Deloitte.

Asset Quality Review

Methodology Overview Report

17 December 2013

Strictly private and confidential

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1. INTRODUCTION

Deloitte d.o.o. has been engaged by Nova Ljubljanska Banka d.d. ("NLB" or "the Bank") to carry out an Asset Quality Review ("AQR") of NLB as of 31 December 2012 ("Reference Date") as part of a broader system-wide stress test ("ST") of the Slovenian banking sector ("Participating Institutions") which is being carried out by the Stress Test Consultant ("Oliver Wyman" or "ST Consultant").

Based on discussions between the Bank of Slovenia ("BOS"), the Ministry of Finance of the Republic of Slovenia (the "MOF") and representatives of various European Institutions, and in accordance with the notification No. 403-36/2013/126 dated on 9 August 2013 sent by the MOF to NLB, and in accordance with the notification No. 24.00-0623/13 dated on 9 August 2013 sent by BOS to NLB, the scope of the independent AQR and Stress Test was extended. The extended scope was required to support a bottom up stressing testing exercise, including additional activities required to ensure that the AQR and Stress Test exercises are more in line with similar exercises performed elsewhere in the European Union ("EU"). The revised Terms of Reference ("TOR") are included in Appendix I.

Our report was prepared in accordance with the above referred TOR; our Contract was signed with NLB dated 5 July 2013 and Annex I of that Contract dated 19 August 2013. Our Services under this Contract have not included an Audit, an Examination of internal controls, or other Assurance services. Accordingly, we do not express an Opinion or give any other form of Assurance on the financial statements or any other financial information, or operating or internal controls of NLB.

In accordance with our Contract with NLB, NLB can provide our Report on a confidential, non-reliance basis to (a) the Ministry of Finance, Bank of Slovenia and other agencies and departments of the Republic of Slovenia to the extent required by law as well as to (b) the European Commission or other EU institutions that are observers on the Steering Committee, to the extent required by state aid rules applicable to the case of NLB as well as to (c) Oliver Wyman and to (d) BAMC and their advisers. In Annex III of our Contract dated 24 October 2013 NLB agreed that Deloitte can provide draft reports, final reports and supporting analyses (Deliverables) to BOS on a non-reliance basis, based without the prior approval of NLB and in advance of providing such Deliverables to NLB.

We shall not be responsible for any subsequent elaboration of the Deliverables which is made by the Stress Test Consultants for the purposes of their own reports to you or for any other purpose, nor for the actions, findings, opinions and/or quality and nature of performance of the other advisors (including the Stress Test Consultants) involved in the Stress Test whatsoever (including any inaccuracy, omission, misinterpretation, mistake or other failure contained in or reflected in any report from the ST Consultants to NLB or the BoS, or any other third party whether due to negligence, incompetence or willful misconduct of any such ST Consultants.

This report may not be made available or copied in whole or in part to any other parties or persons without the express prior written consent of Deloitte or except in accordance with the terms of the Contract. Deloitte accept no responsibility for any reliance that may be placed on this report should it be used by any party or for any purpose that has not been expressly agreed by Deloitte.

Management of NLB has confirmed to us that to the best of their knowledge and belief after making appropriate enquiries (i) the facts, as stated in the loan files are accurate in all material respects; (ii) any opinions attributable to them are fairly stated and reasonably held; (iii) they have made available to us all significant information relevant to scope of work; and (iv) they are not aware of any material matters relevant to our terms of reference which have been excluded.

This report provides an overview of the methodology we used in conducting the Asset Quality review of NLB and its subsidiaries ("NLB Group") in accordance with the TOR. It has been produced as a separate document for ease of use but nevertheless forms an integral part of the overall work conducted at the Bank; as such, it should be read in conjunction with the other constituent reports in order to gain a full understanding of the situation and findings.

Together the above activities constitute the Asset Quality Review – Methodology Overview work-streams. The results of our work have been summarised in Sections 2 to 7 of this Report and the related Appendices.

Separate reports will cover other aspects of our work related to the Asset Quality Review:

- Asset Quality Review – Data Reconciliation, Data Completeness & Data Integrity Verification.
- Asset Quality Review – Process Review; and
- Asset Quality Review – Quantitative Loan Portfolio Analysis.

1.1. Scope of the exercise

In accordance with the TOR, the AQR shall consist of two principal areas of work:

- A quantitative portfolio analysis of the material exposures in the balance sheet of the Participating Institution together with an assessment of certain risk-related processes (the "Core AQR"); and
- The provision and checking of information and other support to the ST Consultant for the purposes of the system-wide ST ("AQR ST Support"). The ST will be conducted according to a bottom-up approach and will be based on credible macro-economic scenarios agreed by the Steering Committee.

The methodology discussed herein has been designed in order to perform the AQR procedures. Furthermore in accordance with the TOR, the scope of this exercise includes the following asset classes:

- Retail Mortgage: credit exposures to physical persons collateralised by a Real Estate collateral (please note that the definition used at NLB and HAA differentiates, please refer to the Retail section, Chapter 3 for further clarifications);
- Retail Other: any credit exposures to physical persons not included in Retail Mortgage segment;
- SME: credit exposures to non-physical persons that meet any two of the following criteria (excluding Real Estate development and in line with the ZGD-1 Article 55):
    - it has an average of fewer than 50 employees in a financial year;
    - it has an annual turnover of less than EUR 8 800 000; and
    - the value of its assets is less than EUR 4 400 000;
    - If financial information is not available, non-physical persons with less than EUR 1 million banking group level exposure will be classified as small business;
    - Please note that the AQR adjustments for the SME portfolio were calculated under 2 different approaches:
        - Where SME exposures were subject to the loan file review, the AQR adjustment was estimated individually under the approach described in the Corporate section (please refer to Chapter 5);
        - For the remaining part of the SME portfolio the AQR adjustment was estimated using the statistical approach and incorporating input from the SME file review described in the SME section (please refer to Chapter 5).
- Corporate: credit exposures to non-physical person that meet any two of the following criteria (excluding Real Estate development and in line with the ZGD-1 Article 55):
    - it has an average of 50 or more employees in a financial year;
    - it has an annual turnover of EUR 8 800 000 or more; and
    - the value of its assets is EUR 4 400 000 or more;
    - If financial information is not available, non-physical persons with at least than EUR 1 million banking group level exposure will be classified as corporate.
- Real Estate development: credit exposures to non-physical person with industry classification belonging to the following NACE codes: 41.00, 41.10, 41.20, 68.00, 68.10, 68.20.
- Treasury assets.

The review included any off-balance items associated with these asset classes as well as associated provisions.

2. METHODOLOGY – SAMPLING

2.1. Loan file review sampling

This section covers the sampling methodology utilised for the main part of the AQR exercise. It excludes sampling for the DIV exercise, details of which are provided in the related report.

Sampling requirements from the TOR

The sampling requirements for the AQR were set out at a high level in the project TOR:

- Sample size: it should be a random sample across all asset classes representative to each portfolio. The sample for corporate, real estate development and small business segments should be statistically significant so that the findings can be extrapolated across portfolios. Except for the individually not reviewed small business and the retail portfolio the sample size could be proportional to the size of the asset class as % of total loan book or % of CT1 capital. Moreover at least loans that exceed a threshold of NBV of EUR 10 M (i.e. including any existing risk provisions) should be subject to a direct/manual review.

Sampling requirements from the MOU

The sampling criteria were further augmented following discussion with the ST Consultant with the final agreed position being incorporated into a Memorandum of Understanding ("MOU") between the AQR Provider and the ST Consultant:

- For the individual file reviews, the banks have been split into three tiers (see Table 1) depending on their asset size. The size of samples requested for banks depends on their tier.
- In principle it is accepted that credit facilities of insignificant values can be excluded from the relevant sample. The AQR Provider and the ST Consultant will agree on the appropriate threshold for each Tier 1/2/3 to be applied on a case-by-case basis and according to preliminary analysis of the data.
- Individual file reviews, will be focused on:
    - Minimum random samples from each individual segment as tabulated below[1].
    - The randomness and representativeness of the above selection should be capable of being demonstrated at least considering geography industry and loan size sub-segments (for each of the mentioned criteria both in terms of number of loans and gross exposure coverage)[2].
    - In addition to the samples selected randomly by geography industry and loan size, all loans with an exposure above EUR 10 M will be reviewed. The volume of files relating to the EUR 10 M file review will count towards the random sample and the overall target is to achieve the target gross exposure coverage as indicated below in table 2.
    - Files will be evaluated by way of a review of the borrower / legal entity related to each individual file selected such that some borrowers will have several loans included in one or more portfolio samples. Notwithstanding this, in case of connected loans where some loans are not included in the random sample, only loans in random sample will be reviewed for the purpose of ST Consultant output tables.
    - The number of files to be sampled per segment is intended to be a minimum requirement but this will be reassessed once each Participating Institution's data tape has been received. In accordance with the AQR Responses and other discussions with the EU Institutions, the AQR Providers will seek to achieve either the sample sizes in unit terms as set out in the MoU or the following portfolio coverage within the file review process for each Participating Institution (per segment as defined in Appendix "AQR exercise inputs"):
    - RE Developers and Corporate segment – approximately 60%, or greater, of gross exposure at the consolidated Group level

[1] If the total number of assets a bank has on its books for a particular asset type is less than the requested sample size, then all assets should be used in the valuation set.

[2] Each of listed stratification criteria (geography, industry, loan size) should be viewed separately on a stand-alone base. The AQR Providers and the ST Consultant will agree on the loan size band to be used in the representativeness analysis on case by case basis and according to preliminary analysis of the data.

- Small Business segment – approximately 25%, or greater, of gross exposure at the consolidated Group level.

- If the levels of portfolio coverage indicated above are not practical to deliver for any Participating Institution or specific portfolio, for example, where the relevant portfolio is comprised of many small exposures with no significant concentrations, then the AQR Provider will recommend a revised level of coverage to ST Consultant.

Table 1

	NLB
	Abanka
	NKBM
	Banka Celje
	Gorenjska Banka
	Hypo Alpe Adria Bank
	UniCredit
	Probanka
	Factor Banka
	Raiffeisen Banka

Tier 1: assets > EUR 3 BN
Tier 2: assets between EUR 1.5 BN and EUR 3 BN
Tier 3 : assets < EUR 1.5 BN

Table 2 Individual loan review sample - by banking group

		Tier 1 Banks		
		Random sample		
Segment	**Top loans (by net exposure value)**	**Performing borrower facilities**	**Non-performing borrower facilities**	**Target gross exposure coverage (%)**
Real Estate Developers[3]	All loans over EUR 10 million	100	50	60
Corporate		100	50	60
Small Business		100	50	25
Retail Mortgages		100	50	n/a
Retail Other		50	25	n/a
Total	**TBD**	**450**	**225**	**n/a**

[3] Real Estate Development is defined as non-physical person counterparty with industry classification belonging to the following NACE codes '41', '411', '4110', '4120', '68', '6810', '6820',

Tier 2 Banks				
		Random sample		
Segment	Top loans (by net exposure value)	Performing borrower facilities	Non-performing borrower facilities	Target gross exposure coverage (%)
Real Estate Developers[4]	All loans over EUR 10 million	60	30	60
Corporate		60	30	60
Small Business		60	30	25
Retail Mortgages		60	30	n/a
Retail Other		40	20	n/a
Total	**TBD**	**280**	**140**	**n/a**

Tier 3 Banks				
		Random sample		
Segment	Top loans (by net exposure value)	Performing borrower facilities	Non-performing borrower facilities	Target gross exposure coverage (%)
Real Estate Developers[4]	All loans over EUR 10 million	40	20	60
Corporate		40	20	60
Small Business		40	20	25
Retail Mortgages		40	20	n/a
Retail Other		40	20	n/a
Total	**TBD**	**200**	**100**	**n/a**

Implementation of the sampling requirements

Two approaches were adopted for sampling based largely on a practical assessment of feasibility in the context of the relevant Banks' balance sheets:

- A multi-step process for the selection of individual exposures taking into account exposure size on counterparty/connection level; and
- Random sampling on contract level which was used for selecting individual credit contracts from statistically assessed SME and Retail portfolios.

[4] Real Estate Development is defined as non-physical person counterparty with industry classification belonging to the following NACE codes '41', '41.1', '41.10', '41.2', '68', '68.10', '68.20'

The multi-step sampling process was adopted for the less-homogenous segments including BAMC, RED and Corporate (including related SME) as follows:

- Selection of all exposures above EUR 10 M on client level (in accordance with TOR);
- Added the biggest connected exposures (e.g. subsidiaries, parent co., sister companies, connected through cross-collateralization, cross-ownership, cross- guarantee etc.) so that 2 or more largest companies by exposure within a group have then been selected and covered individually;
- Added all loans of the specific borrowers irrespective of underwriting entity of the banking group;
- Added all connections irrespective of segment they are assigned to (i.e. including SME) to have consolidated information and cover the whole exposure of the bank (on group basis) towards a particular connection;
- All selected borrowers were aggregated and the total exposure checked against the target coverage set for the given segment and overall (60% for all three aforementioned segments and 25% for Small Business, respectively).
- Population for sampling is limited in respect of both minimum on balance sheet and on- and off-balance sheet thresholds of EUR 1 and EUR 1,000, respectively.

Example: ABCDE group (one of the top FMCG companies in Slovenia), where the individual credit review was performed for four companies within the group: company A, company B, company C and company D, all in Slovenia, as well as for randomly selected company E based in Kosovo. In addition, overall group loan review template was used and group sustainable debt was assessed to establish AQR adjustment on ABCDE group level.

For ST purposes, exposures above EUR 10 M were supplemented with a minimum random sample agreed between AQR providers and ST Consultant in accordance with the MOU criteria. Such randomly selected samples (when added to the exposures selected through the multi-step approach) were required to be statistically valid.

Samples were selected by Deloitte from credit data tapes provided by the Banks, i.e. no involvement of the banks in sampling was permitted.

Sample representativeness for both AQR and ST purposes was assessed using a Population Stability Index ('PSI') test which describes the proportion of the distribution of the sample population versus the entire population. The PSI formula is given by:

$PSI=\sum((n1\ i\ /N1)-(n2\ i\ /N2))*\ln((n1\ i\ /N1)/(n2\ i\ /N2))$ where:

n1 i ,n2 i - the number of observations in bin i for population 1 (whole population and 2 (sample) N1,N2 - the total number of observations for population 1 (whole population) and 2 (sample)

As a rule of thumb, a PSI:

- <0.1 indicates minimal change in the population.
- 0.1 to 0.2 indicates changes that might require further investigation, and
- >0.2 indicates a significant change in the population.

Should PSI>0.2 occur when testing sample representativeness for any given criteria, necessary additions/removals from the sample were made to keep PSI at maximum of 0.2. The population distribution was established for all main criteria including (i) industry, (ii) bank rating, (iii) country of bank underwriting entity, (iv) segmentation. The PSI was tested for each of these criteria during sampling process until samples were confirmed to be fully representative taking into account decision of the Steering Committee on materiality thresholds (i.e. that only subsidiaries representing more than 5% of bank's total assets were considered material).

2.2. Real Estate sampling

Sampling requirements from the TOR

The sampling requirements for the AQR were set out at a high level in the project TOR:

An independent real estate appraiser will be engaged as part of the overall AQR and stress test exercise to undertake independent real estate appraisals (drive by and desk top) across different collateral types, including both random sampling of large and small collaterals, as well as the largest collaterals of counterparties.

The REAs were engaged to value a representative sample of the real estate assets that the Bank held as collateral. The sample was split according to type and value and the valuations methodologies varied according to the sample element.

Sampling requirements from the MOU

The sampling criteria were further augmented following discussion with the ST Consultant with the final agreed position being incorporated into a Memorandum of Understanding ("MOU") between the AQR Provider and the ST Consultant:

Real Estate valuation sample should follow the size reported in Table 3, across the different collateral types, including both random sampling of large and small collateral, as well as the largest collateral of top counterparties.

Table 3 Collateral tape sample - by banking group

Tier 1 Banks			
Type of collateral	**Top collaterals (top counterparties)**	**Random sample**	
		≥ EUR 1 million (Drive-by valuation)	**< EUR 1 million** (Desktop valuation)
Finished Residential Real Estate	20	100	10,000[5]
Finished Commercial Real Estate	20	100	200
Development in progress	20	50	100
Land	20	50	100
Total	**80**	**300**	**10,400**

[5] Assuming automatic appraisal techniques are used to estimate parameters and valuations. This sample size can be reduced if 75% of total number of finished residential collaterals are covered

Tier 2 Banks			
Type of collateral	**Top collaterals (top counterparties)**	**Random sample**	
		≥ EUR 1 million (Drive-by valuation)	**< EUR 1 million** (Desktop valuation)
Finished Residential Real Estate	5	30	3,000
Finished Commercial Real Estate	5	30	55
Development in progress	5	15	30
Land	5	15	15
Total	**20**	**90**	**3,100**

Tier 3 Banks			
Type of collateral	**Top collaterals (top counterparties)**	**Random sample**	
		≥ EUR 1 million (Drive-by valuation)	**< EUR 1 million** (Desktop valuation)
Finished Residential Real Estate	5	15	1,500
Finished Commercial Real Estate	5	15	30
Development in progress	5	10	15
Land	5	10	15
Total	**20**	**50**	**1,560**

- The sample size of desktop valuations used for "finished Residential Real Estate" collateral types for Tier 1 banks can be reduced if the number of finished "Residential Real Estate" collateral a bank has is greater than the requested sample size and 75% coverage in number of finished residential collateral is reached. The sample sizes of the other collateral types for Tier 1 banks and all collateral types for Tier 2 and Tier 3 banks should not be modified. In the event that there are insufficient "finished Residential Real Estate" assets to meet the full sample size then the desktop valuation figure should be replaced with the actual number of assets that the bank owns.
- If the total number of loans in bank portfolio in "≥ EUR 1 million" bucket is less than the requested sample size, top exposures below EUR 1 million should be selected for drive by valuations to reach the requested sample size.
- If the total number of assets a bank has on its books for a particular asset type, which belongs to either "Finished Commercial Real Estate", "Development in progress" or "Land" collateral type, is less than the requested sample size, then all assets should be used in the valuation set. However, in order to reach the total number of real estate valuations for the bank, remaining valuations should be distributed to other asset types, namely – "Finished Commercial Real Estate", "Development in progress" or "Land".

- Evidence should be provided on the representativeness (in terms of number of observations and exposure-coverage) of the overall collateral sample compared to the population from which it was extracted in terms of:
    - Collateral geographic distribution;
    - Performance status (performing vs. non-performing) of the borrower;
    - Entities of the banking group distribution.

Implementation of the sampling requirements

The methodology applied for the sampling of Real Estate assets was originally to be to select the appropriate number of assets in each of the categories in the tables above, with the finished residential real estate desktops to be valued by the use of an Automated Valuation Model ("AVM"). However, a number of Banks were unable to provide the necessary information required for the use of an AVM. Therefore, based on methodology agreed at OpCo and SteerCo, two alternative options were considered:

Alternative Approach 1 – Indexation of Transaction Prices: This involved the indexation of either historic transaction prices to today's price based on an index. This would be compared against the value the Bank holds the asset on its books at to determine a haircut.

Alternative Approach 2 – Drive-by samples: This approach takes a smaller sample and a full drive by valuation is undertaken.

When a further review of the Bank's data was undertaken, it was found not to be possible to determine the historic transaction price of the asset. Therefore, it was agreed with the ST Consultant to use Alternative Approach 2, replacing the 10,000 low value residential desktops with 200 drive-by valuations.

3. METHODOLOGY - STATISTICAL AQR ADJUSTMENTS (RETAIL)

3.1. General approach

The methodology described in this section is applied in order to estimate the level of credit losses incorporated within the Retail portfolio as of the Reference Date (the "AQR assessment").

