



# Fair value measurement

## Credit adjustments in fair value

Frank de Jonghe and Siobhan Tipping

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# Agenda

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- ▶ Principles of fair value in IFRS
- ▶ Fair value – a spotlight on Greek government debt
- ▶ IFRS 13 – a new standard on fair value in IFRS
  - ▶ Non performance risk
  - ▶ Portfolio measurement
  - ▶ Marking to mid
- ▶ CVA/DVA Survey results
- ▶ Counterparty credit risk charges

# Current principles on fair value



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# Principles of fair value in IFRS

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- ▶ IAS 39 states that fair value is the amount for which an asset could be exchanged, or a liability settled, between knowledgeable, willing parties in an arm's length transaction
- ▶ IFRS 13 introduces a new definition of fair value which will be applicable in 2013
- ▶ A number of fair value disclosures required under IFRS 7
  - ▶ Disclose fair value per class of instrument
  - ▶ Disclose per class valuation method and assumptions
  - ▶ Disclose per class fair value hierarchy (level 1,2,3)
- ▶ Significant criticism of fair value accounting at the onset of the credit crisis
- ▶ Some argue too much P&L volatility caused by movements in credit spreads

# Financial crisis and stakeholder requests

## G20

Improve standards for **valuation** of financial instruments based on liquidity, investors' holding horizons, and reaffirm framework of fair value accounting

**Reduce complexity** of accounting standards for financial instruments

Strengthen accounting for **loan-loss provisions** by incorporating a broader range of credit information

Improve accounting standards for **provisioning**, off-balance sheet exposures and valuation uncertainty

Make significant progress towards a **single set of high quality global standards**

IASCF to improve involvement of stakeholders, including prudential regulators and emerging markets

## EU

Guidance needed on **fair value in illiquid markets** (level playing field issue)

Allow instruments classified using the **fair value option** to be reclassified from fair value through profit or loss into other categories

Clarify accounting for **synthetic CDOs** and the separation of embedded derivatives

Change impairment rules for **available for sale debt** instruments similar to those of loans and receivables and held-to-maturity

Allow **impairment losses** for available for sale equity instruments to be **reversed** through the income statement

Coordinate with regulators **loan loss** provisioning requirements

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# Fair value: lack of comparability?

## Greek government debt

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- ▶ Impairment calculation for AFS financial assets based on fair value of assets
- ▶ Some banks assessed impact on the present value of future cash flows under restructure not amount reflected by current market prices
- ▶ Some banks used internal valuation methodologies not market prices
  - ▶ Market for Greek government bonds inactive?
  - ▶ IASB letter to ESMA
- ▶ Determination of fair value: lack of liquidity requiring a move to a level 3 conclusion?

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# IASB's reaction to divergent practices

## Letter to ESMA

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Mr. Hoogervorst:

*“It would not be in accordance with either the requirements in, or the intent of, IAS 39 to measure a loss on government bonds classified as AFS financial assets solely by assessment the present value of future cashflows arising from the proposed restrutcure of such a bond”*

*“It is hard to imagine that there are buyers willing to buy those bonds at the prices indicated by the valuation models being used.”*

*“In my view it is difficult to justify that those models would meet the objective of a fair value measurement”*

# New accounting standard on fair value





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# IFRS 13: Fair value measurement approach

## The principles

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**Fair value:** price that would be received to sell an asset or paid to transfer a liability in an orderly transaction between market participants at the measurement date (an exit price)

- ▶ Clarifies definition of fair value
- ▶ Single framework for **how** to measure fair value
  - ▶ Previously, requirements were dispersed throughout IFRS and were not consistent
  - ▶ Does not change **when** fair value is used
- ▶ Effective 1 January 2013
- ▶ Applied prospectively as of beginning of annual period
- ▶ Early application permitted
- ▶ Disclosures are not required for comparative periods

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# How to measure non-performance risk when measuring liabilities?

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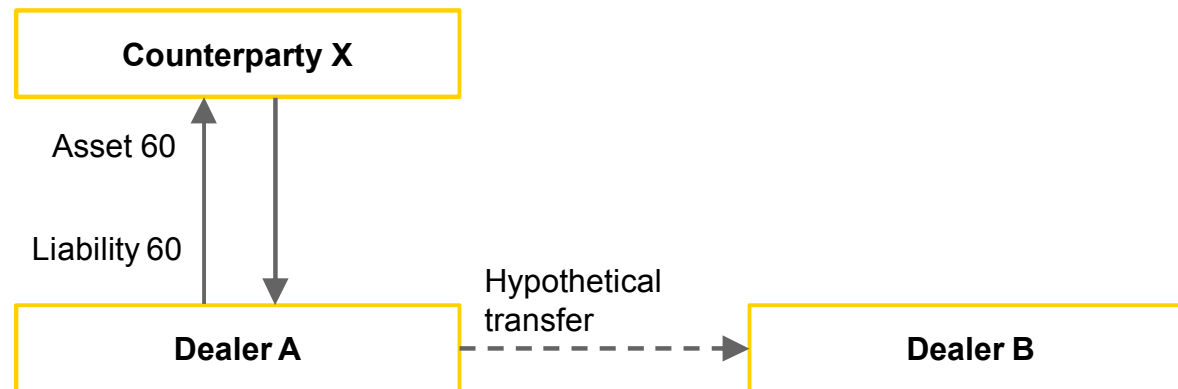
## Non-performance risk is:

- ▶ Reflected in fair value of a liability
- ▶ Includes an entity's own credit risk
- ▶ Is assumed to be same before and after transfer of liability
  - ▶ Liability transferred to market participant of equal credit standing
  - ▶ What if entity transfers a derivative to another entity of higher credit standing?
- ▶ Do credit adjustments to derivative assets have to be symmetrical with derivative liabilities?
- ▶ What credit spread should be used?
  - ▶ CDS?
  - ▶ Cash bond spreads?

# Measurement of derivative liabilities- the issue

**Fact pattern** – Dealer A is an A rated institution with an interest rate swap with counterparty X. The interest rate swap is in a liability position to dealer A and an asset position to counterparty X

	Dealer A	Dealer B
Rating	A	AA
Credit spread	390	280
<b>Valuation of derivative based on credit spread</b>	<b>60</b>	<b>65</b>



**What do you think the IFRS 13 compliant fair value is in Dealer A's books?**

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# Portfolio exception

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- ▶ Permitted to measure fair value of a group of financial assets and liabilities based on price to sell a net long position or to transfer a net short position **for a particular risk exposure**, only if entity:
  - ▶ Manages financial instruments on basis of net exposure **to a particular market risk** or **to a credit risk of particular counterparty** in accordance with documented strategy
  - ▶ Provides information on that basis to key management personnel
  - ▶ Is required to or has elected to measure the instruments at fair value
- ▶ Cannot be used for a portfolio that consists of only financial assets
- ▶ Does not change unit of account – it is a unit of valuation
- ▶ What if market participants would consider size when pricing the net risk position for sale (assets) or transfer (liabilities)?

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# Use of mid market prices without restriction?

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- ▶ Price within bid-ask spread **most** representative of fair value is used to measure fair value
  - ▶ Regardless of where the input is categorised within the fair value hierarchy
- ▶ Mid-market pricing or other pricing conventions are not precluded as a practical expedient for fair value measurements within a bid-ask spread
- ▶ Practical expedient comes without conditions – board’s intention was to extend the mid market expedient from funds sector to other sectors
  - ▶ Banks use mid market pricing? Not widespread, 1 large US GAAP reporter does
  - ▶ Corporates typically use mid market expedient

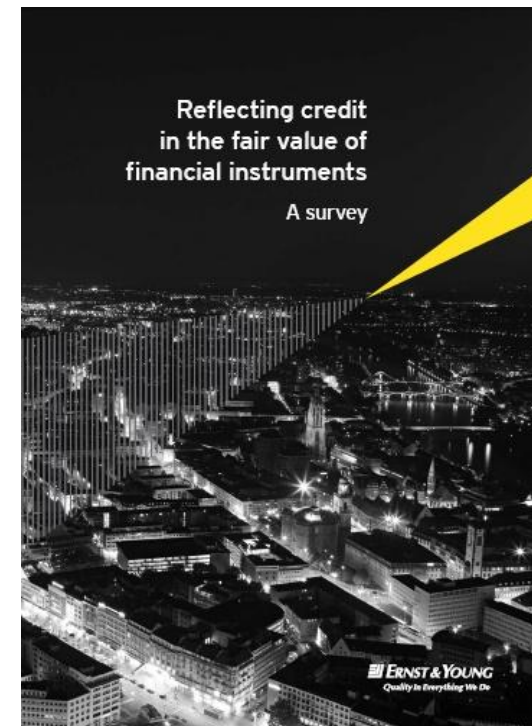
# Credit adjustments – an Ernst & Young survey



