European insurance

Government crisis potentially leading to further dilution of Solvency II principles

- Solvency II, the upcoming capital regime for the European insurance industry, was not designed for a sovereign crisis.
- Particularly painful has been the disconnect that has emerged between swaps (which are used to discount insurance liabilities) and S.European Government bonds (in which insurers have invested).
- This has led to a situation, for Italian and Spanish insurers, where asset values have been falling but liability values rising, thereby pressurizing capital. The impact from this has been substantial.
- To get round the above, Omnibus II (the EU Directive covering Solvency II) is developing a "counter-cyclical premium" (CCP) to be used in times of market stress (with market stress defined by the insurance regulator).
- We discuss this in some detail in this note but, to summarize, it would mean that the majority of credit risk on Eurozone Government bonds would be ignored (i.e. considered temporary) for solvency purposes.
- The natural consequence of this is that insurers will be incentivized to invest in Eurozone Government bonds even more than was the case under the original Solvency II proposals.
- This may prove helpful to Governments (and S.European insurers) in the current crisis but in the medium term is likely to have unintended, unknown, and probably negative consequences for the industry.
- Not only will capital ratios no longer be market consistent (i.e. they will assume that asset prices are temporary and will mean revert) but an insurance company balance sheet will be increasingly vulnerable to inflation and liquidity risk in our opinion. These are not concerns presently, but may become so at some point in time. Better in our view to remain true to the original Solvency II principles and just accept that, in times of crisis, capital ratios will weaken – after all that is the purpose of capital.

European Insurance

Duncan Russell, CFA AC
(44-20) 7325-4831
duncan.x.russell@jpmorgan.com

Ashik Musaddi, CFA
(44-20) 7325-9226
ashik.x.musaddi@jpmorgan.com

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Solvency II capital and sovereigns

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EIOPA stress test results published

Table 1: European insurance - Top picks

LC	Rating	PT	Price	PE '12e	Yield '11e	P/EV '11e
Aegon	OW	5.2	2.922	5.0x	3.4%	0.27x
Ageas	OW	3.0	1.164	4.0x	6.9%	0.31x
Aviva	OW	450.0	275.3	4.8x	9.7%	0.60x
Standard Life	OW	261.0	190.2	12.3x	7.2%	0.61x
ZFS	OW	261.0	180.6	6.7x	10.9%	1.14x
Munich Re	OW	153.0	89.45	5.5x	7.0%	0.66x
Sector average				**6.5x**	**6.2%**	**0.85x**

Source: J.P. Morgan estimates. Priced from Bloomberg CoB 4th Oct 2011

Duncan Russell, CFA
(44-20) 7325-4831
duncan.x.russell@jpmorgan.com

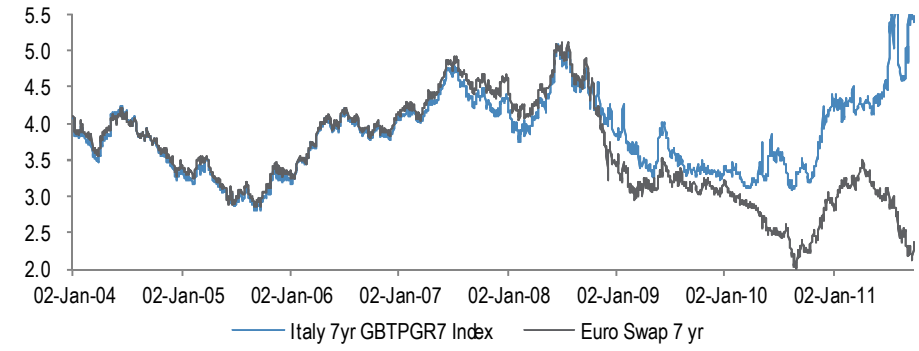
Current Sovereign crisis a big issue for Solvency II

The disconnect that has emerged between S.European Government bond yields and Eurozone swap rates is a big issue for S.European insurers under Solvency II.

The reason is that swap rates were intended to be (and in our view should be) the basis under which insurance liabilities are discounted. As these swap rates have fallen, insurance liabilities have risen. At the same time, asset values (Italian Govt. bonds, Spanish Govt. bonds etc.) have fallen.

This means that, under the original Solvency II thinking, capital in these market would be under severe stress. Note that N.European insurers are not experiencing this stress because their local Govt. bonds are performing more in-line, even better, than swaps.

Figure 1: Italy 7 year Govies yield versus EUR 7 year Swap rate



Source: Bloomberg

To get round this Omnibus II, the EU Directive driving Solvency II, is considering something called a Counter Cyclical Premium (CCP). The exact formula for this is not yet known, nor the exact timing on when the CCP would be applied. However, we believe, based on the industry proposal for the CCP, that it would significantly reduce the stress that S.European insurers are currently feeling (albeit would not fully solve it). The reason is that (as we explain in this note) the CCP effectively ignores (considers it temporary) the majority of credit risk in Government bonds.

The natural consequence of the CCP is that the insurance industry will be even more incentivized to buy Eurozone Government bonds so as to match their liabilities. This ought to be helpful to the current crisis as insurance liabilities are large. However, in the medium term this may create new issues for insurance companies - notably with respect to liquidity and inflation risk. These are not considered issues as of today, but that may change in the future.

Quick re-cap on insurance capital

Currently the insurance sector is regulated under Solvency I. This puts required capital at 4% of traditional life insurance reserves and 1% of unit-linked, irrespective of the risks that are being taken on by the insurance company. Available capital is typically set at cost – i.e. assets at cost and liabilities at cost – so movements in interest rates and other financial assets have no impact on either assets or liabilities.

