Society of Actuaries in Ireland

Current Topics 2016

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1. Foreword

Welcome to the Society's 2016 Current Topics paper. This continues a series which started with the first Current Topics paper in 2001 and it serves two purposes:

- It gives a group of newly qualified actuaries a great opportunity to prepare their first paper for their professional peers; and
- It consolidates in one document the key current issues facing actuaries in our main areas of practice.

The paper was co-ordinated by Sarah Kelly, Jenny Johnston and Aoife O'Brien.Those who have contributed to this year's paper are:

- **Life & Health Insurance:** Ronan Judge, Sarah Kelly and Aisling Kennelly
- **Pensions and Investment:** Susan Egan, Peter McSweeney and Michelle Ward
- **General Insurance:** Aoife O'Brien, Róisín Walsh and Lisa Sheppard

A huge amount of work has gone into this enterprise and I would like to thank everybody involved for their time, energy and commitment.

The paper provides an excellent record of the main issues facing actuaries in 2016 both for current use and for posterity.

Dervla Tomlin

President of the Society of Actuaries in Ireland

The following Paper is for general information, education and discussion purposes only. Views or opinions expressed do not necessarily represent the views or opinions of the Society of Actuaries in Ireland and they do not constitute legal or professional advice.

2. Overview

The Life & Health Insurance section outlines recent market development and market share for both sectors. The main focus of the life insurance paper provides an update on grey areas in Solvency 2 and ongoing regulation changes in respect of product governance and PRIIPs (Packaged Retail Insurance & Investment Products). There is also an overview on mortality improvements, critical illness products and insuring the ageing population. The health insurance system in Ireland and recent changes are also covered in the paper.

The Pensions and Investment section outlines recent market developments in the pensions area, with a general market update on investments. The Pensions section of the paper covers both recent legislative updates in this area and focuses on developing and ongoing topics including the wind up of Defined Benefit (DB) pension schemes and transfer value exercises, which have grown in popularity over recent years. Recent legislative updates include the introduction of Funding Standard Reserve requirements, an update to the prescribed basis for Statements of Reasonable Projection calculations as defined by ASP PEN 12 and the publication of DB financial management guidelines by the Pensions Authority in May of 2015.

The General Insurance section outlines recent market developments along with day one issues with Solvency II and transitioning from the Statement of Actuarial Opinion to the CP92 Regime. Periodic payment orders remain very topical and the recent updates on these have been covered. Data analytics, examining raw data to draw conclusions, and the increasing importance of this is also discussed.

3. Life and Health Insurance

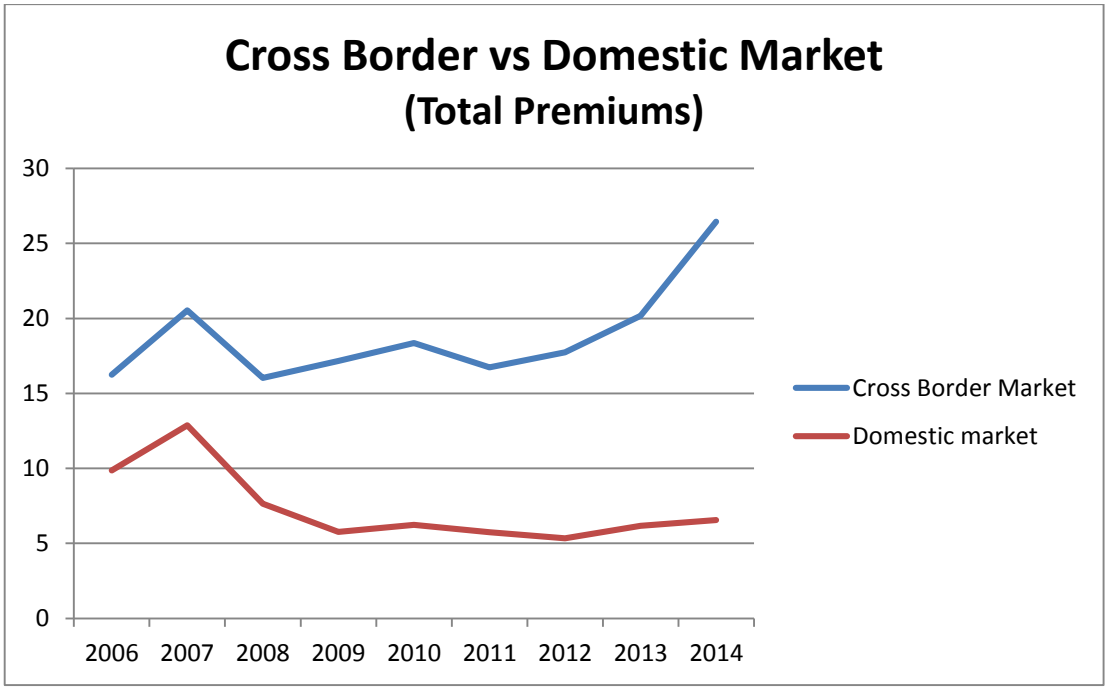
3.1 Market Update

The period since the last Current Topics paper (presented in Dec 2012) has been a very busy and challenging time for the Life Insurance industry. There have been a number of regulatory changes, including the finalisation and introduction of Solvency II and a number of new regulation changes at drafting and consultation stage (PRIIPs, EIOPA product governance). The period from 2012 to 2014 saw an increase of 25% of premiums in the domestic life insurance market and that trend has continued over 2015. We will also address the cross-border market as well as corporate merger activity over the period from 2012-2015.

Cross Border vs Domestic Market

- Domestic market has 12 life companies with 4 main players accounting for approx. 80% of the market.

- Cross-border market has 59 life companies
  - Including: Aegon, Allianz, AXA, Generali, Intesa Sanpaolo, MetLife, SEB, Standard Life International, Zurich
  - Approximately 110 reinsurance companies and SPVs (includes non-life)
  - There is an Italian and UK focus with over 70% of gross premium income.
  - There are 15 Multi Territory companies
- The growth over the period from 2012-2014 in the cross-border market is double that of the domestic market at 50%.

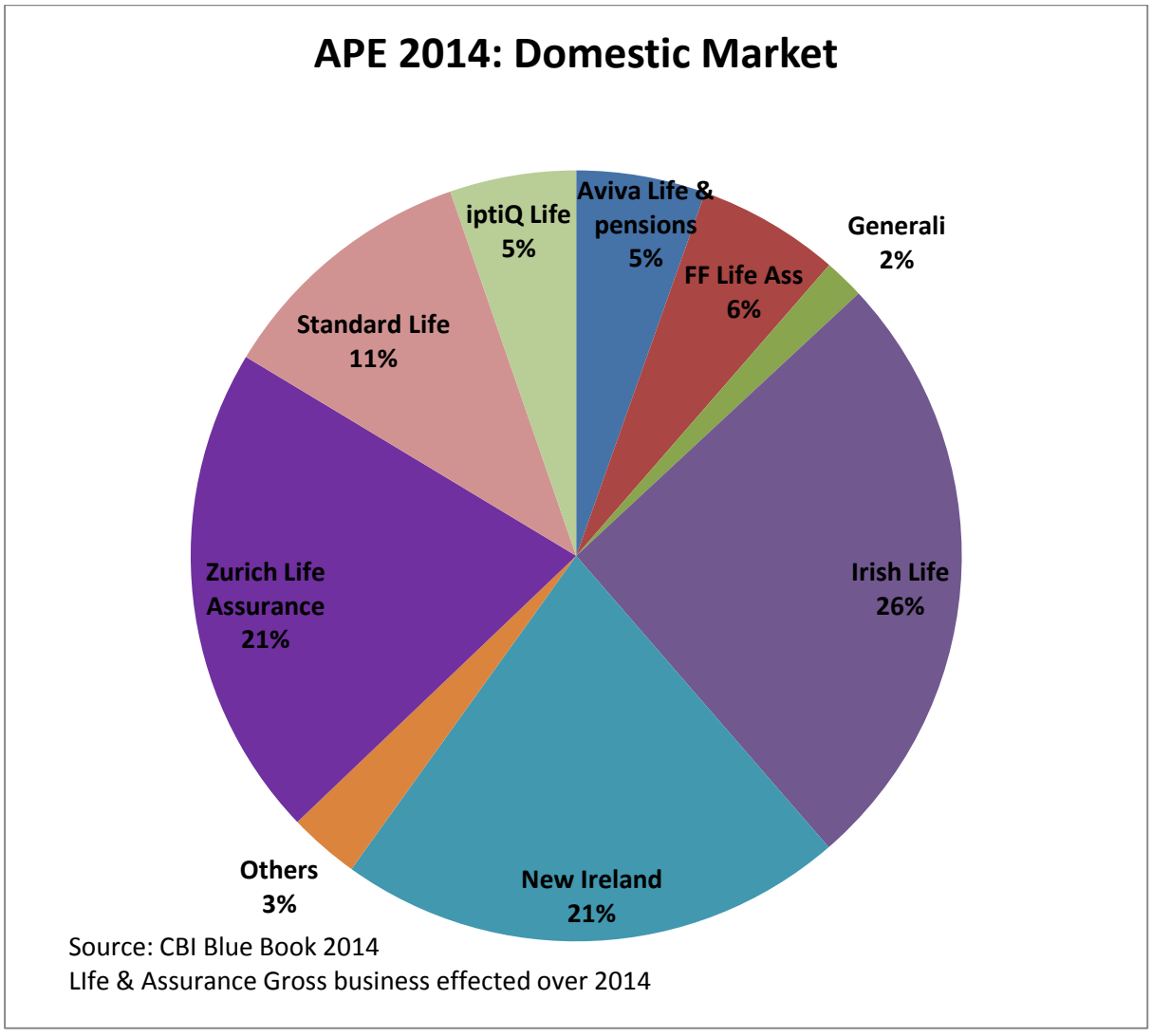


Domestic Market Consolidation

- In Jan 2012, AIB pulled out of joint venture with Aviva (Ark Life). All policies sold by AIB were written by Ark Life. This had previously accounted for 50% of Aviva's Life and Pensions sales. AIB bought out Aviva's stake and started a new relationship with Irish Life. Ark Life was sold to Guardian Assurance in the UK in December 2013. In September 2015, Guardian was subsequently sold to Swiss Re.
- In April 2012, National Irish Bank announced its decision to liquidate its life insurance business Danica Life.
- Irish Life and Canada Life merged in July 2013 as part of the Great West Life Co. acquisition. All sales are now under the Irish Life banner.
- On 10 July 2013, the European Commission announced Bank of Ireland would continue to hold New Ireland. Previously, the sale was part of the restructuring plan

in return for receiving bailout funds. Bank of Ireland agreed an alternative divestment plan as part of its EU restructuring plan.

- On 29 July 2015 Canada life Group acquired Legal & General International (Ireland) Limited (LGII). LGII provides investment and wealth management solutions, primarily focused on the UK high net worth market. LGII now trades as Canada Life International Assurance (Ireland) (CLIAI).
- In September 2015, Laya healthcare diversified into the life insurance market with LayaLife. LayaLife is underwritten by iptiQ Life SA, a wholly owned subsidiary of Swiss Re.