The general concept of the methodology is based on a statistical approach as the Retail portfolio can be usually considered sufficiently large and granular. Therefore:

- Retail portfolio PD and LGD parameters are calculated collectively for homogenous groups of financial assets ("Segments"), based on the bank's historical data, and further applied to individual exposures classified to respective Segments,
- Where the data availability is limited, alternative approaches to estimation of individual risk parameters (e.g. expert judgment) are applied and extrapolation techniques as well as benchmarking in respect of credit quality are considered.

3.2. Default definition

The following general indicators to define the defaulted (non-performing) population are utilized:

- Overdue more than 90 days on a material amount[6],
- Start of the workout proceedings,
- Insolvency/Bankruptcy of the debtor,
- Restructuring due to financial problems of the debtor,
- Write-off of an exposure,
- Sale of an exposure (under bad debt sale proceedings).

Having at least one of the above criteria met, an exposure can be reclassified back to performing status if the conditions below are fulfilled simultaneously for three consecutive months (re-aging period):

- Overdue amount is repaid in full or overdue amount fell below the materiality threshold, and
- No default criteria are met.
- The re-aging period of three months is applied in order to:
- Ensure that the reclassification of an exposure into performing status is justified, in particular to distinguish successful restructuring cases,
- Overcome the potential data availability and quality issues,
- Decrease the volatility of exposure migrations between performing and non-performing status for the purpose of the risk parameters estimation.

3.3. Portfolio segmentation

In accordance with the general assumptions, the total Retail book of the Banks has been split into 3 parts:

- Covered with bottom-up approach – exposures for which sufficient historical data is available,
- Covered with top-down analysis (including expert judgment and extrapolation) – material exposures for which historical data is not available, not representative or of insufficient quality,

[6] For each bank the material amount will be set to best reflect bank's retail monitoring process, however it shall not be higher than regulatory level of 200 EUR defined by Bank of Slovenia.

- Not covered with Deloitte's analysis – non-material exposures for which historical data is not available, not representative or of not sufficient quality.

For the purpose of credit loss estimation, the Retail book is further divided into Risk portfolios based on product types and/or collateral types.

Additionally, for the purpose of bottom-up statistical modeling, each exposure within a defined Risk portfolio is assigned to a Segment (representing its performance status) based on the segmentation criteria presented in the table below.

Table 4 Segmentation Criteria

S1	Non-defaulted exposures which are not overdue or overdue < material amount	Non-default
S2	Non-defaulted exposures overdue 1-30 days on material amount	Non-default
S3	Non-defaulted exposures overdue 31-60 days on material amount	Non-default
S4	Non-defaulted exposures overdue 61-90 days on material amount	Non-default
S5_0	Exposures which entered the default status in a given month	Default
S5_1	Exposures in default status for more than 1 month and less than 2 months	Default
S5_2	Exposures in default status for more than 2 months and less than 3 months	Default
[S5_3 to 10]	[As above for each monthly period ...]	Default
S5_11	Exposures in default status for more than11 months and less than 12 months	Default
S5_12	Exposures in default status for more than 12 months	Default

3.4. Loss amount

AQR assessment of loss amount is calculated based on the following equation:

$$\text{Loss Amount} = PD * EAD * LGD$$

where:

- PD (Probability of Default) – the probability that an exposure will default during one year[7],
- EAD (Exposure at Default) – the basis for loss estimation computed differently depending on the type of product (non-revolving/revolving),
- LGD (Loss Given Default) – the percentage of the EAD that will be lost in case of default.

For non-revolving products (e.g. cash loans, mortgage loans) the basis for loss estimation is represented by the on-balance exposure:

$$EAD = \text{on\_balance exposure}$$

In case of revolving products (e.g. overdrafts, credit cards) the basis for loss estimation considers on-balance and off-balance exposure (i.e. unutilized available limit) as well as the average limit utilization represented by the utilization factor:

$$EAD = \max((\text{on\_balance exposure} + \text{off\_balance exposure}) * \text{Utilization\_factor}; \text{on\_balance exposure})$$

The utilisation factor for non-defaulted products is calculated based on historical observations of the average utilisation of the granted limit as of the default date, whereas for defaulted products it is assumed to be equal to one.

[7] For defaulted exposures PD equal to one is applied in the presented formula.

The loss amount for revolving products is further split into the part related to on-balance and off-balance sheet exposures according to the following formulas:

$$\text{On\_balance part} = \text{PD} * \text{on\_balance exposure} * \text{LGD}$$

$$\text{Off\_balance part} = \text{Loss Amount} - \text{On\_balance part}$$

For the purpose of the bottom-up approach, the AQR assessment of loss amount is performed at individual contract level. In top-down approach the analysis is based on aggregated positions representing a similar risk profile.

3.5. PD estimation

PD parameters for non-defaulted segments are calculated based on a migration matrices approach. Monthly historical data covering the period December 2011 – December 2012 are utilized (twelve migrations)8.

Depending on the Risk portfolio characteristics (often linked to product type) two approaches are applied:

- Based on principal-based migrations (exposure weighted) – applied for the portfolios in which exposures are diversified in terms of granted amount and repayments are likely to influence the exposure amount eventually entering default status. Generally this applies to non-revolving products.
- Based on the number of migrations (non-exposure weighted) – applied for the portfolios in which exposures are less varied in terms of granted amount, average exposure is relatively small and exposure amount for a given contract fluctuates significantly between balance sheet dates. Generally, this applies to revolving products.

The table below presents the structure of the one month average migration matrix, which constitutes the starting point for the PD estimation for each Risk portfolio.

Average matrix is computed through:

- adding all migrations from month 't' to 't+1' for a given matrix cell for all months under consideration, and
- dividing the value in each cell by the sum of exposures (number or principal depending on the approach) in a given matrix row, as of month t, for all months under consideration.

Table 5 One month migration matrix

		Segment at month t+1							
		S1	S2	...	S5_11	S5_12	C	W	R
Segment at month t	S1	$P(S1,S1)$	$P(S1,S2)$	...	$P(S1,S5\_11)$	$P(S1,S5\_12)$	$P(S1,C)$	$P(S1,W)$	$P(S1,R)$
	S2	$P(S2,S1)$	$P(S2,S2)$	...	$P(S2,S5\_11)$	$P(S2,S5\_12)$	$P(S2,C)$	$P(S2,W)$	$P(S2,R)$
	...	...	...	...	...	...			
	S5_11								
	S5_12	$P(S5\_12,S1)$	$P(S5\_12,S2)$	...	$P(S5\_12,S5\_11)$	$P(S5\_12,S5\_12)$	$P(S5\_12,C)$	$P(S5\_12,W)$	$P(S5\_12,R)$

8 The key reason to use 1 year historical data horizon is to capture the early signals of deterioration of retail segment in Slovenia and to properly reflect the relevant impact in the PD parameter, which will constitute point-in-time PD.

Extension of the historical data horizon to maximum 2 years (24 migrations) shall be considered if:
- Number of default observations within 1 year horizon for a given Risk portfolio is perceived not statistically sound, and
- Historical data covering additional period are deemed to be representative for current environment.

Where:

- S1, S2, ..., S5_11, S5_12 denote the defined Segments
- Individual matrix term, P(Si, Sj), for all Segments S1, S2, ..., S5_11, S5_12 denotes:
  - the number of exposures/principal balance as of month t+1 for all exposures assigned to Segment i at the end of month t and to Segment j at the end of month t+1, as a fraction of,
  - the total number of exposures/principal balance as of month t assigned to Segment i at the end of month t,
- C represents closed-repaid status,
- W represents written-off status,
- In case of 'non-exposure weighted' approach individual matrix term, P(Si, Xj), for additional Segments (X = {C, W}) denotes:
  - the number of exposures assigned to Segment i at the end of month t and to Segment j at the end of month t+1, as a fraction of,
  - the total number of exposures assigned to Segment i at the end of month t,
  - In case of 'exposure weighted' approach individual matrix term, P(Si, Xj), for additional Segments (X = {C, W}) denotes:
  - the principal balance as of month t for all exposures assigned to Segment i at the end of month t and to Segment j at the end of month t+1, as a fraction of,
  - the total principal balance assigned to Segment i at the end of month t,
- R represents repayments during the month (applicable only for principal-based migrations).

C, W, R statuses are absorbing (exposure entering C, W or R status does not leave the status). Repayments are calculated based on monthly principal balance change.

The following transformations are applied to the one month average migration matrix in order to obtain the PD parameter for each non-defaulted Segment within each Risk portfolio:

- In case of a 'number of migrations' (non-exposure weighted) approach, exposures below a materiality threshold are excluded,
- The absorption concept is applied for all defaulted Segments (i.e. migrations from default to non-default status are not taken into account) in order not to capture the effect of cured exposures in the PD parameter (this effect is modelled in the cure rate parameter as described in the next section),
- 1-year average migration matrix is derived from average monthly migration matrix raised to the power of 12.
- Based on a 1-year average matrix, the probability of default for each non-defaulted Segment is derived according to the following formula:

$$PD(Si) = \sum_{j} P(Si, Sj)$$

Where:

- i - denotes a non-defaulted Segment (i.e. S1, S2, S3, S4),
- j - denotes a defaulted Segment (i.e. S5_0,S5_1,...,S5_12, W).

3.6. LGD estimation

The basic assumption under LGD estimation approach is to consider two primary sources by which the Banks' claims are fulfilled:

- Voluntary repayments,
- Collateral realisation (applicable for secured loans).

The LGD parameter is calculated according to the formula:

$$LGD = (1 - CR) \cdot \frac{EAD - Coll - Rep\_in\_default * EAD}{EAD}$$

Where:

- EAD denotes the basis for loss amount estimation,
- CR denotes the cure rate, i.e. the probability that the exposure leaves the default status within a horizon of 12 months after the default date[9],
- Coll denotes the discounted value of the expected recovery from collateral[10],
- Rep_in_default denotes the percentage of exposure to be repaid within 12 months after default assuming the exposure is not cured within this period.

Cure rate and Rep_in_default parameters are calculated based on monthly historical data covering the period of December 2010 – December 2012 (24 migrations)[11].

Cure rate is computed for each defaulted segment, based on the migration matrix constructed as outlined in the PD section, using following formula:

$$CR(Sj) = \sum_{j} P(Sj, Si)$$

Where:

i - denotes non-defaulted Segment (i.e. S1, S2, S3, S4, C),

j - denotes defaulted Segment (i.e. S5_0, ... S5_12, W).

Rep_in_default is expressed as percentage of exposure at default and calculated as the average portion of principal that was repaid within 12 months after default, in cases where that exposure was not cured.

3.7. Collaterals

For the purpose of LGD calculation only the collateral considered eligible and material in terms of value (at Retail book level) are taken into account. The following types of collateral may influence LGD levels:

- Mortgage collaterals,
- Eligible financial collaterals:
- Deposits placed as collateral,
- Bonds,
- Shares,
- Irrevocable and unconditional guarantees from the Republic of Slovenia,
- Irrevocable default insurance contracts.

Under standard approach the discounted value of the expected recovery from collateral (Coll) is calculated on a transaction level according to the formula below and further applied in the LGD computation formula from the previous section.

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[9] Contracts closed without loss, i.e. not written-off and not closed due to restructuring, are considered cured.

[10] Applies for mortgage collaterals and other eligible collaterals for which base approach was applied. Base approach for collaterals treatment is described in the next section.

[11] Shorter historical data horizon shall be considered in case of data unavailability, poor quality or lack of data representativeness.

$$\text{Coll} = \sum_{m} \text{Coll\_Value} \cdot (1 - \text{Haircut}) - \text{Prior\_Charge}$$

Where:

- m indicates that all collateral for a given exposure are summed up,
- Coll_Value denotes the market value of real estate in case of mortgages, or nominal value in case of other eligible collaterals,
- Haircut denotes haircut related to the collateral collection process, as described further in this section,
- Prior_Charge denotes the amount of prior charges on collateral (applicable for mortgages only).

Real estate Market Value assessment

In assessing the market value of the underlying real estate two sources are taken into account:

- Valuation performed by an independent real estate appraiser involved in AQR, and
- Value reported by the bank.

As a general rule, values provided by the independent real estate appraiser were considered to be the relevant market value, unless a bank has provided a lower valuation. In these cases, bank's value was taken on the basis that bank may have other, more detailed knowledge on the underlying asset that might influence the value and which would not have been available to the independent appraiser.

For valuation of real estate assets not covered by independent appraisal[12], MV haircut is calculated for each real estate sub-portfolio ("RE portfolios") based on the following formula:

$$\text{MV haircut} = 1 - \frac{\sum_{i=1}^{n} \min(\text{RE appraiser value; Bank's value})}{\sum_{i=1}^{n} \text{Bank}' \text{s value}}$$

Where:

- n is the number of real estate assets in the RE sample within a given RE portfolio,
- RE appraiser value represents the value of a given real estate derived by the independent real estate appraiser,
- Bank' s value represents the value of a given real estate from the Bank's data base.

The RE portfolios are distinguished based on the property type (Residential / Non-residential) and location (Prime / Non-prime)[13]. The second criterion is applied only for the residential real estate portfolio.

Market value of each real estate (including real estates contained in RE sample) is calculated as:

$$\text{Coll}_{\text{Value}} = \text{Bank's value} \cdot (1 - \text{MV haircut})$$

Where:

- Coll_Value denotes the market value of real estate,
- Bank's value represents the value of a given real estate from the bank's data base,
- MV haircut represents the market value haircut.

Haircuts

For real estate collateral, the market value calculated according to the above assumptions is further adjusted with a haircut related to the collateral collection process, i.e. a haircut resulting from collection costs (legal fees, asset

[12] Assessment is made only on a sample basis and differs for individual banks (depending on the data availability).

[13] Definition of prime locations according to the Bank's internal policies and as used by the independent RE agency, GURS.

maintenance, security, remarketing and sales costs, and a time value factor[14]. From a methodological perspective two haircuts are distinguished:

- 35% discount to the assessed current market value if the asset is considered to be realisable within 5 years,
- 45% discount to the assessed current market value if a subsequent two years was estimated to be required.

In practice, the independent real estate appraiser did not indicate a realisation period longer than 5 years for the vast majority of real estate asset in the sample (for all Banks under consideration) and, as a result, the collection process haircut of 35% was eventually applied for the entire real estate portfolio related to retail exposures.

The following haircuts are applied to other eligible collateral types:

- Deposits placed as collateral – 0% (considered immediately available at its nominal value),
- Irrevocable and unconditional guarantees from the Republic of Slovenia – 0% (assume no material risk of not meeting pay-out criteria),
- Bonds – 10%,
- Shares – 20%,
- Default insurance contracts – set individually depending on the assessment of effectiveness of the insurance realisation process.

Alternative approach

In order to avoid double counting of repayments/cured contracts for defaulted exposures, for all material portfolios secured with collateral to be realised within 12 months after default15 one of the following approaches shall be applied:

- exposures secured with these collateral are to be excluded from the Cure rate and Rep_in_default calculations, or
- recoveries resulting from these collateral are to be accounted as a part of the Cure rate and Rep_in_default calibration, hence the amounts of such collateral (Coll) are not considered in the overall LGD formula.

3.8. Implementation of the methodology (NLB)

Retail portfolio of the NLB Group was sufficiently large and granular to perform the statistical analysis. Nevertheless, the data availability and data structure implied a particular practical implementation of the AQR assessment methodology, as presented further in this section.

Default definition

Default definition and calculation of NPL ratios for the purpose of statistical analysis was applied according to the following rules:

- Consistent with the NLB provision assessment rules, as of the Reference Date, all loans reclassified into C, D and E rating classes were considered defaulted. According to the Bank's rating policy these rating classes covered[16]:
  - Exposures overdue more than 90 days and/or
  - Reprogrammed receivables and/or
  - Exposures to debtors in bankruptcy

[14] For details regarding haircuts related to collection process refer to section 5.4.3 Collateral valuation.

[15] All collateral types other than mortgage, which may influence the LGD level.

[16] For the description of the Bank's classification rules refer to Asset Quality Review - Risk Process Review Report.

- For the purpose of practical implementation, and in line with the AQR assessment methodology, the following additional default indicators were considered:
    - Overdue more than 90 days exceeding the materiality threshold of 20 EUR[17],
    - Transfer of an exposure to the Legal Department (i.e. inception of collection process through court proceedings),
    - Write-off of an exposure.
    - Additional conditions to overcome the potential shortcoming of the Bank's classification rules (as indicated in report on AQR assessment results).
- According to the information provided by the Bank no sale of bad debts was performed for the retail portfolio, hence this default indicator was not applied.

Previously defaulted exposures were considered cured:

- when reclassified by the Bank to A rating class and having no material overdue for three consecutive months[18]
- when the contract is closed for reason other than write-off or consolidation/refinancing[19].

Default definition and NPL ratios resulting from the bottom-up analysis were further extrapolated to portfolios covered with the top-down approach.

Portfolio segmentation

Bottom-up statistical analysis was feasible only for the NLB portfolio where detailed data were available and the number of clients (and exposure) was predominantly within the Group. For subsidiaries, due to limited data availability, the top-down analysis of the portfolio quality was performed, with the goal to achieve a minimum 90% coverage of overall gross exposure of the consolidated retail portfolio (using both bottom-up and top-down approaches).

For the purpose of modelling (both under bottom-up and top-down approach), the Retail portfolio was divided into the following Risk portfolios based on the product types derived from the banking system:

- Mortgage loans
- Consumer loans
- Overdrafts
- Credit Cards
- Other

As the last Risk portfolio was not material in terms of value, it was excluded from both the bottom-up and top-down analysis. Consequently, the Retail book of the NLB Group was split into:

- covered with bottom-up statistical approach[20] – applied for the NLB, except for 'Other' Risk portfolio,
- covered with top-down analysis – applied for the top 4 NLB subsidiaries[21], except for 'Other' Risk portfolio,

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[17] Materiality threshold was set in line with the Bank's automatic write-offs procedures.

[18] It allowed overcoming the DPD counter shortcomings, as due to the specificity of the Bank's processes and IT systems, the DPD counter was reset to zero in case the exposure was transferred to the Legal Department.

[19] The described default and cure criteria covered retail restructured loans, as in 2012 restructuring for retail book was applied by the Bank in two main ways:

- Prolongation of overdue exposures (exposures C-rated by the Bank, as they were reprogramed)
- Consolidation/refinancing of overdue exposures.

[20] Overall, the statistical bottom-up analysis performed by Deloitte was based on over 6 million observations on historical migrations between defined performance states (Segments) on individual contract level.

[21] Subsidiaries covered with top-down approach were: NLB Montenegrobanka AD, Podgorica; NLB Tutunska Banka AD, Skopje; NLB banka d.d., Tuzla; NLB Razvojna banka A.D., Banja Luka

- not covered with Deloitte's analysis – applied for the remaining exposures.

PD and CR estimation

Migration matrices for the purpose of PD and CR estimation were computed based on monthly historical data covering the period of December 2011 – December 2012 (twelve migrations):

- Approach based on principal-based migrations (exposure weighted) – applied for Mortgage loans and Consumer Loans Risk portfolios,
- Approach based on the number of migrations (non-exposure weighted)[22] – applied for Credit cards and Overdrafts Risk portfolios.

Collateral

Standard approach was applied for the following collateral types:

- Mortgage collateral,
- Deposits placed as collateral,
- Irrevocable and unconditional guarantees from the Republic of Slovenia.

Recoveries from all other collateral, that may influence the LGD level, were accounted as a part of the Cure rate and Rep_in_default calibration.

Independent real estate appraisals where not available for most of the real estate portfolio related to the retail book (only drive-by samples available), hence relevant market value haircut (MV haircut) was computed based on the sample subject to evaluation. MV haircut was further applied to the whole real estate portfolio.

