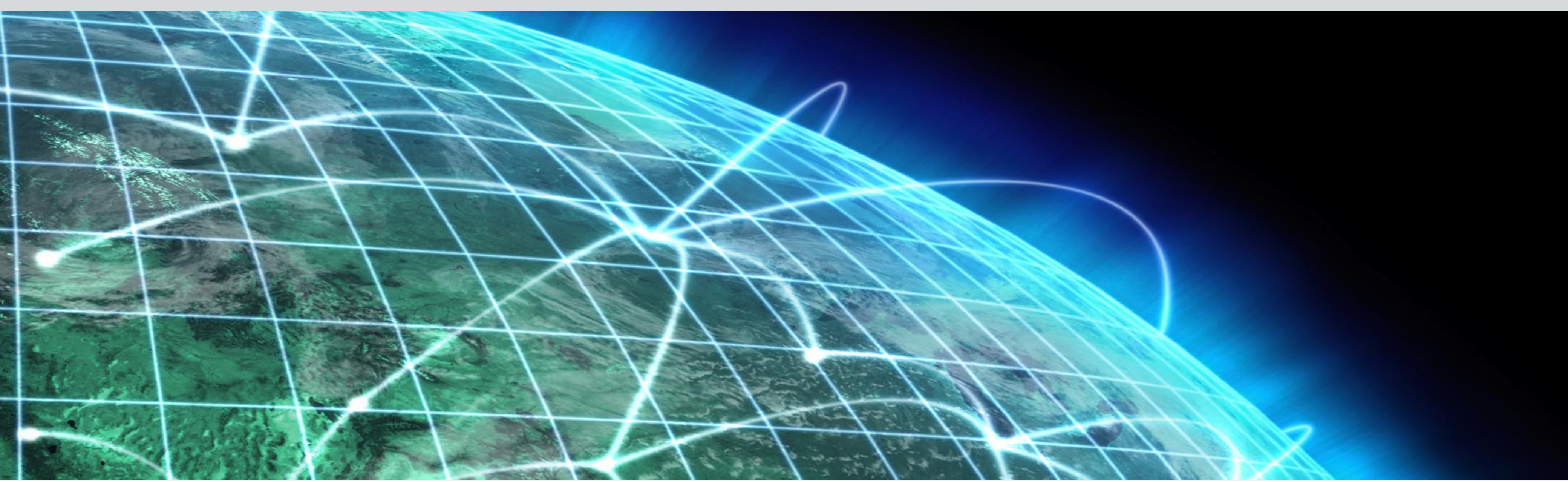
Impact of the upcoming regulations on derivatives markets and risk absorption



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CRÉDIT AGRICOLE
CORPORATE & INVESTMENT BANK

Major regulations impacting derivatives

Major impact for banks

FORTHCOMING REGULATIONS	IMPACTS		
EMIR Clearing	BUS	**FUND**	**RWA**
EMIR Margin requirements	BUS	**FUND**	**RWA**
MiFID2	**BUS**	FUND	RWA
IRB review (counterparty risk)	BUS	FUND	**RWA**
FRTB (market risk & CVA)	BUS	FUND	**RWA**
NSFR	BUS	**FUND**	RWA
Operational Risk	BUS	FUND	**RWA**
PRIIPs	**BUS**	FUND	RWA

What's coming (very) soon?

Swaps in NOK, PLN & SEK + CDS Frontloading Mandatory for Cat 1 & 2	Oct 2016
G4 swaps Clearing Mandatory for Cat 2	Dec 2016
Initial Margin Entry into force (>3Tr€ NTL)	Feb 2017?
Variation Margin Entry into force All FIs	Mar 2017
PRIIPs Entry into force	Q1-Q2 2017? Jan. 2018?
MiFID2 Entry into force	Jan 2018

EMIR

EMIR Margin Requirements

1. Objectives
   - To mitigate counterparty credit risk and limit spill-over effect on the OTC derivative markets.
   - To extend the defaulting party paying principle (as opposed to surviving party paying principle).

