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ASSET QUALITY REVIEW AND BOTTOM-UP STRESS TEST EXERCISE

September 28, 2012

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Executive Summary

This report contains Oliver Wyman's conclusions from the bottom-up stress testing analysis undertaken for the Recapitalization and Re-structuring of the Banking Sector of the Banco de España and the Ministerio de Economía y Competitividad. The objective of this work is to assess the resilience of the Spanish banking system and its ability to withstand a severe adverse stress of deteriorating macroeconomic and market conditions, and to estimate the capital that each individual bank would require in the event of such an adverse scenario.

As in the top-down stress-testing exercise conducted in June 2012, the bottom-up analysis covered fourteen banking groups representing approximately 90% of the total domestic credit of the Spanish financial system. The scope of asset coverage also remains the same as in the top down exercise and includes the domestic lending books, excluding other assets, such as foreign assets, fixed income and equity portfolios and sovereign borrowing. The base and adverse macroeconomic scenarios were also maintained as specified by the Strategic Coordination Committee, with an adverse case implying a 6.5% cumulative GDP drop, unemployment reaching 27.2% and additional drops in house and land price indices of 25% and 60% respectively, for the 3 year period from 2012 to 2014.

The process and methodology has been closely monitored and agreed with an Expert Coordination Committee ("ECC" or "Expert Committee") composed of the Banco de España, the Ministerio de Economía y Competitividad, the European Banking Authority, the European Commission, the European Central Bank and the International Monetary Fund. Similarly, interim and final results were agreed by the Strategic Coordination Committee ("SCC" or "Steering Committee") consisting of representatives of the same institutions.

Differently from the top-down exercise, this bottom-up analysis quantifies the two key drivers of bank level solvency – projected loan losses and loss absorption capacity (including provisions, asset protection schemes, profit generation, capital buffer) – and uses bank-level data to estimate individual banks' capital needs in the base and adverse scenarios.

- 1) Loss projections are based on detailed information from banks' books as well as external reviews from independent auditors and real estate appraisers in order to enable loss drivers not directly captured in the banking books and/or past default experience to be adequately factored into the estimates of entities' loss forecasts and capital needs. Three primary sources were used:
 - a) Bank of Spain central databases with i) granular information on individual loans and collateral (~36 million loans; ~8million collateral assets) and ii) historical information (CIR – Central Register) and iii) reserved financial information as of December 2011.
 - b) Auditor data was used to refine individual bank parameters on loan classification and restructuring. This enabled initial asset quality drivers not directly observable in banking books to be embedded into loss and capital

estimates in each scenario; auditors (Deloitte, E&Y, KPMG and PwC) examined samples of more than 16,000 loans for the system

- c) Revaluation of foreclosed assets and underlying collateral data, including
 - i) Specialist real estate valuation firms (6 firms – Aguirre Newman, CBRE, Gesvalt S.A / Madiva, Jones Lang LaSalle, Tinsa and Valtecnic) conducted ~1.7 million housing and ~8,000 complex asset valuations so that estimates of foreclosed assets and collateral values reflected realistic market pricing
 - ii) Analysis of banks' completed real estate assets' sales experience including ~110,000 transactions since 2009
- 2) To improve the quality of the projected loss absorption, we:
- a) Performed structural analysis of individual entities' balance sheets, P&Ls and business plans
 - b) Introduced conservative rules set by the ECC/SCC to prevent system-level inconsistencies under the stress scenarios by embedding market constraints (e.g. 3% CAGR deposit reduction under the adverse scenarios; deposits and credit prices floored and capped at current levels). In addition, specific assessments of individual business plans were conducted, so that individual bank projections would be consistent with the specified scenarios, individual historical track record and overall sector business plans aggregation
 - c) Utilized a structured approach to model the additional capital buffer resulting from deleverage, by estimating RWA reductions in line with projected entities' credit volumes by asset type in each scenario

The process and methodology has been closely monitored and agreed with an Expert Coordination Committee composed of the Banco de España, the Ministerio de Economía y Competitividad, the European Banking Authority, the European Commission, the European Central Bank and the International Monetary Fund. Similarly, interim and final results were agreed by the Strategic Coordination Committee.

The overall process has resulted in more robust estimates of losses and loss absorption capacity for each of the banking groups, portfolios and assets than in the top-down exercise, leading to a more accurate assessment of Spanish capital needs at system and entity level in the base and adverse scenarios.

For the 3-year period (2012-2014) we estimate that:

- Cumulative credit losses for the in-scope domestic back book of lending assets are approximately €270 BN for the adverse (stress) scenario of which €265 BN correspond to the existing book. This compares with cumulative credit losses amounting to approximately €183 BN under the base scenario.

- Projected losses vary significantly across asset class: losses related to real estate activities – Real Estate Development and foreclosed assets - are significantly higher than for other segments and represent approximately 57% of total estimated losses in the adverse scenario
- Losses for the same segment vary substantially for the different entities, reflecting differences in risk profiles and credit standards
- Figure 1 below summarizes projected losses by asset class, with the figures in brackets highlighting the min-max by asset class across the different entities

Figure 1: Overview of system wide projected losses 2012-2014 by asset type¹

		Base Scenario		Adverse Scenario	
	2011 Balance	% of 2011 balance ²	€ BN	% of 2011 balance	€ BN
RE Developers	227 BN	28.6% (21-37%) ³	65 BN	42.8% (35-52%)	97 BN
Retail Mortgages	602 BN	1.8% (0.8-7.0%)	11 BN	4.1% (2.1-12.5%)	25 BN
Large Corporates	254 BN	5.8% (3-14%)	15 BN	10.0% (6-17%)	25 BN
SMEs	237 BN	10.6% (7-21%)	25 BN	16.7% (12-30%)	39 BN
Public Works	41 BN	12.5% (6-31%)	5 BN	21.3% (10-41%)	9 BN
Retail Other	74 BN	11.8% (6-30%)	9 BN	18.6% (9-41%)	14 BN
Total Credit Portfolio	1,436 BN	9.0% (4-18%)	129 BN	14.6% (7-27%)	209 BN
Foreclosed RED & Other	88 BN	55.5% (51-61%)	49 BN	63.4% (59-70%)	55 BN

- We estimate that the system has a total loss absorption capacity of approximately €252 BN in the adverse (stress) scenario
 - Total existing provisions Dec 2011 amount to €110 BN, directly absorbing 40% of total projected losses for the system in the adverse scenario
 - There is a strong reduction in profit generation capacity in the adverse scenario mainly driven both by an expected decrease in deposits, which generates additional and more expensive funding needs, as well as an

¹ This figure does not include €5.5 BN losses derived from the new portfolio

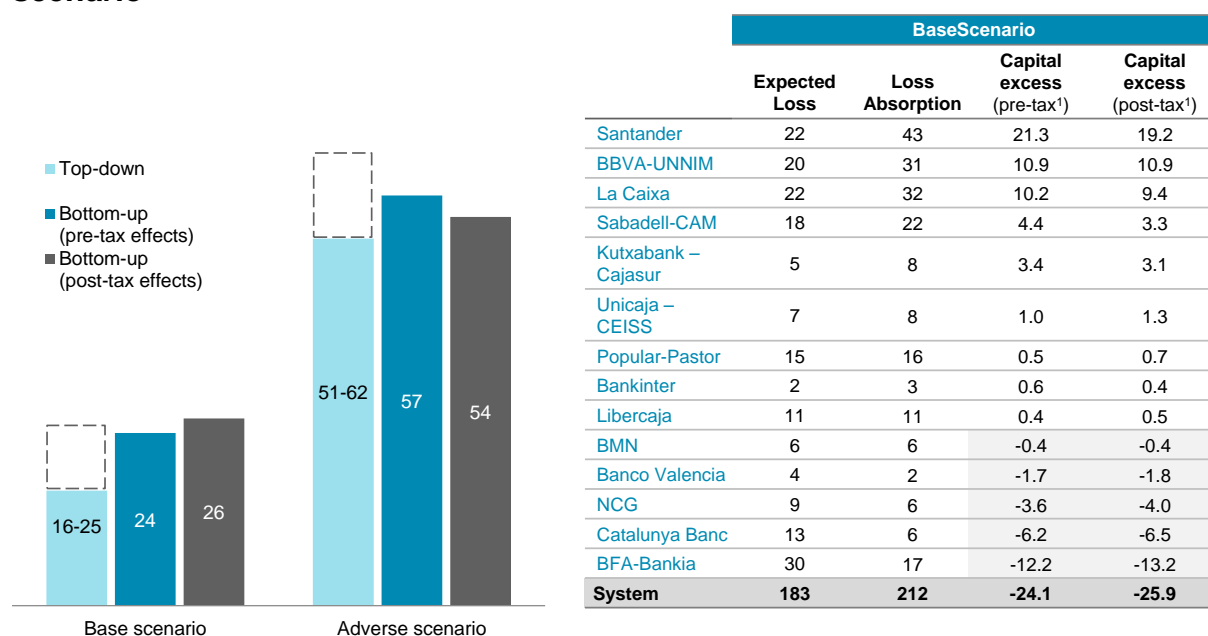
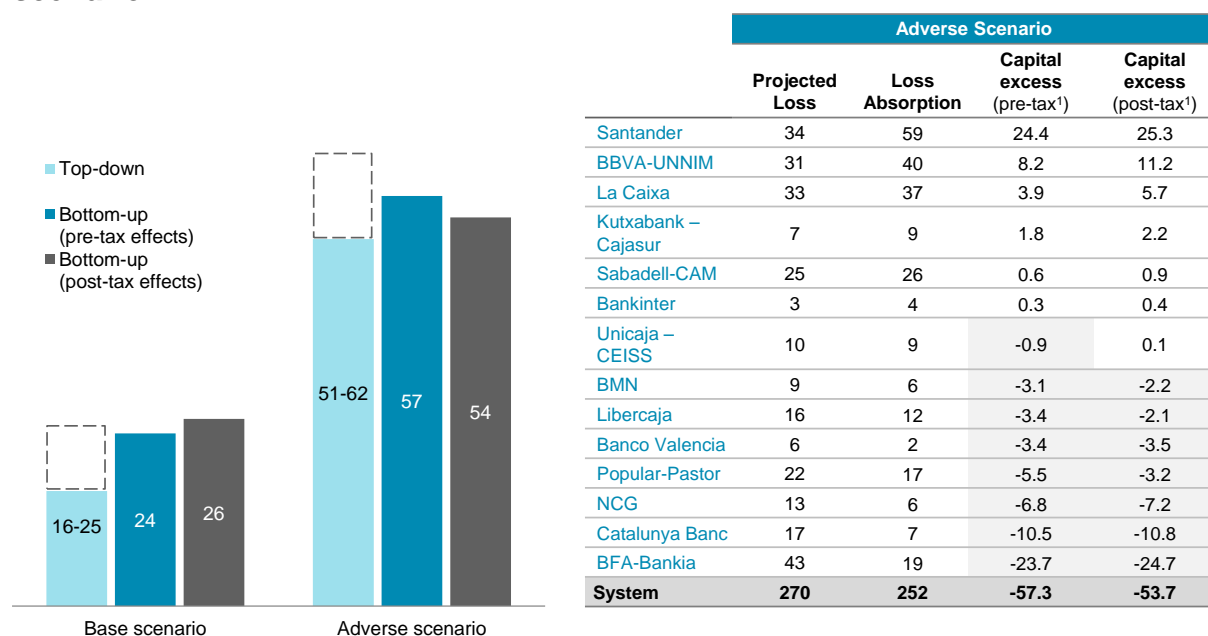
² Projected losses from performing and non-performing losses measured as a % of Dec-11 Exposure; projected losses from foreclosed assets measured as a % of book value at foreclosure

³ Denotes result range across banking entities (minimum loss to maximum loss)

increase in non-performing loans' volumes that naturally do not contribute to net interest income (NII)

- For the domestic business – total pre-provisioning profit for the full period amounts to €39 BN; €13 BN in 2014 (vs. €19 BN in 2011 and €34 BN in 2009)
- For the businesses in the Rest of the World - a reduction of 30% was applied to international business post-provisioning/post-tax attributed profit projections (mainly applicable to Santander and BBVA), and amounts to approximately €22 BN
- Capital buffer generates approximately €73 BN of extra loss absorption capacity in the adverse scenario (€22 BN in the base scenario)
- Newly generated Deferred Tax Assets have only been considered as a source of loss absorption for non-intervened institutions, and only if they met 2014 Basel III constraints, generating a potential additional net buffer of approximately €8 BN for the whole system in the adverse scenario (€5 BN in the base case)
- Banks' planned management actions such as sale of business units or loan/foreclosed asset portfolios or new issuance that have not been executed by August 2012 have not been considered
- In the adverse scenario, total capital needs (pre-tax) of the system are estimated to be close to €60 BN (€59.3 BN) , that would be estimated to be reduced to approximately €57.3 BN with the mergers underway considered within the scope of this exercise
 - This capital needs estimate applies to 7 out of 14 entities, representing 38% of the exposure under consideration
 - The three largest institutions (SAN, BBVA, Caixabank) represent 43% of the exposure under consideration and have an estimated capital excess of €37 BN in the adverse scenario

The figures below summarize our estimated capital needs in the base and in the adverse scenarios at entity level.

Figure 2: Overview of estimated capital needs at entity level – base case scenario**Figure 3: Overview of estimated capital needs at entity level – adverse scenario**

1. Introduction

1.1. Context of the exercise

Following the top-down stress test exercise concluded on the 21st of June 2012, Oliver Wyman was commissioned to perform a bottom-up stress test analysis of the fourteen most significant financial groups in Spain (considering the on-going consolidation processes), covering approximately 90%⁴ of the Spanish banking assets. This bottom-up stress test aims to estimate system and individual banks' capital needs in both the base and adverse scenarios, and represents the first of the three key elements to overhaul the weak segments of the Spanish financial sector, set forth in the Memorandum of Understanding on Financial Sector Conditionality between Spain and the European Union ("MoU").

The June top-down stress test exercise included considerations of historical performance, the situation of the entities examined at the beginning of the stress period and asset mix at an aggregate level. The bottom-up stress test entailed a more detailed and accurate analysis of the banks' portfolios. We performed a more granular evaluation of the individual banks' risk profiles resulting in an individual assessment of capital needs in both the base and adverse scenarios. Unlike the top-down approach, which necessitated applying loss estimates by asset class that were conservative, but identical across entities as detailed bank-specific loss drivers were not available, the bottom-up evaluation allowed us to differentiate drivers of capital needs across banks.

In accordance with the appropriate governance structure envisioned in the MoU and established in the Terms of Reference for this bottom-up exercise, an Expert Coordination Committee ("ECC" or "Expert Committee") was established, composed of representatives from the Banco de España, Ministerio de Economía y Competitividad, European Commission, European Banking Authority, European Central Bank and International Monetary Fund. Similarly, a Strategic Coordination Committee ("SCC" or "Steering Committee") was constituted, where the same institutions were represented by their respective senior principals.

The ECC performed on-going monitoring of the bottom-up stress testing process, approved the framework of the exercise and agreed the key assumptions embedded into the projected loss and the loss absorption capacity modelling, providing continuous feedback to the team performing the exercise. Finally, the ECC also performed a detailed review of the results of the bottom up analysis. The SCC oversaw and approved the full process.

The results of the bottom-up stress testing exercise will feed into the second and third steps in the process of reforming the weak segments of the Spanish financial sector described in the MoU, namely the recapitalization and restructuring of weak banks, based on plans to protect against the capital shortfalls estimated in the

⁴ Entities tested account for 88% of total market share by assets. Includes large and medium sized banks and excludes small private banks, other non-foreign banks aside from the 14 listed, and the cooperative sector

bottom-up stress test, and the segregation of impaired assets of banks receiving public support to an external Asset Management Company (AMC).

1.2. Structure of this document

The rest of document is structured into 5 main sections:

- Section 2 provides an overview of the bottom-up stress testing exercise, the banking groups and portfolios in scope, and the data sources used as input.
- Section 3 provides details on the data used, methodology applied and system level results related to the loss projection.
- Section 4 provides details on the data used, methodology applied and system-level findings for the loss absorption capacity.
- Section 5 provides an overview of the estimated capital needs for the system under the base and adverse scenarios.
- Section 6 provides entity level results, with particular reference to the estimated capital needs of each banking group in the base and adverse scenarios.

2. Scope of the exercise and data used

2.1. Key building blocks of the exercise

The goal of the bottom-up stress test is to estimate the capital needs of the Spanish banking system, and of the specific banking entities in scope of the exercise, in a base and adverse scenario. To this end, the bottom-up analysis first required an estimate of projected credit losses and the loss absorption capacity of each entity, embedding the results from both concurrent portfolio and asset quality review. The bottom-up stress testing exercise included three key components:

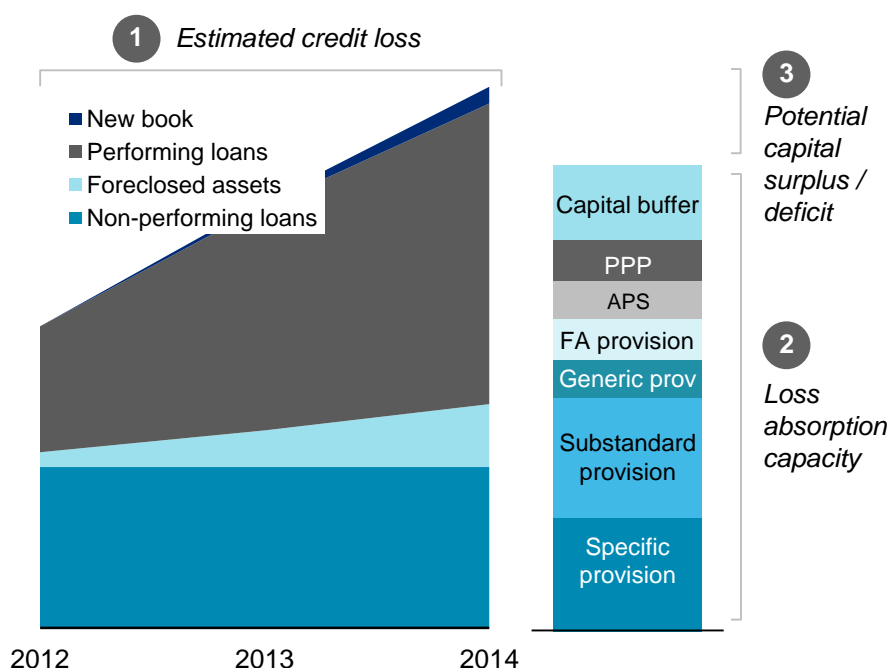
- **Projected loss forecast.** Estimating credit losses for the banking entities in each scenario entailed a bottom-up, loan level economic valuation of the losses embedded in the key assets/portfolios, with particular emphasis on higher risk areas. The loss estimate encompassed:
 - *Credit portfolio losses* for performing and non-performing loan portfolios for different asset classes for the banks' in-scope lending activities⁵
 - *Foreclosed assets portfolio losses*, reflecting the difference between the gross balance sheet values of real assets on the banks' balance sheets as of December 2011, and their estimated realisation values. These estimated realisation values were driven primarily by the negative expected evolution in underlying collateral prices, as well as other costs associated with the maintenance and disposal processes
- **Loss absorption capacity forecasts.** The loss absorption capacity of the individual banking entities consists of:
 - *Existing provisions in stock as of December 2011*, specifically taking into account the provisions related to the in-scope credit portfolio for which we forecasted losses (specific, substandard, foreclosed and generic provisions)
 - *Asset protection schemes (APS)* in place for three Spanish banking groups (BBVA-UNNIM, Liberbank and Sabadell-CAM)
 - *Estimated future profit generation capacity* of the banking groups – pre-provisions and pre-tax profits for Spanish businesses and post-provisioning, post-tax attributed profits for non-domestic businesses
 - *Excess capital buffer*, which increases the loss absorption capacity of those entities with capital volumes over the minimum post-stress requirements (9% under the base scenario and 6% under the adverse scenario using the standard Core Tier 1 (CT1) measure)

⁵ The portfolios analysed were composed of credits to the domestic private sector, and excluded other exposures also subject to credit risk (bonds and sovereign exposures), and the Spanish banks' lending activities abroad

- *Deferred Tax Assets* (DTAs) on the balance sheets of the banking groups, assessed in accordance with the banking groups estimated profit-generating ability, and in accordance with current and anticipated legislation
- The exercise excluded from the results any planned management actions to cover potential capital shortfalls.
- **Potential capital impact and resulting solvency position in the base and adverse scenarios**, which corresponds to the excess of loss absorption capacity over losses.

The diagram below illustrates the three main components of the bottom-up stress testing analysis.

Figure 4: Bottom-up stress testing framework



2.2. Groups and portfolios in scope of the exercise

The bottom-up stress exercise was performed with the following scope:

- **Entity coverage** – The analysis covered the fourteen largest Spanish domestic financial institutions accounting for ~ 90% of the total Spanish banking assets. The entities are listed in Figure 5 below.

Figure 5: Spanish domestic financial institutions in-scope⁶

	Financial group	Market share (% of Spanish assets)
1	Santander (incl. Banesto)	19%
2	BBVA (incl. UNNIM)	15%
3	Caixabank (incl. Banca Cívica)	12%
4	BFA-Bankia	12%
5	Banc Sabadell (incl. CAM)	6%
6	Popular (incl. Pastor)	6%
7	Libercaja (Ibercaja - Caja 3 – Liberbank)	4.2%
8	Unicaja – CEISS	2.7%
9	Kutxabank	2.6%
10	Catalunyabanc	2.5%
11	NCG Banco	2.5%
12	BMN	2.4%
13	Bankinter	2.1%
14	Banco de Valencia	1.0%

- **Risk coverage** – the exercise evaluated credit risk in the performing, non-performing and foreclosed assets on the banks' balance sheets, but excluded *any other specific risks* such as liquidity risk, ALM, market and counterparty credit risk.
- **Portfolio coverage** – the portfolios analysed comprised credits to the domestic private sector (e.g. real estate developers, corporates, retail loans), and excluded other exposures also subject to credit risk (bonds or sovereign exposures)
- **Time coverage** – in line with the preceding top-down stress testing exercise, the time horizon covers three years (2012-2014). Additionally, the bottom-up stress test used banks' balance sheets with financial information as of December 31st 2011.

The base and the adverse macroeconomic scenarios provided by the Steering Committee for the previous top-down stress test remained unchanged in the bottom-up exercise:

⁶ Source: IMF

Figure 6: Macroeconomic scenarios provided by the Steering Committee

		Base case				Adverse case		
		2011	2012	2013	2014	2012	2013	2014
GDP	Real GDP	0.7%	-1.7%	-0.3%	0.3%	-4.1%	-2.1%	-0.3%
	Nominal GDP	2.1%	-0.7%	0.7%	1.2%	-4.1%	-2.8%	-0.2%
Unemployment	Unemployment Rate	21.6%	23.8%	23.5%	23.4%	25.0%	26.8%	27.2%
Price evolution	Harmonised CPI	3.1%	1.8%	1.6%	1.4%	1.1%	0.0%	0.3%
	GDP deflator	1.4%	1.0%	1.0%	0.9%	0.0%	-0.7%	0.1%
Real estate prices	Housing Prices	-5.6%	-5.6%	-2.8%	-1.5%	-19.9%	-4.5%	-2.0%
	Land prices	-6.7%	-25.0%	-12.5%	5.0%	-50.0%	-16.0%	-6.0%
Interest rates	Euribor, 3 months	1.5%	0.9%	0.8%	0.8%	1.9%	1.8%	1.8%
	Euribor, 12 months	2.1%	1.6%	1.5%	1.5%	2.6%	2.5%	2.5%
	Spanish debt, 10 years	5.6%	6.4%	6.7%	6.7%	7.4%	7.7%	7.7%
FX rates	Ex. rate/ USD	1.35	1.34	1.33	1.30	1.34	1.33	1.30
Credit to other resident sectors	Households	-1.7%	-3.8%	-3.1%	-2.7%	-6.8%	-6.8%	-4.0%
	Non-Financial Firms	-4.1%	-5.3%	-4.3%	-2.7%	-6.4%	-5.3%	-4.0%
Stocks	Madrid Stock Exchange Index	-9.7%	-1.3%	-0.4%	0.0%	-51.3%	-5.0%	0.0%

The adverse scenario was deemed by the Steering Committee to be appropriately conservative, both relative to the past 30 years of Spanish macroeconomic indicators (the economic scenario being three standard deviations away from long-term average for the three years of the exercise), as well as relative to adverse scenarios used in recent stress tests in peer jurisdictions (e.g. the EBA Europe-wide stress tests and the US CCAR). Moreover, the adverse scenario included a third year of recessionary conditions, unlike the two-year period commonly seen in other stress tests. (See *Appendix: Macroeconomic scenarios for further analysis*).

2.3. Data sources

To conduct a thorough assessment at loan and entity level, different sources of data were used to gain a deeper understanding of the banks' risk profiles and loss absorption capacity, combining granular loan, P&L and balance sheet information with additional data sources aiming to capture those loss drivers not directly observable in the banking books and/or in past loss performance. In this regard, the data combined accounting information, management information as well as the outputs of an independent loan/asset review, including audited data repositories from by the Banco de España, data templates from the fourteen entities in scope as well as information sourced from independent real estate appraisers and auditors.

2.3.1. Banco de España data

Loan tape

Loan tape datasets represent the key input for estimating losses for credit portfolios. The loan tape contains granular information about the banking entities' credit portfolios as of 31 December 2011, including loan data (operation type, exposure, maturity, vintage, restructured status), guarantee data (collateral type, collateral value, and the latest appraisal date), counterparty data (legal form, identification) and the rules for linking the loan, guarantee and counterparty datasets.

Data extracted from the loan tape was aggregated at an entity level, and was combined with information obtained from other sources (such as the “Declaración de Riesgo Crediticio” report and the entities' proprietary collateral databases, described below). The resultant dataset provided information on exposure, performance status, segmentation criteria, original LTVs, collateral, etc. for ~36 million individual loans. This information was used for estimating probabilities of default (PD) and estimating and calibrating loss-given-default (LGD) parameters, which fed directly into the Oliver Wyman proprietary projected loss forecasting tool.

Central Credit Register

The main source of data for estimating parameters from historical time series was the Banco de España's Central Credit Register (CIRBE). This dataset provided monthly observations of the Spanish credit portfolio situation (i.e. loan balance status) for the 1989 - 2011 period. CIRBE includes loan-by-loan data, except for situations when loans with homogenous risk profile (i.e. the same counterparty, product type, collateral type and status) are aggregated. Consequently, CIRBE contains ~30 million individual entries.

We used the data extracted from the CIRBE to build historical monthly data series to estimate segment-specific PD calibration anchor points and to parameterise LGDs (for instance, we used CIRBE data to estimate cure curves).

Additional information

DRC (“Declaración de Riesgo Crediticio”) is the Bank of Spain's official report reconciling the bank's accounting and credit portfolio figures. It contains information on the distribution of loan balances across several key dimensions including the purpose of the loan (e.g. retail mortgage), collateral type, loan status (performing or non-performing) and product type (e.g. loan or personal guarantee). It also contains some relevant LTV parameters such as average LTVs for different loan types.

DRC Reports at an entity level have been the point of reference to which other datasets – for instance, the loan tape described above – have been anchored and reconciled, given that the building process of reports have been audited and validated by the independent auditors. DRC Reports were also used as input data for the previous top-down stress test.

Bank of Spain also provided and confirmed the starting point data for provisions, capital and RWAs.

2.3.2. Entity data

To enrich the system-wide information provided by the Bank of Spain, a standardised request for current and historical data was submitted to the banking entities. Responding to data requests, the entities provided:

- Foreclosed asset tape, with information on the foreclosed assets currently in the banking entities' portfolios. Data included property type, size, location, value at last appraisal, date of last appraisal, and time in foreclosure
- Sales log, providing information on the disposal of foreclosed assets by the entities and sales price
- Additional information on risk parameters including historical recovery curves, collateral data, etc.

Most importantly, the entities provided historic financial performance and forward-looking business plans, decomposing its key P&L and balance sheet components (deposit volumes and spreads, maturities, etc.)