Table 6 Real estate MV correction ratios

Residential	Prime	23%
Residential	Not prime	35%
Non-residential	N/a	67%

Source: Deloitte's analysis based on independent real estate appraisal results

Top-down analysis

Top-down analysis for covered subsidiaries was based on the evaluation of systematic errors implied in the Group methodology and analysis of the portfolio quality with benchmarking to the market averages (where available).

The analysis was performed using the assumption that a consistent methodology of provisioning, rating and credit policies was applied among the Group's members. Hence systematic adjustment representing imperfections of the methodology identified in NLB d.d. may be extrapolated to other members of the Group.

The NPL ratios and provision coverage ratios for covered subsidiaries were estimated by means of the following rules:

- The existing NPL level was adjusted to reflect the extended NPL definition used in AQR (resulting in partial reclassification of A-rated and B-rated portfolios).
- The coverage ratios were adjusted to reflect systematic difference in the risk parameters estimation (PD, LGD).

[22] Materiality threshold of 20 EUR was applied in order to avoid the bias of small exposures migrations.

- When applying the adjustments to NPL and coverage ratios, several characteristics (Risk portfolio, rating class, collateral value) were taken into account in order to assure the sufficient comparability between the reference sub-portfolio and sub-portfolio under the top-down analysis.
- The adjustment was applied both for on-balance as well as off-balance exposure.

3.9. Implementation of the methodology (HAA)

In the case of HAA Bank, data availability and structure were sufficient to undertake a bottom-up statistical analysis of the whole Retail portfolio. The following provides an overview of the the AQR statistical assessment methodology for Retail.

Default definition

The default definition and calculation of NPL ratios for the purpose of statistical analysis were applied according to the following rules:

- Consistent with the HAA Bank provision assessment rules as of the Reference Date, all loans reclassified into 5A, 5B, 5C, 5D and 5E rating classes were considered defaulted. According to the Bank's rating policy these rating classes shall cover the following key default indicators[23]:
    - 90 days payment default;
    - Specific risk provision (IFRS);
    - Substantial doubt regarding the borrower's credit standing;
    - Risk-driven restructuring or debt re-scheduling;
    - Risk-driven loan asset sale;
    - Insolvency; and,
    - Write-off.
- Independent of the above, in order to overcome potential data quality issues, and in line with the AQR assessment methodology, the following additional default indicators were considered:
    - Overdue more than 90 days and exceeding the materiality threshold[24];
    - Workout proceedings; and,
    - Write-off of an exposure.

Previously defaulted exposures were considered cured:

- when they were reclassified by the Bank to non-defaulted rating classes (i.e. other than 5A-5E) and they had not been material overdue for three consecutive months; or,
- when the contract was closed for reasons other than write-off or consolidation/refinancing.

Portfolio segmentation

For the purpose of bottom-up statistical modeling, the retail book was divided into the following Risk portfolios:

- Retail Mortgage – exposures secured with real estate assets (i.e. having real estate LTV different than zero),
- Retail Other – remaining exposures.

In order to ensure consistent treatment for a given exposure over time, all contracts with real estate collateral identified

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[23] For the description of the Bank's classification rules and rating policy refer to Asset Quality Review - Process Review Report.

[24] The materiality threshold corresponded with the HAA Bank and BoS default definition. Materiality threshold was exceeded if:
- Total overdue amount at client level was higher than min(2%*total exposure at client level; 50 000EUR) and
- Total overdue amount at client level was higher than 200 EUR.

as of any historical date from analyzed period (covering the period January 2011 – December 2012), were classified as Retail Mortgage.

PD and CR estimation

Migration matrices for the purpose of PD and CR estimation were computed based on monthly historical data covering the period January 2011 – December 2012 (twenty three migrations). An extension of 12 months horizon was applied due to relatively low number of observations and stable portfolio behavior throughout analyzed period.

The approach based on principal-based migrations (exposure weighted) was applied for the whole Retail portfolio, as revolving products (credit cards, overdrafts) were not subject to the AQR analysis due to data quality issues[25].

The following exposures were excluded from the Cure rate and Rep_in_default calculations:

- Secured with eligible collaterals expected to be realised within 12 months after default (deposits, shares, bonds and irrecoverable guarantees) – in order to avoid double counting of recoveries,
- Exposures from the Brush I list[26] – as recoveries (i.e. transfer prices) were not representative compared to average recoveries from the defaulted Retail portfolio.

Collateral

The standard approach was applied for the following collateral types:

- Mortgage collateral;
- Deposits placed as collateral;
- Bonds;
- Shares; and,
- Irrevocable and unconditional guarantees from the Republic of Slovenia.

Independent real estate appraisals where available for most of the retail real estate portfolio (primarily desktop valuations), hence they were taken into account in our AQR assessment.

For valuation of real estate assets not covered by independent appraisal, a market value haircut was computed based on the sample subject to evaluation. MV haircuts were further applied to the remaining real estate portfolio.

Table 7 Real estate MV haircuts

Residential	**Prime**	**11%**
Residential	**Not prime**	**13%**
Non-residential	**N/a**	**24%**

Source: Deloitte's analysis based on independent real estate appraisal results

[25] Analytical data regarding credit cards and overdrafts were not delivered and not subject to the AQR analysis due to immateriality of this portfolio (refer to Asset Quality Review – Report on Data Reconciliation, Data Completeness & Data Integrity Verification).

[26] Brush II transaction performed by Group was related only to leasing receivables, hence did not impact the Bank's balance sheet but a separate entity - Hypo Leasing d.o.o.

4. METHODOLOGY - STATISTICAL AQR ASSESSMENT(SME)

This section presents the approach to estimating the AQR adjustment for SME clients. The SME calculations were performed on the entire Group portfolio (i.e. the Bank and its relevant subsidiaries). For these SME exposures AQR adjustments were calculated under 2 different approaches:

1. Where SME exposures were subject to the loan file review, the AQR adjustment was estimated individually under the approach described in the Corporate section. The statistically drawn sample included exposures which had over 95% provision coverage. These exposures were not subject to file review but for the purposes of calculations were acknowledged to have correctly calculated AQR adjustment levels (provisions calculated by the Bank were used).
2. For the remaining part of the SME portfolio the AQR adjustment was estimated using the statistical approach and incorporating input from the SME file review described in this section.

SME exposures relating to Bank subsidiaries were analysed under the approach described in this section as all Group ratings are mapped to the BOS rating scale.

Under the statistical approach the AQR adjustment was calculated according to the following equation:

$$\text{AQR adjustment} = PD * EAD * LGD$$

Where:

- PD (Probability of Default) refers to the probability that a client will default during one year[27],
- LGD (Loss Given Default) is the percentage of EAD that will be lost in case of default (on exposure level),
- EAD (Exposure at Default) is calculated as:

$$EAD = \text{on\_balance} + \text{off\_balance} * CCF$$

Where, On_balance refers to on-balance sheet exposure, Off_balance refers to off-balance sheet exposure and CCF (Credit Conversion Factor) represents the part of the off-balance exposure that will be converted into on-balance until the moment of default.

The default definition considered the following conditions (indicators)[28]:

- Reclassification of an exposure into D or E rating class according to the Bank's classification rules
- Exposures with DPD more than 90 days,
- Restructuring or classifying as forborne exposures (based on a flag provided by the Bank),
- Exposures written-off,
- Exposures to clients with at least one other exposure meeting at least one criterion enumerated above (contamination rule).

Final results are presented with an additional split into allowance (applicable for on-balance sheet exposures) and AQR adjustment for off-balance credit exposures.

4.1. Parameters estimation

Due to limited data availability the CCF parameters were set according to guidelines included in the Capital Requirements Regulation. For the purpose of PD and LGD estimation the SME portfolio was further subdivided into the following sub-portfolios:

- Leasing exposures (both in the Bank and its subsidiaries, including leasing companies),
- Factoring exposures,
- Sole Traders,

[27] For already defaulted exposures PD was not calculated, instead PD = 1 was applied in the presented formula.

[28] Because of different characteristics of SME portfolio default definition for SME is different from Retail definition of default.

- All other loan exposures excluding leasing and factoring exposures.

In the overall calculation a materiality threshold was applied with any clients with on-balance gross exposures below or equal to EUR 100 being excluded from PD and CR (Cure Rate) parameters estimation.

4.2. PD estimation

The PD parameter was estimated on a client level with contamination rules applied (see definition of default above). The PD parameter was derived directly from client yearly migration matrix based on credit rating classes, adjusted by restructuring cases and write-offs.

The risk groups in the migration matrix corresponded with client credit rating classes and the separate class for restructured exposures was included. Any client for which at least one of the exposures had been denoted as forborne or restructured by the Bank was regarded as Restructured due to the financial problems of the debtor. In addition as a consequence of the definition of default adopted another rating class O90 was added for AQR adjustment purposes: the class consists of A, B, C clients having DPD more than 90 days.

In the yearly migration matrix, the letters "A" to "E" represent client ratings, "R" stands for the Restructured exposures and "O90" for exposures with DPD over 90 days classified by the Bank as ratings A, B or C.

Table 8 Yearly migration matrix

Status at the beginning of the year \ Status at the end of the year	A	B	C	O90	D	E	R
A	$PP(A,A)$	$PP(A,B)$	$PP(A,C)$	$PP(A,O90)$	$PP(A,D)$	$PP(A,E)$	$PP(A,R)$
B	$PP(B,A)$	$PP(B,B)$	$PP(B,C)$	$PP(B,O90)$	$PP(B,D)$	$PP(B,E)$	$PP(B,R)$
C	$PP(C,A)$	$PP(C,B)$	$PP(C,C)$	$PP(C,O90)$	$PP(C,D)$	$PP(C,E)$	$PP(C,R)$
O90	$PP(O90,A$	$PP(O90,B)$	$PP(O90,C)$	$PP(O90,O90)$	$PP(O90,D)$	$PP(O90,E)$	$PP(O90,R)$
D	$PP(D,A)$	$PP(D,B)$	$PP(D,C)$	$PP(D,O90)$	$PP(D,D)$	$PP(D,E)$	$PP(D,R)$
E	$PP(E,A)$	$PP(E,B)$	$PP(E,C)$	$PP(E,O90)$	$PP(E,D)$	$PP(E,E)$	$PP(E,R)$
R	$PP(R,A)$	$PP(R,B)$	$PP(R,C)$	$PP(R,O90)$	$PP(R,D)$	$PP(R,E)$	$PP(R,R)$

The individual matrix term, $PP(i,j)$ denotes the number of clients assigned to risk group i at the beginning of the year and to risk group j at the end of the year.[29]

If the exposure of a given client had been written-off (partially or in total) the client was migrated to the worst defaulted risk group - E.

The PD for each non-defaulted risk group was estimated as follows:

$$PD_i = \frac{\sum_k PP(i,k)}{\sum_l PP(i,l)}$$

where:

[29] As the data provided by the Bank shows that a client can have more than one rating (the cases are especially frequent if the Client has exposure in more than one group entity). When this is the case the worst rating among available ratings for a given Client is used.

- $k \in \{090, D, E, R\}$ – indicates the sum of default risk groups
- $l \in \{A, B, C, 090, D, E, R\}$ – indicates the sum of all risk groups
- $i \in \{A, B, C\}$ – indicates non-defaulted risk groups

PD parameters for sub portfolios that included other loan exposures were adjusted for classification errors. The classification error for a particular grade, CE_i, is a fraction of counterparties that were reclassified to rating i-th. Misclassification was estimated based on the results of the loan file review of 170 counterparties. The adjustment was applied to each non-defaulted grade and produces the probability of default PD_i^R given by:

$$PD_i^R = \sum_i PD_i \times CE_i + \sum_l CE_l$$

where:

- $l \in \{D, E\}$ – indicates defaulted grades
- $i \in \{A, B, C\}$ – indicates non-defaulted grades

4.3. LGD estimation

For the purpose of LGD estimation, a statistically valid sample of defaulted loans was chosen (at 90% confidence level, with 10% acceptable error), and further extended based on expert judgement. Exposures in the sample were reviewed individually on a client level during the loan file review. The file review provided an estimation of AQR adjustment for each client file included in the sample.

4.3.1. LGD: Factoring and all other loan exposures

LGD for defaulted counterparties includes LGD bias - the average percentage difference between LGD estimated during the sample loan file review and the LGD applied by the bank. For counterparties that have a default status according to the Bank, the LGD (and coverage ratio as well) is the sum of the Bank's provision coverage at contract level increased by the LGD bias. For defaulted counterparties according to Deloitte only, the LGD was estimated based on the average Bank provision coverage as increased by the LGD bias.

For the non-defaulted part of the SME portfolio (for the purpose of Incurred But Not Reported (IBNR) AQR adjustment calculation) the LGD was set at the level of the arithmetic average provision coverage for clients that defaulted in 2012 (both SME sample and out of sample after LGD bias adjustment).

4.3.2. LGD: Sole Traders and leasing exposures

Exposures toward Sole Traders and Leasing exposures were not covered by individual file reviews. Therefore an alternative approach was selected for LGD estimation. The approach is based on exposure amount and adjusted collateral value:

$$\mathrm{LGD} = \frac{(1 - \mathrm{CR}) \cdot (\mathrm{EAD} - \mathrm{coll})}{EAD}$$

where:

- EAD – Exposure At Default (incorporating CCF)
- CR – Cure Rate
- coll – value of collateral after applying haircuts (see below)

The Cure Rate parameter was computed on a client level based on the yearly migration matrix presented in the PD section. For each defaulted risk group (O90, D, E, R) the basic Cure Rate was estimated as follows:

$$CR_i = \frac{\sum_k PP(i,k) - RD}{\sum_l PP(i,l)}$$

where:

- $k \in \{A, B, C\}$ indicates the sum of non-default risk groups
- $l \in \{A, B, C, O90, D, E, R\}$ indicates the sum of all risk groups
- $i = O90, D, E, R$ indicates defaulted risk groups
- RD indicates the number of re-defaults, the number of exposures for which both of the following events occurred:

Exposure migrated to one of the non-defaulted risk groups from the given i-th defaulted risk group over the period from the beginning of the year (31 December 2011) to the end of the year (31 December 2012); and

The debtor defaulted again afterwards in the period from 31 December 2012 to 31 March 2013 (i.e. it migrated from non-defaulted risk group to defaulted risk group again).

For the non-defaulted exposures, the Cure Rate was calculated as the weighted average of the Cure Rates for the O90 and D risk groups (considered as fresh defaults).

The discounted value of collateral (coll parameter) was calculated on a transaction level as follows:

$$\text{coll} = \sum_m \text{MV} \cdot (1 - HC)$$

where:

m The sum of all the collateral values for a given exposure (transaction)

MV Market Value of collateral

$(1 - \text{HC})$ Represents the expected percentage of a collateral asset's market value which will be recovered in the workout process (after adjusting for expected direct workout costs) and is assigned based on the collateral type indicated in the data tape taking into consideration the specificities of leasing. The haircut value incorporates also a discount for the time to recovery (a conservative approach is applied where the time to recovery is not affected by the time spent in default status).

The haircuts for each type of collateral are presented in the table below:

Table 9 Haircuts rates

Insurance	100%	100%
Securities	50%	50%
Commercial Real estates	40%	45%
Residential Real Estates	30%	35%
Other forms of collateral	20%	100%
Shares	20%	20%
Bonds	10%	10%
Bank Deposit	0%	0%
State guarantee	0%	0%

The haircuts used for leasing exposures differ from those applied to Sole Traders due to considerations specific to leasing. For leasing exposures, collateral assets remain the property of the underwriting company (lessor), therefore the repossession process and sale process is much more effective (especially in the case of OTHER_COLL category which mainly consists of cars and other vehicles which are subject of leasing agreements).

In case of Hypo, leasing financing was not provided by Hypo Alpe-Adria-Bank d.d. as such respective haircuts were not applicable.

5. METHODOLOGY - INDIVIDUAL AQR ADJUSTMENTS (BAMC, RED, CORP, SME)

5.1. Scope and objective

The objective of the Loan File Review was to analyse in-depth, from both a qualitative and quantitative perspective, a selected set of portfolios in order to, inter alia, (1) assess potential misclassifications of loans with regard to segments and performance status, (2) provide a more accurate assessment of recoverable amounts based on credit risk, and (3) assess the adequacy of provisions in place against these exposures.

The reviewed portfolios included those assets identified by Bank for transfer to BAMC; they also included exposures held by the Bank Group's subsidiaries. Due to the fact that the corporate loan files lack homogeneity and to take account of the significant degree of complexity inherent in the larger cases, the files were reviewed by at least two, or for more significant cases, three, different levels of Deloitte expertise.

5.2. Review approach

The Bank was provided with the names of those cases in the sample and management was requested to provide the related loan files for examination. During the analysis process, responses and clarifications were gathered through discussions with the respective credit officer responsible for managing the relationship.

A loan file template ("Loan File Template") for each case examined was prepared with the objective of collating various characteristics and details relating to the case.

The file review of the corporate portfolio consisted of three working levels of analysis:

Level 1: An experienced team of analysts from Deloitte analysed the soft copies of the Bank's credit papers including internal and/or external valuations. The Loan File Templates were used to summarise the information and were pre-populated by the Bank with obligor, loan, collateral and financial data. The Level 1 analyst checked the pre-populated data and completed each of the templates with information taken from the credit papers including the background of the borrower, commentary on the exposure, details of any recent or imminent restructuring, commentary on collateral and an analysis of the Bank's action plan.

Level 2: A team of experienced senior managers from Deloitte was responsible for examining every Loan File Template and for challenging the Level 1 analyst to ensure that an appropriate Deloitte risk classification had been recommended and that the determination of AQR adjustment, if any, had been performed in accordance with the Deloitte methodology. The Level 2 reviewer was also responsible for ensuring that the Loan File Template included sufficient information for the Level 3 process to be performed satisfactorily.

Level 3: The Credit Committee consisted of Partners and Directors of Deloitte with broad experience in AQR assignments, other comparable portfolio reviews and with substantial banking and risk management experience. The Committee reviewed the most challenging, complex and largest cases and was the final arbiter on the AQR adjustment and risk classification assessment for the cases presented.

Analysis performed

All exposures were analysed at the connection level rather than at individual borrower or facility level. The connections were identified in accordance with the Bank's policies on related party borrowers and typically involved all the legal entities within a legal grouping where the Bank Group had exposure (all such legal groups or groups of connected parties being referred to herein as "Connections").

The objectives for each Level 1 analyst were to determine the correct risk classification (as outlined below), provide an assessment of the AQR adjustment level according to Deloitte and to complete the Loan File Template with sufficient details for a further review (Level 2 and/or 3). The risk classification and the corresponding AQR adjustment process for each Connection forming part of the sample, was as follows:

- Performing:
    - Risk classification: the Connection appears able to meet its current contractual debt obligations.
    - AQR adjustment process: no AQR adjustment would be required for these Connections.
- Restructuring:

- Risk classification: the Connection appears unable to meet its contractual debt obligations but the underlying business appears viable and a restructuring of its exposure appears to be the most appropriate route to value maximisation.
- AQR adjustment process: a sustainable debt value was derived for each Connection and subsequently used to assess where the value breaks in a loan facility resulting in potential debt/equity swap or loan forgiveness and a need for AQR adjustments. For restructuring cases, we also analysed the net realisable value of collateral held by the Bank Group and compared this to the sustainable value of the Bank Group's exposure. The additional AQR adjustment was calculated as the difference between the Bank Group's exposure and the higher of the net realisable value of collateral and the sustainable level of the Bank Group's exposure. This methodology is discussed further below.

- Liquidation:
  - Risk classification: the Connection is already in liquidation or it appears unable to meet its contractual debt obligations; the underlying business is not viable or value maximisation appears most likely through an insolvency process.
  - AQR adjustment process: The expected net realisable value of collateral and other company assets not pledged but taking into account other creditor claims was identified. Having taken legal and real estate advice, we assumed that a formal insolvency process would take three years to complete and that it would typically take two to four years before the underlying asset could be sold. Underlying this is the assumption that the property market would remain relatively illiquid for five years from the Reference Date. Accordingly, if a liquidation process commenced in 2013, sale proceeds would be achieved in 2018.