2. Who and what products
   - All Financial Counterparties (FC) and Non-Financial Counterparties above a clearing threshold (NFC+) where at least one counterparty is based in the EU.
   - All OTC derivatives not eligible for central clearing.

3. Variation Margin
   - Settlement of the MtM in cash or high quality assets.
   - More stringent than current golden CSA: daily bilateral margin call, 0 threshold, €500k MTA.

4. Initial Margin
   - 2-way exchange of the portfolio's 10d99% VaR in cash or highly liquid assets, segregated and non reusable, posted to a third party custodian.

EMIR Clearing Requirements

Eligible counterparties split into 4 categories

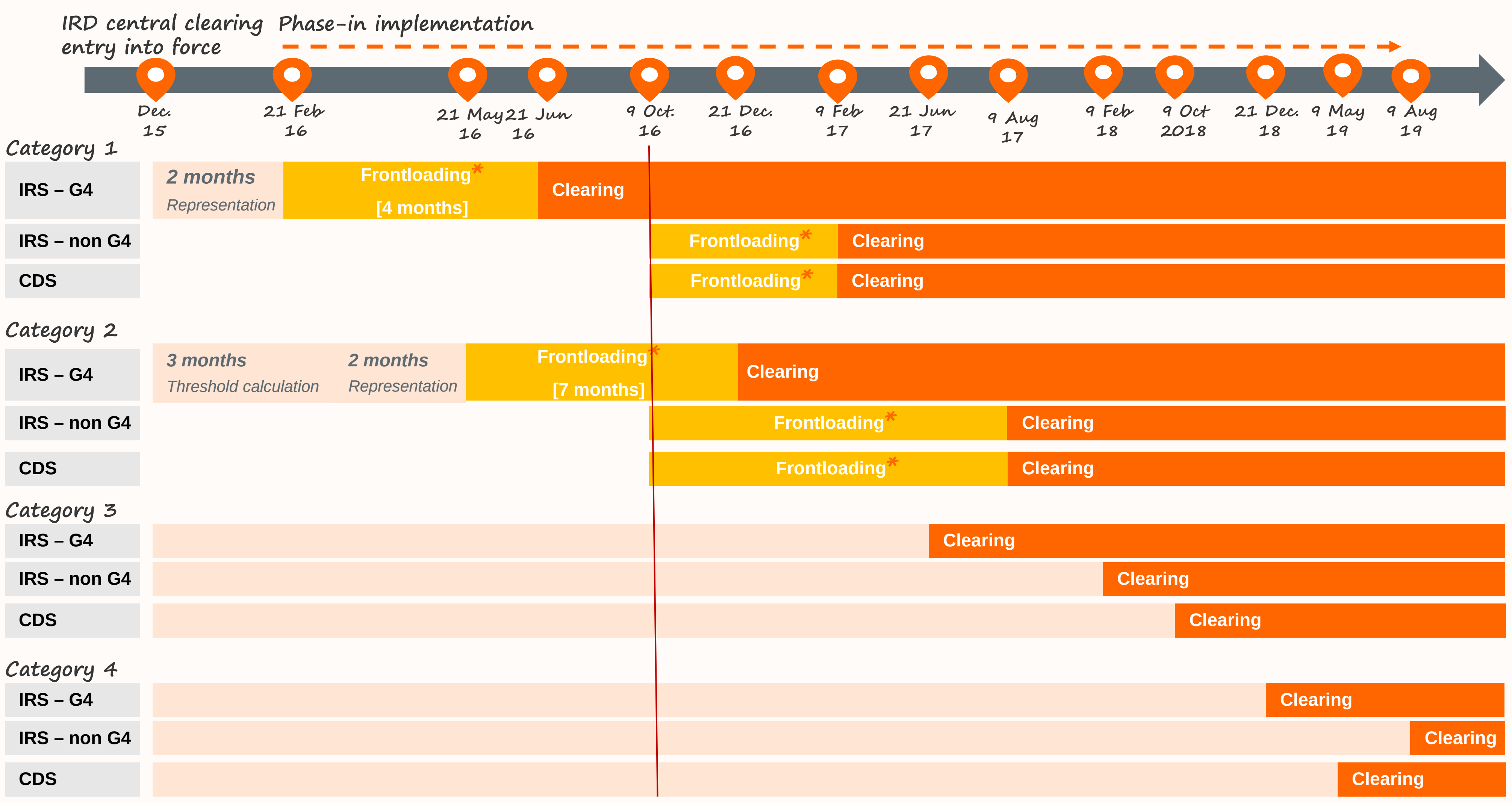
Category 1	Clearing Members (CM)
Category 2	Non-CM FC and investment funds (AIFs) considered NFC+ with month-end average of OTC derivatives' gross notional ≥ € 8bn
Category 3	FCs and AIFs considered NFC+ not in Category 1 or 2
Category 4	Other NFC+ (excluding AIFs)

