Sovereign Risk & European Banks

Core Banks Oversold

■ Industry Overview

- **Sovereign Risk Worries** – The European banks sector has de-rated c.20% on a Price/Tangible BV basis since the YTD high in February. It is currently trading at its lowest multiple (1.09x P/TBV) since May 2009. Recent developments in Europe's periphery have pitched Germany against the ECB / EU on how to deal with private holders of sovereign debt. Our economists see a high likelihood of debt restructuring with haircuts in Greece, Ireland and Portugal. As a result, risks for banks in "Core" (DE / FR / IT / UK) and "Peripheral" (GR / IR / PT / SP) countries have increased meaningfully.
- **€70bn 'Core Coverage' Losses** – We estimate total losses for the *European Core banks under Citi coverage* to be €69bn in our stress scenario. Of these, €17bn would be from GR / IR / PT and €52bn due to Spain. *For the European Core banking systems*, total losses would be €98bn with €24bn due to the three smaller peripherals and €74bn due to Spain (Figure 2). Losses arise from direct sovereign debt exposures, customer loans exposures and higher funding costs. Greece is not the key issue for the core banking systems. It is contagion to Spain that is of most concern.
- **No Capital Needs for 'Core' Banks** – Under our bottom-up stress test, no bank from the "core countries" needs capital. For the sample of 26 banks, the 2013E Common Equity Tier 1 ratio would decline from an estimated 11% to 9.7%. While no core country bank drops below 7%, three Spanish banks would need to raise a combined €2.1bn.
- **Buy Core Europe** – Core banks appear to be undervalued based on a minimum stressed common equity Tier 1 ratio of 7% under our top-down stress test – by anywhere from c.5% (Italy) to c.16% (France). While Italian, German and UK banks face their own issues, we believe French banks are being unfairly penalised by the markets. G-SIFI requirements and the CRD4/EU Maximum Harmonisation process should allay concerns about French banks' capitalization levels.
- **Top 5 Picks** – We upgrade French banks to Overweight and German banks to Neutral. In our Top 5 picks we replace BNP Paribas for SocGen, which we believe is oversold on the back of sovereign and capital concerns. Our other Top 5 picks include Credit Suisse, DnB NOR, HSBC and Standard Chartered.

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Figure 1. European Banks Country Weightings

Overweight	Neutral	Underweight
France ↑	Austria/CEE	Greece
Russia	Benelux	Spain
Swiss	**Germany ↑**	
UK International	Italy	
	Nordics	
	Turkey	
	UK Domestic	

Source: Citi Investment Research and Analysis

See Appendix A-1 for Analyst Certification, Important Disclosures and non-US research analyst disclosures.

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Sovereign Risk & European Banks

The European sovereign crisis is causing another bout of negative sentiment towards bank equity. Greece is in discussions with the IMF and the EU on how to avoid a wholesale restructuring of its debt. Ireland is grappling with a bank crisis which has spread to the Irish sovereign balance sheet. In Portugal, much needed structural reforms will likely take years to make a dent to a growing Debt/GDP ratio. And Spain, which has until now been the most proactive of the peripherals in terms of banking sector reforms, needs to do more to insulate itself from sovereign contagion, in our view.

A number of events take place over the next few months which could act as critical catalysts for the market. At the end of June, or in July, we will see the publication of the European bank stress tests as well as the initial Basel proposals for a capital surcharge on the global systemically important institutions (G-SIFI). Investors will also be watching closely the Bankia IPO process, an important indicator of whether investor confidence in Spain's banking sector has turned in our view. In the same month the IMF will make a decision on whether to disburse the fifth tranche (combined €12bn EU/IMF) of the Greek bailout money. The IMF itself is in the middle of a leadership transition as is the ECB.

So how serious can the latest crisis become? In this report, we argue that potential losses to the 'core' European banking systems of Germany, France, Italy and UK from losses in Portugal, Ireland and Greece are manageable at €24bn on our estimates. However, if contagion spreads to Spain, we estimate losses could be an additional €74bn. As for the peripheral countries themselves (PT / IR / GR / SP), "domestic" losses could total €172bn, of which €92bn is Spain-related.

We believe that the market has turned overly bearish on the banks in the four Core European banking systems. Core banks appear to be undervalued based on a minimum stressed common equity Tier 1 ratio of 7% under our top-down stress test – by anywhere from c.5% (Italy) to c.16% (France). While Italian, German and UK banks face their own sets of issues, we believe that the French banks are being unfairly penalised by the markets. G-SIFI requirements and the CRD4/EU Maximum Harmonisation process should allay concerns about capitalization levels of the French banks.

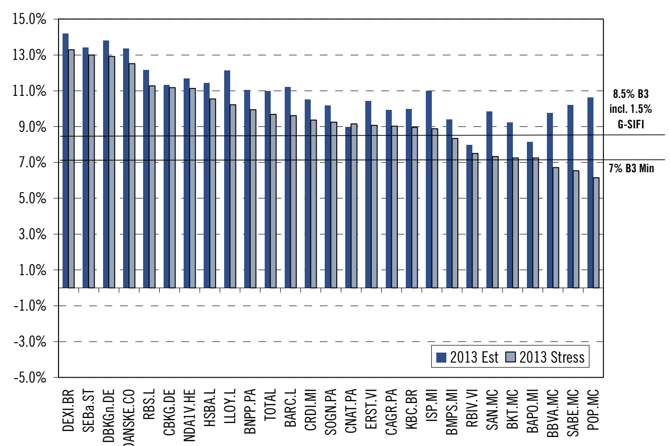
We upgrade French banks to Overweight and German banks to Neutral. In our Top 5 picks we replace BNP Paribas for SocGen which we believe is oversold on the back of sovereign and capital concerns. Our other Top 5 picks include Credit Suisse, DnB NOR, HSBC and Standard Chartered.

Figure 2. European Banks – Estimated Stress Test Losses from Peripheral Exposures, Top-Down Estimates (€bn)

System – Losses By Risk Country	Core *	Periphery *	Rest	Europe *
PT/IR/GR losses	24	80	5	109
Spain Contagion	74	92	16	182
Total	**98**	**172**	**21**	**291**
o/w Citi coverage	69	58	13	139
System – Losses By Type of Loss	**Core**	**Periphery ***	**Rest**	**Europe ***
Sovereign	20	65	4	90
Loans	13	84	4	101
Funding	64	23	13	100
Total	**98**	**172**	**21**	**291**
o/w Citi coverage	69	58	13	139

Source: BIS, ECB, Central Banks, Citi Investment Research and Analysis
* Core = Germany, France, Italy, UK. Periphery = Greece, Ireland, Portugal, Spain.
Europe as defined by BIS reporting banks/countries (16 countries, see below).

Figure 3. 26 European Banks – Estimated and Stressed 2013 Core Equity Tier 1 Ratios (Basel 2), Bottom-Up Estimates (%)



Source: Citi Investment Research and Analysis

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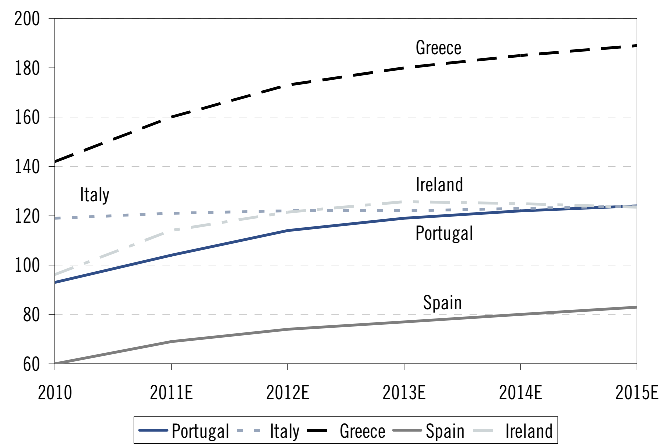
Peripheral-to-Core Interconnectedness

In addition to fundamentals (Figure 4), we believe the most important factor in determining how contagious a peripheral country could be is to understand the degree of interconnectedness between that country and the wider European banking sector. Exposures generally can be classified as sovereign debt; loans to the private sector (mortgages, corporate loans, etc.); funding to peripheral banks; and derivatives.

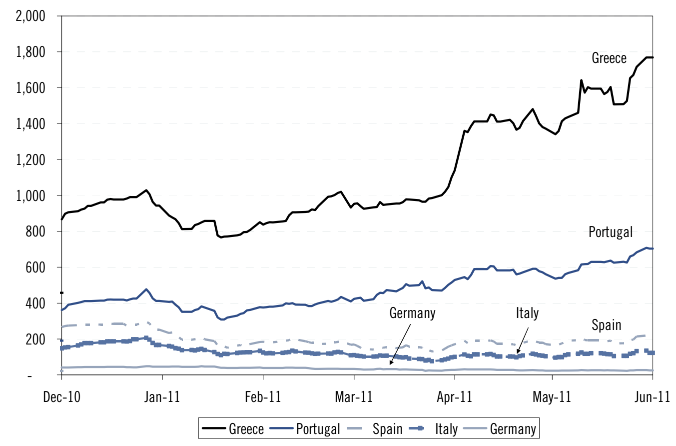
Figure 4. Peripheral Countries & Italy – Gvt Debt/GDP, 2010-15E (%) *



Source: Citi Investment Research and Analysis, IMF (Ireland data)

* While Italy is not a peripheral country per se, its banks (especially funding costs) are thought to be susceptible to contagion from the peripheral banking systems.

Figure 5. Select Countries – Sov CDS Spreads, Dec 10 – Jun 11 (bps)



Source: Datastream, Citi Investment Research and Analysis

Europe as defined in BIS data includes: Austria, Belgium, Finland, France, Germany, Greece, Ireland, Italy, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland, Turkey, United Kingdom

The Bank for International Settlements (BIS) has started reporting banks' cross-border claims to a number of countries broken down by the type of exposure. We have used the BIS cross-border data in conjunction with peripheral countries' central bank data in order to arrive at a fuller picture of peripheral risk. Figure 6 shows the peripheral exposures as of end-4Q10 for a number of banking systems as % of capital & reserves (ECB and central banks definition). Europe as defined in BIS data includes: Austria, Belgium, Finland, France, Germany, Greece, Ireland, Italy, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland, Turkey, United Kingdom.

5% of Core Countries' Capital & Reserves Exposed to Greece

5% of the Core European banks' capital & reserves is exposed to Greece, 16% to Ireland, 4% to Portugal (25% total): and an additional 22% to Spain

The four core banking systems (Germany, France, Italy and UK) have exposures amounting to 5% of their equity to Greece, 16% to Ireland and 4% to Portugal. Spain is an additional 22% with the majority of that exposure being private sector loans made by German and French banks. Therefore the four core European countries' exposure to peripheral risks is c.47% of capital & reserves.

The data clearly shows that Greece in itself does not represent a meaningful risk to the European banking system, in our view. However, contagion spreading to Portugal and Ireland could potentially impact Spain as well. Hence the ECB's valiant efforts to ring-fence Greece.

For the European (BIS reporting) banks, approximately 68% of capital & reserves is exposed to Greece, Ireland and Portugal. Spain is even larger, an additional 102% (Figure 6), for a total of 170% exposure.

Figure 6. European BIS-Reporting & Peripheral Banking Systems – Exposure to Peripherals as % of Capital & Reserves, 4Q10 *