This data was used to calibrate loss forecasting parameters as well as to estimate and assess the entities' loss absorption capacity.

2.3.3. Auditor input data

For each entity in scope of the exercise, a dedicated auditing firm assessed potential misclassifications of loans with respect to the DRC segment and performance status as well as the materiality of restructured loans in the portfolio. In order to ensure the independence of the exercise, entities were assessed by different firms than their ordinary auditors. The aim of this exercise was to provide a better understanding of the quality of the assets held by the entities, in order to refine the estimates for credit loss parameters across the different portfolios.

Given time constraints, a limited sample was selected for each entity. The auditing firms reviewed a sample of files for each banking group which consisted of each banking group's top exposures (specifically REDs and large corporates) and a random sample across all asset classes representative of each portfolio. As shown below, a total sample of more than 16,000 loans was audited.

Figure 7: Auditor's credit portfolio sample size per segment

Asset Class	Loan count
RED	2,409
Retail Mortgages	2,370
Large Corporates	8,052
SMEs	2,497
Retail Other	1,106
Total	16,434

The results of this exercise were introduced as inputs in estimating credit loss parameters

2.3.4. Appraisers data

Samples of real estate assets were valued by expert third party appraisal firms to provide an independent assessment of the current market price. In total, more than 1.7 million residential assets and ~8,000 complex asset appraisals (for commercial real estate, developments in progress and land) were undertaken.

Six specialized international and local real estate companies with in-depth expertise in the Spanish real estate market were selected to perform the real estate appraisals. The firms were assigned sections of the real estate portfolio sample in accordance with their expertise. A variety of valuation mechanisms were used including on-site appraisals and automated analysis which both reflected the importance of the asset in the banking entity's portfolio and enabled coverage of a broad sample of assets.

The real estate asset sample was selected from the foreclosed asset and the collateral pools, covering residential housing, commercial real estate (CRE), developments in progress and land. A random and representative sample was drawn from these pools and assessed using both automatic valuation techniques and detailed manual valuations. Additionally, top exposures for each entity were selected and assessed manually by the appraisers.

The real estate appraisals have been used in the stress testing analysis to update and project real estate asset valuations for collateral and foreclosed assets. This is described further in Section 3.

3. Loss forecasting

3.1. Methodology overview

The stress testing methodology applied is based on Oliver Wyman's proprietary framework, which has been adapted to the available data used in the bottom-up asset quality review and stress-testing exercise, and applied to the base and adverse scenarios provided.

The methodology includes a loan- level economic loss valuation of key assets and portfolios using detailed bottom-up input data available from the Bank of Spain, the financial institutions participating in the exercise, independent auditors and real estate appraisers. The framework is made up of three modules:

1. Foreclosed asset loss forecasts
2. Performing loan book loss forecasts
3. Non-performing loan book loss forecasts

1. Foreclosed asset losses have been projected based on valuation haircuts accounting for i) historical price evolution to reflect the gap between the last appraisal value and today; ii) future price evolution driven by the scenarios assuming most properties will be sold after 2014 (especially land); and iii) additional haircuts to account for gaps between entity and 3rd party appraisals, effective sales haircuts and costs of sale.

- Gaps between entity and 3rd party appraisals have been estimated based on the input from six different independent third party real estate appraisal companies who together undertook >1.7MM housing and ~8K complex asset appraisals. In addition effective sales haircuts and costs of sale were derived using real estate sales logs from all in-scope entities including virtually all sales (approximately 110K) over the last two years.
- We followed a granular approach that differentiated by type of asset, location, foreclosure state and last valuation date, as well as entity-specific factors on the foreclosed asset tape (approximately 350K assets of in-scope entities).

2. For the performing loan book, credit loss estimates were split into three components:

- i. *Default Rates / Probabilities of Default (PDs)* – composed of:
 - Bottom-up rating models that account for the distinctive loss drivers of each portfolio and entities' past default performance developed for the stress testing exercise.

For each of the six defined portfolios (RED, retail mortgages, etc.), we developed a rating model which was applied to every bank using the bottom-up loan tape provided by the Bank of Spain (36MM+ individual loans).

- Input from the auditing process (more than 16,000 loans reviewed system-wide and full data tape validation)

PD adjustments, based on auditor input, were undertaken to incorporate other key risk drivers where current bank books and/or historical information might not be representative (e.g. restructured/refinanced loans, NPL misclassifications)

- Finally, a macroeconomic overlay was applied to the input segment PDs based on the two previous steps, so that the projected losses reflect the impact of the defined macroeconomic base and adverse scenarios within the 2012-2014 period.

ii. *Loss Given Default (LGD)* – composed of:

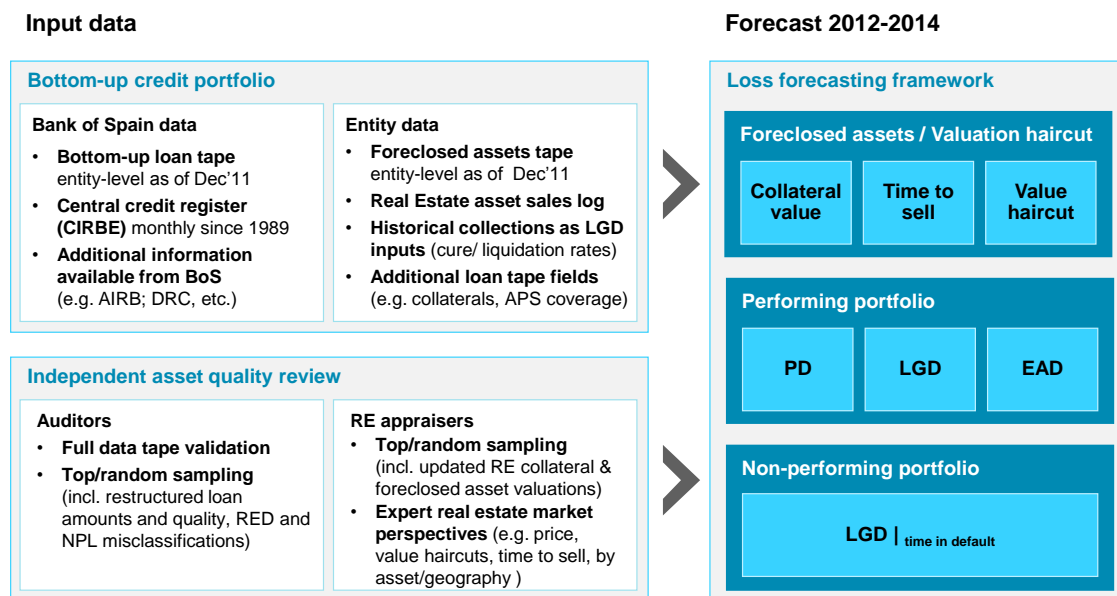
- Structural LGD modelling for loans collateralised by a real estate asset
 - Real estate foreclosure values were estimated based on collateral-level (8MM+) valuation haircuts by type, location and entity, assuming that all properties remain unsold until 2014, in order to capture the full real estate price decline under the scenario
 - Projected recoveries not associated with asset foreclosures/liquidations (“cures”) were derived from historical 2008-11 observed data from the central credit register (CIRBE) and were stressed based on forecasted LTVs (which, in turn, are driven by the scenario), assumptions on restructured loans and additional haircuts
- For other segments, with scarcer and/or lower quality data, we maintained the June top-down approach and used downturn LGDs as the 2011 anchor point
 - Further LGD stress over the 2012-2014 horizon was applied to incorporate PD to LGD correlation and sensitivity to the base and adverse macroeconomic scenarios defined by the Steering Committee
 - Historic cures (both from the central credit register and entity inputs) were applied to introduce entity-specific differentiation, while maintaining the conservative system-level LGD anchor point described above

iii. *Exposure at Default (EAD)* – estimates considered asset-level amortisation profiles, prepayment as well as natural credit renewals and new originations. In addition we applied expected utilisation of committed lines under stress

3. In the non-performing loan book, credit loss estimates used the performing loan LGD framework where foreclosure/liquidation values remain unchanged, but cure parameters were reduced as time since default passed (i.e. projected cures decrease over time as highlighted by the bottom-up cure analysis developed for the purpose of this exercise).

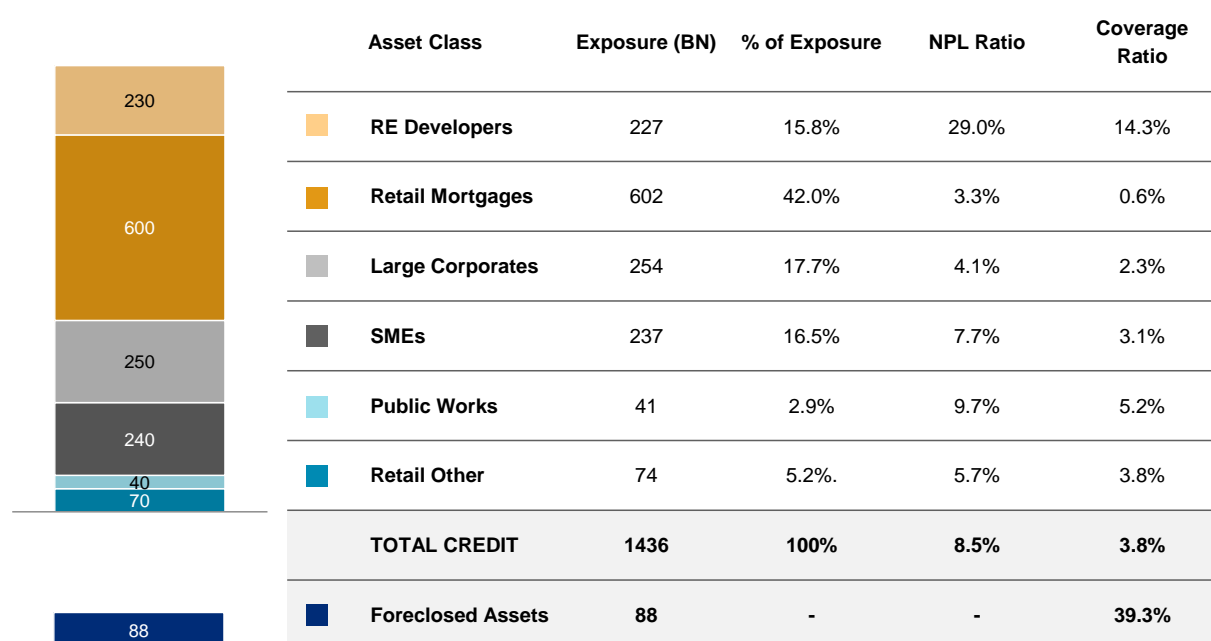
The diagram below illustrates the key data sources and modelling components of the bottom-up stress test.

Figure 8: High-level loss forecasting framework overview



3.2. System-wide results

As of December 2011, total in-scope domestic credit assets amounted to ~ €1.5 TN, of which ~ €1.4 TN represented the performing and non-performing credit portfolio of the institutions and ~ €88 BN in the form of foreclosed assets (mostly real estate related assets). The domestic credit assets can be classified into six main categories: Real Estate Developers, Public Works, Large Corporates, SMEs, Retail Mortgages and Retail Other (e.g. consumer finance).

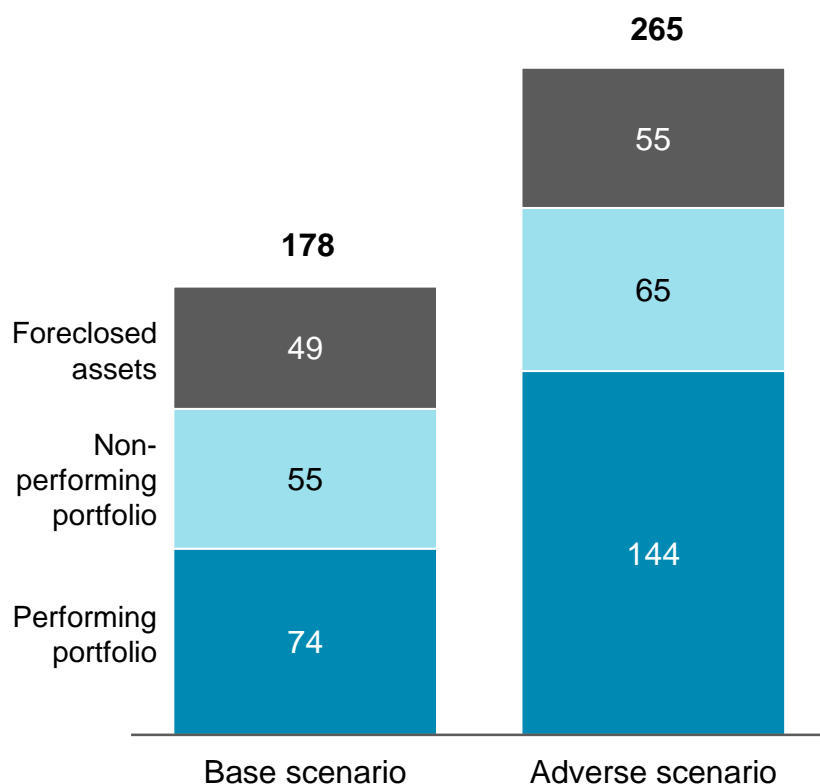
Figure 9: Asset-class breakdown of in-scope assets⁷

Based on the specified adverse scenario defined by the Steering Committee and taking into consideration the bottom-up framework devised to assess credit losses at a loan-by-loan, asset-by-asset level, we estimate that cumulative projected losses for the existing credit portfolio in the period 2012-2014 would amount to approximately ~€265 BN⁸ under the adverse scenario and approximately ~€178 BN under the base scenario.

Projected losses under the adverse scenario can be further decomposed into approximately ~ €144 BN from performing loans, ~ €65 BN from non-performing loans and ~ €55 BN from the foreclosed asset book; compared with approximately ~ €74 BN from performing loans, approximately ~ €55 BN from non-performing loans and approximately ~ €49 BN from the foreclosed asset book under the base scenario.

⁷ Coverage ratio defined as the sum of specific provisions over total performing and non-performing balances

⁸ This figure does not include €5.5 BN losses derived from the new portfolio

Figure 10: Total projected losses 2012-2014 under base and adverse scenario⁹

At the individual asset class level, Real Estate Developers is the segment with the highest absolute and relative projected losses: approximately ~ €97 BN in the adverse scenario (43% of 2011 exposures) and ~ €65 BN under the base scenario (29% of 2011 exposures), followed by the Corporate segment (Large Corporates, SMEs and Public Works) with ~ €74 BN projected losses in the adverse scenario (€45 BN in the base scenario). Retail Mortgages, despite being the largest asset class in terms of exposure, accounts for a lower share of projected losses: €25 BN under the adverse scenario and €11 BN in the base scenario or 4.1% (adverse scenario) and 1.8% (base scenario) as a percentage of 2011 loan exposures.

⁹ This figure does not include €5.5 BN losses derived from the new portfolio

Figure 11: Projected losses 2012-2014 – Drill-down by asset class

		Projected Loss 2012-2014			
		€BN		% of 2011 balance	
	2011 Balance	Base Scenario	Adverse Scenario	Base Scenario	Adverse Scenario
RE Developers	227 BN	64.9 BN	97.1 BN	28.6%	42.8%
Retail Mortgages <i>incl. Foreclosed Housing</i>	602 BN <i>622BN</i>	10.9 BN <i>18.7 BN</i>	24.7 BN <i>34.3 BN</i>	1.8% <i>3.0%</i>	4.1% <i>5.5%</i>
Large Corporates	254 BN	14.7 BN	25.4 BN	5.8%	10.0%
SMEs	237 BN	25.0 BN	39.4 BN	10.6%	16.7%
Public Works	41 BN	5.2 BN	8.8 BN	12.5%	21.3%
Other Retail	74 BN	8.7 BN	13.8 BN	11.8%	18.6%
Total credit portfolio	1,436 BN	129.4 BN	209.1 BN	9.0%	14.6%
Foreclosed assets	88 BN	48.6 BN	55.5 BN	55.5%	63.4%

3.3. Foreclosed assets

3.3.1. Key portfolio characteristics and main latent risks

The current stock of foreclosed assets in the banking entities' portfolio is around ~ €88 BN¹⁰ and has risen significantly in recent years. Key latent risks regarding potential losses from foreclosed assets are related to the combination of:

- The sustained increase in default rates across all portfolios, in particular in the Real Estate Developer and retail mortgage segments, driven by the economic downturn.

This has resulted in a strong accumulation of foreclosed assets by banking entities, with foreclosures occurring in 2011 representing near to 30% of the total stock compared to approximately ~20% from 2008 or earlier.

Overall, land (~43%) and housing (also ~43%) constitute the largest shares of the foreclosed assets stock, concentrated predominantly in locations which have experienced the largest price declines.

- The rapid real estate market slowdown following the boom period between 2004 and 2008, leading to sharp declines in real estate prices and transaction volumes.

¹⁰ Total foreclosed assets perimeter has remained unchanged compared to the previous top-down exercise. The stock of assets is now reported inclusive of €12 BN additional provisions, as a result of analysing foreclosed assets based on gross book values adjusted for provisions rather than on net book values at the time of foreclosure

From peak until 2011, housing prices declined by ~19% and land by ~36%. Similarly housing transactions in 2011 amounted to only ~35% of transactions in the peak year; land transactions to only ~20%.

- The uncertainties around the quality of banking entities' foreclosed assets¹¹ are largely due to potential adverse selection in the assets foreclosed and sluggish inventory reduction following years of real estate boom.

As part of the exercise, information on historic sales of foreclosed assets has been analysed¹². This shows very low rates of sale in the past two years, especially in more illiquid assets such as developments and land, in certain regions and with considerable variation across entities.

A comprehensive real estate asset revaluation using system wide foreclosed asset sales experience and independent third party appraisals has been conducted as part of the exercise in order to address the above-mentioned market concerns and achieve a deep understanding of banks' foreclosed assets portfolios, as explained in the methodology section 3.3.2.

3.3.2. Methodology approach

Projected losses on foreclosed assets have been estimated as the difference between gross book value and the estimated realised value at the time of sale, based on real estate price evolution and applicable valuation haircuts.

A granular approach has been followed differentiating by type of asset, location, foreclosure and last valuation date, as well as entity-specific factors, on the foreclosed asset tape (~350K assets of in-scope entities).

A three step valuation framework was employed to project asset valuation haircuts¹³, as outlined below:

- **Historical price evolution (indexation to today):** real estate asset values were updated from their most recent valuation to today's prices using historical evolution of real estate prices, differentiated according to the nature of each asset (such as location and asset type).

Historical price evolution was estimated using granular data on historical prices compiled from public sources and received directly from the real estate appraisers (split by asset type and province).

- **Future price evolution (indexation forward):** the updated asset valuations were indexed forward to the estimated point of sale, using granular price projections which are consistent with the macroeconomic scenarios under the base and adverse scenarios defined by the Steering Committee.

¹¹ This would be particularly the case in situations where entities would be required to recognize losses in their books due to deviations from previous real estate valuations.

¹² Further detailed in section 3.3.2

¹³ The methodology and parameters described in the section were applied consistently to both foreclosed assets and collateral in the estimation of projected loss

Real estate sales logs from all in-scope entities including virtually all sales (~110K) over the last two years informed the estimates of the time required to sell and applicable indexed asset value at the time of sale.

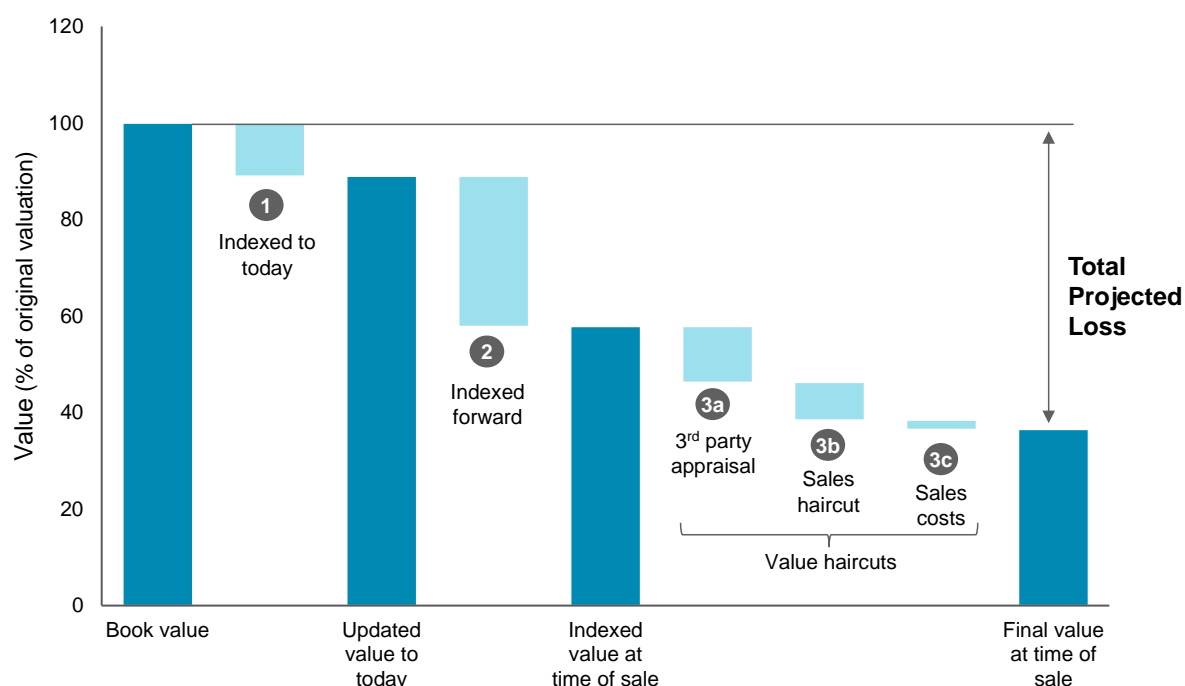
- **Additional value haircuts:** haircuts were applied to arrive at a realised value from sale. These additional haircuts accounted for potential gaps between book valuations and third party appraisals and reflect additional discounts typically experienced by financial institutions due to market liquidity, adverse selection and discount due to volume and fire-sale, as well as the cost of selling the asset.

The data used to estimate the parameters included the results of the third party appraisal exercise. Appraisals on >1.7MM residential and ~8K complex¹⁴ assets were conducted for this exercise by six independent real estate companies with in-depth expertise in the Spanish real estate market.

Additionally, the system sales log was used to estimate effective sales realisation haircuts and sales costs incurred by the entities, validated against information provided by the third party appraisal firms.

These elements are illustrated in the figure below.

Figure 12: Illustration of loss forecasting framework – adverse scenario



The framework employed is consistent with the one used in the previous top-down exercise. However, the more detailed data sources developed as part of the bottom-up stress test have enabled us to employ far greater differentiation according to key drivers, including asset type, region, location within region, time since last valuation

¹⁴ Including commercial real estate, developments in progress and land.

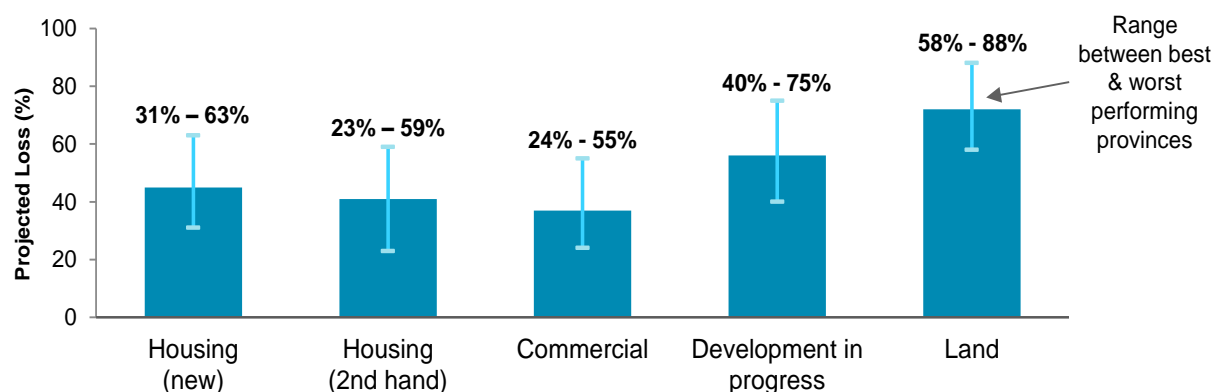
and time in foreclosure, and to capture entity-specific factors, leading to significant differences in bank-by-bank results.

For the purpose of forecasting projected losses on foreclosed assets, real estate valuation haircuts were applied to the foreclosed asset stock as of 31 December 2011.

Information on the foreclosed asset stock as at 31 December 2011 was received from the in-scope entities and included ~350K individual foreclosed assets with detailed information on the assets valuation (at foreclosure and last appraisal), book values (gross and net of provisions), as well as key asset characteristics such as asset type, location (address, zip-code, province, etc.) and size. Depending on the underlying features of each individual asset different haircuts were applied.

Based on differentiating factors in the framework, the bottom-up exercise leads to considerable variation according to key features of the foreclosed assets, including the asset type, the location of the asset and the date the asset was foreclosed. For example, as illustrated in Figure 13 below, the range of total projected losses based on different provinces and foreclosure dates is ~30-35 percentage points under the base case depending on asset type.

Figure 13: Foreclosed assets projected loss – range based on province and date of foreclosure (base case)



3.3.3. Results

Cumulative 2012–2014 projected losses from the foreclosed asset book are estimated to amount to approximately ~€55 BN (63% of gross asset value at foreclosure) in the adverse scenario compared to ~€49 BN (55%) under the base scenario.

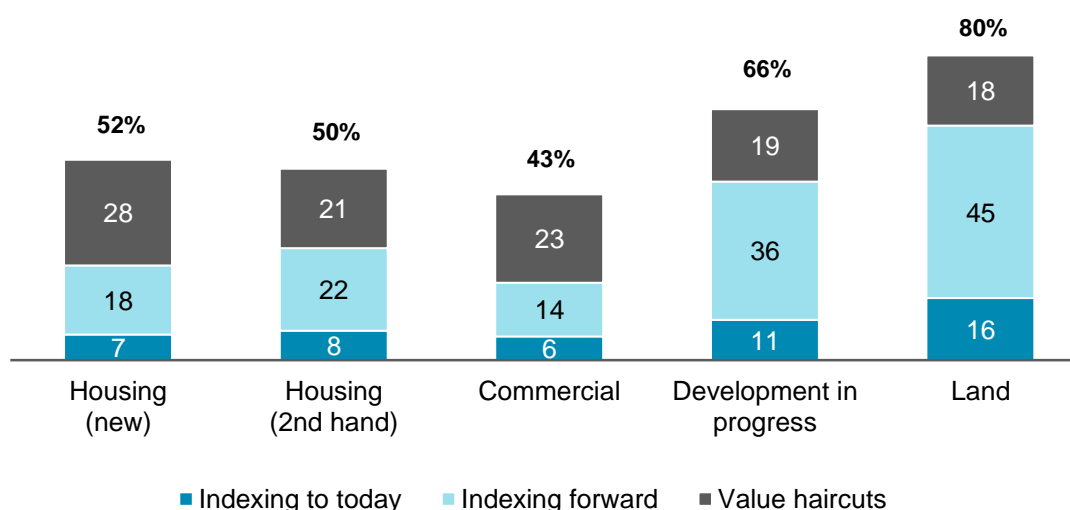
The biggest source of projected losses both in relative and in absolute terms is Land with ~€30 BN (80% of gross asset value at time of foreclosure) in the adverse scenario. It is followed by New Housing and 2nd Hand Housing, each with ~€10 BN (52% and 50% respectively). Development in Progress has higher relative projected losses than housing (66%) but its share of the 2011 balance of foreclosed assets is considerably lower at ~5%.