In short, therefore, Solvency I is not an economic system and it is for this reason that Solvency II is being developed.

The principles underpinning Solvency II can effectively be described as:

- A market consistent balance sheet – i.e. both assets and liabilities at market value.
- Required capital matching the amount of risk taken on by the insurance company – a company with no risk would need no capital and vice versa.

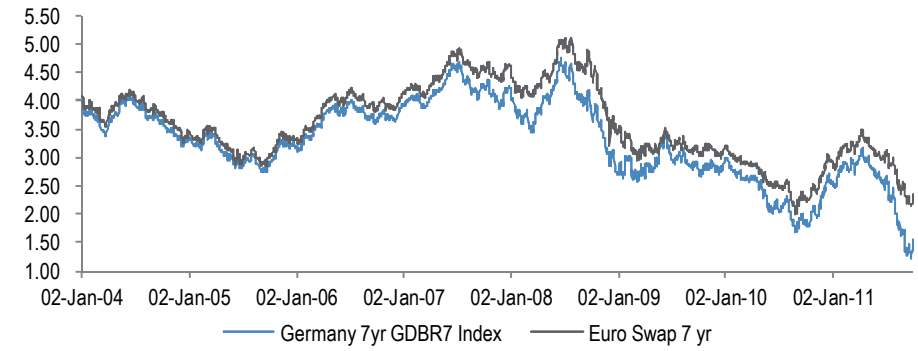
However issues in Solvency II emerging

We believe that a big problem has emerged under Solvency II. Namely, with the financial crisis and the questions on the solvency of Eurozone Governments, a gap has emerged between swap rates (which are used to discount liabilities under Solvency II) and Government bond yields (which insurance companies invest in). This gap is very painful for parts of the industry.

Two charts demonstrate the point:

- The first is German 7-year Government bond yield and the Euro 7-year swap rate. As can be seen, in the past, before the financial crisis, these traded very closely. However with the financial crisis in 2008 the German bond yield fell below the Euro swap curve and this has accelerated even more with the most recent Government crisis.

Figure 2: Germany 7 year govies yield versus EUR 7 year Swap rate

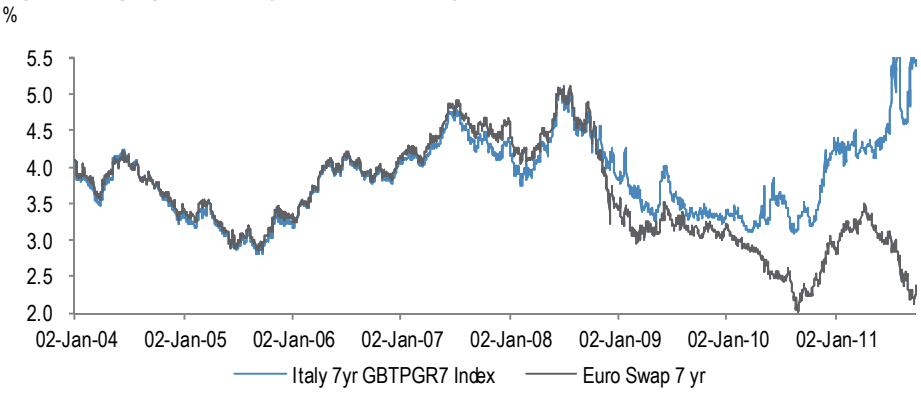


Source: Bloomberg

- In Italy the same trend was seen pre-crisis - i.e. swaps and Govt. bonds traded very closely and then briefly with the financial crisis Italy also saw the same as in Germany whereby Govt. bond yields fell below swaps. However, in the last two years Italian bond yields have soared relative to swaps due to concerns of credit worthiness of the Italian Govt. - i.e. the opposite of what has happened in Germany.

Duncan Russell, CFA
(44-20) 7325-4831
duncan.x.russell@jpmorgan.com

Figure 3: Italy 7 year Govies yield versus EUR 7 year Swap rate



Source: Bloomberg

Why does this matter? The sensitivity of insurance capital to the discount rate

The reason this matters is that insurance liabilities are very long duration and therefore are very sensitive to the discount rate used to calculate them. A higher discount rate, all else being equal, reduces liabilities and thus strengthens capital, while a lower rate does the opposite.

What has happened in S.European countries, and now also in Belgium, is that asset values have dropped (Italian Govt bonds) but liability values haven't – if anything they have increased as swap rates have fallen. Due to the leverage of an insurance company (10x leveraged at least) this has a massive impact on capital.

We show how this works in the examples that follow. But to make our analysis a bit more favourable on the industry we have allowed it to use something called an illiquidity premium also when discounting liabilities (description in the Appendix).

- We take two insurance companies, one in Italy and one in Germany.
- We assume that both are fully interest rate matched – i.e. the duration of assets and liabilities is the same at 5 years.
- We assume that each invests 50% of their assets in local country Government bonds (so the German insurer in German Govt. and Italian in Italian).
- And the remaining 50% is invested in Eurozone generic corporate bonds (both companies investing in exactly the same).
- And then we assume at FY10 both had total assets of 100 and liabilities of 90 meaning capital of 10.

Now we roll-forward the above for what has happened in financial markets. Taking first the German insurer, we can see that the value of its assets have increased by 1.1% as it has booked large gains on its holdings of German Government bonds. The value of its liabilities has increased by 0.3% as the discount rate used for liabilities has fallen by 10bp. The net impact of this is that capital has increased by 8% in this example. That is, for a duration matched German insurance company the crisis hasn't been particularly painful so far (aside from the equity market impact).