- Exemptions :
  - ✓ EU, US, JP central banks and EU sovereigns, multilateral development banks & public entities
  - ✓ Intragroup transactions upon regulators' approval
  - ✓ Certain EU pension funds

IRD + CDS subject to mandatory central clearing

Plain vanilla swaps	Euribor, Libor	28 days – 50 years (EUR, GBP, USD) – 30 years (JPY)
Basis swaps	Euribor, Libor + NIBOR, WIBOR, STIBOR	28 days – 50 years (EUR, GBP, USD) – 30 years (JPY) 28D-10Y (NOK & PLN) & 28D-15Y(SEK)
OIS	EONIA, FedFund, SONIA	7 days – 3 years (EUR, GBP, USD)
FRA	Euribor, Libor + NIBOR, WIBOR, STIBOR	3 days – 3 years (EUR, GBP, USD) 3D-2Y (NOK & PLN) & 3D-3Y (SEK)
CDS Indice	iTraxx Europe Main and Xover	N/A

EMIR Central Clearing Implementation timeline



*Frontloading: IRS eligible for central clearing entered into or novated during the frontloading period have to be centrally cleared by the effective date or will have to be cancelled otherwise

Unlevel playing field on burden of reporting: MIFID2 vs DFA

	MiFID2	VS.	DFA	
Trading obligation	• OTC derivatives subject to the **clearing obligation** … • … and **sufficiently liquid**		• 'Swaps' (~ OTC derivatives) **made available to trade** (MAT) • Such a determination must consider : ready and willing buyers and sellers; frequency or size of transactions; trading volume; number and types of market participants; the bid/ask spread; etc.	✓
Pre-trade transparency	If instrument traded on a TV and qualified as liquid and trade below SSTI/LIS : • **Trading venues** : bid/offer prices & responses to RFQ (incl. depth of trading interest) **are public in real time** • SI: firm quotes in response to RFQs **are public**		• Trading venues: RFQ sent at least to 3 dealers, NO **public answers**	✗
Post-trade transparency	If instrument traded on a TV : • Real-time publication of transaction details to APA for liquid instruments with trade below SSTI /LIS • Deferrals for illiquid instruments and for trades above SSTI/LIS		• **Swaps :** real time reporting to Swap Data Repository (SDR) (with delays if > block size) • **Corporate Bonds :** real time reporting within a 15mn limit (TRACE) (with delays if > block size)	✓
Best Execution	• Best Execution principle is broad : price, costs, speed, likelihood of execution and settlement, size, nature or any other consideration relevant to the execution of the order		• No Best Execution policy as such for non-equities. Comparable measures are : o Mid-market-mark to provide to client o Obligation on SEF to send RFQ to at least 3 dealers	✗
Reporting on the quality of execution	• Strong operational burden • Publication of sensitive info on each financial instrument and each trading day		• No similar report	✗

