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European banking stress tests: a missed opportunity

European stress test in retrospect

- The results of the stress tests might provide a temporary fillip to markets: for now, shareholders have not been diluted and there will be little if any transfer of risk from banks to sovereigns.

- However, the credibility of the stress tests has been weakened by (i) the exclusion of sovereign exposures outside the trading book from the stress test, (ii) the use of a Tier 1 capital ratio target as opposed to core Tier 1, (iii) allowing banks to exhaust all cumulative provision loss reserves in the stress scenario and (iv) crediting banks with tax loss generated from the stress test, even though these can only be applied against future years of profitability.

- The results of the stress test might reassure investors about the health of large quoted banks, but they are unlikely to restore confidence in the smaller periphery banks: 34 out of the 40 least capitalised banks in the stress test are in the periphery (periphery stands for Italy, Spain, Portugal, Greece and Ireland).

- The 'low' hurdles (in form of a 6% Tier 1 capital ratio target and allowing all credit loss reserves to be used) explain why Spain, for example, comes up with such low additional capital needs (totalling EUR1.8bn for 5 institutions). We remain of the view that a number closer to Eur50bn of additional capital for the Spanish banking system (i.e. recapitalising to a maximum extreme stress with high hurdles) is what is necessary to restore confidence given both balance sheet solvency risk on the asset side and structural over-reliance on wholesale funding.

- The stress tests consider a sovereign stress, as opposed to an actual credit event. If a sovereign defaulted/restructured we would expect haircuts on a much larger scale than the stress tests envisage coupled with very large losses on private sector exposures as asset prices collapse and the economy slides into a deep recession. The authorities have judged that the banks do not need to hold capital against this tail risk due to the creation of the EFSF. But if market concerns about sovereign risk resurface we would expect confidence in the banking system to be tested again.

- Ultimately, the success of the stress test will be judged on whether the funding situation of weak banks improves or not. While we remain sceptical that this will be a medium-term game changer we provide a list of markers investors should focus on to look for signs that either the recent modest improvements will continue or that things will deteriorate if the stress tests have failed their aim of restoring confidence. These markers can be split into 5 areas: liquidity, sovereign, bank, real economy and foreign interest in bank assets.

Short term impact

Markets may rally in the short run on the back of the publication of the stress tests because the risk of shareholder dilution and extra issuance has been taken off the table. And the stress test has left the European banking system holding more capital, and released information to the market. Some of the downside risks weighing on the European outlook have therefore diminished. In the medium run, more capital is definitely better than less. And to have injected additional capital without the formal process of carrying out the test would have been less effective: the market would have had (even) less information about the health of the banking system and might have concluded the authorities had something to hide. No stress tests and no additional capital would have been a worse outcome.

The economic scenarios used by the CEBS were broadly consistent with the US stress test, but the resulting cumulative losses per asset class were substantially lower. Also, sovereign stressed losses were only imposed onto trading books and not onto sovereign assets accounted for in the banking portfolio. There are lots of other unrealistic criticisms that can be made of the methodology, but the important conclusion here is that the tests do not accurately capture a true 'stress' of the European banks balance sheets.

However, there is a step improvement in disclosure levels of most of the European banks' total European sovereign exposures. (Of our equity team coverage universe, only Deutsche does not provide this extra detail.) This is genuinely positive, as it allows us to quantify more accurately the impact of our own stress loss assumptions on sovereign exposures – though it does not come close to allowing total country exposure, as interbank and traditional corporate & loan books are not provided.

Over the last few weeks markets started discounting a soft stress test as more and more leaks confirmed that only a few banks would fail the test. The results of the tests more or less matched expectations, but the removal of the uncertainty – the possibility that much larger sums would be required – means that their publication still represents good news for markets in the short term.

Medium-term impact

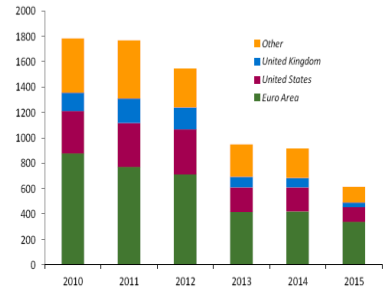
In our view the stress test process was a missed opportunity. It failed to put banks portfolios under sufficient duress – to consider a suitably extreme set of losses – and recapitalise those banks which were found to be insolvent under those circumstances. An additional benefit of over-capitalising weak banks is that it allows for much needed balance sheet restructuring to take place to permit future credit expansion. Overall, we see this stress testing exercise as likely to fail to restore confidence in the medium run.

The stress tests involved three scenarios: a baseline or benchmark case; an adverse scenario; and a sovereign shock scenario. These are the right scenarios to consider. The problem lies with the severity of the scenarios. For example, in the sovereign shock scenario, there is no sovereign credit event so banks did not have to mark down any government bonds held in their banking book. . Only exposures in the trading book took the hit, so write-down of for example 23 % on Greek bonds sounds more stressful than it really is. And there is still too little information at the institution level for investors to arrive at their own informed assessment of the vulnerability to sovereign stress.

As a result, we do not expect the fears around the solvency of the European banking system to dissipate now that the stress tests have been published. In

particular, investors might conclude – as the Bank of England appears to have – that the European banking system could not survive a true sovereign stress. We thus doubt that wholesale funding markets will go back to business as usual. Fragile banks will remain dependent on ECB support.

Chart 1: Bank debt rollover by maturity ($ billions)



Source: April 2010 IMF GFSR

Moreover, European banks have to refinance or replace a huge amount of maturing wholesale funding over the next couple of years (**Chart 1**). As of May of this year, the large and complex European banks had to refinance €800 billion of long-term debt by the end of 2012. As we emphasised in a recent piece (BoE FSR – Sovereign risk looms large), this funding cliff poses a clear and present danger to the outlook for lending and recovery. If the banks have to deal with this problem in challenging market conditions – as we suspect they will – then the pressures on them to ration credit or even deleverage their balance sheets may prove irresistible. This could act as a further significant drag on the recovery.

European banks stress test: large financial institutions well positioned

Our overall takeaway is that there is little with this stress test to encourage either bulls or bears to reposition their medium term structural views: so from here we are back to business as usual with economic fundamentals and banks and sovereigns ability to fund themselves at reasonable rates as the primary driver of asset prices.

The improvement in sentiment in bank funding markets may well continue for the time being. With recent macrodata coming in above expectations and no bad news stories to erode confidence the banks find themselves in a slightly better position than they were in a month ago.

However, we believe that the stress tests represent a missed opportunity to transition swiftly to a structurally sound European banking system capable of supporting genuine recovery and to move the investor debate beyond trends in near term economic growth and Government budget deficit management. The fundamental vulnerabilities have not been adequately stressed, disclosed and then resolved through recapitalisation. This leaves the banks vulnerable to another deterioration in market sentiment which could potentially trigger:

a) renewed strains in funding markets, with strong banks paying high rates & weak banks increasingly depending on central banks to survive;

b) some bank ratings downgrades;

c) a contraction in bank equity multiples.

Our Bank equity team's bullish structural view on the European banks sector explicitly depends on the authorities doing what it takes to restore confidence in the banks' balance sheets, and so restoring the confidence level of capital markets. They conclude that the publication of the stress tests will not be sufficient to achieve this goal.