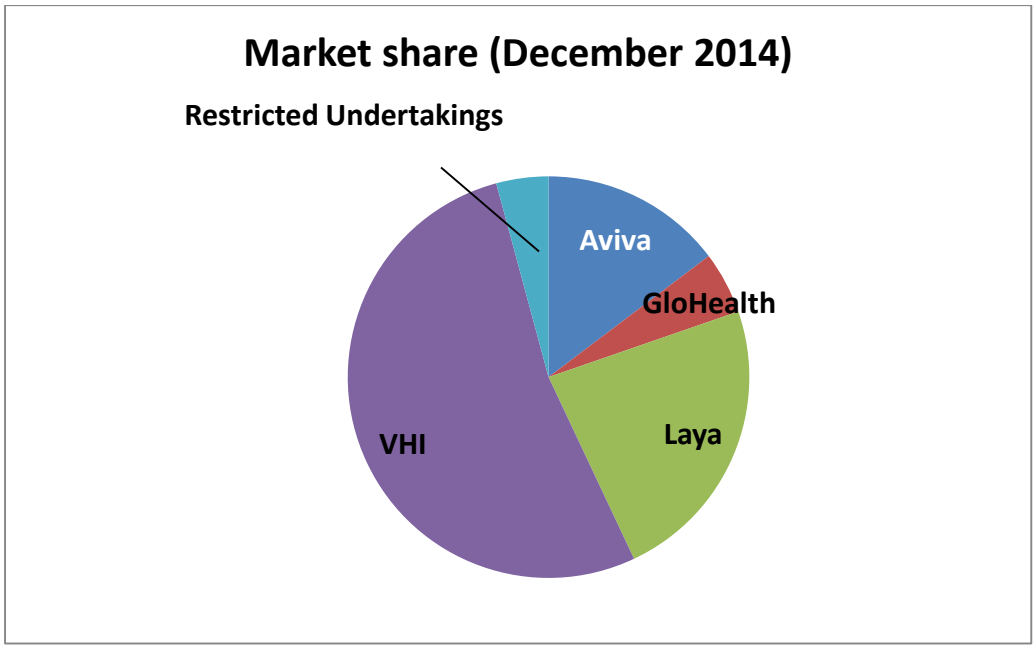


Source: CBI Blue Book 2014
LIfe & Assurance Gross business effected over 2014

Annual Premium Equivalent (APE) = Annual Premium + 0.1 * Single Premium

Health Market Overview

There are four main players



- VHI is the statutory body and up to the 1990s, VHI was the only dominant player in the market. The European Union ruled for VHI to obey minimum solvency levels that apply to its rivals. From July 31st2015, VHI is authorised on the same basis as other private health insurance companies.
- Laya, (previously Quinn & BUPA) entered market in the 1990s. Laya was part of the Swiss Re group but in January 2015 it was taken over by AIG.
- Aviva (previously Vivas & Hibernian). Vivas were founded in 2004 and were purchased by Hibernian Group in 1999. In 2009, the company was rebranded as Aviva.
- GloHealth was launched in 2012 and has gained market share in competition with VHI, Aviva and Laya. Irish Life own 49% of GloHealth.
- Restricted undertakings are only available to particular groups e.g. ESB.

3.2 Mortality Improvement

This is a key assumption for life insurance companies both on mortality risk and longevity risk business lines. The UK IFoA Continuous Mortality Investigation Mortality Projections Committee published the first mortality projections model in November 2009 and has been updating this model annually since then. The model uses population mortality data for England &Wales over a 40 year period to predict mortality trends. Annual updates ensure the latest experience is incorporated.

In the 2015 update, the latest data for England and Wales is showing a decline in the rate of mortality improvement in recent years. The average annual improvement from 2011 to 2015 is just 0.3% p.a. for ages 18-102 and 0.1% p.a. for ages 65-102. This is the lowest four-year mortality improvement in the period 1975-2015 used to calibrate the CMI_2015 Mortality Projections model.

The low improvements for 2011-2015 contrast starkly with average improvements of 2.4% p.a. between 2000 and 2011. Across all age groups mortality improvement over the past 4 years has been low compared to previous years but over this period mortality deterioration is identified at older ages (85-102).

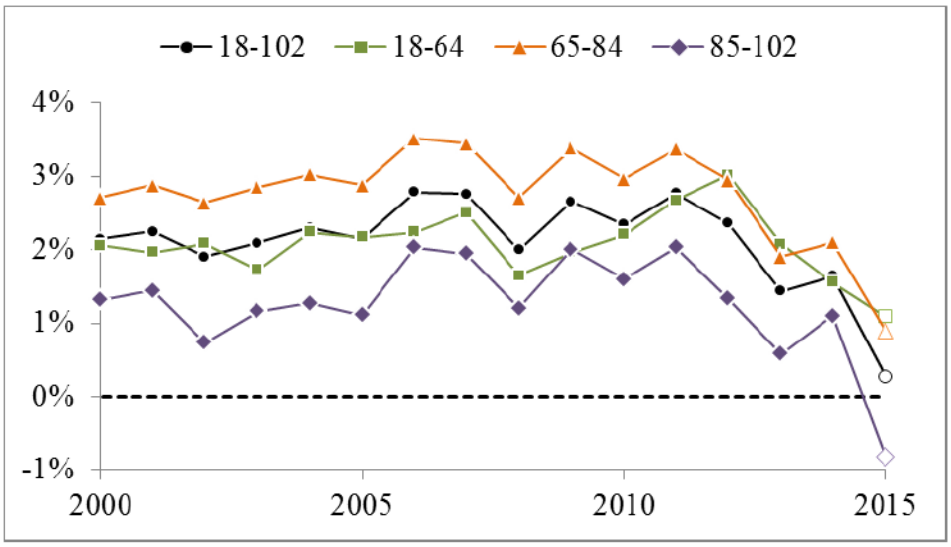


Figure 2: Annualised four-year mortality improvements in England & Wales, 2000-2015, weighted averages for various age ranges

At the time of the latest review by the committee, data was only available through July 2015. Over this period, it appears that overall mortality in 2015 is higher than in 2014, suggesting a year of deterioration driven in particular by high mortality for lives over age 65

in the early months of 2015. The high mortality in 2015 may be attributed to seasonal variation. Over the winter months 1999/2000 and 2008/2009 high mortality was recorded but spanned two calendar years limiting the impact in each year. For winter 2014/2015 the high mortality is recorded in the early months of 2015 contributing to the strong negative improvement.

2015 experience in isolation could be considered an anomaly but lower mortality improvement was also recorded in 2012 and 2013 leading to the low four year improvement experience shown. Although the mortality improvement in 2014 was slightly higher than the average improvement in the recent past, improvements in 2012 and 2013 were close to zero.

Table 1: One-year and four-year mortality improvements for 2015 for different age ranges, and their rankings within the period 1975-2015

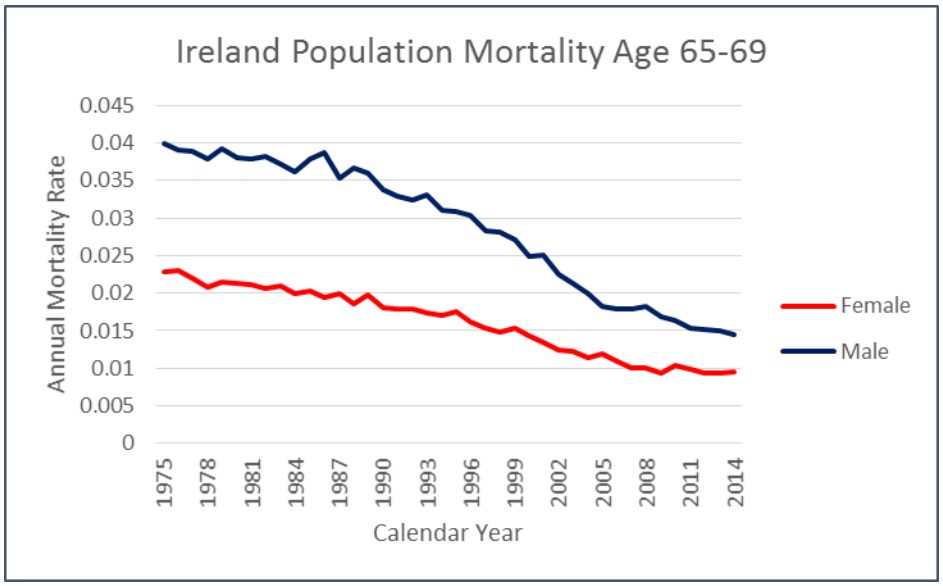
Age range	One-year improvement		Four-year improvement (p.a.)	
	2015 value	2015 rank	2015 value	2015 rank
18-102	−2.3%	40th of 40	+0.3%	37th of 37
18-64	+2.0%	24th of 40	+1.1%	36th of 37
65-84	−1.0%	37th of 40	+0.9%	36th of 37
85-102	−5.8%	40th of 40	−0.8%	37th of 37
65-102	−3.2%	40th of 40	+0.1%	37th of 37

Over the four year period from 2011 to 2015 annual improvements are estimated to be +0.8% p.a. for males and −0.2% p.a. for females, significantly below typical improvements of recent decades. The recent year improvements are ranked among the lowest improvement rates over the 40 year period.

The Committee has adjusted downwards its projected long term rate of mortality improvement by 0.25%p.a between the 2014 and 2015 releases. This is largely driven by the poor mortality experience seen in 2015.

It is interesting to reference the extensive UK industry data understanding that the life insurance market in Ireland has many similarities to the UK industry. An initiative is underway to begin collecting our own industry level data. An important development by the SAI Demography Committee has been the production of the first Aggregate Life Office study for Ireland late last year. The study covered exposure years 2008 -2012. The results for annuitant mortality show a general trend of improving mortality from years 2008 to 2011, but surprisingly, on both an amounts and lives basis, the combined 2012 experience is heavier than the 2011. Similarly these results create a question as to whether this is a change in trend or a random fluctuation.

If we take a look at Irish population mortality data, we note a similar pattern in recent years. The Human Mortality Database provides annual population mortality data for Ireland from 1950 to 2014 by 5 year age bands.



The graph shows annual mortality rates since 1975 (in line with CMI 2015 data period). Mortality rates have clearly declined by calendar year showing strong mortality improvement over the period. However note that the downward slope has become less steep in recent years and appears to have been flattening out from 2011. The age group 65-69 is shown as an example but we observe a similar pattern across all groups with the recent flattening of the slope more pronounced at older ages. This high level analysis suggests the Irish population data is showing similar effects to those noted for the England and Wales population data underlying the CMI mortality projections model.

At this stage it is difficult to say whether mortality improvements may return to levels more in line with prior years' experience, or whether we are at the start of a period of prolonged lower improvements. This poses a challenge for insurance companies to respond promptly to potential changes in mortality trends without introducing unwarranted volatility.