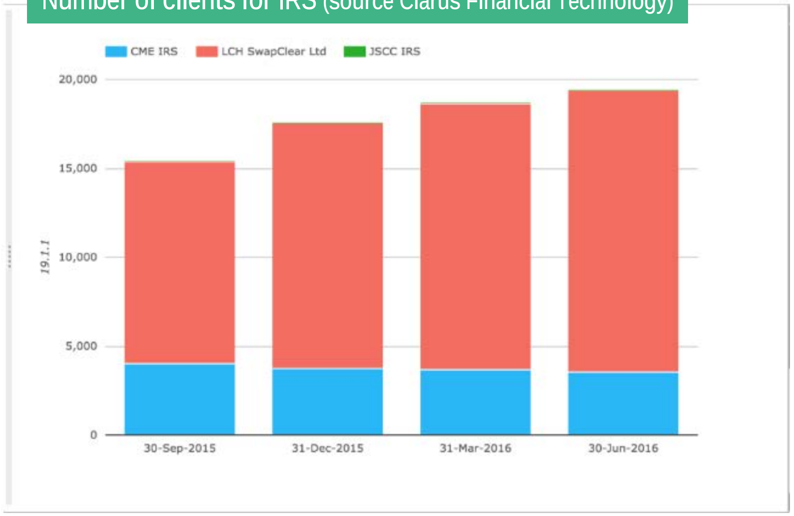
CCPs: fragmentation or concentration?

- Systemic risks reduced at its maximum only if no fragmentation, one CCP
- CCPs are profit-based private entities and could consequently release conditions so as to attract more customers.
- Definition of haircuts on collateral are strongly influencing the users' characteristics
- Fragmentation of market or beginning of concentration?
  - CCPs are advantageous for entities with high volumes and diversified portfolio
  - Smaller investors will not have the capacity to manage properly the collateral and would bear more fixed costs

Initial margin for IRS (source Clarus Financial Technology)

FRAGMENTATION	CONCENTRATION
Creation of various CCPs with independent conditions	Potential concentration of risk within CCP, mainly due to geographical incentives on haircuts; even if concentrations are monitored and compensated by CCPS
Standardized vs non-standardized derivatives	Non-standardized derivatives would tend to disappear towards less tailored products
Collateral: paperwork, management, costs	Potential disappearance of smaller investors from derivative business
Collateral management: potential shortage of high quality assets vs low quality assets	Derivatives could stop being an alternative to EGBs for smaller investors

Number of clients for IRS (source Clarus Financial Technology)



Costs: clearing and reporting

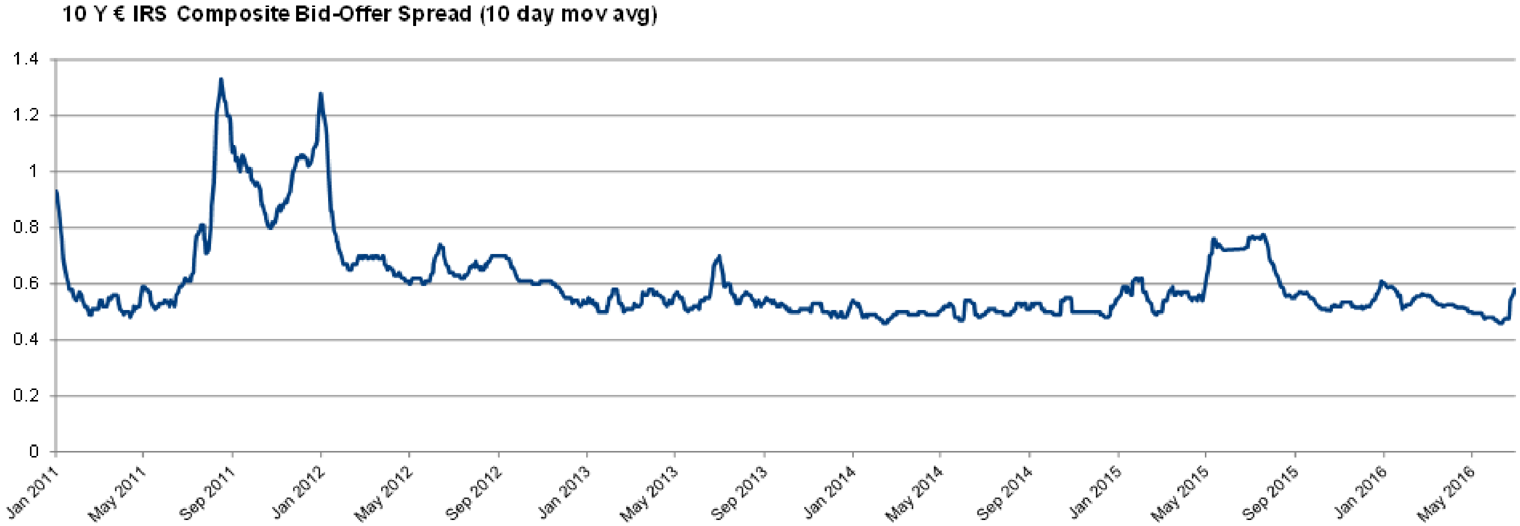
- Examples of clearing and haircut conditions