Figure 14: Projected losses 2012–2014 – Foreclosed assets

Segment/ Asset type	2011 Balance	Projected Loss 2012-2014 (€BN)		Projected Loss 2012-2014 (% of 2011 Balance)	
		Base Scenario	Adverse Scenario	Base Scenario	Adverse Scenario
New Housing	21%	8.3	9.6	45.2%	52.4%
2 nd Hand Housing	22%	7.7	9.5	40.5%	50.0%
CRE	10%	3.1	3.6	37.2%	43.4%
Development in progress	5%	2.4	2.8	56.0%	65.7%
Land	43%	27.1	29.9	72.0%	79.7%
Total	100%	48.6	55.5	55.5%	63.4%

Differences in portfolio mix, as well as entity-specific factors, lead to differentiation across entities. For example, entities with a higher share of land in poor performing regions are estimated to experience higher projected losses than those with a higher share of residential in better performing regions. Under the base case, the range of total projected losses from the best performing to the worst performing entity is 10% (51% projected loss for the minimum entity versus 61% for the maximum entity). The equivalent figure for the adverse case is a range of 11% (59% versus 70%).

Figure 15 below decomposes the main drivers of losses under the adverse case. For development in progress and land, the main driver of losses is indexation forward of the price, while housing and commercial see lower declines due to price indexation but proportionately larger value haircuts.

Figure 15: Projected loss by component under the adverse scenario

3.4. Real Estate Developers

3.4.1. *Key portfolio characteristics and main latent risks*

Real Estate Developers (~16% of the credit portfolio) have experienced a severe decline since 2008 with almost no new real estate development since the 2004-2008 real estate boom, during which lending to the sector grew by 283%.

Three main latent risks are perceived with regards to this portfolio:

- The portfolio has deteriorated severely and most of it has been refinanced or restructured. This has created latent losses associated with these loans generally not recognized in the historical performance of the institutions
- In-scope institutions have, to a greater or lesser extent, misclassified Real Estate Developer loans under other Corporate segments
- Significant house and land price declines were projected in the base and adverse scenarios, likely comparable to the peak to trough-decline in similar crises¹⁵

As a result of the bottom-up analysis of entity balance sheets the following conclusions can be drawn:

- LTVs are relatively low compared to other geographies across Europe and the US partially mitigating potential losses from loans to Real Estate Developers. Average Spanish LTVs at last appraisal were ~68% compared to 80-100% in other European countries and the US. Forecasted Spanish LTVs in 2014, when updating and reviewing collateral valuations under base and adverse scenarios, rose to ~177% and ~253% respectively.
- Dispersion of Real Estate Developer exposure across entities is high with original LTVs at appraisal ranging from 60% to 88% and increasing to 185% - 357% in 2014 depending on the underlying asset mix and entity-specific appraisal policy
- Historical portfolio observed default rates in the central credit register (CIRBE) show PDs of ~18% in 2011
- Auditor analyses within the bottom-up exercise found that ~49% of the Real Estate Developer exposure had been restructured (ranging from 21-79% between best and worst financial institutions) and that approximately ~1.6% of performing loans should have been classified as defaults (with a range from 0-22%). In addition, auditor findings have shown ~3.3% of performing exposure in the SME segment should be reclassified to RED (ranging from 0-19%). For the Large Corporates segment the equivalent figure is ~0.4% of performing exposure (ranging from 0-3%). This level of reclassifications is lower than previously anticipated, likely driven by a higher effort on the part of financial institutions to adjust for this effect in the filing of 2011 financial statements.

¹⁵ See Appendix for the scenarios proposed by the Steering Committee.

3.4.2. Methodology approach

In line with the overall bottom-up credit loss estimation framework, Real Estate Developer losses have been modelled at a loan-by-loan level taking into account the collateral attached to each loan. Key risk drivers used in the analysis are described below.

3.4.2.1. From a PD perspective

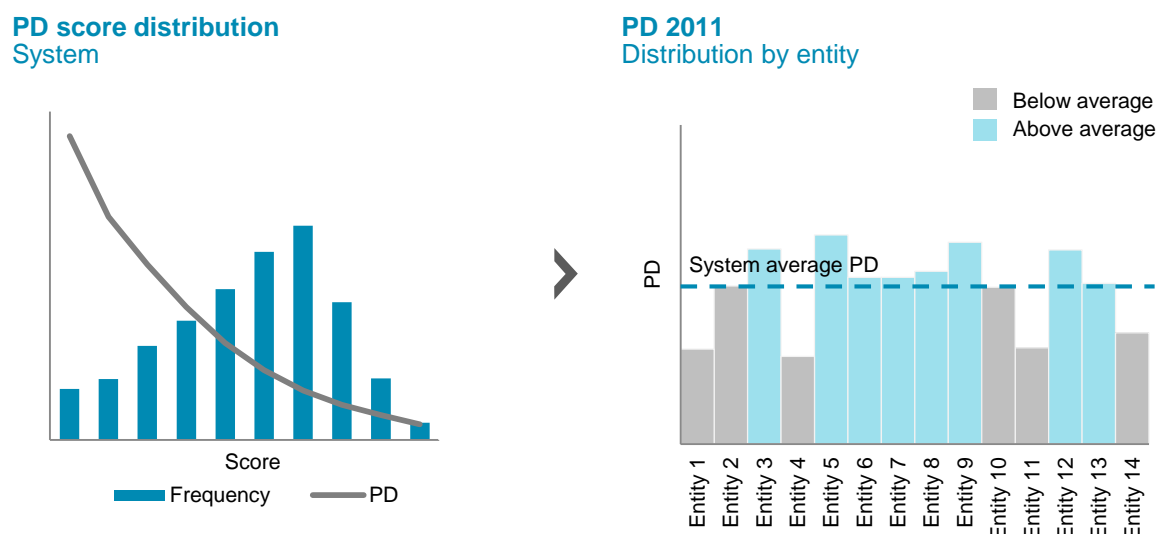
A bottom-up rating model to account for the distinct loss drivers of the Real Estate Developer segment has been developed and calibrated using past entity default experience.

- In particular, LTV, Real Estate Developer sub-segment, collateral location and type, credit facility type and entity-specific historical default performance were found to be factors which best explained the future likelihoods of default.
- The relationship between observed default rates and loan-to-values is highlighted in Figure 16 below. Based on historically observed data, LTVs have a significant impact on the PD. Segments with LTVs >100% exhibit a 2.8x higher PD than segments with LTV 0-60%.

Figure 16: Real Estate Developers: PD 2011 relationship against LTV

LTV	PD multiplier	
	0-60%	0.5
	60-80%	0.9
	80-100%	1.2
	>100%	1.4
	TOTAL	1.0

- The system-level distribution of portfolio scores and PDs resulting from the bottom-up rating tools is shown below, together with the subsequent translation into differentiated PD-levels across entities.

Figure 17: PD 2011 calculation: Real Estate Developers

A further adjustment on projected default rates and recoveries was overlaid to account for latent portfolio deterioration not recognized in the banks' balance sheets. Using the input from the auditors, additional credit quality drivers not reflected in financial statements were introduced (e.g. NPL misclassifications, loan restructurings, etc.) as described in the previous subsection.

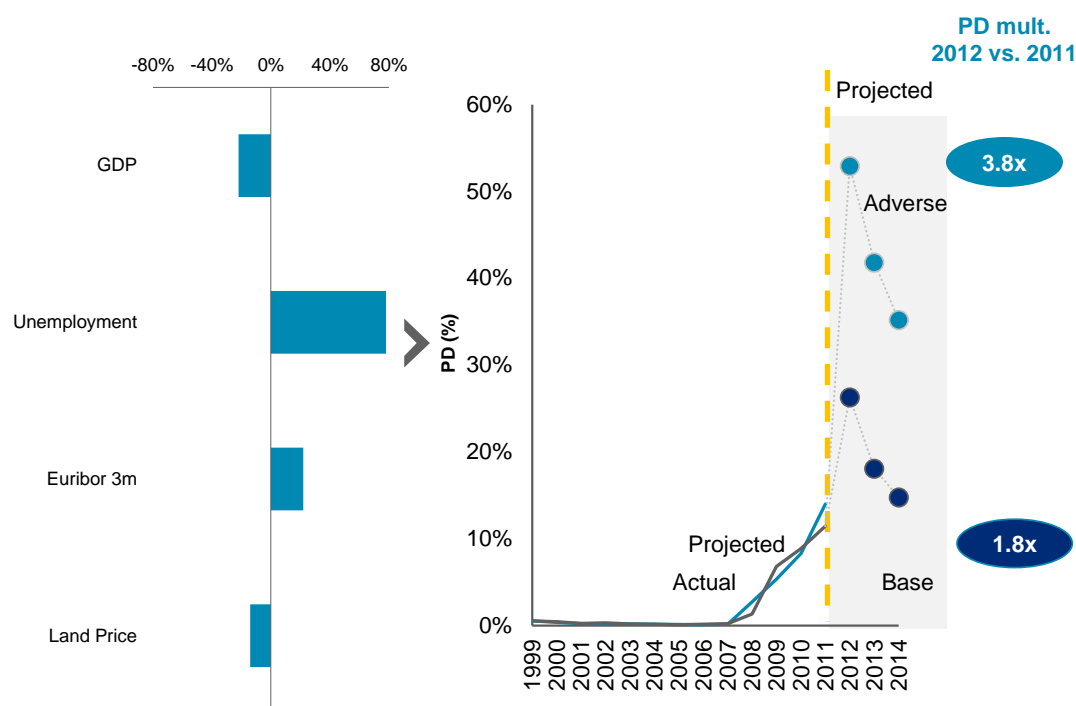
Finally, a macroeconomic overlay is applied over the PDs based on the two previous steps, in order to reflect the impact of the adverse scenarios on projected losses of forecasted land prices, GDP evolution, unemployment and interest rates. This leads to a nearly fourfold increase in 2012 PDs compared to 2011 levels.

This is illustrated in the following figure.

Figure 18: Macroeconomic credit quality model: Real Estate Developers

Macroeconomic variable weights
Normalised coefficients

Model implied System PD projection



3.4.2.2. From an LGD perspective

Real Estate Developer LGDs have been estimated based on a structural model predominantly composed of forecasted real estate values upon foreclosure and asset sale.

- Collateral values have been updated using the granular input of real estate appraisers. The updating has been conducted on a granular, collateral-by-collateral level taking into account the concrete type of collateral, location in terms of province and size, date of last appraisal and entity specific factors. All foreclosed assets are assumed to be sold no earlier than 2014, therefore capturing the full price decline defined in the scenario.
- In addition, we use the assumption that projected cure rates over the 2012-2014 stress horizon will only be marginal compared to historically observed cures.

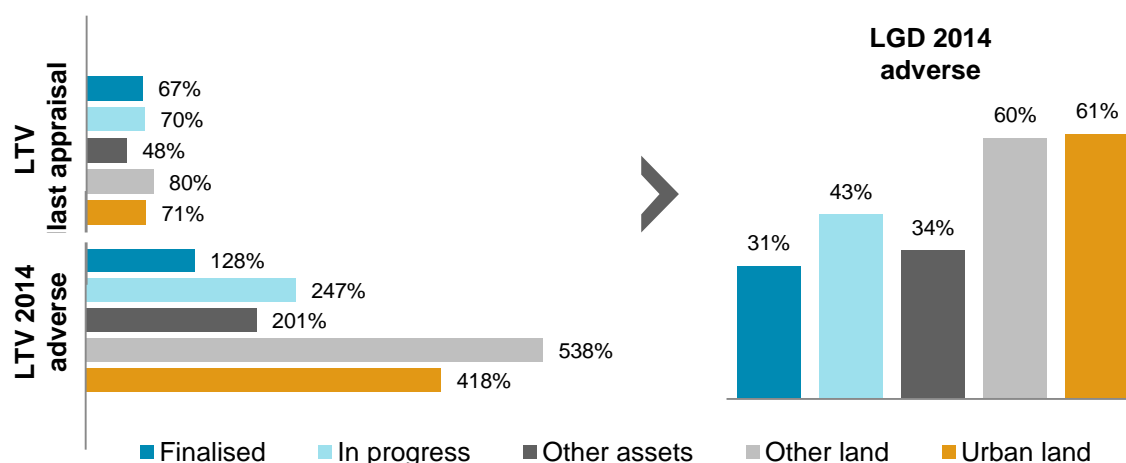
Cure rates have been computed bottom-up by entity and to capture two alternative recovery outcomes – recovery events in which amounts due are repaid and the loan returns to performing status, and those where a full debt repayment occurs and the debt is cancelled.

Starting from past observed cure rate experience, projected cure rates were adjusted downward to reflect the existence of “false cures” corresponding to actual loan refinancings (at levels estimated by auditor findings). As a result, historically observed cure rates of approximately 51% at system-level for the

2008-2011 period were reduced under the adverse scenario to approximately 13%.

The combined effect of both LGD components on future LTVs and LGDs is depicted below comparing system-level 2014 LTVs and LGDs by asset type.

Figure 19: Real Estate Developers – forecasted LTV and LGD by asset type



3.4.3. Results

We estimate that accumulated projected losses from Real Estate Developers reach to ~43% of 2011 loan balances under the adverse scenario, with PDs experiencing a severe increase (up to x4) in 2012 compared to 2011.

Figure 20: Projected losses 2012–2014 – Real Estate Developers

		Projected Loss 2012-2014 (€BN)		Projected Loss 2012-2014 (% of 2011 Balance)		PD 2012-2014 (% of 2011 Perf. Balance)		LGD 2012-2014 (% Performing and Non-Perf.)	
	2011 Balance	Base	Adverse	Base	Adverse	Base	Adverse	Base	Adverse
Finalised	38.6 %	€15.0 BN	€23.9 BN	17.2 %	27.3 %	57.3 %	85.2 %	25.1 %	30.7 %
In progress	12.5 %	€7.2 BN	€11.1 BN	25.3 %	39.4 %	63.9 %	89.4 %	33.9 %	42.5 %
Other assets	5.4 %	€2.2 BN	€3.8 BN	18.0 %	30.9 %	59.2 %	87.1 %	25.7 %	34.2 %
Other land	4.7 %	€3.9 BN	€6.0 BN	36.9 %	56.3 %	65.2 %	89.9 %	47.1 %	60.1 %
Urban land	23.2 %	€19.3 BN	€29.6 BN	36.8 %	56.3 %	62.0 %	88.1 %	49.2 %	61.1 %
No RE collateral	15.6 %	€17.3 BN	€22.6 BN	48.8 %	63.9 %	65.4 %	91.0 %	62.4 %	67.8 %
Total	100 %	€64.9 BN	€97.1 BN	28.6 %	42.8 %	60.8 %	87.5 %	39.4 %	46.9 %

Projected losses for this segment are mainly driven by the severe PD increase caused by the negative macroeconomic scenario defined for the 2012–14 period, with cumulative PDs in the 2012-2014 period rising to ~88% of the 2011 performing loan stock or a total NPL stock in 2014 of ~91% under the adverse scenario.

The overall bottom-up modelling framework has allowed us to differentiate based on each entity's risk profile characterised along a large number of risk dimensions. Entity-level results show projected loss rates ranging from 35% to 52% compared to a system-average of ~43%. Underlying cumulative PDs for 2012-2014 range between 78% to 95% with an average of ~88% on average and LGDs between 42% to 55% with an average of ~47%.

The ability to capture differentiated risk drivers is clearly illustrated by LTVs. The move from segment-level average LTVs to individual loan LTVs has enabled us in the bottom-up stress-testing exercise to better reflect the distinct levels of risk of different LTV profiles on estimated loan losses, as shown in the table below. Based on the revised modelling framework, high-LTV loans will not only drive higher PD levels (PD 2012-2014 reaching up to ~96% for the LTV 80-100% segment compared to ~82% for the LTV 0-60% segment), but also substantially higher LGDs (57% vs. 29%).

Figure 21: Real Estate Developers: PD/LGD impact by LTV bucket under the adverse scenario

LTV At last appraisal	Exposure % of 2011 balance	PD 12-14 % of 2011 Perf. Balance	LGD 12-14 % Perf. & Non-Perf.
LTV 0-60%	45%	82.4%	29.3%
LTV 60-80%	32%	88.4%	48.2%
LTV 80-100%	15%	95.6%	56.9%
LTV >100%	9%	96.0%	73.0%

3.5. Retail Mortgages

3.5.1. Key portfolio characteristics and main latent risks

Retail Mortgages (~42% of the credit portfolio) are projected to experience a marked increase in losses over the 2012-2014 horizon, driven by a combination of:

- High and sustained unemployment levels together with overall economic recession, which will severely increase default rates
- Further housing price deterioration that will both increase default rates and dampen recoveries through the direct impact on collateral values (affecting, in particular, high-LTV loans)
- Potentially latent risks not recognized in the banks' balance sheets, such as outdated house price valuations that are not correctly reflecting present property values, as well as potential defaults that have been disguised as restructured loans

Within our bottom-up analysis of entity balance sheets we have evaluated the market concerns described above. Key conclusions have been:

- LTVs in Spain are relatively low compared to other geographies. Average LTVs at last appraisal of ~62% compared to other geographies (e.g. Ireland ~100%; US ~80%). Forecasted Spanish LTVs in 2014, when updating and reviewing collateral valuations under base and adverse scenarios, rose to ~85% and ~99% respectively.

There is, however, significant dispersion across entities in terms of original LTV (56-66%), and especially in terms of updated LTV 2014 values (77-101% and 88-122% under base and adverse scenarios)

- Historical portfolio observed default rates in the central credit register (CIRBE) show PDs of ~2.0% in 2011. Most of the portfolio relates to 1st residence (~88%). Only ~7% relates to 2nd residences and ~5% to other purposes (e.g. buy-to-let, debt restructurings) with a higher risk profile

- Full personal liability with all the borrower's assets backing the value of the actual mortgage collateral, provide an additional incentive for Spanish borrowers not to default, compared to other geographies where recourse is limited to the value of the collateral.

In addition, third party guarantors affect ~19% of the portfolio – rising to ~23% for worse segments (>100% LTVs) – although with a slightly lower coverage and impact than initially expected

- Auditor analyses within the bottom-up exercise found that ~9% of Retail Mortgage exposure had been restructured (ranging 0-49% between best and worst entities), at the top range of the estimates generated by the June top-down exercise. The analysis also shows that a very low proportion loans should be reclassified as defaults with a system average equal to ~0.2% and results ranging up to 3% for worst entities.

3.5.2. Methodology approach

In line with the overall bottom-up credit loss forecasting framework, Retail Mortgages have been modelled on a loan-by-loan basis taking into account the collateral attached to each loan. Key risk drivers used in the analysis are described below.

3.5.2.1. From a PD perspective

A bottom-up rating model to account for the distinct loss drivers of Retail Mortgages has been developed and calibrated using past entity default experience.

- In particular, type of residence (first / second / other), LTV, loan vintage, region, residual maturity and entity historical default performance were found to be factors which best explained future PDs.

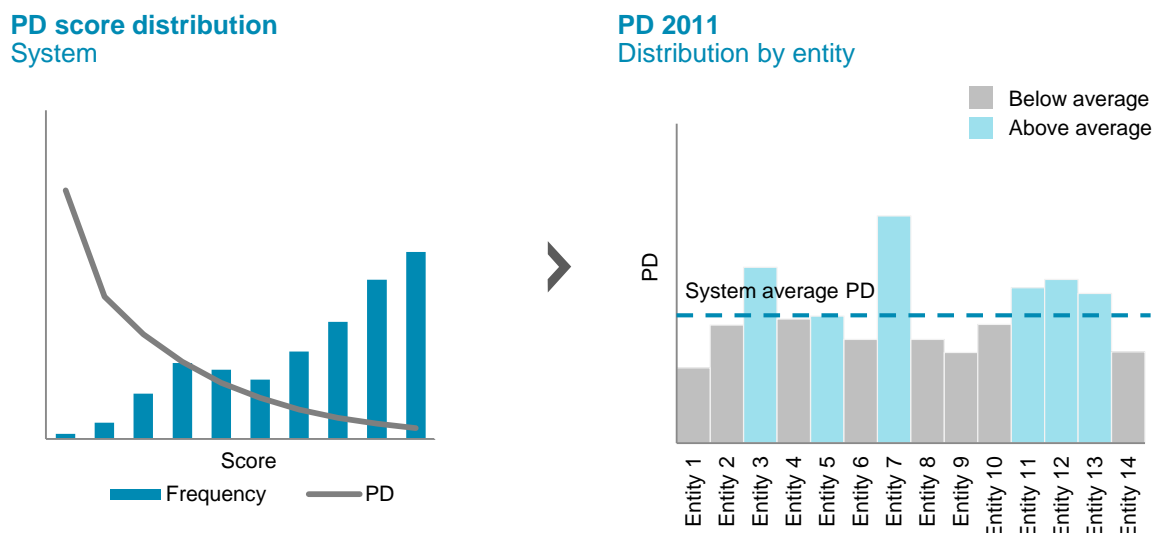
The relationship between observed PDs and loan-to-values is highlighted in the below matrix based on historically observed data. LTVs have a very significant impact with segments with LTVs >100% exhibiting a ~7x higher PD than LTV 0-60% segments. Equally, the relevance of vintage on final PDs can be observed in the below example showing a peak in PDs for the 2010 vintage.

Figure 22: Retail mortgages: PD 2011 to LTV/vintage relationship

		VINTAGE (origination year)						
PD multiplier		2011	2010	2009	2008	2007	≤2006	TOTAL
LTV	0-60%	0.2	0.3	0.2	0.2	0.2	0.1	0.2
	60-80%	0.8	1.2	0.8	0.8	0.8	0.6	0.8
	80-100%	1.2	1.6	1.1	1.1	1.1	0.8	1.1
	>100%	1.4	1.9	1.4	1.4	1.4	1.0	1.4
	TOTAL	0.7	1.0	0.7	0.7	0.7	0.5	1.0

- The system-level distribution of portfolio scores and PDs resulting from the bottom-up rating tools is shown below, together with the subsequent translation into differentiated PD-levels across entities.

Figure 23: Illustrative example - PD 2011 calculation: Retail Mortgages



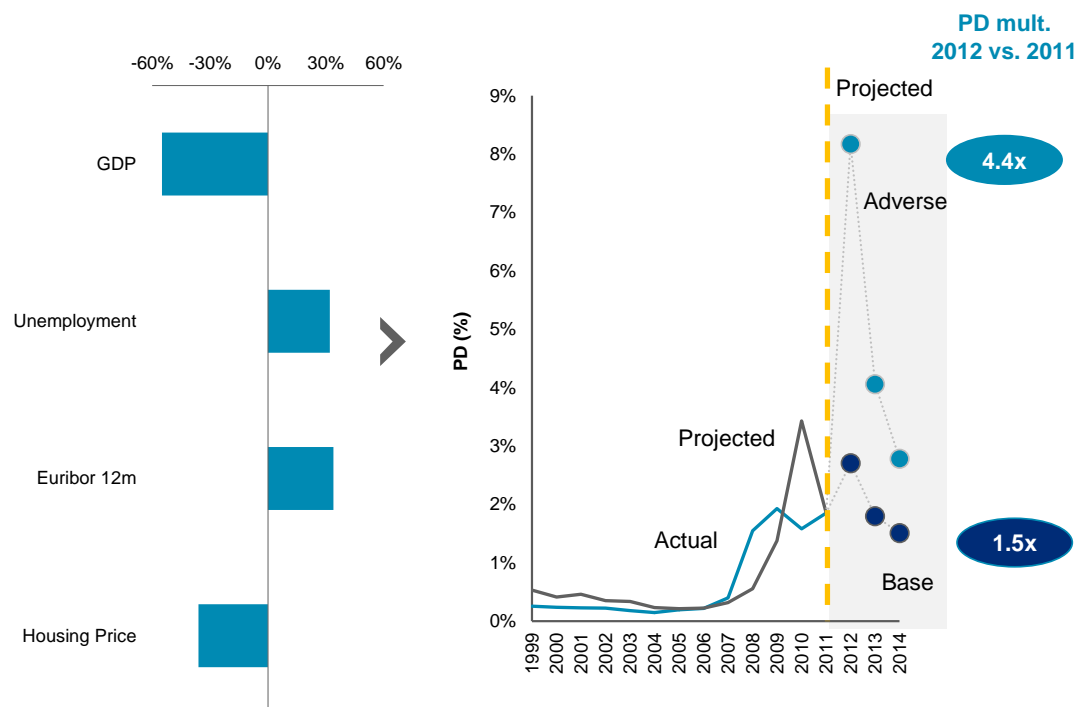
Further adjustments are made to projected default rates and recoveries to account for latent portfolio deterioration not directly observable in banks' balance sheets. Based on the input from the auditors, additional credit quality drivers not reflected in financial statements are introduced (e.g. loan restructurings and NPL misclassifications), as described in section 3.6.1.

Finally, a macroeconomic overlay is applied over the PDs based on the two previous steps, in order to reflect the impact of the adverse scenarios on projected losses of forecasted GDP, unemployment, interest rates and house prices. This leads to an increase in 2012 PDs in the adverse case by a factor of 4 compared to 2011 levels.

Figure 24: Macroeconomic credit quality model: Retail Mortgages

Macroeconomic variable weights
Normalised coefficients

Model implied System PD projection



3.5.2.2. From an LGD perspective

Retail mortgage LGDs have been estimated based on a structural model composed of forecasted real estate foreclosure values plus a stressed cure component.

- The update of collateral values draws on granular collateral-level input of real estate appraisers. It is conducted on a granular, collateral-by-collateral level taking into account the type of collateral, location in terms of province and size, date of last appraisal and entity-specific factors.

All foreclosed assets are assumed to be sold no earlier than 2014 therefore capturing the full price decline defined in the scenario.

- In addition, a cure component has been considered to account for non-foreclosure recovery events.

Cure rates have been computed bottom-up by entity and capture two alternative recovery outcomes – recovery events in which due amounts are repaid and the loan returns to performing status, and those where a full debt repayment occurs and the debt is cancelled.

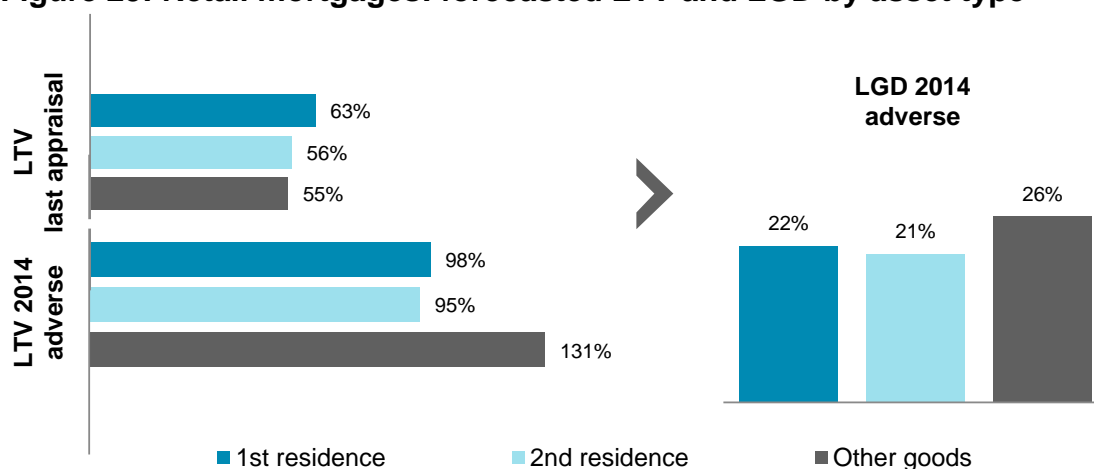
Starting from historically observed cure rates in the central credit register (CIRBE) between 2008-2011 – a period that already exhibits a stress in cures compared to previous years – various haircuts were applied. These are aimed at reflecting firstly the existence of “false cures” through restructurings (in line with auditor inputs), and future evolution of real estate property values that may affect

cure rates as LTV values increase in line with the real estate price decline projected by the macroeconomic scenario.¹⁶

As a result of the above-mentioned effects, Retail mortgage cures are reduced from a historically observed ~56% cure for LTVs 60-80% and ~36% for LTVs >100% to ~38% and ~20% respectively under the adverse scenario.

The combined effect of both LGD components on future LTVs and LGDs is illustrated in the below comparison of system-level 2014 LTVs and LGD by asset type.

Figure 25: Retail mortgages: forecasted LTV and LGD by asset type



3.5.3. Results

We estimate that accumulated projected losses from Retail Mortgages reach to ~4.1% of 2011 loan balances under the adverse scenario, with PDs experiencing a severe increase in 2012 compared to 2011.