In the face of this uncertainty, a further challenge in setting mortality improvement assumptions arises for companies writing mortality and longevity business where actuaries seek to set consistent best estimate assumptions for two lines of business where the prudence is in the opposite direction.

3.3 Insuring the ageing population

The definition of "older ages" has a starting point that seems to be continuously increasing. In the UK the ONS (population data) projection forecasted the percentage of deaths for lives 90+ at 20% in 2014 and 36% by 2040.

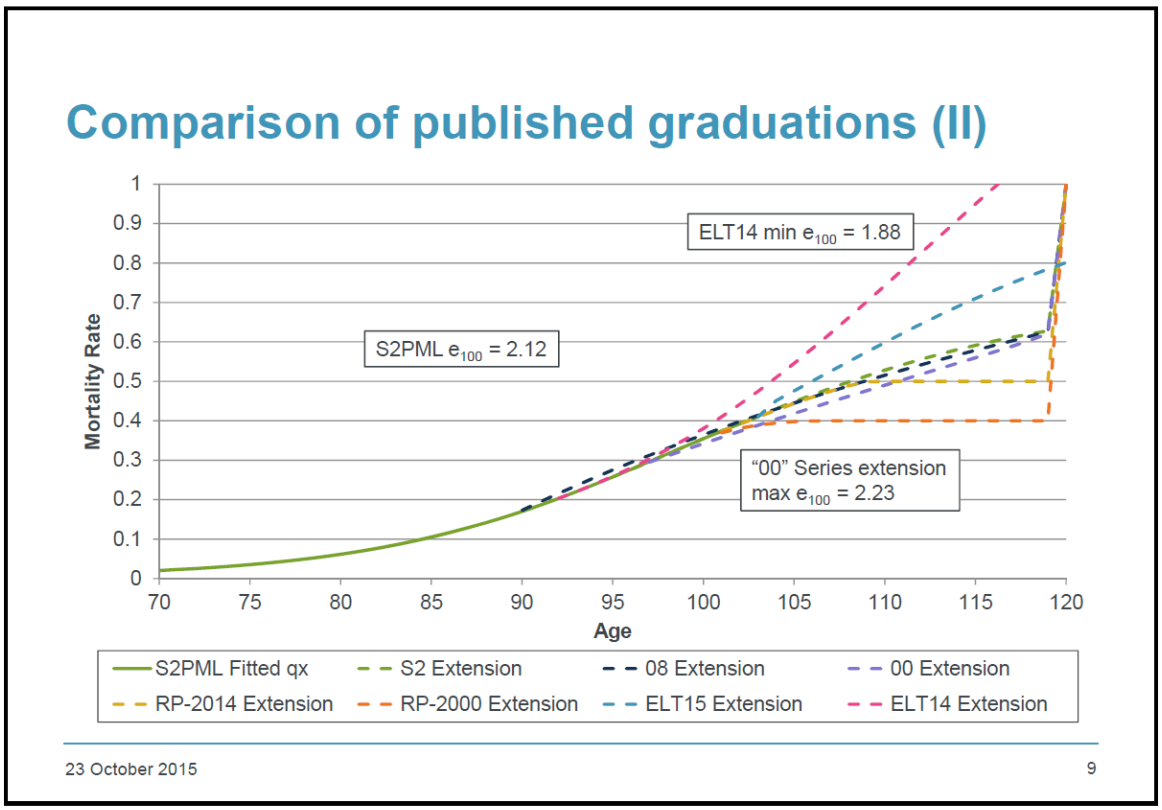
As life expectancy is increasing, we expect a high proportion of deaths at "older ages". There is an increasing awareness of this in our business. One of the main challenges companies face is data limitations for older age groups. Currently few companies would have any exposure at age 90+ and certainly not enough to set mortality assumptions based on portfolio experience. Even population data has limitations as the exposure at older ages is rapidly decreasing.

Period Life Expectancy at Various Ages (Years) by Sex, Year and Age

	Birth	10 years	20 years	35 years	55 years	65 years	75 years
Male							
1926	57.4	55.2	46.4	34.4	19.1	12.8	7.7
2006	76.8	67.2	57.5	43.3	24.8	16.6	9.8
Female							
1926	57.9	54.9	46.4	34.7	19.6	13.4	8.4
2006	81.6	72.0	62.1	47.4	28.5	19.8	12.1

The Central statistics office data compares life expectancy for males and females in Ireland in 1926 and 2006. Irish people celebrating their 90th birthday this year are certainly outliers!

The CMI has set up a specific Old Age Mortality working party to focus on this issue. They produced their first working paper in October 2015 – Working Paper 85. One of the topics discussed is mortality patterns at older ages. The debate on whether the shape of mortality at high ages is exponential or exhibits signs of mortality deceleration is an interesting topic but findings are inconclusive. There is wide variation in the level and shape of mortality assumed at high ages under different tables published by the CMI, the ONS and North American actuarial associations.



The differences in the resulting mortality rates derived using different models are generally not material at age 65 but increase in significance at the very oldest ages. This is just the beginning of the work by the CMI on this topic which will be of increasing interest for life insurance companies over the coming years.

Extended life expectancy is also a factor for health products. Old age morbidity is as interesting (if not more interesting) than old age mortality. Dementia is a condition which has been getting a high profile in the media in recent years. The illusion is that it is becoming more common as there are an increasing number of affected patients. However, if you look closely, there is not a change in incidence rates but a change in exposure. Incidence rates are higher at older ages and as the population ages there is a higher percentage of our population in this higher incidence age bracket. Therefore the changing demographic is also affecting morbidity experience.

Consumer needs are also changing as our target market has an increasing average age and protection cover may be required for longer periods. Gazing into the crystal ball there are a number of possibilities. The increased need for long-term care protection could lead to a growing market for this forgotten product. Customer demand for protection products at older ages may lead to longer term products becoming popular. Retirement planning will become increasingly complex and protection riders such as critical illness or long term care could be the solutions. New "older age" conditions may be explored for critical illness policies. With this fresh view, the ageing population presents opportunities as well as challenges.

3.4 Regulatory Changes

3.4.1 Product Governance

Background

In November 2013, the three European Supervisory Authorities:

1. The European Banking Authority (EBA) in London;
2. The European Securities and Markets Authority (ESMA) in Paris; and
3. The European Insurance and Occupational Pensions Authority (EIOPA) in Frankfurt

published a joint position, setting out eight principles applicable to oversight and governance of financial products. In October 2014, EIOPA published a consultation paper on: "Guidelines on product oversight & governance arrangements by insurance undertakings".

Aims

• To establish consistent, efficient and effective supervisory practices within the Member States

• To prevent miss-selling of insurance products due to poor product design

Industry Response

Insurance Europe's response was that the guidelines were overly-prescriptive and included overly-formal processes. This would increase insurers' administrative workload and detrimentally affect insurers' competitiveness. They reasoned that the focus of the provisions should be on more "demanding, sophisticated insurance products". They also noted that the target market is a "vague & unclear concept".

Association of British Insurers (ABI) were supportive of the basic principles but questioned the prescriptive nature of the guidelines. There was also a question raised over the legality or legal basis for the guidelines: "Solvency II covers prudential regulation, not conduct legislation".

The ABI were in favour of a risk-based approach and thought that the stringent product governance rules would be overbearing for general insurance products. Their main concern raised was that the guidelines would apply only to product manufacturers and places compliance exclusively on insurance companies.

EIOPA Response

In October 2015, EIOPA published a revised consultation paper. The scope of the preparatory Guidelines was extended to include provisions on firms distributing such products. The responses to the initial consultation were analysed and the guidelines for insurance undertakings have been re-drafted. These consultations closed in January 2016. The expectation is that the guidelines for the Insurance Undertakings will not change as they have been through a consultation process.

What's in the EIOPA guidelines?

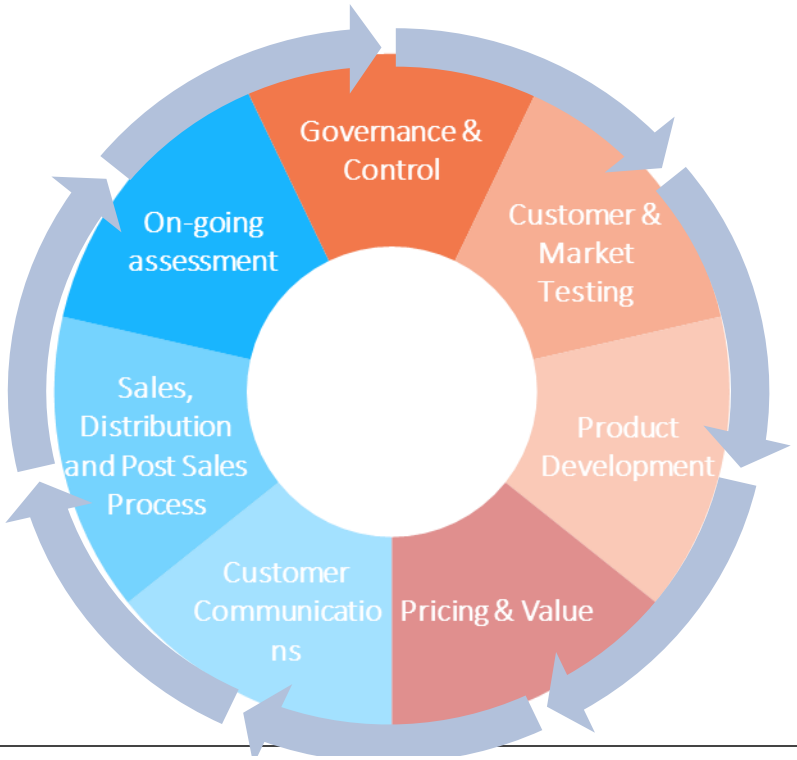
1) The provisions for manufacturers of insurance products and provisions on firms distributing such products are presented in the following table.

2) Draft Guidelines for insurance distributors which distribute insurance products which they do not manufacture are also noted.