	LCH	CME
Clearing fee	• Client on 10y IRS: 7.2 per million • Member Bronze tariff: £75 per contract	• Client on 10y IRS: 8 per million
Maintenance fee	• Client on 10y IRS: 3 per million per annum • Member Bronze tariff: £6 per contract per month	• 10y IRS: 2 per million per annum
Volume discount	• Up to no booking or maintenance fee for high turnover	• Up to 60% for quarterly fee of $300,000+
Haircut on bonds	• German 10y bond: 7.38% • US 10y Treasury: 8.13%	• German 10y bond: 7.5% • US 10y Treasury: 4.5%
Yearly plan	• Bronze tariff: £500,000	
Joining fee	• £50,000 per clearing member	

- Examples of reporting costs. ISDA survey asked end users about initial cost of implementing reporting technologies, annual cost of maintenance and ressources involved in reporting:
  - 45% have annual cost over €100,000
  - 7.3% have annual cost between €500,000 and €2,000,000
  - 4.4% have annual cost higher than €2,000,000

Liquidity on IRS

- No major change in liquidity provided by banks



Source Tradeweb

- Reduction in active market-makers but trading capacity sufficient for liquidity
  - Currently around 15 active dealers

- Which factors could impact the liquidity?

Increase of structural/regulatory costs will be charged to end-users	Bid-offer impact
Structural costs will concentrate users on buy-side and sell-side	Depth impact
Procyclicality of behaviors due to collateral management, reduction of number and increase of size of users	Depth impact
Intraday volatility of futures contracts	Bid-offer impact

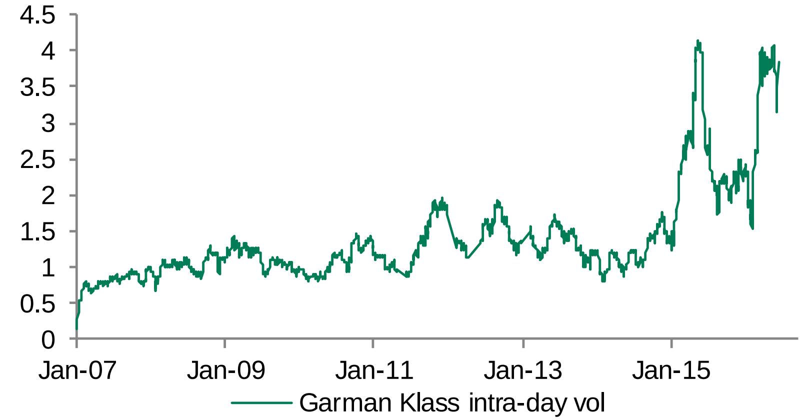
Market depth and liquidity on 10y German EUREX futures