		Banks from…											
Exposure to…	**Type of Exposure**	**Germany**	**France**	**Italy**	**UK**	**Core Europe ****	**Greece**	**Ireland**	**Portugal**	**Spain**	**GR/IR/PT/SP**	**Other Eur**	**Europe ****
Greece	Public Sector	4.3%	2.2%	0.5%	0.3%	1.6%	143.4%	0.0%	0.0%	0.2%	13.3%	1.0%	3.4%
Greece	Banks	0.4%	0.3%	0.0%	0.3%	0.3%	16.4%	0.0%	0.0%	0.1%	1.6%	0.2%	0.5%
Greece	Non-bank private	1.7%	5.9%	0.3%	0.8%	2.2%	583.9%	0.0%	0.0%	0.0%	53.4%	2.1%	10.5%
Greece	Derivatives	1.1%	1.2%	0.3%	0.5%	0.8%	0.0%	0.0%	0.0%	0.1%	0.1%	0.6%	0.6%
Greece	**Total exposures**	**7.5%**	**9.7%**	**1.2%**	**1.9%**	**4.8%**	**743.7%**	**0.0%**	**0.0%**	**0.6%**	**68.3%**	**3.9%**	**15.0%**
Ireland	Public Sector	0.6%	0.6%	0.1%	0.5%	0.5%	0.0%	39.1%	0.0%	0.0%	9.0%	0.4%	1.8%
Ireland	Banks	5.4%	1.2%	0.5%	1.8%	2.1%	2.7%	172.1%	0.0%	0.3%	40.2%	1.5%	8.2%
Ireland	Non-bank private	16.2%	2.6%	2.1%	11.3%	8.4%	0.8%	301.2%	0.0%	2.2%	71.0%	7.0%	18.3%
Ireland	Derivatives	7.6%	4.0%	2.2%	6.0%	5.1%	0.0%	0.0%	0.0%	0.9%	0.5%	2.0%	3.8%
Ireland	**Total exposures**	**29.8%**	**8.4%**	**5.0%**	**19.6%**	**16.2%**	**3.6%**	**512.4%**	**0.0%**	**3.4%**	**120.7%**	**11.1%**	**32.2%**
Portugal	Public Sector	1.5%	1.2%	0.1%	0.2%	0.7%	0.0%	0.0%	78.1%	2.1%	8.3%	0.7%	1.9%
Portugal	Banks	2.9%	0.9%	0.4%	0.5%	1.1%	0.0%	0.0%	103.9%	1.9%	10.5%	0.6%	2.5%
Portugal	Non-bank private	2.4%	1.9%	0.3%	1.8%	1.7%	0.0%	0.0%	839.1%	17.4%	85.8%	1.1%	15.2%
Portugal	Derivatives	2.6%	0.8%	0.7%	0.5%	1.0%	0.0%	0.0%	0.0%	5.2%	3.1%	0.4%	1.2%
Portugal	**Total exposures**	**9.4%**	**4.8%**	**1.5%**	**2.9%**	**4.4%**	**0.0%**	**0.0%**	**1021.1%**	**26.6%**	**107.6%**	**2.8%**	**20.9%**
PT + IR + GR	Public Sector	6.3%	4.1%	0.7%	1.0%	2.8%	143.4%	39.1%	78.1%	2.4%	30.6%	2.0%	7.2%
PT + IR + GR	Banks	8.7%	2.4%	0.9%	2.6%	3.5%	19.1%	172.1%	103.9%	2.3%	52.2%	2.3%	11.2%
PT + IR + GR	Non-bank private	20.4%	10.5%	2.7%	13.9%	12.3%	584.7%	301.2%	839.1%	19.6%	210.1%	10.2%	44.1%
PT + IR + GR	Derivatives	11.3%	6.0%	3.2%	6.9%	6.9%	0.0%	0.0%	0.0%	6.2%	3.7%	3.1%	5.6%
PT + IR + GR	**Total exposures**	**46.7%**	**23.0%**	**7.7%**	**24.4%**	**25.4%**	**747.3%**	**512.4%**	**1021.1%**	**30.6%**	**296.6%**	**17.7%**	**68.1%**
Spain	Public Sector	5.4%	4.5%	1.1%	1.0%	2.7%	0.0%	0.0%	0.0%	83.3%	48.9%	1.8%	10.1%
Spain	Banks	14.1%	5.8%	1.7%	2.1%	5.4%	0.2%	0.0%	0.0%	104.7%	61.5%	7.1%	14.8%
Spain	Non-bank private	14.6%	10.7%	3.2%	7.7%	9.0%	0.7%	0.0%	0.0%	687.9%	404.2%	13.1%	74.1%
Spain	Derivatives	7.9%	5.2%	2.6%	3.1%	4.5%	0.0%	0.0%	0.0%	0.0%	0.0%	2.8%	3.4%
Spain	**Total exposures**	**42.0%**	**26.3%**	**8.7%**	**13.9%**	**21.6%**	**0.9%**	**0.0%**	**0.0%**	**875.9%**	**514.7%**	**24.8%**	**102.4%**
PT + IR + GR + SP	Public Sector	11.7%	8.6%	1.8%	2.0%	5.5%	143.5%	39.1%	78.1%	85.7%	79.5%	3.9%	17.2%
PT + IR + GR + SP	Banks	22.9%	8.3%	2.6%	4.7%	8.8%	19.3%	172.1%	103.9%	107.0%	113.7%	9.4%	26.0%
PT + IR + GR + SP	Non-bank private	35.0%	21.2%	5.9%	21.6%	21.3%	585.4%	301.2%	839.1%	707.5%	614.3%	23.3%	118.1%
PT + IR + GR + SP	Derivatives	19.2%	11.2%	5.9%	10.0%	11.4%	0.0%	0.0%	0.0%	6.2%	3.7%	5.9%	9.1%
PT + IR + GR + SP	**Total exposures**	**88.7%**	**49.3%**	**16.4%**	**38.3%**	**47.0%**	**748.2%**	**512.4%**	**1021.1%**	**906.5%**	**811.3%**	**42.5%**	**170.5%**

Source: BIS, Central banks, ECB, Citi Investment Research and Analysis
* ECB definition of Capital & Reserves. Note on BIS data: German exposure data is on an immediate borrower basis; the rest is on an ultimate risk basis. "Public sector" = sovereign. "Banks"= exposure to funding instruments issued by banks in that country or by of foreign banks subsidiaries in that country. "Non-bank private"=loans to the private sector (mortgages, SME loans, corporate loans). Consolidated bank subsidiaries' exposures in another country are not counted (i.e., no double-counting). Unconsolidated subsidiaries' exposures are classified as "Non-bank private" exposures.
** Core Europe = Germany, France, Italy, UK. Europe as defined in BIS data includes Austria, Belgium, Finland, France, Germany, Greece, Ireland, Italy, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland, Turkey, United Kingdom.

The table below shows the total exposure of the ECB to the peripheral countries. In the case of principal losses, the member states of the ECB would have to plug any solvency gap in proportion to their share in the subscription capital of the Bank. Currently, the Eurosystem capital and reserves are €81.5bn which includes ECB's paid-in capital of €5.3bn and ECB's provisions of €5.2bn.

Figure 7. ECB – Holdings of Sovereign Debt and Lending to Peripheral Banks (€ bn)

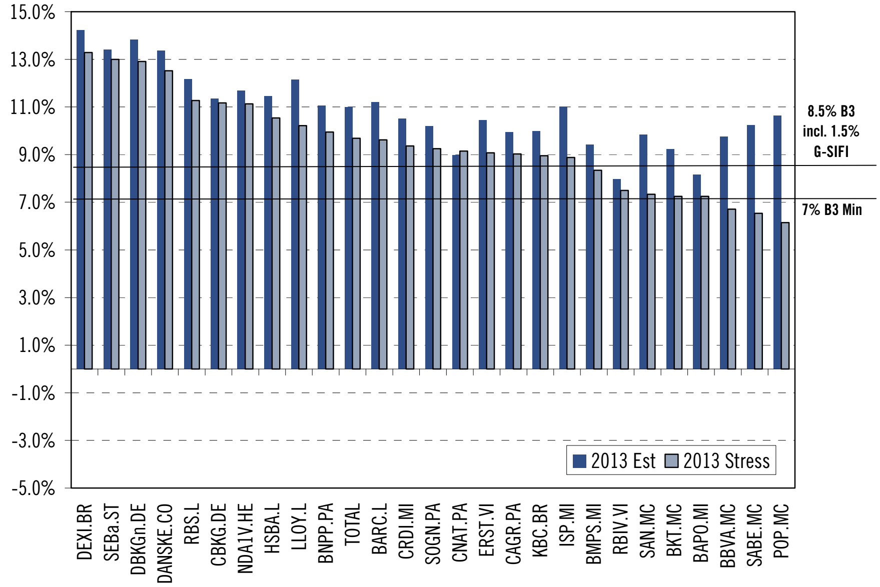
	Greece	Ireland	Portugal	Italy	Spain	Total
Gvt debt in SMP (nominal)	60	18	20	0	0	98
Gvt debt in SMP (purchase)	42	14	18	0	0	74
Refinancing operations	87	126	41	47	57	359
Total	**129**	**140**	**59**	**47**	**57**	**433**

Source: "A House Built on Sand", OpenEurope; Citi Investment Research and Analysis

Bottom-Up Stress: No Capital Needs for Core Country Banks

In anticipation of the European Banking Association's stress tests we conduct our own stress tests (the EBA results are due to be announced at end-June or in July). We stress individual banks along three dimensions: sovereign losses, asset quality and funding costs. Our methodology is described in the following pages.

Figure 8. Bottom-Up Stress Test – Estimated and Stressed 2013 Core Equity Tier 1 Ratios (Basel 2) (%)



Source: Company reports, Citi Investment Research and Analysis

For the 26 banks, the core equity Tier 1 ratio (Basel 2) drops from an estimated 11.0% in 2013 to a stressed level of 9.7%

- For the 26 banks whose potential losses we calculate explicitly, **the core equity Tier 1 ratio (Basel 2) drops from an estimated 11% in 2013 to a stressed level of 9.7% (Figure 9). Calibrating to a 7% minimum, the capital shortfall is €2bn.**

- **No banks from Core countries are affected.** Three Spanish banks would need to raise capital: BBVA (€1bn), Popular (€0.8bn) and Sabadell (€0.3bn). For the **local Spanish**, the capital shortfall is mostly due to higher stressed loan losses. For the international Spanish banks, the driver is Spanish sovereign exposure – especially at BBVA which has higher exposure than Santander.

Under our bottom-up stress test, 26 banks experience after-tax losses of €112bn – with €2bn capital needs

- Under our stress test, **the 26 banks experience after-tax losses of €112bn** (Figure 10) – with c.15% deriving from peripheral sovereign exposures, c.50% from deteriorating asset quality (in the total book, including non-peripheral loans) and c.35% from higher funding costs.

Figure 9. Bottom-Up Stress Test – Results *

Bank	RIC	Equity Tier 1 Ratio		Capital Needed to CET1 Ratio (Basel II)	
		2013	2013S	2013	2013S
Banco Popolare	BAPO.MI	8.1%	7.2%	0	0
Banco Popular	POP.MC	10.6%	6.1%	0	798
Banco Sabadell	SABE.MC	10.2%	6.5%	0	263
Banco Santander	SAN.MC	9.8%	7.3%	0	0
Bankinter	BKT.MC	9.2%	7.2%	0	0
Barclays	BARC.L	11.2%	9.6%	0	0
BBVA	BBVA.MC	9.8%	6.7%	0	1,052
BNP Paribas	BNPP.PA	11.0%	9.9%	0	0
Commerzbank	CBKG.DE	11.3%	11.2%	0	0
Credit Agricole *	CAGR.PA	9.9%	9.0%	0	0
Danske Bank	DANSKE.CO	13.4%	12.5%	0	0
Deutsche Bank	DBKGn.DE	13.8%	12.9%	0	0
Dexia **	DEXI.BR	14.2%	13.3%	0	0
Erste Bank	ERST.VI	10.4%	9.1%	0	0
HSBC	HSBA.L	11.4%	10.5%	0	0
Intesa Sanpaolo	ISP.MI	11.0%	8.9%	0	0
KBC	KBC.BR	10.0%	9.0%	0	0
Lloyds Banking Group	LLOY.L	12.1%	10.2%	0	0
Monte dei Paschi	BMPS.MI	9.4%	8.3%	0	0
Natixis	CNAT.PA	9.0%	9.1%	0	0
Nordea	NDA1V.HE	11.7%	11.1%	0	0
Raiffeisen	RBIV.VI	8.0%	7.5%	0	0
RBS	RBS.L	12.2%	11.3%	0	0
SEB	SEBa.ST	13.4%	13.0%	0	0
Societe Generale	SOGN.PA	10.2%	9.3%	0	0
UniCredit	CRDI.MI	10.5%	9.4%	0	0
TOTAL		**11.0%**	**9.7%**	**0**	**2,114**

Source: Company reports, Reuters, CEBS, EBA, ECB, Central banks, BIS, Citi Investment Research and Analysis

* Credit Agricole has only disclosed Credit Agricole Group sovereign exposures (and not of CASA). Our analysis assumes all sovereign is held as CASA level, which could therefore overstate the estimated impact of restructuring.

** Dexia calculations under Basel 2 do not take into account the negative impact of bank's frozen AFS reserve on its capital position.

These results roughly dovetail with the results of another, top-down, stress test we perform in a later section (Figure 10). Under that test, after-tax losses would amount to €139bn to banks under Citi coverage and €291bn to the whole European banking system (BIS). Total system losses would be nearly evenly split among the three types of peripheral exposure (to total €291bn). The reason loan losses feature more prominently in the bottom-up stress test is because we stress the entire loan book of the 26 banks – and in the top-down stress test we stress only the peripheral loan exposures.

Figure 10. Stress Tests – Comparison Between Results of Bottom-Up and Top-Down Stress Test Results (€bn)

Type of Loss (after-tax)	Bottom-Up Stress: 26 Individual Banks	Top-Down Stress: Citi Banks Coverage	Top-Down Stress: Europe Bank Systems *
Sovereign	39	43	90
Loans	55	48	101
Funding	19	48	100
Total	**112**	**139**	**291**

Source: BIS, ECB, Central banks, Reuters, Datastream, Citi Investment Research and Analysis
* BIS reporting banks / countries

Bottom-Up Stress Methodology

Our sovereign bond stressed prices are generally in-line with the stress assumptions under EBA's 2011 stress test

To stress for **sovereign risk**, we apply the marks in Figure 12 to the banks' capital & reserves and capital to the exposures in Figure 11. Our stressed bond prices are generally in-line with the stress parameters under EBA's proposed 2011 stress test, which prescribes percentage drops in bond prices. **Our stress assumptions for bond prices in a stress scenario are: 40% for Greece, 61% for Ireland, 67% for Portugal and 82% for Spain.**

These are by no means the worst-case assumptions, which could well be much greater if contagion spreads to Spain. EBA sovereign stress assumptions may still be considered optimistic by some investors; in no way do we use them to define the upper bound of losses.

Our methodology is different to EBA's: we stress the ENTIRE sovereign book

Our methodology is different to EBA's. While EBA is likely to only stress the trading sovereign book (fair value through P&L, AFS) of the banks, we also stress the banking sovereign book (AFS, HTM). As a reminder, c.80% of most Developed Europe banks' banking sovereign books are classified as AFS hence negative marks on peripheral sovereign debt should already have been reflected in reported book value numbers (but not in regulatory capital calculations). For Greek banks, 80% of the banking book is HTM after reclassifications back in April/May 2010. In any case, we mark to market the entire book, including HTM, as our underlying assumption is that EBA's stressed values would be reached under a scenario that acts as an "impairment trigger" in accounting terms.