Duncan Russell, CFA
(44-20) 7325-4831
duncan.x.russell@jpmorgan.com

Table 2: YTD change in economic capital under QIS 5 for a German insurer

German insurer	Before	After	YTD Change in rate	Duration	Change in value
Assets	100.0	101.1			1.1%
o.w. Govt	50.0	52.7	-1.1%	5.0	5.5%
o.w. Credit	50.0	48.4	0.7%	5.0	-3.3%
Liabilities	90.0	90.3	-0.1%	5.0	0.3%
Capital	10.0	10.8			7.9%

Source: J.P. Morgan estimates, Bloomberg and Dataquerry

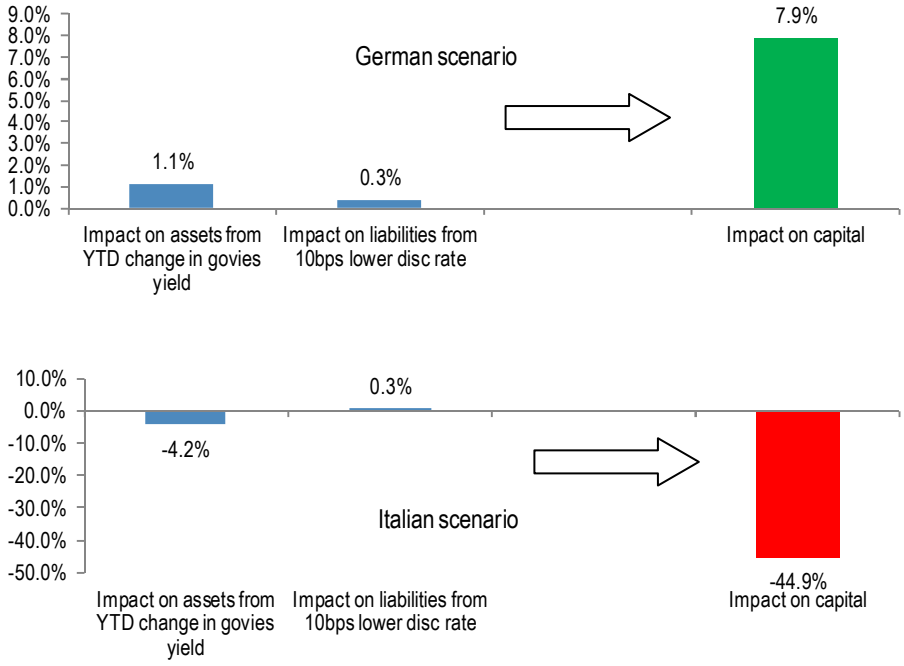
Now look at the Italian insurer however. In this example its assets have actually fallen by 4.2% thanks to the losses on its Government bonds (assume its corporate bonds are exactly the same as in Germany). Its liabilities have likewise increased by 0.3% (exactly the same as in Germany) but, due to the 10x leverage, its capital base as a result falls by c.45% versus the 8% improvement for Germany. Put another way, this is a disastrous environment for Italian insurers.

Table 3: YTD change in economic capital under QIS 5 for an Italian insurer

Italian insurer	Before	After	YTD Change in rate	Duration	Change in value
Assets	100.0	95.8			
o.w. Govt	50.0	47.4	1.0%	5.0	-5.1%
o.w. credit	50.0	48.4	0.7%	5.0	-3.3%
Liabilities	90.0	90.3	-0.1%	5.0	0.3%
Capital	**10.0**	**5.5**			**-44.9%**

Source: J.P. Morgan estimates, Bloomberg and Dataquerry

Figure 4: Impact of market moves on capital YTD on German and Italian insurers based on QIS5 method



Source: J.P. Morgan estimates.

Duncan Russell, CFA
(44-20) 7325-4831
duncan.x.russell@jpmorgan.com

Turning this around – using Govt. bonds to discount will be negative for Germany and positive for Italy

One possible solution to the above would be to change the way that liabilities are discounted – move away from swaps to using local Government bonds. We already saw an example of this with the 2010 embedded value reporting whereby CNP changed its methodology to exactly this basis, thereby increasing EV.

Allianz stated in its EV that: *"the MCEV methodology does not allow for the capitalization of the spreads on government bonds in the value of inforce or the value of new business. However, for asset liability matching purposes, Italy uses government bonds to back their relevant liabilities. If the spreads on Italian government bonds were taken into account, the additional value created would have increased the value of inforce from €2,762mn to €3,267mn, 18% higher than the closing embedded value".* So the impact is substantial.

In our simple examples this also has a massive impact. Taking Italy first: we undertake exactly the same analysis as previously but now make one more adjustment, which is to change the discount rate used on liabilities from swaps plus a liquidity premium to Govt. bonds. This would mean, in this simple example, a 200bp higher discount rate in Italy than under the QIS5 methodology. As a result, there would be a €9 reduction in the size of the liabilities, and thus the capital would increase to €14.7 - a huge increase over other scenarios. So using Govt. bonds rather than swaps would actually mean that Italian insurers' capital has strengthened (a somewhat optimistic approach therefore).

Table 4: Scenario 1 Italian insurer - Change in economic capital when Discount rate = Government bond yield

Italian insurer	Before	After	YTD Change in rate	Duration	Change in value
Assets	100.0	95.8			**-4.2%**
o.w. Govt	50.0	47.4	1.0%	5.0	-5.1%
o.w. credit	50.0	48.4	0.7%	5.0	-3.3%
Liabilities	90.0	90.3	-0.1%	5.0	0.3%
Adjust liabilities to use Govt.	0.0	-9.2	2.0%	5.0	-10.2%
Capital	**10.0**	**14.7**			**47.5%**
Discount rate for liabilities	**3.3%**	**5.4%**			

Source: J.P. Morgan estimates, Bloomberg and Dataquerry

But the problem with this is that such a change would have a hugely detrimental impact on the German insurers (due to Germany bond yields being so low). We can see that for Germany the discount rate would fall by c.200bp, which would mean that liabilities increase by €9 and thus capital falls to only €2.1 - i.e. a hugely negative impact. So if the industry were to discount using Govt. bonds then capital in Italy would look great but in Germany it would look terrible.