Figure 26: Projected losses 2012–2014 – Retail Mortgages

	2011 Balance	Projected Loss 2012-2014 (€BN)		Projected Loss 2012-2014 (% of 2011 Balance)		PD 2012-2014 (% of 2011 Perf. Balance)		LGD 2012-2014 (% Performing and Non-Perf.)	
		Base	Adverse	Base	Adverse	Base	Adverse	Base	Adverse
1st Residence	88.4%	€9.4 BN	€21.4 BN	1.8 %	4.0 %	7.3 %	15.3 %	17.0 %	22.2 %
2nd Residence	6.9%	€0.7 BN	€1.6 BN	1.7 %	3.9 %	7.2 %	14.8 %	15.4 %	21.1 %
Other assets	4.7%	€0.8 BN	€1.7 BN	2.8 %	5.9 %	9.3 %	18.1 %	19.6 %	26.4 %
Total	100%	€10.9 BN	€24.7 BN	1.8 %	4.1 %	7.4 %	15.4 %	17.1 %	22.4 %

¹⁶ Historically observed cure rates exhibit lower cure rates for high-LTV buckets than for low-LTV buckets

Projected losses for this segment are driven by a combination of PD increases and a decline in collateral values. The adverse macroeconomic scenario defined for the 2012-2014 period implies a cumulative PD rising to ~15% of 2011 performing loans, which results in an overall NPL stock of ~18 % in 2014. The strong decline in property values implied by the macroeconomic scenario is the driver behind the increase in average LGD to ~22%.

The overall bottom-up modelling framework has allowed us to differentiate based on each entity's risk profile, characterised along a number of risk dimensions. Entity-level results show projected losses ranging from 2.1% to 12.5%, compared to a system-average of 4.1%. Underlying cumulative PDs over 2012-2014 range from 9% to 45% compared to ~15 % average and LGDs between 17% to 26% compared to ~22% average.

The ability to capture differentiated risk drivers and the corresponding non-linear effects is illustrated clearly with LTVs. The move from segment-level average LTVs to individual loan LTVs in the bottom-up stress-testing exercise has enabled us to better capture the distinct levels of risk of different LTV profiles on estimated loan loss results, as shown in the table below. Based on the revised modelling framework, high-LTV loans will not only drive higher PD levels (PD 2012-2014 reaching ~25% for the LTV 80-100% segment compared to ~8% for the LTV 0-60% segment), but also substantially higher LGDs (34% vs. 5%).

Figure 27: Retail mortgages: PD/LGD impact by LTV bucket under the adverse scenario

LTV At last appraisal	Exposure % of 2011 balance	PD 12-14 % of 2011 Perf. Balance	LGD 12-14 % Perf. & Non-Perf.
LTV 0-60%	44%	7.7%	5.4%
LTV 60-80%	36%	19.4%	19.1%
LTV 80-100%	16%	25.2%	33.6%
LTV >100%	3%	32.1%	52.4%

In order to contextualize Spanish retail mortgage loss levels with other international exercises two important considerations need to be made:

- Foreclosed housing deriving from retail mortgage loan foreclosures represent a material share of total foreclosed assets, which are typically included under the retail mortgage credit book in other geographies. For consistency with the overall framework of the exercise, losses corresponding to foreclosed housing are reported under foreclosed assets.

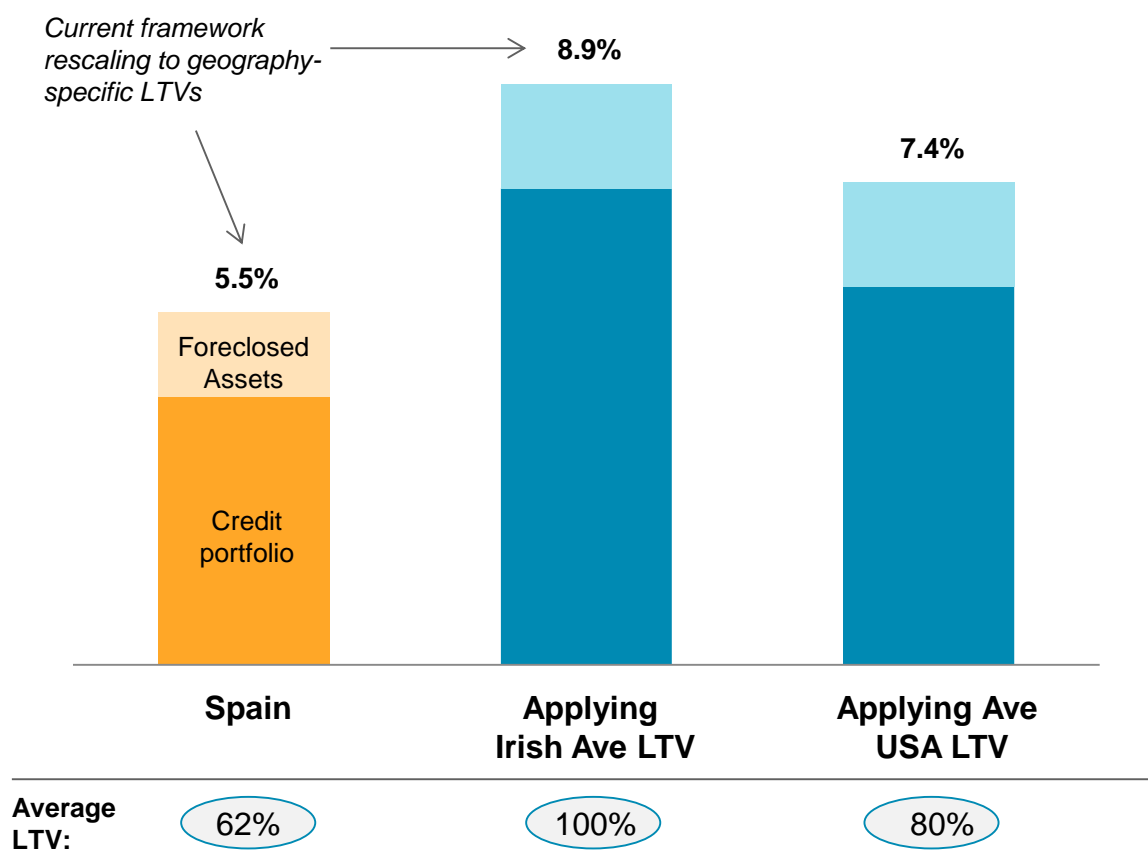
Adding these losses to overall retail mortgage loss levels would imply a total loss level of 5.5% as a percentage of 2011 exposures or €34 BN in total projected losses

- The impact of lower average LTV values in Spain has been compared to other geographies. In order to measure this effect we have undertaken a hypothetical

comparison consisting in updating Spanish LTVs (~62%) at appraisal date to apply the higher structural average LTVs in Ireland (~100%) and in the USA (~80%). As part of this exercise, other effects have been left unchanged – i.e. Spanish peak-to-trough drop in house prices of ~37%, valuation haircuts of ~40%, default behaviour and cure rates by LTV, as well as foreclosure costs.

From this analysis the impact of the lower portfolio LTV in Spain leads to a significant implied reduction of credit losses in the retail mortgage segment: ~5.5% projected loss after the inclusion of foreclosed housing assets vs. ~8.9% using Irish LTV levels or ~7.4% using US levels

Figure 28: Retail Mortgages: hypothetical projected loss comparison using LTVs¹⁷ from other geographies



¹⁷ Original LTVs at last appraisal date

3.6. Corporates

3.6.1. *Key portfolio characteristics and main latent risks*

Corporates (~37% of loans, of which Large Corporates ~18%, SMEs ~16%, Public Works ~3%) have shown a substantial deterioration in their risk performance in recent years as a consequence of the adverse economic situation. This has resulted in an aggregated ~6.3% NPL ratio as of December 2011. Similar to the other sectors, a further increase in losses is projected, driven by the following key considerations:

- Significant balance sheet deterioration has been already observed, following four years of economic crisis. This trend is likely to continue
- Real Estate Developer loan misclassification under Corporate segments has been a wide-spread practice conducted to a greater or lesser extent by Spanish financial institutions
- Public Works, a traditionally low-default sector due to its link to public administrations as its main client, has increased markedly in riskiness (9.8% NPL) and is likely to continue increasing due to its high dependence on the real estate sector, its sensitivity to ongoing government cost-cutting programs and its strong interdependencies with Real Estate Developers (often undertaken within the same business)

As a result of the bottom-up analysis of entity balance sheets the following conclusions can be drawn:

- Historical portfolio PDs observed in the central credit register (CIRBE) show consistently lower Large Corporates PDs (~2% in 2011) compared to SMEs (~5%) or Public Works (~8%)
- Collateralisation degrees vary widely by sub-portfolio and entity. Large Corporates typically have a higher proportion of unsecured loans (~79%) compared to SMEs (~50%) or Public Works (~62%) providing lower loss mitigation and higher LGDs in the event of loss. However, this is partially offset by a lower portfolio PD of unsecured Large Corporates where higher collateralisation levels are typically required by the more risky clients

Auditor analyses within the bottom-up exercise found that ~11% of Large Corporates and ~21% of SMEs exposures have been restructured (ranging 0 - 43% and 2 - 66% between best and worst entities respectively). Performing loan Misclassification of defaulted loans as performing was found to be very low at ~0.1% for LC and ~0.2% SMEs (ranging 0-1.1%; 0-0.9% respectively). On the other hand, auditor findings have shown ~0.4% Large Corporates and ~3.3% SME loan reclassifications to RED (ranging 0-3% and 0-19% respectively). These levels of reclassification were lower than previously anticipated, likely driven by a higher effort to adjust for this effect in the compilation of 2011 financial statements

3.6.2. Methodology approach

In line with the overall bottom-up credit loss estimation framework, Corporate losses have been modelled at a loan-by-loan basis. Key risk drivers used in the analysis are described below.

3.6.2.1. From a PD perspective

Three bottom-up rating models to account for the distinct loss drivers of Corporate subportfolios were developed and calibrated making use of entity past default experience. Factors which best explain future likelihoods of default are:

- Large Corporates: industry segment, region, key financials (ROA/Interest Coverage/Leverage), counterparty size and entity historical default performance
- SMEs: industry segment, counterparty region, key financials (Interest Coverage/Solvency ratio/ profit flag) and entity historical default performance
- Public Works: industry segment, counterparty region, key financials (Interest coverage/Gearing/Efficiency/Profit flag) and entity historical default performance

The above-mentioned rating tools were applied to conduct an individual loan-level rating of the portfolio. This enabled us to adequately characterise each entity's risk profile along a large number of risk dimensions.

- The system-level distribution of portfolio scores and PDs resulting from the bottom-up rating tools is shown below, together with the subsequent translation into differentiated PD-levels across entities.

Figure 29: Illustrative example - PD 2011 calculation: Large Corporates

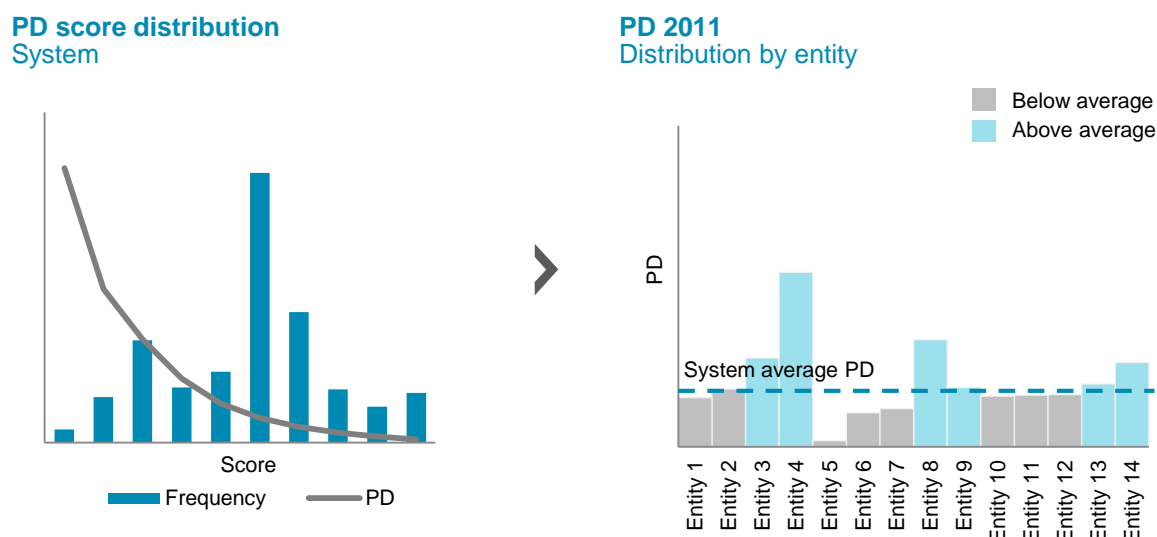
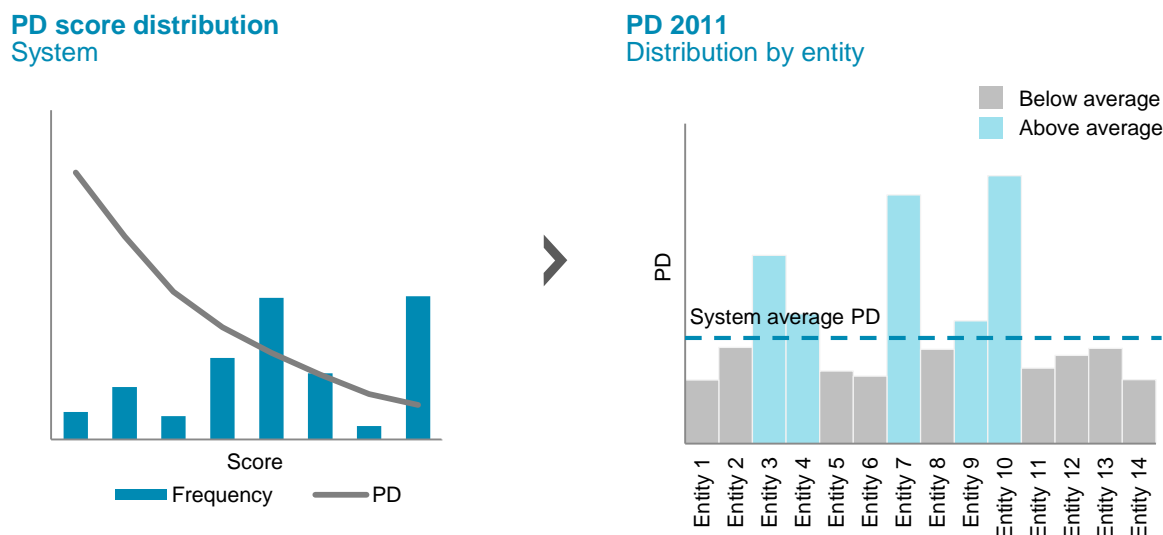
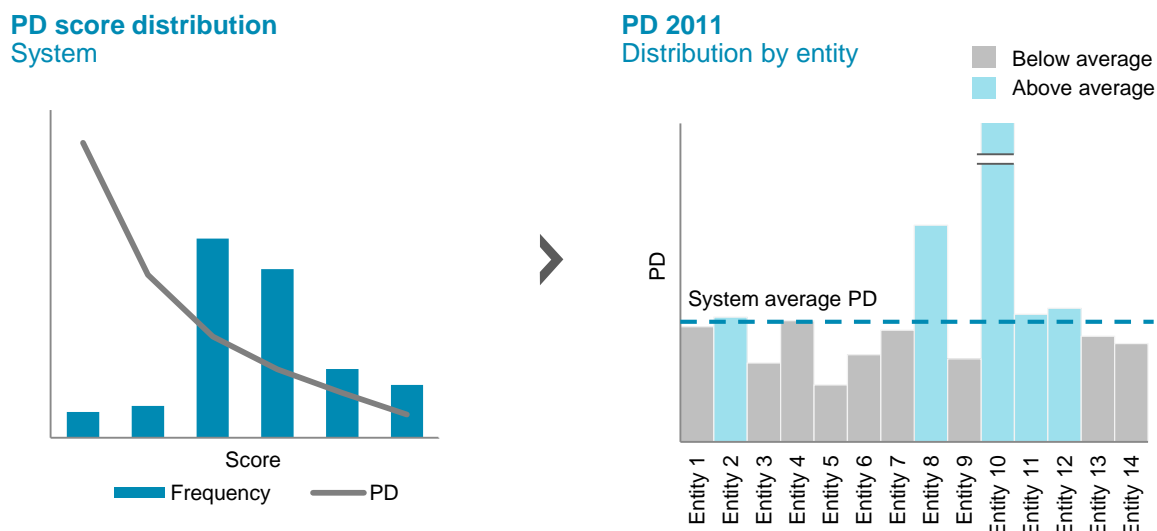


Figure 30: Illustrative example - PD 2011 calculation: SMEs**Figure 31: Illustrative example - PD 2011 calculation: Public Works**

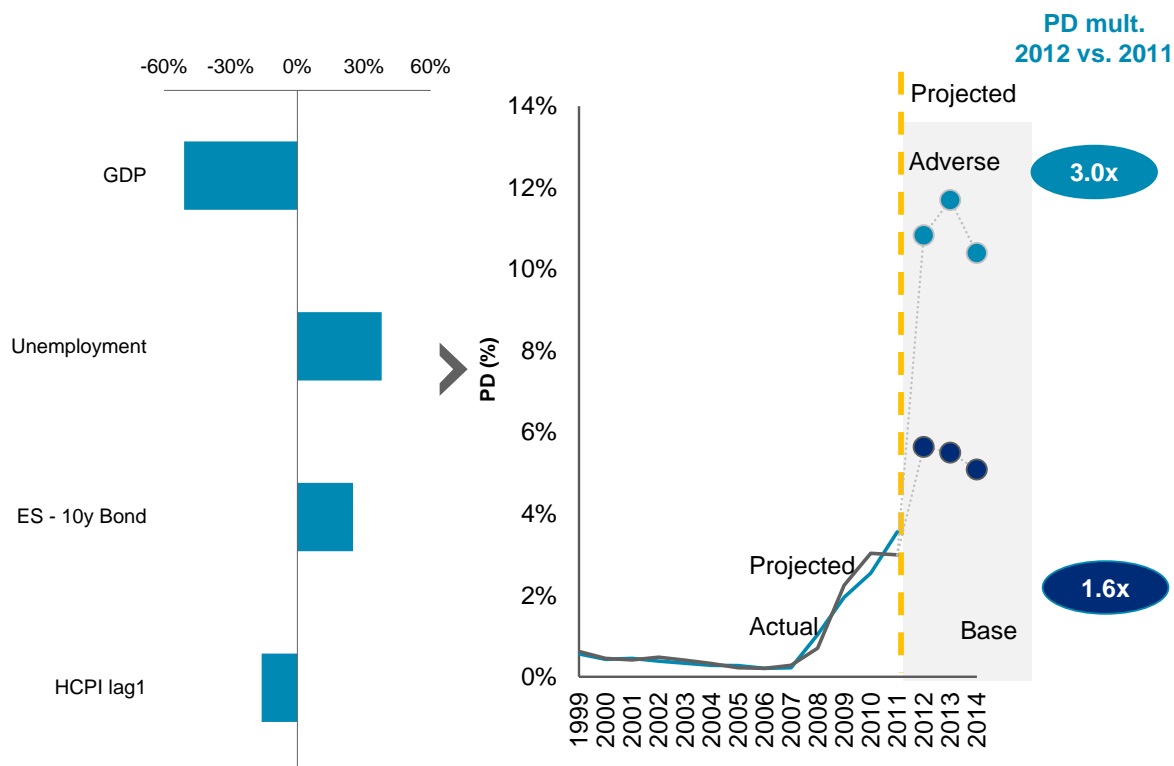
A further adjustment on projected default rates and recoveries was overlaid to account for latent portfolio deterioration not captured in banks' balance sheets. Using input from the auditors, additional credit quality drivers not reflected in financial statements were introduced (e.g. NPL misclassifications, loan restructurings, RED misclassifications) as described in section 3.7.1.

Finally, a macroeconomic overlay is applied over the PDs based on the two previous steps, in order to reflect the impact of the adverse scenarios on projected losses of GDP evolution, unemployment, government bonds and consumer price index. This leads to a threefold increase in 2012 PDs compared to 2011 levels.

Figure 32: Macroeconomic credit quality model: Corporate

Macroeconomic variable weights
Normalised coefficients

Model implied System PD projection



3.6.2.2. From an LGD perspective

For Corporate LGD modelling the approach used in the June top-down exercise based on downturn LGDs as the 2011 anchor point has been maintained due to the scarcer/lower quality data.

- This approach has been verified with historically observed cure rates from the central credit register (CIRBE) between 2008-2011 – a period that already exhibited a stress in cures compared to previous years – and entity inputs on observed cure and loss-given-loss rates (LGL).
- Corporate LGDs have been differentiated based on the subportfolio, the existence of collateral or not, as well as entity-specific factors. Historic cures (both from the central credit register and entity inputs) were applied to introduce entity-specific differentiations maintaining the conservative system-level LGD anchor point described above.
- Additionally, an in-depth analysis of the loan data tape has been conducted to verify the existence of collateral that determines the application of secured or unsecured LGDs to the specific loan.
- Finally, LGDs have been further stressed over the 2012-2014 horizon to incorporate PD to LGD correlation accounting for the sensitivity of LGDs to macroeconomic conditions across all portfolios with non-real estate related collateral.

3.6.3. Results

We estimate that accumulated projected losses from Corporates reach to ~14% of 2011 loan balances (~€74 BN) under the adverse scenario, with PDs experiencing a severe increase (up to x3) in 2012 compared to 2011.

Figure 33: Projected losses 2012–2014 – Corporates

		Projected Loss 2012-2014 (€BN)		Projected Loss 2012-2014 (% of 2011 Balance)		PD 2012-2014 (% of 2011 Perf. Balance)		LGD 2012-2014 (% Performing and Non-Perf.)	
2011 Balance		Base	Adverse	Base	Adverse	Base	Adverse	Base	Adverse
Secured	38.0 %	€1.6 BN	€2.6 BN	10.2 %	16.2 %	25.2 %	46.4 %	29.6 %	30.5 %
Unsecured	62.0 %	€3.6 BN	€6.3 BN	13.9 %	24.4 %	21.1 %	40.7 %	52.1 %	54.4 %
Public Works	100 %	€5.2BN	€8.8 BN	12.5 %	21.3 %	22.5 %	42.7 %	42.3 %	44.5 %
Secured	21.5 %	€2.9 BN	€4.3 BN	5.3 %	7.8 %	8.8 %	17.0 %	31.9 %	32.3 %
Unsecured	78.5%	€11.8 BN	€21.1 BN	5.9 %	10.6 %	8.7 %	17.0 %	52.7 %	55.0 %
Large Corporates	100 %	€14.7BN	€25.4 BN	5.8 %	10.0 %	8.7 %	17.0 %	47.0 %	49.3 %
Secured	50.3 %	€9.8 BN	€15.1 BN	8.2 %	12.6 %	20.8 %	35.4 %	29.4 %	30.6 %
Unsecured	49.7 %	€15.2 BN	€24.4 BN	12.9 %	20.7 %	20.2 %	34.2 %	51.6 %	54.3 %
SMEs	100 %	€25.0 BN	€39.4 BN	10.6 %	16.7 %	20.5 %	34.8 %	39.9 %	42.0 %
TOTAL	100 %	€44.8 BN	€73.6 BN	8.4 %	13.8 %	14.8 %	26.5 %	42.5 %	44.8 %

Projected losses for this segment are mainly driven by the PD increase caused by the negative macro-economic scenario defined for the 2012–14 period, with cumulative PDs in 2012-2014 rising to 27% of performing loans in 2011 or a total NPL stock in 2014 of 31% under the adverse scenario.

The overall bottom-up modelling framework has allowed us to differentiate based on each entity's risk profile characterised not only by the portfolio composition by type of corporate (Large, SMEs, Public Works) and existence of collateralisation, by also by the underlying quality of Corporate subportfolios.

Overall, entity-level results show projected losses ranging from 10% to 26% compared to a system-average of 14%, where SMEs range between 12-30% (average 17%), Large Corporates between 6-17% (average 10%) and Public Works between 10-41% (average 21%).

3.7. Retail Other

3.7.1. *Key portfolio characteristics and main latent risks*

As of December 2011, loans classified as Retail Other accounted for ~5% of the banking entities' loan portfolio. They constitute a relatively small segment in the Spanish lending market, characterised by low collateralisation and high default rates reaching ~5.7% in 2011. Historical portfolio PDs observed in the central credit register (CIRBE) show PDs of ~5.0% in 2011 for this portfolio.

- After growing by around 20% in the 2005-2008 period, Retail Other has plummeted by 30% since, and the segment is not expected to grow in the near future due to a relative standstill of household consumption and to tighter credit standards.
- The short-term nature of this type of credit reinforces the mitigation impact of tightening of the banks' credit policies.
- Auditor analyses within the bottom-up exercise found that ~11%¹⁸ of the Retail Other exposure had been restructured (ranging 0-40% between best and worst entities), at the top range of the estimates generated by the previous top-down exercise. In addition, performing loan misclassification of performing loans that should be classified as default found by the auditors was low at ~0.1% system average with worst entities reaching up to 0.9%.

3.7.2. *Methodology approach*

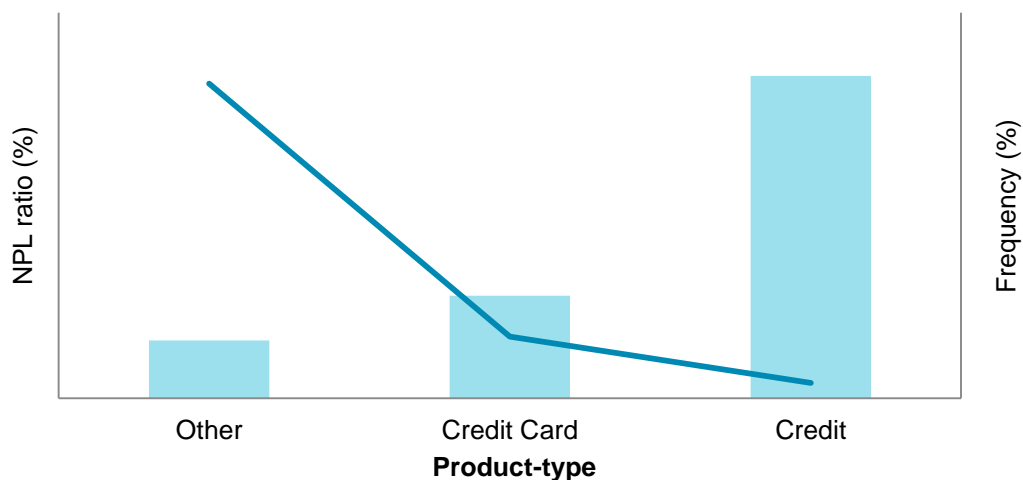
In line with the overall bottom-up credit loss forecasting framework, Retail Other has been modelled on a loan-by-loan basis taking into account the collateral attached to each loan. Key risk drivers used in the analysis are described below.

3.7.2.1. *From a PD perspective*

A bottom-up rating model to account for the distinct loss drivers of Retail Other has been developed and calibrated leveraging past entities' default experience.

- In particular, product type, seasoning (vintage), counterparty region and counterparty type were found to be factors which best explain future PDs.