At the heart of our concerns is the exposure of the banking system to sovereign debt. But that vulnerability to a sovereign default is not common to all banks. Looking at the 22 large banking institutions quoted in financial markets and covered by our Equity team, the total sovereign exposure of these institutions (excluding deutsche for which no sovereign exposure data is available) was

around Eur 940bn at the end of Q1 2010, 40% of which was in the periphery (see **Table 1** below). Of that exposure, we highlight :

- Greece at Eur24bn
- Portugal at Eur18bn
- Ireland at Eur14bn, or Eur9bn ex domestics
- Spain at Eur122bn, or Eur19bn ex domestics
- Italy at Eur194bn, or Eur92bn ex domestics

Table 1: Selection of large quoted European financial institutions and their sovereign exposures
Gross exposures as of end Q1 2010, Eur bn

	Periphery						Other EU	TotalEurope
	Total	of which						
		Greece	Portugal	Ireland	Spain	Italy		
AIB	5.5	0.0	0.3	4.1	0.4	0.7	4.1	9.6
Bk Irld	1.2	0.0	0.0	1.2	0.0	0.0	0.1	1.3
BBVA	59.3	0.3	0.6	0.0	52.1	6.2	5.5	64.8
BNP	34.3	5.0	2.5	0.6	3.0	23.2	61.6	96.0
CASA	17.9	0.9	1.5	0.9	2.3	12.3	34.7	52.6
Danske	1.3	0.0	0.0	0.7	0.0	0.6	26.4	27.7
Deutsche	na	na	na	na	na	na	na	na
Dexia	26.1	3.7	2.8	0.1	1.8	17.6	32.1	58.2
ING Bk	12.0	2.4	1.8	-0.1	1.4	6.4	34.7	46.7
Intesa	65.2	0.8	0.0	0.2	0.6	63.7	6.2	71.4
KBC	10.9	0.9	0.2	0.4	1.7	7.6	39.8	50.7
Nordea	1.0	0.2	0.0	0.0	0.0	0.7	23.0	24.0
SAN	57.5	0.5	5.1	0.0	50.6	1.2	9.2	66.7
SEB	0.5	0.2	0.1	0.0	0.2	0.1	13.1	13.6
SHB	0.0	0.0	0.0	0.0	0.0	0.0	7.1	7.1
Soc Gen	11.1	4.2	0.4	0.5	0.9	5.1	31.3	42.5
Swedbk	0.0	0.0	0.0	0.0	0.0	0.0	7.5	7.5
Unicredit	40.5	0.8	0.2	0.1	0.6	38.8	41.3	81.8
Barclays	7.5	0.4	1.1	0.2	4.9	0.9	40.0	47.5
Lloyds	0.0	0.0	0.0	0.0	0.0	0.0	8.6	8.6
RBS	13.1	2.3	0.7	4.8	0.9	4.4	88.2	101.3
HSBC	7.3	1.4	0.5	0.6	0.1	4.6	52.4	59.7
Total	**372.2**	**24.2**	**17.9**	**14.3**	**121.5**	**194.3**	**566.8**	**939.0**

Source: CEBS/RBS

Only Eur220bn of the Eu940bn total sovereign exposure (23%) sits in the banking book where the CEBS stress test centred; the remaining Eu720bn was not stressed. Focusing on the periphery exposure, Eur98bn was in the trading book, leaving around Eur274bn unstressed. Note that these are gross amounts. Our simulations below focus on the net amounts, making the generous assumption that 100% of the collateral value of the hedges can be recovered.

Applying exactly the same haircuts as the CEBS for each periphery sovereign but to the entire bond holdings (banking and trading books) would cost an incremental Eu29bn for our coverage universe banks, or Eu19bn after allowing for collateral & hedges and Eu14bn on a post tax basis (**Table 2**). Put differently,

this would reduce the adverse stress tier 1 ratios by 0.2pp, from 9.8% to 9.6%. Only AIB and BkIR would drop below 7%.

Table 2: Stressing the toal periphery exposure of large European financial institutions Euro bns or %

	Total periphery holdings	Increased stress when taking banking book	increased stress after collateral	Increased stress after tax	Tier 1 CEBS adverse scenario	Tier 1 after RBS stress on total periphery exposure
AIB	5.5	-0.7	-0.7	-0.6	6.5%	5.7%
Bk Irld	1.2	-0.2	-0.2	-0.1	7.1%	6.9%
BBVA	59.3	-5.8	0.0	0.0	9.3%	9.3%
BNP	34.3	-3.5	-3.2	-2.1	9.6%	9.3%
CASA	17.9	-0.8	-0.8	-0.5	9.0%	8.9%
Danske	1.3	-0.1	-0.1	0.0	10.0%	10.0%
Deutsche	na	na	na	na	9.7%	na
Dexia	26.1	-2.7	-2.7	-2.0	10.9%	9.6%
ING Bk	12.0	-1.2	-1.2	-0.9	8.8%	8.6%
Intesa	65.2	-3.3	-3.1	-2.2	8.2%	7.6%
KBC	10.9	-0.9	-0.9	-0.7	9.4%	8.9%
Nordea	1.0	-0.1	-0.1	-0.1	10.1%	10.1%
SAN	57.5	-5.4	-2.0	-1.4	10.0%	9.8%
SEB	0.5	-0.1	-0.1	-0.1	10.3%	10.2%
SHB	0.0	0.0	0.0	0.0	8.9%	8.9%
Soc Gen	11.1	-0.9	-0.4	-0.3	10.0%	9.9%
Swedbk	0.0	0.0	0.0	0.0	9.9%	9.9%
Unicredit	40.5	-1.9	-1.9	-1.4	7.8%	7.5%
Barclays	7.5	-0.8	-0.3	-0.2	13.7%	13.7%
Lloyds	0.0	0.0	0.0	0.0	9.2%	9.2%
RBS	13.1	-1.0	1.0	0.7	11.2%	11.3%
HSBC	7.3	-0.1	2.6	1.9	10.2%	10.4%
Total	**372.2**	**-29.3**	**-13.9**	**-10.0**	**9.8%**	**9.6%**

Source: RBS

The bottom line is that the results of the stress tests would have been little different for large quoted financial institutions if the total holdings of sovereign periphery paper had been included in the stress and stressed at the level agreed in the CEBS test.

Conducting the same simulation but applying an across the board 30% write down to total periphery sovereign debt holdings would cost an incremental Eur92bn, or Eur56bn after collateral, hedges and tax. This would reduce the adverse stress tier 1 ratios by 0.8pp, from 9.8% to 9.0%. AIB, BkIR, Intesa and Unicredit would all drop below 7%, with AIB and Intesa below 6%.

Clearly if all 5 periphery countries saw a haircut on their outstanding debt of 30%, this would be in such circumstances that there would be broader implications for other asset classes and significant other indirect implications to worry about for all banks. We think these results point in the direction of greater differentiation in markets between these larger financial institutions and their peers than was the case through May when term funding markets were closed to all.

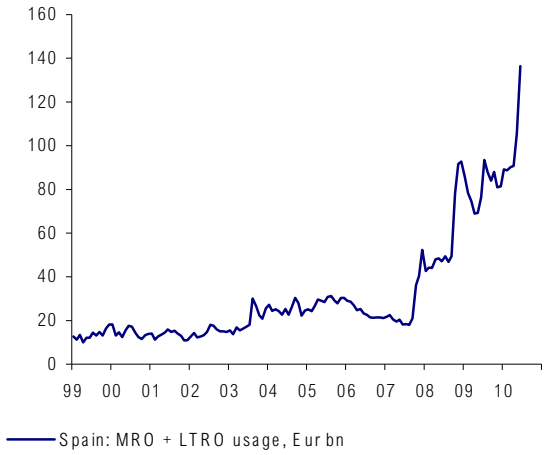
Appendix 2 provides a full breakdown of individual banks' holdings of sovereign debt instruments as published under the CEBS stress test exercise, including the banking and trading books. We report the information for 82 banks. The data for the 9 remaining banks do not seem to be available.