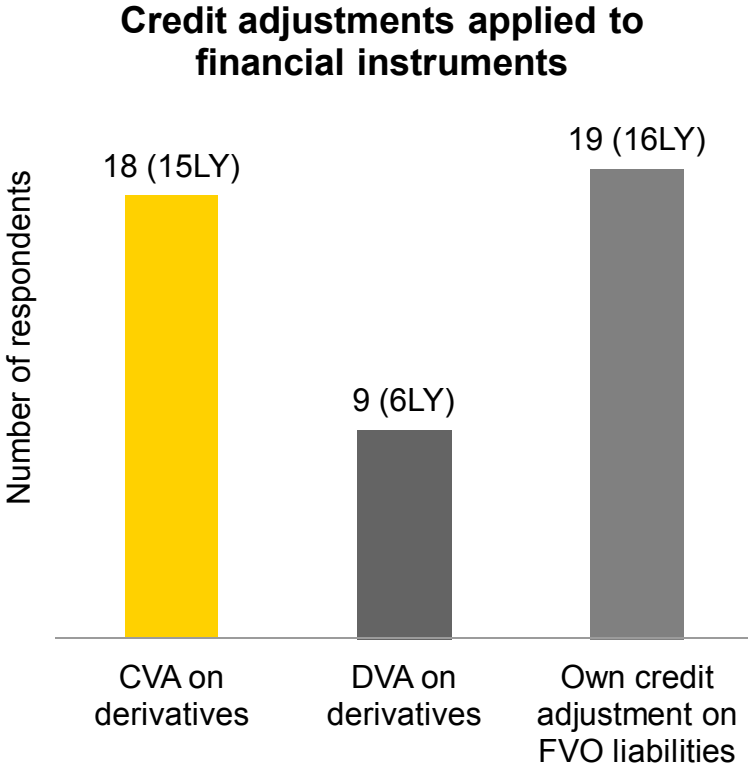
# Introduction

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- ▶ Many institutions asked about industry practice during 2010-11
  - ▶ Questions particularly on derivative liabilities
- ▶ 19 IFRS/USGAAP reporters surveyed
- ▶ Took place in the Summer of 2011
- ▶ Total of 18 questions on:
  - ▶ Credit Valuation Adjustments (CVA)
  - ▶ Debit or Debt Valuation Adjustments (DVA)
  - ▶ Own credit adjustments
- ▶ We selected certain key questions which institutions want to benchmark



# Does the institution record CVA, DVA and own credit adjustment on fair value option liabilities?

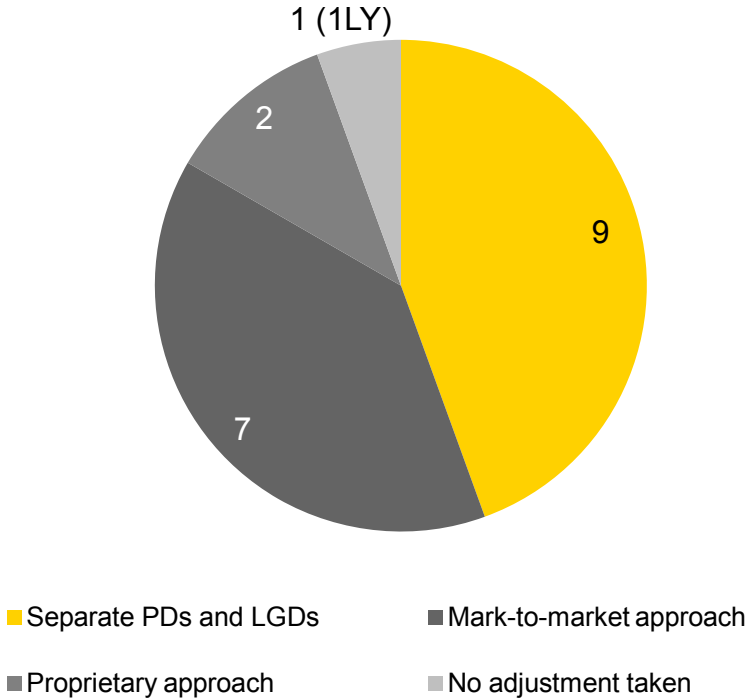


- ▶ 1 participant does not record CVA as immaterial – exposures are to investment grade counterparts
- ▶ Some participants who do not record DVA argue that IAS 39 is not explicit in requiring adjustments on derivative liabilities
- ▶ US GAAP is explicit in the subject and this has lead to consistent application amongst US GAAP reporters



# What is the general methodology in use for calculating CVA/DVA?

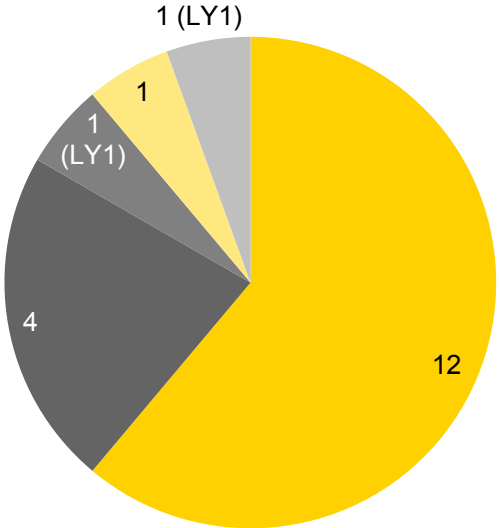
CVA methodology



- ▶ No methodology prescribed by IFRS – diversity in practice
- ▶ 9 (LY10) participants use separate PDs and LGDs
- ▶ 7 (LY3) use MTM approach by generating expected exposures and applying market observed credit spreads
- ▶ 2 (LY2) participants use approaches similar to MTM but with some proprietary elements
- ▶ 8 participants who calculate DVA use a reverse CVA approach