Figure 11. European Banks – Sovereign Debt Exposure (in million)

				Total sovereign exposure (net of hedges)			
Bank	**RIC**	**Domicile**	**CCY**	**Greece**	**Ireland**	**Portugal**	**Spain**
Banco Popolare	BAPO.MI	Italy	EUR	89	0	0	151
Banco Popular	POP.MC	Spain	EUR	0	0	657	7,574
Banco Sabadell	SABE.MC	Spain	EUR	0	0	105	4,869
Banco Santander	SAN.MC	Spain	EUR	300	0	1,600	21,000
Bankinter	BKT.MC	Spain	EUR	0	0	0	1,735
Barclays	BARC.L	UK	GBP	388	15	1,024	4,376
BBVA	BBVA.MC	Spain	EUR	104	0	133	31,902
BNP Paribas	BNPP.PA	France	EUR	5,046	351	1,875	3,708
Commerzbank	CBKG.DE	Germany	EUR	3	0	1	4
Credit Agricole	CAGR.PA	France	EUR	655	111	1,060	2,241
Danske Bank	DANSKE.CO	Denmark	EUR	0	655	0	41
Deutsche Bank	DBKGn.DE	Germany	EUR	1,092	-69	-81	1,009
Dexia	DEXI.BR	Belgium	EUR	3,462	0	0	0
Erste Bank	ERST.VI	Austria	EUR	757	105	270	233
HSBC	HSBA.L	UK	USD	1,935	816	698	101
Intesa Sanpaolo	ISP.MI	Italy	EUR	828	156	25	556
KBC	KBC.BR	Belgium	EUR	600	0	0	0
Lloyds Banking Group	LLOY.L	UK	GBP	0	0	0	0
Monte dei Paschi	BMPS.MI	Italy	EUR	35	3	93	116
Natixis	CNAT.PA	France	EUR	5	0	3	3
Nordea	NDA1V.HE	Sweden	EUR	249	0	0	37
Raiffeisen	RBIV.VI	Austria	EUR	2	0	2	3
RBS	RBS.L	UK	GBP	2,010	4,280	660	821
SEB	SEBa.ST	Sweden	EUR	151	0	76	152
Societe Generale	SOGN.PA	France	EUR	2,100	0	400	1,200
UniCredit	CRDI.MI	Italy	EUR	801	80	186	537

Source: Company reports, CEBS 2010 data, Company disclosure, Citi Investment Research and Analysis

Figure 12. Bottom-Up Stress Test – Sovereign Loss/Marks Assumptions

5-year Bond Price	Greece	Ireland	Portugal	Spain
Purchase price	**100%**	**100%**	**100%**	**100%**
End-4Q10	75%	90%	90%	98%
Current (15 June 2011)	50%	73%	80%	94%
Stressed 5-10Y	**40%**	**61%**	**67%**	**82%**

Source: Reuters, EBA, Citi Investment Research and Analysis

For loan losses, we apply a 100% increase to the currently estimated cumulated cost of risk over 2011-13 for the smaller peripheral banks; 50% for the international peripheral banks; and 25% for everyone else

To stress for **asset quality,** we apply the assumptions in Figure 13 below on a bank-by-bank basis. We apply a 100% increase to the currently estimated cumulated cost of risk over 2011-13 for the smaller peripheral banks; 50% for the international peripheral banks; and 25% for everyone else. In certain cases (Italian banks), stressed cost of risk assumptions are derived bottom-up from the split of the loan book. As a result, the 2011-13 cumulated cost of risk for the 26 banks moves from 212 bps (current estimate) to 292 bps (stressed), an increase of 37%. We believe this is a severe enough assumption, as asset quality has started to improve in most European countries.

Figure 13. Bottom-Up Stress Test – Cost of Risk Assumptions, Cumulated 2011-13 (bps)

Bank	Base	Stressed	Chg %
Banco Popolare	212	330	56%
Banco Popular	362	725	100%
Banco Sabadell	226	451	100%
Banco Santander	324	485	50%
Bankinter	106	211	100%
Barclays	271	406	50%
BBVA	319	478	50%
BNP Paribas	135	169	25%
Commerzbank	119	149	25%
Credit Agricole	173	216	25%
Danske Bank	85	106	25%
Deutsche Bank	97	121	25%
Dexia	163	204	25%
Erste Bank	277	347	25%
HSBC	246	307	25%
Intesa Sanpaolo	189	300	59%
KBC	153	191	25%
Lloyds Banking Group	297	372	25%
Monte dei Paschi	188	308	64%
Natixis	35	43	25%
Nordea	40	49	25%
Raiffeisen	334	418	25%
RBS	329	411	25%
SEB	12	15	25%
Societe Generale	156	195	25%
UniCredit	256	349	36%
TOTAL	**212**	**292**	**37%**

Source: Company reports, Citi Investment Research and Analysis

We apply a funding stress differentiated by the type of bank

Lastly, we apply a **funding stress** differentiated by the type of bank – by reducing Gross Operating Profit as detailed in Figure 14. We also assume an unchanged dividend policy.

The funding stress in our bottom-up approach may appear to be less onerous than the top-down stress test at first glance (see section *Top-Down: Higher Funding Costs*): with bottom-up losses coming in at €19bn vs. €48bn for Citi's coverage as derived from the top-down test. The reason for this is that we stress the entire EU27 banking system in the latter test and then scale down in size to estimate losses for banks under Citi coverage. The EU27 system includes a number of non-quoted banks, Landesbanken, cajas, Raiffeisenbanken, etc. These would likely experience large % increases in the cost of funding and would likely play an even larger part in a funding-driven delevering of balance sheets.

Figure 14. Bottom-Up Stress Test – Funding Stress-Test Assumption – Decline in Gross Operating Profit by Year and Type of Bank Relative to Current Estimates

	Retail	Universal	Wholesale
2010	5%	8%	10%
2011	10%	13%	15%
2012	15%	18%	20%

Source: Citi Investment Research and Analysis

Top-Down Stress: €70bn 'Core Coverage' Losses

The risk factors surrounding European banks currently include first and foremost losses stemming from the sovereign crisis (sovereign debt losses, losses from deteriorating asset quality in the peripheral countries, and higher funding costs). Additional risk factors include regulatory moves towards higher capital requirements, stricter liquidity and "stable funding" requirements as well as subdued GDP growth resulting in lower than expected volumes. While the additional risk factors are hard to quantify, we believe that sovereign risk is the biggest worry on investors' minds at the moment.

In a stress-test top-down scenario, losses to the Core banks under our coverage could amount to c.€70bn – and €100bn to the banking systems in the Core countries

- Our conclusion is that, in our stress scenario, **the Core banks under our coverage would experience losses of c.€70bn.** We explain our methodology in the following pages.

- For the Core banking systems (Germany, France, Italy, UK), losses could amount to c.€100bn (Figure 15 and Figure 17) – split evenly among sovereign losses, losses from impaired loans, and from higher funding costs. For the European banking system (BIS) overall, losses could approach €290bn.

Figure 15. Top-Down Stress Test – Results, Losses by Source and Type (€bn)

	Banks in...			
By Source	**Core ***	**Periphery ***	**Rest of Europe**	**Europe**
PT/IR/GR losses	24	80	5	109
Spain Contagion	74	92	16	182
Total	**98**	**172**	**21**	**291**
o/w Citi coverage	69	58	13	139
By Type of Loss	**Core**	**Periphery**	**Rest of Europe**	**Europe**
Sovereign	20	65	4	90
Loans	13	84	4	101
Funding	64	23	13	100
Total	**98**	**172**	**21**	**291**
o/w Citi coverage	69	58	13	139

Source: Company reports, Reuters, CEBS, EBA, ECB, Central banks, BIS, Citi Investment Research and Analysis
* Core = Germany, France, Italy, UK. Periphery = Greece, Ireland, Portugal, Spain. Europe = as defined by the 16 European countries reporting to BIS.

French banks appear to be c.16% undervalued

We believe that the market is overly bearish on the Core banking systems (Figure 16). At 7% stressed common equity Tier 1 ratio French banks appear to us to be c.16% undervalued. The German and Italian banks are undervalued by 15% and 5%, respectively. And the UK banks are undervalued by 13%. The German, Italian and UK banks face sets of issues on their own: restructuring, proximity to peripheral risk and an activist regulator, respectively. On the other hand, we believe that the French banks would be major beneficiaries of the upcoming G-SIFI rules and the EU's implementation of Basel 3 rules via CRD4/Maximum Harmonisation. In addition, French retail is one of the very few growth areas in Europe in the short- to medium-term.

Figure 16 illustrates our calculations in estimating under- and over-valuation. The idea behind the calculations is that the market is currently pricing in losses from sovereign exposures which partly offset any surplus above a "stressed equity Tier 1 ratio". Market participants we have spoken to often allude to 7% as being a minimum level of capitalization they would like the banks to have in a stress scenario.

Figure 16. Top-Down Stress Test – Valuation Implications (Market data as of 21 June 2011)

System	2011E Tang BV, €bn	Core Equity Tier 1, €bn	2011E RWA (B3), €bn	2011 Tang BV @ 7.0% CET1 Ratio (B3), €bn	2012E Attributable Profit, €bn	2012E ROE @ 7.0% CET1R	CoE, %	Growth, %	Theoretical P/TBV	Normal'd Price, €bn	Stressed Price, €bn	Market Cap, €bn	(Under) / Overval., %	Shortfall/ Excess, €bn	Stress test Losses, €bn
Germany	64	64	848	59	10	16.8%	13%	2%	1.34	75	70	59	**-15%**	4	-9
France	132	146	2,000	140	21	15.3%	12%	2%	1.33	176	155	130	**-16%**	6	-28
Italy	99	95	1,165	82	10	12.1%	13%	2%	0.92	70	74	70	**-5%**	14	-10
UK	266	270	2,852	200	33	16.6%	12%	2%	1.46	276	323	283	**-13%**	71	-21
Derivation	A1	A2	B	C = 7% * B	D	E = D / C	F	G	H = (E-G)/(F-G)	I = C * H / (1+F)^0.5	J = I + L + M	K	**K / J - 1**	L = A2 - C	M

Source: Company reports, Citi Investment Research and Analysis, Reuters and dataCentral

Figure 17. Top-Down Stress Test – Detailed Results (€bn)

By Type of Loss	Germany	France	Italy	UK	Core Europe	Greece	Ireland	Portugal	Spain	GR/IR/PT/SP	Other Eur	Europe
Sovereign	**9**	**7**	**1**	**2**	**20**	**25**	**7**	**6**	**27**	**65**	**4**	**90**
PT/IR/GR	7	5	1	2	14	25	7	6	1	39	3	57
Spain	2	2	0	1	6	0	0	0	26	26	1	33
Loan Losses	**4**	**4**	**1**	**5**	**13**	**13**	**10**	**16**	**45**	**84**	**4**	**101**
PT/IR/GR	3	3	0	4	10	13	10	16	2	41	2	53
Spain	1	1	0	1	4	0	0	0	43	43	2	48
Funding	**13**	**22**	**13**	**16**	**64**	**3**	**5**	**3**	**12**	**23**	**13**	**100**
Total	**26**	**33**	**15**	**23**	**98**	**41**	**22**	**26**	**84**	**172**	**21**	**291**

By Source of Loss	Germany	France	Italy	UK	Core Europe	Greece	Ireland	Portugal	Spain	GR/IR/PT/SP	Other Eur	Europe
PT/IR/GR losses	**10**	**8**	**1**	**5**	**24**	**37**	**17**	**22**	**3**	**80**	**5**	**109**
Sovereign	7	5	1	2	14	25	7	6	1	39	3	57
Loans	3	3	0	4	10	13	10	16	2	41	2	53
Spain Contagion	**17**	**26**	**14**	**18**	**74**	**3**	**5**	**3**	**81**	**92**	**16**	**182**
Sovereign	2	2	0	1	6	0	0	0	26	26	1	33
Loans	1	1	0	1	4	0	0	0	43	43	2	48
Funding	13	22	13	16	64	3	5	3	12	23	13	100
Total	**26**	**33**	**15**	**23**	**98**	**41**	**22**	**26**	**84**	**172**	**21**	**291**
Citi Coverage Losses	**9**	**28**	**10**	**21**	**69**	**28**	**0**	**0**	**29**	**58**	**13**	**139**
Citi Cov. Losses % System Losses (est)	35%	85%	70%	90%	71%	70%	0%	0%	35%	34%	60%	48%
Citi Cov. Assets % System Assets (2010A)	37%	66%	57%	74%	59%	74%	0%	0%	63%	43%	60%	57%

Source: Citi Investment Research and Analysis; BIS, ECB, dataCentral

Top-Down: Sovereign Debt Losses

We use BIS and Central Banks data to calculate sovereign debt losses under a stress scenario. Our sovereign risk stress assumptions are consistent with our bottom-up stress assumptions and are in-line with the stress assumptions under EBA's 2011 stress test. **Our stress assumptions for sovereign bond prices are: 40% for Greece, 61% for Ireland, 67% for Portugal and 82% for Spain.**

As discussed previously, these are by no means the worst-case assumptions, which could well be much greater if contagion spreads to Spain. EBA sovereign stress assumptions may still be considered optimistic by some investors; in no way do we use them to define the upper bound of losses.

Figure 18. Top-Down Stress Test – Sovereign Debt Stress Parameters

5-yr Bond prices -- AFS	Stressed Prices	end-4Q10	end-1Q11	15-Jun-11	Stressed Prices vs. 15-Jun-11, ppt
Greece	40%	74%	70%	50%	-20%
Ireland	61%	86%	76%	73%	-16%
Portugal	67%	90%	87%	80%	-16%
Spain	82%	93%	95%	94%	-12%

Source: Reuters, Citi Investment Research and Analysis

The charts below show historical evolution of sovereign debt prices. Except for Spain, the three peripheral bond prices are hitting lows for recent decades. And even Spain is not too far from the lows of the early 1990s.