Spanish stress test: not bold enough

Ahead of the release of the European stress tests we argued that the key weakness in the European banking sector was that of Spain and in particular the Cajas (See "Stress Testing Spain", July 12th). In the event 5 of the 7 banks that failed to pass the test were Spanish. However, there were two major surprises relative to our expectations: First, the number of Spanish banks that passed the test was larger than we had anticipated. Second the amount of recapitalisation judged sufficient was at the lower end of our 'likely case' predictions, and far short of the additional EUR52bn we concluded in our central stress case scenario as necessary to rebuild confidence in Spanish banking - given its structural balance sheet difficulties where solvency risks on the asset side have translated into highlighting the structural over dependence the sector has on wholesale funding.

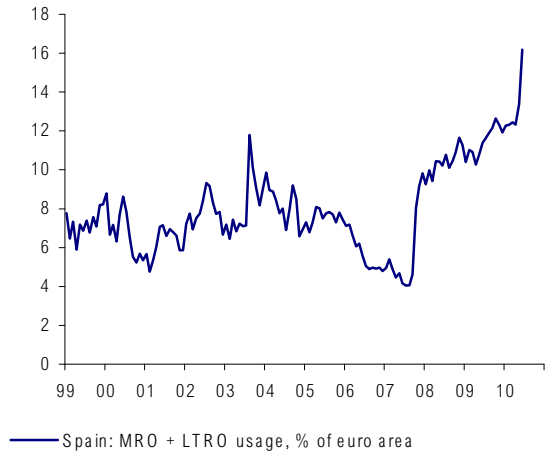
As we argued above, the fundamental test of whether the CEBS coordinated stress testing exercise for European Banks has worked will be if the interbank and wholesale funding markets revert to normality. This is particularly relevant for Spain's domestic banks and cajas, whose reliance on ECB funding has been rising aggressively, with net use of ECB facilities at the end of June at Eur126bn from Eur86bn in May (**Charts 2 and 3**).

Chart 2: Spain access to the ECB repo facility
Eur, bn



Source: RBS

Chart: 3 Spain access to the ECB repo facility
As a share of euro area countries' access to ECB



Source: RBS

As we explained in our "Stress Testing Spain" report, we believe that in order to restore confidence into European banking capital markets (e.g. the interbank and capital markets banks use to fund themselves), that only recapitalising the sector to extreme "what if" scenarios would work.

Table 3: Stress test scenarios against FY11F

(€bn)	1. Likely published stress	2. Central case stress	3. Maximum stress case
Low hurdles: CT1 target 4%, CLR 1%	-0.9	-23.0	-54.7
High hurdles: CT1 target 6%, CLR 2%	-19.9	-51.7	-89.1
Low hurdles: Tier 1 target 6%, CLR 2%	-1.6	-27.9	-61.4

Source: Company data, Bank of Spain, CECA, RBS estimates

Our stress test approach produced 9 possible outcomes depending on various scenarios which we repeat in **Table 3** above. Our central case, based on requiring banks to meet a post stress FY11F core tier 1 ratio of 6% and maintaining credit loss reserves of 2% of loan books resulted in a Eur52bn capital shortfall for the sector. We did show that under softer scenarios, especially where the stress was against Tier 1 ratios, that the expected outcome could be as low as €1.6bn. The overall capital shortfall for 5 weak Spanish banks who "failed" the stress test totalled EUR1.8bn, very close to that estimate. What this tells us overall is that the stress test procedure lacked real teeth, not so much in the underlying cumulative loss assumptions, but in the underlying hurdles needed to pass the test.

Digging into the details of the stress testing exercise shows that it was by and large a well constructed, organised and executed exercise, following the footsteps of similar processes in the US and UK over the last 2 years. For Spain itself, as shown in the table below, the macro economic assumptions and associated cumulative loss assumptions applied to different asset class exposures seem sensible and considered, differentiating between the different types of banks operating in Spain. The one asset exposure line that looks light, and of key importance, is the mortgage cumulative loss assumptions which remain under 2% for all categories of banks. In T**able 4** below, we compare them to our assumptions made in our "Stress Testing Spain" report.

Table 4: CEBS Stress Test cumulative loss assumptions vs RBS Stress Scenarios

	CEBS Stress Test (23 July 2010)				RBS assumptions (12 July 2010)		
Cumulative loss assumptions as % of asset class exposures	Spanish Banking system	International banks	Domestic only listed banks	Savings banks	Likely published case stress	Central case case stress	Maximum Stress Case
Financial institutions	0.7	4.0	0.9	1.1	0.0	0.0	5.0
Corporates	4.0	3.1	5.6	5.9	5.0	10.0	10.0
Property developers and foreclosures	17.3	13.5	17.9	18.1	15.0	20.0	20.0
SMEs	7.6	5.8	8.7	8.8	5.0	10.0	10.0
Mortgages	1.7	1.8	1.2	1.8	2.0	3.0	4.0
Other retail	11.8	13.4	7.4	7.3	8.0	10.0	12.0
Spanish Sovereign haircut - Trading book	12.0	12.0	12.0	12.0	3.0	5.0	30.0
Sovereign risks - AFS	0.0	0.0	0.0	0.0	3.0	5.0	30.0
Gross impairment	**7.3**	**5.4**	**8.4**	**9.5**	**7.0**	**11.0**	**14.0**
Hurdle assumptions							
Capital ratio hurdle	Tier 1	Tier 1	Tier 1	Tier 1	Core tier 1	Core tier 1	Core tier 1
Credit loss reserves maintained (%)*	0	0	0	0	1	2	2
Tax benefits from stress impairments	Yes	Yes	Yes	Yes	No	No	No
Unrealised gains in balance sheet	Yes	Yes	Yes	Yes	No	No	No
Dividend, Fair value of mergers etc.	Yes	Yes	Yes	Yes	No	No	No

* as % of total loans

Source: CEBS, Bank of Spain, RBS estimates

In our eyes, the credibility of the CEBS stress tests have been weakened by (1) excluding from the stress test sovereign exposures in banks' available for sale (AFS) and banking book portfolios and (2) using "low" hurdle assumptions, in the form of (a) a Tier 1 (as opposed to core Tier 1) capital ratio hurdle of 6%, (b) allowing banks to use all cumulative provision loss reserves in the stress scenario and (c) crediting banks with tax loss generated from the stress test, even though these can only be applied against future years of profitability. These

points do not apply to Spain specifically but are particularly relevant to us as they explain to a large extent the differences in our estimates and those made by CEBS.

We review in turn these different points:

(1) Testing sovereign exposures in the AFS portfolio: the simple accounting fact is the mark to market (MTM) gains and losses on assets held in available for sale portfolio go through equity reserves, thereby directly impacting the calculation of the numerator in regulatory capital ratios. One just needs to watch the volatility of this line in the current 2Q10 reporting season across European banks to see its impact. Any AFS portfolio MTM losses are not cash losses but if they have the ability to erode capital ratios, then they should be included in the stress. From the listed banks' point of view, whenever banking sector analysts have asked about sovereign disclosure this year, the data provided has always included sovereign exposures held in the AFS portfolios. Based on the data provided on a bank by bank basis for Spain, the total European sovereign risk exposure of the Spanish banking sector is Eur242bn. This is split between Eur29 in the trading book whilst the AFS portfolios holds Eur203bn of exposures (of which €181bn is Spanish sovereign debt). On a post tax basis, if the sovereign exposures in the banking books for the Spanish system were included under the same CEBS haircut assumptions, the additional negative impact would total Eur8.7bn. More importantly, as shown in **Table 5** below, this inclusion would result in a total of 11 banks and cajas out of the 27 sample to have a Tier 1 ratio below 6% target, with a total equity shortfall requirement of EUR5bn. It would also leave a further 7 banks at Tier 1 ratios of 6.5% or below.