# How is the exposure input into the CVA/DVA calculation generated?

## Exposure measurement

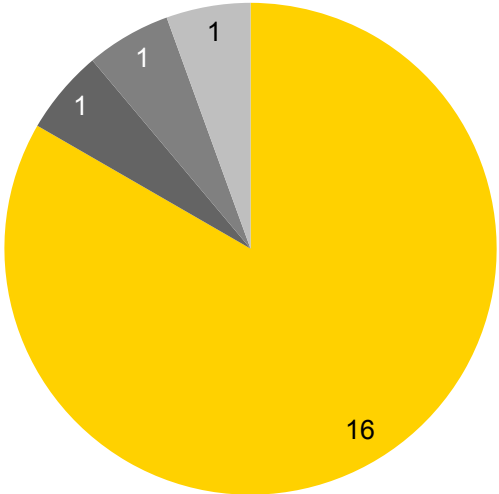


- EE simulated using Monte Carlo, or other model
- EAD = Current MTM + "Add-on" based model simulation
- Greater of MTM/2 or EE
- Current MTM
- No adjustment

- ▶ 12 (LY7) participants simulate expected exposure using Monte Carlo models
- ▶ 4 (LY6) participants use EAD plus add on approach

# Does the financial institution take collateral into account when generating exposures?

**Collateral treatment**

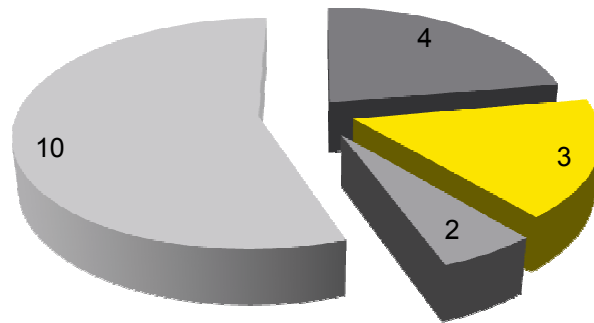


- Collateral included in exposure calculation
- CSA counterparties excluded from calculation
- No collateral taken into account
- No adjustment

- ▶ 15 (LY12) participants include collateral in exposure calculation
- ▶ 1 (LY2) participant excludes CSA c/p altogether– collateral threshold?
- ▶ 1 participant removes all c/p with AA or better rating from the calculation as they contend that the LIBOR curve used in valuation accurately captures the risk of c/p

# What probabilities of default are applied to exposures to calculate a CVA/DVA?

**Source of PD**

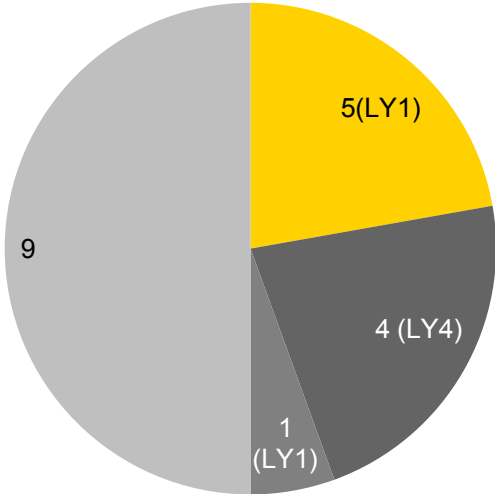


- PDs based on Market Observed spreads
- PDs based on Historic Spreads
- PD based on combination of Market and Historic data
- Not applicable/No adjustment taken

- ▶ 4 (LY4) participants using PDs from regulatory systems say this is closer to the level at which derivatives are priced in the market
- ▶ Historical PDs could be inconsistent with exit price notion – significant differences between current spreads and historical averages