All borrowers within a Connection are given the same risk classification unless more than one distinct ring-fenced entities or groups of entities exist within a Connection that are totally ring-fenced from each other, e.g. a ring-fenced special purpose vehicle created for a real estate development project. In these instances, separate risk classifications were assessed for the sub-Connections.

All exposures classified as Restructuring or Liquidation are considered as NPL; collectively, they represent all borrowers that are in default or that, in Deloitte's opinion, will default on their financial obligations in the absence of forbearance measures.

5.3. Methodology for assessment of sustainable debt, AQR adjustment and risk classification

In order to assess the sustainable debt levels, the need for AQR adjustment and the appropriate risk classification, the following steps were undertaken:

- Determination of the degree of connectivity within a Connection. All exposures and borrowers within a Connection were assessed on a whole-Connection basis unless there was clear evidence that there were no cross-guarantees, inter-company lending, cross-collateralisation, cross-borrowing or other justifiable circumstances to aggregate exposures in place amongst different entities in a Connection; where absent, borrowers were considered on an individual basis.
- Where specific real estate lending was identified the project risks and cash flows were identified and considered on a stand-alone basis whilst taking account of the corporate / sponsor support where any such project was structured on a recourse basis.
- Where other bank facilities were identified from our loan file review, the sustainable level of debt was assessed on an aggregated, all-bank basis and the AQR adjustment required for any surplus debt assessed on a pari passu basis unless priority treatment was specifically identified in the loan files.
- The sustainable level of debt was evaluated using the following framework (unless there was compelling evidence on the loan file and from our expert judgment to take an alternative approach):
- If a forecast EBITDA for the next three or five years was available (and the figures were reasonable in light of historical performance):
  - From an independent restructuring plan made within the last six months – we discounted the forecast EBITDA by 10% and took the average level over the three or five year period.

- From a set of company forecasts or an older independent restructuring plan – we discounted the projected EBITDA by 20% and took the average level over the three or five year period.

- If no forecasts were available (or only a one year forecast was held) and the last three year actual trading figures showed a declining or increasing trend year-on-year:
  - We discounted the FY13 forecast (if held) by 20%, if management prepared, or 10%, if endorsed by an independent party.
  - Took the last three years of EBITDA and the adjusted one year forecast (if applicable) and calculated the percentage increase or decrease trend and averaged out for the period. We extrapolated that average trend from the last available number (EBITDA for 2011 or 2012 or FY13) to forecast the restructuring period – we used the trend percentage for the first three years and then held flat for the last two years; we then took the average level over five years.
- If no forecasts were available (or only a one year forecast) and the last three years of trading figures showed an "up and down" trend year-on-year:
  - We took the last three years EBITDA and the adjusted forecast (if applicable) and calculated the average figure.
  - The average figure was used to calculate the percentage decrease from the peak of the last three or four years.
  - That trend was then extrapolated from the last available number (EBITDA for 2011 or 2012 of FY13) to forecast for the restructuring period – we used the trend percentage for the first three years and then held flat for the last two years and took the average level over five years.
- If EBITDA figures were not available at all, we used EBIT and added depreciation from the profit and loss account.
- It should be noted that particular attention was paid to Capex levels for all businesses (especially from the utility and infrastructure sectors) and in some cases adjustments were made to use "EBITDA – Capex" as the proxy for sustainable cashflow. In addition, all historic and forecast figures were scrutinised for one-off factors that might have influenced the P&L numbers, for example, profit (or loss) recorded from the sale of non-core assets. Adjustments were made where appropriate to exclude these one-off factors.
- Where an upward-only trend was evidenced, we did not assume on-going growth at the same levels but flat-lined growth in 2013 (if no one year forecast was available) or for 2014 (if there was a one year forecast), unless there was compelling evidence on the loan file and from our expert judgment to take an alternative approach.
- Once the sustainable EBITDA figure was known, the level of sustainable net debt for the Connection or borrower was determined using an EBITDA multiplier of:
  - 5x for standard (i.e. not a sector listed below) businesses
  - 8x for telecommunications business / utilities if a major, long-established company
  - 12x for infrastructure businesses.

In determining the above standard multiplier, we considered whether or not to utilise different parameters for different factors, e.g. industry sector, but concluded that it was better to utilise a single common level for the majority of exposures due to the multi-sector, conglomerate nature of most of the larger Connections.

Although the standard leverage for a completed, income producing real estate asset would typically be higher than 5x, the current, highly illiquid state of the local market led us to adopt an approach of considering such real estate loans alongside standard businesses.

We recognised that for most industries, 5x does not equate to an investment grade borrower. However, in itself, we noted that this level of leverage does not mean that a AQR adjustment is necessarily required and, in practice, it is usually possible to restructure a business around a debt burden of this level where, as part of the restructuring process, the lenders and the borrower will typically agree a number of restructuring measures to reduce the leverage in the near to medium term, for example, non-core asset sales, the cessation of poorly performing business and operational restructuring to deliver efficiencies. There may be exceptions, for example, where very high capital expenditure is required to deliver turnaround and, if such cases were identified, then this was taken into account in our analysis.

Where current (2011 or 2012) leverage was below 5x, under the methodology, if the trend was such that a borrower was forecast, by us, to exceed this level on average over the forecast period then it was considered as a restructuring case with an appropriate AQR adjustment likely.

Based on recent, independent market soundings in Slovenia, this proposed leverage level of 5x appears highly prudent compared to existing market practice in restructuring cases. Nevertheless, from our knowledge of the local and regional market there do not appear to be any specific legal or economic factors that would lead us to use a benchmark different from international norms.

In addition to the assessment of the sustainable EBITDA figure and the EBITDA multiplier, all relevant market, operational, financial and structural factors were taken into account to the extent this is possible from the loan files available and interviews conducted. This assessment includes, inter alia:

- **Market:** industry dynamics and growth prospects; customer profile and vulnerabilities; competition and threats; supply chain dynamics; exposure to commodity prices
- **Operations:** products and services offered; location and nature of operational sites; factory/site utilisation and capacity; management identity and capability; shareholders' identity and financial capacity; employment numbers and profile; historic capex spend and future requirements (maintenance and growth); existence of robust operational restructuring plan
- **Financial:** key on- and off-balance sheet items (fixed assets, current assets, cash balances, debt levels and maturities, contingent liabilities, capital and new sources of capital, current liabilities, availability of undrawn credit lines); key P&L items – absolute & trends (gross and operating margins, revenues, raw material and operating costs, interest and tax chargeable); key cash-flow items (profit generation, working capital usage, capex, tax payable, debt repayments); key metrics and ratio analysis.
- **Structural:** structure of liabilities; structure of loan documents, default events and existence of financial and non-financial covenants; sources of new debt and/or bonding; existence of priority debt positions/priority access to cash-flows; structural position of lending (existence of structural subordination); collateral position and existence of other liens; cross collateralisation; corporate interconnectedness; existence of other lenders.

5.4. Methodology for the evaluation of collateral

5.4.1. Real Estate data used

Please refer to Section 6 – "Methodology – RE appraisers", sets out in detail the data used and provided to Real Estate Appraisers for the purposes of arriving at their opinions of Market Value.

We contracted the services of Slovenia Invest ("S-Invest"), an independent local RE Advisory firm, to provide us with the price per square metre across various property types, construction periods and locations (please refer to Appendix 3). We required that the range be based on current transaction activity levels whilst taking into account other factors that they might consider important from a local market perspective. Our approach, to base the price matrix on transaction activity rather than theoretical valuations, was designed to ensure that the true level of liquidity in the real estate market was taken into account. This approach may incorporate some downsides:

- price ranges could be skewed by certain transactions not performed at an arm's length - where these could be identified by S-Invest, they were removed from the pricing matrix exercise; and
- the limited level of real estate transactions could also be seen as an impediment in terms of representativeness – however, the matrix-approach is truly independent, whereas an internal, and potentially, external bank valuation cannot always be relied upon.

While the Matrix was constructed by S-Invest, it was also supported by, and has been referred to (although not exclusively) by Cushman & Wakefield in the course of undertaking their valuations. Cushman & Wakefield have confirmed that they are of the opinion that the S-Invest matrix is an appropriate point of reference for the purposes of undertaking a high-level valuation exercise of a very large sample of assets, as it remains the best evidence available in respect of the current state of the Slovenian real estate market.

A summary of the methodology performed by S-Invest to construct the matrix is as follows (further details can be found in Appendix 3 along with the final matrix of collateral values used):

- Three sources of information were used to compile the matrix of real estate information:

- The ETN portal, set up in 2007, which is maintained by the surveying and mapping authority of Slovenia ("GURS"). Tax administration, municipalities, notaries and real estate agencies are obliged to report details of transactions to GURS, but in reality, only about 60% of all transactions are available on the portal. Information about new build transactions is not available for example. The available information varies in quality. Sometimes there are insufficient details, such as no information about the size of land plots, or errors in the price.
- The Trgoskop application, maintained by the Geodetic Institute of Slovenia, was set up in April 2011, and provides additional information to that available on the ETN portal, with enhanced search facilities such as the ability to find transaction information within a certain radius of a given point.
- Details of non-branded hotel transactions in the CEE, compiled by Cushman and Wakefield and S-Invest.

For industrial, retail, office and residential (apartments and houses), the starting point was to identify price bands across Slovenia, using maps available on the ETN portal. These maps were created when the Slovene government carried out a nationwide valuation exercise pending the introduction of a new real estate tax. Every real estate asset in the country was assessed by freelance researchers, using a questionnaire, which was provided to GURS, and modelled using transaction information. Information about the valuation of each asset was then sent to owners, who had the opportunity to agree or dispute the level. The results were made public in July 2010. GURS plans to update the models every four years, and to apply indexation every year. However the first indexation will be carried out later this year. Maps available for industrial property, houses, apartments, retail, office, agricultural land, forest land and building land were used for this valuation matrix. The maps are shaded in between 8 and 20 different colours, with yellow representing low value, and orange, red and purple representing higher value areas. Most of the landmass in Slovenia on all maps is low value with only a few hotspots representing super-high, high or mid value. The higher value areas on each map vary, the forest land map has different hotspots from the industrial map for example.

The 8 to 20 different value categories on each map were reduced down to four as follows: super-high, high, mid and low; and all locations within each band were identified. These were exported into the valuation matrix in order that they could be easily utilised by Deloitte. Some of these locations comprise only one settlement, such as Bled or Nova Gorica, and others comprise an entire region, such as Štajerska, but excluding the main city (Maribor) within that region. There is no map available on the ETN portal for hotels, so the experience of S-Invest in valuing hotels and selling hotels was used to divide hotel properties into three location bundles. These location bundles are driven mainly by average annual occupancy and average daily rate achieved.

Some of the asset classes were then sub-divided according to value indicators. Industrial for example, was subdivided into:

- pre-1970,
- 1970 to 2000,
- 2000 onwards.

Office and retail were subdivided into pre-2000 and post-2000.

Hotels were subdivided into two categories as follows:

- hostels, 1* and 2* properties;
- 3*, 4* and 5* properties.

Information for transactions of industrial, office, retail, apartments and houses was obtained using the Trgoskop application. The application allows searches of specific settlements and cadastral municipalities, or searches using a specific radius within a given point. It is not possible to search by region. As such, a combination of search methods was used. It was straightforward to search by settlement or cadastral municipality but the radius search method was used for regions excluding the main city in each region. Properties in main cities in all regions in Slovenia have higher values in all asset classes than properties in the surroundings, with the exception of the city of Murska Sobota in the Prekmurje region. The radius' used varied; these are specified on each page of the valuation matrix.

The Trgoskop application grades the quality of information on each transaction from 1 to 4, as follows:

1. Complete information on the transaction (general information about the legal transaction and the information about the property)
2. Complete general information about legal transaction; incomplete information about the property (for example without m^2)

3. Complete information about the property; incomplete general information about the transaction (for example without price)
4. Incomplete information about legal transaction and property.

Only transactions graded 1 were used for matrix development.

Where possible, only information on recent transactions was taken into account but for some asset classes, such as industrial, there were insufficient transactions and the timeframe had to be extended to include all transactions from 2010 onwards.

There was insufficient and poor quality information on transactions available for hotels and land, so a different approach was adopted for those asset classes:

- The value of hotels was estimated using a combination of transaction information in Slovenia and CEE, and the S-Invest experience in valuing and marketing hotel properties for sale.
- The value of land was estimated using three maps from the ETN portal as follows: forest land, agricultural land and building land, with the ETN portal's estimate of the value/m2. Building land is complicated as the information provided takes no account of the different value of land according to designated use, such as residential, industrial or commercial, or permitted density. As a general guide, based on S-Invest's experience of valuing land in Slovenia:
- Industrial land should not exceed 50€/m2 regardless of the location
- Any valuation of residential land higher than 200€/m2 should be reviewed more closely
- Land designated for hotels or tourist infrastructure has very little value and poor marketability as it is not currently possible to build a hotel with a resultant value higher than the cost of development
- Land designated for office developments in the city of Ljubljana has very little value and poor marketability due to the current vacant office space of approximately 27%, and falling rental prices.

It should be noted that the values indicated for land have not been updated since 2010. However there has been so few transactions post-2010 that this may have little relevance.

The S-Invest matrix has been referred to by the independent Real Estate Appraisers in the course of their work, but has not been wholly relied on. The appraisers have also applied their own market knowledge and judgement in arriving at their opinions of Market Value.

5.4.2. Non-real estate assets

- The framework for applying discounts to the Bank's Group collateral value for non-real estate assets is set out below. These were followed unless there was evidence to support an alternative approach:
- irrevocable and unconditional guarantees from the Republic of Slovenia were not discounted in value in any way;
- working capital items such as inventory and receivables were discounted by 80%;
- plant and machinery was discounted by 70%;
- listed shares were discounted by 20%; and.
- unlisted shares were considered as follows:
- If the Bank provided an up-to-date valuation (dated between 2011 and 2013) of the share pledge, we applied a 20% discount haircut to the appraised value. We compared this to the discounted value under a sustainable debt calculation (5 x EBITDA less net debt discounted by 20%) of the underlying business.
- If the Bank did not provide an up-to-date valuation of the share pledge, we have applied the following methodology:
- for banks that have been or are known to be subject to State Aid procedures, the value taken into account is a value of €1 per share.
- for other banks where there was no known questions over stand-alone sustainability, we calculated 50% of the bank's net asset value (equity) held as at 31 December 2012 or in the latest interim accounts available

and applied a 20% discount for liquidity.

- for company shares:
- If the entity was not considered a going concern, we assessed the value of the company's assets (after applying haircuts in line with the general policy outlined herein for different asset classes) against its liabilities to determine if any residual equity value remaining for shareholders. Where value existed it was attributed proportionate to ownership. If the collateral value did not cover all of the Bank's Group exposure in full, the equity was valued at nil.
- If the entity is considered a going concern, we have taken into account the calculation 5x EBITDA less net debt (total debt less cash at bank) and applied a 20% haircut. Normalised FY12 EBITDA was used when available with identifiable, one-off items excluded.

5.4.3. Collateral valuation

In assessing the net realisable value of collateral held by the Bank Group, we examined all internal and external (independent) valuations held on the loan files provided to us. If the collateral was real estate related, we sought to understand the asset being valued: property type, size, age and location.

Where the property was part of the AQR and Stress Test sample identified for a desk top valuation by an independent real estate appraiser (overseen by Deloitte,) and such a valuation was received and validated for use, this value was used in our calculation unless the Bank had provided a lower valuation, in which case the Bank's valuation was used on the basis that it would typically have had more information available to it than the independent appraiser.

Where such an independent desk top valuation (provided under the terms of the AQR and Stress Test exercise) was not held, we applied the property type, size and location to the real estate matrix provided by S-Invest and calculated the current market value.

In determining the AQR adjustment, a further discount was applied to the current market value to determine a realisable value. This realisation discount considered the following costs:

- years 1-3: legal costs calculated at 1% per annum of the current market value
- years 4-5: asset management costs at 1% per annum, unless the asset appeared particularly illiquid in which case a seven year time horizon was assumed with asset management costs calculated at the same rate for years 4-7
- year 5 (or 7): sale costs of 1.5% of proceeds

In aggregate, these costs equated to a 35% present value discount to the assessed current market value if the asset was considered to be realisable in 5 years, and 45% if a subsequent two years was estimated to be required. The interest rate used was a 5% risk premium with a 2% funding cost.

Where an independent real estate appraiser's desk top valuation included commentary regarding the time period to realise a property, this information was taken into consideration in assessing whether there was a need to vary the realisation discount utilised.

Where the Bank Group's value of the property was below that derived from the pricing matrix, the Bank Group's value was used to assess the additional AQR adjustment. For properties where a RE valuation prepared by independent 3rd party experts was available and matched in all aspects with property examined as part of the loan file review, the lowest of all three values was used in general (with exemptions where applicable, e.g. for highly complex properties where the income or other approach adopted by the RE experts prevailed as it was considered to be more appropriate than any other valuation available).

5.4.4. Extrapolation approach

On completion of the review, most of the gross corporate lending exposure had been subjected to the manual file review. However, to cover the residual portfolio that had not formed part of our sample the findings of our manual file review were extrapolated.

We considered three methodologies to extrapolate the results over this residual portfolio; these are described below.

1. **Flat-lining coverage ratio per rating bucket:** extrapolation undertaken taking into account the bank borrower risk rating and the average additional AQR adjustment rates identified from the manual file review. Then, application of the same risk of AQR adjustment coverage ratio by rating bucket on the non-reviewed portfolio. For defaulted cases (D & E) actual discounts are calculated for each collateral category and applied on the other remaining (untested) portion of D and E rated buckets of the portfolio.
2. **Weighted average:** calculation of the difference between the risk AQR adjustment coverage ratio (AQR adjustment amount divided by the lending exposure) between the AQR exercise and the Bank, calculated and weighted by exposure balance. Then, application of this difference to the Bank's coverage ratio calculated for the non-reviewed part of the given portfolio bucket and, hence, calculate the risk AQR adjustment balance for each borrower. Assets that were identified for transfer to the BAMC, and Real Estate Development lending were extrapolated using the same methodology but the AQR adjustment coverage ratio was calculated on a separate, ring-fenced basis for these two segments.
3. **Arithmetical average:** alternative to the above "weighted average" approach with the application of the same methodology followed but using of the arithmetic average rather than weighted mean.

These three methodologies provide a range of extrapolation results for the remaining Bank portfolio; these are shown in the Asset Quality Review – Quantitative Loan Portfolio Analysis. Methodology 1, the flat-lining coverage ratio per rating bucket, was considered to be the most appropriate method given the nature of the underlying portfolio and has been used to derive the final AQR adjustment for the relevant portfolios.

5.5. Other methodology considerations

Off-Balance Sheet items were included in the individual loan file reviews with an AQR adjustment established by taking into account the nature of the product associated with the off-balance sheet exposure. In this respect we note that the material balance off-balance sheet items for the Bank Groups are performance bonds issued in favour of construction and RED companies. In these instances, an estimate of the likelihood of crystallization of such performance bonds is complex and highly judgmental in its nature. We relied on information provided within the Bank loan files and discussions with the Bank loan officers with regards to the likelihood of such bonds being called on and cashed out going forward. In so doing, we considered, for example:

- Bond purpose (if known) and maturity
- Operational ability of obligor to perform
- Historic incidence of pay-out to beneficiary
- Ability of Bank to mitigate risks.

Our approach did not include legal advice on the validity of such bonds or potential claims, or any assessment of the quality of the obligor's work to which a bond related to. It is not unrealistic to assume that the AQR assessment does not capture all future claims on the Bank.

6. METHODOLOGY – TREASURY

The Banks provided the portfolio data according to Treasury-specific data requirements. Given the relatively small size of the portfolio (securities), the AQR was conducted on the entire dataset. It is important to note that the data integrity and the veracity of management statements were not checked during the review process although the data provided was submitted to high level reconciliation and completeness tests.

