IG 10Y: Series 8 and all subsequent Series, up to and including the current Series CDX.NA.HY 5Y: Series 11 and all subsequent Series, up to and including the current Series
6. Tranched	No

Specification	European Untranched CDS Indices Class
1. Reference Entities	Corporate
2. Region	Europe
3. Indices	iTraxx Europe iTraxx Europe Crossover iTraxx Europe HiVol
4. Tenor	iTraxx Europe: 5Y, 10Y iTraxx Europe Crossover: 5Y iTraxx Europe HiVol: 5Y
5. Applicable Series	iTraxx Europe 5Y: Series 10 and all subsequent Series, up to and including the current Series iTraxx Europe 10Y: Series 7 and all subsequent Series, up to and including the current Series iTraxx Europe Crossover 5Y: Series 10 and all subsequent Series, up to and including the current Series iTraxx Europe HiVol 5Y: Series 10 and all subsequent Series, up to and including the current Series
6. Tranched	No

Source: **CFTC**, *"Clearing Requirement Determination under Section 2(h) of the CEA"* (2012).

Margin and Netting Rules appear limiting

- Rules on Margin and Netting pose a number of restrictions:

Cross Asset Class Netting

Inter-Asset Class Netting is NOT allowed (e.g. Rates vs CDS)

Proposed Rule:
- Netting allowed only within 4 broad categories: 1) Rates and FX, 2) Credit, 3) Equities, 4) Commodities
- *However, in the US Dealers will be able to cross-margin OTC Interest Rate Swaps, and Eurodollar and Treasury Futures (CME is the first to offer this service from December 3, 2012)*

Industry View:
- Cross-risk Category hedges are common and netting/diversification benefits should be permitted

Netting across Regulatory Frameworks may not be recognized

Proposed Rule:
- In the US, CFTC and SEC share oversight of products, with some conflicts - e.g. CFTC oversees Credit Index Trades, SEC oversees Single-Name CDS

Industry View:
- Without resolution, Credit markets will be significantly impacted as hedging Single-Name CDS using Index Trades will not benefit from margin netting

Cross-CCP Netting

Netting Cleared Trades between different CCPs ("Interoperability") not likely allowed

Proposed Rule:
- No Cross-CCP netting of Derivatives

Industry View:
- Generally agrees, interoperability of CCPs viewed as potentially causing system risks
- Investors are likely to consolidate CCP relationships to permit most effective margin netting

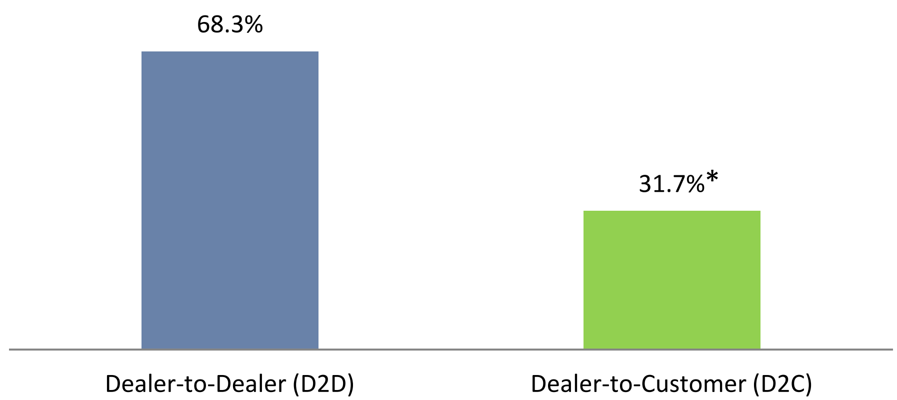
Source: our elaborations on Dodd-Frank (2012) Act and EMIR (2012).