Table 1: Revised guidelines for manufacturers following 2014/2015 consultation

Guideline 1	**Establishment of product governance and oversight arrangements**
	The manufacturer should set out a formal written document on product oversight and governance arrangements. Product governance should be designed "to minimise potential consumer detriment, provide proper management of conflicts of interests and should ensure that the interests, objectives and characteristics of consumers are duly taken into account" Focus on setting out appropriate measures and procedures for designing, monitoring, reviewing and distributing products for customers.
Guideline 2	**Role of the manufacturer's administrative, management or supervisory body**
	This body should be ultimately responsible for the establishment, implementation, subsequent reviews and continued internal compliance with the product oversight and governance arrangements.
Guideline 3	**Review of the product governance and oversight arrangements**
	A regular review should take place to ensure all arrangements are valid and up to date.
Guideline 4	**Review of product governance and oversight arrangements**
	There manufacturer should regularly review the product oversight and governance arrangements to ensure they remain valid, up-to-date and the manufacturer should amend them where appropriate.
Guideline 5	**Target Market (groups of customers the manufacturer is designing the product for)**
	Set out suitable steps to identify the relevant target market of a product.
	This should also include groups of consumers for which the product is not likely to meet their needs.
	The manufacturer should only bring to market products that meet the "interests, objectives and characteristics of, and are of benefit to the target market".
	Consider the financial capability and literacy of the target market.
Guideline 6	**Knowledge & Ability of staff involved in product design**
	Ensure staff possess the necessary skills, knowledge and expertise to understand the product's features & characteristics, including the target

	market.
Guideline 7	**Product Testing**
	Assess the product under a range of scenarios prior to launch (qualitative & quantitative). This should assess if the scenarios' results meet the objectives for the target market. Where this analysis yields poor results, manufacturers should make product changes before the launch.
Guideline 8	**Product Monitoring**
	Monitor on an on-going hat the product continues to meet the needs to the target market.
Guideline 9	**Remedial Action**
	Where a problem is identified post launch, the manufacturer should take appropriate action to mitigate the situation and prevent re-occurrence and take necessary steps if the problem has already materialised.
Guideline 10	**Distribution Channels**
	- Select distribution channels appropriate for the target market
	- Ensure they have the appropriate knowledge to give advice to the customer
	- Provide clear & up-to-date information
	- Take all reasonable steps to ensure distribution channels act in compliance with the objectives of the manufacturer's product oversight
Guideline 11	**Outsourcing product design**
	Maintain full responsibility for compliance with the product governance arrangements when outsource to a 3rd party
Guideline 12	**Documentation of product governance and oversight arrangements**
	All actions taken in relation to product oversight should be documented.



2. Draft Guidelines for insurance distributors which distribute insurance products which they do not manufacture

Guideline 1: Establishment of product distribution arrangements
Set out appropriate measures and procedures for considering the range of products & services the distributor intends to offer its customers

- Set out in a written document and make available to staff

Guideline 2: Objectives of product distribution arrangements as per objective of manufacturers

- Product governance should be designed "to minimise potential consumer detriment
- provide proper management of conflicts of interests and should ensure that the interests, objectives and characteristics of consumers are duly taken into account"3

Guideline 3: Role of the management
Persons within the distributor's management responsible for the insurance distribution should endorse and be ultimately responsible for the establishment, implementation, subsequent reviews and continued internal compliance with the product distribution arrangements.

Guideline 4: Obtain all necessary information on the target market from the manufacturer

- Insurance product
- Product approval process
- Target market

Guideline 5: Obtain all OTHER necessary information on the target market from the manufacturer

- Characteristics
- Risks
- Costs

Guideline 6: Distribution Strategy

Where a distribution strategy is set up or followed by the distributor it should not contrast with the strategy & target market as identified by the manufacturer.

Guideline 7:

Regular Review of product distribution arrangements remain valid, up to date and appropriate. No frequency is specified in the draft guidelines.

Guideline 8: Provision of sale information to manufacturer

- Inform manufacturer without undue delay where
- Product not aligned to customers interests
- Product circumstance that increases risk of customer detriment

Guideline 9:

All actions taken in relation to product oversight should be documented.

Expected impacts of the EIOPA guidelines

The Central Bank's Consumer Protection Code has been in place since 2012. This covers the requirement to assess customer suitability at product launch stage but also on an ongoing basis. The EIOPA guidelines go further placing emphasis on needs assessment, target market identification and monitoring along with engagement of distribution channels. Product testing and taking appropriate actions when necessary also feature prominently. Whilst insurance companies may be undertaking these processes currently, there will need to be a formal documentation and review process in place.

3.4.2 PRIIPs – Packaged Retail Insurance & Investment Products

What is a PRIIP?

- Investment repayable to retail investors which is subject to fluctuations because of exposure to reference values or performance of one or more assets which are not directly purchased by the retail investor
- Includes **insurance based investment product** which offers a maturity or surrender value which is exposed either directly or indirectly to market fluctuations
- Structured term deposits and securities

What do we know about PRIIPs?

- **The timeline**: compliance is required by 31 December 2016!

Main points on PRIIPs

- Manufacturers and re-manufacturers must produce a Key Information Document (KID) in a specified format for each product prior to sale
- The KID includes:
    - Risks including a Summary Risk Indicator (one risk indicator combining credit, liquidity & market risk)
    - Illustration of Costs
        - Specific defined legislation on all the costs that need to be disclosed & how to calculate these
        - Split out: one-off costs; recurring costs and incidental costs (e.g. performance fees)
    - Performance scenarios
        - 3 projections: Unfavourable, Moderate, Favourable
        - Some principles have been specified but no specific method
- This KID needs to be reviewed regularly

Outstanding issues to consider for PRIIPs?

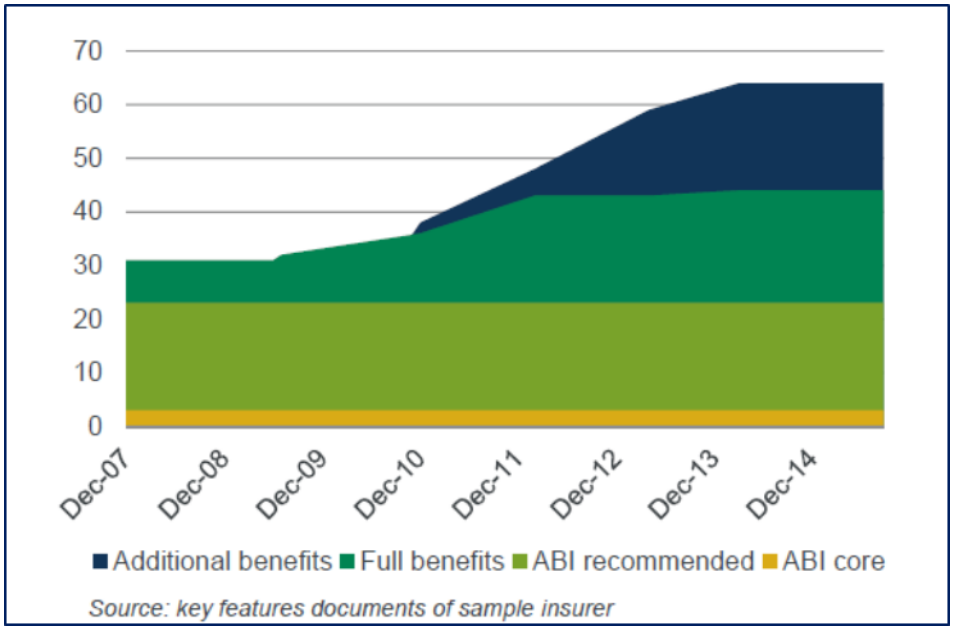
- Huge complexity in the document, methodology and approaches
- No clarity yet as to approach where multiple funds available on product
- How to squeeze all this into 3 pages
- Interaction with the with existing disclosure regulations (replace existing or another layer of requirements to provide to customers at point of sale)

Next steps for PRIIPs?

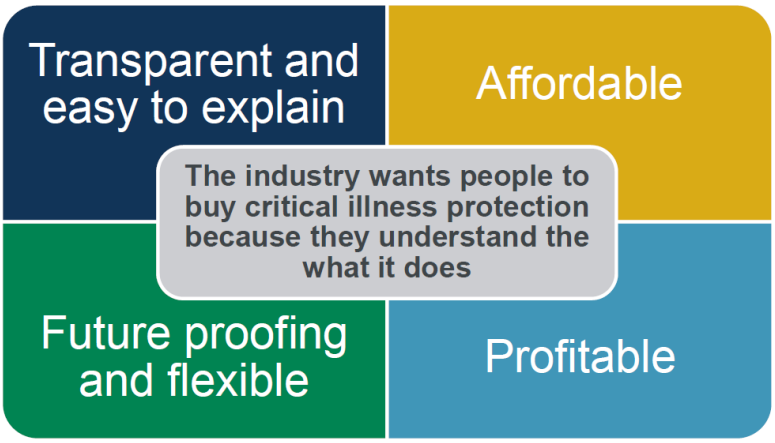
- Response to the latest draft of the Regulatory Technical Standards issued by Society in January.
- Further guidance is expected from EIOPA by end March 2016.
- Integration with UCITS (Undertaking for Collective Investments in Transferable Securities) by 2019.

3.5 Critical Illness Business

As this product continues to develop it is time to consider whether it is really meeting customer needs. Over the past five years, the Critical Illness ("CI") product has been getting more and more complex. A product that originally covered 3 core illnesses – heart attack, stroke and cancer, now covers on average 40-60 "critical illness" with insurance companies competing to produce the most robust product. Since 2007, the product scope has increased remarkably. The addition of partial payment conditions and child CI covers has been increasing the number of illnesses covered.



It is helpful to go back to the roots of this product. Dr Marias Bernard in South Africa in October 1983 created the "dread disease" product to help ensure patients could pay for life saving surgeries. The basic concept is still the same today. The challenge is to design a product that covers only the conditions that are truly life changing and/or would lead to significant financial strain for a policyholder. Detailed definitions and strict listings of covered conditions protect from windfall or loophole payments. This helps to keep premiums down and ensure fairness. However the resulting complicated products are difficult to understand and even though the product is both comprehensive and extensive, it does not eliminate the possibility of an adversely affected policyholder not qualifying for a payment.



Medical advances are another driver of complex definitions. What is a critical illness today may be treatable with a simple day procedure in a few years' time. The most commonly referenced example of this from past experience is angioplasty which once a full payment conditions is now more commonly a partial payment or simply not covered under CI. Definitions and claim triggers are constantly being refined with a view to future proofing CI products.

Increasing the complexity of products and number of conditions covered also increases the underwriting risk. More conditions means more underwriting! This increases cost and further complicates the process for the policyholder. The majority of claims still arise from the small number of core illnesses where 75%+ of claims can be allocated as cancer, heart attack or stroke. Most new conditions added have very low incidence rates and therefore minimal incremental risk cost.

This product presents many challenges and perhaps there are opportunities for improvement. One proposed approach would be a reduction in the number of illnesses with a Total Permanent Disability cover as a catch-all for less common severe illnesses. Alternative approaches to CI definitions include severity based criteria, minimum periods of absence from work or activity based tests (e.g. Activities for Daily Living and ADWs) as a measure of impairment. The market is slow to move away from a product that at its core works but perhaps there is potential to increase the appeal of the critical illness product by reducing the complexity?

3.6 Solvency II - Areas of Uncertainty

Almost fifteen years after the European Commission launched its Solvency II brainchild in May 2001, the regulatory regime has finally gone live and is off the ground. The aim is to harmonise and improve insurance regulation across the EU. As a result (with some minor exceptions), all EU insurers must follow the new regime and adhere to its intricate processes which describe how to value assets and liabilities and calculate regulatory capital. Hundreds of pages of legislative and reference texts have been published- Solvency II Directive (Level 1), Delegated Regulations and Implementing Technical Standards (Level 2), Guidelines (Level 3) and various other EIOPA notes and opinions. Despite this, there are still areas of uncertainty and different interpretations of the rules exist. Below we will discuss some of these areas and suggest possible judgements/approaches which can be taken. Topics addressed include contract boundaries, assumptions for the best estimate calculation (with particular focus on expenses) and considerations for Solvency Capital Ratio shock scenarios.