Figure 19. Spain – 5yr Sov Bond, 1991-2011

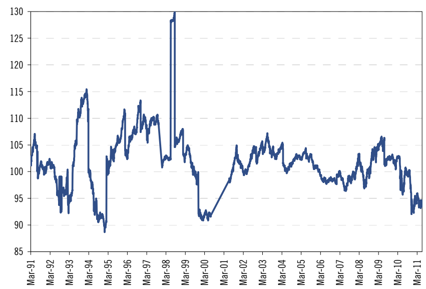


Figure 20. Ireland – 5yr Sov Bond, 1999-2011

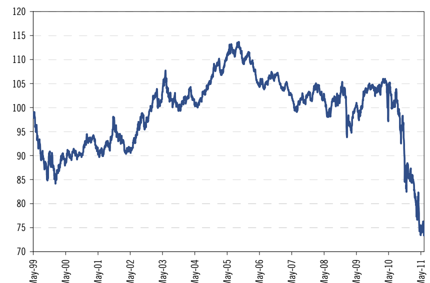


Figure 21. Portugal – 5yr Sov Bond, 1994-2011

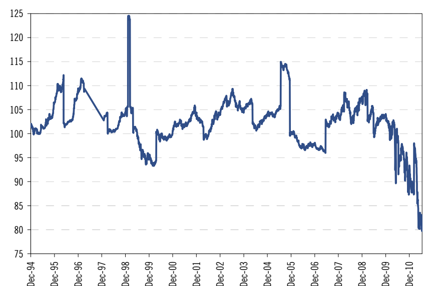


Figure 22. Greece – 5yr Sov Bond, 1998-2011

Source: Reuters for all charts

Our stress test on the above assumptions leads to a €90bn estimate of losses at the European level, of which €57bn is due to losses on Greek, Irish and Portuguese debt while €33bn is on Spanish debt

Our stress test on the above assumptions leads to a €90bn estimate of losses at the European level, of which €57bn is due to losses on Greek, Irish and Portuguese debt while €33bn is on Spanish debt. Of the eight banking systems we consider individually, the Greek system is most affected with losses wiping out 57% of 4Q10 capital & reserves. The Portuguese banking system is second most-affected with 14% impact to equity and the Spanish system is third with a 10% hit. German banks are relatively less affected with 2.4% impact while the French would have a 1.6%.

A note on the accounting is due at this point. If the above losses were on a mark-to-market basis, the hit would be to book value only (through Other Comprehensive Income). However, if there ever were an "impairment trigger" as defined under IFRS rules, the impairment would need to be taken through the P&L into retained earnings and would therefore also impact the calculation of regulatory capital. For a detailed discussion on the accounting treatment for restructuring sovereign debt, please see *The Standards: Sovereign Debt Questions - Accounting for Government Debt Restructuring or Rescheduling*.

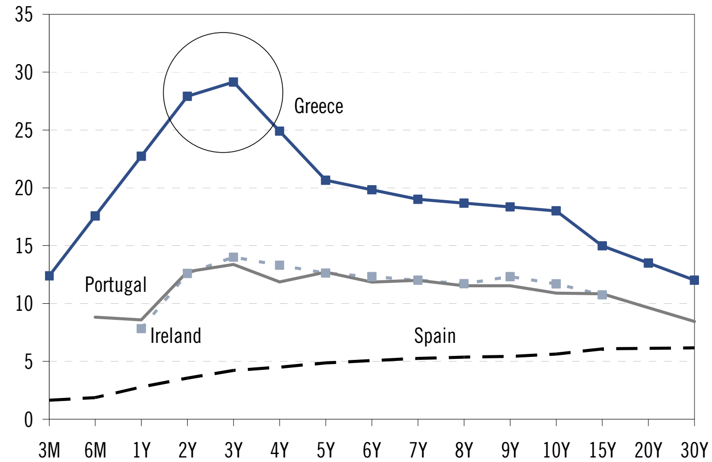
Figure 23. European BIS-Reporting & Peripheral Banking Systems – Sovereign Debt Stress Test (USD$ and € bn) *

	Germany	France	Italy	UK	Core	Greece	Ireland	Portugal	Spain	GR/IR/PT/SP	Other Eur	Europe
Greece	7.5	5.0	0.8	1.1	14.4	34.8	0.0	0.0	0.3	35.1	2.6	52.1
Ireland	0.5	0.7	0.1	0.7	2.0	0.0	9.9	0.0	0.0	9.9	0.5	12.4
Portugal	1.4	1.5	0.1	0.4	3.4	0.0	0.0	8.7	1.5	10.2	0.9	14.6
Spain	3.2	3.4	0.6	1.1	8.2	0.0	0.0	0.0	36.5	36.5	1.6	46.2
Total impact (USD$ bn)	**12.6**	**10.5**	**1.6**	**3.3**	**28.0**	**34.8**	**9.9**	**8.7**	**38.3**	**91.7**	**5.6**	**125.3**
Total impact (€ bn)	**9.0**	**7.5**	**1.1**	**2.4**	**20.0**	**24.8**	**7.1**	**6.2**	**27.4**	**65.5**	**4.0**	**89.5**
% shareholders equity	2.4%	1.6%	0.3%	0.3%	1.0%	56.5%	6.4%	14.3%	9.7%	13.6%	0.7%	3.0%

Source: BIS, central banks, ECB, CIRA * Data as of end-4Q10

We estimate the market is pricing in a non-trivial probability of a "credit event" for both Ireland and Portugal two- to three-years from now. Ireland's 3-yr yield at 14% is the highest along the Irish sovereign yield curve. Similarly, for Portugal, the 3-yr yield of 13% is the highest. As for Greece, the 3-yr yield is approaching 30%, a record high since the founding of the euro area.

Figure 24. Peripheral Sovereign Yield Curves, 15 June 2011 (in ppt) *



Source: Reuters, CIRA * Yield curves have been smoothed for missing maturity points.

Top-Down: Asset Quality Risks

During a sovereign crisis, declines in (the rate of growth of) consumption, trade and investment generally leads to lower GDP growth rates and a higher unemployment rate. Asset quality subsequently deteriorates. As Figure 25 shows, the NPL ratio in Ireland is approaching 13% while in Greece it is inching towards 11%. The underlying NPL ratios may be higher as certain restructured or flexible terms loans do not formally fall into the NPL category.

Figure 25. Peripheral Banking Systems – Asset Quality Stats, Latest Reported (2H10 or 1Q11)

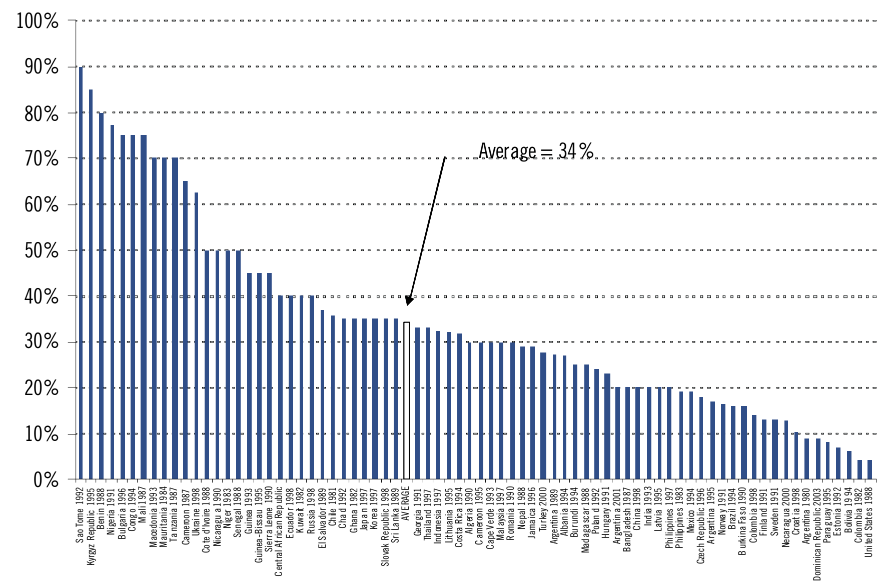
	NPL Ratio %	Coverage Ratio %	Provisions / Loans	Loans €bn	NPL Volumes €bn	Cumulated Provisions €bn
Greece	10.4%	45%	4.7%	257	27	12
Ireland	12.8%	55%	7.1%	335	43	24
Portugal	4.1%	100%	4.1%	334	14	14
Spain	5.8%	67%	3.9%	1844	107	72
Total	**6.9%**	**68%**	**4.5%**	**2,769**	**190**	**121**

Source: Company reports, central banks, IMF, Citi Investment Research and Analysis

Analysis by the IMF has shown that during previous banking crises or sovereign defaults the NPL ratio has peaked, on average, at 34%

Analysis by the IMF has shown that during previous banking crises or sovereign defaults the NPL ratio has peaked, on average, at 34%. The range is rather wide, at 4% (1988, US banking crisis) to 90% (1992, Sao Tome sovereign default).

Figure 26. Peak NPL Ratios Following Banking Crisis or Sovereign Default *



Source: IMF * Based on local methodologies

For the four peripheral countries, the combined stressed NPL ratio increases from 6.9% to 13.0%

Our stress test assumptions for asset quality assume a meaningful increase in the NPL ratios (Figure 27). **For the four peripheral countries, the combined NPL ratio increases from 6.9% to 13.0%.** We calculate the additional losses on loans at existing coverage ratios (68% combined for the four countries) to arrive at an additional cumulative provision to the loan book of 3.8%, on top of the 4.5% already provided for.

Figure 27. Peripheral Banking Systems – Asset Quality Stress Assumptions

Country	Current NPL Ratio	Stressed NPL Ratio	Add'l Losses % Loans *
Greece	10.4%	25.0%	6.6%
Ireland	12.8%	20.0%	4.0%
Portugal	4.1%	10.0%	6.0%
Spain	5.8%	10.2%	2.9%
Total (%)	**6.9%**	**13.0%**	**3.8%**

Source: Citi Investment Research and Analysis * Additional NPLs are assumed to be provided for at current coverage ratios.

We estimate the stress-test scenario for peripheral loan losses is c.€100bn (3.4% of capital & reserves), of which €13bn are the true cross-border losses of Germany, France, Italy and the UK

We estimate the stress test scenario loss for peripheral loan losses at c.€100bn (3.4% of capital & reserves), of which €13bn are the true cross-border losses of Germany, France, Italy and the UK (Figure 28). The rest are losses sustained by domestic peripheral banks from domestic loan losses (Spain €45bn, Portugal €16bn, Greece €13bn, Ireland €10bn). Among the 'core' European countries, Germany's losses would be highest as % of capital & reserves – albeit at only 1.1%.

Figure 28. European BIS-Reporting & Peripheral Banking Systems – Asset Quality Stress Test (USD$ bn and € bn) *

Loan Impairments (USD bn)	Banks in… Ger	France	Italy	UK	Core	Greece	Ireland	Portugal	Spain	G/I/P/S	Other Eur	Europe
Greece	0.6	2.8	0.1	0.6	4.2	17.7	0.0	0.0	0.0	17.7	1.2	23.1
Ireland	3.1	0.6	0.4	4.0	8.0	0.0	14.0	0.0	0.3	14.3	1.9	24.3
Portugal	0.4	0.4	0.0	0.5	1.3	0.0	0.0	22.8	2.1	24.9	0.2	26.4
Spain	1.7	1.5	0.3	1.6	5.2	0.0	0.0	0.0	60.0	60.0	2.2	67.4
Total impact (USD$ bn)	**5.7**	**5.3**	**0.9**	**6.7**	**18.6**	**17.7**	**14.0**	**22.8**	**62.4**	**116.9**	**5.6**	**141.1**
Total impact (€ bn)	**4.1**	**3.8**	**0.6**	**4.8**	**13.3**	**12.7**	**10.0**	**16.3**	**44.6**	**83.5**	**4.0**	**100.8**
% shareholders' equity	1.1%	0.8%	0.2%	0.7%	0.7%	28.8%	9.0%	37.7%	15.8%	17.4%	0.7%	3.4%

Source: BIS, central banks, ECB, CIRA * Data as of end-4Q10

Top-Down: Higher Funding Costs

One of the immediate effects of contagion is higher funding costs for the banks. In previous episodes of the sovereign crisis, interbank secured and unsecured rates shot up meaningfully as did sovereign and senior unsecured spreads across the Euro Area. In addition, availability of funding also became an issue as markets were unwilling to lend money even at a substantially higher cost.

We stress test new required funding for the EU27 banks along these two dimensions: cost and availability; our time horizon is 1 year

We stress test *new required funding* for the EU27 banks along these two dimensions: cost and availability. Our time horizon is 1 year. The analysis involves estimating the "funding balance sheet" of the EU27 banking system from a number of sources as well as the average maturity of each source (in order to estimate the annual rollover rate). We then estimate the existing cost for each type of funding: customer deposits, MFI deposits, interbank, commercial paper, senior secured (such as covered bonds), senior unsecured and hybrids/preferreds.

- Our **cost stresses on new funding** are calibrated to stress episodes in the past, but especially the Lehman (Sept-Oct 2008) and original Greek (April 2010) crisis episodes. For example, we assume that banks scramble to collect deposits whose cost would increase by 75 bps to 3.25% over the year. For term funding, we believe a cost increase of 225 bps, to 6.0%, would not be unrealistic. In the aggregate, the average funding cost rises from 2.03% to a "stressed" level of 3.36%, a 133 bps increase.
- The **availability stresses on new funding** assume that interbank and wholesale funding dries up. For example, we believe that a 25% reduction in MFI deposits, interbank lending and term funding would not be unrealistic in a sovereign crisis worst-case scenario. In addition, we believe banks would delever up to 10% of the existing balance sheet over a 1-year period should the stress-test sovereign scenario last for that long.

But most importantly, we believe that the ECB would have to meet the resulting c.€700bn gap in funding. Such an increase would bring the total of ECB funding to €1.2tn – a third more than the peak amount provided by the ECB in the past.

