

## Feedback on the QIS for IORPs

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This paper summarises important facts for Belgian pension funds (IORPs) after the Quantitative Impact Study (QIS) exercise that took place during the end of 2012.

### INTRODUCTION

The European Insurance and Occupational Pension Authority (EIOPA) is in the process of reviewing the directive on the Institutions for Occupational Retirement Provision (IORP directive). The aim of the directive is to ensure European regulatory consistency across sectors and enhance members and beneficiaries protection.

In this context, a Quantitative Impact Study (QIS) took place in the fourth quarter of 2012<sup>i</sup>. EIOPA is currently preparing a preliminary set of results and is expected to publish a final report by May 2013.

The participation of each IORP was on a voluntary basis but was strongly recommended by supervisors in order to have a representative assessment of capital requirements for pension funds under the future regulatory framework.

This brief note gives some general feedback on the QIS exercise with a specific focus on the Belgian market. Some sensitivity analyses are then performed on a case study to illustrate important features. We conclude with the limits of the study and the next steps to be considered.

### GENERAL FEEDBACK<sup>ii</sup>

Most participants experienced this first QIS exercise as quite difficult given its short deadline and complexity.

The timing was also questionable because several important Solvency II concepts are still under discussion<sup>iii</sup> and only very simplistic approaches were proposed for the sponsor support valuation.

This sponsor support valuation is, however, a key element<sup>iv</sup> and is also a political issue. Many employers are indeed concerned about a potential recognition of a liability towards IORPs on their

balance sheet. This could ultimately reduce occupational pension coverage.

Another commonly expressed fear is the divestment from property and equity given their unduly high capital charges on a long-term holding period. A massive divestiture from those asset categories while overstimulating investments in government bonds will most likely result in several undesirable effects: an increase in sponsor funding cost, market distortion and a potential negative impact on economic drivers.

Some stakeholders challenge the purpose of this whole exercise if the Solvency Capital Requirement (SCR) after “benefit reductions” and “sponsor support increase” results in a negligible amount, i.e., nSCR is close to zero.

Other stakeholders, on the contrary, express a very strong interest in intermediate results of this exercise, enhancing governance and transparency between IORPs, sponsors, members and supervisors.

### QUICK EUROPEAN COMPARISON

A first European screening shows significant differences among participating State Members:

- The persons effectively in charge of the calculations vary per country.
- The valuation methodologies used show different complexity levels: ABO versus PBO<sup>v</sup>, deterministic versus stochastic valuation.
- The potential value of sponsor support, pension protection scheme, ex-ante/post benefit reductions is country specific.

Above divergences indicate clearly that aggregating results at a European level is a real challenge and conclusions should be interpreted with care, i.e., there is the risk of comparing apples with oranges.

## FIRST ANALYSES ON THE BELGIAN MARKET

The current Belgian prudential regime is far from risk-based, so the first objective was to involve as many IORPs as possible<sup>vi</sup> while limiting the costs.

This is why, as agreed with the local supervisor, a pragmatic approach has been retained for this first QIS exercise:

- Only unconditional benefits of defined benefit (DB) plans are included in the study<sup>vii</sup>.
- Liabilities are calculated on an ABO basis.
- All items are valued deterministically.
- The use of EIOPA helper tabs is encouraged, including the (over)simplified sponsor support valuation.

Stochastic valuation could not be reasonably developed and tested in such a short timeframe. This means that all option-like features have been either excluded (e.g., non-unconditional benefits, Belgian DC plans) or approximated (e.g., sponsor support valuation).

In our opinion, a less acceptable proxy is the liability valuation on an ABO basis ignoring all salary and inflation-linked risks that are in the long run inherent to any DB plan and resulting for well-funded plans in a negative value of the sponsor support.

The difference in approach actually raises a much more fundamental issue: short-term versus long-term vision. This will be briefly covered in the next section.

