



Draft Guidelines on PD and LGD estimation and the treatment of defaulted assets

Public hearing / workshop, 19 January 2017

Introduction

GL on PD, LGD and the treatment of defaulted assets

■ **Expected timelines**

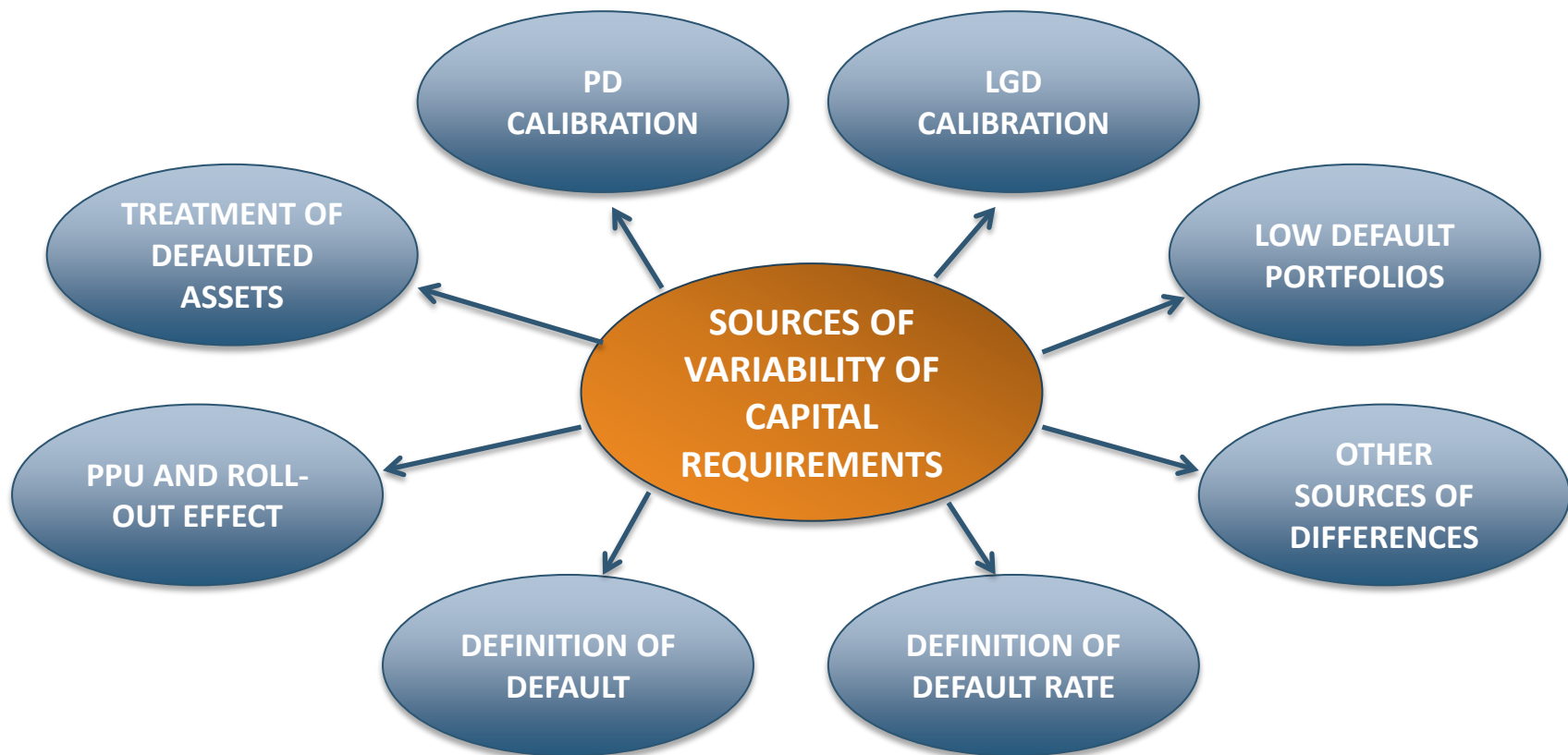
- Publication of the Consultation Paper – 14 November 2016
- End of the consultation period – 10 February 2017
- Launch of the qualitative survey – 16 December 2016
- Deadline for providing the responses to the survey to CAs – 27 January 2017
- Analysis of responses and results of the survey – 2nd quarter 2017*
- Final Guidelines – 3rd quarter 2017*
- Implementation – by end-2020 (in accordance with the EBA's opinion on implementation of 4 February 2016)

- **Interactions with Basel work** – the EBA is participating in the Basel work on the review of the regulatory framework on internal models and is closely monitoring its progress in order to align the timelines and avoid contradictory requirements.