Our approach for the Banks' Treasury book AQR consisted of a qualitative assessment and quantitative analysis.

The qualitative assessment of the portfolio consisted of the review of the Investment Policy and the Governance framework. More specifically, the scope of the review involved:

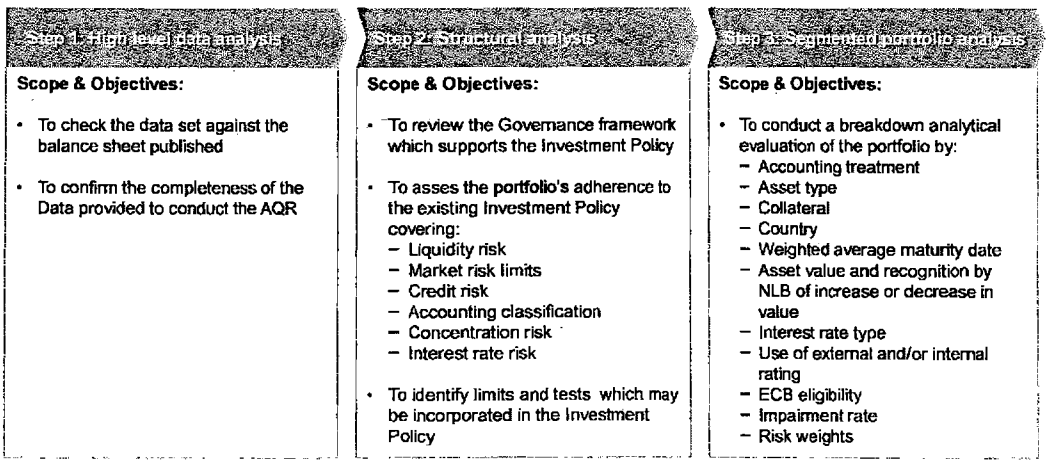
- **Governance process**: we independently assessed the structure of the Banks' internal governance process against observed peers' practices and reviewed the role of existing decision approval committees participating in the decision making process which included ALM Committee, ALCO and Credit Analysis Departments. This step consisted of the review of the TOR of each committee and follow-up discussions with key Treasury and Risk senior representatives.
- **Policies and procedures**: we reviewed the investment policy and mandate, objectives and changes, triggers for reassessing the investment policy, the exposure monitoring process and reports, and impairment policy. We developed a specific framework to test the structure of the Treasury portfolio against the agreed investment policy. This allowed us to identify exposure concentrations, to review the instruments used by the Banks' Treasury function to manage the Banks' liquidity and the overall composition of the book.
- **Legacy assets**: we reviewed the impact of any legacy assets in the Treasury portfolio, as part of previous acquisitions, on portfolio structure. We arranged sessions with Treasury representatives to go through these specific assets where public information was not available and collected expert-based opinions to assess the Bank's risk management practices.

The quantitative analysis consisted of a deep-dive into the Treasury portfolio to reach an in-depth understanding of the characteristics of the underlying assets and management practices. The objectives were to:

1. Assess the exposure profile including completeness, accuracy and identified concentrations
2. Validate any impairments and mark-to-market values
3. Review of profile vs. limits.

To achieve these, a three-step approach was used as illustrated below.

Table 9 Approach to Treasury Review



We initially identified risk characteristics associated with the Treasury book such as credit, market, interest, collateral, liquidity and currency risks. We then assessed how these risks were captured by the Bank and reflected in their

impairment and expected losses. When we observed inadequate evidence of recognition of potential risks, we clarified with Treasury representatives whether the identified risks were managed and monitored.

We used Bloomberg to check the market price of the asset as at the Reference Date and compared it to the acquisition price. We ensured that any impact of the deterioration of the underlying asset value was reflected in the impairment and/or value adjustments. When we believed that expected losses arising from the deterioration of the intrinsic quality of the asset or market conditions (i.e. lower liquidity) were not captured adequately, we adjusted the weighted average loss of the Treasury book based on the deterioration of the portfolio value by taking into account the materiality of the exposure, quality of collateral and maturity.

7. METHODOLOGY – RE APPRAISER

7.1. General

For the purposes of the AQR and Stress Test, opinions of Market Value, as at the Reference Date, were required in relation to a sample of the Participating Institutions' real estate collateral. The opinions of Market Value were produced in accordance with International Valuation Standards.

Deloitte oversaw the work of the real estate appraisers ("REA") and incorporated the results of this exercise into its loan file reviews.

7.2. REA Selection

Requests for Proposals ("RFP") were sent to a total of 8 REA firms. These firms had been identified as having the necessary regional presence and knowledge, as well as scale, to take on and complete the work required.

Two versions of the RFP were produced; one for residential real estate, the other for commercial real estate. This was to allow for the distinction in methodologies applied to each, with residential expected to include Automated Valuation Model ("AVM") techniques for the large sample of desktop valuations.

The REA were contracted by BOS.

7.3. REA Reporting

The REA is to be required to provide a Red Book compliant (the RICS Red Book incorporates the International Valuation Standards – IVS) report which must contain the following information:

Drive-by valuations:

- Photographic record of exterior of properties
- Detailed methodology statement
- Completed Excel spread sheet as instructed by ST provider (showing individual asset values)
- Copies of valuation calculations
- Market commentary for each property including key comparables for each valuation
- For the 20 largest assets in each property type we would expect a detailed market review and valuation commentary, with a higher level of reporting for the other drive-bys
- Estimated time for disposal by property type and location.

Desk-top:

- Copies of valuation calculations
- Market commentary for each region and asset type including key comparables relied upon
- Estimated time for disposal by property type and location.

7.4. Real Estate Data to be provided

The RFP stated that for the drive-by valuations it was intended to provide the REA with the following data for each property type:

Finished Residential Real Estate

- Address
- Land registry details

- Floor areas of building
- Building type and size (i.e. 2 bed room flat / 3 bedroom house)
- Date of construction
- Tenure – owner occupied or let
- If let, tenancy details (including passing rent).

Finished Commercial Real Estate

- Address
- Land registry details
- Floor area of building and size
- Tenancy details if let to third parties (including area, lease expiry, rent, rent review basis, key terms)
- Date of construction
- Tenure.

Development in Progress

- Land area
- Size of proposed / actual development
- Costs incurred to date
- Land registry details
- Outstanding development budget
- Planning/zoning data
- Details of signed leases/LOI's.

Land

- Land area
- Address
- Land registry details
- Zoning and consents granted for development.
- It was intended to provide a similar level of detail for the desk-top valuations.

7.5. Data Collection

In order to provide the information set out in 6.4, data collection was undertaken in the following ways:

- A meeting was held with representatives from the Bank to confirm the type of data required and how this data could be provided;
- Basic level data was drawn from data-tapes provided by the Bank, to include (as a minimum):
- Collateral ID
- Address of asset
- Postcode of asset
- Size of asset
- Type of asset

- Land Registry / cadastral details.
- The methodology to be adopted for the valuation of the residential desktops was dependent on the availability and quality of data:
- If good quality data was available (property location, area (sq. m), age, and type of dwelling (e.g. flat, house, etc.), then it would be possible to value a large number of assets using an AVM.
- Where there was insufficient data, the alternative approach was to randomly select a smaller sample of assets from the main desktop sample and then to obtain the necessary data from the Bank to enable the REA to undertake a drive-by valuation.
- More detailed data was extracted from valuation reports held by the Bank. This was either by:
- The Bank providing extracts from the reports as directed by Deloitte Real Estate, or
- The Bank providing the full reports which Deloitte Real Estate then reviewed and redacted, prior to releasing to the REA.

In both cases above, Deloitte Real Estate undertook an audit review ensuring that only technical information was provided and that there was no valuation or methodology information present. This was to ensure there were no issues or concerns over REA independence.

7.6. Limitations on Real Estate Appraisals

The RICS Valuation Professional Standards, which incorporate IVS (International Valuation Standards), requires valuers to point out to their clients the valuation implications of arriving at a value conclusion based upon restricted information. The valuations have been prepared on the basis of restricted information, in that:

- the properties have been valued without full inspection,
- the short timescales imposed were insufficient to carry out usual research and enquiries,
- the confidential nature of the instruction precluded them from carrying out (full) inspections/normal research and enquiries.

General Assumptions

The REA firms have prepared their valuations on the basis of the following general assumptions:

- Valuations have been undertaken either on a "desktop" basis or by a "drive-by" inspection. Properties have not been internally inspected or formally visited by prior appointment with the owners/occupiers;
- REA firms have relied on the data provided by the Bank;
- REA firms have assumed that properties that are leased are leased on current market terms. No tenancy information has been provided;
- All properties hold good title and comply with all necessary consents and permits. No reports on title have been provided or reviewed;
- All sites are in optimal use; alternative uses have not been considered.

Reservation

Given that, in this case, REA firms had limited information and were instructed to value on a "desk top" or "drive by" basis without full inspection, they warn that their valuations are subject to a greater degree of uncertainty than would be the case if undertaking full due diligence on the assets.

7.7. Appraisal Methodologies. - NLB

7.7.1. General

The real estate assets were valued by:

- Cushman and Wakefield ("C&W") – Commercial (non-residential) assets
- Jones Lang LaSalle ("JLL") – Residential assets

Basis of Valuation

Valuation Date: The valuation date was 31st December 2012.

The valuation has been carried out in accordance with the requirements of the RICS Valuation – Professional Standards 2012 (Global and UK Edition) known as 'The Red Book', issued by the Royal Institution of Chartered Surveyors (RICS). The valuations have been carried out on the basis of Market Value as defined in the current Red Book. This is an internationally accepted basis of valuation and is therefore in compliance with IVS requirements.

Market Value is defined as:

"The estimated amount for which a property should exchange on the date of valuation between a willing buyer and a willing seller in an arm's-length transaction after proper marketing wherein the parties had each acted knowledgeably, prudently and without compulsion."

The following sections describe the methodologies adopted by the REA and have been sourced from the respective firms' draft reports.

7.7.2. Methodology for Valuation of Commercial Real Estate

C&W commented that, whilst the commercial real estate market in Slovenia generally works on an owner occupied model, there are a number of investment assets. Ordinarily an investment asset should be valued according to its actual performance in the context of rents and net income. C&W were not provided with such information and so therefore have valued investment product by estimating rental value and applying a capitalisation rate.

- Slovenia is not a very liquid market and, furthermore, the UK culture of sharing information is not typical. In order to obtain market data, C&W have relied on the following sources of information:
- The Slovene government ETN portal maintained by the Ministry of Environment and Spatial Planning (GURS). The portal records details of real estate transactions using information from the tax office, real estate agents and notaries. It represents approximately 60% of all transactions in Slovenia
- The Trgoskop web application maintained by the Geodetic Institute of Slovenia (www.nepremicnine.net) the prime real estate portal in Slovenia that offers property for sale and rent
- Information based on transactions and valuations that Cushman & Wakefield and S-Invest have been involved with.

Direct conversations with market players, occupiers and owners in the market.

C&W comment that it should be remembered that the Slovenian market has largely developed in its own "bubble"; occupiers typically own their own space and there is no investment market to speak of. Most transactions are therefore for owner-occupied assets. Whilst yields are quoted for certain asset classes, they often cannot be proved.

C&W comment that, whilst the ETN portal contains useful information, it does have limitations. It relies upon the accuracy of data entry, which can be inconsistently entered and of course is only helpful to the extent that its data relates to the properties with which it is compared. The ETN portal demonstrates the lack of transactions involving larger properties, which results in a paucity of comparable information for "Top Collateral" assets.

C&W are of the opinion that relying on web-based asking prices as a source of comparable evidence is limited and this is true of any real estate market. Ultimately a potential seller can ask whatever they want for a property, but this is not necessarily an indication of what someone will pay; however at least such information indicates a value "ceiling". There is often a substantial disconnect between actual prices achieved and asking prices.

Other information has been gathered from C&W's activities in the market and discussions with parties interested in the market. They are aware of offers received for one particular retail portfolio and have spoken to many potential market players during its marketing of another large commercial portfolio in 2012.

C&W's affiliate in Slovenia, S-Invest, work "on the ground" in Ljubljana on a day-to-day basis and have been involved with many of the transactions and discussions on a daily basis.

C&W have also referred to the valuation matrix prepared by S-Invest to assist in the initial "Top Down" phase of this exercise.

C&W have commented on the use of the matrix as follows:

The Slovenia Invest valuation matrix is a statistical analysis of property deals officially recorded by Slovenian government agencies. It presents ranges of actual transaction prices for different categories of properties. Whilst this represents the best comparable data in the market, C&W commented that the records do need to be treated with caution since their usefulness is limited by the competence and diligence of those entering the data into the system correctly. S-Invest recognize this and have responded to these limitations by removing the most extreme examples. It should be noted that the matrix generally reflects actual transactions, which are typically for much smaller assets than are represented by the larger end of the Banks' commercial real estate portfolios. However, the evidence remains the best available in the market.

As such, C&W have used this evidence in formulating their opinions of value – adjusting where necessary for quantum, location and other factors – in addition to other anecdotal evidence of which they are aware. In general, C&W valuations are within the parameters suggested by the matrix;, however, they generally have preferred not to apply the "average" prices due to the vagueness of data and the individual characteristics of the properties involved.

In valuing the properties, a deal of subjectivity has been required. Unlike more developed markets there is simply not the volume of transactions or transparency to list useful comparables on an asset-by-asset basis.

In order to value the assets C&W set up models using Microsoft Excel by which they were able to filter similar asset types and locations in terms of sales and asking prices. They typically divided the country into regions, assessed characteristics of each comparable in terms of location, accessibility and other factors. From this exercise they were able to determine a "tone" of value for sectors such as offices, industrial, retail and land. They supplemented "tone" searches with reviews of estate agency asking prices.

The valuation of land presented a particular challenge. The value of land depends upon the ability and viability to develop. The status of planning consents has a dramatic impact on values. In this exercise C&W were not given any information on the planning status and they have not had the opportunity to investigate the situation from other sources. As such the valuation approach derives from a general tone, although values may vary significantly depending on the actual circumstances.

Where the asset under consideration was a hotel, C&W have generally adopted the approach of applying a capital value per key based on their knowledge of the market. This has ranged from ca. EUR 15,000 to EUR 75,000 per key, depending on the location and quality of the hotel in question. In some cases, C&W felt they had sufficient knowledge and experience to apply a multiplier to an estimate of EBITDA. The resulting value was also cross-referenced against hotel benchmarks in terms of capital values per key.

C&W recommends a fuller investigation is undertaken into the full circumstances of each asset prior to relying on the values reported.

7.7.3. Methodology for Valuation of Residential Real Estate

A drive-by inspection and valuation methodology was used for a total of 320 assets. These were the 20 largest properties by value ("Top Collaterals"), plus a selected sample of 100 assets currently valued in excess of EUR 1M. As there was insufficient data available for the desktop residential sample, an additional 200 assets were selected of lower value to form a total of 320 assets to be externally inspected.

JLL adopted a comparative method of valuation based on a high level assessment of the asset characteristics based on the limited information provided and their drive-by inspections.

JLL collated a residential database of comparable sales transactions in order to assess the comparable assets in terms of their quality and relevance to the subject properties. From this they formed an opinion of value on the basis of a direct comparison approach with the comparable evidence. All evidence has been analysed on a capital value per square metre ("psm") basis. They assessed a range of capital values psm for each subject asset from this approach and

assessed whether the subject asset should be towards the lower or higher end of a range or indeed below or above the range derived from the comparable evidence. Their adopted capital value psm was assessed on the limited information (typically floor area, type, age of construction) provided by the Bank and set into context from the drive-by inspection. Applying this to the net residential floor area provided by the Bank they derive a Market Value for the subject asset.

7.8. Appraisal "Haircuts"

REA were instructed to produce opinions of Market Value as at the Reference Date. They have "marked to market". They were also asked to give an opinion as to how long (in months) each asset would take to sell at that price.

Generally, the more complex assets would take longer to sell. Straightforward assets, such as offices and retail in major cities, would perhaps be more liquid and sell quicker, although it is acknowledged that there is currently little investor appetite in the Slovenian market.

The "time to sell" stated by the REA ranges from 12 months to 72 months, depending on the nature of the asset in question. The "haircut" is implied by the length of the time to sell stated by the REA.

7.9. Appraisal Methodologies - Hypo

7.9.1. Methodology for Top Collateral & Drive-By Valuations

For the majority of assets JLL adopted a comparative method of valuation based on a high level assessment of the asset characteristics based on the limited information provided and their drive-by inspections.

JLL collated a database of comparable sales for residential and commercial sales in order to assess the assets in terms of their quality and relevance to the subject properties. From this they formed an opinion of value on the basis of a direct comparison approach with the relevant evidence. All evidence has been analysed on a capital value psm basis. JLL assessed a range of capital values psm for each subject asset from this approach and assessed whether the subject asset should be towards the lower or higher end of a range or indeed below or above the range derived from the comparable evidence. JLL's adopted capital value psm has been assessed on the limited information (typically floor area, type, age of construction) provided by the bank and set into context from the drive-by inspection. Applying this to the net residential floor area provided by the bank they derive a Market Value for the subject asset.

For some commercial properties JLL were unable to adopt the Comparable Method of valuation due to a lack of comparable evidence for those property types in these markets. Lack of evidence usually exists where the subject property is a highly specialised property, which is rarely, if ever, sold in the market, except by way of a sale of a business. In more opaque and less mature investment markets it is often the case that evidence simply does not exist. More commercial assets tend to be owner occupied and sales volumes are very low. In this situation no effective investment market exists for valuing the property so they have used the Depreciated Replacement Cost (DRC) method - a non-market facing method to estimate the value of the property. The DRC method, one of the 5 valuation methods sanctioned by the RICS, involves determining a land value for the property to which is added the cost which would be incurred in rebuilding a modern equivalent of the property, less depreciation for its age and condition. The principal drawback to this method is that it will invariably result in a higher value as the subject asset may well be obsolete and in a use not befitting the location. To re-build may be uneconomical and a realisable sale price may be more akin to land value less demolition cost.

7.9.2. Methodology for Desktop Valuations

These properties are valued on a desk-top basis on a selected sample. This sample totals up to 3,000 residential assets and 100 commercial assets. Values have only been provided where the minimum adequate data was readily available relating to addresses and property sizes.

Residential

JLL undertook a mass valuation using an automated valuation model ('AVM') and have grouped the properties on a location basis and applied a suitable value psm based on comparable evidence and market knowledge.

JLL used their own database for this exercise supported by GURS data on a supplemental basis. On the basis of JLL understanding of the properties and the locations in which they are situated they were able to place the properties into the context of the wider market. Using an AVM JLL created an archetype based upon a set of criteria matrix for the

properties and scored / ranked the properties taking into consideration a selected set of agreed criteria such as age, condition and size.