# What credit spreads are applied to exposures to calculate a CVA/DVA?

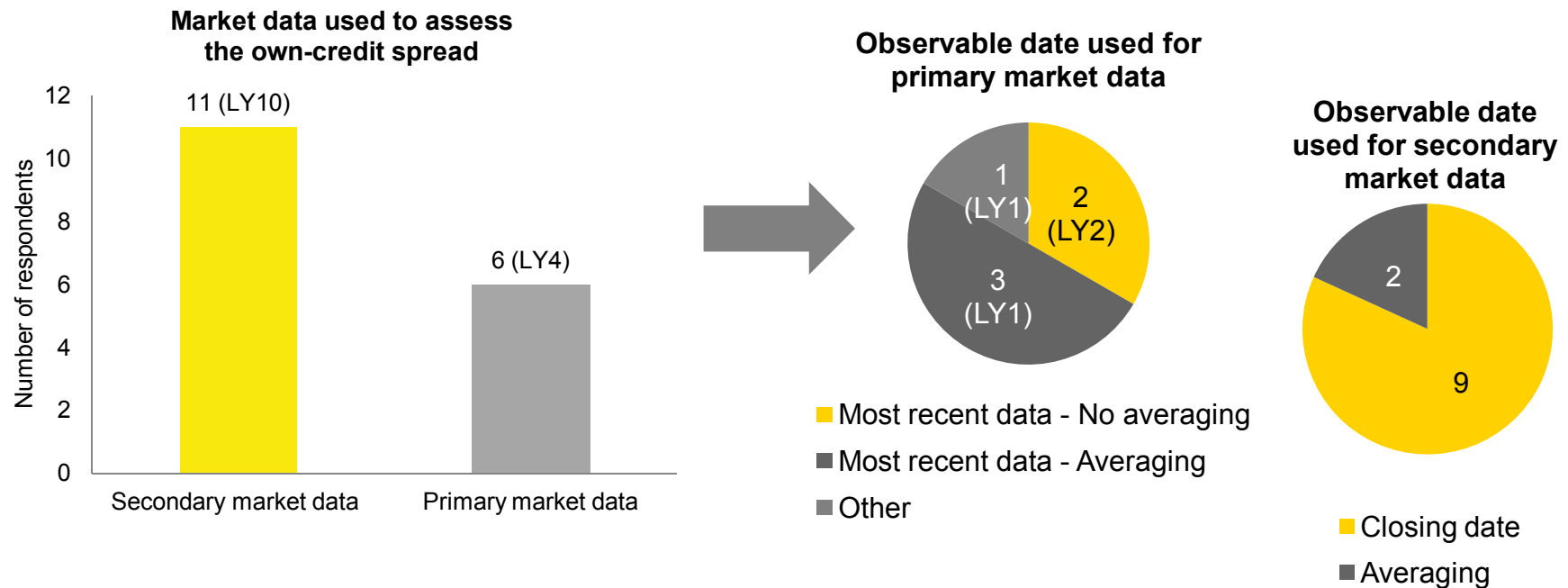
CVA/DVA spread



- CDS Spread as observed in market
- Implied PD sourced from brokers/market
- Lowest Senior CDS Spread (bid) from past 3 months
- No adjustment taken

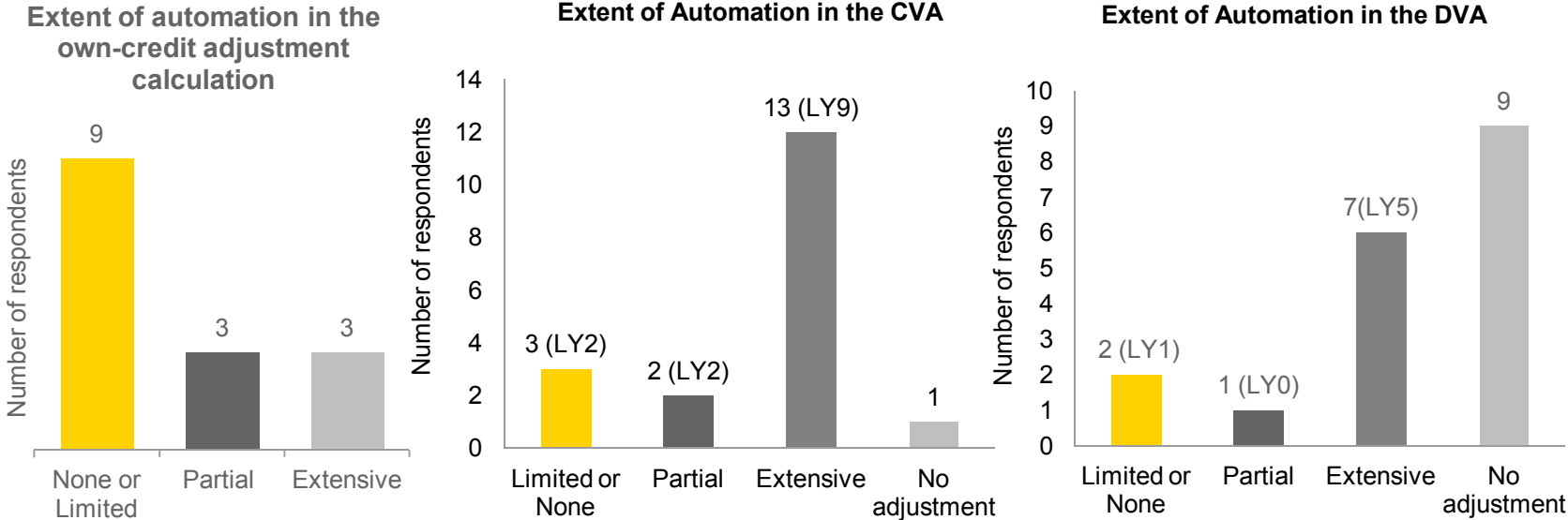
- ▶ Where credit spreads are used in CVA calculation, all respondents base on market observable spreads
- ▶ If no spread available generic industry/country/sector curves applied
- ▶ 1 (LY1) participant uses lowest CDS spread from last 3 months as they believe they will not achieve the full DVA on close out