The net result of our stress test is an increase in systemwide funding costs of €174bn pre-tax, a 25% increase on existing costs over a 1-year period (Figure 29).

Figure 29. EU27 Banks – Top-Down Stress Test on Funding Costs with a 1-year Time Horizon

	Existing Funding				New Funding Stressed								
EU-27	Cost %	O/S €bn	% Total	Cost, €bn	Current Cost, %	Stress Increase	Stressed Cost, %	Chg in O/S, €bn	New O/S, €bn	% Total	Avg Maturity	Avail.	Gross Chg in cost, €bn
Retail / Corp deposits	2.00%	10,125	30%	203	2.50%	0.75%	3.25%	250	10,375	34%	2.00	ok	70
MFI deposits	2.00%	6,900	20%	138	2.00%	2.00%	4.00%	-1,725	5,175	17%	0.08	ok	69
ECB repos	1.25%	500	1%	6	1.25%	0.00%	1.25%	715	1,215	4%	0.17	ok	9
Interbank repos	1.60%	3,010	9%	48	1.60%	1.60%	3.20%	-752	2,257	7%	0.08	ok	24
$ / € ECB swap lines	1.50%	0	0%	0	1.50%	0.00%	1.50%	27	27	0%	0.08	ok	0
CP: €	1.25%	350	1%	4	1.25%	1.25%	2.50%	-88	263	1%	0.50	ok	2
CP: non-€	0.35%	108	0%	0	0.35%	0.35%	0.70%	-27	81	0%	0.50	lower	0
Other secured / unsecured	1.00%	3,627	11%	36	1.50%	0.50%	2.00%	-907	2,720	9%	0.08	lower	18
Term	4.00%	5,862	17%	234	3.75%	2.25%	6.00%	-837	5,024	17%	7.00	ok	-19
Hybrid / Preferred	6.00%	224	1%	13	7.00%	7.00%	14.00%	-32	192	1%	7.00	ok	0
Equity		3,053	9%						3,053	10%			
Total	**2.03%**	**33,759**	**100%**	**684**			**3.36%**	**-3,376**	**30,383**	**100%**			**174**

Source: ECB, ICMA, Fed, central banks, Citi Investment Research and Analysis

The net impact on the bottom-line would be €100bn, or 65 bps on existing system loans and 63% of 2009A net disposable income for the EU27 banking sector

To arrive at an estimate of net impact, we give credit to the banks for repricing through higher benchmarks or higher SVRs as well as for a 25% tax shield. We assume that the full amount of the increase in costs (133 bps) could be passed on to a quarter of existing loans. **The net impact on the bottom-line would be €100bn, or 65 bps on existing system loans and 63% of 2009A net disposable income for the EU27 banking sector.**

Figure 30. EU27 Banks – Top-Down Funding Stress Test Gross & Net Impact

Impact	€ bn	bps on current system loans
Gross impact	174	113
Repricing benefit *	-40	-26
Tax (@25%)	-33	-22
Net impact	**100**	**65**
Memo:		
% 2009 net disposable income	63%	
% of system loans (bps), pre-tax	87	
% of system loans (bps), after-tax	65	
Loans (EUR bn)	15,405	
2009 Net disposable income (EUR bn)	160	
Tax rate assumed	25%	

Source: Citi Investment Research and Analysis * Assumptions: the average loan maturity is 5 years. Overall increase in funding costs is fully passed on to 1/4 of loans through higher benchmark rates or a bank's own Standard Variable Rate. Of the assumed €3.4tn delevering, 50% relates to loans and 50% to securities. Delevering occurs in mid-year. 50% of maturing loans do not renew.

Lastly, we allocate funding costs to specific countries using % Total Assets as a starting point. We then adjust the share of the additional higher funding costs calculated above by taking into account the quality of the loan books held by the non-covered and non-quoted banking sectors (Figure 31).

Figure 31. Top-Down Stress Test – Allocation of Higher Funding Costs (€bn)

Allocation of Funding Losses	Germany	France	Italy	UK	Core	Greece	Ireland	Portugal	Spain	G/I/P/S	Other Eur	Europe *
Funding losses allocation	13%	22%	13%	16%	64%	3%	5%	3%	12%	23%	13%	100%
System Assets % Total Europe Assets	18%	18%	9%	21%	66%	1%	3%	1%	8%	14%	21%	100%
Funding losses (€bn)	13	22	13	16	64	3	5	3	12	23	13	100

Source: ECB, dataCentral, Citi Investment Research and Analysis.

* Europe defined as by BIS reporting banks/countries.

How Contagious Are the Peripheral Sovereigns

Even within the four peripheral countries (Portugal, Ireland, Greece and Spain) analysts and investors should differentiate between those that could be more and those that could be less infectious to the wider European banking system. We believe that the potential contagion risk is based on four important factors:

We believe that the potential contagion risk is based on four important factors

- The initial 'state' of sovereign indebtedness and the forecast path toward stability during the 2010-15 period (including austerity measures);
- For the bailed out peripherals, how aggressive are the assumptions for return to the capital markets;
- The interconnectedness between the peripheral country and the wider European banking system (see earlier section on Interconnectedness); and
- Potential losses from restructuring of sovereign debt to the non-bank sector.

Current and Forecast Fiscal Stability

Greece is in a difficult fiscal situation

Our economists believe that there is a high likelihood of debt restructuring with haircuts in Greece, Ireland and Portugal – compared to which EBA's sovereign stress test parameters appear benign.

With a Debt/GDP ratio of 142% in 2010, and a forecast of 191% in 2015, **Greece** is in a difficult fiscal situation. Our economists expect the fiscal balance as % of GDP to improve from -10.5% in 2010 to -7.5% in 2015. At that point, Greece will still have the highest budget deficit of all peripherals, followed by Ireland at -5.4%. They estimate Greek GDP growth will only return in 2014 and will reach a rather anemic 1.0% in 2015 (Figure 32). The one bright spot for Greece is inflation over the period 2010-15, which we forecast will be the highest among the four peripherals, at an average of 2.4% (Figure 33). Higher inflation chips away at existing debt – but probably hampers export competitiveness and domestic consumption.

Ireland is expected by the IMF to record the best improvement in its fiscal balance

For **Ireland,** the IMF – in a probably somewhat optimistic outlook – estimates GDP growth should increase from -1.0% in 2010 to 3.3% in 2015 and the current account should be slightly positive from 2011 onwards – both driven by increasing exports from the open Irish economy which is likely to regain competitiveness over time. In addition, Ireland is expected by the IMF to record the best improvement in its fiscal balance as % of GDP – of c.8pp over 2010-15.

Portugal will muddle through the next five years with an average GDP decline

Our economists also estimate **Portugal** will record an average GDP decline of -0.3% over the next five years, with growth turning positive only in 2014 (0.6%). Government Debt/GDP will likely increase from 93% in 2010 to 124% in 2015E, below Greece's (191%), in-line with Italy's (124%) and Ireland's (123%) – but much above Spain's (82%, Figure 34), on our estimates. On the positive side of things, Portugal will likely record a large improvement in the fiscal balance from a deficit of 9.1% of GDP in 2010 to an expected deficit of 5.1% in 2015.

Spain is slowly tackling the problems of its banking sector

Spain is slowly tackling the problems of its banking sector. Even though reforms have accelerated since the beginning of the year, investors are still concerned about the recognition of losses in the real estate loans of the caja sector. However, in 2015, our economists expect that Spain will have a budget deficit of 'only' -3.9% of GDP, the lowest among the four peripherals (Figure 35). The country's Debt/GDP will also be the lowest, at 82% in 2015 on Citi economists' estimates and below the psychologically important mark of 90% - the level beyond which economists Reinhart & Rogoff believe growth starts suffering.

Figure 32. Peripheral Countries & Italy – GDP growth, 2010-15E (%) *

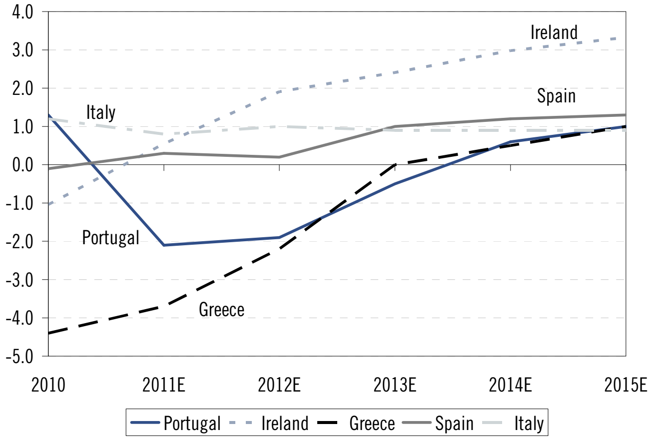
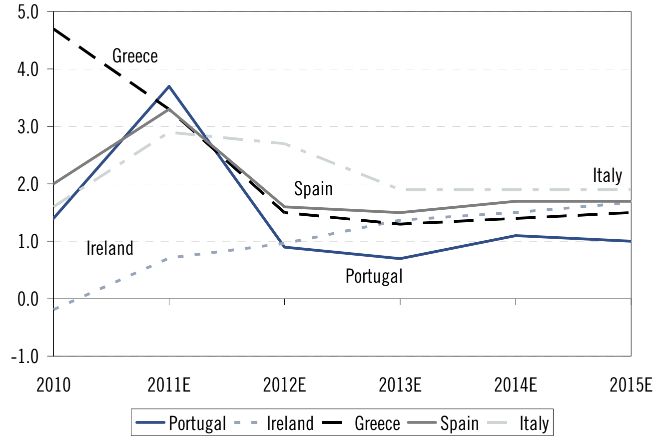


Figure 33. Peripheral Countries & Italy – CPI Inflation, 2010-15E (%) *



Source: Citi Investment Research and Analysis, IMF (Ireland data) * While Italy is not a peripheral country per se, its banks (especially funding costs) are thought to be susceptible to contagion from the peripheral banking systems.

Figure 34. Peripheral Countries & Italy – Gvt Debt/GDP, 2010-15E (%) *

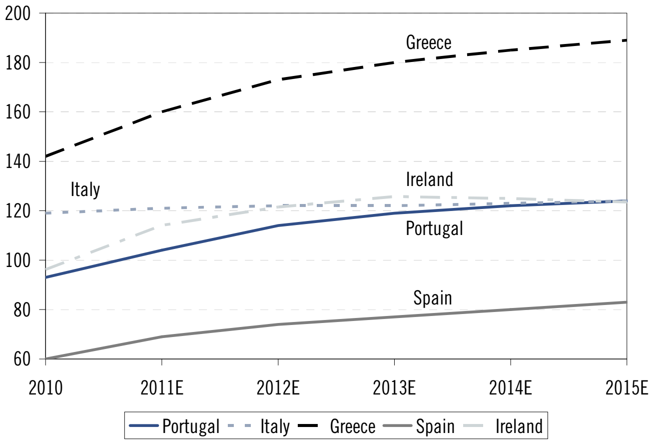
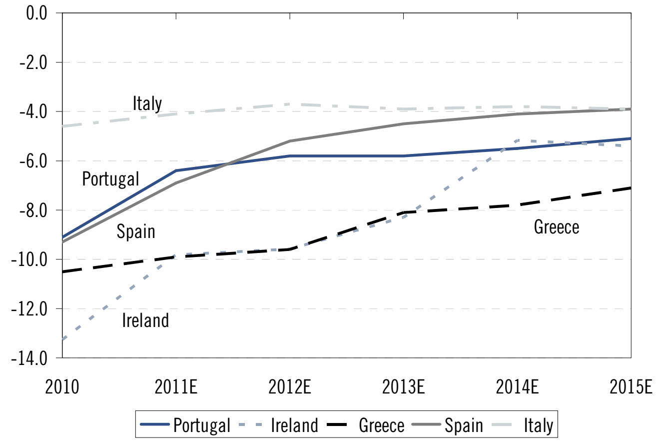


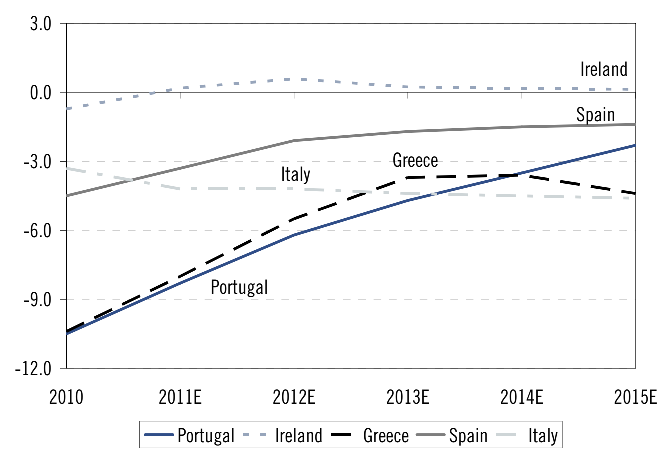
Figure 35. Peripheral Countries & Italy – Fiscal Bal. %GDP, 2010-15E (%)*



Source: Citi Investment Research and Analysis, IMF (Ireland data) * While Italy is not a peripheral country per se, its banks (especially funding costs) are thought to be susceptible to contagion from the peripheral banking systems.

According to our economists, Greece and Ireland are the most advanced in their announcement and planning of austerity measures – which is probably a function of how critical the crisis has been in these two countries (Figure 37). Unfortunately, even Greece's frenetic pace of legislating may not be able to help growth prospects in the short-term.