The adopted rates psm by archetype adopted by JLL in their AVM are set out in the table below:

Comp Reference	Region	Age	Property Type	Rate per sqm
1	Coast & Kranjska Gora	1970-1990s	Flat	€ 1,976.44
2	Coast & Kranjska Gora	1970-1990s	House	€ 1,125.12
3	Coast & Kranjska Gora	2000's	Flat	€ 2,315.38
4	Coast & Kranjska Gora	2000's	House	€ 1,932.30
5	Coast & Kranjska Gora	Modern	House	€ 1,114.01
6	Coast & Kranjska Gora	Pre 1970s	Flat	€ 1,527.46
7	Coast & Kranjska Gora	Pre 1970s	House	€ 1,310.67
8	Ljubljana	1970-1990s	Flat	€ 1,932.75
9	Ljubljana	1970-1990s	House	€ 1,561.29
10	Ljubljana	2000's	Flat	€ 2,893.01
11	Ljubljana	2000's	House	€ 1,429.12
12	Ljubljana	Modern	House	€ 829.60
13	Ljubljana	Pre 1970s	Flat	€ 2,043.45
14	Ljubljana	Pre 1970s	House	€ 1,553.75
15	Ljubljana	Pre 1970s	Flat	€ 1,629.84
16	Mid Size Cities 20,000-100,000	1970-1990s	Flat	€ 1,216.27
17	Mid Size Cities 20,000-100,000	1970-1990s	House	€ 661.26
18	Mid Size Cities 20,000-100,000	2000's	Flat	€ 1,431.35
19	Mid Size Cities 20,000-100,000	2000's	House	€ 898.68
20	Mid Size Cities 20,000-100,000	Pre 1970s	Flat	€ 890.23
21	Mid Size Cities 20,000-100,000	Pre 1970s	House	€ 845.23
22	Other	1970-1990s	Flat	€ 973.62
23	Other	1970-1990s	House	€ 770.87
24	Other	2000's	Flat	€ 1,509.95
25	Other	2000's	House	€ 966.62
26	Other	Modern	Flat	€ 1,347.67
27	Other	Modern	House	€ 990.89
28	Other	Pre 1970s	Flat	€ 755.28
29	Other	Pre 1970s	House	€ 801.60

Commercial

JLL were provided with extracts of valuation reports held by Hypo with photos for the majority of these assets to inform their opinion on value. JLL also used internet tools such as Google Earth to locate the properties in order to compare the asset with other comparable assets. Where available they also sourced cadastral data in order to ascertain the year of construction. This enabled them to value the assets on the Comparable Method unless the use was believed to be of a highly specialist nature in which case the DRC method was adopted as outlined above.

Appendices

Appendix 1	Terms of Reference
Appendix 2	Definitions & Abbreviations
Appendix 3	S-Invest Valuation Matrix
Appendix 4	Loan review methodology & definition alignment

Appendix 1 – Terms of Reference

Loan segments	Corporate, Small business and retail loan portfolio (incl. mortgages, consumer loans, etc.) and other portfolios that may be considered relevant by the Stress Test Consultant in alignment with the AQR provider. The review shall take as its baseline the balance sheet of the bank as at 31 December 2012. The portfolios to be reviewed shall include those assets identified by the bank for transfer to BAMC.
Loan files sample size	Must be considered statistically relevant. The sample size to be proposed by the Stress Test Consultant and aligned with the additional AQR provider and reviewed by the Steering Committee. Segments to be covered include: • Real estate developers; • Corporates; • Small business; • Retail mortgages; and, • Retail other. Evidence should be provided on the representativeness (in terms of number of observations and exposure-coverage).
Input data collection	In support of bottom up stress test inputs to be provided to the Stress Test Consultant, the AQR provider will lead the extraction and processing of data from the following sources: • Loan & collateral tapes as at 31 December 2012 and 31 December 2011 –the Stress Test Consultant will define the individual data tapes required in accordance with its final portfolio segmentation and will provide a list of the fields required for each data tape together with a detailed definition of each of those fields • Central credit register ("CCR") – available from the Bank of Slovenia ("BoS" (subject to legal agreement from the BoS) covering historical time-series at loan- and counterparty-level that can be used to estimate risk parameters (e.g. PD calibration anchor points). The CCR data is available separately for legal entities at counterparty loan level but for natural persons is only available on a consolidated basis split by BOS rating and product. The AQR provider is to obtain monthly data for both legal entities and natural persons for each year from 2007 to 30 June 2013 inclusive. To the extent that BOS is not able to supply the information due to legal or other constraints, the AQR provider will make every reasonable effort to source exactly the same data directly from the Participant Institutions in the same form as originally provided by the Participant Institutions to the BoS. For natural persons, Participating banking institutions should provide the detailed loan level information that was used to consolidate the information currently provided in the BOS CCR.
Data completeness	In line with the standards used in similar exercises, the AQR provider will review each of the data tapes provided by each participating banking institutions and carry out, inter alia, validity checks on the fields completed as well as checking the number of records and level of completeness. Where field types are less than 90% complete, the AQR provider will liaise with the participating banking institution to determine the degree of rectification that might be possible and the timing that any such rectification may take. The AQR provider will liaise with the Stress Test Consultant in this analysis. The AQR provider will prepare a series of stratification tables for each population that can be used to understand the nature of each population and also to understand any outliers that exist within each field, in order to enable the Stress Test Consultant to specify filers and rules to treat outliers and missing values.

Data Integrity Verification ("DIV")	Quality verifications through a targeted effort to verify key baseline data, with reference to underlying source documentation, which is in line with comparable exercises in other jurisdictions. The fields to be tested would be those deemed by the Stress Test Consultant to be the "most relevant fields". "Most relevant fields" will be defined according to their materiality in models estimation and implementation of the stress testing exercise, and marked as "Most relevant fields" by the Stress Test Consultant on the data request. As relates to the DIV: • With respect to the CCR data, the AQR provider will not undertake a DIV exercise. • Reconciliation – The AQR provider will perform a reconciliation exercise of the loan file data tapes provided to the published financial statements • Sampling - for purposes of the DIV exercise sampling should be based with a 95%/5% objective. It is envisaged that the populations to be covered within each of the data tapes will be 'large' from a statistical perspective leading to a sample size per population of approximately 59.
Presentation of AQR output	The AQR provider will present the results of the AQR exercise in the form and content required by the Stress Test Consultant. Such output tables will include, among others, historical performance analyses related to participating banking institutions historical default rates, cure rates, recovery, as well as summary output tables from the individual file reviews and collateral valuation exercise. The AQR provider will provide ad hoc support to the Stress Test Consultant to assist it in the process of structurally decomposing key business plan assumptions (e.g. detailing interest income and expense components into main volume/profitability drivers by type of asset and funding). The principal responsibility for this exercise lies with the Stress Test Consultant.
Coordinate Real Estate Appraiser	An independent real estate appraiser will be engaged as part of the overall AQR and ST exercise to undertake independent real estate appraisals (drive by and desk top) across different collateral types, including both random sampling of large and small collaterals, as well as the largest collaterals of counterparties. The AQR provider is expected to coordinate the work of the real estate appraiser (on the banks they are selected to perform the AQR) and ensure that the results of these independent appraisals are incorporated into their loan file reviews. The coordination role for potentially multiple Real Estate appraisers is subject to a decision of the Steering Committee.
Assessment elements	<u>On the overall loan book level:</u> • quantitative portfolio analysis; • assessment of data integrity and correct risk classification; • assessment of bank's loan underwriting and monitoring practices; <u>High-level commentary on the specific portfolio level:</u> • identifying the use of forbearance/modified loans and its impact on valuation and classification; • assessment of loan documentation (term sheets, loan agreements, inter-creditor agreements), including assessment if loan documentation in general tends to be covenant-lite or restrictive; • assessing the management of NPLs and arrears; correct and consistent application of triggers; verification of date of arrears to determine the correct vintage of arrears; • assessing the valuation, management, adequate documentation and monitoring of collateral; • assessing the consistency of provisions and risk coverage with the quality of the assets; • check for the possibility to extrapolate findings for remaining portfolio; • assessing the potential loss / gains from off-balance-sheet exposures;

Outcome	• Estimated shortfall/surplus of provisions as at 31 December 2012; • Evidence of weak practices concerning collateral valuation, provisioning or internal controls; • The outcome of the exercise to be used as input for a bottom-up stress test based on a credible macro-economic scenario to be agreed by the Steering Committee and with assumptions to be provided by the Bank of Slovenia.

Details of the AQR

- Loan segments: Corporate (large SMEs and large corporates), real estate developers, and retail loan portfolio (incl. mortgages, consumer loans, small SMEs etc.) and other portfolios that may be considered relevant by the Steering Committee.
- Sample size: it should be a random sample across all asset classes representative to each portfolio. The sample for corporate, real estate development and large SME segments should be **statistically significant** so that the findings can be extrapolated across portfolios. Except for the small SME and retail portfolio the sample size could be proportional to the size of the asset class as % of total loan book or % of CT1 capital. Moreover at least loans that exceed a threshold of NBV of 10 mio EUR (i.e. including any existing risk provisions) should be subject to a direct/manual review. The table below provides an overview of the sample sizes for individual loan file reviews at the two largest banking groups (NKBM d.d. and Abanka d.d.). Target sample sizes at the other banks will be agreed with the Stress Test Consultant and approved by the Steering Committee.

Table 11 Individual loan review sample - by banking group

Segment	Top loans (by exposure value)	Random sample		Target gross exposure coverage (%)
		Performing loans	Non-performing loans	
Real Estate Developers	All loans over 10 MLN Euro	100	50	60
Corporates		100	50	60
Small business target is to achieve		100	50	25
Retail Mortgages		100	50	n/a
Retail Other		50	25	n/a
Total	**TBD**	**450**	**225**	**n/a**

- Aim: to analyse, in-depth, qualitatively and quantitatively, a selected set of portfolios in order to (1) assess potential misclassifications of loans with regard to segments and performance status, (2) provide more accurate [assessment of recoverable amount] of the portfolios based on their credit risk, and (3) assess the adequacy of provisions in place against these exposures. The results would help to refine the estimates for credit loss parameters across different portfolios, informing the stress test that will follow the AQR
- Elements on the overall loan book level:
  - **Quantitative portfolio analysis**, including components like exposure, maturity, collateralisation/LTV (LTV only if available), risk classification, type of loan (by interest type/amortisation profile), regional distribution, year of underwriting (vintage analysis), major concentrations, provisioning and expected/unexpected loss forecast, coverage ratio, and other specific (and relevant) characteristics. There should be a separate analysis for the performing loan book, NPLs and foreclosed assets.
  - **Assessment of data integrity and correct risk classification**, incl.
    - Assessing whether the classifications of loans into asset classes are correct and whether the boundaries between (sub)portfolios are clear and consistently applied across the whole banking group (e.g. SME loans as a separate category or split between corporate and residential mortgages);
    - Evaluating the characteristics (incl. definitions and boundaries) of internally used segments of different loan quality levels (good quality, watch list, impaired etc.) - internal credit ratings;
    - Checking whether there is a coherent default/non-performing loan definition and whether it is in line with the harmonised NPL definition as put forward in the EBA consultation paper (EBA/CP/2013/06)[30];
  - **Assessment of banks' loan underwriting and monitoring practices (on sample basis)**

[30] As published on EBA website (http://www.eba.europa.eu/cebs/media/Publications/Consultation%20Papers/2013/CP-06/CP-on-Forbearance-and-non-performing-exposures.pdf)

- Drilling down into (sub)categories / (sub)portfolios regarding underwriting standards and borrower characteristics (if available LTV ratio, debt-to-income ratio, vintage analysis, etc.);
- Checking the efficiency of early warning indicators in place and how they are applied to loan portfolios;

- Elements on the specific portfolio level (general commentary on):

- **Identifying the use of forbearance and its impact on valuation**
  - Assessing the definition of forbearance, whether it is uniform across banking group, and compare it with the one put forward in the EBA consultation paper (EBA/CP/2013/06)[31];
  - Checking whether forborne exposures are consistently reported and systematically flagged in the reporting system(s) across the bank;
  - Assessing how processes and policies on application of forbearance practices (incl. migration between subcategories) are defined across the banking group;
  - Quantifying the amount of forborne exposures in each portfolio;
  - Assessing the appropriateness of the risk classification of exposures that have been refinanced or forborne by analysing a separate sample of only forborne loans (to assess borrower's capacity to repay the loan in full and thus determine whether forbearance measures are sustainable or not);
  - In case material reporting deficiencies in forbearance portfolios have been identified - quantifying the impact the proper reclassification of forborne/restructured exposures (according to harmonized definitions) would have on the level of NPLs and additional provisioning charges;

- **Assessing the management of NPLs and arrears**
  - Assessing the existence/functioning of a workout department in place and related policies (early warning systems, conditions for transferring customers into workout, restructurings, legal procedures, etc.);
  - Analysing portfolios with respect to NPL status/rating to identify incorrectness in loan classifications;
  - Analysing triggers used for classification as non-performing/loans in arrears;
  - Identifying the processes for early and late collection and their efficiency (e.g. analysis of the days past due status of the customers);
  - Assessing the conditions for transferring customers back into the performing portfolio or out of the balance sheet, incl. a verification that forbearance strategies do not alter the declared time in arrears (i.e., loans in grace period to avoid going into arrears);
  - Reviewing adequacy of write-off practices;
- **Assessing the valuation, management and monitoring of collateral**
  - Evaluate how responsibility for collateral evaluation is allocated (internal vs. external appraisals) and their independence for loan underwriting;
  - Gathering evidence on the frequency and type of appraisals (i.e.: whether these have been associated with onsite inspections or not), reasons for revaluation, age of appraisals;
  - Assessing how haircuts/valuation parameters are derived and validated, and whether they are based on historic data;
  - Using data on internal collateral values to derive the level of provisions;
  - Assessing the adequacy of collateral valuations;
  - Assessing statistical revaluation tools (i.e. : indexes) for small-sized real estate and investigating parameter estimations and how they are validated;

[31] Ibid.

- Quantifying the volume of repossessed collaterals, estimate their value (especially real estate and securities) and associated risks;

- **Assessing the consistency of provisions and risk coverage with the quality of the assets**
  - Identifying which rules apply for building specific as well as general loan loss provisions and risk coverage and assessing whether they are consistently applied;
  - Identifying parameters used for the general loan loss provisions and risk coverage calculation and whether they are validated and adequate;
  - Comparing coverage ratios in different segments, if possible also with the relevant peer group in other countries/banks as supplied to the Deloitte to the Bank of Slovenia (see the table below on the percentile of coverage ratios in the EU, taken from the EBA Risk Dashboard, with data from Q2 2012);

Period	Weighted average	25th	50th	75th
Dec - 09	42.44%	34.04%	40.82%	48.98%
Mar - 10	40.38%	34.40%	41.09%	47.96%
Jun - 10	37.11%	33.94%	40.35%	46.82%
Sep - 10	36.50%	33.75%	41.05%	48.28%
Dec - 10	37.04%	32.38%	41.78%	49.53%
Mar - 11	35.84%	33.12%	41.65%	47.97%
Jun - 11	41.02%	33.74%	41.25%	46.64%
Sep - 11	38.38%	33.27%	40.49%	45.22%
Dec - 11	41.09%	34.35%	40.65%	48.68%
Mar - 12	41.40%	34.53%	42.37%	48.64%
Jun - 12	41.81%	35.33%	41.78%	48.67%

- Checking if the level of provisioning and risk coverage in individual cases is adequate based on a sample of problematic loans, and using the results for simulating/estimating adequate provisioning levels for the whole portfolio.

- **Governance**: A dedicated project Steering Committee ("SC") has been set up in order to coordinate and oversee the overall AQR and ST exercise. Membership of the Committee will be composed of Slovenian authorities including the Bank of Slovenia and the Ministry of Finance. European Institutions (ECB/EC/EBA) and the Bank Asset Management Company (BAMC) are invited as observers. A progress report to the SC will be submitted by the consulting firm on a weekly basis and will be subject to discussion as needed. At least three physical meetings of the SC will take place (kick-off, interim results, final report).

In order to ensure the maximum transparency and accountability of the exercise and the full understanding of the results, the advising firm will need to disclose to the authorities and the SC its methodology, assumptions, outcomes and any other information deemed as important to understand properly the final amount of capital considered. To this end, the advising firm must commit to produce and submit to the authorities and the SC a final report in English.

- **Timelines:** Timely delivery of outputs from the AQR to be used in the Stress Test exercise is key to ensure compliance with the overall timeline of the AQR and Stress-Test exercise which includes presentation of results the top 3 banking institutions end of September and for the remaining banking institutions by end of October.

Appendix 2 – Definitions & Abbreviations

ALCO	Asset-Liability Committee
Allowance	Provision for on balance sheet exposure
ALM	Asset Liability Management Committee
AR	NLB d.d.'s 31 December 2012 Annual Report
AQR	Asset Quality Review
AVM	Automated Valuation Model
BAMC	Bank Asset Management Company, the vehicle established by the Slovenian Government to managed selected NPLs to be transferred from authorized banks
BANCS	The name of the real-estate collateral system used for retail segment
Bank	Participating institution, unconsolidated entity
BOS	Bank of Slovenia
BS	Balance Sheet
CAPEX	Capital Expenditure
CBI	Central Bank of Ireland
CCF	Credit Conversion Factor: Converts the amount of an off-balance-sheet transactions to an EAD amount
CEE	Central and Eastern Europe
Corporate	Corporate Segment
CR	Cure rate: Portion of loans that default which will eventually cure and 100% of P&I payments will be received by the participating institution
CRE portfolio triggers	
C&W	Cushman and Wakefield
Data tape	Electronic file of data provided by NLB
Defaulted loans	Non-performing loans that will not cure and are assumed to be liquidated
DIV	Data Integrity Verification
DPD	Day past due
DRC	Depreciated Replacement Cost
EAD	Exposure at Default: Gross exposure under a facility upon default of an obligor
EBA	European Banking Authority
EBIT	Earnings before interest and taxes
EBITDA	Earnings before interest, tax, depreciation and amortization
EC	European Commission
ECB	European Central Bank

ETN portal	Portal Evidenca Trga Nepremičnin (Real estate market database portal)
EU	European Union
EUR	Currency of the EU zone
EY	Ernst & Young
GURS	The Surveying and Mapping Authority of the Republic of Slovenia (Geodetska Uprava Republike Slovenije)
HAAB	Hypo Alpe-Adria Bank
Haircut	The discount applied to the valuation of a loan or collateral
IAS	International Accounting Standards
IBNR	Incurred but not reported
IFRS	International Financial Reporting Standards
IVS	International valuation standards
JLL	Jones Lang LaSalle
LGD	Lost give default
LTV	Loan to Value
M	Million
Matrix	Schedule of price per square meter denominated in EUR set out for all major type of properties within 4 categories: super high, high, medium and low covering all regions of Slovenia and prepared by independent 3rd party experts Slovenia Invest Ltd., Slovenia.
MV	Market Value
n.a.	Not applicable
n/a	Not available
NLB	Nova Ljubljanska Banka.d.d
NPLs or Defaulted loans	Non-performing loans, defined separately under different segments Loans that will not cure and are assumed to be liquidated
Op Co	Operating Committee, a group comprising Bank of Slovenia, Oliver Wyman, Deloitte & Ernst & Young representatives
PD	Probability of default: Probability that a performing loans will become non-performing in the next time period
PRA	Prudential Regulation Authority
Provision coverage or Coverage	Provision divided by gross exposure
REA	Real Estate Appraiser
RED	Real Estate Developer
Reference Date	December 31, 2012
Retail	The Bank definition for Retail was used, in our classification we relied on the retail flag in the data tape. Retail is defined by the Group physical persons
RfPs	Requests for Proposals

RICS	Royal Institution of Chartered Surveyors
SC	Steering Committee
SME	Small & Medium Sized Enterprise
ST	Stress Test
ST Consultant	Stress Test Consultant, Oliver Wyman,
Steering Committee	A group comprising of representatives from the Slovenian Authorities, NLB, European Commission and European Central Bank to oversee the whole project
TOR	Terms of reference

Appendix 3 - S-invest valuation matrix

Prime locations (Koper, Ljubljana)	pre 1970	662	24 - 1172	3
	1970 - 2000	658	110-1030	3
	2000 on	1296	1296	1
Secondary locations (Grosuplje, Novo mesto, Kranj, Celje, Sežana, Maribor, Vrhnika, Logatec)	pre 1970	194	56-330	7
	1970 - 2000	486	60-750	7
	2000 on	0	0	0
Other locations	pre 1970	230	20 - 912	22
	1970 - 2000	305	8.3 - 846	26
	2000 on	480	205-814	3

Search parameters:
Sale on the market
Time range: 1.1.2010-4.7.2013
trgoskop uses scale of quality of information from 1 to 4; only transactions with
Source: trgoskop application

MARKET COMMENTARY: it is estimated that over 70% of industrial property in Slovenia is owner occupied. No industrial property has been developed speculatively, and there have been no investment transactions. Most industrial property is outdated, with insufficiently high ceilings and concrete pillar supports that interfere with modern logistics rack systems and impede production lines. Nevertheless such older properties do transact, as many companies find the planning process too time consuming, bureaucratic and difficult and prefer to buy existing buildings at a lower price. Supply and demand is broadly in balance in Slovenia. Industrial was largely unaffected by the real estate bubble. Supply comes from Companies closing down, moving production elsewhere or changing production methods and locations. Demand comes from industrial companies expanding production, or upgrading their facilities, and Companies returning production to Slovenia from the far east.