Duncan Russell, CFA
(44-20) 7325-4831
duncan.x.russell@jpmorgan.com

Table 5: Scenario 1 German insurer - Change in economic capital when Discount rate = Government bond yield

German insurer	Before	After	YTD Change in rate	Duration	Change in value
Assets	**100.0**	**101.1**			**1.1%**
o.w. Govt	50.0	52.7	-1.1%	5.0	5.5%
o.w. Credit	50.0	48.4	0.7%	5.0	-3.3%
Liabilities pre-change	90.0	90.3	-0.1%	5.0	0.3%
Adjust liabilities to use Govt.	0.0	8.7	-1.9%	5.0	9.6%
Capital	**10.0**	**2.1**			**-78.9%**
Discount rate for liabilities	**3.3%**	**1.4%**			

Source: J.P. Morgan estimates, Bloomberg and Dataquerry

Omnibus II introduces the "Counter-cyclical premium"

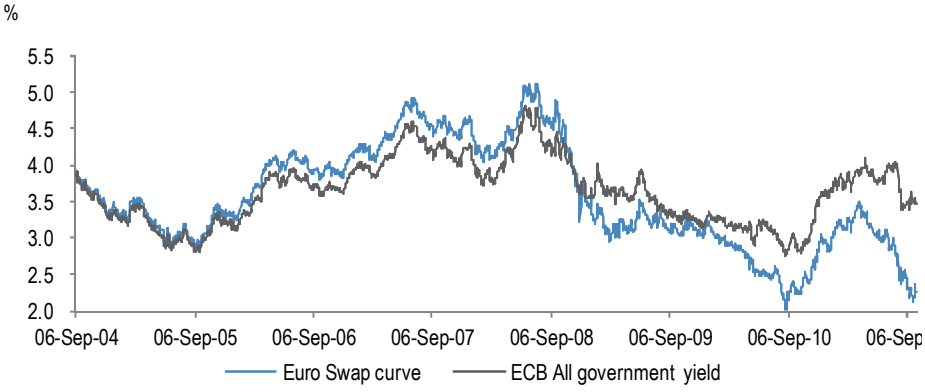
Perhaps because of the above, Omnibus II (the EU Directive) has stated that it is considering (it is still in the proposal stage) replacing the illiquidity premium with two concepts:

- **A matching premium for a limited amount of the liabilities**. This means that liabilities that cannot be withdrawn can be discounted at the yield that is being earned on the backing assets, less a default assumption. We don't like this approach as we don't see why the value of a liability should be linked to the value of what is being invested in (e.g. the ultimate cost of my mortgage is not linked to the value of my house) but this approach has been extensively lobbied for by UK and Spanish insurers.
- **But more interestingly a countercyclical premium (CCP).** There is limited data on this but we believe that this will effectively state that, in times of market stress (with those times decided by EIOPA, the insurance regulator) liabilities can be discounted at an even higher rate by including the countercyclical premium. The countercyclical premium we believe is to be based on the following formula, and includes the illiquidity premium plus a premium for Govt. bonds:

CCP = Illiquidity premium + max (0, Ygov(t)-swap'(t)). Where Ygov(t) is the ECB AAA and other Government curve and Swap'(t) is the swap curve adjusted for 10bps for credit spreads

We show below how the ECB All Government curve compares with the swap curve. As can be seen it is currently considerably higher, reflecting the stresses in S.Europe.

Figure 5: ECB all govies yield 7yr versus EUR Swap curve 7yr

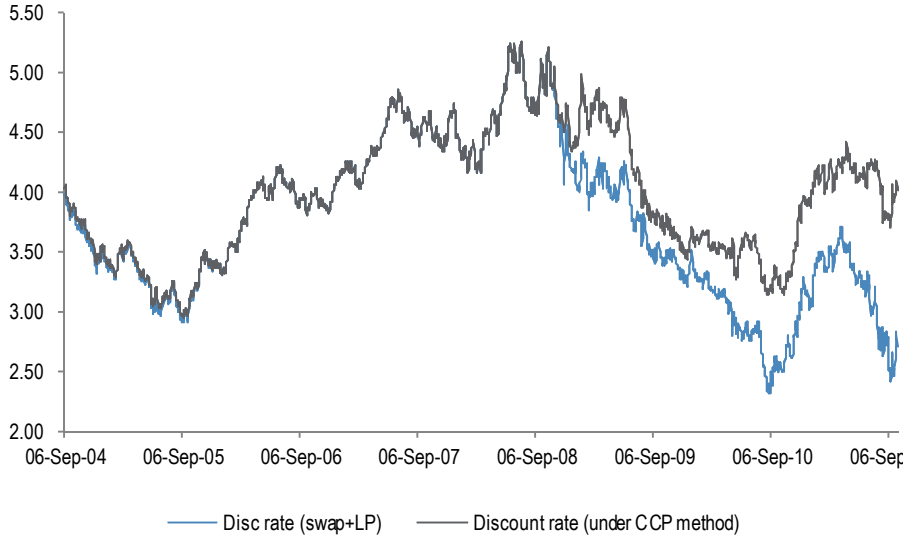


Source: Bloomberg and ECB

Duncan Russell, CFA
(44-20) 7325-4831
duncan.x.russell@jpmorgan.com

In the chart below we show what this means for the discount rate for liabilities. Under the QIS5 method, which included the liquidity premium, the discount rate today would be between 2.5% and 3.0%. However, under the CounterCyclical method the discount rate would be roughly 4.0% - so 100-150bp higher.