# What credit spreads are used for calculating own credit adjustments?



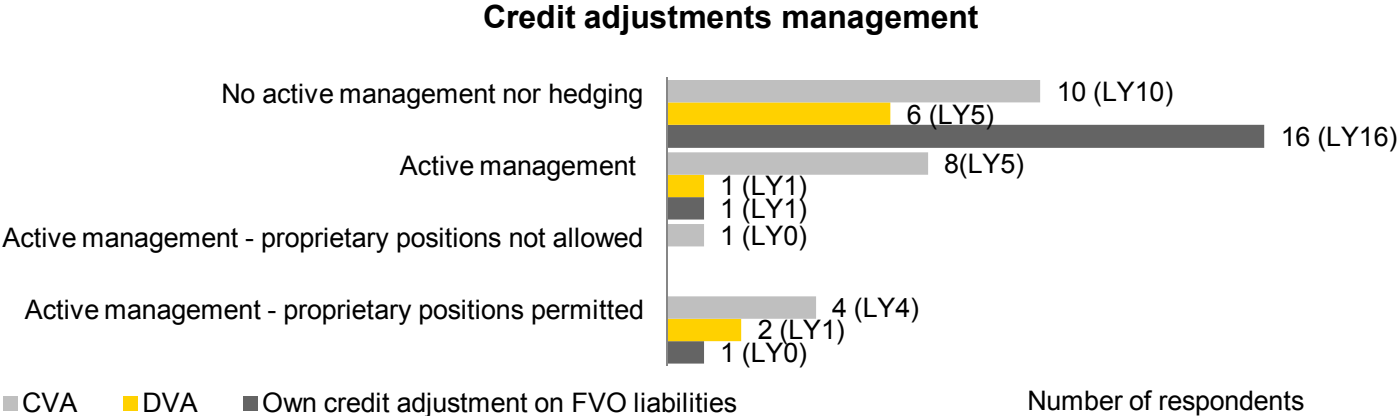
Participants applying average spreads argued that due to volatility and market conditions, the credit spread at balance sheet date is not reflective of their own non performance risk

# To what extent is the calculation of credit adjustments automated?



- ▶ Little automation in own credit adjustment versus CVA/DVA
- ▶ Own credit calculated at entity level for financial reporting
- ▶ CVA/DVA calculated at a lower level in the organisation and sometimes actively managed

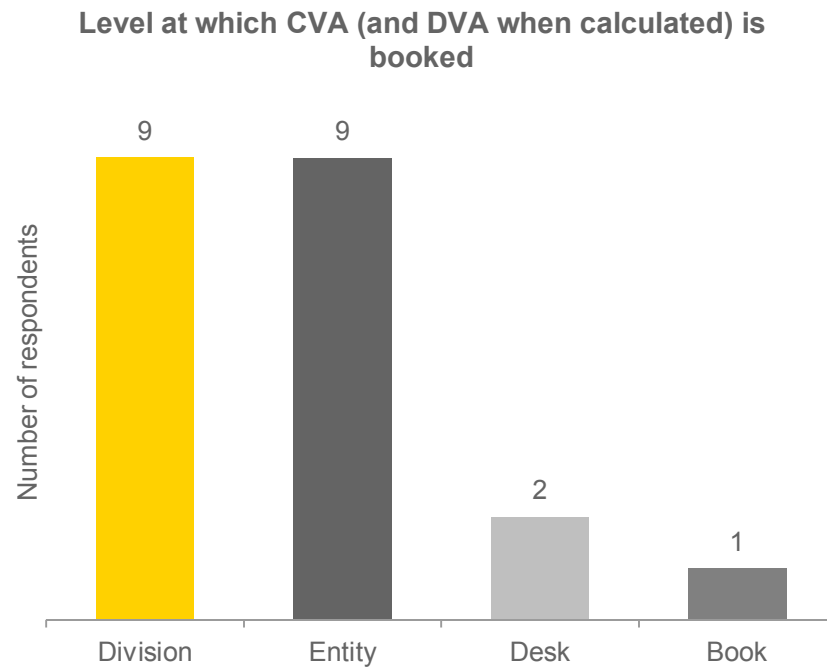
# Does the financial institution actively manage CVA, DVA and own credit adjustments?