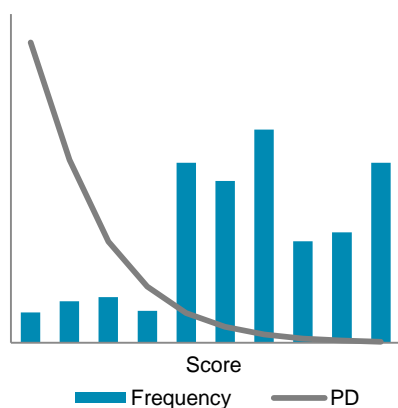
¹⁸ Weighted average across entities

Figure 34: Retail Other - PD risk driver example: product type-NPL relationship

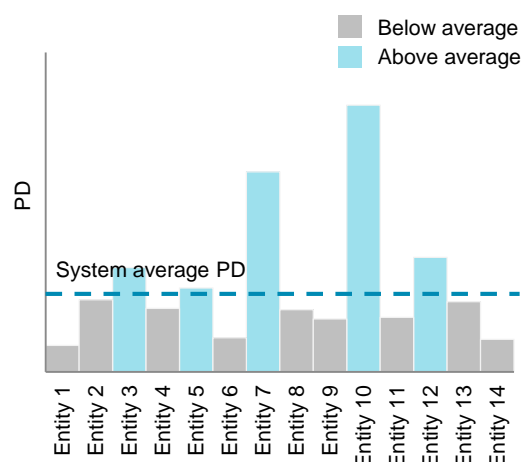
- The system-level distribution of portfolio scores and PDs resulting from the bottom-up rating tools is shown below, together with the subsequent translation into differentiated PD-levels across entities.

Figure 35: Illustrative example - PD 2011 calculation: Retail Other

PD score distribution
System



PD 2011
Distribution by entity



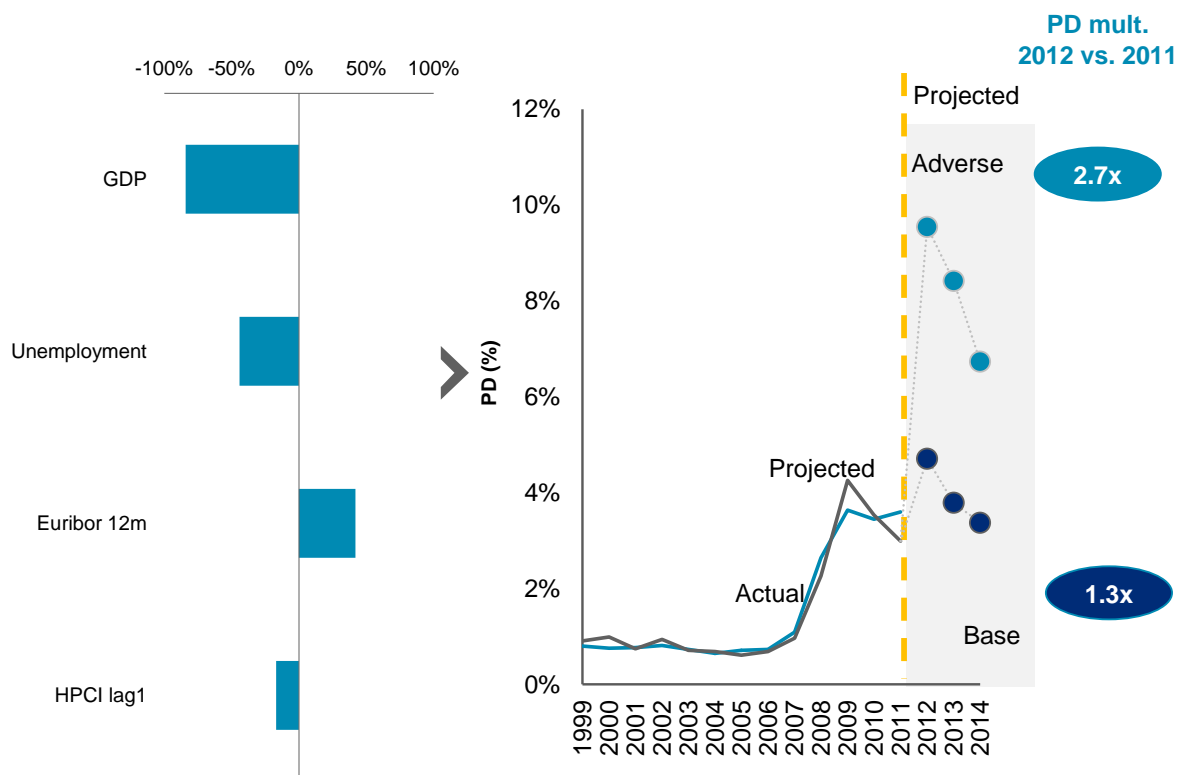
Further adjustments are made on projected default rates and recoveries to account for “hidden” portfolio deterioration. Based on the input from the auditors, additional credit quality drivers not reflected in financial statements are introduced (e.g. loan restructurings and NPL misclassifications) as described in the previous subsection.

Finally, a macroeconomic overlay is applied over the PDs based on the two previous steps, in order to reflect the impact of the adverse scenarios on projected losses of forecasted GDP evolution, unemployment, interest rate and inflation levels. This leads to a nearly threefold increase in 2012 PDs compared to 2011 levels.

Figure 36: Macroeconomic credit quality model: Retail Other

Macroeconomic variable weights
Normalised coefficients

Model implied System PD projection



3.7.2.2. From an LGD perspective

For Retail Other LGD modelling, the approach used in the June top-down exercise based on downturn LGDs as the 2011 anchor point has been maintained due to the scarcer/lower quality data.

- This approach has been verified with historically observed cure rates from the central credit register (CIRBE) between 2008-2011 – a period that already exhibited a stress in cures compared to previous years – and entity inputs on observed cure and loss-given-loss rates (LGL).

LGDs have been differentiated based on the existence of collateral or not, as well as entity-specific factors. Historic cures (both from the central credit register and entity inputs) are applied to introduce entity-specific differentiations maintaining the conservative system-level LGD anchor point described above.

- Finally, LGDs have been further stressed over the 2012-2014 horizon to incorporate PD to LGD correlation accounting for the sensitivity of LGDs to macroeconomic conditions across all portfolios with non-real estate related collateral.

3.7.3. Results

We estimate that accumulated projected losses from Retail Other reach to ~19% of 2011 loan balances under the adverse scenario, with PDs experiencing a significant increase (above x2) in 2012 compared to 2011.

Figure 37: Projected losses 2012–2014 – Retail Other

		Projected Loss 2012-2014 (€BN)		Projected Loss 2012-2014 (% of 2011 Balance)		PD 2012-2014 (% of 2011 Perf. Balance)		LGD 2012-2014 (% Performing and Non-Perf.)	
2011 Balance		Base	Adverse	Base	Adverse	Base	Adverse	Base	Adverse
Secured	8.8 %	€0.5 BN	€0.8 BN	7.3 %	12.0 %	12.1 %	20.6 %	48.7 %	51.6 %
Unsecured	91.2 %	€8.2 BN	€13.0 BN	12.2 %	19.2 %	12.2 %	21.0 %	73.0 %	76.8 %
Total	100 %	€8.7 BN	€13.8 BN	11.8 %	18.6 %	12.2 %	21.0 %	71.0 %	74.7 %

Projected losses for this segment are mainly driven by the severe PD increase caused by the negative macro-economic scenario defined for the 2012–14 period, with cumulative PDs rising to ~21% of performing loans in 2011 or a total NPL stock in 2014 of ~25% under the adverse scenario.

The overall bottom-up modelling framework has allowed us to differentiate based on each entity's risk profile characterised not only by the portfolio composition by existence of collateralisation, but also by the underlying portfolio quality.

Overall, entity-level results show projected losses ranging from 9% to 41% compared to a system-average of ~19%. Underlying cumulative PD 2012-2014 ranges between 7 and 53% can be compared to a system-average of ~21% and LGDs between 62 and 84% vs. ~75% average.

3.8. New credit book losses

On top of estimated credit losses from the existing credit back-book, we have also taken into account potential losses of the newly originated book. It must be highlighted that under the new credit book definition for loss forecasting purposes followed in the exercise, only the truly new book is included.

New credit origination is assumed to be low, in line with the overall credit deleveraging scenarios defined by the Steering Committee and the low repayment assumptions assumed for the credit back book. This is particularly relevant for the SME and Large Corporate segments, where a substantial part of existing loans is assumed to be renewed beyond maturity, therefore maintaining the negative risk profile shown by the existing credit back book.

Truly new loan originations are assumed to have a better credit quality than historical loans, driving comparatively low projected credit losses at ~€5.5 BN, which are considered for the estimation of capital needs.

4. Loss absorption capacity

4.1. Methodology overview

The solvency position of the entities is estimated based on the amount of credit losses they can withstand under different scenarios, while still complying with capital requirements at the end of the period. Therefore, in order to estimate the resilience of the individual entities, we compared the projected losses with the future loss absorption capacity of each institution.

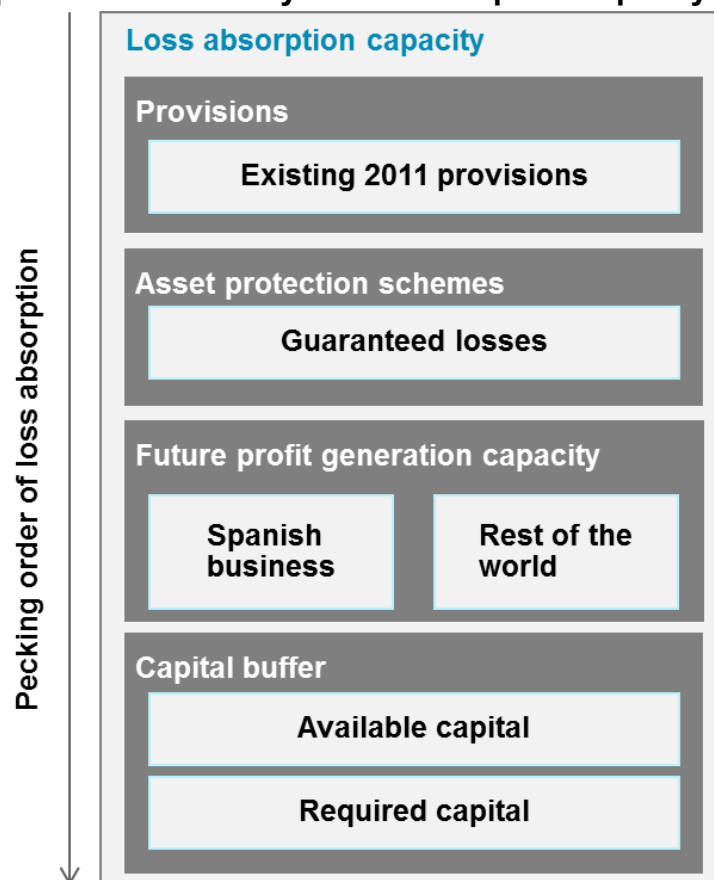
For the purpose of the exercise, the four main components of banks loss absorption capacity were considered:

- i. Provisions currently on the balance sheet
- ii. Asset protection schemes
- iii. Estimated future profit generation capacity
- iv. Excess capital buffer over minimum capital adequacy requirements

In the bottom-up analysis, we have separately considered the effect of taxes, including deferred tax assets (DTAs), on the banks' balance sheets. There are two different effects: losses reduction due to DTAs generation and increased capital needs resulting from phased-in deductions required under Basel III transitional agreements.

Any planned management actions beyond business as usual (proposed by entities to cover potential capital shortfalls) were excluded from the analysis. Only those actions that had already been executed prior to the start of the bottom-up exercise were considered.

The following figure captures the sequence in which losses would be absorbed. For instance, provisions will be depleted before losses could start eroding existing capital.

Figure 38: Components of an entity's loss absorption capacity

To estimate the loss absorption capacity, we have drawn on bank-specific information and Bank of Spain available historical data (at entity and system level).

The starting point data for provisions, capital and RWAs was provided and confirmed by the Bank of Spain.

For the rest of the components we have leveraged the business plans we received from the entities, and also gathered current business information, with descriptions of the existing credit portfolio characteristics and the available retail and wholesale funding (e.g. maturity profiles, observed historical prepayment rate, pricing structures, etc.)

In addition, all assumptions and forecasts were supported with further documents and details provided by the entities to ensure that projected business plans could be reconciled with bottom-up estimates consistent with the economic scenarios.

4.1.1. Existing provisions

Spanish regulation requires entities to keep funds available for future losses as credit quality deteriorates.

- Specific provisions, which are applied over assets entering into default, following a predefined uniform calendar. Additionally, for some entities,

specific provisioning may reflect extra-provisioning above regulatory requirements in anticipation of future projected losses

- Substandard provisions, which are made for loans that, although still performing, show some general weakness (e.g. exposure to a distressed sector)
- Foreclosed assets provisions: entities are also required to provision for the repossessed assets received in lieu of payment for defaulted loans.
- Generic provision funds, which apply to performing assets. For the purpose of the bottom-up stress test, we did not allow generic provisions in the banking entities' foreign subsidiaries to cover domestic credit losses (meaning they were excluded)

The previously described insolvency funds as of December 2011 constitute the first source of Spanish entities' loss absorption capacity.

4.1.2. Asset protection schemes (APS)

In order to support the restructuring process and enable transactions between banks and saving banks, the government has provided certain banks with Asset Protection Schemes (APS) for future losses on the real estate book of the acquired entities. APS are currently implemented at three banking entities: (i) BBVA - UNNIM, (ii) Liberbank - Ibercaja - Caja 3 and (iii) Sabadell – CAM. We have considered the different asset protection schemes structures. We have taken into account the specifics of each entity's APS agreements as well as the specifics and risk profile of the protected underlying assets. This reduces each entity's and the total system's estimated capital needs in the base and adverse scenarios.

4.1.3. Estimated future profit generation capacity

The second source of loss absorption considered in the exercise is the P&L generated from the day to day business. In accordance with the purpose of the exercise (as outlined in the MoU), we have differentiated profit generation capacity by geography:

- Spain
- International business (Rest of World)

4.1.3.1. Spain

The focus of this stress-testing exercise was on the Spanish business of the 14 entities examined. The bulk of the analytical resources therefore focused on the Spanish profit generation capacity of the entities under scope.

The banking entities' projected pre-provisioning profit generation consists of three main components: (i) net interest margin (NIM), (ii) net fees, and (iii) operating expenses.

- Projected net interest margin is mainly driven by banks' abilities to re-price their existing credit portfolio faster than their liabilities.

- Interest income is mainly driven by the banks' credit maturity profile, and the impact that adverse macroeconomic conditions have on performing balances.

When estimating future interest income, we also considered the split between the credit currently priced at fixed vs. floating rates and the existing floors that could potentially be activated at low market rates (in this case Euribor). In addition, the increased proportion of the performing book moving into non-performing for most of the banks contributes to lower interest income.

- Interest expense across banks differs depending on their current customer deposit base. Although no growth of deposits is projected for the system as a whole in the base case, some banks may benefit from a "flight-to-quality" due to better market perception, a larger and loyal customer base or a track record in deposit capture. Indeed, deposit outflow from some banks to others will be further amplified under adverse market conditions, where total deposit volumes are projected to decrease.

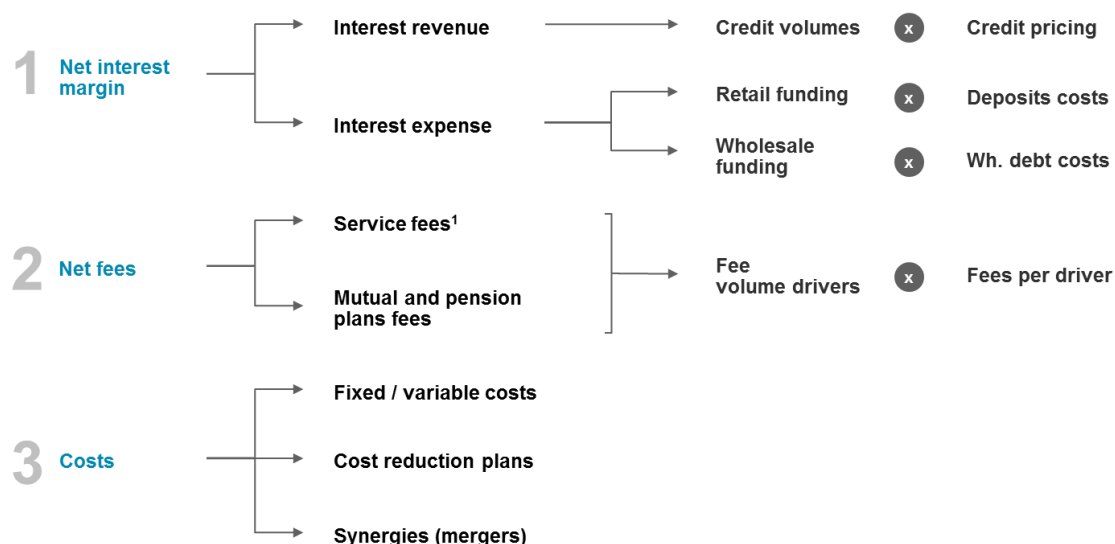
Any funding gap resulting from adjustments made on entities' expected deposit volumes is assumed to be filled with wholesale funds (i.e. corporate bonds) at recent observed market spreads given the macro-economic scenario.

Both scenarios used in this exercise consider "interest rate curves" that may differ from those used in projections/business plans and therefore may have an impact on a particular bank's P&L depending on the duration of its balance sheet

- Similarly, projected fees reflect both the evolution of the percentage of net fees relative to balance-sheet size and the impact of decreasing balance sheet size itself. This decrease has a considerably negative impact on this P&L component.
- Costs estimates consider historical entities' track record in managing costs, and also reflect any potential cost reduction driven by integration of several entities either recently executed or under way.

Figure 39: Main components of the banking entities' accumulated pre-tax pre-provisioning profit and relevant drivers

Pre-provision profit forecasting



1. Includes: card fees, account fees, insurance fees and contingent risk fees

To assess the banks' ability to generate pre-tax pre-provisioning profit, we have drawn on the submitted business plans.

However, we overlaid entity specific data with system-wide modelling outputs. Entities' business plans were then adjusted in three ways:

- i. We anchored entities' projections to the scenarios defined by the Steering Committee (e.g. we adjusted the entities' Euribor projections for the 2012 – 14 period to match those set by the Steering Committee),
- ii. We adjusted for projections judged to diverge significantly from historical track record of the entity
- iii. We homogenised individual business plans to preserve "market structure" (e.g. a player projecting to double market share)

Given the nature of the exercise we have not adjusted inputs from entities with assumptions that we believe to be conservative based on historical experience.

In adjusting the entities' business plans, we also needed to take into account the following restrictions and common criteria which were imposed by the ECC :

- Ensure zero growth of deposit balances in the base scenario, and a -3% CAGR in the adverse scenario, at a system level (based on the situation experienced in recent crises in other countries)

- Ensure that the expected credit deleverage defined by the macroeconomic scenario is achieved
- Maintain current industry pricing levels (spreads) for deposits and credit in the industry
- Ensure that restructuring costs and expected savings are in line with previous experience in Spain
- Ensure zero growth of total commissions income in the base scenario, and a drop in the adverse scenario
- Cap ROF (“Resultado de Operaciones Financieras”) revenue at the maximum of the average value achieved over the last three years. This source of revenue includes several concepts such as, income obtained from the trading book, hedge derivatives and buy backs of subordinated liabilities and asset-backed securities. This implies a ~50% reduction when compared to 3 year historical average.
- Cap “Fixed income investment portfolio” revenues at 2012 projected levels
- Apply a 30% haircut to dividend income under the adverse scenario
- The banking entities must fill any funding gap caused by the changes to deposit growth with wholesale funding. This wholesale funding is priced at the estimate of the relevant market rate for a specific banking entity

4.1.3.2. *International business (Rest of World)*

Whilst the Spanish business formed the primary focus of this exercise, it was necessary to also consider the profit generation from international business. As part of the assessment of the entities’ ability to generate profit, we therefore considered future international post-tax, post-provisioning attributed profit for those banks with relevant and sustainable operations outside of Spain. A haircut of 30% was then applied to both in the base and adverse scenarios.

4.1.4. *Capital buffer*

The capital buffer is the excess available capital above the requirements set for the purpose of the bottom-up stress testing exercise. As defined by the Steering Committee, post-shock capital needs are estimated taking a minimum Core Tier 1 ratio (as defined by the EBA) of 9% and 6%, under the base and the adverse scenarios respectively.

Credit deleverage has the effect of reducing an entity’s total risk-weighted assets (RWAs) and subsequently, capital requirements. This RWA reduction reflects the current specific asset mix of each entity and their growth strategy in different credit segments.

4.1.5. Tax – impact and Basel 3 phase-in requirements

We have also considered tax effects and the potential generation of deferred tax assets (DTAs) that could be used to reduce any subsequent period's income tax expense, which will overall reduce total capital needs.

For entities that have already experienced a public sector intervention, no new DTA generation is allowed. Because the stress test aims to estimate capital requirements, the likelihood of “tax assets” being used in future fiscal periods prior to capital injections on those entities is very low.

In addition, Basel III phase-in deduction requirements of DTAs from Core Tier 1 capital by 2014 have also been taken into consideration for all entities. Hence, 20% of DTAs will be deducted from CT1 (full amount of those related to operating losses and only 20% of DTAs related to temporary differences in excess of 10% common equity, net of tax liabilities)

The net tax impact is presented separately of the overall loss absorption capacity under the results section.

4.2. Results – system-wide loss absorption capacity

As explained, the total loss absorption capacity of an institution – and therefore of the entire banking system - is made up of four key components:

- (i) Provisions currently on the balance sheets
- (ii) Asset protection schemes
- (iii) Estimated future profit generation capacity
- (iv) Excess capital buffer over minimum capital adequacy requirements

The contribution of each of these components to the total loss absorption capacity for the system can be seen below, the base case in figure 40, and the adverse scenario in figure 41.

Figure 40: Total loss absorption capacity for the system, base case

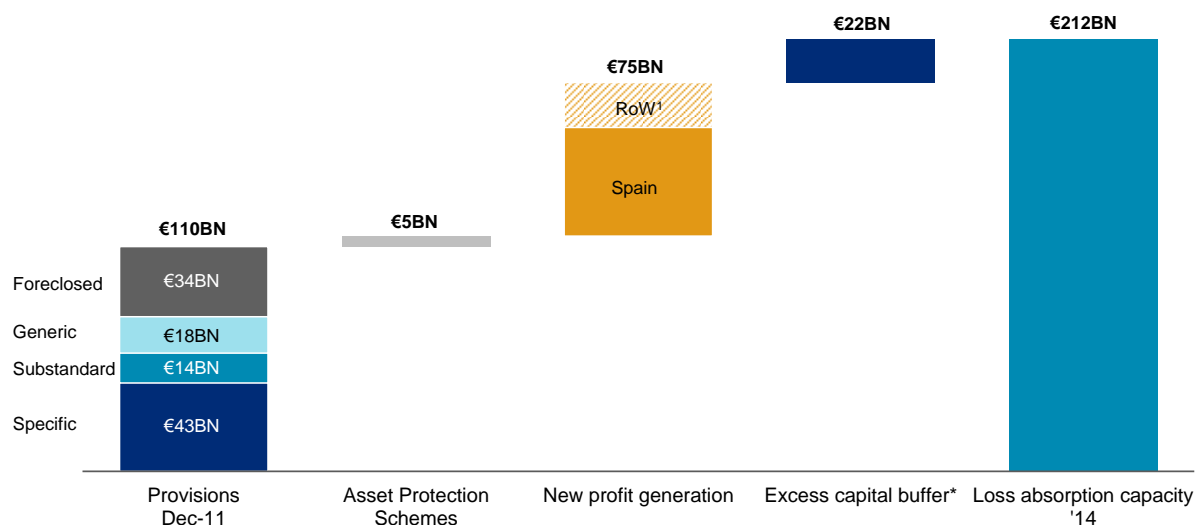
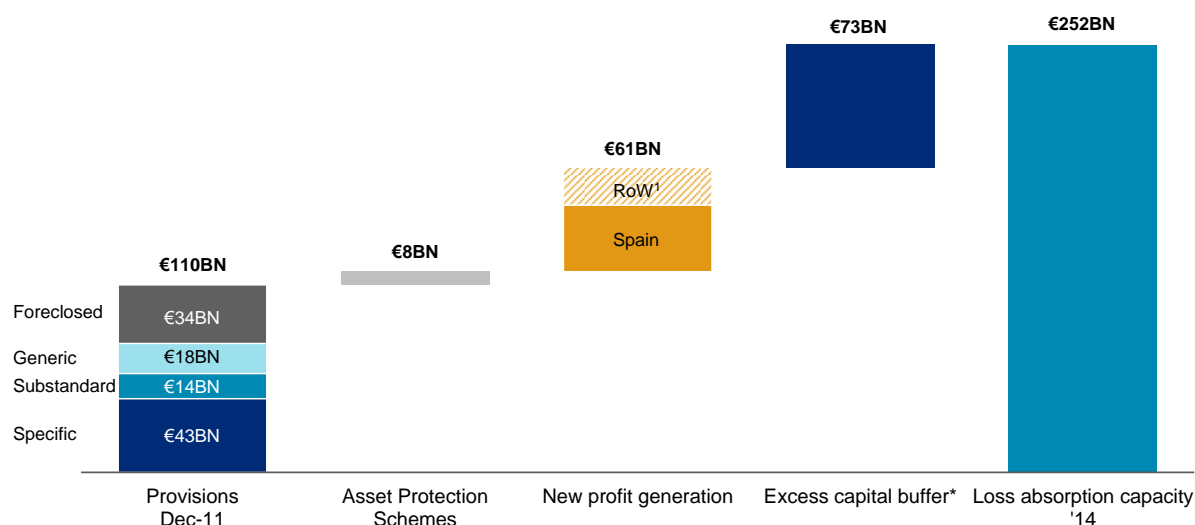


Figure 41: Total loss absorption capacity for the system, adverse case



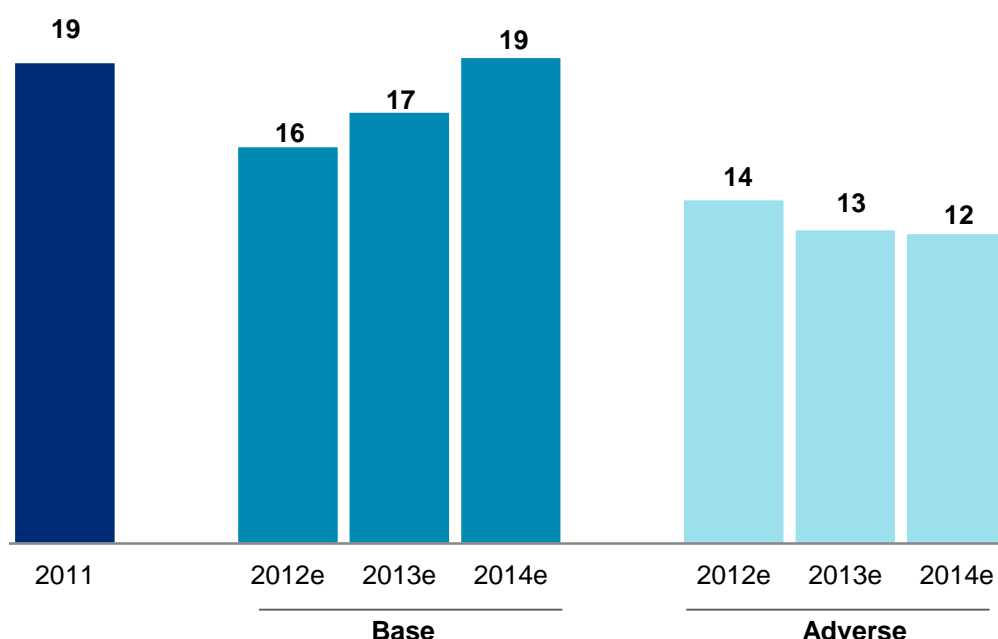
Of the four components, new profit generation is one of the most significant, as the ability to generate profit is essential to any business' long-term viability.

As previously explained, we reviewed each of the entities' original business plans in order to anchor them to the scenarios (as defined by the Steering Committee), and to adjust for historical performance, "step changes" and for system-wide anomalies (e.g. abrupt changes in market share).

