### **Comprehensive Assessment**

with specific focus on the collective provisioning calculation for RRE

12 November 2014 (Francesca Armandillo and Martijn Schrijvers)

## In all Euro area countries an Asset Quality Review (AQR) and a Stress Test was conducted





Non-Euro countries Only Stress Test<sup>1)</sup>

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1) Individuele landen, zoals Polen, hebben ervoor gekozen om zelfstandig ook een AQR uit te voeren Bron: Strategy& analysis

#### Workblocks AQR SSM

Figure 1 Illustration of Phase 2 Workblocks



# The findings of the AQR result in a prudential adjustment to CET1 capital



#### Adjusted CET1 capital ratio's

Source: ECB AQR and Stress test templates, Strategy& analysis



Dutch banks performed relatively well in the test compared to other EU banks



Source: ECB Disclosure templates, Strategy& analysis

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5

In workblock 7, a challenger model is developed to analyze banks' provisioning levels



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### The role of collective provisioning in the AQR

	Impaired	Not impaired
Retail	Collectively assessed	Collectively assessed
Non-retail	Individually assessed	Collectively assessed
		IBNR

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### Provisioning calculation

• A simple 'challenger' collective provisioning model is to be developed by NCA

	Corporate exposures (IBNR only)	Retail exposures
Calculation	• CP = PI x EAD x LGI	• CP = PI x EAD x (1- CR) x LGL
Scope	<ul> <li>Only performing corporate exposures to calculate IBNR</li> </ul>	<ul> <li>Both performing and non-performing retail exposures</li> </ul>

- The model will be parameterised based on observed data for 2013
  - ✓ Entirely consistent with the 'Point In Time' requirement for provisioning purposes
  - $\checkmark$  Chosen to limit the data requirements for the exercise as much as possible
- The 'challenger' model will be applied to the bank's current portfolio and the outputs compared to the bank's current provisioning levels
  - $\checkmark$  If the bank's estimates are higher at a portfolio level, then there is no issue with provisioning levels
  - ✓ If the NCA Bank Team's estimate is higher, then they should seek to understand why, and if the bank's model is not fit for purpose, then the higher provision estimate should be used for the AQRadjusted CET1% and the bank should be required to adjust its approach to ensure it is in line with accounting requirements in future reporting

### Probability of Impairment – Sub segmentation

- Segments are defined to create categories with similar probabilities of impairment by capturing the key risk factors
- Segmentation is by
  - ✓ Asset class
  - ✓ Product type and channel for all Retail exposures only
  - $\checkmark$  LTV for secured assets
  - $\checkmark$  Risk-based segmentation for all asset classes, as per the sampling approach
    - -High risk
    - -High risk cured
    - -Normal cured
    - -Normal

#### Immaterial sub-segments should be merged with the most appropriate other sub-segment.

AQR client segment	Product segmentation	LTV segmentation	Channel segmentation	Risk-based segmentation
RRE	Primary Domestic Home; Buy to Let; Second Home	0-60%, 60-80%, 80%-100%,100- 120%+ 120%+ unknown/error	Broker, Other	High risk, High risk cured, Normal cured, Normal (see sampling methodology)

### Probability of Impairment – Calculation approach

 Create a flag for all exposures which were not impaired in Dec 2012 but were at any point in 2013

 $IFLAG = \begin{cases} 1 & if (NPE2012 = 0 \text{ and } NPE12M2013 = 1) \text{ or } W/O\_LIST \\ 0 & otherwise \end{cases}$ 

 Using the above flag calculate an exposure weighted average impairment rate per segment

Unadjusted  $PI = \frac{EAD (IFLAG)}{EAD (NPE12M_{2012}=0)}$ 

- Where illogical relationships are observed in PI across segments merge segments in order to increase sample size and to ensure sensible rankordering
- Scale PIs for each segment based upon the credit file review findings

#### Merging adjacent segments - example

SEG	PI (observed)	PI (merged)	
NormalA	1.21%	0.42%	
NormalA-	0.00%	0.42%	
NormalBBB+	0.06%	0.42%	
NormalBBB	1.50%	1.50%	
NormalBBB-	1.99%	1.99%	
NormalBB	4.48%	4.48%	
NormalB	10.44%	10.44%	
Normal cureAll	25.33%	25.33%	
High riskAll	18.62%	18.62%	
High risk CureAll	26.01%	26.01%	