* Tentative dates depending on the number and nature of responses, potential controversial issues as well as progress in the Basel reforms

Background – why do we need the guidelines?

- A set of reports on comparability and pro-cyclicality of RWAs published in December 2013 confirmed significant non-risk based variability of capital requirements and identified main factors contributing to such variability.



EBA’s review of the IRB Approach

- The Guidelines on the PD and LGD estimation and the treatment of defaulted assets is part of the broader EBA work related to the review of the IRB Approach as described in the Report on the regulatory review of the IRB Approach published in February 2016. The scope of work is based on the results of the Report on comparability of RWAs.

Prioritisation	Regulatory products	Current status
Phase 1: Assessment methodology	RTS on IRB assessment methodology	Finalised
Phase 2: Definition of default	RTS on materiality threshold GL on default of an obligor	Finalised
Phase 3: Risk parameters	GL on PD and LGD estimation and the treatment of defaulted assets RTS on downturn conditions	Consultation stage Preparation stage
Phase 4: Credit risk mitigation	RTS on conditional guarantees RTS on liquid assets RTS on master netting agreements	Planning stage

Further work

- **RTS on the nature, severity and duration of economic downturn**
 - Publication of the Consultation Paper planned in Q1 2017
 - Alignment of the finalisation of the Guidelines and the RTS

- **Review of the Credit Risk Mitigation framework**
 - EBA has initiated the work on the review of CRM framework

PD estimation

Data requirements for PD estimation

■ Data requirements

- Reference data set for default rate calculation
 - ▶ **No exclusions**
 - ▶ All relevant data including criteria for type of exposure and ID's
 - ▶ Definition of default needs to be compliant to Article 178 CRR
- Reference data set for model development
 - ▶ Different definition of default possible
 - ▶ Different proportion of defaulted and non-defaulted obligors possible
 - ▶ Representativeness – internal, external and pooled data:
 - Comparability to current underwriting standards
 - Analysis along level, range and distribution of key characteristics
 - Definition of default for model development may deviate from CRR definition subject to certain conditions (paragraph 45 (e)(iii))

Default rate calculation

■ General principles for default rate calculation

- Denominator: Number of non-defaulted obligors observed at the beginning of the one-year period with any credit obligation
- Numerator: Subset of the Denominator where at least one default event during the one-year period has been observed
- Relevant grades or pools to be considered before substitution effects and any ex-post conservative adjustments
- No manipulation for obligors which migrated to other pools or grades or rating system or approach to capital calculation
- Monitoring requirement: One-year default rates to be calculated at least quarterly

■ Observed average default rates

- To be calculated per grade or pool and on portfolio level
- Use of overlapping or non-overlapping windows permitted subject to certain analysis and adjustments if necessary

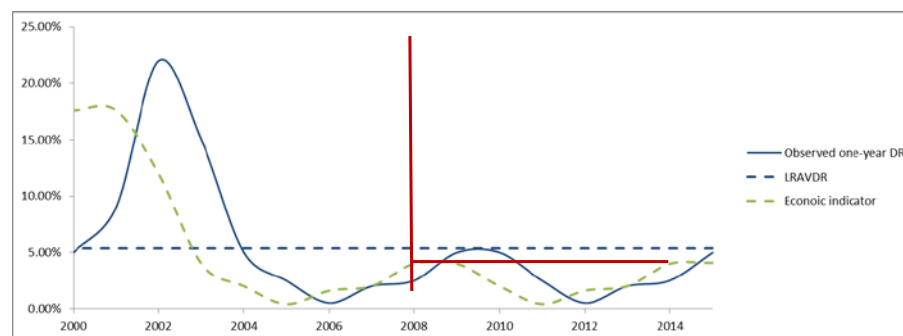
Long run average default rate (LRAVDR) estimation