Location bundle	Location-macro	Location- micro	RETAIL PRE 2000						RETAIL POST 2000				
			Range	Average	N. of transactions	Range EUR/m2 2012	N. of transactions 2012	Average 2012	Range	N. of transactions	Range EUR/m2 2012	N. of transactions 2012	Average 2012
Prime locations	Ljubljana	Center	1215 - 1751	1540	5	370 - 2914	18	1567	0	0	2523	1	2523
		Bežigrad	1318 - 1392	1355	2	954 - 2962	6	1779	0	0	0	0	0
		Moste-Polje	1422 - 1441	1911	2	1800 - 2124	3	1911	0	0	0	0	0
		Vič	0	0	0	1605	1	1605	0	0	2360	1	2360
		Šiška	1209	1209	1	111 - 2424	14	1528	1834	1	0	0	0
		Rudnik	0	0	0	0	0	0	0	0	0	0	0
		Črnuče	991 - 1386	1188	2	2518	1	2518	0	0	0	0	0
	Coast	Koper, Izola, Portorož	1412 - 2649	2016	4	351 - 4488	14	1902	1333	1	2120	1	2120
		Other	840	840	1	721 - 1827	3	1222		0	1275	1	1275
Secondary		Maribor, Novo mesto, Kranj	528 - 1700	1121	3	255 - 3809	25	1043	292	1	0	0	0
Other		Dolenjska (excluding Novo mesto)	380 - 1400	923	5	220 - 1458	9	890	0	0	753	1	753
		Gorenjska (excluding Kranj)	210 - 1971	1003	7	332 - 1135	13	602	1391	1	0	0	0
		Primorska (excluding coast)	1400 - 1595	1497	2	473 - 1779	8	1025	625 - 1896	4	1954	1	1954
		Štajerska (excluding Maribor)	710 - 1066	888	2	252 - 2291	16	955	1300	1	244 - 999	4	669
		Koroška, Prekmurje	380 - 1200	671	4	79 - 2018	14	744	0	0	1742	2	1742

Search parameters:

sale on the market

trgoskop uses scale of quality of information from 1 to 4; only transactions with scale 1 are taken into account

time range: 1.1.2013-4.7.2013

Retail built before and including 2010; retail built in and including 2001

Source: trgoskop application

MARKET COMMENTARY: There are only a few direct market entrants in Slovenia and most international brands are distributed by two main franchise partners. Slovenia is well served with modern shopping malls developed by Austrian Companies, notably Hypo Alpe Adria, m2 Gruppe and Spar European Shopping Centres. One domestic food retailer, Tuš, has also developed a number of malls. International retailers are benefitting from their better selection of goods, merchandising and know how, at the expense of domestic retailers, and some local companies are going out of business as a result. Malls with predominantly domestic retailers are suffering from reduced footfall and voids. High street retail space in secondary locations is adversely affected and empty locals are appearing. It is very difficult to find prime retail space for international brands but all the developers agree that the market is saturated and there is no space for new developments except in Ljubljana's city centre. The rents in quality malls and prime high street are expected to remain stable. Rents in inferior malls (such as the BTC retail space that was converted from industrial 20 years ago), and secondary high street locations are expected to drop.

Location bundle	Location-macro	Location-micro	PRE 2000						POST 2000					
			Range EUR/m2 2013	Average	N. of transactions 2013	Range EUR/m2 2012	N. of transactions 2012	Average 2012	Range EUR/m2	N. of transactions	Comments	Range EUR/m2 2012	N. of transactions 2012	Average 2012
Prime locations	Ljubljana	Center	857 - 2190	1270	7	451 - 2744	17	1710.82	0	0		0	0	0
		Bežigrad	1180 - 2222	1629	3	875 - 2336	7	1588.24	0	0		2000	1	2000
		Moste Polje	490 - 1439	964	2	513 - 2000	7	1335	0	0		0	0	0
		Vič	612 - 2070	1211	5	254 - 1877	9	1313	1200	1	There were 4 parking spaces included in the sale price	2568	1	2568
		Šiška	1700	1700	1	429 - 1679	6	1210	0	0	0	1425	1	1425
		Rudnik	0	0	0	0	0	0	0	0	0	1945 - 1981	2	1963
		Črnuče	1386 - 1602	1494	2	0	0	0	0	0	0			
	Coast	Koper, Izola, Portorož, Piran	1255 - 1910	1480	7	796 - 2850	14	1633	0	0	0	1033 - 2195	3	1667
		Other	1291	1291	1	1497	1	1497	0	0	0	0	0	0
Secondary		Maribor, Novo mesto, Kranj	654 - 944	808	6	144 - 2570	16	840	0	0	0	661	1	661
Other		Dolenjska (excluding Novo mesto)	476 - 1251	724	5	204 - 1911	5	1041	857	1	0	0	0	0
		Gorenjska (excluding Kranj)	729 - 1278	1003	2	223 - 1600	7	752	729	1	0	1511	1	1511
		Primorska (excluding coast)	160 - 1582	826	5	218 - 1933	14	982	0	0	0	1668	1	1668
		Štajerska (excluding Maribor)	476 - 1142	808	3	391 - 1035	10	813	0	0	0	833 - 1336	2	1084
		Koroška, Prekmurje	407 - 1150	879	3	550 - 886	4	777	0	0	0	817	1	817

Search parameters:

sale on the market

trgoskop uses scale of quality of information from 1 to 4; only transactions with scale 1 are taken into account

time range: 1.1.2013-4.7.2013, due to low transaction numbers prices for 2012 are also indicated

Offices built before and including in 2000; offices built after and including in 2001

Source: trgoskop application

MARKET COMMENTARY: There is a huge oversupply of office in Ljubljana, with nearly 30% vacant. This is due to new buildings coming to market post 2004, but no growth in demand. Rent levels have dropped significantly, between 30% and 50%. Many Compnies are relocating to take advantage of new reduced rents and others are renegotiating with landlords. This has not yet had an impact on the sales value of office space, but it will in due course as transactions increase following recovery. Rents in new buildings are expected to stabilize after a further small drop. Rents in older buildings are expected to drop significantly. The space in the newer buildings (approximatley 50,000m2) will fill up, creating voids in older buildings, and the current vacant space in older buildings of approximatley 190,000m2 will increase. There has been no significant office development in other areas of Slovenia. Demand for office is decreasing as Companies rationalize, downsize or go out of business. Supply of office is increasing as Companies try to maximise their resources by renting out vacant space. It is expected that this will have an impact on office rents nationwide, but not to the same extent as in Ljubljana with its huge oversupply.

Superhigh	Coast (Piran, Portorož, Izola,Koper)	1619	71	124
	Ljubljana center	1542	6	94
	Ljubljana Rožna dolina	1658	5	
High	Ljubljana Vič	1651	8	
	Ljubljana Moste-Polje	1268	8	
	Ljubljana Rudnik	1295	5	
	Ljubljana Bežigrad	1300	5	
	Ljubljana Šiška	1045	2	
	Ljubljana Dravlje	1602	5	
	Ljubljna Vižmarje,Brod	1099	5	
	Ljubljana Črnuče	985	6	
	Ljubljana satelite cities (Domžale, Kamnik, Grosuplje, Mengeš)	943	74	228
	Nova Gorica	989	20	74
	Bled, Kranjska Gora, Bohinj	890	41	82
Mid	Coast satelites (Sežana and surroundings)	783	12	43
	Savinjska (excluding Celje)	850	15	67
	Dolenjska (excluding NM, Trebnje)	803	8	42
	Primorska (Koper, Portorož, Piran, Izola)	852	2	20
	Celje	846	54	80
Low	Novo mesto, Trebnje	788	40	104
	Gorenjska (excluding Bled, KG, Bohinj)	783	4	8
	Škofja Loka	776	21	46
	Štajerska (excluding Maribor)	633	31	138
	Maribor	758	43	220
	Zasavje	665	10	71
	Prekmurje	438	17	76
	Koroška	437	27	51

Parameters:

Date: 1.1.2012 - 5.7.2013
Nova Gorica
Škofja Loka
Maribor
Celje
Novo mesto, Trebnje
Ljubljana satelite cities (Domžale, Kamnik, Grosuplje, Mengeš)
Bled, Kranjska Gora, Bohinj
Coast (Piran, Portorož, Izola,Koper)

Date: 1.1.2013 - 5.7.2013
Ljubljana center
Ljubljana Rožna dolina
Ljubljana Vič
Ljubljana Moste-Polje
Ljubljana Rudnik
Ljubljana Bežigrad
Ljubljana Šiška
Ljubljana Dravlje
Ljubljna Vižmarje,Brod
Ljubljana Črnuče
Coast satelites (Sežana and surroundings), graphic method (center is Sežana, radius

Search parametrs for regions: graphic method
Dolenjska (excluding Novo mesto, Trebnje) radius 15km (center is Semič), radius 10km (center in Žužemberg), radius 10km (center in Mokronog)
Gorenjska (excluding Kranjska Gora, Bled, Bohinj) radius 8 (center in Jesenice)
Primorska (excluding Koper, Piran, Izola, Portorož, Sežana) radius 10km (center is Divača), radius 8km (center is Ilirska Bistrica)
Štajerska (exluding Maribor) radius 15km (center is Ptuj), radius 10km (center is Bistrica)
Savinjska (excluding Celje) radius 8km (center is Velenje), radius 15km (center is Rogaška)
Zasavska radius 10km (center is Trbovlje), 15km (center is Krško)
Prekmurje (radius 15km, Murska Sobota)
Koroška (radius 20km, Dravograd)

trgoskop uses scale of quality of information from 1 to 4; only transactions with scale 1 are taken into account

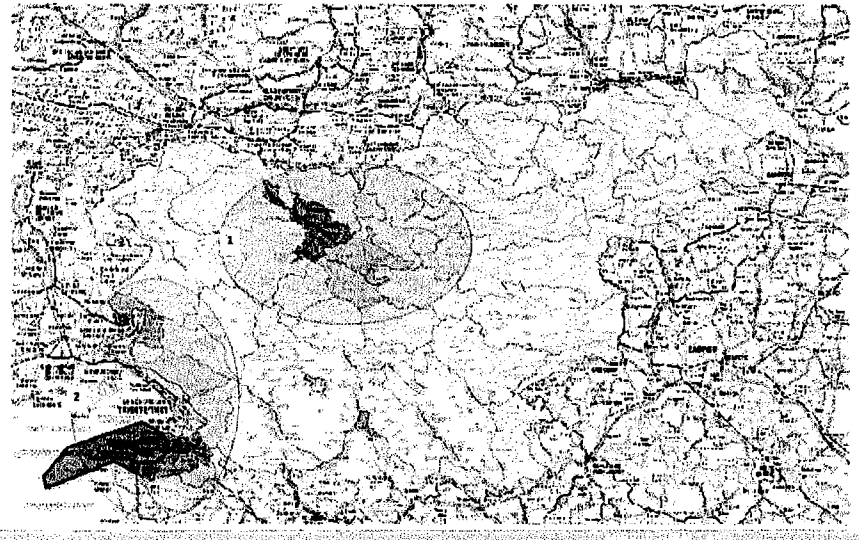
Superhigh	Coast (Piran, Portorož, Izola,Koper)	1812	68	113
	Ljubljana center	2126	30	88
	Ljubljana Rožna dolina	1728	45	81
	Kranjska Gora	1977	9	10
High	Ljubljana Vič	1696	56	60
	Ljubljana Moste-Polje	1624	24	46
	Ljubljana Rudnik	1670	4	7
	Ljubljana Bežigrad	1699	59	76
	Ljubljana Šiška	1649	56	89
	Ljubljana Dravlje	1612	46	57
	Ljubljna Vižmarje,Brod	1691	10	16
	Ljubljana Črnuče	1630	19	53
	Ljubljana satelite cities (Domžale, Kamnik, Grosuplje, Mengeš)	1396	48	88
	Bled	1557	6	7
	Bohinj	n/a	n/a	0
Mid	Coast satelites (Sežana and surroundings)	1414	8	8
	Nova Gorica	1289	42	53
	Škofja Loka	1468	19	20
	Primorska (excluding Koper, Piran, Izola, Portorož, Sežana)	1264	6	14
	Novo mesto	1138	26	34
	Celje	1015	53	111
	Trebnje	1129	4	10
Low	Dolenjska (excluding Novo mesto, Trebnje)	785	27	34
	Gorenjska (excluding Kranjska Gora, Bled, Bohinj)	853	39	43
	Maribor	915	99	361
	Štajerska (exluding Maribor)	926	59	71
	Savinjska (excluding Celje)	965	79	131
	Zasavska	722	75	105
	Prekmurje	757	22	48
	Koroška	766	55	65

Source: Trgoskop, ETN

Search parameters:
Date: 1.1.2013 - 4.7.2013

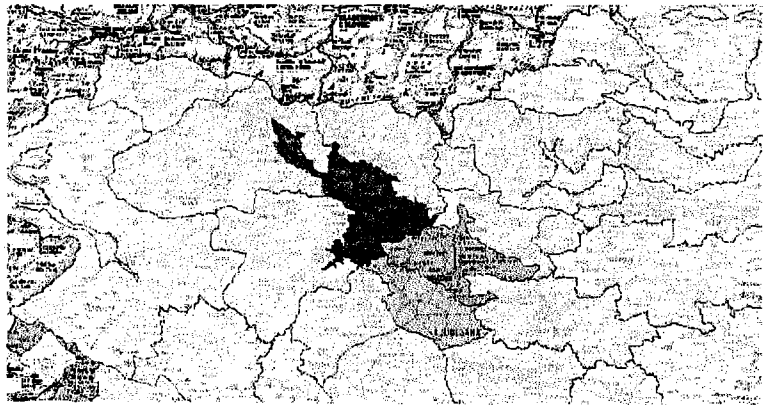
Graphic method:
Rožna dolina, radius 1km
Lj city centre radius 0.4km
Lj Vič radius 1km
Lj Moste - Polje radius 1km
Ljubljana Bežigrad radius 1km
Ljubljana Šiška radius 1km
Ljubljana Dravlje radius 1km
Ljubljna Vižmarje,Brod radius 2km
Ljubljana Črnuče radius 2km
Coast satelites (Sežana and surroundings) radius 3km (center is Sežana)
Pomurska radius 15km (center is Murska Sobota)
Koroška radius 20km (center is Dravograd)
Dolenjska (excluding Novo mesto, Trebnje) radius 15km (center is Semič), radius 10km (center in Žužemberg), radius 10km (center in Mokronog)
Gorenjska (excluding Kranjska Gora, Bled, Bohinj) radius 10 (center in Jesenice)
Primorska (excluding Koper, Piran, Izola, Portorož, Sežana) radius 10km (center is Divača)
Savinjska (excluding Celje) radius 8km (center is Velenje), radius 15km (center is Rogaška)
Zasavska radius 10km (center is Trbovlje), 15km (center is Krško)
Štajerska (exluding Maribor) radius 15km (center is Ptuj), radius 10km (center is Bistrica)

trgoskop uses scale of quality of information from 1 to 4;
only transactions with scale 1 are taken into account



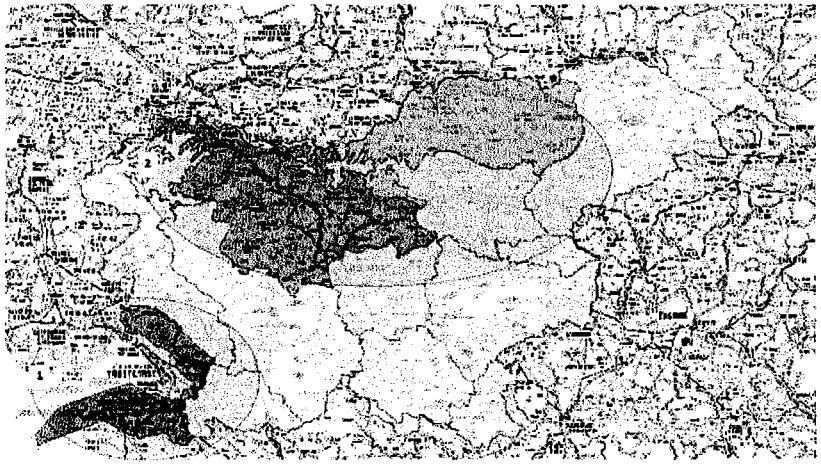
0.63	0 - 2,5	low
0.79		
0.98		
1.23		
1.54		
1.92		
2.4		
2.88	3 - 4	mid
3.46		
4.15		
4.98	5 - 7	high
5.98		
7.18		
8.61	7,5 - 10,5	superhigh
10.33		

1: Ljubljana & Upper Carniola



0.63	0 - 2.5	low
0.79		
0.98		
1.23		
1.54		
1.92		
2.4		
2.88	3 - 4	mid
3.46		
4.15		
4.98	5 - 7	high
5.98		
7.18		
8.61	7.5 - 10.5	superhigh
10.33		

Ljubljana city hotels	Hostels, 1* and 2*	20 to 60
	3*,4* and 5*	30 to 60
Leisure hotels on the coast, Bled, Kranjska Gora, Rogaška slatina and Podčetertek	Hostels, 1* and 2*	15 to 50
	3*,4* and 5*	20 to 50
All other hotels	Hostels, 1* and 2*	10 to 80
	3*,4* and 5*	