Some features appear to be too much Solvency II inspired, not taking sufficiently into account IORPs specificities:

- The Benefit option sub module does not appropriately capture the options available and their interaction<sup>viii</sup>.
- No risk in real salary increase is considered, risk in pension ceiling decrease is only covered in case of annuities<sup>ix</sup>.
- The reduced capital charge for equity when the liability duration exceeds 12 years is perceived as an arbitrary measure. A smooth decreasing function between one year and 12 years would be welcomed.
- More generally, the same liability duration approach could also be extended to property.

As previously stated, the current sponsor support valuation is quite simplified and is not interest sensitive. An asset item with a zero duration reduces the total asset duration. This effect should be further investigated.

## SHORT-TERM VERSUS LONG-TERM VISION

The ABO versus PBO approach leads to the following question: would a combined approach of short-term (ST) and long-term (LT) vision not better reflect the IORP risk management rather than studying different value-at-risk levels?

The ST vision would be a settlement situation whereas the LT vision would be on a going concern basis.

The possible approaches are therefore summarized in the following table:

	Item	ST Vision	LT Vision
<b>HBS</b>	Liability basis	ABO	PBO
	Discount rates	Swap rates	Swap rates + LT adj.
	Assets	Market Value	
	Sponsor Support	No Value	Valuation (incl. SCR reduction)
<b>SCR Market</b>	SCR Interest	Swap rate	
	SCR Equity & Property <sup>x</sup>	Not duration based	Duration based
	Spread	Duration of max. 5 years	Duration based (incl. reduced charges on matching adj.)
	<b>SCR Pension</b>	SCR Pension	Same shock applied on the central valuation

The next section presents an analysis of the results under both approaches.

## SENSITIVITY ANALYSES – CASE STUDY

We consider a simple situation for a DB plan where all risk benefits are (re)insured and no benefit option is applicable so that our focus relies on market risk and sponsor support<sup>xi</sup>.

The **central scenario** is based on a PBO basis with a Swap curve, an asset allocation of 75% in bonds<sup>xii</sup>, 25% in equities and an A rating of the sponsor.

Item	Central scenario (mio€)	ABO basis (mio€)
Sponsor support	69.57	-62.42
Investment assets	325.00	325.00
Liabilities	394.65	262.52
Excess of assets over liabilities	-0.09	0.06
SCR Market	54.65	39.00
SCR Counterparty	4.43	0.00
SCR Pension	3.33	1.70
SCR	56.89	39.46
nSCR	4.46	0.04
BEL Level B coverage <sup>xiii</sup>	-2.77	96.09

An analysis of the outcomes of the central scenario leads to the following observations:

- Total assets are slightly lower than liabilities given the probability of default of the sponsor support, which reduces its value by 0.09.
- The remaining nSCR includes the SCR counterparty (the sponsor cannot absorb losses on itself) and the reduction of its loss-absorbing capacity on other risks given its default probability<sup>xiv</sup>.
- The liabilities calculated with the expected return on assets (BEL Level B) exceed the investment assets by 2.77€, requiring on a PBO basis an extra payment beyond the agreed funding included on the sponsor support.

The **figures on an ABO basis** differ significantly:

- Liabilities decrease from 395 to 263mio€, resulting in a negative value of the sponsor support<sup>xv</sup> and the absence of SCR counterparty.
- The lower SCR market and pension is explained by the decrease in duration on ABO basis (6.6 versus 9.5 years).
- The funding level on an ABO basis is more than sufficient with an excess of 96mio€.

The **short-term versus long-term vision** results in the following overview:

Item	ST Vision (mio€)	LT Vision (mio€)
Sponsor support	0.00	28.78
Investment assets	325.00	325.00
Liabilities	262.52	353.82
Excess of assets over liabilities	62.48	-0.04
SCR Market	36.65	54.04
SCR Counterparty	0.00	1.83
SCR Pension	1.70	2.82
SCR	37.11	55.32
nSCR	37.11	1.86

The ST vision does not recognise the negative value of sponsor support and shows on a settlement basis that the excess of assets over liabilities of 62mio€ is sufficient to cover the SCR of 37mio€.