The main focus of the stress was the Spanish business. With these adjustments, the cumulative new pre-provisioning profit (PPP) generated in Spain is estimated to be:

- Base case: ~€53BN
- Adverse case: ~€39BN

Figure 42: Base and adverse case Pre-Provisioning Profit – Spanish business (€BN, 2011-14)



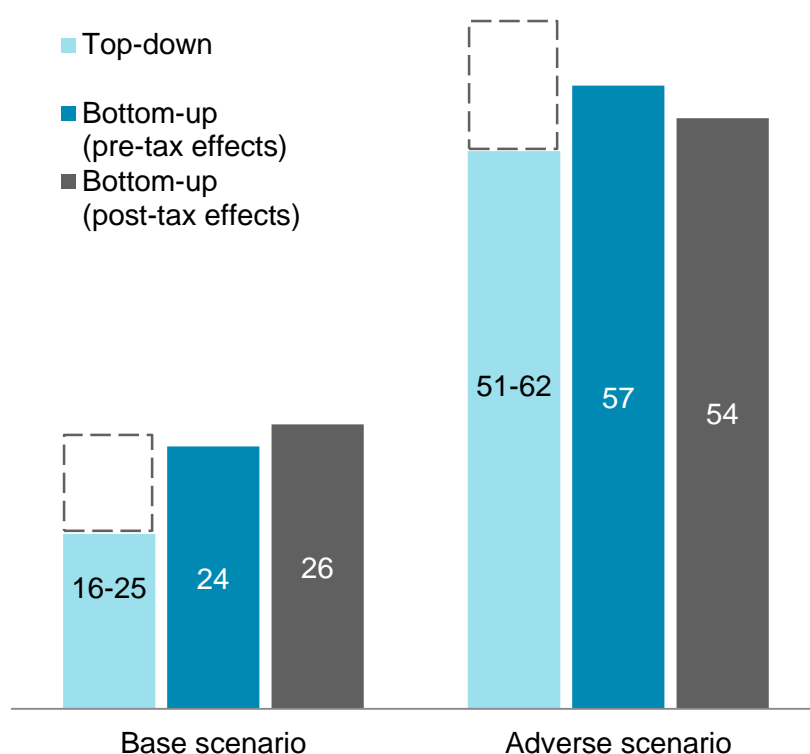
The drop observed for the adverse scenario (-14% CAGR over 2011-14) can be attributed to the following key changes in the underlying PPP components:

- **Net interest margin** (base: -1% CAGR, adverse: -9% CAGR): In both scenarios, changes to the funding mix and increased deleveraging, together with an increasing shift of performing loans to non performing, contribute to the observed drop. In addition, in the adverse scenario, the increase in Euribor contributes short-term benefit from increase in the banks' interest income, which is offset by the increase in non-performing assets and in banks' interest expense
- **Commissions** (base: -1% CAGR, adverse: -3% CAGR): The drop in commissions is driven by the reduced size of the banks' balance sheets, assets under management and fee compression
- **ROF and other income** (base: -9% CAGR, adverse: -14% CAGR): drop driven by defined caps and sale of equity stakes for some entities
- **Total costs** (base and adverse: -5% CAGR): The drop in the banks' costs is driven by reductions in headcount and closures of branches. No additional stress was applied in the adverse scenario vs. the base scenario

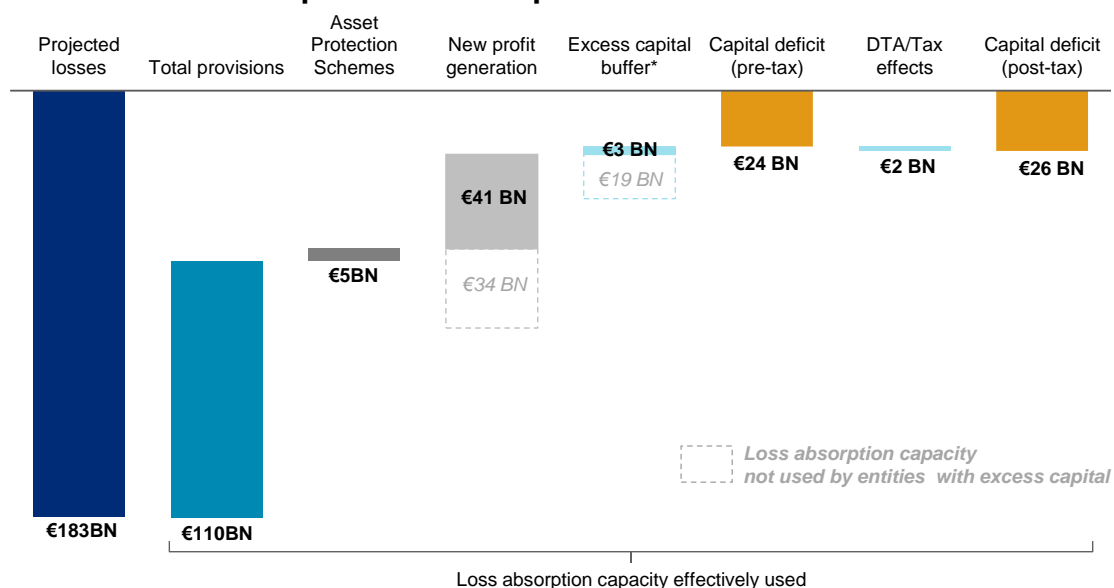
5. System-wide estimated capital needs

Based on the bottom-up stress tests, our estimate for system wide pre-tax capital needs is €24 BN in the base scenario and ~€57 BN in the adverse scenario.

Figure 43: Capital needs 2012 - 14 under the base scenario (Core Tier 1=9%) and under the adverse scenario (Core Tier 1=6%)



Figures below show the estimated system-wide capital needs under the base and the adverse scenarios.

Figure 44: Estimated capital needs - capital deficit under base scenario

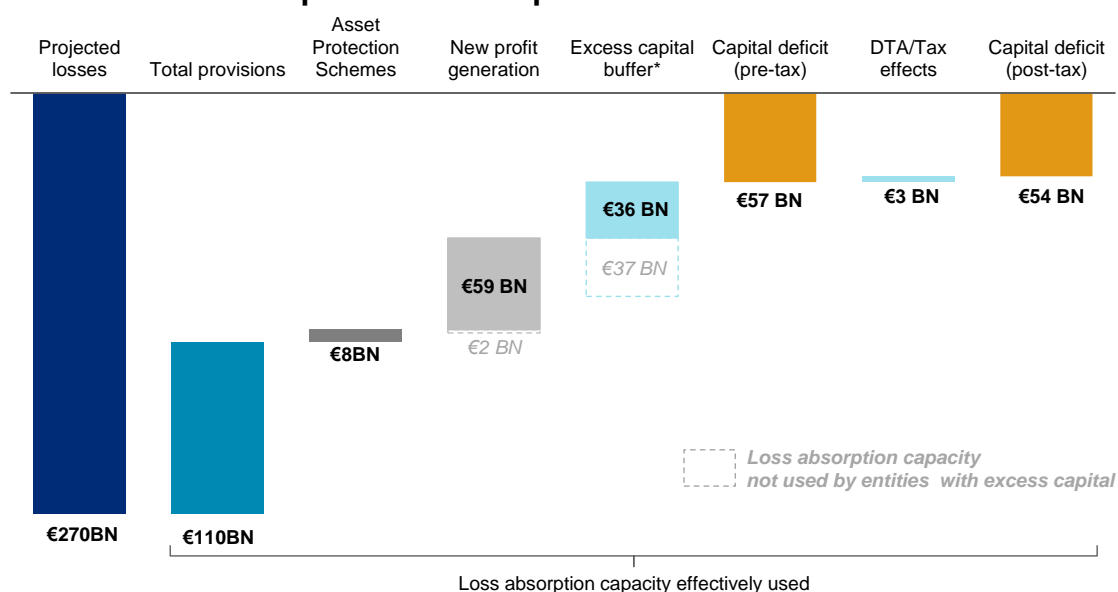
* Core capital ratio of 9%

Source: entities projections, Bank of Spain, Oliver Wyman analysis

In the base scenario, we estimate the **system-wide pre-tax capital deficit to be ~€24 BN**, stemming from estimated losses of approximately €183 BN. Total provisions of approximately €110 BN play the most significant role in bolstering the loss absorption capacity of the system. Losses are also partially offset by an estimated ~€5 BN of asset protection schemes. Additionally, an estimated ~€41 BN of new profit generation and ~€3 BN of excess capital buffer are needed to absorb the entities' losses.

Note that the total capital buffer available in the base scenario is estimated to be €22 BN only €3 BN is used to cover losses. This is due to the capital buffer forming the last source for loss absorption, and the fact that €19 BN is held by entities which are able to use other sources to cover their credit losses (e.g. provisions, profit generation). Hence, only €3 BN of the available capital buffer is actually used to cover credit losses.

After considering tax impacts (including generated/used DTAs) and Basel III phase-in requirements, the total capital deficit estimate is increased to €26 BN.

Figure 45: Estimated capital needs - capital deficit under adverse scenario

* Core capital ratio of 6%

Source: entities projections, Bank of Spain, Oliver Wyman analysis

In the adverse scenario, we estimate the **system-wide pre-tax capital deficit to be ~€57 BN** resulting from estimated losses of ~€270 BN. The provisioning level remains unchanged from the base scenario, at ~€110 BN, while the asset protection schemes stem an estimated €8BN. In the adverse scenario, an estimated ~€59 BN of new profit generation is used to absorb the entities' losses, as well as ~€36 BN of excess capital buffer.

After considering tax impact (including generated/used DTAs) and Basel III phase-in requirements, the total capital deficit estimate is decreased to €54 BN.

It is important to note that the new profit generation ability of the banking entities declines in the adverse macroeconomic scenario. However, **more of the new profits generated by the entities are used to absorb projected losses** under adverse conditions.

As for the base scenario, the total capital buffer estimated to be available in the adverse scenario, €73 BN differs from the total capital buffer required to cover credit losses. This is due to the capital buffer being the last source for loss absorption, and the fact that an estimated €37 BN is held by entities which are able to use other sources to cover their credit losses (e.g. provisions, profit generation). Hence, only an estimated €36 BN of the available capital buffer is actually used to cover credit losses.

The higher excess capital buffer in the adverse scenario is attributable to the lower minimum capital requirements (6% CT1 in the adverse scenario compared with 9% of CT1 in the base case).

6. Results by entity

The following pages include a detailed overview of capital needs and other key metrics for the entities under the scope of the exercise

Results of the bottom up Stress Test Exercise

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Name of the Entity: Santander

		mill. €	% RWA
December 2011 figures	Profit generation capacity ⁽¹⁾	10,159	1.8%
	Risk Weighted Assets (RWA)	560,031	100.0%
	Common Equity Tier (CET) 1 ⁽²⁾	54,517	9.7%

		Base Scenario		Adverse Scenario	
		mill. €	% Assets	mill. €	% Assets
A) Estimated losses in each scenario	A1.Spanish Current Credit Book	16,144	7.9%	27,674	13.5%
	Non-Financial Firms				
	Real Estate Developers	6,488	29.3%	9,805	44.2%
	Corporate ⁽³⁾	6,990	6.5%	12,652	11.7%
	Retail				
	Secured retail ⁽⁴⁾	1,381	2.2%	3,047	4.8%
	Non secured retail	1,284	11.0%	2,171	18.7%
	A2. Foreclosed assets	4,865	56.9%	5,644	66.0%
	Land	2,917	71.1%	3,318	80.9%
	Building in progress	549	56.9%	652	67.6%
	Finished property	1,399	40.1%	1,673	48.0%
	A3. Total losses current book (A1 +A2)	21,008	9.8%	33,318	15.6%
	A4. New Credit Book ⁽⁵⁾	751		751	
	A5. Total Losses (A3+A4)	21,759		34,069	

		Base Scenario	Adverse Scenario
		mill. €	mill. €
B) Estimated loss absorption capacity in each scenario	B1. Existing provisions ⁽⁶⁾	12,030	12,030
	B2. Asset protection schemes	0	0
	B3. Profit generation capacity 2012-14 ⁽¹⁾	25,063	23,806
	B4. Tax impact	-2,136	864
	B5. Capital buffer ⁽⁷⁾	5,984	22,667
	B6. Total loss absorption capacity (B1+B2+B3+B4+B5)	40,941	59,366

		Base Scenario		Adverse Scenario	
		mill. €	% RWA 2014	mill. €	% RWA 2014
C) Estimated capital excess / shortfall in each scenario	C1. Common Equity Tier (CET) 1 2014	67,714	12.6%	57,147	10.8%
	C2. Capital excess/shortfall in relation to CET1 standards (B6-A5)	19,181	3.6%	25,297	4.8%

(1) Includes pre-provisioning profit of the Spanish business, and attributed post-provisioning and post-tax profit of international businesses

(2) Includes CET 1 capital as of December 2011 plus realised capital actions before 31 August 2012

(3) Includes Public Works, Large Corporates, SMEs & Self-Employed

(4) Includes first mortgage collateral and other secured retail

(5) New credit origination backloaded towards the end of the period; hence percentage of cumulative losses not comparable with that of the back book

(6) Existing provisions as of December 2011 and registered provisions from 1H12 in business combinations

(7) Excess available capital above 9% CET1 base scenario / 6% CET1 adverse scenario, using estimated RWA level in each scenario

Results of the bottom up Stress Test Exercise

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Name of the Entity:

BBVA & Unnim

		mill. €	% RWA
December 2011 figures	Profit generation capacity ⁽¹⁾	6,157	1.8%
	Risk Weighted Assets (RWA)	336,944	100.0%
	Common Equity Tier (CET) 1 ⁽²⁾	32,299	9.6%

A) Estimated losses in each scenario		Base Scenario		Adverse Scenario	
		mill. €	% Assets	mill. €	% Assets
	A1.Spanish Current Credit Book	14,409	7.4%	24,544	12.6%
	Non-Financial Firms				
	Real Estate Developers	4,679	25.9%	7,409	40.9%
	Corporate ⁽³⁾	6,727	8.9%	11,191	14.8%
	Retail				
	Secured retail ⁽⁴⁾	1,508	1.7%	3,506	3.9%
	Non secured retail	1,495	12.5%	2,438	20.3%
	A2. Foreclosed assets	5,185	52.5%	6,010	60.9%
	Land	2,828	71.3%	3,139	79.2%
	Building in progress	442	55.4%	519	65.0%
	Finished property	1,916	37.5%	2,353	46.1%
	A3. Total losses current book (A1 +A2)	19,594	9.6%	30,554	14.9%
	A4. New Credit Book ⁽⁵⁾	743		743	
	A5. Total Losses (A3+A4)	20,338		31,297	

B) Estimated loss absorption capacity in each scenario		Base Scenario		Adverse Scenario	
		mill. €		mill. €	
	B1. Existing provisions ⁽⁶⁾	10,019		10,019	
	B2. Asset protection schemes	1,065		1,667	
	B3. Profit generation capacity 2012-14 ⁽¹⁾	16,742		14,414	
	B4. Tax impact	92		2,961	
	B5. Capital buffer ⁽⁷⁾	3,364		13,419	
	B6. Total loss absorption capacity (B1+B2+B3+B4+B5)	31,282		42,480	

C) Estimated capital excess / shortfall in each scenario		Base Scenario		Adverse Scenario	
		mill. €	% RWA 2014	mill. €	% RWA 2014
	C1. Common Equity Tier (CET) 1 2014	39,880	12.4%	30,063	9.6%
	C2. Capital excess/shortfall in relation to CET1 standards (B6-A5)	10,945	3.4%	11,183	3.6%

(1) Includes pre-provisioning profit of the Spanish business, and attributed post-provisioning and post-tax profit of international businesses

(2) Includes CET 1 capital as of December 2011 plus realised capital actions before 31 August 2012

(3) Includes Public Works, Large Corporates, SMEs & Self-Employed

(4) Includes first mortgage collateral and other secured retail

(5) New credit origination backloaded towards the end of the period; hence percentage of cumulative losses not comparable with that of the back book

(6) Existing provisions as of December 2011 and registered provisions from 1H12 in business combinations

(7) Excess available capital above 9% CET1 base scenario / 6% CET1 adverse scenario, using estimated RWA level in each scenario

Results of the bottom up Stress Test Exercise

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Name of the Entity: Caixabank & Banca Cívica

		mill. €	% RWA
December 2011 figures	Profit generation capacity ⁽¹⁾	3,489	1.8%
	Risk Weighted Assets (RWA)	194,213	100.0%
	Common Equity Tier (CET) 1 ⁽²⁾	18,690	9.6%

A) Estimated losses in each scenario		Base Scenario		Adverse Scenario	
		mill. €	% Assets	mill. €	% Assets
	A1.Spanish Current Credit Book	14,768	6.3%	24,775	10.7%
	Non-Financial Firms				
	Real Estate Developers	8,088	25.0%	12,147	37.6%
	Corporate ⁽³⁾	4,437	5.3%	7,936	9.4%
	Retail				
	Secured retail ⁽⁴⁾	1,514	1.5%	3,560	3.4%
	Non secured retail	729	6.0%	1,133	9.3%
	A2. Foreclosed assets	6,042	54.0%	6,939	62.0%
	Land	3,621	71.9%	3,977	79.0%
	Building in progress	152	53.4%	178	62.3%
	Finished property	2,269	38.7%	2,784	47.5%
	A3. Total losses current book (A1 +A2)	20,810	8.5%	31,714	13.0%
	A4. New Credit Book ⁽⁵⁾	1,019		1,019	
	A5. Total Losses (A3+A4)	21,829		32,733	

B) Estimated loss absorption capacity in each scenario		Base Scenario		Adverse Scenario	
		mill. €		mill. €	
	B1. Existing provisions ⁽⁶⁾	16,860		16,860	
	B2. Asset protection schemes	0		0	
	B3. Profit generation capacity 2012-14 ⁽¹⁾	12,161		10,919	
	B4. Tax impact	-792		1,776	
	B5. Capital buffer ⁽⁷⁾	3,021		8,899	
	B6. Total loss absorption capacity (B1+B2+B3+B4+B5)	31,250		38,454	

C) Estimated capital excess / shortfall in each scenario		Base Scenario		Adverse Scenario	
		mill. €	% RWA 2014	mill. €	% RWA 2014
	C1. Common Equity Tier (CET) 1 2014	25,090	14.4%	15,511	9.5%
	C2. Capital excess/shortfall in relation to CET1 standards (B6-A5)	9,421	5.4%	5,720	3.5%

(1) Includes pre-provisioning profit of the Spanish business, and attributed post-provisioning and post-tax profit of international businesses

(2) Includes CET 1 capital as of December 2011 plus realised capital actions before 31 August 2012

(3) Includes Public Works, Large Corporates, SMEs & Self-Employed

(4) Includes first mortgage collateral and other secured retail

(5) New credit origination backloaded towards the end of the period; hence percentage of cumulative losses not comparable with that of the back book

(6) Existing provisions as of December 2011 and registered provisions from 1H12 in business combinations

(7) Excess available capital above 9% CET1 base scenario / 6% CET1 adverse scenario, using estimated RWA level in each scenario

Results of the bottom up Stress Test Exercise

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Name of the Entity: KutxaBank

		mill. €	% RWA
December 2011 figures	Profit generation capacity ⁽¹⁾	592	1.3%
	Risk Weighted Assets (RWA)	47,334	100.0%
	Common Equity Tier (CET) 1 ⁽²⁾	5,770	12.2%

		Base Scenario		Adverse Scenario	
		mill. €	% Assets	mill. €	% Assets
A) Estimated losses in each scenario	A1.Spanish Current Credit Book	3,695	6.6%	5,863	10.5%
	Non-Financial Firms				
	Real Estate Developers	2,037	31.0%	2,924	44.5%
	Corporate ⁽³⁾	1,127	9.3%	1,813	15.0%
	Retail				
	Secured retail ⁽⁴⁾	309	0.9%	751	2.2%
	Non secured retail	222	7.3%	375	12.3%
	A2. Foreclosed assets	1,233	54.4%	1,399	61.7%
	Land	760	70.9%	829	77.3%
	Building in progress	86	54.9%	100	63.6%
	Finished property	387	37.2%	470	45.2%
	A3. Total losses current book (A1 +A2)	4,929	8.5%	7,261	12.5%
	A4. New Credit Book ⁽⁵⁾	128		128	
	A5. Total Losses (A3+A4)	5,057		7,389	

		Base Scenario	Adverse Scenario
		mill. €	mill. €
B) Estimated loss absorption capacity in each scenario	B1. Existing provisions ⁽⁶⁾	4,043	4,043
	B2. Asset protection schemes	0	0
	B3. Profit generation capacity 2012-14 ⁽¹⁾	2,412	1,745
	B4. Tax impact	-294	381
	B5. Capital buffer ⁽⁷⁾	2,028	3,409
	B6. Total loss absorption capacity (B1+B2+B3+B4+B5)	8,188	9,577

		Base Scenario		Adverse Scenario	
		mill. €	% RWA 2014	mill. €	% RWA 2014
C) Estimated capital excess / shortfall in each scenario	C1. Common Equity Tier (CET) 1 2014	6,874	16.5%	4,549	11.6%
	C2. Capital excess/shortfall in relation to CET1 standards (B6-A5)	3,132	7.5%	2,188	5.6%

(1) Includes pre-provisioning profit of the Spanish business, and attributed post-provisioning and post-tax profit of international businesses

(2) Includes CET 1 capital as of December 2011 plus realised capital actions before 31 August 2012

(3) Includes Public Works, Large Corporates, SMEs & Self-Employed

(4) Includes first mortgage collateral and other secured retail

(5) New credit origination backloaded towards the end of the period; hence percentage of cumulative losses not comparable with that of the back book

(6) Existing provisions as of December 2011 and registered provisions from 1H12 in business combinations

(7) Excess available capital above 9% CET1 base scenario / 6% CET1 adverse scenario, using estimated RWA level in each scenario

Results of the bottom up Stress Test Exercise

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Name of the Entity: Sabadell & CAM

		mill. €	% RWA
December 2011 figures	Profit generation capacity ⁽¹⁾	687	0.9%
	Risk Weighted Assets (RWA)	79,418	100.0%
	Common Equity Tier (CET) 1 ⁽²⁾	8,747	11.0%

A) Estimated losses in each scenario		Base Scenario		Adverse Scenario	
		mill. €	% Assets	mill. €	% Assets
	A1.Spanish Current Credit Book	12,964	11.3%	19,672	17.1%
	Non-Financial Firms				
	Real Estate Developers	7,086	31.4%	10,536	46.6%
	Corporate ⁽³⁾	4,255	7.9%	6,289	11.7%
	Retail				
	Secured retail ⁽⁴⁾	957	2.7%	1,931	5.5%
	Non secured retail	666	18.6%	916	25.6%
	A2. Foreclosed assets	4,381	55.4%	4,991	63.1%
	Land	2,043	69.9%	2,258	77.2%
	Building in progress	210	54.6%	247	64.2%
	Finished property	2,128	46.2%	2,486	54.0%
	A3. Total losses current book (A1 +A2)	17,346	14.1%	24,663	20.0%
	A4. New Credit Book ⁽⁵⁾	685		685	
	A5. Total Losses (A3+A4)	18,030		25,347	

B) Estimated loss absorption capacity in each scenario		Base Scenario		Adverse Scenario	
		mill. €		mill. €	
	B1. Existing provisions ⁽⁶⁾	13,124		13,124	
	B2. Asset protection schemes	3,156		5,093	
	B3. Profit generation capacity 2012-14 ⁽¹⁾	3,756		3,093	
	B4. Tax impact	-1,098		268	
	B5. Capital buffer ⁽⁷⁾	2,413		4,684	
	B6. Total loss absorption capacity (B1+B2+B3+B4+B5)	21,352		26,262	

C) Estimated capital excess / shortfall in each scenario		Base Scenario		Adverse Scenario	
		mill. €	% RWA 2014	mill. €	% RWA 2014
	C1. Common Equity Tier (CET) 1 2014	9,655	13.7%	4,978	7.4%
	C2. Capital excess/shortfall in relation to CET1 standards (B6-A5)	3,321	4.7%	915	1.4%

(1) Includes pre-provisioning profit of the Spanish business, and attributed post-provisioning and post-tax profit of international businesses

(2) Includes CET 1 capital as of December 2011 plus realised capital actions before 31 August 2012

(3) Includes Public Works, Large Corporates, SMEs & Self-Employed

(4) Includes first mortgage collateral and other secured retail

(5) New credit origination backloaded towards the end of the period; hence percentage of cumulative losses not comparable with that of the back book

(6) Existing provisions as of December 2011 and registered provisions from 1H12 in business combinations

(7) Excess available capital above 9% CET1 base scenario / 6% CET1 adverse scenario, using estimated RWA level in each scenario

Results of the bottom up Stress Test Exercise

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Name of the Entity: Bankinter

		mill. €	% RWA
December 2011 figures	Profit generation capacity ⁽¹⁾	462	1.7%
	Risk Weighted Assets (RWA)	27,564	100.0%
	Common Equity Tier (CET) 1 ⁽²⁾	2,563	9.3%

		Base Scenario		Adverse Scenario	
		mill. €	% Assets	mill. €	% Assets
A) Estimated losses in each scenario	A1.Spanish Current Credit Book	1,535	3.6%	2,779	6.5%
	Non-Financial Firms				
	Real Estate Developers	231	21.6%	392	36.6%
	Corporate ⁽³⁾	972	6.5%	1,662	11.1%
	Retail				
	Secured retail ⁽⁴⁾	202	0.8%	520	2.1%
	Non secured retail	130	5.9%	205	9.3%
	A2. Foreclosed assets	267	55.1%	299	61.7%
	Land	98	76.8%	105	82.6%
	Building in progress	2	57.6%	3	67.5%
	Finished property	167	47.2%	191	54.0%
	A3. Total losses current book (A1 +A2)	1,801	4.2%	3,078	7.2%
	A4. New Credit Book ⁽⁵⁾	237		237	
	A5. Total Losses (A3+A4)	2,039		3,315	

		Base Scenario	Adverse Scenario
		mill. €	mill. €
B) Estimated loss absorption capacity in each scenario	B1. Existing provisions ⁽⁶⁾	859	859
	B2. Asset protection schemes	0	0
	B3. Profit generation capacity 2012-14 ⁽¹⁾	1,765	1,841
	B4. Tax impact	-176	142
	B5. Capital buffer ⁽⁷⁾	-17	872
	B6. Total loss absorption capacity (B1+B2+B3+B4+B5)	2,431	3,714

		Base Scenario		Adverse Scenario	
		mill. €	% RWA 2014	mill. €	% RWA 2014
C) Estimated capital excess / shortfall in each scenario	C1. Common Equity Tier (CET) 1 2014	2,973	10.4%	2,090	7.4%
	C2. Capital excess/shortfall in relation to CET1 standards (B6-A5)	393	1.4%	399	1.4%

(1) Includes pre-provisioning profit of the Spanish business, and attributed post-provisioning and post-tax profit of international businesses

(2) Includes CET 1 capital as of December 2011 plus realised capital actions before 31 August 2012

(3) Includes Public Works, Large Corporates, SMEs & Self-Employed

(4) Includes first mortgage collateral and other secured retail

(5) New credit origination backloaded towards the end of the period; hence percentage of cumulative losses not comparable with that of the back book

(6) Existing provisions as of December 2011 and registered provisions from 1H12 in business combinations

(7) Excess available capital above 9% CET1 base scenario / 6% CET1 adverse scenario, using estimated RWA level in each scenario

Results of the bottom up Stress Test Exercise

67

Name of the Entity: Unicaja & CEISS

		mill. €	% RWA
December 2011 figures	Profit generation capacity ⁽¹⁾	537	1.2%
	Risk Weighted Assets (RWA)	43,138	100.0%
	Common Equity Tier (CET) 1 ⁽²⁾	5,788	13.4%

		Base Scenario		Adverse Scenario	
		mill. €	% Assets	mill. €	% Assets
A) Estimated losses in each scenario	A1.Spanish Current Credit Book	4,413	9.2%	7,099	14.8%
	Non-Financial Firms				
	Real Estate Developers	2,875	30.9%	4,381	47.1%
	Corporate ⁽³⁾	1,064	8.9%	1,702	14.3%
	Retail				
	Secured retail ⁽⁴⁾	252	1.1%	653	2.8%
	Non secured retail	221	7.4%	363	12.1%
	A2. Foreclosed assets	1,927	53.2%	2,268	62.6%
	Land	1,092	70.4%	1,264	81.4%
	Building in progress	112	55.3%	135	66.4%
	Finished property	723	38.7%	869	46.5%
	A3. Total losses current book (A1 +A2)	6,340	12.3%	9,367	18.2%
	A4. New Credit Book ⁽⁵⁾	236		236	
	A5. Total Losses (A3+A4)	6,577		9,603	