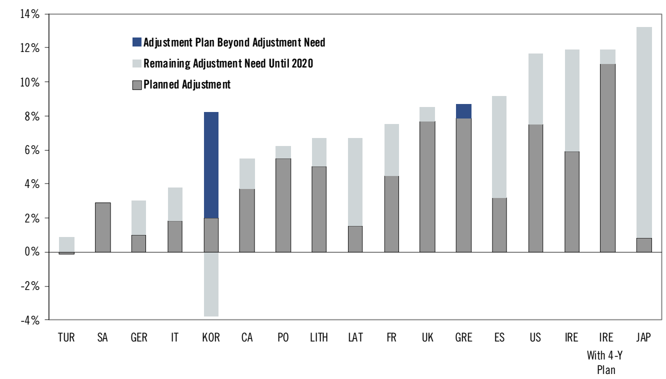
Figure 36. Peripheral Countries & Italy – Current Acct/GDP, 2010-15E (%)*



Source: Citi Investment Research and Analysis, IMF (Ireland data)

* While Italy is not a peripheral country per se, its banks (especially funding costs) are thought to be susceptible to contagion from the peripheral banking systems.

Figure 37. Selected Countries – Planned Adjustment / Remaining Adj.



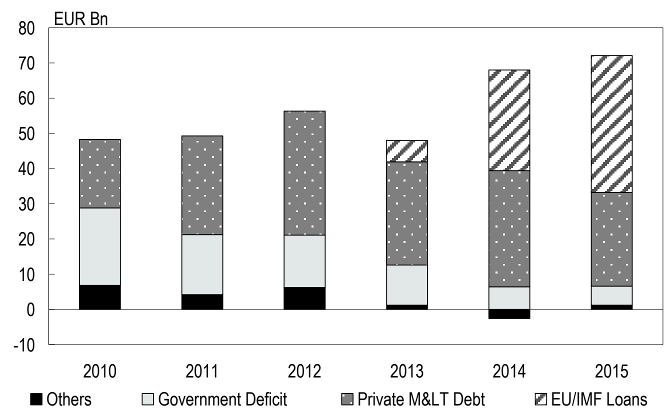
Source: IMF Fiscal Monitor November 2010 and Citi Investment Research and Analysis. Note: Estimated adjustment needs in cyclically adjusted primary balance (CAPB) terms between 2010 and 2020 to achieve debt targets in 2030 (60% of GDP in AEs, 80% for net debt for Japan, 40% in EMs).

Return to the Capital Markets

Greece: IMF/EU's Aggressive Assumptions

Earlier this year, the EU and IMF came to realise that Greece would not be able to return to the capital markets in 2012, as originally planned, due to a deteriorating fiscal position and lack of GDP growth in the near-term. Under the assumptions of the original bailout package, Greece would have tapped the capital markets for €32bn in 2012 and €40bn in 2013 (see Figure 39 and *Euro Weekly - Negotiation Time*). Now, this money will have to be funded by further austerity measures, privatisation proceeds, the IMF/EU and, if Germany's proposal goes ahead, by private bondholders. To complicate matters further, the IMF has insisted on specific funding plans for Greece through the following 12 months as a pre-condition of disbursing the fifth tranche of the original bailout package.

Figure 38. Greece – Funding Needs, 2010-15E



Source: Citi Investment Research and Analysis, BIS, ECB, EU Commission, IMF

Figure 39. Greece – Funding Needs & Potential Availability, 2011-15 *

	2011E	2012E	2013E	2014E	2015E
Public sector financing needs					
Government Deficit	17	15	11	6	5
M&LT Debt amort.	28	35	35	62	66
Private M&LT Debt	28	35	29	33	27
EU/IMF Loans	0	0	6	29	39
Others	4	6	1	-3	1
Total needs	**49**	**56**	**48**	**65**	**72**
Available public sector funding					
EU/IMF	49	24	8	0	0
Private bondholders	0	0	0	0	0
Gross supply	**0**	**32**	**40**	**65**	**72**

Source: Citi Investment Research and Analysis * Assuming €0 private debtholder participation

Various options have been proposed to deal with Greece's debts, with two gaining particular traction: a voluntary rollover of maturing debt and a wholesale extension of all debt by 7 years

The Greek government responded with proposals for a new package of austerity measures which it forecasts will shrink the deficit to -1.1% in 2015 vs. -14.4% under a "baseline" scenario of no policy change. The point of contention has been around how to involve the private debtholders. Various options have been proposed, with two gaining particular traction: a voluntary rollover of maturing debt and a wholesale extension of all debt by 7 years.

The former proposal is favoured by the ECB as it is perceived as not triggering a "selective default" by the rating agencies or a "credit event" under the definitions of the ISDA Determinations Committee (which regulates the CDS market; see *Sovereign rescheduling: what triggers CDS? - Scylla, Charybdis and the lure of the lotus eaters*). To put the proposal in perspective, the funding shortfall amounts to €72bn over 2011-13. In order to make a par-for-par rollover, the coupon on the new bonds will have to be 18% (assuming 7-year new bonds). At that coupon rate, Greece's Debt/GDP would grow by an additional 4 ppt every year due to the higher coupon alone. So a lower coupon with other sweeteners may be needed, in the form of preferred creditor status for the new bonds which, in its turn, runs the risk of triggering selective default due to negative pledges on existing debt.

The latter proposal involving a wholesale extension of maturity is favoured by Germany as a form of burden sharing by the private debtholders but is also more likely to cause a selective default for the rating agencies. Germany's taxpayers are experiencing a case of bailout fatigue – while Chancellor Merkel is unlikely to gain any popularity as more bailout money is spent in future.

The inability of the EU to agree on a favoured approach has made the market extremely nervous. Greek 2-year government yields are approaching 30% and Greece itself has, in the meantime, been downgraded to CCC my S&P and Caa by Moody's – the world's lowest sovereign credit rating.

Figure 40. Peripherals & Italy – Gross Capital Markets Supply Projections, 2011E-2013E (€ bn)

Country	2011E	2012E	2013E	2011-13
Portugal	6	0	10	16
Ireland	0	0	12	12
Greece	-1	12	23	34
3 countries	**5**	**12**	**45**	**62**
Spain	98	84	86	268
4 countries	**103**	**96**	**131**	**330**
Italy	161	188	145	494
5 countries	**264**	**284**	**276**	**824**

Source: IMF documents relating to bailout agreements with Greece, Portugal, Spain; Citi Investment Research and Analysis

Appendix: Funding Markets Update

Figure 41. 3M LIBOR Rates, 2010-YTD (in bps)

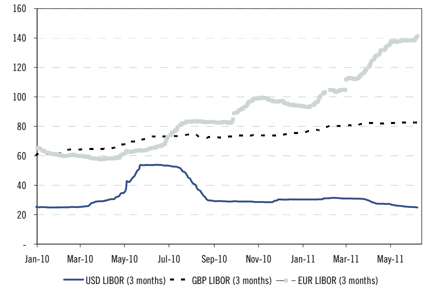
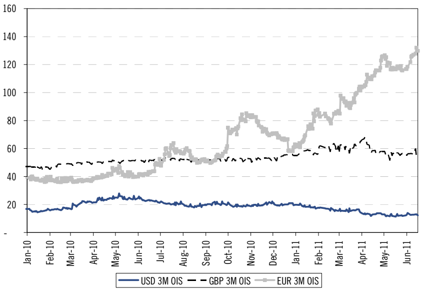


Figure 42. 3M OIS, 2010-YTD (in bps)



Source: Reuters

Figure 43. EUR CP Yields – 2010-YTD (in bps)

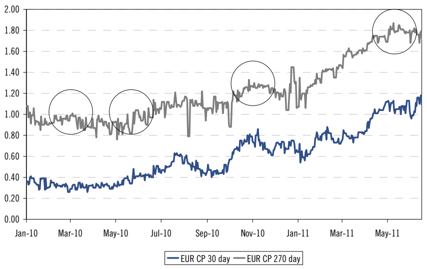
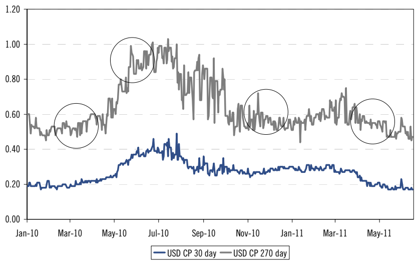


Figure 44. USD CP Yields – 2010-YTD (in bps)



Source: Bloomberg

Figure 45. ECB – MTRO & LTRO, 2007-YTD

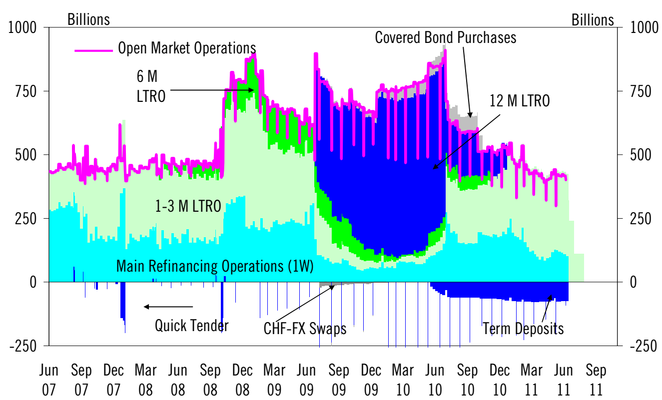
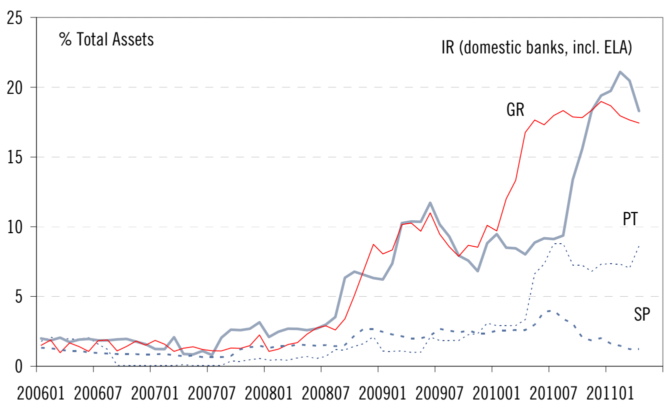


Figure 46. Peripheral Banks – ECB Funding % Assets, 2006-YTD



Source: ECB, Citi Investment Research and Analysis

Figure 47. 5Y iTraxx Financials Snr/Sub– Nov 2008-YTD

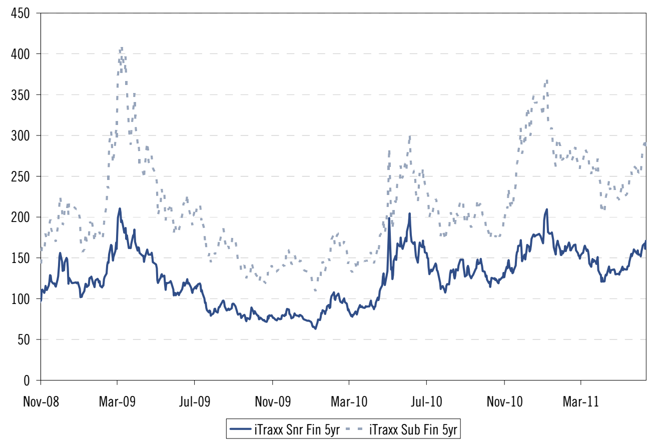
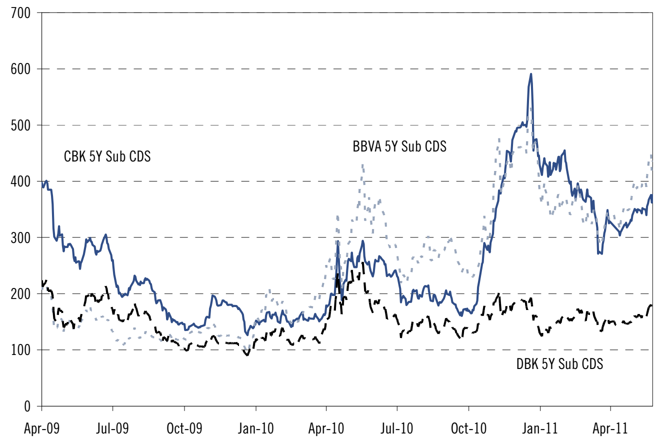


Figure 48. Selected Banks – 5Y Sub CDS Spreads, Apr 09-YTD (bps)



Source: Reuters, CIRA

Figure 49. Covered Bond Spreads by Product (bps) *

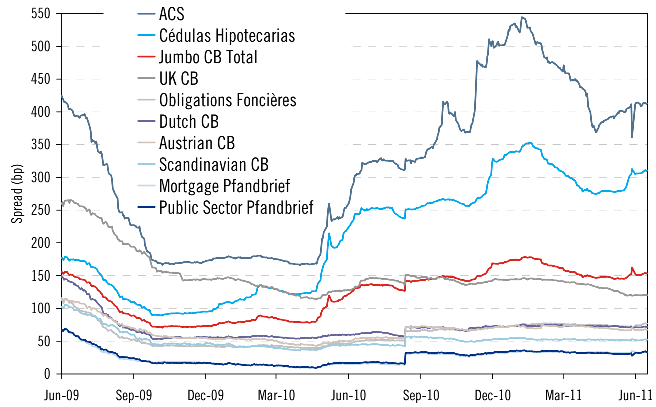
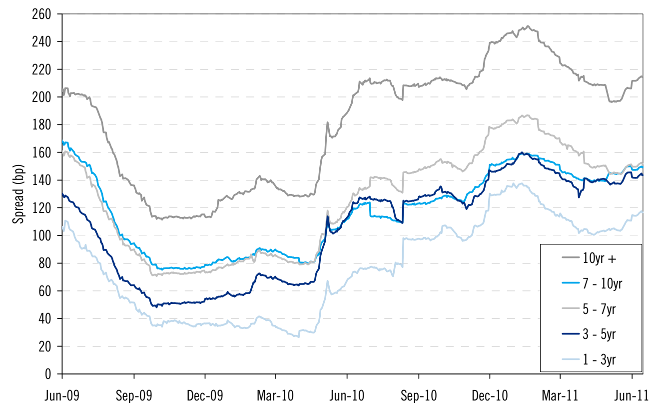


Figure 50. Covered Bond Spreads by Tenor (bps) *



Source: Citi Investment Research and Analysis, Markit. * Series in legend are in descending order (as of values on 15 June 2011).