Figure 6: Discount rate with CCP versus Discount rate under QIS5 (Swap+LP)
%



Source: J.P. Morgan estimates, Bloomberg and ECB, Note that ECB all govies yield is used for CCP calculation

The use of the above has a very positive impact on capital for Italian (S.European) insurers. They have still suffered from market movements – capital is down 21% in our simple example – but it has nowhere near as bad as under the QIS5 methodology (where capital was down c.45%).

For German insurers (N.European insurers) capital would benefit massively as now they are able to discount their liabilities at a much higher rate than under QIS5. This does seem somewhat counterintuitive to us but it is the result of the methodology.

Table 6: Scenario 2 Italian insurer - Change in economic capital when Discount rate = Swap + CCP

Italian insurer	Before	After	YTD Change in rate	Duration	Change in value
Assets	100.0	95.8			**-4.2%**
o.w. Govt	50.0	47.4	1.0%	5.0	-5.1%
o.w. credit	50.0	48.4	0.7%	5.0	-3.3%
Liabilities	90.0	87.9	0.5%	5.0	-2.3%
Capital	**10.0**	**7.9**			**-21.3%**

Source: J.P. Morgan estimates, Bloomberg and Dataquerry

Table 7: Scenario 2 German insurer - Change in economic capital when Discount rate = Swap + CCP

German insurer	Before	After	YTD Change in rate	Duration	Change in value
Assets	**100.0**	**101.1**			**1.1%**
o.w. Govt	50.0	52.7	-1.1%	5.0	5.5%
o.w. Credit	50.0	48.4	0.7%	5.0	-3.3%
Liabilities pre-change	90.0	87.9	0.5%	5.0	-2.3%
Capital	**10.0**	**13.2**			**31.6%**

Source: J.P. Morgan estimates, Bloomberg and Dataquerry

The point we want to highlight here is that difference scenarios gives significantly different results.

Table 8: Italy - Capital position under different discount rate assumptions

ITALY	FY10	9M11	Change YTD
Govt. bond	4.4%	5.4%	1.0%
EUR Corp bond yield	4.8%	5.4%	0.7%
Swaps	2.9%	2.3%	-0.7%
EUR Corporate bond spread	1.9%	3.2%	1.3%
Liquidity premium	0.5%	1.1%	
ECB All govies yield	3.6%	3.5%	
Base case - QIS5			
Discount rate QIS5	**3.4%**	**3.3%**	-0.1%
Capital under QIS5	**10.0**	**5.5**	**-44.9%**
Scenario 1			
Discount rate = Govies	4.4%	5.4%	1.0%
Capital under Govies as disc rate	**10.0**	**14.7**	**47.5%**
Scenario 2			
Counter Cyclical Premium	1.3%	2.4%	
Discount rate - Counter Cyclical Premium	**4.2%**	**4.7%**	**0.5%**
Capital under CCP method	**10.0**	**7.9**	**-21.3%**

Source: J.P. Morgan estimates.

Table 9: Germany - Capital position under different discount rate assumptions

GERMANY	FY10	9M11	Change YTD
Govt. bond	2.5%	1.4%	-1.1%
EUR Corp bond yield	4.8%	5.4%	0.7%
Swaps	2.9%	2.3%	-0.7%
EUR Corporate bond spread	1.9%	3.2%	1.3%
Liquidity premium	0.5%	1.1%	
ECB All govies yield	3.6%	3.5%	
Base case - QIS5			
Discount rate QIS5	3.4%	3.3%	-0.1%
Capital under QIS5	**10.0**	**10.8**	**7.9%**
Scenario 1			
Discount rate = Govies	2.5%	1.4%	-1.1%
Capital under Govies as disc rate	**10.0**	**2.1**	**-78.9%**
Scenario 2			
Counter Cyclical Premium	1.3%	2.4%	
Discount rate - Counter Cyclical Premium	**4.2%**	**4.7%**	**0.5%**
Capital under CCP method	**10.0**	**13.2**	**31.6%**

Source: J.P. Morgan estimates.

Impact on asset allocation

The most interesting thing for us is that Solvency II is increasingly moving away from the market consistent principle (i.e. that asset values reflect risk) and embracing a reversion to mean principle (i.e. that asset values reflect temporary distortions). There will be consequences of this in our view, most obviously in asset allocation.

In particular, the introduction of a countercyclical premium increases the attractiveness (from a Solvency II capital perspective) for insurance companies to invest in a basket of Eurozone Government bonds. The reason is that insurers will normally look to match their assets and liabilities – if liabilities therefore are discounted using Government bonds it makes sense to have assets that reflect this.

We tested this for the current crisis and the previous crisis. While in this crisis it would obviously have been better to be overweight corporate credit, the difference (assuming the CCP is introduced) is not that large while in the 2008/09 crisis being overweight Government bonds was much better. This means that capital stability can be most achieved (based only on an examination of recent crisis) through investing in Government bonds.