Dealer-to-Dealer (D2D) vs. *Dealer-to-Customer* (D2C) Clearing

❑ The OTC Market is predominantly an Inter-Dealer Market

- Based on current data, the OTC Interest Rate & Credit Derivatives Market is approximately 70% Dealer-to-Dealer (D2D) with the remaining 30% comprised of Dealer-to-Customer (D2C) trades

Interest Rate & Credit Derivatives Market (% of Notional Outstanding)



Source: our elaborations TriOptima (as of April, 2012) and BIS data (as of December 2012).

* The D2C market share relates to the Non-Dealer outstanding.

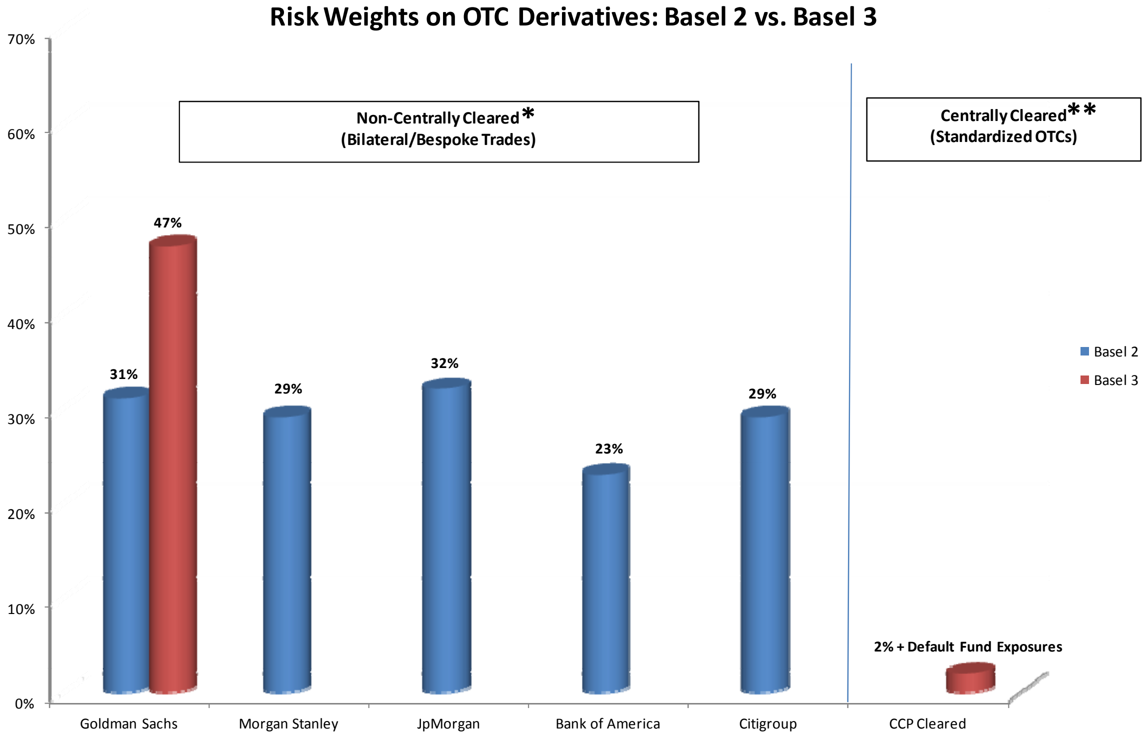
❑ D2C is just beginning, its growth will be Regulatory-Driven

- Dodd Frank/EMIR: Client activity and preparation is growing with Large fixed income Asset Managers (BlackRock and PIMCO) leading the charge
- BASEL 3: implementation in 2013 will push Banks' OTC Derivatives (both in the Trading and Banking Book) towards Central Counterparties, due to the very low capital requirement on cleared positions under the new rules (2% Risk Weight)

Basel 3 will incentivize Banks to shift OTC Derivatives to CCPs

❑ Significant Capital Savings for Banks under the new Basel 3 rules

- Although the graph below refers to the Largest US Banks, it gives an idea of the impact on Capital Requirements on OTC Derivatives when Clearing will come into effect



Source: our elaborations on company's data as of December 31, 2011.