- Increase in intra-day volatility observed over last two years

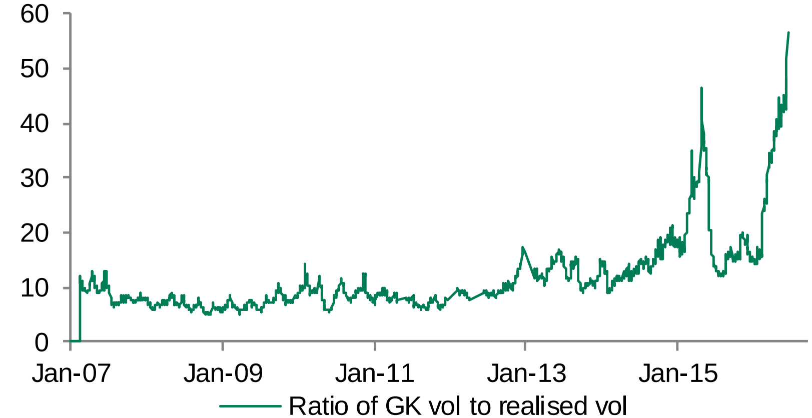
- Measures of intra-day volatilty
  - Garman-Klass volatility uses high, low, open and close data instead of closing prices
  - Ratio of Garman-Klass volatility to realised volatility a measure of intraday volatility

- Market impact
  - Current intra-day volatility higher than crisis levels
  - Market is not inherently more volatile
  - But intra-day volatility has increased

Intra-day volatility has increased



Ratio of intra-day vs close prices vol has shot up



Discussion items:

1. Should collateral conditions be uniformed between CCPs?
2. Should a bridge of collateral between CCPs be considered?
3. Are multi CCPs really reducing the systemic risks?
4. Should investors be concerned about the intraday volatility of the markets?
5. Is there an increased pro-cyclicality in the financial markets?
6. Could the shadow banking replace banks as liquidity providers?

Annex: Detailed coming regulations impacting derivatives

MIFID2/MiFIR

1. New 'execution' world for non-equity instruments
   - Three 'execution modes' (trading venues / SI / OTC)
   - Pre- & post-trade transparency + transaction reporting (T+1)
   - Best execution + quarterly reporting on the quality of execution
   - Algorithms controls, kill functions and record keepings

2. Research
   - For EU portfolio managers, Research can no longer be paid on a 'bundled' basis together with execution

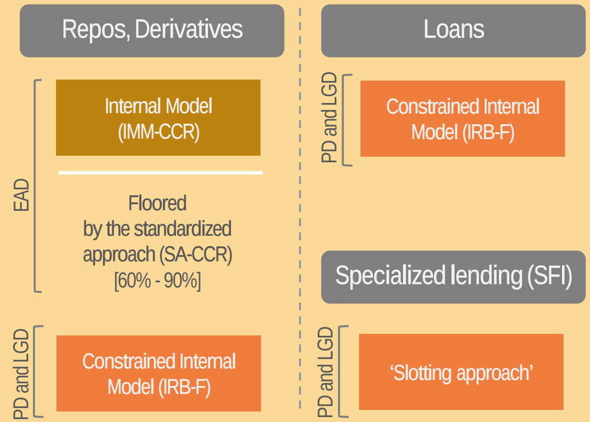
3. Product Governance
   - Manufacturers : product approval (incl. target market) / review process
   - Distributors : ensure product is distributed according to target market + suitability test (investment advice) or appropriateness test (execution)

4. Information to clients
   - Services and financial instruments
   - Costs and charges ex-ante and ex-post

Businesses impacted:	SALES / DCM / TRADING / STRUCT.
Unlevel playing field:	YES (US)

IRB Review (counterparty risk RWA)

1. Objectives/core principles of the consultation
   - To reduce the usage of internal models and increase the comparability of credit & counterparty RWAs across banks



IRB-F : Internal Rating Based Foundation : RWAs are calculated from internal Probability of Default (PD) and standard regulatory Loss Given Default (LGD).