Table 5: Stressing the total periphery exposure of Spanish banks

	Total periphery holdings	Increased stress when taking banking book	increased stress after collateral	Increased stress after tax	Tier 1 CEBS adverse scenario	Tier 1 after RBS stress on total periphery exposure
Santander	57.5	-5.4	-2.0	-1.4	10.0%	9.8%
BBVA	59.3	-5.8	0.0	0.0	9.3%	9.3%
Caja Madrid	24.3	-2.9	-2.6	-1.8	6.3%	5.4%
La Caixa	23.1	-2.2	-1.3	-0.9	7.7%	7.1%
CAM	6.4	-0.7	-0.4	-0.3	7.8%	7.5%
Popular	8.4	-1.0	-1.0	-0.7	7.0%	6.2%
Banco Sabadel	5.0	-0.6	-0.6	-0.4	7.2%	6.5%
Catalunya	4.2	-0.5	-0.5	-0.3	3.9%	3.2%
Breogan	3.6	-0.4	-0.4	-0.3	7.2%	6.6%
Mare Nostrum	3.0	-0.4	-0.3	-0.2	7.0%	6.5%
Bankinter	1.8	-0.2	-0.2	-0.1	6.8%	6.3%
Espiga	6.1	-0.7	-0.7	-0.5	5.6%	3.8%
Banca Civica	3.0	-0.4	-0.4	-0.3	4.7%	3.9%
Zaragoza, Ibercaja	2.3	-0.3	-0.3	-0.2	6.7%	6.0%
Ronda	2.1	-0.2	-0.2	-0.2	9.0%	8.2%
Pastor	3.0	-0.3	-0.3	-0.2	6.0%	4.9%
Cajs Sol	1.6	-0.2	-0.2	-0.1	6.0%	5.4%
BBK	2.4	-0.3	-0.3	-0.2	14.1%	13.0%
UNNIM	1.6	-0.2	-0.2	-0.1	4.5%	3.8%
Kutxa	1.4	-0.2	-0.1	-0.1	10.6%	10.2%
Circulo SIP	1.4	-0.2	-0.2	-0.1	6.1%	5.3%
Cajasur	0.2	0.0	0.0	0.0	4.3%	4.2%
March	0.1	0.0	0.0	0.0	19.0%	18.9%

Guipuzcoano	0.6	-0.1	-0.1	0.0	6.1%	5.5%
C.Vital Kutxa	0.6	-0.1	-0.1	0.0	7.0%	6.3%
Ontinyent	0.0	0.0	0.0	0.0	6.6%	6.5%
Pollensa	0.0	0.0	0.0	0.0	6.2%	5.1%
Total	**221.5**	**-23.1**	**-12.4**	**-8.7**	**8.3%**	**7.8%**

Source: RBS

(2) (a) Low hurdles in stress test mean that the exercise can appear exacting on macroeconomic assumptions and implied cumulative loss rates, but end up with the wrong overall conclusions to restore confidence. The stress tests focused on asset quality, but to restore confidence to a sector experiencing a wholesale funding liquidity crisis, requires over capitalisation to reflect the weak structural funding position of the sector, which has an over-reliance on wholesale funding owing to a shortage of customer deposits to cover lending. Post credit crisis, the new world regulatory rule book with regard to capital has focused on ensuring banks manage to real loss absorbing capital – e.g. the core capital ratio. For CEBS to then focus on Tier 1 because it is the legally defined banking regulatory capital ratios feels weak. For example, the form of convertible preference share capital that the FROB will inject is not loss absorbing except if converted – which is either when the preference share capital is not repaid at the end of 5 years (extendable to 7 years) or if the Bank of Spain intervenes in the institution, at which point it is too late anyway. The Bank of Spain guidance is that the difference between Tier 1 capital and core tier 1 capital is approximately 1.5%, so a 6% target Tier 1 ratio equates to 4.5% core tier 1 ratio.

(b) Cumulative loss reserve levels are an extremely sensitive assumption of the stress test. In the CEBS stress test, banks were permitted to run their credit loss reserves to zero. We concur that credit loss reserves are to be used on rainy days. However, post stress, leaving banks with no provisioning reserves and with Tier 1 ratio at 6%, puts the weaker ones in an extremely weak position for any further problems. It could be argued that RBS's own central case stress test requiring a core tier 1 ratio of 6% and credit loss reserves at 2% of total loans was effectively double counting, but the opposite could be said of the CEBS approach.

(c) A stress test should be about whether a bank can get across to the other side and survive. Tax loss carry forwards generated from stress test impairments should be excluded from stress tests, simply because they can only be offset against future profits. If is somewhat binary that banks that do not meet the proposed stress test capital ratio level, arguably do not have a future unless further capital is raised. Therefore, we see the capital loss absorption capacity of a tax loss carry forward in a severe stress scenario as zero. It could be argued that RBS's own central case stress test requiring a core tier 1 ratio of 6% and credit loss reserves at 2% of total loans was effectively double counting, but the opposite could be said of the CEBS approach.

Monitoring the ability of the stress tests to turn confidence around

It is impossible to say for sure how markets will react to the stress tests. On the one hand they represent an official health check on the European banking system: the fact that the vast majority of banks 'passed the test' could help to restore confidence. On the other hand, it is difficult to see how stress tests which

were designed to enable most banks to pass can have a significant influence on investors priors. In the end, the data will reveal whether the stress tests worked.

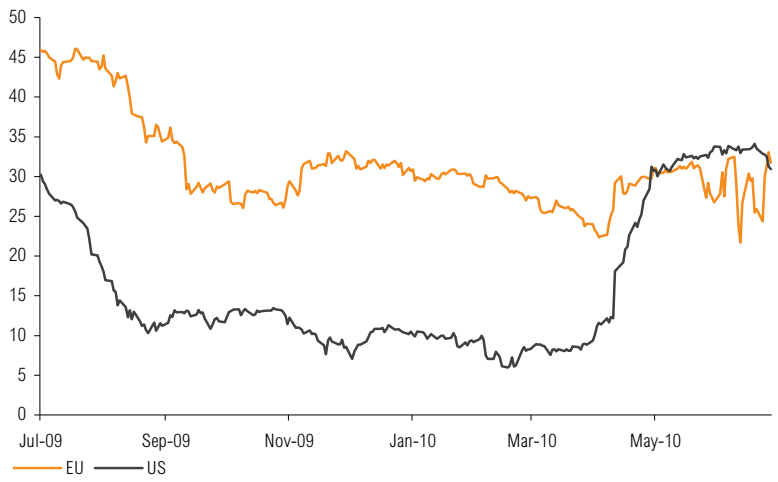
We have therefore identified a set of criteria which can be monitored over the coming weeks and months to enable us to take an informed view on whether the exercise has worked. Below we set out, in no particular order, our key indicators, which focus on different aspects of the 'problem'**: liquidity, sovereign, banks, real economy and foreign interest.** We have taken a deliberately agnostic view in this section, merely looking to highlight what to watch, not expectations of where it will go.