		Base Scenario	Adverse Scenario
		mill. €	mill. €
B) Estimated loss absorption capacity in each scenario	B1. Existing provisions ⁽⁶⁾	3,513	3,513
	B2. Asset protection schemes	0	0
	B3. Profit generation capacity 2012-14 ⁽¹⁾	1,792	1,562
	B4. Tax impact	274	1,041
	B5. Capital buffer ⁽⁷⁾	2,298	3,616
	B6. Total loss absorption capacity (B1+B2+B3+B4+B5)	7,877	9,732

		Base Scenario		Adverse Scenario	
		mill. €	% RWA 2014	mill. €	% RWA 2014
C) Estimated capital excess / shortfall in each scenario	C1. Common Equity Tier (CET) 1 2014	4,790	12.4%	2,300	6.4%
	C2. Capital excess/shortfall in relation to CET1 standards (B6-A5)	1,300	3.4%	128	0.4%

(1) Includes pre-provisioning profit of the Spanish business, and attributed post-provisioning and post-tax profit of international businesses

(2) Includes CET 1 capital as of December 2011 plus realised capital actions before 31 August 2012

(3) Includes Public Works, Large Corporates, SMEs & Self-Employed

(4) Includes first mortgage collateral and other secured retail

(5) New credit origination backloaded towards the end of the period; hence percentage of cumulative losses not comparable with that of the back book

(6) Existing provisions as of December 2011 and registered provisions from 1H12 in business combinations

(7) Excess available capital above 9% CET1 base scenario / 6% CET1 adverse scenario, using estimated RWA level in each scenario

Results of the bottom up Stress Test Exercise

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Name of the Entity: Banco Mare Nostrum

		mill. €	% RWA
December 2011 figures	Profit generation capacity ⁽¹⁾	296	0.8%
	Risk Weighted Assets (RWA)	37,847	100.0%
	Common Equity Tier (CET) 1 ⁽²⁾	3,525	9.3%

		Base Scenario		Adverse Scenario	
		mill. €	% Assets	mill. €	% Assets
A) Estimated losses in each scenario	A1.Spanish Current Credit Book	3,950	8.2%	6,900	14.3%
	Non-Financial Firms				
	Real Estate Developers	2,047	22.8%	3,551	39.5%
	Corporate ⁽³⁾	1,301	10.1%	2,034	15.8%
	Retail				
	Secured retail ⁽⁴⁾	440	1.8%	1,028	4.3%
	Non secured retail	162	7.7%	287	13.6%
	A2. Foreclosed assets	2,047	55.8%	2,349	64.0%
	Land	1,080	73.6%	1,193	81.2%
	Building in progress	132	56.2%	156	66.1%
	Finished property	835	42.5%	1,001	51.0%
	A3. Total losses current book (A1 +A2)	5,997	11.6%	9,249	17.9%
	A4. New Credit Book ⁽⁵⁾	199		199	
	A5. Total Losses (A3+A4)	6,197		9,448	

		Base Scenario	Adverse Scenario
		mill. €	mill. €
B) Estimated loss absorption capacity in each scenario	B1. Existing provisions ⁽⁶⁾	3,852	3,852
	B2. Asset protection schemes	0	0
	B3. Profit generation capacity 2012-14 ⁽¹⁾	1,531	870
	B4. Tax impact	-10	870
	B5. Capital buffer ⁽⁷⁾	456	1,649
	B6. Total loss absorption capacity (B1+B2+B3+B4+B5)	5,829	7,240

		Base Scenario		Adverse Scenario	
		mill. €	% RWA 2014	mill. €	% RWA 2014
C) Estimated capital excess / shortfall in each scenario	C1. Common Equity Tier (CET) 1 2014	2,701	7.9%	-332	-1.1%
	C2. Capital excess/shortfall in relation to CET1 standards (B6-A5)	-368	-1.1%	-2,208	-7.1%

(1) Includes pre-provisioning profit of the Spanish business, and attributed post-provisioning and post-tax profit of international businesses

(2) Includes CET 1 capital as of December 2011 plus realised capital actions before 31 August 2012

(3) Includes Public Works, Large Corporates, SMEs & Self-Employed

(4) Includes first mortgage collateral and other secured retail

(5) New credit origination backloaded towards the end of the period; hence percentage of cumulative losses not comparable with that of the back book

(6) Existing provisions as of December 2011 and registered provisions from 1H12 in business combinations

(7) Excess available capital above 9% CET1 base scenario / 6% CET1 adverse scenario, using estimated RWA level in each scenario

Results of the bottom up Stress Test Exercise

69

Name of the Entity: Ibercaja & Caja3 & Liberbank

		mill. €	% RWA
December 2011 figures	Profit generation capacity ⁽¹⁾	883	1.4%
	Risk Weighted Assets (RWA)	62,679	100.0%
	Common Equity Tier (CET) 1 ⁽²⁾	6,367	10.2%

A) Estimated losses in each scenario		Base Scenario		Adverse Scenario	
		mill. €	% Assets	mill. €	% Assets
	A1.Spanish Current Credit Book	8,451	10.1%	12,948	15.5%
	Non-Financial Firms				
	Real Estate Developers	4,978	29.6%	7,409	44.1%
	Corporate ⁽³⁾	2,611	13.1%	3,729	18.6%
	Retail				
	Secured retail ⁽⁴⁾	454	1.1%	1,178	2.7%
	Non secured retail	408	10.2%	632	15.7%
	A2. Foreclosed assets	2,397	55.6%	2,696	62.5%
	Land	1,472	69.5%	1,612	76.1%
	Building in progress	83	53.3%	97	62.4%
	Finished property	842	41.3%	987	48.4%
	A3. Total losses current book (A1 +A2)	10,847	12.3%	15,645	17.8%
	A4. New Credit Book ⁽⁵⁾	249		249	
	A5. Total Losses (A3+A4)	11,096		15,893	

B) Estimated loss absorption capacity in each scenario		Base Scenario		Adverse Scenario	
		mill. €		mill. €	
	B1. Existing provisions ⁽⁶⁾	6,103		6,103	
	B2. Asset protection schemes	1,027		1,027	
	B3. Profit generation capacity 2012-14 ⁽¹⁾	3,148		2,171	
	B4. Tax impact	126		1,340	
	B5. Capital buffer ⁽⁷⁾	1,183		3,144	
	B6. Total loss absorption capacity (B1+B2+B3+B4+B5)	11,588		13,785	

C) Estimated capital excess / shortfall in each scenario		Base Scenario		Adverse Scenario	
		mill. €	% RWA 2014	mill. €	% RWA 2014
	C1. Common Equity Tier (CET) 1 2014	5,676	9.9%	1,115	2.1%
	C2. Capital excess/shortfall in relation to CET1 standards (B6-A5)	492	0.9%	-2,108	-3.9%

(1) Includes pre-provisioning profit of the Spanish business, and attributed post-provisioning and post-tax profit of international businesses

(2) Includes CET 1 capital as of December 2011 plus realised capital actions before 31 August 2012

(3) Includes Public Works, Large Corporates, SMEs & Self-Employed

(4) Includes first mortgage collateral and other secured retail

(5) New credit origination backloaded towards the end of the period; hence percentage of cumulative losses not comparable with that of the back book

(6) Existing provisions as of December 2011 and registered provisions from 1H12 in business combinations

(7) Excess available capital above 9% CET1 base scenario / 6% CET1 adverse scenario, using estimated RWA level in each scenario

Results of the bottom up Stress Test Exercise

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Name of the Entity: Banco de Valencia

		mill. €	% RWA
December 2011 figures	Profit generation capacity ⁽¹⁾	111	0.7%
	Risk Weighted Assets (RWA)	16,322	100.0%
	Common Equity Tier (CET) 1 ⁽²⁾	1,291	7.9%

		Base Scenario		Adverse Scenario	
		mill. €	% Assets	mill. €	% Assets
A) Estimated losses in each scenario	A1.Spanish Current Credit Book	3,306	18.2%	4,926	27.1%
	Non-Financial Firms				
	Real Estate Developers	1,848	36.9%	2,589	51.7%
	Corporate ⁽³⁾	1,014	13.8%	1,548	21.0%
	Retail				
	Secured retail ⁽⁴⁾	362	7.0%	652	12.5%
	Non secured retail	83	13.4%	137	22.1%
	A2. Foreclosed assets	633	60.5%	737	70.4%
	Land	417	73.4%	482	84.8%
	Building in progress	7	58.8%	8	71.5%
	Finished property	209	44.8%	247	52.8%
	A3. Total losses current book (A1 +A2)	3,940	20.5%	5,662	29.4%
	A4. New Credit Book ⁽⁵⁾	90		90	
	A5. Total Losses (A3+A4)	4,029		5,752	

		Base Scenario	Adverse Scenario
		mill. €	mill. €
B) Estimated loss absorption capacity in each scenario	B1. Existing provisions ⁽⁶⁾	1,820	1,820
	B2. Asset protection schemes	0	0
	B3. Profit generation capacity 2012-14 ^(1,8)	217	-98
	B4. Tax impact	-107	-107
	B5. Capital buffer ⁽⁷⁾	254	674
	B6. Total loss absorption capacity (B1+B2+B3+B4+B5)	2,184	2,290

		Base Scenario		Adverse Scenario	
		mill. €	% RWA 2014	mill. €	% RWA 2014
C) Estimated capital excess / shortfall in each scenario	C1. Common Equity Tier (CET) 1 2014	-809	-7.0%	-2,845	-27.7%
	C2. Capital excess/shortfall in relation to CET1 standards (B6-A5)	-1,846	-16.0%	-3,462	-33.7%

(1) Includes pre-provisioning profit of the Spanish business, and attributed post-provisioning and post-tax profit of international businesses

(2) Includes CET 1 capital as of December 2011 plus realised capital actions before 31 August 2012

(3) Includes Public Works, Large Corporates, SMEs & Self-Employed

(4) Includes first mortgage collateral and other secured retail

(5) New credit origination backloaded towards the end of the period; hence percentage of cumulative losses not comparable with that of the back book

(6) Existing provisions as of December 2011 and registered provisions from 1H12 in business combinations

(7) Excess available capital above 9% CET1 base scenario / 6% CET1 adverse scenario, using estimated RWA level in each scenario

(8) Includes losses from the sale of part of the equity stakes

Results of the bottom up Stress Test Exercise

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Name of the Entity: Popular & Pastor

		mill. €	% RWA
December 2011 figures	Profit generation capacity ⁽¹⁾	1,802	1.8%
	Risk Weighted Assets (RWA)	97,678	100.0%
	Common Equity Tier (CET) 1 ⁽²⁾	9,936	10.2%

		Base Scenario		Adverse Scenario	
		mill. €	% Assets	mill. €	% Assets
A) Estimated losses in each scenario	A1.Spanish Current Credit Book	9,520	9.2%	16,197	15.7%
	Non-Financial Firms				
	Real Estate Developers	4,580	21.0%	7,593	34.8%
	Corporate ⁽³⁾	3,830	8.0%	6,351	13.3%
	Retail				
	Secured retail ⁽⁴⁾	715	2.5%	1,571	5.4%
	Non secured retail	393	8.5%	682	14.7%
	A2. Foreclosed assets	4,892	56.4%	5,511	63.5%
	Land	2,458	75.2%	2,667	81.6%
	Building in progress	158	58.3%	181	67.0%
	Finished property	2,277	44.3%	2,662	51.8%
	A3. Total losses current book (A1 +A2)	14,412	12.9%	21,708	19.4%
	A4. New Credit Book ⁽⁵⁾	666		666	
	A5. Total Losses (A3+A4)	15,078		22,374	

		Base Scenario	Adverse Scenario
		mill. €	mill. €
B) Estimated loss absorption capacity in each scenario	B1. Existing provisions ⁽⁶⁾	7,767	7,767
	B2. Asset protection schemes	0	0
	B3. Profit generation capacity 2012-14 ⁽¹⁾	5,834	4,153
	B4. Tax impact	210	2,239
	B5. Capital buffer ⁽⁷⁾	1,944	4,992
	B6. Total loss absorption capacity (B1+B2+B3+B4+B5)	15,755	19,151

		Base Scenario		Adverse Scenario	
		mill. €	% RWA 2014	mill. €	% RWA 2014
C) Estimated capital excess / shortfall in each scenario	C1. Common Equity Tier (CET) 1 2014	8,669	9.8%	1,721	2.1%
	C2. Capital excess/shortfall in relation to CET1 standards (B6-A5)	677	0.8%	-3,223	-3.9%

(1) Includes pre-provisioning profit of the Spanish business, and attributed post-provisioning and post-tax profit of international businesses

(2) Includes CET 1 capital as of December 2011 plus realised capital actions before 31 August 2012

(3) Includes Public Works, Large Corporates, SMEs & Self-Employed

(4) Includes first mortgage collateral and other secured retail

(5) New credit origination backloaded towards the end of the period; hence percentage of cumulative losses not comparable with that of the back book

(6) Existing provisions as of December 2011 and registered provisions from 1H12 in business combinations

(7) Excess available capital above 9% CET1 base scenario / 6% CET1 adverse scenario, using estimated RWA level in each scenario

Results of the bottom up Stress Test Exercise

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Name of the Entity: NCG Banco

		mill. €	% RWA
December 2011 figures	Profit generation capacity ⁽¹⁾	75	0.2%
	Risk Weighted Assets (RWA)	47,885	100.0%
	Common Equity Tier (CET) 1 ⁽²⁾	3,845	8.0%

A) Estimated losses in each scenario		Base Scenario		Adverse Scenario	
		mill. €	% Assets	mill. €	% Assets
	A1.Spanish Current Credit Book	6,668	13.6%	9,973	20.3%
	Non-Financial Firms				
	Real Estate Developers	3,283	30.2%	4,621	42.5%
	Corporate ⁽³⁾	2,211	13.3%	3,313	19.9%
	Retail				
	Secured retail ⁽⁴⁾	326	1.8%	773	4.2%
	Non secured retail	847	26.4%	1,266	39.5%
	A2. Foreclosed assets	2,368	59.2%	2,662	66.5%
	Land	1,316	71.9%	1,451	79.3%
	Building in progress	196	54.9%	226	63.5%
	Finished property	856	47.1%	985	54.2%
	A3. Total losses current book (A1 +A2)	9,036	17.0%	12,635	23.8%
	A4. New Credit Book ⁽⁵⁾	104		104	
	A5. Total Losses (A3+A4)	9,139		12,738	

B) Estimated loss absorption capacity in each scenario		Base Scenario		Adverse Scenario	
		mill. €		mill. €	
	B1. Existing provisions ⁽⁶⁾	4,569		4,569	
	B2. Asset protection schemes	0		0	
	B3. Profit generation capacity 2012-14 ^(1,8)	-56		-788	
	B4. Tax impact	-380		-380	
	B5. Capital buffer ⁽⁷⁾	1,039		2,161	
	B6. Total loss absorption capacity (B1+B2+B3+B4+B5)	5,173		5,562	

C) Estimated capital excess / shortfall in each scenario		Base Scenario		Adverse Scenario	
		mill. €	% RWA 2014	mill. €	% RWA 2014
	C1. Common Equity Tier (CET) 1 2014	-1,160	-3.7%	-5,491	-19.6%
	C2. Capital excess/shortfall in relation to CET1 standards (B6-A5)	-3,966	-12.7%	-7,176	-25.6%

(1) Includes pre-provisioning profit of the Spanish business, and attributed post-provisioning and post-tax profit of international businesses

(2) Includes CET 1 capital as of December 2011 plus realised capital actions before 31 August 2012

(3) Includes Public Works, Large Corporates, SMEs & Self-Employed

(4) Includes first mortgage collateral and other secured retail

(5) New credit origination backloaded towards the end of the period; hence percentage of cumulative losses not comparable with that of the back book

(6) Existing provisions as of December 2011 and registered provisions from 1H12 in business combinations

(7) Excess available capital above 9% CET1 base scenario / 6% CET1 adverse scenario, using estimated RWA level in each scenario

(8) Includes losses from the sale of part of the equity stakes

Results of the bottom up Stress Test Exercise

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Name of the Entity:

CatalunyaBank

		mill. €	% RWA
December 2011 figures	Profit generation capacity ⁽¹⁾	279	0.7%
	Risk Weighted Assets (RWA)	42,221	100.0%
	Common Equity Tier (CET) 1 ⁽²⁾	3,462	8.2%

A) Estimated losses in each scenario		Base Scenario		Adverse Scenario	
		mill. €	% Assets	mill. €	% Assets
	A1.Spanish Current Credit Book	8,090	16.2%	12,274	24.7%
	Non-Financial Firms				
	Real Estate Developers	4,084	33.3%	6,049	49.3%
	Corporate ⁽³⁾	1,870	18.0%	2,695	26.0%
	Retail				
	Secured retail ⁽⁴⁾	895	3.9%	1,832	7.9%
	Non secured retail	1,240	30.3%	1,698	41.5%
	A2. Foreclosed assets	4,306	58.3%	4,833	65.4%
	Land	2,113	70.8%	2,342	78.4%
	Building in progress	56	54.7%	65	64.0%
	Finished property	2,138	49.7%	2,427	56.4%
	A3. Total losses current book (A1 +A2)	12,396	21.7%	17,108	29.9%
	A4. New Credit Book ⁽⁵⁾	122		122	
	A5. Total Losses (A3+A4)	12,518		17,230	

B) Estimated loss absorption capacity in each scenario		Base Scenario		Adverse Scenario	
		mill. €		mill. €	
	B1. Existing provisions ⁽⁶⁾	5,808		5,808	
	B2. Asset protection schemes	0		0	
	B3. Profit generation capacity 2012-14 ^(1,8)	77		-760	
	B4. Tax impact	-282		-282	
	B5. Capital buffer ⁽⁷⁾	426		1,639	
	B6. Total loss absorption capacity (B1+B2+B3+B4+B5)	6,030		6,405	

C) Estimated capital excess / shortfall in each scenario		Base Scenario		Adverse Scenario	
		mill. €	% RWA 2014	mill. €	% RWA 2014
	C1. Common Equity Tier (CET) 1 2014	-3,452	-10.2%	-9,002	-29.6%
	C2. Capital excess/shortfall in relation to CET1 standards (B6-A5)	-6,488	-19.2%	-10,825	-35.6%

(1) Includes pre-provisioning profit of the Spanish business, and attributed post-provisioning and post-tax profit of international businesses

(2) Includes CET 1 capital as of December 2011 plus realised capital actions before 31 August 2012

(3) Includes Public Works, Large Corporates, SMEs & Self-Employed

(4) Includes first mortgage collateral and other secured retail

(5) New credit origination backloaded towards the end of the period; hence percentage of cumulative losses not comparable with that of the back book

(6) Existing provisions as of December 2011 and registered provisions from 1H12 in business combinations

(7) Excess available capital above 9% CET1 base scenario / 6% CET1 adverse scenario, using estimated RWA level in each scenario

(8) Includes losses from the sale of part of the equity stakes

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Name of the Entity: Bankia - BFA

		mill. €	% RWA
December 2011 figures	Profit generation capacity ⁽¹⁾	1,755	1.1%
	Risk Weighted Assets (RWA)	164,613	100.0%
	Common Equity Tier (CET) 1 ⁽²⁾	8,006	4.9%

A) Estimated losses in each scenario		Base Scenario		Adverse Scenario	
		mill. €	% Assets	mill. €	% Assets
	A1.Spanish Current Credit Book	21,352	11.3%	33,394	17.6%
	Non-Financial Firms				
	Real Estate Developers	12,636	32.5%	17,650	45.4%
	Corporate ⁽³⁾	6,318	11.1%	10,586	18.6%
	Retail				
	Secured retail ⁽⁴⁾	1,553	1.8%	3,697	4.3%
	Non secured retail	845	11.0%	1,461	19.0%
	A2. Foreclosed assets	8,006	55.0%	9,127	62.7%
	Land	4,875	74.3%	5,307	80.9%
	Building in progress	193	60.2%	221	69.3%
	Finished property	2,939	38.3%	3,598	46.9%
	A3. Total losses current book (A1 +A2)	29,358	14.4%	42,520	20.9%
	A4. New Credit Book ⁽⁵⁾	235		235	
	A5. Total Losses (A3+A4)	29,593		42,756	

B) Estimated loss absorption capacity in each scenario		Base Scenario		Adverse Scenario	
		mill. €		mill. €	
	B1. Existing provisions ⁽⁶⁾	19,750		19,750	
	B2. Asset protection schemes	0		0	
	B3. Profit generation capacity 2012-14 ^(1,8)	163		-2,236	
	B4. Tax impact	-1,060		-1,060	
	B5. Capital buffer ⁽⁷⁾	-2,490		1,558	
	B6. Total loss absorption capacity (B1+B2+B3+B4+B5)	16,363		18,012	

C) Estimated capital excess / shortfall in each scenario		Base Scenario		Adverse Scenario	
		mill. €	% RWA 2014	mill. €	% RWA 2014
	C1. Common Equity Tier (CET) 1 2014	-2,735	-2.3%	-18,296	-17.0%
	C2. Capital excess/shortfall in relation to CET1 standards (B6-A5)	-13,230	-11.3%	-24,743	-23.0%

(1) Includes pre-provisioning profit of the Spanish business, and attributed post-provisioning and post-tax profit of international businesses

(2) Includes CET 1 capital as of December 2011 plus realised capital actions before 31 August 2012

(3) Includes Public Works, Large Corporates, SMEs & Self-Employed

(4) Includes first mortgage collateral and other secured retail

(5) New credit origination backloaded towards the end of the period; hence percentage of cumulative losses not comparable with that of the back book

(6) Existing provisions as of December 2011 and registered provisions from 1H12 in business combinations

(7) Excess available capital above 9% CET1 base scenario / 6% CET1 adverse scenario, using estimated RWA level in each scenario

(8) Includes losses from the sale of part of the equity stakes

Results of the bottom up Stress Test Exercise

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Name of the Entity:

Ibercaja

December 2011
figures

Profit generation capacity ⁽¹⁾	269	1.2%
Risk Weighted Assets (RWA)	22,295	100.0%
Common Equity Tier (CET) 1 ⁽²⁾	2,292	10.3%

A) Estimated
losses in each
scenario

		Base Scenario		Adverse Scenario	
		mill. €	% Assets	mill. €	% Assets
A1.Spanish Current Credit Book		1,706	5.3%	3,101	9.7%
	Non-Financial Firms				
	Real Estate Developers	933	22.7%	1,658	40.4%
	Corporate ⁽³⁾	447	8.4%	727	13.7%
	Retail				
	Secured retail ⁽⁴⁾	179	0.8%	503	2.4%
	Non secured retail	146	10.3%	213	15.0%
A2. Foreclosed assets		735	58.2%	829	65.6%
	Land	489	70.8%	535	77.4%
	Building in progress	2	56.7%	2	66.3%
	Finished property	244	43.0%	292	51.3%
A3. Total losses current book (A1 +A2)		2,441	7.3%	3,930	11.8%
A4. New Credit Book ⁽⁵⁾		123		123	
A5. Total Losses (A3+A4)		2,564		4,053	

B) Estimated loss
absorption
capacity in each
scenario

		Base Scenario	Adverse Scenario
		mill. €	mill. €
B1. Existing provisions ⁽⁶⁾		1,193	1,193
B2. Asset protection schemes		0	0
B3. Profit generation capacity 2012-14 ⁽¹⁾		1,333	1,112
B4. Tax impact		6	399
B5. Capital buffer ⁽⁷⁾		421	1,123
B6. Total loss absorption capacity (B1+B2+B3+B4+B5)		2,953	3,827

C) Estimated
capital excess /
shortfall in each
scenario

		Base Scenario		Adverse Scenario	
		mill. €	% RWA 2014	mill. €	% RWA 2014
C1. Common Equity Tier (CET) 1 2014		2,259	10.9%	944	4.8%
C2. Capital excess/shortfall in relation to CET1 standards (B6-A5)		389	1.9%	-226	-1.2%

(1) Includes pre-provisioning profit of the Spanish business, and attributed post-provisioning and post-tax profit of international businesses

(2) Includes CET 1 capital as of December 2011 plus realised capital actions before 31 August 2012

(3) Includes Public Works, Large Corporates, SMEs & Self-Employed

(4) Includes first mortgage collateral and other secured retail

(5) New credit origination backloaded towards the end of the period; hence percentage of cumulative losses not comparable with that of the back book

(6) Existing provisions as of December 2011 and registered provisions from 1H12 in business combinations

(7) Excess available capital above 9% CET1 base scenario / 6% CET1 adverse scenario, using estimated RWA level in each scenario

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Name of the Entity: Liberbank

	mill. €	% RWA
December 2011 figures		
Profit generation capacity ⁽¹⁾	464	1.7%
Risk Weighted Assets (RWA)	27,703	100.0%
Common Equity Tier (CET) 1 ⁽²⁾	2,707	9.8%

		Base Scenario		Adverse Scenario	
		mill. €	% Assets	mill. €	% Assets
A) Estimated losses in each scenario	A1.Spanish Current Credit Book	5,249	13.8%	7,406	19.5%
	Non-Financial Firms				
	Real Estate Developers	2,907	33.2%	3,941	45.0%
	Corporate ⁽³⁾	1,941	17.4%	2,636	23.7%
	Retail				
	Secured retail ⁽⁴⁾	195	1.2%	495	3.0%
	Non secured retail	206	11.7%	334	18.9%
	A2. Foreclosed assets	1,238	53.9%	1,391	60.6%
	Land	703	69.1%	768	75.5%
	Building in progress	69	53.3%	81	62.5%
	Finished property	466	40.6%	542	47.2%
	A3. Total losses current book (A1 +A2)	6,487	16.1%	8,797	21.8%
	A4. New Credit Book ⁽⁵⁾	97		97	
	A5. Total Losses (A3+A4)	6,584		8,894	

		Base Scenario	Adverse Scenario
		mill. €	mill. €
B) Estimated loss absorption capacity in each scenario	B1. Existing provisions ⁽⁶⁾	3,781	3,781
	B2. Asset protection schemes	1,027	1,027
	B3. Profit generation capacity 2012-14 ⁽¹⁾	1,233	851
	B4. Tax impact	77	668
	B5. Capital buffer ⁽⁷⁾	569	1,369
	B6. Total loss absorption capacity (B1+B2+B3+B4+B5)	6,687	7,696

		Base Scenario		Adverse Scenario	
		mill. €	% RWA 2014	mill. €	% RWA 2014
C) Estimated capital excess / shortfall in each scenario	C1. Common Equity Tier (CET) 1 2014	2,240	9.4%	140	0.6%
	C2. Capital excess/shortfall in relation to CET1 standards (B6-A5)	103	0.4%	-1,198	-5.4%

(1) Includes pre-provisioning profit of the Spanish business, and attributed post-provisioning and post-tax profit of international businesses

(2) Includes CET 1 capital as of December 2011 plus realised capital actions before 31 August 2012

(3) Includes Public Works, Large Corporates, SMEs & Self-Employed

(4) Includes first mortgage collateral and other secured retail

(5) New credit origination backloaded towards the end of the period; hence percentage of cumulative losses not comparable with that of the back book

(6) Existing provisions as of December 2011 and registered provisions from 1H12 in business combinations

(7) Excess available capital above 9% CET1 base scenario / 6% CET1 adverse scenario, using estimated RWA level in each scenario

Results of the bottom up Stress Test Exercise

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Name of the Entity:

Caja 3

December 2011
figures

Profit generation capacity ⁽¹⁾	150	1.2%
Risk Weighted Assets (RWA)	12,743	100.0%
Common Equity Tier (CET) 1 ⁽²⁾	1,146	9.0%