2. Scope
   - Exposures to Financial Institutions, Corporates and SFI

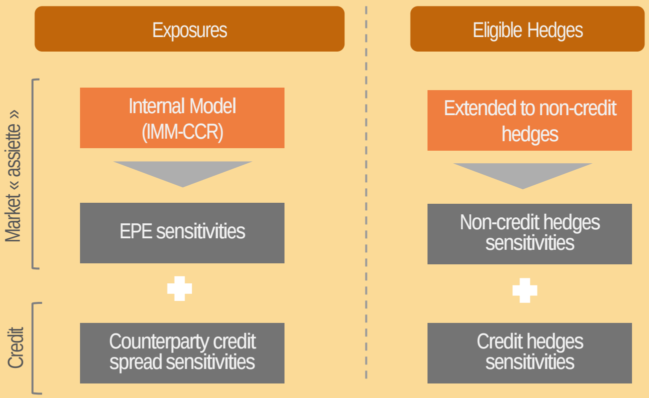
Main businesses impacted:	DERIVATIVES / REPOS
Unlevel playing field :	NO

Annex: Detailed coming regulations impacting derivatives

Fundamental Review of the Trading Book CVA

1. Objectives
   - To increase the comparability of RWAs across banks: CVA risk is complex to measure and reduces the comparability.
   - CVA risk is a market risk and should be aligned to the FRTB framework.

2. Standardized approach core principles



▶ Sensitivities are netted with a disallowance factor, then supervisory risk weights and correlations are applied

Businesses impacted:	DERIVATIVES
Unlevel playing field:	NO

Net Stable Funding Ratio

1. Objectives
   - To complement the Liquidity Coverage Ratio (LCR) with a more long term liquidity ratio, based on the liquidity characteristics of an institution's assets and liabilities.
   - To discourage excessive maturity transformation and ensure banks are able to survive a closure of wholesale funding markets over 1 year.

2. Core principles

$$\frac{\text{Available amount of Stable Funding (ASF)}}{\text{Required amount of Stable Funding (RSF)}} \geq 100\%$$

- 10% RSF factor on reverse repos (incl. for perfectly matched books, short term and HQLA 1)
- Only cash variation margin allowed to net against the MtM
- 20% RSF of gross derivatives payables
- 85% RSF on IM posted
- 5% RSF for off balance sheet items

Businesses impacted:	DERIVATIVES / REPOS
Unlevel playing field:	NO

Annex: Detailed coming regulations impacting derivatives

Operation risk review

1. Objectives and core principles
   - Reduce the usage of internal models to increase the comparability of operational risk RWAs across banks

K = Business Indicator (BI) ✕ Internal Loss Multiplier

A size-based proxy of the operational risk exposure calculated from the sum of:

- Interest and Dividend
- Max(Fee Income, Fee Expense)
- Max(Operating Income, Operating Expense)
- P&L on trading book
- P&L on banking book

Weighted by ranges, from 11% to 27%

To better reflect idiosyncratic risk, the multiplier is a function of the Bank's average annual internal losses over 10 years.

A bank having average internal losses equal to its BI is an average bank in the industry and its multiplier is 1. The multiplier is floored at 54%.

2. Scope
   - Applies to all international financial institutions

Businesses impacted:	ALL
Unlevel playing field:	YES

Leverage Ratio

1. Objectives and core principles
   - To limit the build up of excessive leverage within the banking sector and to complement the capital framework
   - A non risk-based metric based on volumes

$$\frac{\text{Tier 1 capital}}{\text{On + Off-balance sheet exposures}} \geq 3\%$$

2. Amendments introduced
   - Introduce the possibility of a supplementary buffer for G-SIBs.
   - Replace the exposure calculation for derivatives from CEM method to a modified standard approach for counterparty credit risk (SA-CCR) with reduced MPOR for margined and cleared transactions but with limited recognition of IM.
   - Treatment of open repos.
   - Revisions to the treatment of unsettled transactions.
   - Precisions to the treatment of provisions and prudent valuation adjustments.
   - Treatment of traditional securitisations.

Businesses impacted:	DERIVATIVES / REPOS
Unlevel playing field :	YES

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