3.6.1 Contract Boundaries

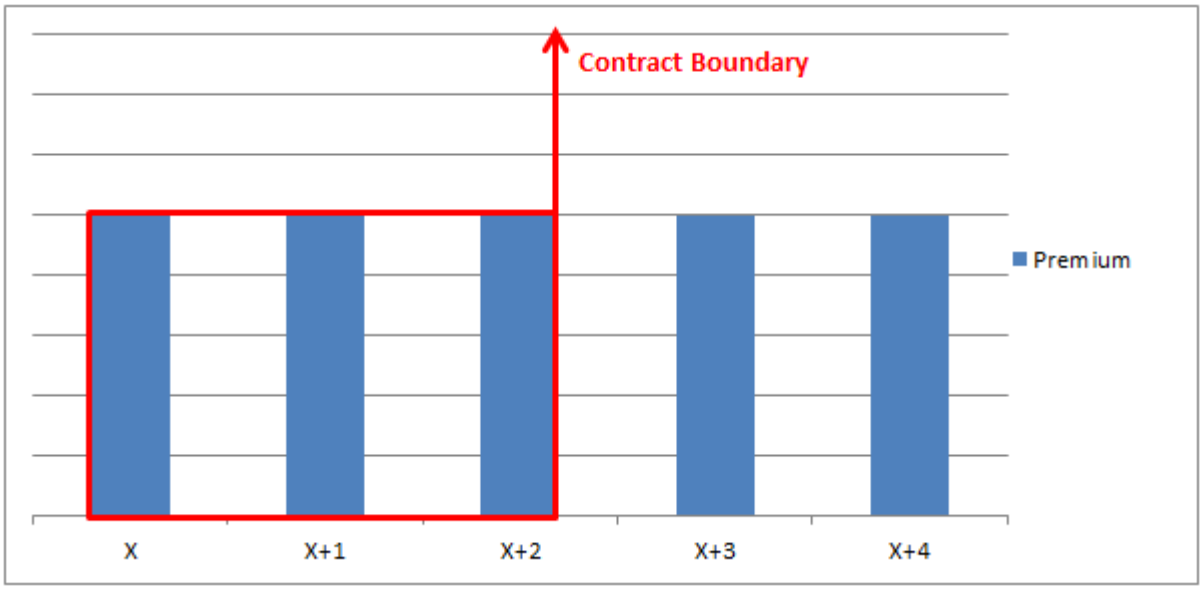
Definition and background

Insurance obligations and policyholder premiums are only considered under Solvency II if they arise before the contract boundary. The contract boundary is therefore a key determinant of the cashflows in the technical provisions. The Delegated Acts tell us that the contract boundary occurs when the insurer has a unilateral right to:

a) Terminate the contract
b) Reject premiums payable under the contract, or
c) Amend premiums or benefits of the contract to fully reflect the risks.

While further guidance has been published in this space, there is still scope for different interpretations. For example, it is not always clear when one of the above conditions is met, perhaps due to ambiguous contract wording.

Other than the uncertainty in determining the contract boundary, one criticism is that it lacks economic perspective. For example, if a contract is subject to some review or alteration at a future date, the insurer will be unable to recognise the economic value of the business beyond that point. The following graph considers a regular premium policy with a premium review in two years. Only premiums in the red square (as well as associated insurance obligations and economic value) are recognizable under Solvency II, even though the policy is likely to be continued thereafter.



Assuming that the business is profitable, excluding future premiums reduces VIF (present value of expected future profits) and decreases Own Funds (excess assets over liabilities). While VIF monetisation –where an insurer exchanges future profit for an upfront amount of capital- may be a solution, insurance companies may not want to pursue this avenue.

On the other hand, including future premiums will increase capital requirements. This can mean a lower Solvency ratio despite a better Own Funds position. As a consequence, some companies will want to include future premiums, while others will want to exclude them.

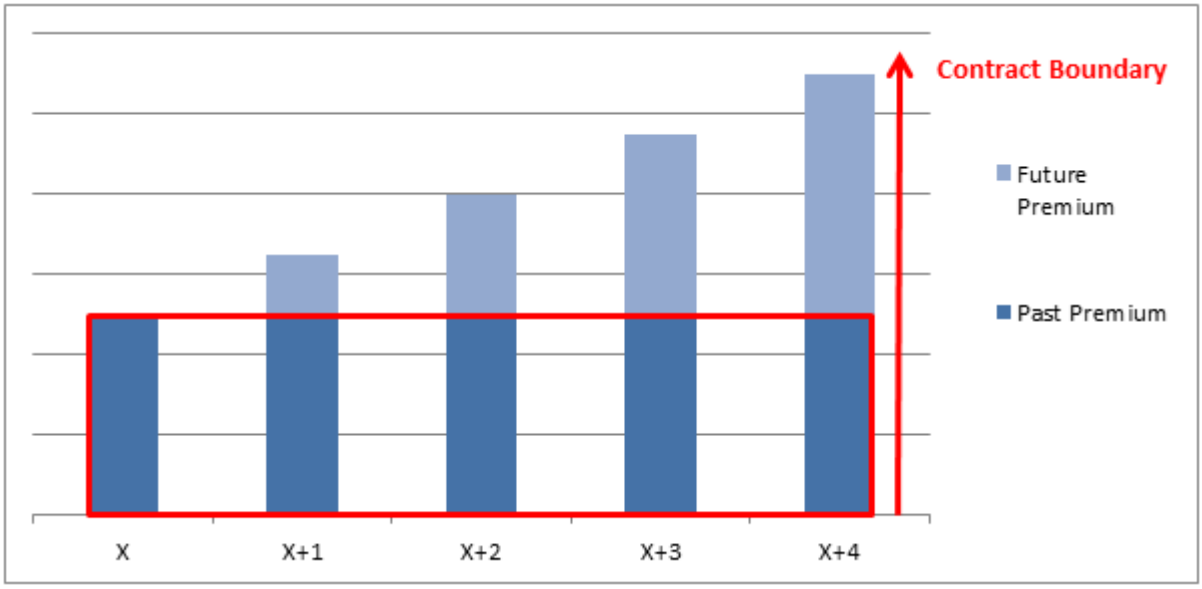
Considerations for Including Premiums

Where the contract does not contain either (i) insurance risk or (ii) financial guarantees, all future premiums are deemed to be outside the boundary and not included in the technical provisions at all (unless the policyholder can be compelled to pay the premiums).

Point (c) in the definition above, regarding amending premiums or benefits to reflect the risk gives rise to a contentious issue. Consider a unit-linked savings contract with reviewable charges. Here, the principal risk is that charges will not cover expenses. As there is no financial guarantee or insurance risk, future premiums will not be included in the calculation of technical provisions. Possible interpretations with regard to the contract boundary for this product are as follows:

- Reviewability of charges means that benefits can be amended to “fully reflect the risk”. If charges can be reviewed at any time, then once the contract boundary can be said to be immediate and as there are no insurance obligations to project, there is no projection of cashflows i.e. no technical provisions.

- If reviewing the charges does not ensure the present value of premiums exceeds the amount of benefits and expenses payable at all times, then reviewable charges are not enough to "fully reflect the risk". In this case, the contract boundary appears to be the term specified in the policy conditions (for example 5 years or whole of life). The below graph describes the basis for the cashflows to be included in the projection in this case:



Future premiums are included up to the contract boundary where there is a financial guarantee or insurance risk. However, the financial guarantee or insurance event must have a **discernible** effect on the economics of the contract in order for future premiums to be taken into account.

It is open to interpretation what exactly a "discernible" effect on the economics of a contract is. For example, is a 101% death benefit on a unit linked contract enough to be considered as a discernible effect on the contract? Many companies would say that it is, as this insurance event provides a significant financial advantage to the customer. However, would a return of premiums on death also be considered significant enough? What about a 100.1% death benefit? The significance could well vary on a case by case basis and is subjective. It is not exactly clear what the threshold for "discernible" is and so it left up to the judgement of the insurance company.

There is also no clear guidance on how to determine if a financial guarantee attaching to a contract is significant enough so that future premiums should be included. One opinion might be that because significant financial guarantees are usually valued using stochastic techniques, only financial guarantees valued in this manner warrant the inclusion of future

premiums. However, others could argue that scenario testing would suffice. Without any clear specifications on this, there is clearly room for different interpretations.

In any case, documentation on what the company believes is discernible, and why, will be very important to comply with the regulations.

Unbundling

Unbundling is another area where judgement will be required. Companies are expected to unbundle contracts into component parts where possible i.e. separate out life, health, and non-life benefits and any savings/investment elements, setting a different contract boundary for each part. The application of this requirement is somewhat vague leaving companies with scope on how to determine what can and cannot be unbundled.

For example, take a 101% death benefit on a unit linked contract. Is this meant to be separated out from the savings element? It is uncertain how a company can unbundle a guarantee such as this, when it is inherently linked to the unit value element of the policy. A method for separating out charges, sum assured, premiums etc. for the death benefit alone is not clear. Judgement will also need to be applied on whether rider benefits can be unbundled, or guarantees on Variable Annuity products. Market practice is not yet clear in this area.

Examples of Contract Boundaries

Possible interpretations of contract boundaries for different life insurance products and the premiums to include in projections are as follows:

- Unit Linked business with no death benefit: Contract boundary is immediate. Obligations in-force before the contract boundary are projected, but future premiums are outside the contract boundary. Therefore, future cashflows are projected but future regular premiums not projected- a paid up policy projection to maturity is used
- Unit Linked business with death benefit: there is an insurance benefit so can include future premiums, though this depends on the T&Cs (in particular, are premiums and benefits reviewable?)
- Variable Annuity business: include all future premiums as there is a financial guarantee
- With profits business: includes all future premiums if there is a financial guarantee
- Term Assurance: contract boundary is the review date or maturity so include all future premiums included up until this point.

Note that these are possible interpretations and not intended to be definitive, as the detail may depend on the specifics of the contract involved.

3.6.2 Expense Assumptions for Best Estimate Liability ("BEL")

A cash-flow projection will generally be used in the calculation of the best estimate liability for life insurance products. This should include all expense cashflows incurred in settling the insurance obligations over the lifetime thereof (admin expenses, investment, claims management). An assumption as to what these expenses will be is therefore required.

One of the overarching principles of Solvency II is that assets and liabilities are valued on a market consistent basis. The calculation of the BEL will therefore need to be market consistent. One interpretation on this might be that expense assumptions used in the best estimate calculation should themselves be market consistent and so the question immediately arises as to what exactly the market consistent expense is. Possible approaches to determine this would be as follows:

- Take rates from a third party administrator (TPA).
- Analyse expense experience from several companies in the industry (however, this information may not be available).
- Expert judgement might be taken as market consistent. Companies who take this stance may let an expert(s) in the industry, possibly from their own company, decide what the expense assumption will be.
- The Delegated Acts also say to use realistic assumptions, and that these can be based on a company's own expense experience. Some companies may therefore take results from their own expense experience investigations to determine their market consistent expense.