*<u>Non-Centrally Cleared</u>: in the case of Goldman Sachs, the increase will be due to Stressed VaR + CVA VaR + Stressed CVA VaR.

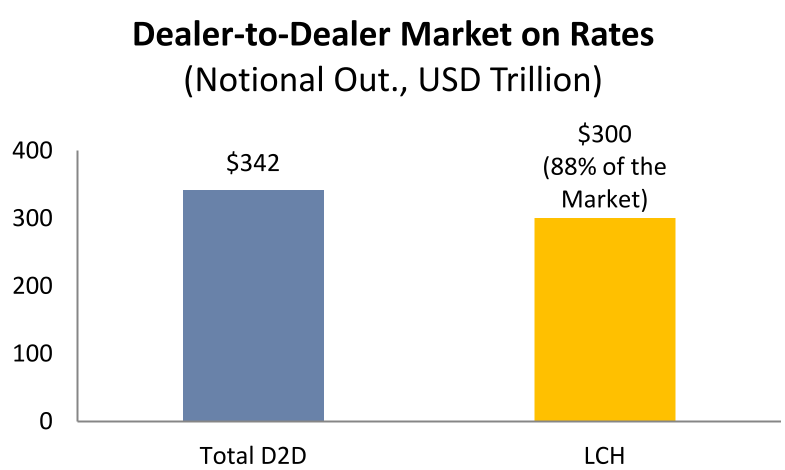
**<u>Centrally Cleared</u>: 2% + Capitalization of the Default Fund Exposures for clearing own OTC Derivatives; addition of CVA Capital Charge for Clearing on behalf of Clients (when acting as a Dealer/Clearing Member); 2% Risk Weight only for Banks Clearing OTCs via a Clearing Member.

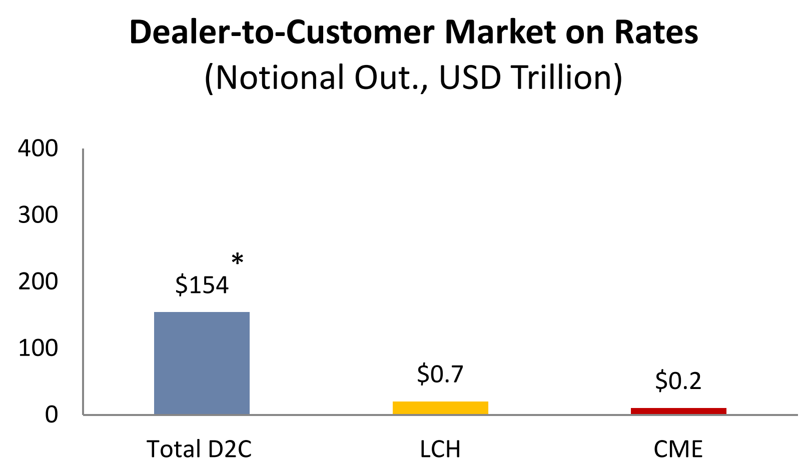
❑ Smaller Banks will also be affected, boosting the D2C OTC Clearing Market

- Commercial Banks around the world use OTCs for hedging purposes , mainly Interest Rate Swaps to mitigate interest rate volatility in the Banking Book

Dealer-to-Dealer (D2D) vs. *Dealer-to-Customer* (D2C) Clearing: RATES

- **LCH is the dominant player in the Inter-Dealer Interest Rates Market**
  - As of April 2012, LCH Clearnet's SwapClear commanded around $300 trillion of notional outstanding or 85% of the Market
- **In contrast, in the D2C Market there in NO dominant Central Counterparty**
  - The Dealer-to-Customer market remains fairly nascent in terms of development. In recent years, LCH Clearnet, CMEGroup, Singapore Exchange and Deutsche Boerse Eurex have been some of the more notable players vying for D2C market share





Source: our elaborations TriOptima (as of April, 2012).

* The D2C market share relates to the Non-Dealer outstanding.

