(Prepared by Promontory for the Banco de España)

FREQUENTLY ASKED QUESTIONS ABOUT
THE JUNE 2012 INDEPENDENT STRESS TESTS CONDUCTED FOR THE BANCO DE ESPAÑA

1. *What is a stress test?*

   A stress test is a tool by which the capital of a group of banks can be assessed under common, stressful, but plausible economic scenarios over a specified planning horizon. Stress tests usually involve specification of multiple scenarios, including a "baseline" scenario as well as the "adverse" or "stress" scenarios.

2. *How does a stress test work?*

   Key to the stress test analysis is the understanding that if net income is insufficient to fund the needed higher provisions for stress losses, then other available financial resources in the form of capital would be required if the stress scenario in fact occurred. When using a stress test to assess the capital adequacy position of a firm, the supervisory authority will usually look to determine if the "buffer" of capital held by the bank at the start of the planning horizon (i.e., the amount of capital in excess of that minimally required) is large enough to ensure that all stress losses projected over the planning horizon can be funded without depressing capital ratios to less than the required levels.

   The stress test scenarios will usually dictate additional assumptions that will influence the balance sheet positions of the banks during the planning horizon; for instance, assumptions about the ability of the banks to generate new assets, as well as the risk profile of those assets, will usually be specified.

3. *Why were the June 2012 independent stress tests conducted for the Banco de España?*

   The Council of Ministers, in a Resolution of May 11, 2012, instructed the Ministry for Economic Affairs and Competitiveness to commission an external top-down analysis to evaluate the Spanish banking sector's resilience to a forceful additional deterioration in the economy. The Banco de España ("BdE"), in collaboration with the Ministry of Economic Affairs and Competitiveness, engaged Oliver Wyman ("OW") and Roland Berger ("RB") as independent consultants to perform this assessment of the Spanish banking sector.

   The aim of this initiative is to enhance transparency and credibility of valuations of Spanish banks' asset portfolios and, ultimately, restore investors' confidence in the Spanish banking sector.

   The initiative consists of two phases involving external independent parties. The first phase was based on a "top-down" approach for analyzing the balance sheets of the largest Spanish banks in order to assess their resilience at the aggregate level under a more unfavorable macroeconomic scenario than expected. BdE instructed OW and RB to perform separate stress tests of Spanish banks accounting for around 90% of total Spanish banking sector assets (excluding foreign assets). The outcome of the first phase estimated the level of losses and capital requirements that the Spanish banking system overall may experience under the designed stressed conditions. The second

phase will be completed by October and will consist of a "bottom-up" assessment of banks' internal systems for classifying, provisioning for and measuring their portfolio risks. The reviews conducted at each bank will provide the necessary comfort for using banks' detailed information to determine potential capital requirements at the individual bank level.

4. *What makes the stress test "independent"?*

The BdE undertook this stress test exercise in order to benefit from an independent, expert perspective over the macroeconomic factors affecting the potential outlook. The independence of the firms selected to perform this exercise was paramount in meeting the objective of being able to benefit from analytics and approaches outside BdE and with an international footprint.

The firms share important characteristics regarding independence. Each is headquartered outside Spain and has a substantial international presence. Neither manages assets or conducts trading activity that could provide the appearance or actuality of conflicts of interest. The Steering Committee mandated the use of external consultants in order to introduce the use of external models into the stress test. To achieve visibility into possible variances from the use of different models and protect against a potential of tainting of independent outcomes by information flow between the consultants' work, a "Chinese wall" was constructed. This Chinese wall serves to prevent model, methodology, preliminary results, and data inputs from flowing freely from one consultant's work to another. Although intuitively a convergence of results between the two projects might aid in zeroing in on the ultimate capital level necessary, the Chinese wall helped ensure that each result was achieved completely independently.

In addition, and in the interest of fully establishing an independent stress test, the BdE engaged Promontory to provide assistance and expert judgment on the evaluation of the results and methodology of the stress test performed by OW and RB.