Liquidity measures

3m Libor/OIS spreads are the most widely watched barometers of liquidity for the banking system. Recent months have seen very choppy movements in Euribor/OIS spreads pushing them to the top of their 9 month range. More eye-catching has been the sustained rise in US Libor/OIS spreads. This is reflective of the USD's status as reserve currency for a globalised banking system (**Chart 4**). A compression in these spreads – and in the case of the Euro measure, a decline in volatiliy – would signal a return of confidence to the interbank market, strongly suggestive that banks are no longer worried about their peers.

As **Chart 5** shows, the improvement in a broad barometer of risk appetite – the S&P – has not been mirrored by a substantial fall in USD Libor/OIS, suggestive of an underlying problem in the banking system that needs to be fixed.

Chart 4: Euribor/OIS and USD Libor/OIS spreads (bp)



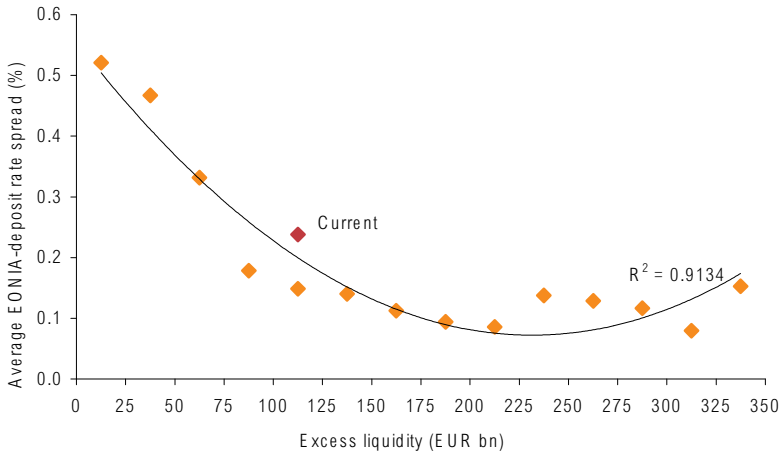
Source: RBS

Chart 5: USD Libor/OIS vs. S&P 500 index

Source: RBS

Eonia has been rising sharply in recent weeks. This has largely been about falling levels of excess reserves. However, if we plot the Eonia spread to the deposit rate against the levels of falling reserves, we can see that not all of the recent increase can be explained by this factor alone (**Chart 6**). While levels of reserves will fluctuate going forward, one would want to see Eonia trading in line with this measure to say that liquidity is normalising on a confidence basis.

Chart 6: Eonia spread vs. level of excess liquidity, bp.



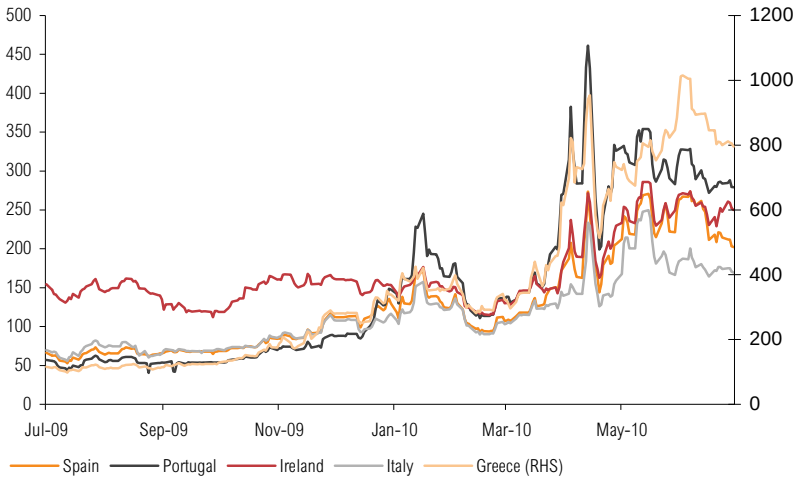
Source: RBS

Sovereign Measures

Sovereign CDS is a key barometer of success, given that is the perceived fragility of sovereign balance sheets that is at the root of much of the banking system's problems. If the market ceases to be worried about the likelihood of a sovereign credit event than the banking sector's exposure to sovereigns is a non-issue. **Chart 7** shows that periphery CDS measures have fallen sharply in

recent weeks, but to be confident you would like to see this process push through to March type levels.

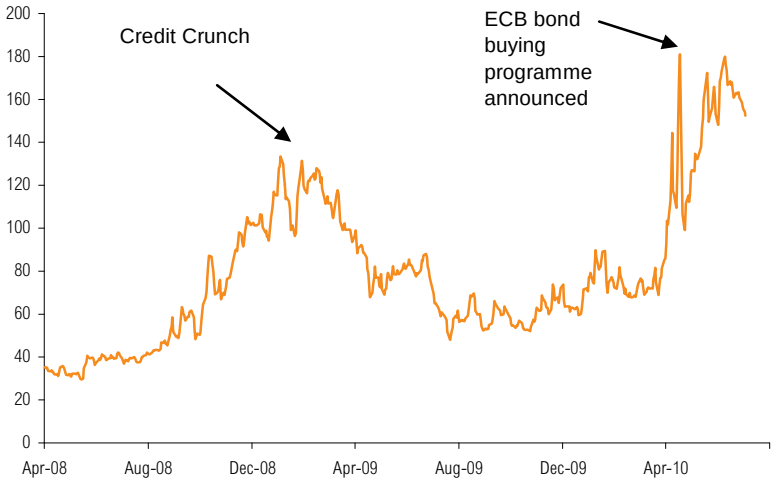
Chart 7: 5y Sovereign CDS levels



Source: RBS

Perhaps more important still will be **yield spreads to Germany** in the euro area given the much greater liquidity in cash markets. Our measure shows the spread to Germany of other euro area countries, weighted by bond market size (using constant 2019 bonds to avoid benchmark changes causing disruption). Despite the recent tightening, spreads are still closer to the top of the recent range than the bottom, over 50bp above the 13th May levels following the announcement of the ECB bond buying programme (**Chart 8**). **A fall back to around 100bp would be reflective of the sovereign tail risk pushing back to manageable levels. A push above 180bp would argue strongly for more action from policy makers.**

Chart 8: Weighted average yield spread to Germany of other euro area countries (bp)



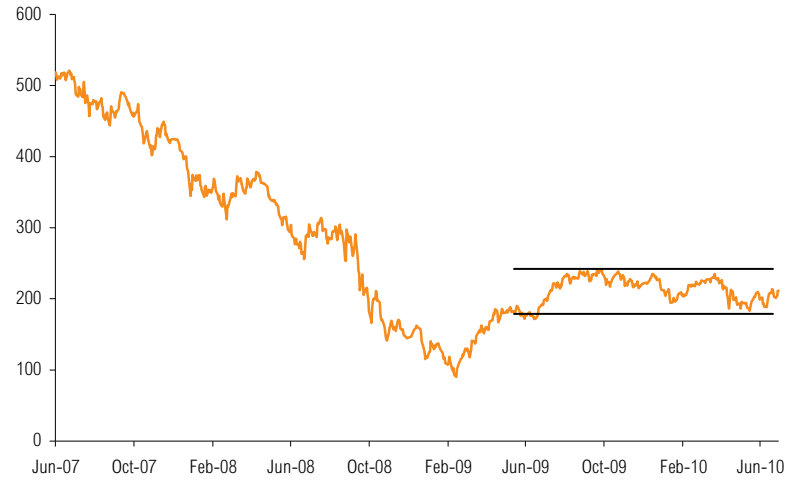
Source: RBS

Lastly in the sovereign space, we must watch **primary sovereign issuance** for signs of investor confidence. In terms of the currently announced calendar look to see how Portuguese issuance on the 28th July, Italian issuance on the 29th July and Spanish 3y issuance on the 5th August all fare.