Uncertainty may arise where a company's own experience gives significantly different expenses to the market consistent expense as per the other sources above. For example, a company may benefit from a group TPA system which keeps their expenses low and may have experience analysis to back this up. It is not clear whether this company should allow for the advantageous TPA or not as it is unlikely that a third party acquiring the business would also benefit from this in the long run.

Another example of uncertainty is if we look at a start-up company expecting to write large volumes in the future. What is the market consistent expense assumption for such a company? A possible solution might be that this company take account of its future sales in the cashflow projection i.e. assumptions are always market consistent but the type of company (and underlying) features are changing so there is a new concept of what is market consistent each year.

A similar situation arises in respect of a company that is closing or has closed to new business. If the best estimate projection of income falls short of projected expenses, this could lead to a significant best estimate liability for the company. However, this may not make economic sense. A shareholder is unlikely to run-off an unprofitable block of business indefinitely. One possible approach is to calculate the BEL using a market consistent expense assumption e.g. from a TPA, although this could mean that the expenses the company is likely to incur in the short term may exceed those reflected in the BEL.

Whatever is decided, companies will have to be clear when documenting how their expense assumption was determined and why they believe they are being compliant. Furthermore, if an assumption is used that is different to the expense the company believes it will incur then it would be important to reflect this in the ORSA.

Inflation

Expenses will increase with inflation in future years and the cashflows need to incorporate this. However, there is some uncertainty as to what inflation assumption to use for this purpose. In any case, the aim should be that it is market consistent.

One of the first questions is whether duration based rates (curve) or a single deterministic rate should be used. A curve may be more accurate but some may argue that a deterministic rate is appropriate for a simple company due to the proportionality principle. The ECB's target inflation rate (2%) might be seen as the market consistent answer here.

Implied inflation curves from the market can also be seen as market consistent. Swap curves or indexed bond returns are two possible sources from which a market consistent inflation curve can be generated. Swap rates would be more consistent with the Solvency II discount curve so some may favour this source. A disadvantage of using these rates is that the inflation assumption will be quite volatile. There is also the question of including a margin for salary inflation being a little bit higher. Data on this front is a little sparse but the CSO and ESRI are two possible sources.

3.6.3 Solvency Capital Ratio considerations

In order to help calculate a company's required capital (SCR), the Solvency II framework has outlined various market and underwriting shock scenarios. Companies must calculate the loss in own funds they would suffer under each of these shock scenarios. This process often requires a recalculation of the technical provisions. For example, under the interest rate shock, all cashflows included in the technical provisions will be discounted at the new rate to give a new BEL figure. There is uncertainty as to the extent the assumptions used should change under the stresses, other than the assumption defined in the stress itself. For example, should different expense assumptions be used in the technical provisions calculation post stress i.e. in the mass lapse stress?

Mass Lapse Shock

The answer to the question above will depend on which expenses a company sees as being fixed.

Consider a small company which takes its total company costs as being fixed and calculates a per policy expense on this basis. If a large portion of this company's policies lapsed, then there would be less policies to cover the fixed company costs resulting in an increase in the per policy expense. In this case, it would seem sensible to increase the expense assumption for the recalculation of the BEL in the mass lapse stress.

A very large company on the other hand might consider its per policy costs as fixed i.e. the number of policies in force determine the total expense incurred. If a large number of this company's policies lapsed, then one might argue that the overall cost would just go down and the per policy expense would be left unchanged. Another company may have a fixed and variable expense assumption. These companies may need to consider changing the variable expense assumption in the mass lapse shock scenario. Or perhaps, initially the per policy costs would increase, but as the company adjusts to the lower number of policies, the expense assumption would return to its initial state?

All of these approaches can be argued and justified. The most important thing for companies to do will be to document their reasoning and communicate it to the regulator.

3.7 Private Health Insurance in Ireland

The health insurance system in Ireland is unique with community rating to keep premiums age neutral and risk equalisation to balance the impacts across health insurance companies.

A Community Rating system ensures that health insurance is available to all at an affordable cost so that in any year all customers pay the same premium for a given plan. The insurance premiums do not vary by policyholder so it is the case that high-risk policyholders are subsidised by low-risk policyholders.

Now that there are many players in the private health insurance market, we have a Risk Equalisation system that aims to ensure the claims cost of high-risk members are evenly shared between all insurers in the market.

The main factors used in the risk equalisation system are age and gender. There is a significant variation in risk cost by age so that insurers with an older risk profile would be expected to have higher claims. In 2015, the HIA reports that after allowing for the risk equalisation measures the market average net claims cost for older people continues to be higher than the market average net claims cost for younger people.

Chart B.3

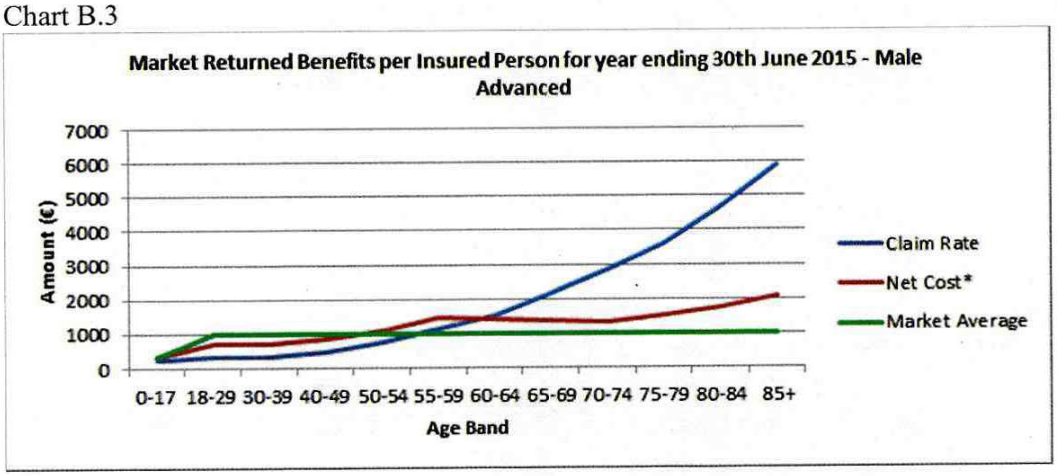
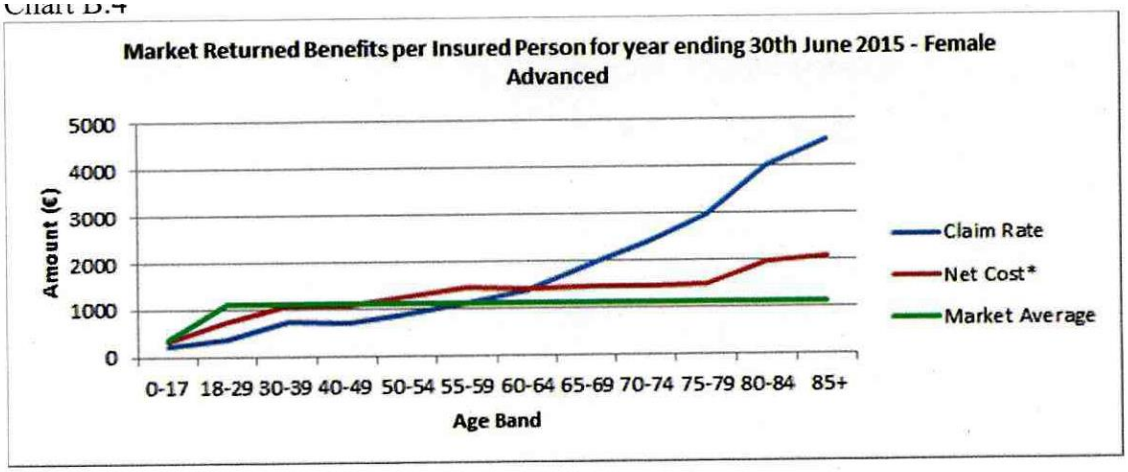


Chart B.4



We can see that while risk equalisation significantly reduces the difference in cost of cover by age, it does not fully neutralise it. There is evidence of this in the fact that the players in the market engage in targeted advertising seeking to attract younger customers.

The HIA also highlight that insurers are offering a large number of similar plans but significant differences in cost where lower cost plans are targeted at lower risk groups. Newer products are developed to offer better value to newer younger customers and be more attractive to younger/healthier age groups. For example all insurers have products with reduced orthopaedic benefits which appeal to younger age groups. As a result it is the case that on average older people are paying more for their plans due to their reluctance to switch and a need for a more comprehensive product.

There is a notable difference in the claims cost by gender with higher costs for females at age groups 30-50 and higher costs for males over 65. Interestingly the gender mix is quite balanced across all market players with a close to 50/50 split for each based on the June 30th 2015 figures.

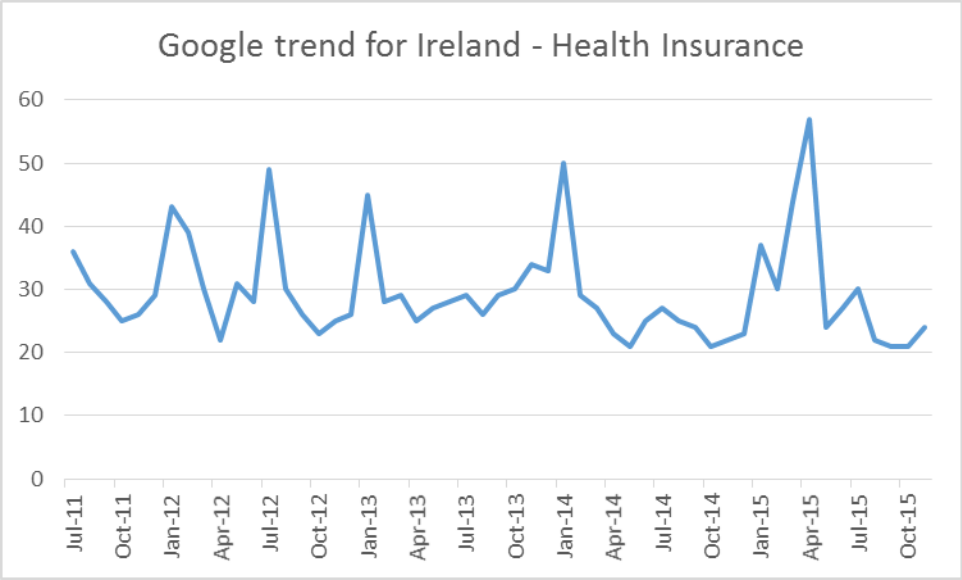
Table B.5

Gender	Aviva Health	Vhi Healthcare	Laya Healthcare	GloHealth
Male	48%	48%	49%	49%
Female	52%	52%	51%	51%

Age and gender are not the only factors that affects risk cost and risk equalisation is continually evolving seeking to address this. There is a hospital bed utilisation credit for each inpatient night spent in hospital. This is applied as a health status indicator to allow for the higher risk cost lives in younger age groups.

In 2015, the government introduced lifetime community rating to incentivise younger customers to take out health insurance. From May 1st those over age 34 when first taking out insurance will pay a premium loading of 2% for every year of age beyond 34.