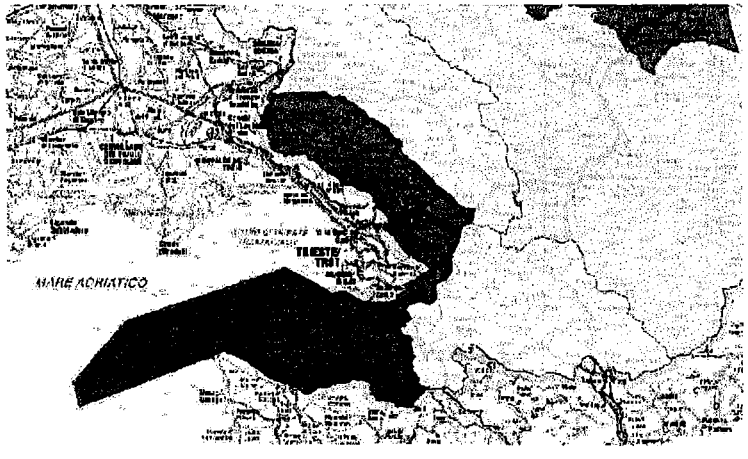


1 min: 1.200 €

8 7.500 €

1.2	1 - 2	low
1.3		
1.6		
1.8		
1.9		
2.5	2,5 - 3	mid
3.2		
7.5	3 - 7,5	high

1: Coastal Karst & Gorizia

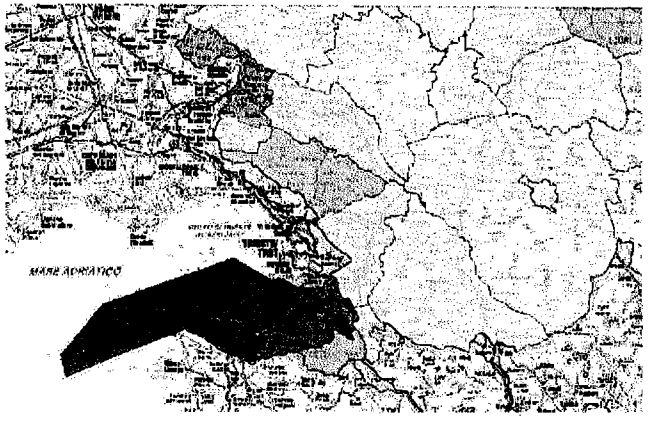


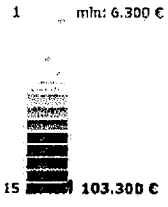
1 min: 1.200 €

8 7.500 €

1.2	1 - 2	low
1.3		
1.6		
1.8		
1.9		
2.5	2,5 - 3	mid
3.2		
7.5	3 - 7,5	high

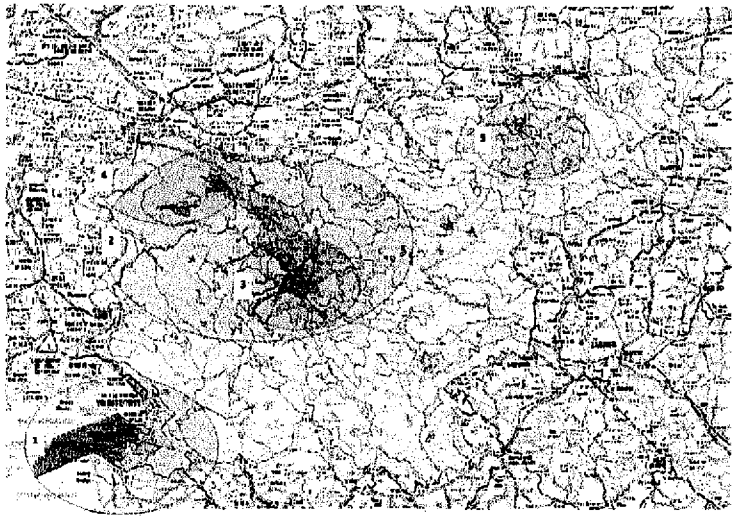
2: Coastal Karst & Gorizia





0.63	0 - 2,5	low
0.79		
0.98		
1.23		
1.54		
1.92		
2.4		
2.88	3 - 4	mid
3.46		
4.15		
4.98	5 - 7	high
5.98		
7.18		
8.61	7,5 - 10,5	superhigh
10.33		

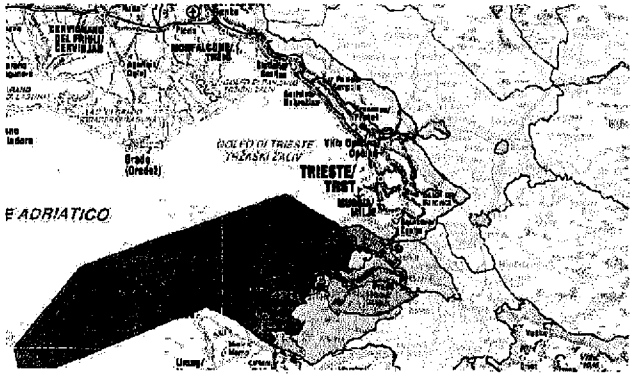
MARKET COMMENTARY: The value of forest land and agricultural land is much more straightforward than that for building land, as there are not such large discrepancies in the value of transactions. It should be noted however that the price of non buildable land in hotspots such as the coast and Ljubljana is higher than elsewhere in Slovenia which indicates there may have been some level of speculative buying, by investors hoping for future change of use.



8	8 - 55	low
10.2		
13		
16.5		
21		
26.5		
33		
41		
51		
63		
78	80 - 160	mid
96		
118		
145		
178	180 - 350	high
217		
265		
324		
395	400 - 500	superhigh
480		

5	6 - 55	low
8		
11		
12		
18		
21		
28		
34		
44		
55		
70	70 - 120	mid
85		
100		
120		
140	140 - 250	high
170		
200		
250		
300	300 - 400	superhigh
360		

1: Coastal Karst



8	8 - 55	low
10.2		
13		
16.5		
21		
26.5		
33		
41		
51		
63		
78	80 - 150	mid
96		
118		
145		
178	180 - 350	high
217		
265		
324		
395	400 - 500	superhigh
480		

5	6 - 55	low
8		
11		
12		
18		
21		
28		
34		
44		
55		
70	70 - 120	mid
85		
100		
120		
140	140 - 250	high
170		
200		
250		
300	300 - 400	superhigh
360		

2: Upper Carniola, Carinthia, Savinja

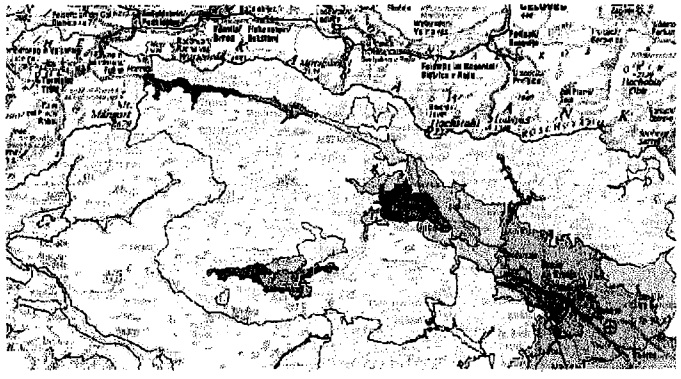
1 min: 1.200 €

8 7.500 €

1.2		
1.3		
1.6	1 - 2	low
1.8		
1.9		
2.5	2,5 - 3	mid
3.2		
7.5	3 - 7,5	high

MARKET COMMENTARY: The value of forest land and agricultural land is much more straightforward than that for building land, as there are not such large discrepancies in the value of transactions. It should be noted however that the price of non buildable land in hotspots such as the coast and Ljubljana is higher than elsewhere in Slovenia which indicates there may have been some level of speculative buying, by investors hoping for future change of use.

4: Upper Carniola



1 min: 4.800 €

20 288.000 €

8		
10.2		
13		
16.5		
21	8 - 65	low
26.5		
33		
41		
51		
63		
78		
96	80 - 150	mid
119		
145		
178		
217	160 - 350	high
265		
324		
395	400 - 500	superhigh
480		

5		
8		
11		
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18	5 - 55	low
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85	70 - 120	mid
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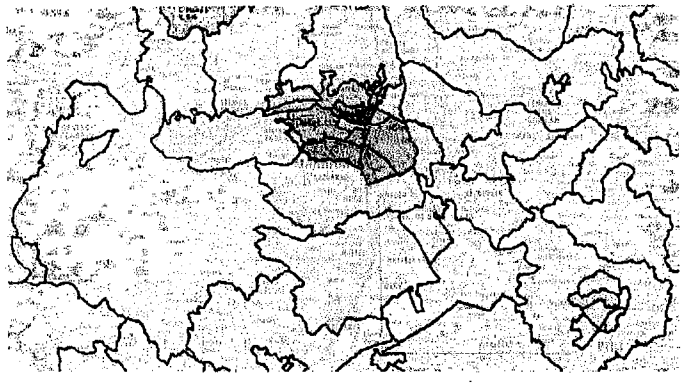
170	140 - 250	high
200		
250		
300	300 - 400	superhigh
380		

5: Maribor



1 min: 4.800 €

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395	400 - 500	superhigh
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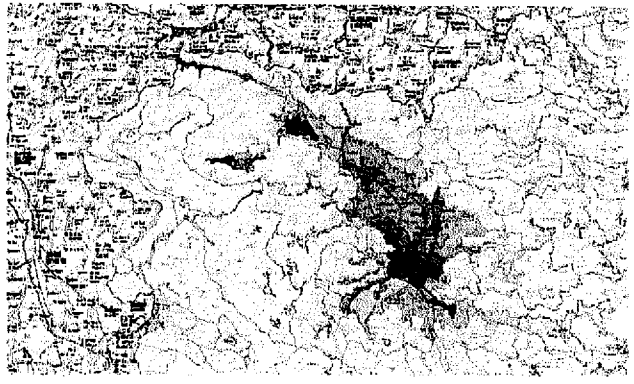
300	300 - 400	superhigh
380		

MARKET COMMENTARY: Building land is generally valued worldwide according to the asset class and density permitted on the site. The residual valuation method works by calculating the value of the finished development, deducting the cost of development including bank finance and developer profit, with the residual representing the value of the land. This method of valuation escaped Slovenia altogether however, and most valuations carried out by local valuers use the comparative transaction method for land valuations, but with little consideration to permitted use and density. For example, one valuation of industrial land near Koper used a 1,000m2 land plot, with permission to build four homes, as a comparable. There have been huge discrepancies in the price paid for land, particularly in locations such as Maribor, where many land transactions were speculative, fuelled by easily available and cheap bank finance. Land zoned for industrial in Ljubljana or Koper using the residual valuation method has a value of approximately 10€/m2 to a developer, or 50€/m2 to an owner occupier, discounting developer profit. One property zoned for a mixed use development on the coast using the residual method has a value of approximately 80€/m2. Valuing land for residential development is very difficult because the density varies more than any other asset class. For example, a villa plot might have a density of only 0.2, whilst a city centre site might have a density of 3. The value of residential property also varies more than any other asset class according to location. As a guide, any land zoned for residential valued at more than 200€/m2 should be treated with caution, however there may be exceptions. Land zoned for office in Ljubljana, or hotels anywhere in Slovenia, is not currently viable for development. The cost of developing such real estate exceeds the value of the finished development. For that reason it is unlikely that buyers could currently be found for such assets at anything other than fire sale, speculative prices.

2: Wider Upper Carniola & Central Slovenia



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300	300 - 400	superhigh
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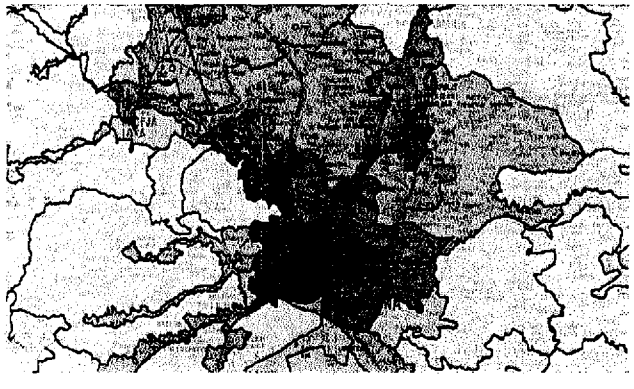
3: Ljubljana



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Appendix 4 – Loan review methodology & definition alignment

Non-performing loans (NPL)	NLB: Classification of an exposure into D or E rating classes (for Retail also C rating), Overdue more than 90 days, Inception of collection process through court proceedings Restructuring due to financial problems of the debtor Debt write-offs HAAB: For collective AQR adjustments for SME and Retail we follow BoS default definition as per EY. For both banks, all exposures classified by Deloitte during Loan File review as Restructuring or Liquidation are considered as NPL: Restructuring: the connection appears unable to meet its contractual debt obligations but the underlying business appears viable and a restructuring of its exposure appears to be the most appropriate route to value maximisation Liquidation: the Connection appears unable to meet its contractual debt obligations; the	Material exposure >90 days past due (DPD) Any exposure deemed at risk of not being repaid in full without collateral realisation, regardless of the existence of any DPD value / duration	Borrower deemed to be in default in the event of either or both of the following: Lender considers that the borrower is unlikely to repay its obligations in full without recourse by the lender to actions such as realising security; Borrower is >90 DPD on any material credit obligation to the lender	Loans >90 DPD. Any exposure deemed at risk of not being repaid in full without collateral realisation, regardless of the existence of any DPD value / duration

	underlying business is not viable or value maximisation appears most likely through an insolvency process. Default assessed at the counterparty level, i.e. if one loan defaults, all loans to the same borrower are deemed to be in default except for Retail where it is assessed at contract level.			
Forbearance	Contracts modified (prolongation, grace periods etc.) due to debtor inability to meet the original terms (prior to modification), or Consolidation/refinancing of overdue exposures in order to enable the debtor to service its obligations.	**'Modified' contract** includes: more favourable terms than the borrower can obtain in the current market contract classified as non-performing or >30 DPD (in total or in part) at least once during the three months prior to modification, or which would be classified as such absent the modification(s) modification implies total / part debt write off, or repayment made by realising collateral.	N/A	The granting of a concession (temporary or permanent) to a borrower for reasons relating to actual / apparent financial stress Concession may involve restructuring the contractual terms, non-cash repayment (e.g. equity interest in the borrower) No forbearance if the concession is unrelated to actual or apparent borrower financial distress.
Restructuring	Modification of contracts due to debtor inability to meet the original terms (prior to modification) in order to enable the debtor to service its obligations.	Concessions defined as modification(s) of previous terms and conditions of a troubled debt contract, to allow for sufficient debt service ability. See below for an example of such amendments.		Non-payment of interest following modification of loan terms, including refinancing and renegotiation, deemed to be evidence of a loss being incurred. All loans modified therefore subject to impairment test on renewal.
Impairment	Impairment assessed	Forbearance is a trigger	Impairment loss to be	Per IAS 39 Financial

Definition	Deloitte approach	EBA	PRA	CBI
(loss event)	where there is evidence of a loss event as per definition of NPL classification (on previous slide).	for impairment *(IAS 39.59(c))*; lender should therefore assess whether trigger event gives rise to impairment. EBA acknowledges that where forbearance measures do not lead to a decrease in the NPV of the exposure, this does not result in an impairment loss.	recognised where: objective evidence that a loss event (or combination thereof) has resulted in an impairment, and this results in a reduction in anticipated future cash flows. Loss event triggers are set out in IFRS	Instruments: *Recognition and Measurement*, impairment losses are incurred if: there is objective evidence of impairment due to event(s) after the creation of the exposure ("loss event"), the loss event has affected estimated future cash flows of the loans and these cash flows can be reliably estimated. See below for Impairment Triggers.
Impairment provisions	Calculated as the difference between the loan carrying value (i.e. outstanding exposure) and the estimated present value of future cash flows from collateral and/or voluntary repayment made by the debtor taking into account the effective interest rate. For specific AQR adjustments, the level of AQR adjustment will be benchmarked against the criteria set out in Impairment Triggers below.		For collective assessment, exposures for which the following criteria were met simultaneously for three consecutive months (re-aging period): Arrears deemed to be an indication of significant borrower financial difficulty borrower and is a therefore a trigger event for loss recognition. Forbearance, low interest rates, non-amortising products and arrears are deemed an indicator of advanced financial stress. More likely that a 'loss event' is deemed to have already occurred before arrears become apparent. Any additional provisions to be picked up in the collective provision for IBNR losses	All 'performing' exposures require a provision based on the probability of loans migrating from performing to non-performing over a defined length of time (emergence period). The resulting provision is the IBNR provision.
Emergence period / IBNR	Emergence period is the time between the emergence of a default trigger and the time	Assets impaired due to IBNR losses are not deemed to be non-performing unless they	Incurred loan losses should be recognised in full, but there should be no recognition of expected	Emergence period is critical to provision calculation, as it determines on a forward

	when the lender becomes aware of the loss. We use 12 month emergence period (Loss Identification Period)	comply with either the default or the generic criteria to identify non-performing exposures.	but not incurred losses.	looking basis, the time taken for non-performance to be identified A longer emergence period results in a higher IBNR provision.
Collateral valuation	Real estate collateral: independent appraisal value or updated bank valuation after applying liquidity, location and cost of carry haircuts. Other collateral: bank valuation after applying haircuts for liquidity, volatility, cost of carry and size of position (for equities).	Non-performing status determined irrespective of collateral		Appropriately conservative approach required to the expected timing and proceeds when determining collateral values Collateral value estimated by applying price index changes to the original value.
Cured loans	For collective assessment, exposures for which the following criteria were met simultaneously for three consecutive months (re-aging period) : exposures for which the overdue amount was repaid in full or the overdue amount fell below the materiality threshold and exposures reclassified to the A rating class. For individual assessment, exposures considered to be cured when: Borrower's financial situation has improved to the extent that full repayment, according to the original or when applicable the modified conditions, is likely to be made, and	Loan considered cured only when the following conditions are met: contract is considered as performing; lender has concluded that borrower can meet its obligations, based on analysis of the financial condition of the borrower; borrower has met regularly latest payments due.	Not appropriate to assume a future alleviation of any financial stress (e.g. forbearance, collateral value increase) in the absence of sufficiently strong objective evidence. Especially true in syndicate situations where a single lender may not be able to enforce changes.	Loans considered to be cured when: borrower's financial situation has improved to the extent that full repayment, according to the original or when applicable the modified conditions, is likely to be made, and borrower no longer has any amount past-due.

	Any modified conditions have been obtained on terms equivalent to an arm's length basis in the market, and Borrower no longer has any amount past-due.			
Impairment Triggers	For manual provisions, a detailed assessment of business viability is undertaken that takes into account all relevant market, operational, financial and structural issues (see Deloitte approach to assessing business viability). Sustainable cash flow (using EBITDA as a proxy) is derived from historic financials or, where available, from management or independent forecasts. Sustainable cash flows were compared to debt levels to determine debt service capability. As a guideline, AQR adjustments were created where debt levels were in excess of the following net leverage (net debt/EBITDA) thresholds: 5 x for standard businesses 8 x for utilities, if a major company with demonstrably stable cash flows 12 x for infrastructure businesses. The level of AQR adjustments that would be required as a result of enforcement were also calculated with the final figure applied being		Objective evidence of impairment includes observable data about the following loss events: significant financial difficulty of borrower; breach of contract (e.g. default, delinquency in interest or principal payments); lender grants concession that would not otherwise be considered, for economic / legal reasons relating to borrower financial difficulty; becomes probable that borrower will enter bankruptcy or other financial reorganisation; disappearance of active market for asset due to financial difficulties (not only because asset is no longer publicly traded [IAS 39.60]); or observable data indicating that a measurable decrease in estimated future cash flows since initial recognition, even if decrease cannot yet be attributed to individual assets.	**Macroeconomic triggers** National / local economic conditions indicate a measureable decrease in estimated future cash flows of the loan asset class. Increase in unemployment. Fall in property prices (for mortgages). Adverse change in industry conditions. **Mortgage portfolio triggers** Loan asset meets NPL definition. Borrower requests forbearance measure. Deterioration in borrower's debt service capacity. Material reduction in rental income from a buy-to-let property. **CRE portfolio triggers** Loan asset meets NPL definition. Borrower requests forbearance measure. Material decrease in property value. Material decrease in estimated future cash flows.

	based on the lesser of the two results. At all times, expert judgement was used to assess the appropriateness of the methodology and the need for any adjustments to take into account one-off factors, or the specific financial or structural issues surrounding a business.			Lack of an active market for relevant assets. Absence of a refinancing market. Significant decline in lender's credit rating of the borrower **SME portfolio triggers** Loan asset meets NPL definition. Borrower requests forbearance measure. Trading losses. Diversion of cash flows from earning assets to support non-earning assets. Material fall in turnover or loss of major customer. Default or breach of contract.
Restructuring criteria	**Criteria indicating that contracts are restructured:** Grace period agreed on principal or interest payments Maturity date extended Amortisation plan changed to provide borrower with more favourable repayment conditions Partial debt write-offs Lower interest rates agreed between the lender and the borrower. Debt for asset swap. Refinance of loan(s) on non-market terms.	Reduction in (or cancellation of) amounts past due, future principal payments (e.g. partial write-off, realising collateral) and/or interest payments (e.g. lower interest rate); Rescheduling of repayment dates for principal and/or interest (e.g. defer due date, agreed a "grace" period); Agreement to release or realise collateral, or any kind of partial settlement of the debt through non-monetary means, or means other than agreed in the loan contract; and Agreement to repackage different loans to the same borrower into a new loan with more favourable conditions.		

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