# Cure Rate calculation - a roll rate approach will be taken detailing transitions in status from Dec 2012 to Dec 2013

- Create a single set of 'Status' flags by combining NPE, arrears, forbearance, write-off and foreclosure information for both 2012 and 2013
- Create a 1 year roll rate matrix based on 'Status' detailing transitions in status from Dec 2013 and Dec 2013

#### One year roll rate matrix



### Cure Rate – Calculation approach continuation

- The migration matrix is then multiplied 4 times by itself to account for a long enough period for the non-performing cases to resolve.
  - -Assumes loan behaviour between arrears states is Markovian
  - -Assumes no cures occur after 4 years as NPE
- The Cure Rate is then defined as the probability to return to the Performing status, which is shown in the first column

### Multiply to create a four year roll rate matrix - example



#### Cure Rate – Calculation approach

- □ Cure is defined as returning to PE, i.e. being less than one month in arrears
- □ Given that the observed migration behaviour is somewhat noisy (given the number of observations), it is necessary to fit a relationship between the time in arrears and cure rate that is monotonic and reflective of the concave nature of the relationship
- □ A Weibull function is applied (consistent with hazard rate analysis)

$$CR = \frac{k}{\lambda} \left(\frac{MPD}{\lambda}\right)^{k-\lambda} e^{-(MPD/\lambda)^{k}}$$

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 $\Box$  A least-squares approach is used to obtain an optimal fit for the parameters k and  $\lambda$ .

### Weibull curve fitted to data derived cure rates - example



#### Retail mortgages LGL – Overview

#### 120 Value Percentage of original valuation h 99 00 001 Indexed to today 2 Indexed forward 3rd party 3c appraisa Sales haircut Costs 20 haircut 0 Bank Bank Indexed Final valuation valuation valuation value (books) (today) (time of (time of sale) sale) Based on Oliver Wyman analysis of sales log and 3rd party appraisals

Based on national series, information provided by appraisers and scenario definitions

- The LGL framework for retail mortgages essentially involves deducting from the outstanding balance at default, the discounted value of the property collateral, taking into account:
- ✓ Overestimation of appraisal values (assessed based on findings from 3rd-party review)
- ✓ Sales discounts on appraisal values following foreclosure
- $\checkmark$  Volatility in recoveries
- $\checkmark$  Direct costs (i.e. auction fees, appraisal fees, etc.)
- ✓ Accrued interest/discounting of recoveries

#### Retail mortgage LGL - illustration

#### Retail mortgages LGL – Indexed LTV to LGL

#### □ LGL is a function of indexed LTV

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- A transformation is made to ensure that, regardless of the indexed LTV, the collective provision is greater than 0
- If the bank uses MIG as a loss mitigant, then the LGL should be reduced by an appropriate amount reflecting the MIG
  - Probability that the claim will be successful and the level of the cover should be accounted for
  - If reliable statistics around claim success rates are not available then MIG should be ignored, unless objective evidence suggests otherwise

#### **Illustration of LGL formula**



# Application of challenger model and comparison of outputs to the bank's provisioning levels

□ If the bank's estimates are higher at a portfolio level, then there is no issue with provisioning

□ If the NCA Bank Team's estimate is higher

- \* By less than 5%. The significant bank's aggregate provisions should be accepted
- \* *By 5%-10%.* If the NCA Bank Team's feels there are good reasons for this relating to data or methodology the significant bank's aggregate provisions should be accepted.
- \* *In all other circumstances*. The NCA Bank Team should seek to understand the reasons why the Challenger Model provisions exceed the significant bank's own provisions by investigating the significant bank's model and data.

If after investigation the bank's collective provisioning model is found to be out of line with accounting rules then the challenger model should be used.

#### Collective provisions results for the Dutch RRE portfolios

Residential Real estate	Credit Risk RWA YE 2013	Portfolio selected in Phase 1	Adjustment to provisions due to collective provisioning review		Impact on CET1 capital	
	Mill. EUR	% of RWA selected in Phase 1	Basis Points	Mill. EUR	Basis Points	Mill. EUR
Abn Amro	19.476	80%-100%	0	0	0	0
Rabobank	26.303	80%-100%	8	159	-8	-159
ING Bank	54.189	80%-100%	5	146	-5	-146
SNS	7.723	80%-100%	62	92	-62	-92

source: ECB disclosure templates

## Questions?

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