Appendix: Macro Forecasts for Peripheral Countries

Figure 51. Peripheral Countries & Italy – Macroeconomic Forecasts, 2010-2015E *

GDP	**2010**	**2011E**	**2012E**	**2013E**	**2014E**	**2015E**	**2010-15E Avg**
Portugal	1.3	-2.1	-1.9	-0.5	0.6	1.0	-0.3
Ireland	-1.0	0.5	1.9	2.4	3.0	3.3	1.7
Greece	-4.4	-4.1	-2.5	0.0	0.5	1.0	-1.6
Spain	-0.1	0.3	0.2	0.9	1.2	1.3	0.6
Italy	1.2	0.8	1.0	0.9	0.9	0.9	1.0
CPI	**2010**	**2011E**	**2012E**	**2013E**	**2014E**	**2015E**	**2010-15E Avg**
Portugal	1.4	3.7	0.9	0.7	1.1	1.0	1.5
Ireland	-0.2	0.7	1.0	1.4	1.5	1.7	1.0
Greece	4.7	3.4	1.8	1.3	1.4	1.5	2.4
Spain	2.0	3.1	1.5	1.5	1.7	1.7	1.9
Italy	1.6	2.9	2.7	1.9	1.9	1.9	2.2
Current Acct % GDP	**2010**	**2011E**	**2012E**	**2013E**	**2014E**	**2015E**	**2010-15E chg ppt**
Portugal	-10.5	-8.3	-6.2	-4.7	-3.5	-2.3	8.2
Ireland	-0.7	0.2	0.6	0.2	0.2	0.1	0.8
Greece	-10.4	-7.3	-4.4	-2.6	-2.6	-3.4	7.0
Spain	-4.5	-3.7	-2.0	-1.6	-1.4	-1.3	3.2
Italy	-3.5	-4.3	-4.4	-4.5	-4.6	-4.7	-1.2
Gvt Debt % GDP	**2010**	**2011E**	**2012E**	**2013E**	**2014E**	**2015E**	**2010-15E chg %**
Portugal	93	104	114	119	122	124	33%
Ireland	96	114	122	126	125	123	28%
Greece	142	161	174	181	187	191	35%
Spain	60	69	74	77	80	82	37%
Italy	119	121	121	122	123	124	4%
Fiscal Balance % GDP	**2010**	**2011E**	**2012E**	**2013E**	**2014E**	**2015E**	**2010-15E chg ppt**
Portugal	-9.1	-6.4	-5.8	-5.8	-5.5	-5.1	4.0
Ireland	-13.3	-9.8	-9.6	-8.3	-5.2	-5.4	7.9
Greece	-10.5	-10.0	-9.7	-8.4	-8.2	-7.5	3.0
Spain	-9.3	-6.9	-5.2	-4.5	-4.1	-3.9	5.4
Italy	-4.6	-4.1	-3.7	-3.9	-3.8	-3.9	0.7

Source: IMF, Citi Investment Research and Analysis

* Data for Ireland is from IMF's World Economic Outlook (April 2011); data for the rest of the countries is sourced from CIRA. While Italy is not a peripheral country per se, its banks (especially funding costs) are thought to be susceptible to contagion from the peripheral banking systems.

Appendix: Peripheral Exposure Data

Figure 52. BIS Reporting Banks & Peripheral Banking Systems – Exposure to Peripheral Countries, 4Q10 (USD bn)

Exposure to	Type of exposure	Germany	France	Italy	UK	Core Europe *	Greece **	Ireland **	Portugal **	Spain	GR/IR/PT/SP	Other Eur	Europe ***
Greece	Public Sector	23	15	2	3	43	88			1	89	8	141
	Banks	2	2	0	3	7	10			1	11	1	19
	Non-bank private	9	40	2	8	58	359			0	359	17	434
	Derivatives	6	8	2	5	21	0			0	0	5	26
	Total exposures	**40**	**65**	**6**	**19**	**130**	**458**			**2**	**460**	**30**	**620**
Ireland	Public Sector	3	4	1	5	12		61		0	61	3	76
	Banks	29	8	2	18	57		268		1	271	12	340
	Non-bank private	86	18	10	112	227		468		9	478	55	760
	Derivatives	**40**	**26**	**11**	**59**	**137**		**0**		**4**	**4**	**16**	**156**
	Total exposures	159	56	24	194	433		797		14	813	87	1,333
Portugal	Public Sector	8	8	1	2	19			47	8	56	5	80
	Banks	16	6	2	5	28			63	7	70	5	103
	Non-bank private	13	13	1	18	45			509	69	577	8	630
	Derivatives	14	5	3	5	27			0	21	21	3	51
	Total exposures	**50**	**32**	**7**	**29**	**119**			**619**	**105**	**724**	**22**	**865**
GR/IR/PT	Public Sector	34	27	4	10	75	88	61	47	10	206	16	296
	Banks	46	16	5	26	93	12	268	63	9	351	18	462
	Non-bank private	108	70	13	138	329	360	468	509	78	1,415	80	1,824
	Derivatives	60	40	16	69	185	0	0	0	25	25	24	234
	Total exposures	**249**	**153**	**38**	**243**	**682**	**460**	**797**	**619**	**121**	**1,997**	**139**	**2,818**
Spain	Public Sector	29	30	5	10	74				329	329	14	417
	Banks	75	39	8	21	144				414	414	56	614
	Non-bank private	78	72	16	76	242				2,721	2,722	103	3,066
	Derivatives	42	35	13	31	121				0	0	22	142
	Total exposures	**224**	**176**	**43**	**138**	**580**				**3,465**	**3,465**	**195**	**4,240**
GR/IR/PT/SP	Public Sector	62	57	9	20	148	88	61	47	339	535	30	714
	Banks	122	55	13	47	236	12	268	63	423	766	74	1,076
	Non-bank private	186	141	29	214	571	360	468	509	2,799	4,136	183	4,891
	Derivatives	102	75	29	100	305	0	0	0	25	25	46	376
	Total exposures	**473**	**329**	**80**	**380**	**1,262**	**461**	**797**	**619**	**3,586**	**5,462**	**334**	**7,058**

Source: BIS, Central banks, Reuters, CIRA

* Core Europe = Germany, France, Italy, UK.
** Data is on domestic-to-domestic exposures. "Other Eur" column contains cross-border data for Greece, Ireland and Portugal.
*** Europe defined as BIS reporting banks/countries (Austria, Belgium, Finland, France, Germany, Greece, Ireland, Italy, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland, Turkey, United Kingdom).

Appendix: 2011 EBA European Bank Stress Tests

Capital Definition

- Definition of capital with EBA is more stringent
  - 5% core Tier 1 ratio under Basel 2/2.5 – vs. 6% Tier 1 last year
  - Based on existing EU legislation in the Capital Requirements Directive (CRD)
  - Takes the existing EU definition of Tier 1 net of deductions of participations in financial institutions and it strips out hybrid instruments including existing preference shares
  - Recognises existing government support measures, which will be identified separately in the results – question mark over German silent participations
  - Only commercial instruments of the highest quality are included in this CT1 definition – ordinary shares or similar instruments in line with the principles detailed in CEBS/EBA guidelines on core capital
- No sovereign haircuts in the banking book (just as last year)
- Stress test along the following variables: GDP growth, HCIP/CPI inflation, unemployment rate, interest rates & stock prices
- Similar methodological approach to last year's stress tests

Economics & Markets

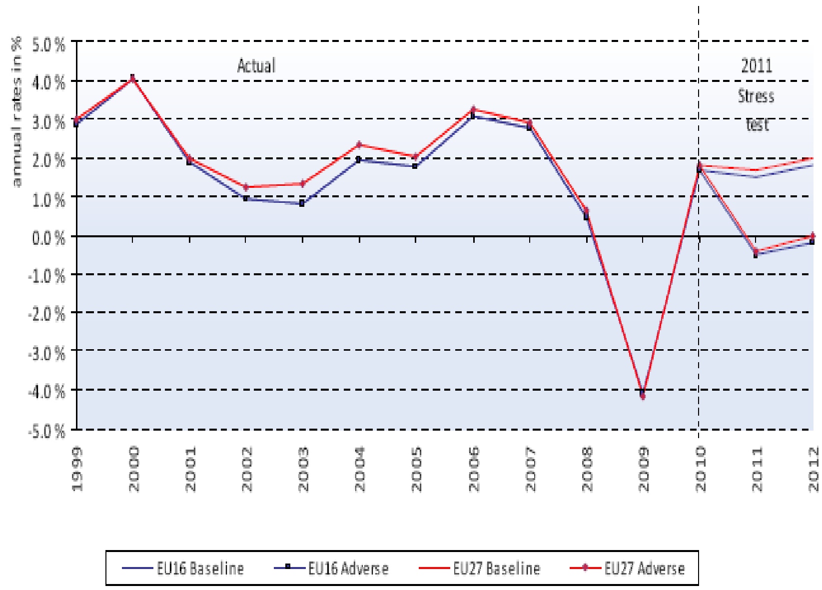
- **Baseline Scenario: Economics**
  Parameters are less harsh than last year's as the macro situation has improved since then. GDP + 1.7% in 2010-11 and c2% in 2012 (1.5% and 1.8% for Euro Area countries). The unemployment rate is projected to fall to around 9% in 2012 (against 9.5% in 2011), and the public deficit will gradually decline to 5% of GDP in 2011 and about 4¼% in 2012.
- **Baseline Scenario: Markets**
  Short-term interest rates in euro area are expected to increase gradually to 1.5% and 1.8% in 2011 and 2012 in the euro area. Long-term interest rates for the same region are assumed to be 2.5% in 2010, 2.7% in 2011 and 2.9% in 2012. The dollar is expected to depreciate against Euro from 1.33 in 2010 to 1.39 in 2011 and 2012.
- **Adverse Scenario: Economics**
  Again, these are less adverse than last year's assumptions. The adverse scenario this year combines a set of EU shocks, a global negative demand shock originating in the US and a USD depreciation vis-à-vis all currencies. The cumulative decline of GDP over two years is now assumed to be 3% off the baseline growth compared to 4% in last year's stress test.
- **Adverse Scenario: Markets**
  Equity market falls of -10% to -20% (Euro Area -15%). Yields on German 10-year bonds are assumed to remain at the baseline level, while, on average, euro area long-term interest rates go up by 75 basis points, and by 66 basis points in the EU. Money market rates increase by c125 bps. Funding costs increase in line with higher interest rates and higher credit spreads and banks are assumed to be able to pass on only 50% of the increase to customers.

Figure 53. 2011 Stress Tests – Macro Variables vs. 2010 Stress Test

	Realised			2010 Exercise				2011 Exercise			
				Baseline		Adverse		Baseline		Adverse	
	2008	2009	2010	2010	2011	2010	2011	2011	2012	2011	2012
EU27											
GDP (y-o-y)	0.7%	-4.2%	1.8%	1.0%	1.7%	0.0%	-0.4%	1.7%	2.0%	-0.4%	0.0%
Unemployment (% of labour force)	7.0%	8.9%	9.6%	9.8%	9.7%	10.5%	11.0%	9.5%	9.1%	10.0%	10.5%
Euro area											
GDP (y-o-y)	0.6%	-4.1%	1.7%	0.7%	1.5%	-0.2%	-0.6%	1.5%	1.8%	-0.5%	-0.2%
Unemployment (% of labour force)	7.5%	9.4%	10.0%	10.7%	10.9%	10.8%	11.5%	10.0%	9.6%	10.3%	10.8%

Source: EBA

Figure 54. 2011 Stress Tests – GDP Growth Assumptions



Source: EBA

Sovereign Marks

- This year EBA has decided to apply a curve of haircuts to the banking book depending on maturity– rather than a single haircut as last year
- Belgium, France, Ireland, Italy, Portugal and Spain exposures look likely to be stressed more compared to 2011