Bank Measures

Another obvious indicator of the success or otherwise of the stress test exercise is **the stockmarket**. Our equity analysts make the point that this is the tail, rather than the dog, with equity investors pushing prices to levels consistent with an institution's perceived ability and cost of funding. Also, equity prices are not an entirely representative metric: some of the banks included in the test are not listed. Nevertheless, it is an easy to identify barometers of confidence. Looking at the Banks Sector of the Eurostoxx 600, the last 14 months have seen a dominant range of 180 to 240 (**Chart 9**). With Friday's close at 211, moves to either end of this range are our barometer of success. However, as we highlighted above, we believe that the publication of the stress tests will help the larger financial institutions which are typically constituent of the bank sector in the Eurostoxx600.

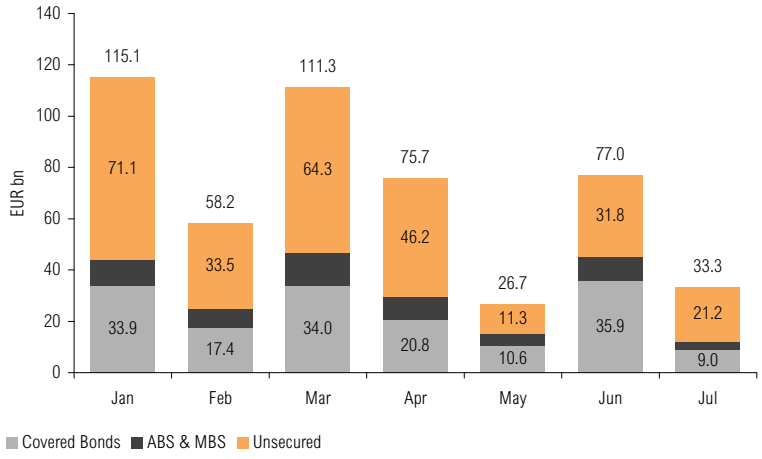
Chart 9: Banks sector of Eurostoxx 600



Source: RBS

Bank primary issuance has fallen in recent months. It will be hard to judge whether and how much this is improving, given that August is always going to be a quiet month in any year. Nevertheless, we know that banks need a huge amount of funding for the next few years and so the supply is a given. If we see opportunistic issuance in coming weeks that would be a clear positive sign that investor confidence has returned. We also need to watch who is getting the funding. If only the top few ranked banks on the stress-test are able to fund then the tests will have been counter-productive in terms of helping the weaker entities. Chart 10 shows issuance over 2010 with the weakness in recent months clearly apparent.

Chart 10: European Bank issuance ytd – ex money market funding

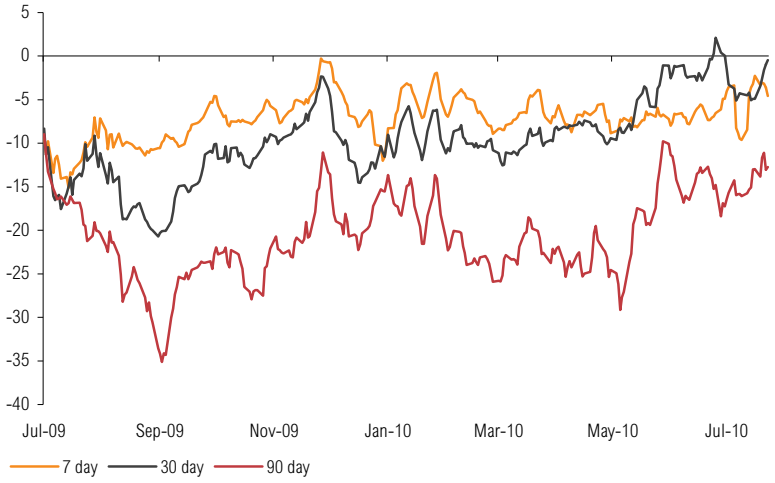


Source: Dealogic

Broader Economy Measures

If we look at the spreads between 7-day, 30-day and 90-day commercial paper yields over Libor rates then we have seen a clear deterioration in recent weeks and this is one indicator where there has been little sign of improvement (**Chart 11**). Given that Euribor has been rising, then this has led to a decent jump in yields in this part of the curve. A move back to the prevailing levels of April would suggest better investor confidence in the broader economy was working via the liquidity channel.

Chart 11: Commercial paper spreads to Euribor

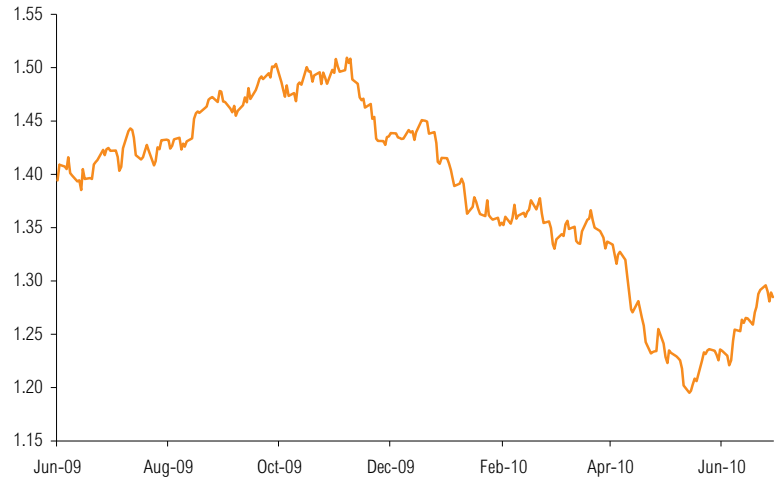


Source: RBS

EUR/USD has rallied back around 10-big figures from the lows (**Chart 12**). Some of this has been about weaker US data and yield spreads moving in the euro's favour and some of this has been about positioning and CFTC data shows that investors are still short euros and deeply long dollars, if not quite at the extremes of two months ago. Once again, it is likely that this measure improves *if* the other

metrics we have discussed improve but it is very important to watch as it is an indicator of market sentiment for Europe as a whole. We will need to assess why moves are happening as we go, but a push into the 1.30s would be very welcome.

Chart 12: EUR/USD

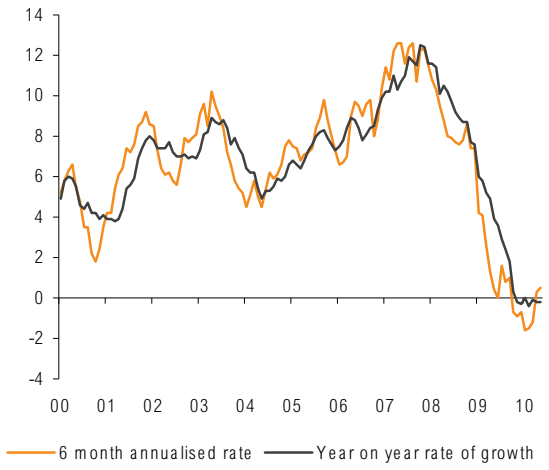


Source: RBS

The true test of whether the policymakers' response to the crisis over the past few years has worked or not (and here of course we are not just talking about the stress tests) is the evolution of the real economy. **Chart 13** shows **M3 growth** in the euro area and at the current levels, it does appear that little of the liquidity being thrown at the banking system is finding its way into the broader economy. An increase in this measure would be the ultimate, if most delayed, test of the success or otherwise of the stress tests. The latest readings show the y/y rate broadly unchanged but the 6 month annualised rate has ticked up slightly.