Promontory is an internationally known firm with professionals who hail from numerous key regulatory positions, and the hallmark of its work is the provision of expert independent advice. Promontory is synonymous with the highest levels of independence and integrity.

5. *What is the role of the Steering Committee and the Panel of Advisors?*

The Steering Committee is chaired by Fernando Jiménez, Secretary of State for Economic Affairs and Support for Business, Ministry of Economy and Competitiveness. The vice chairman is the Deputy Governor of the BdE, and members consist of senior leaders from the Economy and Competitiveness Ministry and the BdE. The Steering Committee is supported by an Advisory Panel composed of senior representatives from key stakeholders in the outcome of the stress tests: the International Monetary Fund ("IMF"), the European Banking Authority ("EBA"), the European Central Bank ("ECB"), the European Commission and representatives from several Eurosystem central banks (France and the Netherlands). As key stakeholders in the outcome of the stress tests, all these parties have reason to ensure that the process is open and fully accountable. These stakeholders defined the scenarios to be utilized for the analytics.

The Steering Committee's main goal consists of making strategic decisions on the entire process in order to ensure the credibility of the results. In particular, the Steering Committee has responsibility

for defining the macroeconomic scenarios for the stress test exercise, coordinating the proper implementation of the work, and reviewing the results.

6. *Who prepared the scenarios?*

The Steering Committee has responsibility for defining the macroeconomic scenarios for the stress test exercise, taking into account the recommendations of members of the advisory panel. The composition and additional responsibilities of the Steering Committee can be found in the response to question 5.

7. *Which scenarios have been used?*

The test included a baseline scenario and an adverse scenario. The baseline scenario projects a recession in the first two years and a slight recovery in 2014. The adverse scenario projects a continuing recession over the three-year period with GDP declining 6.5% over the three years. In the baseline case the unemployment rate declines slightly over the three-year period, while in the adverse scenario the unemployment rate is higher and continues to increase over the three-year period. It should be noted that while the baseline unemployment rate has already been exceeded, it is still below the rates employed in the adverse scenario. In both scenarios housing prices, land price and credit amount would decline throughout the three years, with the decline greater in the adverse scenario.

The table below describes the two scenarios.

Macroeconomic Three-Year Scenarios

			Baseline			Adverse		
		2011	2012	2013	2014	2012	2013	2014
Real GDP	*Growth rate*	0.7	-1.7	-0.3	0.3	-4.1	-2.1	-0.3
GDP deflator	*Growth rate*	1.4	1.0	1.0	0.9	0.0	-0.7	0.1
Nominal GDP	*Growth rate*	2.1	-0.7	0.7	1.2	-4.1	-2.8	-0.2
Harmonized Index of Consumer Prices	*Growth rate*	3.1	1.8	1.6	1.4	1.1	0.0	0.3
Unemployment Rate	*% of labor force*	21.6	23.8	23.5	23.4	25.0	26.8	27.2
Short-Term Interest Rates (Euribor, 3 months)		1.4	0.9	0.8	0.8	1.9	1.8	1.8
Euribor, 12 months		2.0	1.6	1.5	1.5	2.6	2.5	2.5
Housing Prices		-5.6	-5.6	-2.8	-1.5	-19.9	-4.5	-2.0
Exchange Rate Against USD	*Dollars per euro at end of period*	1.4	1.3	1.3	1.3	1.3	1.3	1.3
Madrid Stock Exchange Index	*Growth rate*	-14.6	-1.3	-0.4	0.0	-51.3	-5.0	0.0
Credit to Other Resident Sectors								
Households	*Growth rate*	-1.5	-3.8	-3.1	-2.7	-6.8	-6.8	-4.0
Non-Financial Firms	*Growth rate*	-3.6	-5.3	-4.3	-2.7	-6.4	-5.3	-4.0
Long-Term interest rates (10 years)		5.6	6.4	6.7	6.7	7.4	7.7	7.7
Land Prices		-6.7	-25.0	-12.5	-5.0	-50.0	-16.0	-6.0

Source: BdE

8. *How does this stress test compare to others?*

Several types of differences are apparent–most of which reflect favorably on the current Spanish test. The scope of other stress tests included sovereign or market exposures. This stress test is focused purposefully on the Spanish credit portfolio in light of the significantly prevalent risk driven by the current economic situation.