Table 10: Various yields and discount rates - shaded = times of stress and therefore use of the CCP

	31-Dec-07	31-Dec-08	09-Mar-09	31-Dec-09	31-Dec-10	30-Sep-11
EUR corp All average	5.33%	6.12%	5.91%	3.95%	3.88%	4.05%
EUR corp AAA	4.57%	4.43%	4.91%	3.22%	3.13%	2.65%
EUR Swap curve	4.61%	3.48%	2.96%	3.22%	2.93%	2.26%
ECB All government yield	4.27%	3.56%	3.57%	3.32%	3.63%	3.49%
ECB AAA government yield	4.23%	3.32%	3.24%	3.20%	2.78%	1.99%
Germany 7 year	4.22%	2.75%	2.62%	2.99%	2.52%	1.43%
Italy 7 year	4.35%	3.87%	3.63%	3.41%	4.37%	5.39%
Normal times discount rate = swaps	4.61%	3.48%	2.96%	3.22%	2.93%	2.26%
JPMe liquidity premium under QIS5	0.07%	0.71%	1.04%	0.29%	0.16%	0.45%
QIS5 discount rate (swap+LP)	4.68%	4.19%	4.01%	3.51%	3.09%	2.71%
Stressed discount rate - CCP	4.68%	4.37%	4.72%	3.71%	3.89%	4.04%
Stressed spread over swaps	0.07%	0.89%	1.75%	0.49%	0.96%	1.77%
Owning 100% corporates versus stressed disc rate			1.19%			0.01%
Owning 100% Govt. bonds versus stressed disc rate			-1.14%			-0.55%

Source: Company reports and J.P. Morgan estimates.

We show below a very simple example for Mar-09 and the current period. This shows that the CCP would help capital in periods of stress assuming the insurer invests in the Eurozone all Government bond curve.

Table 11: Simple example - investing in Govt bonds using the CCP is best way to protect capital

Mar-09 versus End-08				
100% Govies	**End-07**	**Mar-09**	**Change in spread**	**Duration**
Assets	100.0	103.5	-0.69%	5
Liabilities	90.0	89.5	0.11%	5
Capital	**10.0**	**13.9**	**39.5%**	
100% Corps	**End-07**	**Mar-09**	**Change in spread**	**Duration**
Assets	100.0	97.1	0.58%	5
Liabilities	90.0	89.5	0.11%	5
Capital	**10.0**	**7.6**	**-24.0%**	
Sep-11 versus End-09				
100% Govies	**End-09**	**Sep-11**	**Change in spread**	**Duration**
Assets	100.0	99.2	0.17%	5
Liabilities	90.0	86.3	0.82%	5
Capital	**10.0**	**12.8**	**28.4%**	
100% Corps				
Assets	100.0	99.5	0.10%	5
Liabilities	90.0	86.3	0.82%	5
Capital	**10.0**	**13.2**	**32.0%**	

Source: J.P. Morgan estimates.

Appendix: split of MCEV by country

We show below the split of MCEV (life business only) by country for the main insurers and we show the Government bond yield relative to swaps. A big positive spread here (i.e. Govt. bond yield higher than swaps) indicates economic capital stress for an insurer (before all the "premiums" that Solvency II is introducing), and vice versa.

Table 12: Life EV split of the European insurers

LCm

	Govies yield 30 September 2011	Govies yield relative to Swap 30 September 2011	Aegon 2010	Ageas 2010	Allianz 2010	Aviva 2010	AXA 2010	Baloise 2010	CNP 2010	Delta Lloyd 2010	Generali 2010	ZFS 2010
Euro Swap	2.4%											
Greece	21.8%	19.4%										
Portugal	10.7%	8.2%		814								
Italy	5.5%	3.1%			2,764	597			351		7,877	
Spain	5.1%	2.7%	755			554	1,616		238			251
Ireland	7.5%	5.0%				827						1,224
Belgium	3.6%	1.2%		3,360			2,512	384		748		
Netherlands	2.3%	-0.1%	6,401							3,811		
Germany	1.9%	-0.5%			7,975		3,492	284		177	4,106	1,848
France	2.6%	0.2%			4,602	2,940	9,526		10,220		4,045	
UK	2.4%	0.0%	2,901			6,370	945					3,507
US	1.9%	-0.2%	14,726		4,428	1,231	6,795		1,173			3,430
Swiss	0.9%	-1.5%			3,361		5,097	1,862				2,337
Asia/HK			47	649		676	9,403					1,834
Others			926	-	3,293	1,440	1,090	43	99		7,899	1,710
Total			**25,756**	**4,823**	**26,423**	**14,635**	**40,476**	**2,573**	**12,081**	**4,736**	**23,927**	**16,141**
Periphery and Belgium as a % of total			**2.9%**	**86.5%**	**10.5%**	**13.5%**	**10.2%**	**14.9%**	**4.9%**	**15.8%**	**32.9%**	**9.1%**

Source: Company reports and J.P. Morgan estimates.

Appendix: emerging Solvency II fudges

In our view Solvency II has the potential to be hugely positive for the insurance industry, provided it sticks to its original principles. This is mostly that the balance sheet is market consistent, discounting liabilities with swaps. This will naturally result in a much more volatile capital base, and thus a higher level of "buffer" required by the industry, but that is not necessarily a negative thing in our opinion.

What does concern us is that the industry, and its regulators, appear to be moving increasingly away from a market consistent balance sheet and towards a "mean reversing" one. A mean reversing balance sheet assumes, for example, that if equity markets fall by 15% in one year, they will subsequently reverse that over the next year to return to their trend growth rate of say 9%. While this may be fair from a valuation perspective, it is not in our view prudent from a capital perspective.