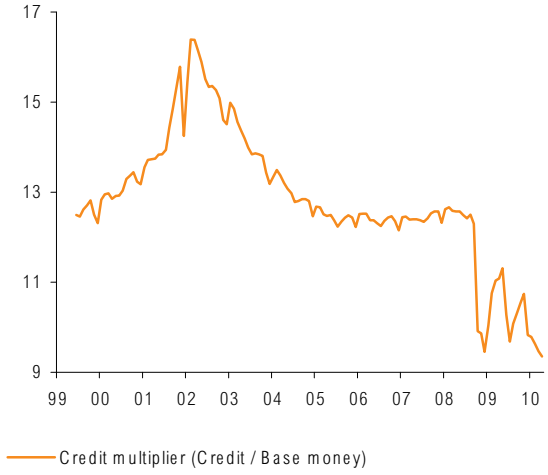
Another way to assess whether progress is being made on that front is through the lens of the credit multiplier. In May, the euro area **credit multiplier** (as defined by the ratio of loans to the private sector over base money) reached a new historical low (**Chart 14**).

Chart 13: Euro area money supply



Source: RBS

Chart 14: euro area credit multiplier



Source: RBS

Foreign interest

On Friday, timed to coincide with the announcement of the stress tests and two days after the approval of new laws governing the caja sector, it was announced that JC Flowers, a private equity investment firm, has agreed to inject EUR450m into Banca Civica via convertible bonds. Banca Civica, made up of Caja Navarra, Caja de Burgos and Caja de Canarias, failed the stress test with an equity shortfall requirement of €224m in the adverse scenario including sovereign shock. Although the exact terms of the transaction are not clear (eg what post conversion equity stake JC Flowers would be entitled to), it does show that specialist investors are willing to put money at risk, which reduces the potential bail-out costs for the government. Likewise, recent press reports that foreign investors have increased their exposure in Spanish sovereign bonds has contributed to improving confidence. Monitoring the news flow regarding foreign investors appetite for bank assets across the region is also going to be important to keep a track of confidence in the sector.

Table 6 gives an indication of the sorts of levels we will be watching for in some of our quantiative indicators in coming weeks and months (it is difficult to be so prescriptive in the case of issuance by sovereigns and banks). Clearly none of these metrics can provide a perfect read on the success of the exercise, since they are influenced by a range of factors. Particular care should be taken in the case of bank equity prices and EUR/USD which are influenced by a wide range of factors.

Table 6: Measures of success

	Current level	Level that implies success	Level that implies failure
3m Euribor/OIS spread	32bp	25bp + stable	Higher than current and volatile
Eonia	Above levels consistent with excess reserves	In line with levels consistent with excess reserves	Not moving.
Sovereign CDS levels (average of periphery)	340bp	200-250bp	400-450bp
Euro area spread to Germany	150bp	100bp	180bp
Eurostoxx 600 banks index	212	240	180
Commercial Paper spread to Euribor (30-day)	0bp	-10bp	0bp
EUR/USD	1.2850	1.35	1.20

Source: RBS

Conclusion

The immediate market reaction to the stress tests is likely to be positive: bank equity and peripheral government bonds should rally. It may appear that the exercise was a resounding success. But first impressions can be deceptive. The market will not rally because we have learned that the European banks are in rude health, but on the back of altogether more practical and ephemeral considerations: so little capital has to be raised, so little money has to be raised in debt markets to finance recapitalisation.

Stress tests are supposed to ask demanding questions of financial institutions, to examine whether they hold sufficient capital to withstand the losses they would incur in the worst case scenario. The risk that spooked the market in late spring which forced the authorities to conduct the stress test in the first place was the potential for a sovereign credit event to wipe out the capital of the European banking system. The stress tests did not seriously address this question: the sovereign stress was mild (applied to only those bonds held in the trading book) and banks were deemed to have passed the test so long as they scraped over a none-too-demanding tier 1 hurdle, even if all credit loss reserves had been exhausted and their balance sheets were awash with deferred tax assets.

It may not matter that this trillion euro question has been ducked in the near-term: the market appears to be less concerned about the potential for a sovereign credit event in the immediate future than it was a month ago, so funding conditions may continue to ease for the European banks. But if and when these fears resurface, the market will once again revisit the risks to the solvency of the European banks. And it can learn nothing positive from this exercise apart from the fact that large European financial institutions are well positioned to face very adverse scenarios.

Appendix 1

Given the heightened uncertainty around the future course of the U.S. economy and potential losses in the banking system, supervisors believe it prudent for large bank holding companies (BHCs) to hold additional capital to provide a buffer against higher losses than generally expected, and still remain sufficiently capitalized at over the next two years and able to lend to creditworthy borrowers should such losses materialize. The purpose of the Supervisory Capital Assessment Program (SCAP), which is being conducted by the supervisory agencies, is to assess the size of these capital needs.

Board of Governors of the Federal Reserve System, April 24 2009

What is the purpose of a stress test?

Banks hold capital as a buffer against unforeseen and unlikely losses, to ensure that they can avoid insolvency in all but the most extreme of circumstances. The amount of insurance that is supposed to be baked into the current minimum capital requirements regime is pretty extreme – given those minimum requirements 'an institution is expected to suffer losses that exceed its level of tier 1 and tier 2 capital on average once in a thousand years'.

The purpose of a stress test is to assess whether banks do indeed have sufficient capital to withstand large losses, and if they do not, to remedy the situation. By definition, stress tests must therefore involve scenarios which are consistent with nasty outcomes – draws from the very tail of the loss distribution (**Chart 15**) – that reveal whether the banks are holding sufficient insurance.

The stress test comes into its own in circumstances when unsecured wholesale creditors begin to question whether banks have sufficient capital resources. At that point, those investors will refuse to roll existing debts and purchase new issuance at anything other than very high yields and very short maturities. That leaves banks running with a large maturity mismatch across their book, higher funding costs that squeeze profitability and under pressure to deleverage. The stress test and recapitalisation programme can break this damaging feedback loop at source. These are the circumstances in which the US authorities found themselves in 2009, and which the European authorities find themselves today.

Designing stress tests – choosing which bits of the portfolio to stress and by how much – is a difficult exercise. But if the purpose of the stress test is to allay market participants' fears then it seems reasonable that a successful stress test would have to address the sort of scenarios and focus on the particular exposures that concern the market.

Appendix 2

Total bank holdings of European sovereign bonds
Euro bns, Gross exposure including trading and banking books