A) Estimated
losses in each
scenario

		Base Scenario		Adverse Scenario	
		mill. €	% Assets	mill. €	% Assets
A1.Spanish Current Credit Book		1,496	11.0%	2,441	18.0%
	Non-Financial Firms				
	Real Estate Developers	1,137	28.8%	1,809	45.9%
	Corporate ⁽³⁾	223	6.3%	367	10.4%
	Retail				
	Secured retail ⁽⁴⁾	80	1.5%	180	3.4%
	Non secured retail	55	6.6%	85	10.2%
A2. Foreclosed assets		423	56.0%	476	63.1%
	Land	279	68.2%	308	75.3%
	Building in progress	12	52.7%	14	61.4%
	Finished property	132	40.9%	153	47.6%
A3. Total losses current book (A1 +A2)		1,919	13.4%	2,917	20.3%
A4. New Credit Book ⁽⁵⁾		54		54	
A5. Total Losses (A3+A4)		1,973		2,972	

B) Estimated loss
absorption
capacity in each
scenario

		Base Scenario	Adverse Scenario
		mill. €	mill. €
B1. Existing provisions ⁽⁶⁾		1,149	1,149
B2. Asset protection schemes		0	0
B3. Profit generation capacity 2012-14 ⁽¹⁾		430	184
B4. Tax impact		59	339
B5. Capital buffer ⁽⁷⁾		146	520
B6. Total loss absorption capacity (B1+B2+B3+B4+B5)		1,785	2,192

C) Estimated
capital excess /
shortfall in each
scenario

		Base Scenario		Adverse Scenario	
		mill. €	% RWA 2014	mill. €	% RWA 2014
C1. Common Equity Tier (CET) 1 2014		812	7.3%	-153	-1.5%
C2. Capital excess/shortfall in relation to CET1 standards (B6-A5)		-188	-1.7%	-779	-7.5%

(1) Includes pre-provisioning profit of the Spanish business, and attributed post-provisioning and post-tax profit of international businesses

(2) Includes CET 1 capital as of December 2011 plus realised capital actions before 31 August 2012

(3) Includes Public Works, Large Corporates, SMEs & Self-Employed

(4) Includes first mortgage collateral and other secured retail

(5) New credit origination backloaded towards the end of the period; hence percentage of cumulative losses not comparable with that of the back book

(6) Existing provisions as of December 2011 and registered provisions from 1H12 in business combinations

(7) Excess available capital above 9% CET1 base scenario / 6% CET1 adverse scenario, using estimated RWA level in each scenario

Results of the bottom up Stress Test Exercise

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Name of the Entity:

Unicaja

December 2011
figures

Profit generation capacity ⁽¹⁾	339	1.7%
Risk Weighted Assets (RWA)	19,419	100.0%
Common Equity Tier (CET) 1 ⁽²⁾	2,519	13.0%

A) Estimated
losses in each
scenario

		Base Scenario		Adverse Scenario	
		mill. €	% Assets	mill. €	% Assets
A1.Spanish Current Credit Book		1,484	6.7%	2,635	12.0%
	Non-Financial Firms				
	Real Estate Developers	799	26.7%	1,310	43.7%
	Corporate ⁽³⁾	466	7.8%	816	13.6%
	Retail				
	Secured retail ⁽⁴⁾	147	1.3%	388	3.4%
	Non secured retail	70	4.6%	120	7.8%
A2. Foreclosed assets		826	56.6%	979	67.1%
	Land	532	70.3%	625	82.6%
	Building in progress	17	57.6%	21	69.8%
	Finished property	277	41.2%	333	49.6%
A3. Total losses current book (A1 +A2)		2,310	9.8%	3,614	15.4%
A4. New Credit Book ⁽⁵⁾		126		126	
A5. Total Losses (A3+A4)		2,436		3,740	

B) Estimated loss
absorption
capacity in each
scenario

		Base Scenario	Adverse Scenario
		mill. €	mill. €
B1. Existing provisions ⁽⁶⁾		1,393	1,393
B2. Asset protection schemes		0	0
B3. Profit generation capacity 2012-14 ⁽¹⁾		1,278	1,089
B4. Tax impact		-77	255
B5. Capital buffer ⁽⁷⁾		812	1,455
B6. Total loss absorption capacity (B1+B2+B3+B4+B5)		3,406	4,193

C) Estimated
capital excess /
shortfall in each
scenario

		Base Scenario		Adverse Scenario	
		mill. €	% RWA 2014	mill. €	% RWA 2014
C1. Common Equity Tier (CET) 1 2014		2,676	14.1%	1,516	8.6%
C2. Capital excess/shortfall in relation to CET1 standards (B6-A5)		969	5.1%	452	2.6%

(1) Includes pre-provisioning profit of the Spanish business, and attributed post-provisioning and post-tax profit of international businesses

(2) Includes CET 1 capital as of December 2011 plus realised capital actions before 31 August 2012

(3) Includes Public Works, Large Corporates, SMEs & Self-Employed

(4) Includes first mortgage collateral and other secured retail

(5) New credit origination backloaded towards the end of the period; hence percentage of cumulative losses not comparable with that of the back book

(6) Existing provisions as of December 2011 and registered provisions from 1H12 in business combinations

(7) Excess available capital above 9% CET1 base scenario / 6% CET1 adverse scenario, using estimated RWA level in each scenario

Results of the bottom up Stress Test Exercise

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Name of the Entity:

CEISS

December 2011
figures

Profit generation capacity ⁽¹⁾	196	0.8%
Risk Weighted Assets (RWA)	23,719	100.0%
Common Equity Tier (CET) 1 ⁽²⁾	1,902	8.0%

A) Estimated
losses in each
scenario

		Base Scenario		Adverse Scenario	
		mill. €	% Assets	mill. €	% Assets
A1.Spanish Current Credit Book		2,929	11.3%	4,464	17.3%
	Non-Financial Firms				
	Real Estate Developers	2,076	32.9%	3,071	48.7%
	Corporate ⁽³⁾	598	10.1%	886	15.0%
	Retail				
	Secured retail ⁽⁴⁾	105	0.9%	265	2.2%
	Non secured retail	151	10.4%	242	16.7%
A2. Foreclosed assets		1,101	50.8%	1,289	59.5%
	Land	560	70.4%	639	80.3%
	Building in progress	95	54.9%	114	65.8%
	Finished property	446	37.2%	536	44.7%
A3. Total losses current book (A1 +A2)		4,030	14.4%	5,753	20.5%
A4. New Credit Book ⁽⁵⁾		113		113	
A5. Total Losses (A3+A4)		4,143		5,866	

B) Estimated loss
absorption
capacity in each
scenario

		Base Scenario	Adverse Scenario
		mill. €	mill. €
B1. Existing provisions ⁽⁶⁾		2,123	2,123
B2. Asset protection schemes		0	0
B3. Profit generation capacity 2012-14 ⁽¹⁾		297	175
B4. Tax impact		328	706
B5. Capital buffer ⁽⁷⁾		126	799
B6. Total loss absorption capacity (B1+B2+B3+B4+B5)		2,874	3,803

C) Estimated
capital excess /
shortfall in each
scenario

		Base Scenario		Adverse Scenario	
		mill. €	% RWA 2014	mill. €	% RWA 2014
C1. Common Equity Tier (CET) 1 2014		507	2.6%	-960	-5.2%
C2. Capital excess/shortfall in relation to CET1 standards (B6-A5)		-1,269	-6.4%	-2,063	-11.2%

(1) Includes pre-provisioning profit of the Spanish business, and attributed post-provisioning and post-tax profit of international businesses

(2) Includes CET 1 capital as of December 2011 plus realised capital actions before 31 August 2012

(3) Includes Public Works, Large Corporates, SMEs & Self-Employed

(4) Includes first mortgage collateral and other secured retail

(5) New credit origination backloaded towards the end of the period; hence percentage of cumulative losses not comparable with that of the back book

(6) Existing provisions as of December 2011 and registered provisions from 1H12 in business combinations

(7) Excess available capital above 9% CET1 base scenario / 6% CET1 adverse scenario, using estimated RWA level in each scenario

Appendix 1: Results comparison with top-down exercise

A. Loss forecasting

Adverse scenario bottom-up total projected losses are compared to June top-down estimates in the figure below. At the total-level, projected losses are within the range (and at the upper-end of the range) projected in the top-down exercise.

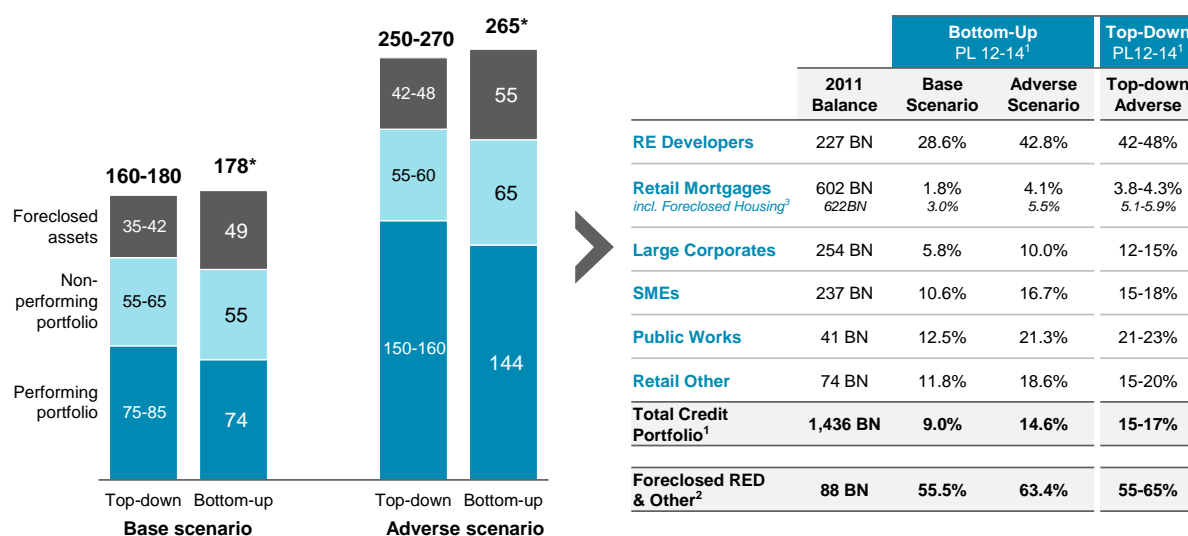
However, there are some differences at the individual portfolio level, driven by the more detailed data and information on which the bottom-up exercise is based, including:

- Real Estate appraisers' input on the current value of real estate assets
- More granular loan tape and foreclosed asset data
- Bottom-up historical default rate and loss given default information (incl. the central credit register)
- Auditors' input on loan status and restructured exposures
- Granular deleveraging inputs by entity and asset class

At the total segment-level, results are in the range of the top-down estimates, with the exception of Large Corporates, following the bottom-up analysis of historical default rates that has shown lower historical default rates than previously assumed.

For foreclosed assets, projected loss rates are also with the range of the top-down stress test. However, while the total foreclosed assets perimeter has remained unchanged, the stock of assets is now reported inclusive of €12 BN additional provisions. This is as a result of analysing foreclosed assets based on gross book values adjusted for provisions rather than on net book values. This leads to higher absolute projected loss values for foreclosed assets under the bottom-up stress test, but higher provisions are taken into account within the loss absorption capacity of the banks.

Figure 46: Projected losses on different asset classes in the top-down and the bottom-up stress test



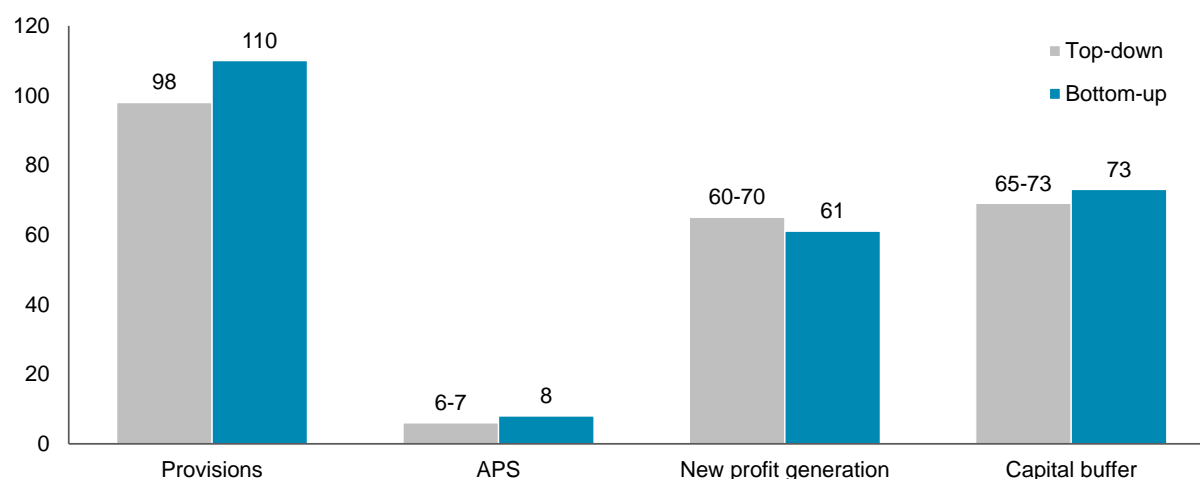
1. Projected losses from performing and non-performing losses measured as a % of Dec-11 Exposure;
 2. Projected losses from foreclosed assets measured as a % of book value at foreclosure
 3. Drill-down into Retail losses including Housing foreclosed assets
 * This figure does not include losses derived from the new portfolio (€5.5 BN)

B. Loss absorption capacity

With all components of the banking entities' loss absorption capacity estimated, we could compare the differences between the current bottom-up and the previous top-down estimates for **loss absorption capacity**. The availability of significantly more granular data allowed us to make more precise differentiation estimates across entities.

Importantly, the differences are not uniform across the four major categories as we show in the figure below

Figure 47: Reconciliation of key figures between top-down and bottom-up stress tests under adverse scenario



- **Provisions** increased by €12BN, as a result of analysing foreclosed assets based on gross book values adjusted for provisions rather than on net book values at the time of foreclosure.
- **APS** increased from €6-7 BN in the top-down exercise to €8 BN in the bottom-up exercise. As expected those entities/portfolios covered with an APS presented a worse risk profile that translated in higher losses. This has a direct impact on two of the schemes as they cover 80% of total losses over the protected portfolio.
- System estimated **future profit generation capacity** sums to €61 BN in the adverse scenario of the bottom-up stress test vs. €60-70 BN in the top-down exercise.
- The **capital buffer** of the bottom-up exercise (€73 BN) is within the upper range of the top-down exercise (€65-73 BN) as a result of updated capital information received from the BoS and executed management actions with an impact on the capital base. Moreover, the availability of more detailed information has allowed us to develop a more accurate modelling of the RWAs.

Appendix 2: Macroeconomic scenarios

A base and an adverse macroeconomic scenario have been defined by the Steering Committee for the purpose of this stress testing exercise.

A continued recessionary environment is depicted in the base case for 2012 and 2013, with real GDP only returning to weak growth in 2014. Unemployment is set to increase in 2012 and remains flat thereafter at historically high levels of ~23%. Under this scenario, single-digit house-price drops are projected for each of the years considered, while land prices are still projected to fall significantly (25% and 12.5% in 2012 and 2013).

Under the adverse scenario, the Spanish financial system undergoes two consecutive years of severe economic recession with real GDP declines of 4.1% and 2.1% and unemployment rates at 25.1% and 26.8% in 2012 and 2013 respectively. Real estate prices experience a similarly severe evolution with drops of ~20% in housing prices and ~50% in land prices in 2012 for a total peak-to-trough fall by 2014 in housing prices of ~37% and land prices of ~72%. The recessionary environment continues for a third year in this adverse scenario.

Figure 48: Macroeconomic scenarios provided by Steering Committee

		Base case				Adverse case		
		2011	2012	2013	2014	2012	2013	2014
GDP	Real GDP	0.7%	-1.7%	-0.3%	0.3%	-4.1%	-2.1%	-0.3%
	Nominal GDP	2.1%	-0.7%	0.7%	1.2%	-4.1%	-2.8%	-0.2%
Unemployment	Unemployment Rate	21.6%	23.8%	23.5%	23.4%	25.0%	26.8%	27.2%
Price evolution	Harmonised CPI	3.1%	1.8%	1.6%	1.4%	1.1%	0.0%	0.3%
	GDP deflator	1.4%	1.0%	1.0%	0.9%	0.0%	-0.7%	0.1%
Real estate prices	Housing Prices	-5.6%	-5.6%	-2.8%	-1.5%	-19.9%	-4.5%	-2.0%
	Land prices	-6.7%	-25.0%	-12.5%	5.0%	-50.0%	-16.0%	-6.0%
Interest rates	Euribor, 3 months	1.5%	0.9%	0.8%	0.8%	1.9%	1.8%	1.8%
	Euribor, 12 months	2.1%	1.6%	1.5%	1.5%	2.6%	2.5%	2.5%
	Spanish debt, 10 years	5.6%	6.4%	6.7%	6.7%	7.4%	7.7%	7.7%
FX rates	Ex. rate/ USD	1.35	1.34	1.33	1.30	1.34	1.33	1.30
Credit to other resident sectors	Households	-1.7%	-3.8%	-3.1%	-2.7%	-6.8%	-6.8%	-4.0%
	Non-Financial Firms	-4.1%	-5.3%	-4.3%	-2.7%	-6.4%	-5.3%	-4.0%
Stocks	Madrid Stock Exchange Index	-9.7%	-1.3%	-0.4%	0.0%	-51.3%	-5.0%	0.0%

The adverse scenario was deemed by the Steering Committee to be conservative on two counts:

- Relative to 30 year Spanish history
- Relative to scenarios used in stress tests conducted in other jurisdictions

1. Relative to 30 year Spanish history

The analysis below compares key macro variables in the adverse and base scenarios with historical averages of the same parameters (1981-2011). The table includes a measure of 'distance from the mean' in the form of number of Standard Deviations away from each variable's long-term average.

Figure 49: Historical Spanish economic performance (1981–2011) vs. Steering Committee scenarios

	Historical		2012		2013		2014	
	Average	Stan. Dev σ	Base	Adverse	Base	Adverse	Base	Adverse
Real GDP growth	2.6%	2.0%	-1.7%	-4.1%	-0.3%	-2.1%	0.3%	-0.3%
(# SDs)			(2.1 σ)	(3.3 σ)	(1.4 σ)	(2.3 σ)	(1.1 σ)	(1.4 σ)
Unemployment	16.8%	4.6%	23.8%	25.0%	23.5%	26.8%	23.4%	27.2%
(# SDs)			(1.5 σ)	(1.8 σ)	(1.4 σ)	(2.2 σ)	(1.4 σ)	(2.2 σ)
Short term IR	8.3%	5.7%	0.9%	1.9%	0.8%	1.8%	0.8%	1.8%
(# SDs)			(1.3 σ)	(1.1 σ)	(1.3 σ)	(1.1 σ)	(1.3 σ)	(1.1 σ)
House price change	7.4%	6.2%	-5.6%	-19.9%	-2.8%	-4.5%	-1.5%	-2.0%
(# SDs)			(2.1 σ)	(4.4 σ)	(1.6 σ)	(1.9 σ)	(1.4 σ)	(1.5 σ)

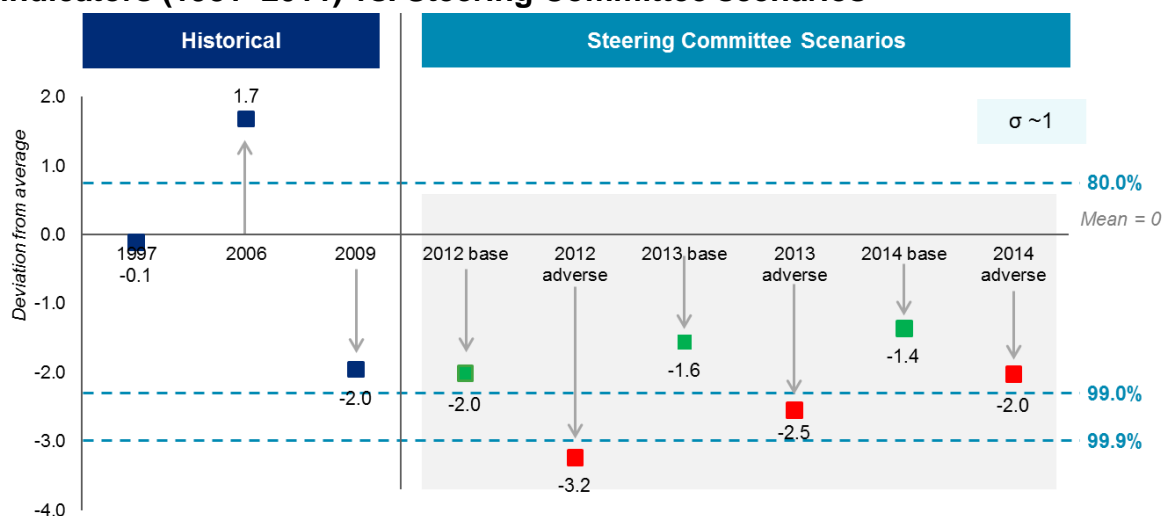
HIGH > 2 σ from average

MED 1< σ ≤2

LOW ≤1 σ from average

In order to reduce a multi-dimensional scenario into one factor that includes all macroeconomic variables, we created a 'credit quality indicator' that combines the risk factors according to their relative weight/ influence on credit losses across segments in Spain. This indicator enables an easy comparison of scenarios used with a historical series of parameters. In the adverse scenario, the indicator is more than 2 SDs away from its historical average (97.7% confidence level).

Figure 50: Credit quality indicators of historical Spanish macroeconomic indicators (1981–2011) vs. Steering Committee scenarios



Source: Oliver Wyman analysis, BoS data

Note: Credit quality indicator illustrates macro scenario severity: e.g. a credit quality indicator of below -2.3 standard deviations from average represents a <1% probability of occurrence
Historical macroeconomic scenarios measured over 1981-2010

2. Relative to scenarios used in stress tests conducted in other jurisdictions (e.g. EBA Europe-wide stress tests and US CCAR).

The analysis below compares the main macro-economic indicators across a range of similar exercises.

Figure 51: Steering Committee 2012 scenario vs. international peers' stress tests' 2012 adverse case

	BdE SteerCo		EBA stress tests							CCAR		ECB	CBI
	Spain base	Spain adverse	Spain	Ireland	Greece	Germany	France	Italy	Portugal	UK	US	Greece	Ireland
Real GDP growth	-1.7%	-4.1%	-1.1%	0.3%	-1.2%	0.6%	0.2%	-1.0%	-2.6%	0.9%	-3.9%	-4.2%	0.3%
# SDs	(2.1σ)	(3.3σ)	(1.8σ)	(1.0σ)	(1.1σ)	(0.5σ)	(1.1σ)	(1.4σ)	(2.0σ)	(0.7σ)	(3.2σ)	(2.3σ)	(1.0σ)
Unemployment	23.8%	25.0%	22.4%	15.8%	16.3%	6.9%	9.8%	9.2%	12.9%	10.6%	11.7%	17.5%	15.8%
# SDs	(1.5σ)	(1.8σ)	(1.2σ)	(1.1σ)	(1.9σ)	(1.1σ)	(0.9σ)	(0.2σ)	(3.2σ)	(1.6σ)	(3.2σ)	(2.2σ)	(1.1σ)
House price ch.	-5.6%	-19.9%	-11.0%	-18.8%	-8.5%	0.5%	-12.4%	-3.5%	-8.4%	-10.4%	-7.3%	-5.6%	-18.8%
# SDs	(2.1σ)	(4.4σ)	(3.2σ)	(2.6σ)	(2.8σ)	(0.3σ)	(1.8σ)	(0.9σ)	(2.1σ)	(2.3σ)	(2.6σ)	(2.3σ)	(2.6σ)
Average # SDs	(1.9σ)	(3.2σ)	(2.1σ)	(1.6σ)	(1.9σ)	(0.6σ)	(1.3σ)	(0.8σ)	(2.4σ)	(1.5σ)	(3.0σ)	(2.3σ)	(1.6σ)

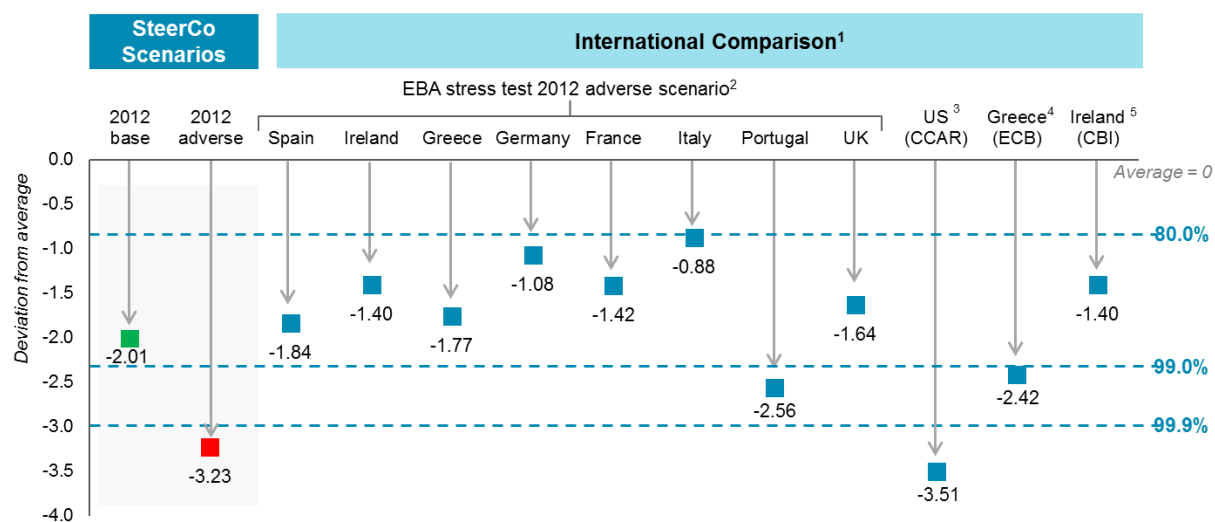
HIGH > 2σ from average

MED 1<σ≤2

LOW ≤1σ from average

Similar conclusions are reached when scenarios are compared through the credit quality indicator across different jurisdictions, as summarized below:

Figure 52: Credit quality indicators – Steering Committee scenarios vs. international stress test 2012 adverse scenarios



Source: Oliver Wyman analysis, BoS data, EBA, Federal Reserve

Note: Credit quality indicator illustrates macro scenario severity: e.g. a credit quality indicator of below -2.3 standard deviations from average represents a <1% probability of occurrence

1. Country specific 2012 adverse macro scenario credit quality indicators were applied to Spain to determine severity of comparable international stress tests

2. EBA 2011 EU-wide stress test

3. Federal Reserve 2012 Comprehensive Capital Analysis and Review

4. 2012 Stress testing of Greece carried out by BlackRock – macro scenario provided by the ECB

5. Central Bank of Ireland Stress Test – Same scenarios used as in EBA stress test

In addition, the adverse scenario includes a third year of recessionary conditions, unlike the most common 2-year period in other stress tests.

Abbreviations used in this report

ALM	Asset Liability Management
AMC	Asset Management Company
APS	Asset Protection Scheme
BAU	Business as Usual
BSSP	Banking Sector Stability Program
BdE	Banco de España
CAGR	Compounded Annual Growth Rate
CCAR	Comprehensive Capital Analysis and Review (Federal Reserve US Stress Test)
CIRBE	Central de Información de Riesgos del Banco de España
CRE	Commercial Real Estate
CT	Core Tier
DTA	Deferred Tax Asset
DtD	Distance to Default
EAD	Exposure at Default
EBA	European Banking Authority
EC	European Commission
ECC	Expert Coordination Committee
FA	Foreclosed Assets
GDP	Gross Domestic Product
LGD	Loss Given Default
LGL	Loss Given Loss
LTV	Loan to Value
MoU	Memorandum of Understanding
NIM	Net Interest Margin
NPL	Non-Performing Loan
P&L	Profit and Loss

PD	Probability of Default
PL	Projected Loss
PPP	Pre-Provisioning Profit
RE	Real Estate
RED	Real Estate Developers
ROA	Return on Assets
ROF	Resultado de Operaciones Financieras
RWA	Risk Weighted Assets
SCC	Strategic Coordination Committee
SME	Small and Medium Enterprises
YE	Year end



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