- ▶ 8 (LY5) participants actively calculate CVA and execute transactions to mitigate risks
- ▶ 5 participants have only introduced CVA desks recently
- ▶ 4 participants are seeking to introduce a CVA desk in the coming year to actively manage CVA



# At which level are credit adjustments booked?



- ▶ 3 (LY2) entities calculate at desk level – further adjustment required for reporting to avoid overstating CVA
- ▶ Own credit adjustments are generally calculated at group level, with no allocation to individual businesses – changes in entities creditworthiness do not impact front office bonus levels

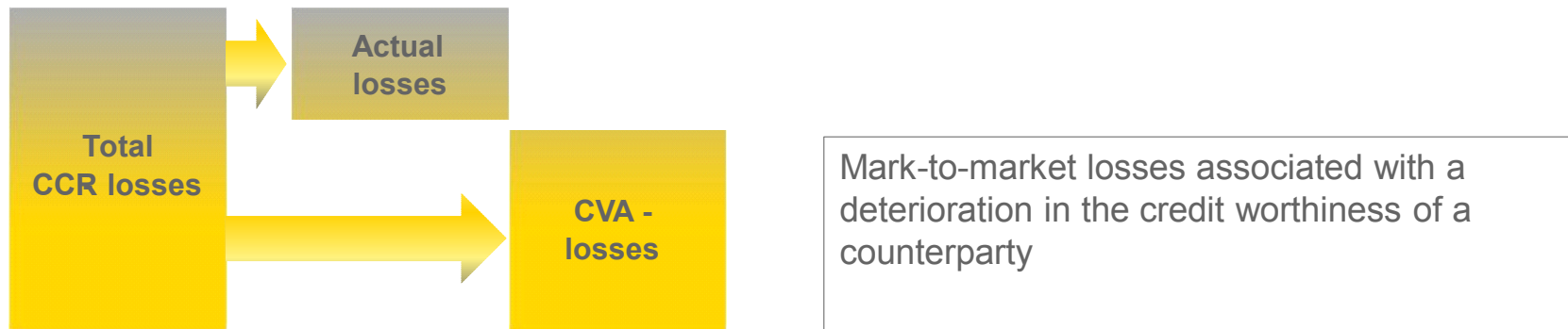
# Credit adjustments in capital management



# Counterparty Credit Risk

## CVA-Charge: CVA-risks capital charge

- ▶ People argue that the financial crises showed explicit weaknesses in the Basel II-Framework in capitalization of counterparty credit risks to OTC-derivatives:



- ▶ Under Basel II there are no direct capital charges for losses from CVA risks.
- ▶ Basel III: Explicit **Capital charge for CVA risks („CVA-Charge“)**.
- ▶ To be implemented by 2013
- ▶ Has to be adopted by all banks for all OTC Derivatives (not CCP derivatives)
- ▶ CVA-charge can be hedged
  - ▶ single-name CDSs and single-name contingent CDSs,
  - ▶ equivalent hedging instruments referencing the counterparty directly,
  - ▶ Index CDSs

# Counterparty Credit Risk

## CVA-Charge: Methodical overview

BCBS, 12/2010, Tz. 105

Composition of capital requirements for counterparty credit risk			
<b>Methods</b>	<b>IMM-institutes</b>		<b>All other institutes</b>
	with VaR-Model for interest risk especially	without VaR-Model for interest risk especially	
<b>Default</b>	The higher of the <b>IMM capital charge</b> based on current parameter calibrations and on stressed parameter calibrations for EAD.		Determined capital charge based on <b>Current Exposure Method (CEM)</b> or <b>Standardized Method (SM)</b>
	+		+
<b>CVA</b>	CVA-Charge acc. to <b>advanced method</b>	CVA-Charge acc. to <b>standardized method</b>	
	=		=
<b>Total</b>	<b>Total capital requirement</b> for counterparty credit risk		

# Counterparty Credit Risk

## CVA-Charge: Calculation with Standardized Method (1/2)

BCBS, 12/2010, Tz. 104

Explicit use of following formula:

Consideration of CVA-hedge instruments

$$K = 2.33 \cdot \sqrt{h} \cdot \sqrt{\left( \sum_i 0.5 \cdot w_i \cdot (M_i \cdot EAD_i^{total} - M_i^{hedge} \cdot B_i) - \sum_{ind} w_{ind} \cdot M_{ind} \cdot B_{ind} \right)^2 + \sum_i 0.75 \cdot w_i^2 \cdot (M_i \cdot EAD_i^{total} - M_i^{hedge} \cdot B_i)^2}$$

**Portfolio Capital Charge** for its counterparties, as a capital charge on the regulatory requirements for the counterparty credit risk.