		Periphery						Other EU	Total Europe
		Total	Greece	Portugal	Ireland	Spain	Italy		
Ireland	AIB	5.5	0.0	0.3	4.1	0.4	0.7	4.1	9.6
	Bk Irld	1.2	0.0	0.0	1.2	0.0	0.0	0.1	1.3
France	BNP	34.3	5.0	2.5	0.6	3.0	23.2	61.6	96.0
	CASA	17.9	0.9	1.5	0.9	2.3	12.3	34.7	52.6
	BPCE	10.4	1.5	0.5	0.5	0.4	7.5	37.2	47.6
	Soc Gen	11.1	4.2	0.4	0.5	0.9	5.1	31.3	42.5
Denmark	Danske	1.3	0.0	0.0	0.7	0.0	0.6	26.4	27.7
	Jyske Bank	0.1	0.1	0.0	0.0	0.0	0.0	0.6	0.7
	Sydbank	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.2
Germany	Commerzbank	17.6	2.9	1.1	0.0	3.6	10.0	55.7	73.3
	LBBW	12.5	1.4	2.2	0.6	4.2	4.0	73.4	86.0
	Helaba	2.5	0.1	0.2	0.0	1.8	0.4	21.9	24.4
	BayernLB	1.7	0.2	0.0	0.2	0.7	0.6	35.7	37.4
	NordLB	3.7	0.2	0.5	0.3	0.9	1.9	43.5	47.2
	WESTLB	5.1	0.4	1.7	0.3	1.0	1.6	14.1	19.2
	HSH Nordbank	1.3	0.2	0.1	0.0	0.2	0.8	12.3	13.6
	Dekabank	1.3	0.1	0.1	0.1	0.6	0.4	13.5	14.8
Belgium	Dexia	26.1	3.7	2.8	0.1	1.8	17.6	32.1	58.2
	KBC	10.9	0.9	0.2	0.4	1.7	7.6	39.8	50.7
NL	ING Bk	12.0	2.4	1.8	-0.1	1.4	6.4	34.7	46.7
	Rabobank	3.0	0.6	0.4	0.2	0.8	0.9	33.0	36.0
	ABN Amro/Fortis	2.7	0.0	0.1	0.2	0.5	1.9	18.9	21.7
	SNS Bank	1.5	0.1	0.0	0.2	0.2	1.1	6.4	7.9
Italy	Intesa	65.2	0.8	0.0	0.2	0.6	63.7	6.2	71.4
	Unicredit	40.5	0.8	0.2	0.1	0.6	38.8	41.3	81.8
	UBI Banca	6.3	0.0	0.0	0.0	0.0	6.3	0.1	6.5
	Monte dei Paschi	28.0	0.0	0.1	0.0	0.1	27.8	0.2	28.2
	Banco Popolare SC	8.5	0.1	0.0	0.0	0.2	8.3	0.0	8.5
Sweden	Nordea	1.0	0.2	0.0	0.0	0.0	0.7	23.0	24.0
	SEB	0.5	0.2	0.1	0.0	0.2	0.1	13.1	13.6
	SHB	0.0	0.0	0.0	0.0	0.0	0.0	7.1	7.1
	Swedbk	0.0	0.0	0.0	0.0	0.0	0.0	7.5	7.5
Spain	Santander	57.5	0.5	5.1	0.0	50.6	1.2	9.2	66.7
	BBVA	59.3	0.3	0.6	0.0	52.1	6.2	5.5	59.2
	caja madrid	24.3	0.1	0.0	0.0	24.2	0.0	2.3	26.6
	La caixa	23.1	0.0	0.0	0.0	20.1	3.1	0.1	20.5
	CAM	6.4	0.0	0.0	0.0	6.2	0.0	0.4	6.8
	Popular	8.4	0.0	0.7	0.0	7.6	0.2	0.0	8.4
	Banco Sabadel	5.0	0.0	0.1	0.0	4.9	0.0	0.1	5.1
	Catalunya	4.2	0.0	0.0	0.0	4.1	0.1	0.1	4.3
	Breogan	3.6	0.0	0.0	0.0	3.3	0.2	0.4	4.0
	Mare Nostrum	3.0	0.0	0.1	0.0	2.9	0.0	0.1	3.1
	Bankinter	1.8	0.0	0.0	0.0	1.7	0.1	0.6	2.4
	Espiga	6.1	0.0	0.0	0.0	6.1	0.0	0.0	6.1

Source: CEBS and banks and central banks websites, RBS

Continued

Total bank holdings of European sovereign bonds
Euro bns or euro equivalents, Gross exposure including trading and banking books

		Periphery						Other EU	Total Europe
		Total	Greece	Portugal	Ireland	Spain	Italy		
Spain cont.	Banca Civica	3.0	0.0	0.0	0.0	3.0	0.0	0.0	3.0
	Zaragoza, Ibercaja	2.3	0.0	0.0	0.0	1.9	0.4	0.2	2.5
	Ronda	2.1	0.0	0.0	0.0	2.1	0.0	0.0	2.1
	Pastor	3.0	0.0	0.1	0.0	2.7	0.1	0.0	3.0
	Cajs Sol	1.6	0.0	0.0	0.0	1.6	0.0	0.0	1.6
	BBK	2.4	0.0	0.0	0.0	2.4	0.0	0.0	2.4
	UNNIM	1.6	0.0	0.0	0.0	1.6	0.0	0.0	1.6
	Kutxa	1.4	0.0	0.0	0.0	1.4	0.0	0.0	1.4
	Circulo SIP	1.4	0.0	0.0	0.0	1.4	0.0	0.0	1.4
	Cajasur	0.2	0.0	0.0	0.0	0.2	0.0	0.0	0.2
	March	0.1	0.0	0.0	0.0	0.1	0.0	0.0	0.1
	Guipuzcoano	0.6	0.0	0.0	0.0	0.6	0.0	0.0	0.6
	C.Vital Kutxa	0.6	0.0	0.0	0.0	0.6	0.0	0.0	0.6
	Ontinyent	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Pollensa	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Greece	National Bank Of Greece	19.8	19.8	0.0	0.0	0.0	0.0	0.7	20.5
	EFG	7.6	7.5	0.0	0.0	0.0	0.1	2.6	10.2
	Alpha Bank	5.1	5.1	0.0	0.0	0.0	0.0	0.5	5.6
	Piraeus Bank Group	8.3	8.3	0.0	0.0	0.0	0.0	0.7	9.0
	TT Hellenic Postbank	5.4	5.4	0.0	0.0	0.0	0.0	0.0	5.4
Austria	Erste	2.6	0.8	0.3	0.1	0.2	1.2	23.5	26.1
	RZB	0.3	0.0	0.0	0.0	0.0	0.3	11.7	11.9
Malta	Bank of Valletta	0.0	0.0	0.0	0.0	0.0	0.0	0.9	1.0
Poland	PKO Bank Polski	0.0	0.0	0.0	0.0	0.0	0.0	6.4	6.4
Portugal	Caixa Geral	7.4	0.1	6.8	0.2	0.3	0.0	1.5	8.9
	BCP	1.9	0.7	1.0	0.2	0.0	0.1	2.0	3.9
	BES	5.2	0.5	4.7	0.0	0.1	0.0	0.0	5.2
	BANCO BPI	6.3	0.5	4.2	0.4	0.0	1.1	0.0	6.3
Finland	OP Pohjola	0.1	0.0	0.0	0.0	0.0	0.0	1.0	1.0
Hungary	FHB	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.3
	OTP Bank	0.0	0.0	0.0	0.0	0.0	0.0	5.2	5.2
Cyprus	Marfin	3.0	2.9	0.0	0.1	0.0	0.0	0.8	3.8
	Bank of Cyprus	2.3	1.9	0.0	0.4	0.0	0.0	1.1	3.3
Slovenia	NLB	0.3	0.0	0.0	0.0	0.2	0.0	2.3	2.6
UK	Barclays	7.5	0.4	1.1	0.2	4.9	0.9	40.0	47.5
	Lloyds	0.0	0.0	0.0	0.0	0.0	0.0	8.6	8.6
	RBS	13.1	2.3	0.7	4.8	0.9	4.4	88.2	101.3
	HSBC	7.3	1.4	0.5	0.6	0.1	4.6	52.4	59.7

Source: CEBS and banks and central banks websites, RBS

Note: out of the 91 banks that participated in the CEBS stress test, the sovereign debt holdings were missing for 9 banks namely: ATE Bank, HRE, Deutsche Bank, DZ Bank, DPB, LB Berlin, WGZ, BCEE, Banque Raiffeisen.