- **The current Spanish stress test is more comprehensive than almost all recent stress tests conducted in Europe and the U.S**. It used 15 macroeconomic factors as compared to a maximum of 10 factors in the other tests, with the exception of Ireland's Prudential Capital Assessment Review ("PCAR"). The PCAR in Ireland did employ more factors, but those were primarily related to foreign trade, which is relatively more predominant in Ireland. There are also some important differences between the factors utilized in Spain and Ireland that reflect significant aspects of each economy. For example, Spain utilizes land prices and financial factors such as the Madrid Stock Exchange; Ireland uses government and personal consumption, and commercial property factors. In particular, the additional factors facilitate calculations of projected income as a component of internally generated capital at the sample banks. Various factors also help drive assessments of the losses within individual portfolios.

- **The current stress test covers a three-year period**, 2012 through 2014, as compared to a two-year horizon in most of the other stress tests, except for Ireland's PCAR exercise, which covered three years, 2008 through 2010. The three-year scenario recognizes the likelihood that the economic recession will endure for a longer period than is built into the other stress tests, resulting in greater potential losses at the banks in the test and their potential need for more capital.

- **The stress tests incorporate assumptions of much larger degrees of stress than in the other tests.** In comparison to the macroeconomic factors employed in the other stress tests, the current test assumes the deterioration in all factors is greater, with the exception of house prices in Ireland. The adverse scenario **projects a continuing recession over the three-year period** with GDP declining 6.5% over the three years. The three consecutive years of negative real GDP growth that characterize the adverse scenario in the BdE stress test arguably characterize it as more severe than the Supervisory Stress Scenario in the US 2012 Comprehensive Capital Analysis and Review ("CCAR"), for which GDP growth was negative, but severe, for only one year. Some other differences are particularly striking—for example, **the change in unemployment in this stress test at 560 basis points is significantly greater than that employed in all the other tests**. Housing prices, land prices and credit amount decline throughout the three years with the decline greater in the adverse scenario.

9. How does this stress test compare with the IMF FSAP stress test?

The IMF published the FSAP for Spain on June 9, 2012.[1] This study included a stress testing exercise on the Spanish banking sector performed in cooperation with the BdE. As a result of the test, capital needs for the overall Spanish banking system were estimated at €37.1 billion in order to match a Core Tier 1 requirement of 7% under the more adverse scenario of the two that were tested.

In the table below, several differences are identified between the BdE stress test and the FSAP exercise:

[1] IMF Country Report No. 12/137: Spain: Financial Stability Assessment

Comparison between BdE and FSAP stress test

	BdE Stress Test	FSAP Stress Test
Methodological approach	Two external evaluators were delivered bank data by the BdE and appointed with building and running their own credit models. The evaluators worked independently of the BdE and of one another.	The test was based on credit models developed by both the IMF and the BdE. All models were effectively run by the BdE using agreed-upon assumptions subsequently cross-checked by the IMF.
Risks in scope	The test only focused on credit risk.	The test was focused on banks' credit portfolios; however, it did apply valuation haircuts to sovereign bonds retained in the trading and available for sale books.
Scenarios and time horizons	The test covered three years (2012 to 2014). The adverse scenario implied a larger decline of GDP than the FSAP in the second year (-2.1% vs. -1.6%) and a further decline of -0.3% in the third year, depicting a full three-year recession.	The time horizon spanned two years.
Data source	The BdE performed a dedicated data request from the banks in the sample in view of the stress test.	The stress test was based on regular supervisory reports provided by Spanish banks to the BdE.
Loan portfolio segmentation	Real Estate Developers; Civil Construction; SMEs; Large Corporates; Residential Mortgages; Other Households; Foreclosed Assets	Real Estate Developers; Other Corporates; Residential Mortgages; Other Households
Input data granularity	The test was designed to provide stress test results at the aggregate level.	While the data allowed some segmentation of the banks, the stress test did not entail any analysis at the individual bank level.
Assets in scope	Domestic loan portfolios as of December 31, 2011. NPL and foreclosed loans were included in the test scope. Restructured / refinanced loans were also considered.	Domestic performing loans as of December 31, 2011. Restructured loans were excluded.
Reclassified or incorrectly classified loans	The evaluators were allowed to provide assumptions regarding loans that should be reclassified into more risky categories.	The loan information from banks was taken at face value. No reclassification was performed.