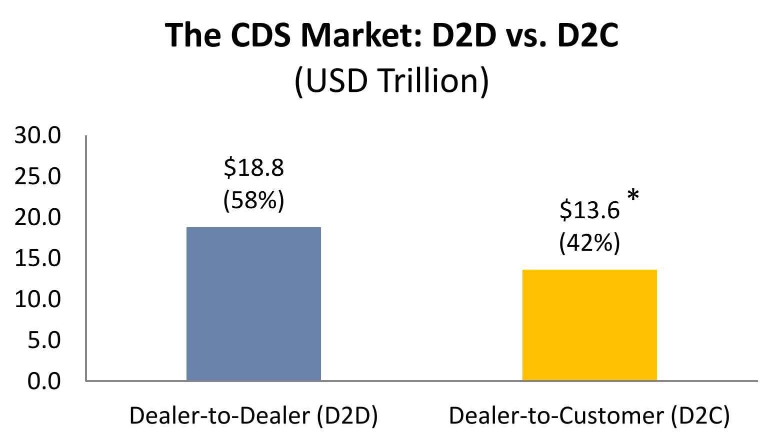
Dealer-to-Dealer (D2D) vs. *Dealer-to-Customer* (D2C) Clearing: CREDIT

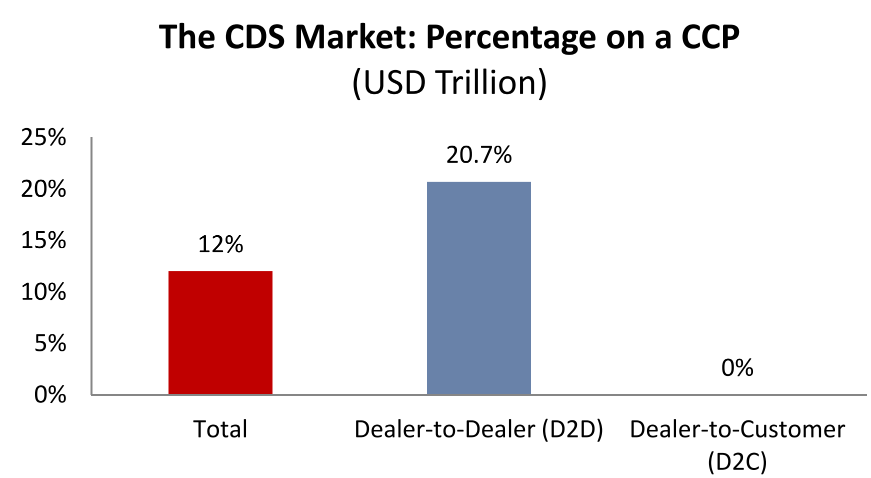
- **Currently, the Credit Derivatives Market is exclusively an Inter-Dealer Market**

  - Compared to Rates, CDS clearing is much smaller at about $3.9 trillion of notional (12% of Notional Outstanding) which is virtually all Dealer-to-Dealer trades based on Financial Stability Board data. ICE is the major player in this space, clearing CDS Indices and some highly liquid single names for dealers in the US and Europe

- **Dealer-to-Customer CDS Clearing will have the largest impact**

  - Given dealer-to-dealer trading of CDS contracts is now widely cleared and subject to initial margin set by the Clearing House, the biggest impact from clearing will be from higher initial margin demands for Clients (end-users)





Source: our elaborations TriOptima (as of April, 2012) and BIS data (as of December 2012).

* The D2C market share relates to the Non-Dealer outstanding.