Rating	Weight $w_i$
AAA	0.7%
AA	0.7%
A	0.8%
BBB	1.0%
BB	2.0%
B	3.0%
CCC	18.0%

**Weight  $w_i$**  applicable to counterparty  $i$  based on its external rating.

# Counterparty Credit Risk

## CVA-Charge: Calculation with Standardized Method (2/2)

BCBS, 12/2010, Tz. 104

<b>h</b>	one-year risk horizon (in units of a year), $h = 1$ .
<b>w<sub>i</sub></b>	weight applicable to counterparty 'i' based on its external rating.
<b>EAD<sub>i</sub><sup>total</sup></b>	exposure at default of counterparty 'i', according to existing model. For non-IMM banks the exposure should be discounted by applying the factor $(1 - \exp(-0,05 * M_i)) / (0,05 * M_i)$ .
<b>B<sub>i</sub></b>	notional of purchased single name CDS hedges referencing counterparty 'i', and used to hedge CVA risk. This notional amount should be discounted by applying the factor $(1 - \exp(-0,05 * M_i^{\text{hedge}})) / (0,05 * M_i^{\text{hedge}})$ .
<b>B<sub>ind</sub></b>	full notional of one or more index CDS of purchased protection, used to hedge CVA risk. This notional amount should be discounted by applying the factor $(1 - \exp(-0,05 * M_{\text{ind}})) / (0,05 * M_{\text{ind}})$ .
<b>w<sub>ind</sub></b>	weight applicable to index hedges.
<b>M<sub>i</sub></b>	effective maturity of the transactions with counterparty 'i'. Distinguish between IMM-banks and non-IMM banks, not capped at 5y here.
<b>M<sub>i</sub><sup>hedge</sup></b>	maturity of the hedge instrument with notional B <sub>i</sub> .
<b>M<sup>ind</sup></b>	maturity of the index hedge 'ind'. In case of more than one index hedge position, it is the notional weighted average maturity.

# Counterparty Credit Risk

## CVA-Charge: Calculation with Internal Model

- ▶ Banks with IMM approval for counterparty credit risk & specific IR risk for bonds must calculate CVA capital charge using the banks VaR model for bonds;
- ▶ The regulatory definition of the CVA charge is:

$$CVA = (LGD_{MKT}) \cdot \sum_{i=1}^T \text{Max} \left( 0; \exp \left( -\frac{s_{i-1} \cdot t_{i-1}}{LGD_{MKT}} \right) - \exp \left( -\frac{s_i \cdot t_i}{LGD_{MKT}} \right) \right) \cdot \left( \frac{EE_{i-1} \cdot D_{i-1} + EE_i \cdot D_i}{2} \right)$$

- ▶  $s$  is credit spread,  $EE$  expected exposure,  $D$  risk free discount rate
- ▶ First factor essentially defines risk neutral default probability in the interval. CVA is the market cost of the hedge.
- ▶ If the bank uses full revaluation for specific IR risk then the above format must be used to compute CVA for VaR
- ▶ If the bank uses a risk factor approach specific IR risk then regulatory CS01 for CVA must be calculated as follows;

$$\text{Regulatory CS01}_i = 0.0001 \cdot t_i \cdot \exp \left( -\frac{s_i \cdot t_i}{LGD} \right) \cdot \left( \frac{EE_{i-1} \cdot D_{i-1} - EE_{i+1} \cdot D_{i+1}}{2} \right)$$

- ▶ VaR + Stressed VaR; general and specific credit spread risk, not IRC.
- ▶ Methodology must reflect basis risk between underlying counterparty exposure and CVA hedges
- ▶ Eligible CVA hedges to be removed from the banks market risk capital calculation
- ▶ Centrally cleared trades to be excluded

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# Contacts

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**Siobhan Tipping**  
**Senior Manager**

Direct Tel: +31 88 40 72039  
Mobile: +31 (0)6 2908 3564  
Email: [siobhan.tipping@nl.ey.com](mailto:siobhan.tipping@nl.ey.com)



**Frank de Jonghe**  
**Partner**

Direct Tel: +32 (0) 2 774 99 56  
Mobile: +32 (0) 479 90 67 59  
Email: [frank.de.jonghe@be.ey.com](mailto:frank.de.jonghe@be.ey.com)



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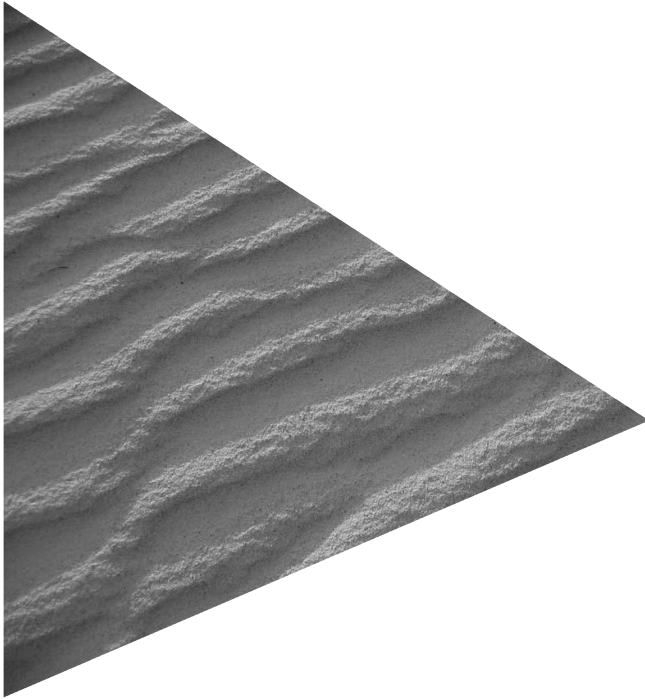
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