■ Historical observation period

- Most recent 5 years at the time of model calibration
- Additional observations relevant if representative of the likely range of variability
- In particular default rates relating to a downturn period have to be included

■ Long-run average default rate

- LRAVDR should be equal to the observed average of one year default rates over the historical observation period
- Adjustment to observed average of one year default rates possible or necessary if historical observation period is non-representative of likely range of variability of one year default rates
- Reference value based on the maximum of observed average default rate of
 - ▶ the most recent 5 years
 - ▶ all data available
- Example:
 - ▶ Red line marks available data



Risk drivers, Rating philosophy and Calibration

■ Risk drivers

- Obligor and transaction characteristics, financials, trend and behavioural information, credit bureau data
- Conservative adjustments to PD estimation necessary if
 - ▶ Financial statements relevant and older than 24 month
 - ▶ Credit bureau data relevant and older than 24 month
- Institutions should provide policies to distinguish rating transfer, rating support, overrides based on information from external ratings

■ Rating philosophy

- Institutions should assess the adequacy of the risk quantification method for the philosophy underlying the grade or pool assignment and understand the resulting dynamics of ratings and capital requirements

■ Calibration

- General requirements (calibration tests, calibration sample, calibration before MoC)
- Specific requirements among others for the use and calibration of
 - ▶ individual estimates
 - ▶ PD estimates derived from simple averages of individual estimates

LGD estimation and treatment of defaulted exposures

Data requirements for LGD estimation

■ General data requirements

- Reference Data Set – information on all defaults
- Representativeness of data – internal and external data
 - ▶ Scope of application
 - ▶ Definition of default
 - ▶ Distribution of risk drivers
 - ▶ Lending standards and recovery policies
 - ▶ Current and foreseeable economic and market conditions
- **No data exclusions** – appropriate adjustments and margin of conservatism in case of insufficient representativeness

■ Estimation methods

- Workout LGD – full data set
- LGD derived from realised losses and PD – limited data set
- Market implied LGD – not allowed (external data may complement internal experience but not substitute it)

Realised LGD

$$\text{Realised LGD} = \frac{\text{Economic loss}}{\text{EAD}}$$

Outstanding amount at the moment of default, including principle, interest and fees, increased by previous write-offs

Where additional drawings after default are included in CCF – EAD should be increased by these drawings

Discounting rate =
XBOR + [5%]

$$\text{Economic loss} = \text{EAD} + \text{costs}_d + \text{drawings}_d + \text{fees}_d + \text{interest}_d - \text{recoveries}_d$$

All direct costs and a share of material indirect costs

Additional drawings after the moment of default

Fees and interest capitalised after the moment of default

All recoveries realised on the exposure, including recoveries of the previously incurred costs

Long-run average LGD

■ Long-run average LGD

- Historical observation period spans over all available internal data
- Calculated as arithmetic average weighted by the number of defaults
- For retail exposures – possibility to use higher weights for more recent data
- Cases with positive outcome floored at 0

■ Incomplete recovery processes

- Observed average LGD – only on closed recovery processes
- Maximum length of recovery processes to be specified for types of exposures – cases that are in default longer should be treated as closed in the calculation
- Estimation of future recoveries only up to the maximum length of the recovery process, based on the recoveries observed on similar cases
- Long-run average LGD – based on all observed defaults including incomplete recovery processes with estimated future recoveries
- Margin of conservatism to cover the uncertainty of the estimates of future recoveries

LGD estimation methodologies

- **General principles for estimation** – methodologies consistent with the institution’s collection and recovery policies, take into account possible recovery scenarios and potential differences in the legal environment in relevant jurisdictions
- **Risk drivers**
 - Risk drivers related to transaction, obligor, institution and external factors
 - Reference date for risk drivers representative for the year before default
- **Treatment of collaterals**
 - All main types of collaterals that lead to significant recoveries should be reflected in the LGD estimates – this means that they should meet the requirements of Article 181(1)(f) CRR
 - The sources of cash flows should be appropriately identified regardless of the form of realisation of the collateral (including own sale of the collateral by the obligor)
 - Repossession of the collateral should be treated as a recovery, subject to a haircut to account for the uncertainty around the factual value of collateral