D2C Clearing Business: The New MSCI-RiskMetrics Business Opportunity

❑ Margin Replication for Centrally-Cleared Derivatives

- Margin Replication for Client Members (Large Dealers, mainly Banks) and Clients (Non-Member Banks, Hedge Funds, Pension Funds, etc…). The goal is to provide the margin rules of different Central Counterparties as additional statistics in RiskManager™ (*RiskServer through Web Services*), helping Clients to optimize the choice of the Clearing House for any product type
- Currently, the biggest players in the OTC Clearing Market are LCH, CME, ICE, and Eurex. Therefore, we are having discussions with these 4 Central Counterparties to provide a sufficient coverage of the Clearing Business market (we already have agreements in place with LCH, CME, and Eurex)

Major (Active) Central Clearing Organizations for OTC Derivatives

US & EUROPE		ASIA PACIFIC
Interest Rates	Credit Derivatives	
LCH Clearnet Swap Clear US	ICE Trust US	Japan Securities Clearing Corporation
CME ClearPort US	CME Group US	Singapore Exchange
LCH Clearnet Europe	ICE Clear Europe	Hong Kong Exchange
CME Group Europe	CME Group Europe	
Eurex Europe*	LCH Clearnet SA Europe	
	Eurex Credit Clear Europe	

Source: our elaborations on CCPs' information.

* *Eurex OTC Clear service for Interest Rate Swaps was just launched on November 13, 2012.*

D2C Clearing Business: The New MSCI-RiskMetrics Business Opportunity

- **MSCI will offer more than just Margin Replication: Risk Transparency is Key in the Clearing Market**

RISK MAGAZINE -- ***November 8, 2012*** (www.risk.net)

[…] "Not every client can be on the risk committee. Not every client can attend board discussions on segregation. So it is very important those that can't are able to benefit from full and appropriate disclosure by the CCP on how it is managing its risks. We at the Bank of England, as a supervisor of CCPs, will consider that to be your right to know how that is done. In a world where you have to use a CCP, it is not right that the CCP doesn't have to tell you how it is managing its risks. It is not right that it can claim it is proprietary intellectual capital on how it constructs its margin models. That is not going to be justifiable going forward." […]

Edwin Schooling Latter, *Head of Payments & Infrastructure* – **BANK OF ENGLAND**

Pulling it together: What is *Clear on Clearing*?

- There is a lot in this note. There is a lot of uncertainty about the impacts being described, and a lot we don't know yet about the rules themselves and the market in general. We have tried to be factual and balanced. Ultimately, this is, we think, what's needed at this stage of the process.

- However, we do think there are a few things which seem directionally clear:
  - ✓ The OTC Derivatives Market will eventually become an Exchange Traded Market
  - ✓ All Institutions across the globe will "Clear-the-Clearable"
  - ✓ Most Counterparty Credit Risk will migrate from Institutions to Central Counterparties, reducing the need to put in place sophisticated analytics (such as, CVA pricing formulas and alike) at least for vanilla OTC Derivatives Products
  - ✓ Centralized Clearing will be a new business, but not for us. It will be just an extension of our capabilities
  - ✓ With the clock ticking pretty loudly, we should prepare for the new world as soon as possible

- The world will look different in a couple of years' time. Dealing with this change will be an important success factor for the financial community

Further Reading

- ✓ **Bank for International Settlements**, "*OTC Derivatives Statistics at end-December 2011*", December 2012
- ✓ **Basel Committee on Banking Supervision**, "*Basel III: A global regulatory framework for more resilient banks and banking systems*", June 2011
- ✓ **Commodity Futures Trading Commission**, "*Clearing Requirement Determination under Section 2(h) of the CEA*", 2012
- ✓ **Dodd-Frank Wall Street Reform and Consumer Protection Act**, June 2010
- ✓ **European Commission,** " *European Market Infrastructure Regulation (EMIR)* ", September 2010
- ✓ **Financial Stability Board**, "*OTC Derivatives Market Reforms*", Third Progress Report on Implementation, June 2012
- ✓ -------------------------------, "*OTC Derivatives Market Reforms*", Fourth Progress Report on Implementation, October 2012
- ✓ **ISDA**, "*OTC Derivatives Market Analysis, Year-end 2001*", June 2012
- ✓ **Risk Magazine**, "*OTC Derivatives Clearing Summit Europe: CCP model secrecy is wrong and unjustifiable*", November 8, 2012 (www.risk.net)
- ✓ **TriOptima**, "*Interest Rate Trade Repository Report*", April 2012

Questions & Answers

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