The main way that the industry is moving away from market consistency is through the discount rate. It appears to us that there is a desperate desire to raise the discount rate used to calculate liabilities, whether that be through the liquidity premium, the countercyclical premium or the ultimate forward rate. The aim appears to be to present a "stable" capital base. While understandable, this in our view will have negative consequences and it would instead be better for regulators to accept that in times of stress capital gets used (i.e. capital adequacy reduces) as that is what capital is for. In our view regulators would be better off accepting that you need less capital when you are in a stressed environment (as those stresses are already reflected in a market value balance sheet) and you need more capital when you are in a "good" environment (as the capital base has no risk in it).

The illiquidity premium / matching premium / Countercyclical premium

One of the main sensitivities for capital is the discount rate used to discount insurance liabilities. A higher discount rate, all else being equal, reduces the level of the liabilities and thus boosts capital, while a lower discount rate has the opposite effect.

The insurance industry originally looked to boost the discount rate (thereby improving capital) through the use of something called an illiquidity premium. This can be defined as the extra return, or spread, demanded by investors for investing in assets that are less liquid relative to assets that are fully liquid. And as insurance companies, it is argued, do not need this liquidity, then the liquidity premium should be allowed in their calculation of the liabilities. Or, put another way, according to the insurance industry, insurance liabilities have highly predictable cash flows and this should in some way or another be reflected in the discount rate.

With Omnibus II it now seems that the liquidity premium will be replaced with:

- A matching premium – liabilities that have no withdrawal right will be discounted at the earned yield less a default assumption. This is effectively the same as the liquidity premium (i.e. 1 minus the default assumption = liquidity premium).
- A countercyclical premium – when times are stressed, the regulators will allow insurance companies to increase the discount rate even further so that their capital doesn't come under pressure.

Our view is that the liquidity premium (or anything similar such as the matching premium or countercyclical premium) should not be added to the discount rate when calculating solvency. In short, it is in our view inconsistent with the fundamental tenant of Solvency II – i.e. a market consistent approach to measuring solvency. The reason is that by including a liquidity premium, matching premium or any other discount rate fudge, regulators are essentially saying that financial markets are wrong and will mean revert. While this may well be the case – it equally may not – and in our view it is better to have the "correct" number and then take a view as to whether as much capital buffer is needed once a severe market stress has already occurred.

The introduction of a liquidity premium or something similar also in our view increases the interconnectedness of insurers with banks, therefore increasing systematic risk. This is because the formula for the liquidity premium gives a higher number (i.e. capital for insurers improves) as banks get into trouble. The index prescribed by CEIOPS is highly weighted towards financials i.e. 41% of the index is financials of which 29% is banks.

Table 13: Composition of the IBOXX $ Corporate index prescribed by CEIOPS for the calculation of illiquidity premium for USD

By entity	iBoxx $ Corporate
Financials	41.2%
Banks	29.1%
Insurance	4.5%
Financial services	7.6%
Non financial	58.8%
Total	**100.0%**

Source: Dataquerry

Table 14: Composition of the IBOXX $ Corporate index prescribed by CEIOPS for the calculation of illiquidity premium for USD by Rating

by rating	iBoxx $ Corporate	iBoxx $ financials	iBoxx $ non financials
AAA	1.6%	0.8%	0.8%
AA	20.4%	13.8%	6.6%
A	44.2%	20.1%	24.2%
BBB	33.7%	6.5%	27.2%
Total	**100.0%**	**41.2%**	**58.8%**

Source: Dataquery

Lack of capital requirement for Sovereign risk

The second big issue is that Government bonds are deemed to be risk-free for insurance required capital purposes, even if the recent evidence is that they are anything but. This therefore encourages insurers to invest in Government bonds versus corporate bonds of the same duration.

We believe that there are two potential ways of adjusting for this:

- To have required capital for EU Government bonds on the same basis as for non-EEA Government bonds (Solvency II has required capital for bonds from outside the EEA).
- To have required capital for EU Government bonds equivalent to those of corporate bonds of the same rating.

Table 15: Estimated capital requirements from risk-weighting Govt bonds under Solvency II, before diversification benefits

EURbn - Non-EEA method (1)	Govvies exposure	Rating pre crisis	Rating Now	Capital charge under S2 pre crisis for 7yr duration	Capital charge under S2 NOW for 7yr duration	Capital requirement pre crisis	Capital requirement NOW	Increase in capital required through crisis
Greece	20	A	CCC	8%	31.5%	1.5	6.3	4.8
Ireland	15	AAA	BBB+	0%	9.8%	-	1.5	1.5
Portugal	20	AA-	BBB-	0%	9.8%	-	2.0	2.0
Spain	80	AAA	AA	0%	0.0%	-	-	-
Italy	200	A+	A+u	8%	7.7%	15.4	15.4	-
Others (Germany+France+US+UK+Benelux)	965	AAA	AAA	0%	0.0%	-	-	-
Total	**1300**					**16.9**	**25.1**	**8.2**

EURbn -Corp bond method (1)	Govvies exposure	Rating pre crisis	Rating Now	Capital charge under S2 pre crisis for 7yr duration	Capital charge under S2 NOW for 7yr duration	Capital requirement pre crisis	Capital requirement NOW	Increase in capital required through crisis
Greece	20	A	CCC	10%	53%	2.0	10.5	8.5
Ireland	15	AAA	BBB+	6%	18%	0.9	2.6	1.7
Portugal	20	AA-	BBB-	8%	18%	1.5	3.5	2.0
Spain	80	AAA	AA	6%	8%	5.0	6.2	1.1
Italy	200	A+	A+u	10%	10%	19.6	19.6	-
Others (Germany+France+US+UK+Benelux)	965	AAA	AAA	6%	6%	60.8	60.8	-
Total	**1,300**					**89.9**	**103.2**	**13.3**

Source: Bloomberg, EIOPA, J.P.Morgan estimates

The Ultimate Forward Rate – long term interest rate assumption

Because insurance liabilities are so long duration, a key assumption is the level of long term interest rates. To calculate this long term assumption, the industry is to use something called an "extrapolation method" which basically involves an assumption about long term inflation and real interest rates to derive the long term risk-free rate. This is in truth the only way to do it but we have two concerns:

- The first is that the extrapolation is based on "long term inflation" of 2.0% for the Eurozone which is somewhat higher than the average inflation rate in Germany 1994-2009 which was just 1.6% and only went above 2% on 3 occasions in that period.
- The second is that we note the assumed real interest rate for the Eurozone is 2.2%, with the calculation based on the average real bond return delivered in the second half of the 20th century. Here, again, it could be argued that this is a somewhat optimistic assumption given where bond yields are today compared to where they started (and ended) the 2H of the 20thC.