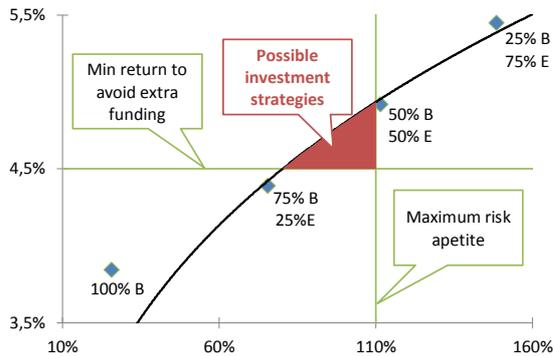
The LT vision shows higher liabilities given the PBO basis but lower than under the central scenario (354 versus 395) given the higher discount rates after applying the long-term adjustments on the basic swap curve. This results in a lower burden on the sponsor support by the same amount.

The SCR LT vision does not differ significantly from the SCR central scenario (55 versus 57), as some aspects of the LT adjustments have to be recognized under the SCR<sup>xvi</sup>.

It should finally be noted that the “SCR ST vision” of 37 is in this case not far from the “SCR LT vision” at the 95% level rather than at the 99.5% level<sup>xvii</sup>.

Another interesting sensitivity analysis is about **alternative asset allocations**, where we compare the expected return on assets with the risk expressed as the increase in sponsor support compared to its initial value of 69.57mio€ to absorb losses as defined by the SCR.

This allows management to make a trade-off between risk (abscissa) and return (ordinate):

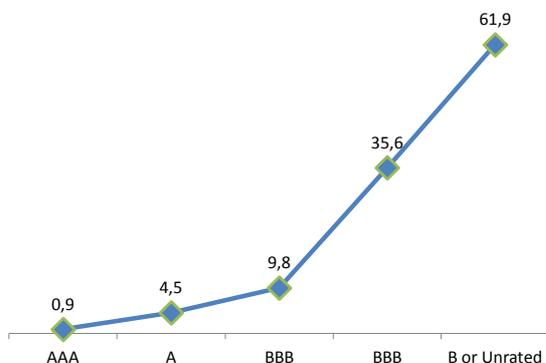


A first observation is that the current asset allocation of 75% in bonds and 25% in equities is insufficient to reach a target return level of 4.5% to avoid any extra funding<sup>xviii</sup> while the risk on sponsor increase would be 75% of its original value<sup>xix</sup>.

Investing more in equities transfers more risk to the sponsor, saving him some extra contributions. If the management expresses a risk appetite as 110% of the initial value of the sponsor, a proportion of 50% equities would be the maximum.

The leftmost dot, representing an investment strategy of 100% in Euro government bonds, appears to be an outlier and has been ignored in the regression: according to the technical specifications, the non-AAA government bonds are expected to return 4.51%, which is higher than corporate bonds while requiring less capital charge. Here we are in a clear situation where the risk-return paradigm is not respected, creating arbitrage opportunities.

We conclude with a **sensitivity on sponsor rating** where the nSCR would vary between 1 for an AAA-rated sponsor and 62mio€ for an unrated sponsor:



## NEXT STEPS

A next step is the stochastic valuation of non-unconditional benefits<sup>xx</sup>. A fair valuation of sponsor support should also be option-wise by taking funding as an underlying stochastic variable and representing both management vision and legal enforceability of the support.

The above case study illustrates some basic management actions where funding cost could be decreased while keeping risk at an acceptable level. New regulation could therefore present new opportunities to the sponsor.

The sponsor rating sensitivity calls for a holistic analysis of the sponsor<sup>xxi</sup> and all related stakeholders that could materially impact its rating and the IORP risk as a whole.

Next to quantification (commonly referred to as pillar 1), there is a clear need for embedding this new regime internally and for appropriate communication to all stakeholders, which will be addressed under pillars 2 and 3.