Figure 55. 2011 EBA Stress Tests – Valuation Haircuts on Sovereign Bonds

	Adverse scenario							of which due to widening of sovereign spreads						
Country	3M	1Y	2Y	3Y	5Y	10Y	15Y	3M	1Y	2Y	3Y	5Y	10Y	15Y
Austria	0.2%	0.5%	1.1%	1.9%	3.4%	5.5%	8.4%	0.0%	0.2%	0.3%	0.6%	1.1%	1.9%	2.9%
Belgium	0.2%	1.2%	2.1%	3.7%	5.9%	9.8%	15.3%	0.1%	0.6%	1.2%	2.2%	3.7%	6.1%	9.5%
Bulgaria	0.3%	1.1%	2.1%	3.3%	5.4%	8.7%		0.1%	0.6%	1.2%	2.0%	3.4%	5.5%	
Cyprus	0.4%	1.5%	3.4%	5.0%	7.7%	12.3%		0.2%	1.0%	2.4%	3.7%	5.8%	9.2%	
Czech Republic	0.2%	0.5%	1.2%	2.3%	3.2%	5.8%	11.1%	0.1%	0.2%	0.5%	1.0%	1.5%	2.7%	5.1%
Denmark	0.1%	0.5%	1.0%	1.6%	2.6%	6.3%	9.9%	0.0%	0.1%	0.2%	0.4%	0.7%	1.7%	2.7%
Finland	0.1%	0.4%	0.9%	1.9%	2.7%	4.2%		0.0%	0.1%	0.1%	0.3%	0.5%	0.8%	
France	0.2%	0.8%	1.6%	2.6%	4.1%	7.3%	13.1%	0.1%	0.3%	0.7%	1.3%	2.1%	3.8%	6.6%
Germany	0.1%	0.5%	0.9%	1.3%	2.1%	3.5%	6.2%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Greece	0.5%	2.5%	5.2%	7.8%	12.6%	17.1%	23.6%	0.4%	2.0%	4.2%	6.5%	10.6%	14.3%	19.5%
Hungary	0.2%	0.9%	1.8%	2.9%	5.1%	8.0%		0.2%	0.9%	1.7%	2.7%	4.8%	7.5%	
Ireland	0.5%	2.2%	5.2%	7.4%	12.6%	19.1%	22.7%	0.4%	1.7%	4.3%	6.2%	10.7%	16.0%	18.9%
Italy	0.3%	1.5%	3.0%	5.0%	8.4%	13.1%	20.1%	0.2%	1.0%	2.1%	3.7%	6.3%	9.7%	14.7%
Latvia	0.2%	0.8%	1.8%	2.8%	4.3%			0.1%	0.4%	0.9%	1.5%	2.3%		
Lithuania	0.2%	1.2%	1.8%	3.1%	4.8%			0.1%	0.6%	0.9%	1.8%	2.8%		
Luxembourg				3.1%	5.6%	9.3%					1.9%	3.5%	5.8%	
Malta	0.3%	1.3%	2.6%	4.8%	7.4%	13.2%		0.2%	0.9%	1.8%	3.5%	5.5%	9.8%	
Netherlands	0.1%	0.6%	1.2%	2.1%	3.2%	5.2%	9.5%	0.0%	0.2%	0.4%	0.7%	1.1%	1.7%	3.1%
Poland	0.1%	0.6%	1.2%	1.7%	2.8%	5.0%	7.7%	0.1%	0.6%	1.2%	1.7%	2.8%	5.0%	7.6%
Portugal	0.5%	2.9%	5.5%	8.1%	11.6%	19.8%	30.6%	0.4%	2.3%	4.5%	6.7%	9.7%	16.5%	24.9%
Romania	0.3%	1.0%	2.0%	3.4%		8.7%		0.2%	0.6%	1.3%	2.2%		5.8%	
Slovakia	0.2%	0.8%	1.4%	2.2%	3.5%	5.9%	8.0%	0.1%	0.3%	0.5%	0.9%	1.5%	2.5%	3.3%
Slovenia	0.2%	0.8%	1.4%	2.3%	3.7%	6.0%		0.1%	0.3%	0.6%	1.0%	1.7%	2.8%	
Spain	0.5%	1.6%	3.4%	5.5%	9.0%	14.6%	23.2%	0.3%	1.2%	2.5%	4.2%	7.0%	11.3%	17.6%
Sweden	0.1%	0.3%	0.6%	1.2%	1.9%	3.1%	6.5%	0.0%	0.0%	0.1%	0.2%	0.3%	0.5%	1.0%
United Kingdom	0.2%	1.1%	1.9%	3.1%	4.7%	7.6%	14.1%	0.0%	0.2%	0.5%	0.8%	1.3%	2.1%	3.8%
Iceland		0.3%	1.0%	1.6%	3.6%	5.2%	7.4%		0.2%	0.5%	0.8%	2.0%	2.8%	4.0%
Norway	0.1%	0.4%	0.8%	1.1%	1.5%	3.3%		0.0%	0.0%	0.1%	0.1%	0.2%	0.5%	

Source: EBA

Appendix: Basel 3 Ratios (2012E), Basel 3 Timeline

Figure 56. European Banks Coverage – 2012E Common Equity Tier 1 Ratios (Basel 3) (%) *

RIC	Short Name	Country	2012E - B3
VONN.S	Vontobel	Switzerland	20.7%
GPSr.AT	Postal Savings Bank	Greece	15.9%
SHBa.ST	SHB	Sweden	13.5%
SWEDa.ST	Swedbank	Sweden	12.5%
DANSKE.CO	Danske Bank	Denmark	11.8%
SEBa.ST	SEB	Sweden	11.2%
UBSN.VX	UBS	Switzerland	11.0%
HBNK.CY	Hellenic	Cyprus	11.0%
BARC.L	Barclays	UK	10.8%
BOCr.AT	Bank of Cyprus	Cyprus	10.3%
POP.MC	Banco Popular	Spain	10.3%
NDA1V.HE	Nordea (FDR)	Sweden	10.2%
STAN.L	Standard C (usd mm)	UK	10.2%
MRBr.AT	Marfin	Cyprus	10.0%
ISP.MI	Intesa Sanpaolo	Italy	10.0%
HSBA.L	HSBC	UK	9.5%
RBS.L	RBS (£mm)	UK	9.5%
SABE.MC	Banco Sabadell	Spain	9.5%
BBVA.MC	BBVA	Spain	9.4%
LLOY.L	Lloyds BG (£mm)	UK	9.3%
SAN.MC	Santander	Spain	9.1%
CSGN.VX	Credit Suisse	Switzerland	9.0%
BOPr.AT	Piraeus Bank	Greece	9.0%
BTO.MC	Banesto	Spain	8.9%
UBI.MI	UBI	Italy	8.7%
BNPP.PA	BNP Paribas	France	8.7%
BMPS.MI	Monte dei Paschi	Italy	8.7%
CNAT.PA	Natixis	France	8.6%
CRDI.MI	Unicredito	Italy	8.6%
ERST.VI	Erste	Austria	8.6%
EFGN.S	EFG International	Switzerland	8.5%
BKT.MC	Bankinter	Spain	8.5%
EFGr.AT	Eurobank EFG	Greece	8.4%
PMII.MI	BPM	Italy	8.4%
KBC.BR	KBC Holding	Benelux	8.0%
SOGN.PA	SocGen	France	8.0%
DBKGn.DE	Deutsche Bank	Germany	8.0%
BAPO.MI	Banco Popolare	Italy	7.9%
CAGR.PA	Credit Agricole	France	7.9%
DEXI.BR	Dexia	Benelux	7.7%
RBIV.VI	Raiffeisen	Austria	6.6%
DPBGn.DE	Deutsche Postbank	Germany	4.9%
All 40 Banks			**9.2%**

Source: Company reports, Citi Investment Research and Analysis
* Shaded area represents banks whole common equity Tier 1 ratio is below 7%.

Figure 57. Basel 3 Timeline

(shading indicates transition periods - all dates are as of 1 January)

	2011	2012	2013	2014	2015	2016	2017	2018	As of 1 January 2019
Leverage Ratio	Supervisory monitoring		Parallel run 1 Jan 2013 – 1 Jan 2017 Disclosure starts 1 Jan 2015					Migration to Pillar 1	
Minimum Common Equity Capital Ratio			3.5%	4.0%	4.5%	4.5%	4.5%	4.5%	4.5%
Capital Conservation Buffer						0.625%	1.25%	1.875%	2.50%
Minimum common equity plus capital conservation buffer			3.5%	4.0%	4.5%	5.125%	5.75%	6.375%	7.0%
Phase-in of deductions from CET1 (including amounts exceeding the limit for DTAs, MSRs and financials)				20%	40%	60%	80%	100%	100%
Minimum Tier 1 Capital			4.5%	5.5%	6.0%	6.0%	6.0%	6.0%	6.0%
Minimum Total Capital			8.0%	8.0%	8.0%	8.0%	8.0%	8.0%	8.0%
Minimum Total Capital plus conservation buffer			8.0%	8.0%	8.0%	8.625%	9.25%	9.875%	10.5%
Capital instruments that no longer qualify as non-core Tier 1 capital or Tier 2 capital			Phased out over 10 year horizon beginning 2013						
Liquidity coverage ratio	Observation period begins				Introduce minimum standard				
Net stable funding ratio	Observation period begins							Introduce minimum standard	

Source: BIS

Figure 58. European Banks Coverage

Bank	RIC	Rating	Currency	Last Price	Target Price	Country	Bank	RIC	Rating	Currency	Last Price	Target Price	Country
Agricultural Bank	AGBr.AT	3H	E	1.25	1.03	Greece	HSBC	HSBA.L	1M	p	607.30	850.0	UK
Banco Popolare	BAPO.MI	2H	E	1.63	2.20	Italy	ING	ING.AS	2H	E	8.19	9.80	Netherlands
Banco Popular	POP.MC	2M	E	3.96	4.10	Spain	ING Bank Slaski	SLAS.WA	3M	ZL	869.00	899.0	Poland
Banco Santander	SAN.MC	2M	E	7.95	9.50	Spain	Intesa Sanpaolo	ISP.MI	2M	E	1.82	2.16	Italy
Banesto	BTO.MC	2M	E	5.68	6.30	Spain	Julius Baer	BAER.VX	1M	SFr	34.05	53.50	Switzerland
Bank Millennium	BIGW.WA	3M	ZL	5.48	5.67	Poland	KBC	KBC.BR	1H	E	27.55	40.00	Belgium
Bank of Cyprus	BOCr.AT	1M	E	2.14	3.25	Cyprus	Komercni Banka	BKOMsp.PR	2L	Kc	4080	4540	Czech Republic
Bank Of Piraeus	BOPr.AT	3H	E	1.05	0.75	Greece	Kredyt Bank	BKRE.WA	3M	ZL	17.30	16.10	Poland
Bank Pekao	BAPE.WA	1L	ZL	171.90	186.00	Poland	Lloyds Banking Group	LLOY.L	1M	p	48.39	0.84	UK
Bank Zachodni	BZWB.WA	2M	ZL	227.30	248.00	Poland	Marfin Populr Bk	MRBr.AT	2H	E	0.64	0.86	Cyprus
Bankinter	BKT.MC	3M	E	4.61	4.00	Spain	Monte dei Paschi	BMPS.MI	2H	E	0.60	0.80	Italy
Barclays	BARC.L	1M	p	257.20	324	UK	Natixis	CNAT.PA	2M	E	3.55	4.00	France
BBVA	BBVA.MC	1M	E	7.94	9.75	Spain	Nordea	NDA1V.HE	2M	E	7.37	8.75	Sweden
Bco de Sabadell	SABE.MC	3M	E	2.94	2.50	Spain	OTP Bank	OTPB.BU	1M	Ft	5801	5996	Hungary
BNP Paribas	BNPP.PA	1M	E	52.20	69.00	France	PKO BP	PKOB.WA	2L	ZL	42.90	47.70	Poland
BP Milano	PMII.MI	3H	E	1.76	2.00	Italy	Postbank	DPBGn.DE	2H	E	22.32	25.20	Germany
BRE	BREP.WA	2M	ZL	337.00	351	Poland	Raiffeisen Bank Intl	RBIV.VI	2H	E	33.93	41.00	Austria
Commerzbank	CBKG.DE	2H	E	3.06	3.30	Germany	RBS	RBS.L	1M	p	40.29	61.00	UK
Credit Agricole	CAGR.PA	2M	E	10.10	11.10	France	Sberbank	SBER.RTS	1M	$	3.45	4.91	Russian Federation
Credit Suisse	CSGN.VX	1M	SFr	33.63	53.00	Switzerland	SE Banken AB	SEBa.ST	2M	SKr	51.55	58.00	Sweden
Danske Bank	DANSKE.CO	2M	Dkr	96.20	125.00	Denmark	SHB	SHBa.ST	2L	SKr	193.30	225.00	Sweden
Deutsche Bank	DBKGn.DE	2H	E	40.33	45.00	Germany	Societe Generale	SOGN.PA	1M	E	39.09	60.00	France
Dexia	DEXI.BR	3H	E	2.28	2.20	Belgium	Standard Chartered	STAN.L	1M	p	1560	2200	UK
DnB NOR	DNBNOR.OL	1M	NKr	76.50	95.00	Norway	Swedbank	SWEDa.ST	2M	SKr	102.40	125.00	Sweden
EFG Internatnl	EFGN.S	1H	SFr	9.30	16.50	Switzerland	UBI Banca	UBI.MI	2M	E	3.96	5.90	Italy
Erste Bank	ERST.VI	2M	E	34.31	38.00	Austria	UBS	UBSN.VX	1M	SFr	15.21	20.00	Switzerland
Eurobank EFG	EFGr.AT	2H	E	3.17	4.00	Greece	UniCredit	CRDI.MI	2H	E	1.52	1.90	Italy
Garanti	GARAN.IS	2M	TL	7.10	8.60	Turkey	Vontobel	VONN.S	2H	SFr	29.50	36.50	Switzerland
Greek Postal Bk	GPSr.AT	3H	E	2.95	2.25	Greece	Yapi Kredi	YKBNK.IS	1M	TL	3.92	5.90	Turkey
Hellenic Bank	HBNK.CY	2M	E	0.63	0.90	Cyprus							

Source: Citi Investment Research and Analysis

Notes

Appendix A-1

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WBK, Credit Agricole SA, Commerzbank, Natixis, UniCredit Group, Credit Suisse, Danske Bank A/S, Deutsche Bank, Dexia, DNB NOR ASA, Postbank, Eurobank EFG, Erste Bank, Garanti Bank, Hellenic Bank, HSBC Holdings PLC, ING Groep NV, Intesa Sanpaolo, KBC, Lloyds Banking Group PLC, Marfin Popular Bank PCL, Nordea, OTP Bank Plc, PKO BP, Banca Popolare di Milano, Banco Popular Espanol, Raiffeisen Bank Intl, Royal Bank of Scotland Group PLC, Banco de Sabadell SA, Banco Santander, Sberbank RF, Skandinaviska Enskilda Banken AB, Svenska Handelsbanken AB, ING Bank Slaski SA, Societe Generale, Standard Chartered PLC, Swedbank AB, Unione Banche Italiane, UBS, Vontobel, Yapi Kredi Bank.

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