Treatment of defaulted assets

- EL_{BE} and LGD in-default should be estimated in accordance with the same methods as LGD for non-defaulted exposures unless specified otherwise – selected areas of differences are presented in the table:

Aspect	LGD in-default	EL _{BE}
Economic conditions & MoC	LGD in-default should reflect downturn conditions and include MoC and any additional uncertainty	EL _{BE} should reflect current economic conditions and no MoC
Risk drivers and relevant information	All relevant post-default information should be stored and taken into account including time in default, recoveries realised so far as well as the current status and expected length of the recovery process	
Reference date for estimation	Instead of the moment of default an appropriate reference date after default should be used (specified based on the number of days or events)	
Incomplete recovery processes	Incomplete recovery processes should be used only for those reference dates beyond which factual recoveries and costs are observed	

Accounting provisions may be used as a basis for override of EL_{BE}, subject to adjustments in order to reflect the appropriate economic loss as defined in the draft GL

Joint aspects of the estimation of risk parameters

Margin of conservatism - Concept

■ General concept for data and method deficiencies

- Any data or methodological deficiency should be treated if possible with appropriate adjustments in order to achieve most accurate estimates
- Any deficiency (data availability or representativeness, methodological errors or changes in underwriting standards or rating systems) should trigger MoC added to the final estimate

■ Why categorise MoC?

- To achieve necessary transparency to explain justified variability of risk estimates and ensure convergence where applicable

Category	Description	Example
A	Estimation errors due to missing data	Missing default trigger
B	Estimation errors due to available data not being (fully) representative	Changed underwriting standards
C	General estimation errors (including methodological)	Expected uncertainty from errors in rank ordering
D	Other	Recent change in relevant legislation

Conservatism in the application of risk parameters

- **Why monitor additional conservatism in application?**
 - Transparency for the purpose of identifying justified variability
 - Ensuring convergence of level and range of such additional conservatism

Triggers for additional conservatism	Potentially effected parameter
Missing data in current portfolio	Single PD-or LGD Estimations, RWA
Missing update of financial statement	Single PD-Estimations, RWA
Missing re-rating in current portfolio	Single PD-Estimations, RWA

Human judgement

■ Human judgement in model development

- Statistical models have to be complemented by human judgement, in particular in areas such as assessment of assumptions and the choice of risk drivers
- Any human judgement should be properly justified and documented

■ Human judgement in the application of risk parameters

- Application of qualitative variables in the models – clear criteria necessary
- Overrides of inputs and outputs of the models
 - ▶ Clear policy and criteria necessary, including specification of acceptable rate of overrides for each model
 - ▶ Asymmetrical criteria: conservative override unlimited, limited possibility to decrease risk estimate
 - ▶ Correction of inputs – exceptional and well justified
 - ▶ Regular monitoring of levels and justification of overrides – adequate measures to improve the model may be necessary

Re-development, re-estimation and re-calibration

- **Potential triggers for the changes in the models**
 - Results of regular reviews (monitoring or validation)
 - Changes in legal environment
 - Deficiencies identified by internal audit or the competent authority

- **Scope of annual review of estimates**
 - Representativeness analysis
 - Discriminatory power and stability of the model
 - Predictive power of the model
 - ▶ Backtesting
 - ▶ Analysis of whether the inclusion of the most recent data in the dataset used to estimate risk parameters leads to materially different risk estimates


- **Full review** – on a regular basis, frequency to be specified taking into account materiality of the models

Calculation of IRB shortfall or excess

- Level of calculation** – most important aspects already clarified in the RTS on IRB assessment methodology and Q&A 2013_573 – calculation at an aggregate level separately for defaulted and non-defaulted exposures

		All defaulted exposures	
		Shortfall	Excess
All non-defaulted exposures	Shortfall	Cumulative shortfall reported	Netting between shortfall and excess – only difference reported
	Excess	No netting – excess and shortfall reported separately	Cumulative excess reported

Cap for including the excess in Tier 2 capital applicable to the cumulated excess





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