## SUMMARY

The country specificity of occupational benefits combined with different QIS implementations makes conclusions at a European level very difficult, but it is a necessary stage to define a harmonized prudential regime.

The participation rate was therefore key and the Belgian IORP market has been a relatively active player in this exercise.

The results should be interpreted with care, taking into account their sensitivity to the parameters and methodologies used.

This first QIS exercise is part of a learning curve where participants can express their view on tested scenarios, analyse their risks with a new approach and define some future actions that could ultimately create value in a new risk-based environment.

- <sup>i</sup> See our first market update for more information:  
<http://europe.milliman.com/perspective/published-articles/new-risk-based-prudential-regime.php>
- <sup>ii</sup> This information is based on meetings between IABe (Belgian Institute of Actuaries) and BVPI (Belgian Institution of IORPs), information from representatives in the Groupe Consultatif and our own experience as consultants supporting IORPs.
- <sup>iii</sup> Including a.o. long-term guarantee adjustments, convergence of the ultimate forward rate, supervisory actions.
- <sup>iv</sup> Both in terms of central valuation on the asset side of the holistic balance sheet as in terms of security mechanisms to reduce the solvency capital requirement (SCR).
- <sup>v</sup> In contrast to the Accumulated Benefit Obligation basis, the Projected Benefit Obligation basis projects the pensionable salary and social security ceiling of the pension formula.
- <sup>vi</sup> Approximately 14 Belgian IORPs participated in the QIS representing about 25% of the Belgian market, which is successful for this first QIS exercise.
- <sup>vii</sup> Belgian DB plans funded by IORPs represent about 75% of technical provisions and 30% of affiliates (see <http://www.fsma.be/fr/Supervision/pensions/bpv/Article/Statistics%20bpv/stat.aspx>).
- <sup>viii</sup> Option risks and their materiality are country specific. The following risks are identified on the Belgian market: turnover, rights transfer, lump sum versus annuity, early retirement. Several issues can be raised: their calibration relies on insurance experience, they can show intracorrelation and intercorrelation (e.g., longevity risk is most likely correlated with annuity option).
- <sup>ix</sup> Only the revision risk captures a change in legal environment. This means that a decrease in pension ceiling would only require a capital charge for annuities but not for a lump-sum formula.
- <sup>x</sup> As a first proxy, we would apply a similar reduction factor to the one proposed on equity.
- <sup>xi</sup> The only pension risk is longevity.
- <sup>xii</sup> Equally split between government and corporate bonds.
- <sup>xiii</sup> The "BEL Level B" is the calculation of the best estimate of the liabilities with a flat expected return on assets (in contrast to the BEL Level A calculated with the swap curve). It represents the minimum level that should be at least covered with investment assets.
- <sup>xiv</sup> I.e., SCR for the related risk corrected by a factor for default (expressed as cumulated (1-PD) over liabilities duration).
- <sup>xv</sup> A negative sponsor support value means the IORP has actually a debt towards the sponsor who will recover this value by, e.g., reducing its future contributions. SCR counterparty captures the risk that a receivable will not be paid to the IORP. Such a risk disappears when the IORP is actually liable to the sponsor.
- <sup>xvi</sup> Extra capital charge for the countercyclical premium and increased spread capital charge given the stressed matching adjustment.
- <sup>xvii</sup> As mentioned in technical specifications, under the assumption of normal distribution,  $V@R_{95\%} \cong 65\% * V@R_{99.5\%}$ . We observe that  $37.11 \cong 65\% * 55.32 = 35.96$
- <sup>xviii</sup> See 2.77 extra funding on level B basis under the central scenario.
- <sup>xix</sup> The risk is expressed as (SCR-nSCR)/SS, i.e. (56.89-4.46)/69.57=75.38% under the central scenario.
- <sup>xx</sup> Including Belgian DC plans
- <sup>xxi</sup> Sponsor definition is tricky: The jump in default probability of an unrated subsidiary which relies on a well-rated mother company is likely to be avoided. The legal enforceability of the mother support can, however, be questionable.

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