Google trends shows a peak in activity on the search for "health insurance" in Ireland in April 2015. Other spikes in the trend over time are noted at Jan 1 or July1 corresponding to busy renewal seasons but the 2015 spike in activity happened in April.



There has been an increase of 2.7% in the total number of insured lives between July 1st 2014 and 2015. The % of population with health insurance is now up to 46% as of 30 June 2015. More interestingly, there was a significant increase in the number of customers serving waiting periods.

Date	**Number Serving Initial Waiting Periods**
1st July 2014	24,276
1st Jan 2015	26,140
1st July 2015	98,927

There is also an increase in the number insured on less expensive lower coverage plans which could be attributed to younger people taking out minimum benefit plans to avoid the future loadings.

Therefore, early indications are that this has increased the take-up of private health insurance in 2015 following the introduction of lifetime community rating.

The government has been considering changing the health insurance system over the past number of years. The combination of the public and private sectors creates a two-tier system where as we have seen approximately half the population is insured. A proposal for Universal Health Insurance (UHI) was put forward in 2014 considering the implementation of compulsory private health insurance for all. This type of system is currently in place in the Netherlands. The proposal was postponed due to extensive costs and the original proposed structure has since been abandoned.

Recently the government has announced increased cover under the public system with more services to be offered free specifically for children. Free GP care for under 6's is already in place soon to be extended to under 12s.

The private health insurance market has to adapt to these changes in the government provisions and as a result players in the health market are working in an ever changing environment.

4. Pensions and Investment

4.1 Introduction to Pensions and Investment Update

Since the last current topics paper in 2012, defined benefit (DB) pension schemes have continued to face significant pressures. Sponsors and trustees have had to implement a number of risk reducing measures such as:

- Closing schemes to new entrants
- Closing schemes to future accrual
- Reducing benefits, for example removing pension escalation on future benefits or introducing salary caps; and
- Winding-up pension schemes

A lot of companies are continuing to turn to a defined contribution (DC) solution instead, which offers greater certainty of cost for the sponsor but transfers the investment and longevity risk to the members.

There have been a number of high profile court cases over the last few years following the winding-up of Waterford Crystal, Element Six and Omega Pharma pension schemes. The paper will discuss the winding-up of pension schemes in further detail and will consider the impact of the outcome of the Omega Pharma court case on future wind-ups.

Since 1 June 2012, the trustees of a DB pension scheme have been required to report on the Funding Standard Reserve. However, with effect from 1 January 2016, schemes must now hold a Funding Standard Reserve over and above the amount required to meet the Funding Standard. This reserve acts as a buffer to the Funding Standard with the aim of trying to ensure that all schemes will have enough assets to cover their liabilities on a Funding Standard basis, even in times of market volatility.

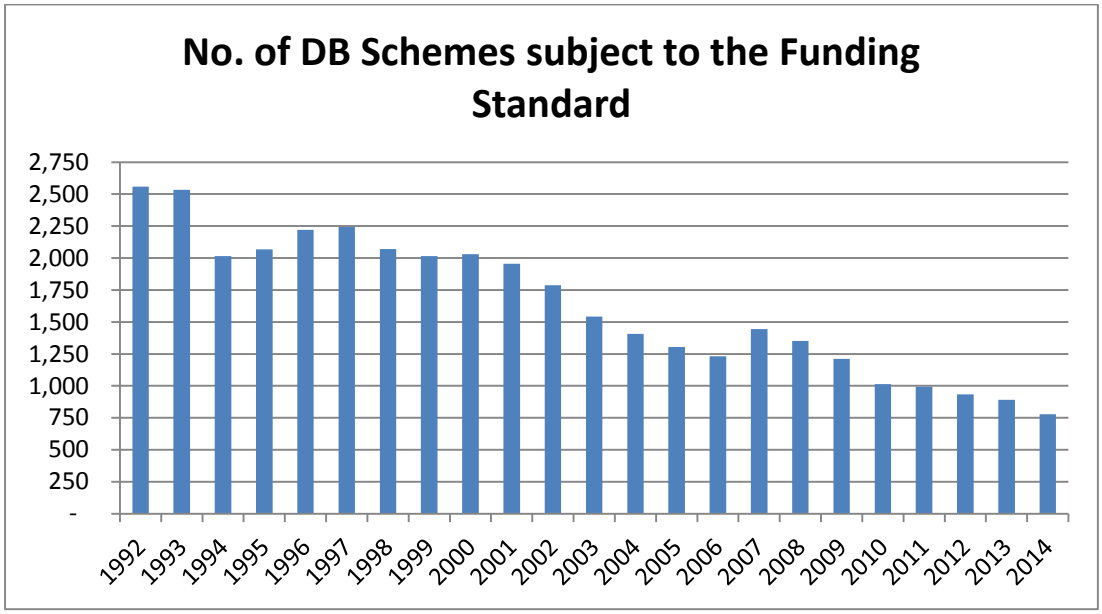
Companies are considering all available risk management tools to reduce the overall volatility and impact of a DB pension scheme on their company accounts. One such tool is the completion of a transfer value exercise, which has become more prevalent in recent years. These exercises can be conducted on an enhanced basis, where deferred members are given the option of taking an enhanced transfer value to an alternative pension arrangement. A compulsory transfer value exercise can take place if deferred members meet certain criteria.

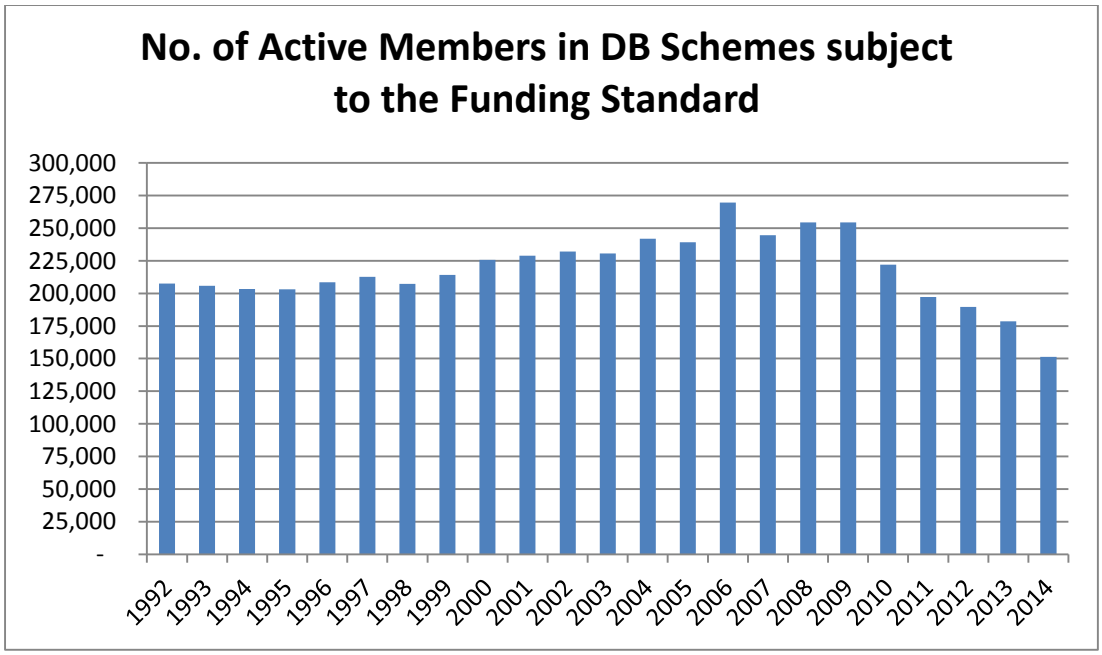
While the company and the trustees will in many cases work together to ensure that a scheme is adequately funded and managed appropriately, the ultimate responsibility for a scheme rests with the trustees. In May 2015, the Pensions Authority issued guidelines to assist trustees with the financial management of DB schemes.

In the DC space, the revised Statement of Reasonable Projection basis as prescribed under ASP PEN-12 for completing DC projections will come into force on 1 April 2016. An outline of the impact of the revised basis, along with a more detailed discussion of all of the above topics is continued overleaf.

4.2 Wind-up of Defined Benefit Pension Schemes

Significant market downturns in 2008 and the reinstatement by the Pensions Authority in June 2013 of the requirement for schemes to submit Funding Proposals saw the number of defined benefit (DB) pension schemes entering wind-up increase considerably over this period. This decline in DB pension schemes is continuing as can be seen in the graphs below[1]. The graphs show the number of DB pension schemes operating in Ireland, which are subject to the Funding Standard, and also the number of active members in these schemes each year since 1992.





[1] Data source: Pensions Authority - Annual Reports and Accounts

Some of the main reasons for the steady decline in DB pension schemes are as follows:

- Significant falls in the market value of assets in 2008 put a lot schemes under huge financial pressure and companies couldn't afford the increased funding requirements.
- Substantial falls in the yields on government bonds over the last few years has further increased the Funding Standard liabilities for active and deferred members within 10 years of normal retirement age and also for pensioners, as the cost of purchasing annuities has soared (The cost of annuities has increased by over 50% in the last 7 years).
- Corporate bond yields have also been at an all-time low which has led to vast increases in pension scheme liabilities on companies' balance sheets and this has also impacted their profit and loss accounts. Companies are finding it extremely difficult to cope with this level of volatility and to deal with the knock-on effect the increase in pension liabilities has on other areas of their business.
- The introduction of the Funding Standard Reserve requirements from 2016 is compounding the pressure faced by a lot of schemes which are still struggling to meet the Funding Standard. (In 2014, 41% of DB pension schemes failed to meet the Funding Standard and 10% of these schemes did not have a Funding Proposal in place.[2])
- Corporate restructure or company liquidation as a result of the market downturn has also led to a number of companies winding-up their DB pension schemes.
- Scheme size reduction, following the closure to new entrants, has led companies to question the viability of their DB pension scheme.

Over the last few years there have been a number of high profile court cases arising from the winding up of DB pension schemes (e.g. Waterford Crystal, Element Six and Omega Pharma), the outcome of which will have a bearing on future wind ups for companies, trustees and members.

One of the key issues raised in the judgment of the Omega Pharma case was in relation to the trustees request for additional contributions on a basis stronger than the minimum allowed under the Funding Standard. The pension scheme satisfied the Funding Standard, on the assumption that deferred pension liabilities would be settled on the standard transfer value (STV) basis specified in statutory guidance. However, the trustees were of the view that STVs would not be sufficient to provide the benefits for members on wind up in line with the requirements under the Trust Deed and Rules. Accordingly, they issued a demand for additional funding, in order to settle deferred pension liabilities on a stronger basis. Mr Justice Moriarty's ruling that the trustees request for additional contributions was valid based on their interpretation of the rules of the scheme could have far-reaching implications for sponsors of DB pension schemes and brings into question the suitability of

[2] Data Source: Pensions Authority publication – Defined Benefit Schemes Review of 2014 statistics

the STV as a measure for valuing deferred pension liabilities, in particular for the completion of an Actuarial Funding Certificate.