The net impact of the above is that the assumed long term Government bond yield (technically the ultimate forward rate) for the Eurozone is set at 4.2% for QIS5 (compared to German 10-year currently at 3.3% currently), and for Japan at 3.2% (10-year currently at 1.29%) and Switzerland at 3.2% (10-year currently at 1.86%).

Table 16: Ultimate forward rate under QIS5

	Long term inflation rate	Long term real interest rate	Ultimate forward rate
Euro zone	2.00%	2.20%	4.20%
UK	2.00%	2.20%	4.20%
Norway	2.00%	2.20%	4.20%
Sweden	2.00%	2.20%	4.20%
Denmark	2.00%	2.20%	4.20%
GBP	2.00%	2.20%	4.20%
USD	2.00%	2.20%	4.20%
Poland	2.00%	2.20%	4.20%
Romania	2.00%	2.20%	4.20%
Turkey	3.00%	2.20%	5.20%
Japan	1.00%	2.20%	3.20%
Switzerland	1.00%	2.20%	3.20%

Source: CEIOPS

Capital improves as cash flow weakens

The other area of debate is whether Tier-1 capital should include the value of in-force (i.e. profit that will emerge, but has not yet emerged, from business already sold). In our view the debate is a bit academic as in an economic balance sheet there is no such thing as value of in-force – there is the market value of the assets and the market value of the liabilities, and the difference between these two things is the economic capital. It is worth remembering that value of in-force is simply prudence in reserves and this prudence does not exist in an economic balance sheet.

Hence we do not see any reason for a somewhat arbitrary split of available capital into Tier 1 and Tier 3 based on some definition of "value of in-force". Value of in-force represents conservatism established in the reserves of the statutory or IFRS balance sheet (i.e. the reserves are established with a margin within them) and this

conservatism will instead be accounted for in the required capital in a Solvency II world.

Where we do have some concerns however, is on the ability to leverage this value of in-force with debt. We note that the insurance industry is basing its leverage ratios (50% of total capital) with reference to the banking industry, but the banking industry has a cost/cost balance sheet rather than market/market so comparisons are not appropriate.

Furthermore, the use of an economic balance sheet will potentially result in a conflict between cash flow and capital. The reason is that under an economic balance sheet when you sell a new policy that improves your capital position, as we think all insurers effectively assume that new business is profitable above and beyond any capital charges. However, new business usually is cash flow negative for an insurer (due to commissions etc.) so you can get a situation whereby, in certain lines of business (regular premium business for example) capital is seen to improve but the reality is that the balance sheet is actually weakening.

Duncan Russell, CFA
(44-20) 7325-4831
duncan.x.russell@jpmorgan.com

Appendix: EIOPA stress test started to flash

One other interesting thing to look at is to compare the stress results done by EIOPA versus the actual year to date movement.

According to the stress test done by EIOPA the available capital would fall by 26% from €577bn to €427bn using the below mentioned stresses (adverse scenario). We estimate that the adverse scenario would have resulted in a solvency ratio of just over 100% for the industry.

However, the year to date movement in these factors has been significantly higher than the stress test scenario, indicating that capital must be coming under some pressure for the industry.

For example,

- EIOPA used adverse movement of -15% in equity markets versus the actual YTD change of -19%,
- Similarly EIOPA used the corporate bond spreads to widen by around 30% versus actual movement of 80% widening in spreads.
- EIOPA didn't include the sovereign spreads in the stress test, however they have given the spread movement for the separate sovereign stress test. Again these have been significantly higher. Overall we estimate that YTD spread movement in Periphery government exposure has reduced the available capital by 8% or €40bn

Table 17: EIOPA stress test assumptions versus actual market moves YTD

Equity and Property (% shock to portfolio)	Baseline case	Adverse case	PROXY equity index	Actual change YTD
Equity shock	7.50%	15.00%	Euro STOXX 600	-18.99%
Corporate bonds (% increase in spreads)	**Baseline case**	**Adverse case**	**Corporate bonds (% increase in spreads)**	**Actual change YTD**
Investment grade	15.80%	31.40%	Euro comp 7 yr avg	81.6%
By rating -(increase in bps)	**Baseline case**	**Adverse case**	**Corp bond spread change bps**	**Actual change YTD**
AAA	13	25	Euro comp AAA 7 yr	99
AA	22	44	Euro comp AA 7 yr	90
A	30	59	Euro comp A 7 yr	121
BBB	45	89	Euro comp BBB 7 yr	131
Sovereign - Increased spread shock (bps)		**Increase in bps**	**CDS MAN 5 yr**	**Actual change YTD**
Ireland		258	Ireland	87
Greece		255	Greece	4,263
Portugal		246	Portugal	609
Spain		165	Spain	30
Italy		137	Italy	231

Source: EIOPA, Bloomberg and J.P. Morgan estimates

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