10. What were the results of the June 2012 independent stress tests?

The aggregate capital requirements estimated by OW and RB are aligned, and show that the requirements can be addressed with available resources, including the €100 billion committed already by the Eurogroup.

in € billion	Oliver Wyman		Roland Berger	
	Base	Adverse	Base	Adverse
Total Stress Losses	170-190	250-270	119.1	169.8
Required Capital	16-25	51-62	25.6	51.8

The total stress losses and the resources available to absorb them as reported by RB are not directly comparable to those reported by OW. The RB stress losses do not include expected losses on NPLs and foreclosed assets that were already identified as of December 31, 2011. Similarly, RB's assessment of loss absorption capacity excludes the provisions needed to cover expected losses on NPLs and foreclosed assets identified as of December 31, 2011. However, given that both stress losses and absorptive capacity are impacted symmetrically in the RB methodology, the resulting estimates of capital requirements are comparable with those produced by OW.

11. What is the difference between "incurred losses" and "expected losses" or "stress losses," and what is the distinction between "provisions" and "capital"?

Incurred losses are those that, as of a specified point in time, have actually been realized by the bank. In contrast, **expected losses** refer to losses that a bank may reasonably expect to occur over a specified future time period. Expected losses are usually measured relative to a business forecast that is viewed as most likely to occur. **Stress losses**, which are also occasionally called **stress expected losses**, refer to future loss levels that might occur if a stressful–albeit unlikely–macro business environment were to be realized.

Provisions are pre-tax net revenue that a bank is allowed, under accounting rules, to set aside to cover losses that are inherent, demonstrable or highly likely to occur. It is useful to think of provisions as being set consistently with expected losses, although timing rules may lead to a difference. In general, accounting rules do not allow banks to build up excess provisions to cover loss levels that may be deemed high but unlikely. If losses were to exceed projections, then such **unexpected losses** (stress losses minus expected losses) would have to be covered out of capital redemptions. **Capital** represents the ownership interest of the shareholders in the assets of the bank, and is generally created though the paid-in investments made by shareholders or through the retention of after-tax net earnings (less dividends).

12. Why is it valuable to conduct stress tests?

Stress tests allow regulators, central banks, economists, investors, depositors and others to see if a bank can withstand certain pressures or stresses. By evaluating the results, regulators can better prepare for future events through steps such requiring a bank to hold additional capital or increasing supervision of a bank that may be at risk.

While stress testing does not ensure that banks will be safeguarded against all stresses, it can point to areas that can be strengthened. Furthermore, the results of stress tests may help regulators to appropriately allocate their time at the banks they supervise.

Supervisory authorities worldwide have extensively used stress testing techniques since the financial crisis of 2007 to evaluate the adequacy of banks' capital resources to absorb possible losses in case stress scenarios materialized and to measure the amount of new capital they would need to achieve resilience in the face of such stresses. The results of the tests were made public with the goal of restoring investors' confidence; however, in some cases this result was not effectively achieved. In fact, test credibility is critical. It rests on a complex set of factors, including reliable input information, comprehensive risk consideration, sufficient severity of stress scenarios, transparent and sound methodology, and confidence in the ability of the banking sector and government authorities to raise the necessary capital.

If properly designed and conducted, stress tests provide an effective means of evaluating an institution's ability to withstand adverse developments and give strong insight into the nature and dimension of appropriate mitigating actions.