As per ASP PEN-3 v.4.0, when completing an Actuarial Funding Certificate the scheme actuary is required to certify whether the scheme satisfies the Funding Standard i.e. whether the scheme has sufficient assets to meet the accrued liabilities on wind-up. For pensioners the value of liabilities must be calculated as the cost of purchasing annuities. For actives and deferred pensioners, the scheme actuary must calculate the actuarial value of the liabilities. The calculated actuarial value must not be less than the STV, but can be higher. Normal practice has always been to use the minimum allowed value i.e. the STV. (This may be the reason why the Funding Standard came to be known as the Minimum Funding Standard, although that term does not appear in the Pensions Act.) However, the suitability of this as a measure for completing an Actuarial Funding Certificate is called into question following the outcome of the Omega Pharma court case, since there is now less justification for assuming that the STV basis would be used for calculating liabilities in an actual wind-up situation.

It should also be noted that the Society of Actuaries in Ireland does not have full control of the STV basis. The Society of Actuaries in Ireland wrote to the Minister for Social Protection in March 2013 recommending a strengthening of the basis under ASP PEN-2 v.5.10 (i.e. a reduction of the pre-retirement discount rate from 7.00% to 6.75% and a reduction of the post-retirement discount rate from 4.50% to 4.25%) as it was felt that the original assumptions were no longer justifiable. The Society of Actuaries recommended a further reduction in the pre-retirement discount rate to 6.5% in June 2014 and an update to the mortality basis in July 2014 as research showed that although mortality rates continue to improve, it is at rates lower than that currently assumed in standard transfer value calculations. These recommendations were sent to the Pensions Authority and the Department of Social Protection however these changes have not yet been approved by the Minister. Therefore the validity of the current STV assumptions, as set out in Statutory Guidance issued by the Pensions Authority, as an appropriate measure for calculating the transfer values for active and deferred members in an actual wind-up situation is open to further question if they are thought to be no longer reasonable.

In an actual wind-up situation the question arises as to what is a reasonable value to place on the liabilities of the scheme. Pensioners must be secured using market annuities. However, the basis for valuing active and deferred members' accrued pension entitlements isn't as straightforward. Possible measures which could be considered reasonable for valuing active and deferred liabilities in an actual wind-up situation are as follows:

- Funding Standard transfer value basis
- Accounting measure (eg. FRS102/IAS19)
- Basis used in the Statement of Reasonable Projection (SORP)

- A defined contribution basis, for example assuming a life-styling strategy investment return pre-retirement and market annuity rates post-retirement
- Buy-Out Basis, where deferred annuities are secured for active and deferred members.

The table below shows the impact on a member aged 45 and 60 if some of the alternative bases set out above were used to calculate their transfer value in an actual wind up situation.

Sample Transfer Values

	Minimum Funding Standard	Accounting Basis	SORP Basis	DC Basis	Estimated Buy-Out Basis
Members					
Age 45	56,000	151,000	134,000	151,000	307,000
Age 60	131,000	158,000	170,000	201,000	236,000

Notes:

Assumes member is male and married
Deferred Pension: 1/60 x 20 x €25,000 = €8,333
Spouse's Death in Retirement Pension: 50% of Member's Pension
Pension Escalation is 0%
Normal Retirement Age 65
SORP Basis is the basis effective from 1 April 2016 as prescribed under ASP PEN-12(v1.5) with no allowance for pension escalation

To reach a settlement in a wind-up situation, it requires consultation between the company and trustees, together with independent expert legal, actuarial and financial advice. The amount of any settlement should take into account, for example:

- The current funding position of the scheme, i.e. does it meet the Funding Standard?
- The strength and covenant of the sponsoring employer, with the possible requirement for a financial review of the company
- Trustees' powers and duties under the Trust Deed and Rules of the scheme
- Precedence of previous scheme wind-ups
- What is a reasonable basis – is the buy-out basis excessive?

In the event of the wind up of a defined benefit pension scheme under the STV basis, the priority order prescribes the order in which different groups of members in a pension scheme receive their benefits. The new priority order introduced by the Minister for Social Protection, Joan Burton in November 2013 appears to have had little impact on DB pension schemes in wind-up. The main reasons for this are as follows:

- The average pensioner is in receipt of an annual pension of less than €12,000.
- Only a limited number of pensioners are in receipt of pensions in excess of €60,000 meaning there are limited assets to be redistributed to active and deferred members.

- In the case of a Single Insolvency, a sponsoring employer can still walk away from its DB pension scheme liabilities, unless the trustees of the scheme are able to enforce a demand for additional funding.

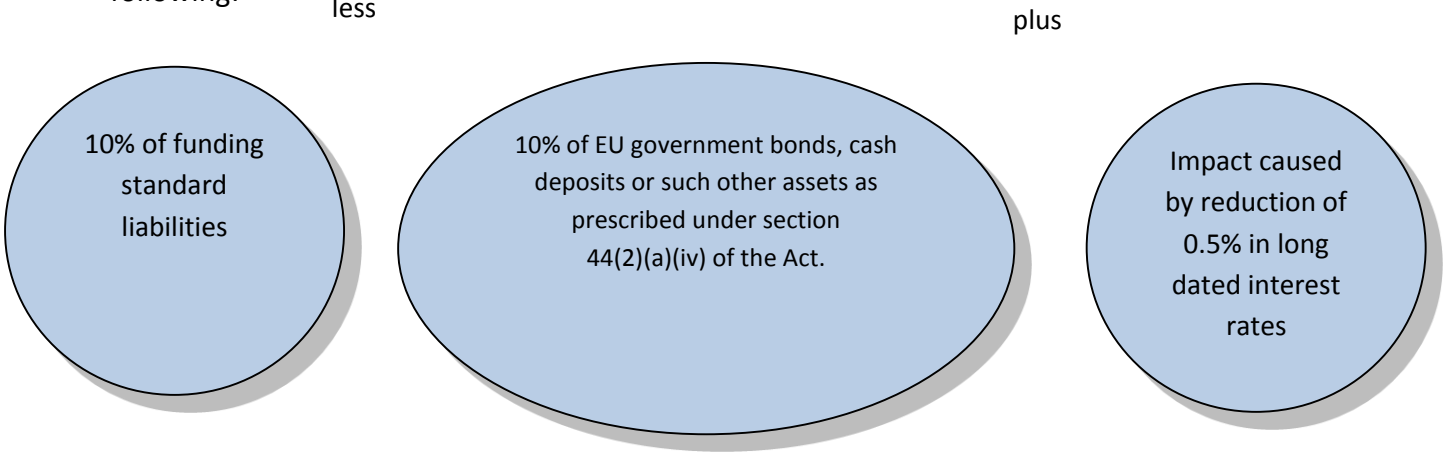
Overall the future sustainability of DB pension schemes is uncertain, particularly with the introduction of the Funding Standard Reserve requirement from 1 January 2016 and the current low interest rate environment. Trustees and companies will need to work together to reach viable solutions for future DB pension provision.

4.3 Funding Standard Reserve requirements for defined benefit pension schemes

From 1 June 2012 the trustees of a defined benefit pension scheme have been required to have a Funding Standard Reserve Certificate ("FSRC") prepared by the scheme actuary. The FSRC certifies whether a scheme does, or does not satisfy the funding standard reserve ("FSR"). From January 2016, if a scheme fails to meet the FSR a funding proposal must be submitted to the Pensions Authority, unless there is a funding proposal in place which is on-track and either (i) includes allowance for the FSR, or (ii) was submitted before 16 December 2011.

How is the FSR calculated?

The FSR is set out in section 44(2)(a) of the Pensions Act, 1990 and is the sum of the following:



All percentages outlined are subject to change by the Minister of Social Protection.

How is the impact of a 0.5% reduction in long dated interest rates measured?

The scheme actuary should calculate the increase in the annuity cost for pensions in payment and the increase in transfer values for active and deferred members due to the changes in the relevant post retirement Market Value adjustments arising from the fall in interest rates. The discount rates pre and post retirement used for calculating transfer values can be assumed to remain unchanged.

What assets are allowable under section 44(2)(a)(iv) of the Pensions Act, 1990?

Statutory Instrument No. 175 of 2013 Occupational Pension Schemes (Funding Standard Reserve) Regulations 2013 further outlines the additional assets which are allowable under part (ii) of the FSR calculation.

In the context of the below allowable assets "Member State" means a Member State of the European Union. The following assets are allowable under the Act.

(a) bonds guaranteed by a Member State as to principal, interest (if any), the premium on redemption (if any) and other types of payment arising under the bond (if any).

(b) bonds created and issued by the:

(i) Central Bank of a Member State;
(ii) European Bank for Reconstruction and Development;
(iii) European Investment Bank;
(iv) International Bank for Reconstruction and Development;
(v) International Finance Corporation;
(vi) International Monetary Fund;
(vii) European Stability Mechanism;
(viii) European Financial Stability Facility; or
(ix) European Financial Stabilisation Mechanism.

(c) euro-denominated bonds, in respect of which as at the effective date of the funding standard reserve certificate (the effective date) where the bond has a maturity date:

(i) less than 10 years later than the effective date, the annual investment yield does not exceed 3% per annum more than the annual investment yield on the 1.5% Bund of 2013 (2023), or

(ii) more than 10 years later than the effective date, the annual investment yield does not exceed 4% per annum more than the annual investment yield on the 3.25% Bund of 2010 (2042).

(d) collective investment undertakings or insurance policies but only in respect of the proportion of the underlying investments within those arrangements that comprise assets specified in section 44(2)(a)(i), (ii) or (iii) of the Act or paragraph (a), (b) or (c) above.

(e) policies or contracts of assurance which are issued by an undertaking within the meaning of the Insurance Act 1989 and which are designed to provide the sums payable to the scheme in respect of some or all of the benefits in relation to a person who, under the scheme is receiving benefits, or has reached normal pensionable age.

When does the FSR apply?

Funding Standard Reserve Certificates follow the same effective date as a scheme's Actuarial Funding Certificate.

From 1 January 2016 all schemes are required to meet the Funding Standard Reserve ("FSR"). If a scheme does not meet the FSR at that date they must file a Funding Proposal. If a scheme already holds a funding proposal with an end date after 1 January 2016, then the funding proposal must anticipate holding FSR, unless the funding proposal was submitted before 16 December 2011. A Section 50 application is an application to reduce the benefits

provided by a defined benefit pension scheme, for example a Section 50 application would be required to remove pension increases from a scheme

. If a Section 50 application is sought in conjunction with a Funding Proposal then the scheme must satisfy the FSR at the end of the Funding Proposal period. If a Section 50 is sought without a Funding Proposal, a scheme must satisfy the FSR immediately.

4.4 Risk Management Tools – Enhanced and Compulsory Transfer Values

Bond yields falling to historic lows have resulted in higher pension scheme deficits being reported in company balance sheets. In a quest to manage these deficits employers are more frequently willing to explore the risk management tools at their disposal. One example is to run an Enhanced Transfer Value exercise (ETV) and/or a Compulsory Transfer Value exercise (CTV).

CTV and ETV Exercises

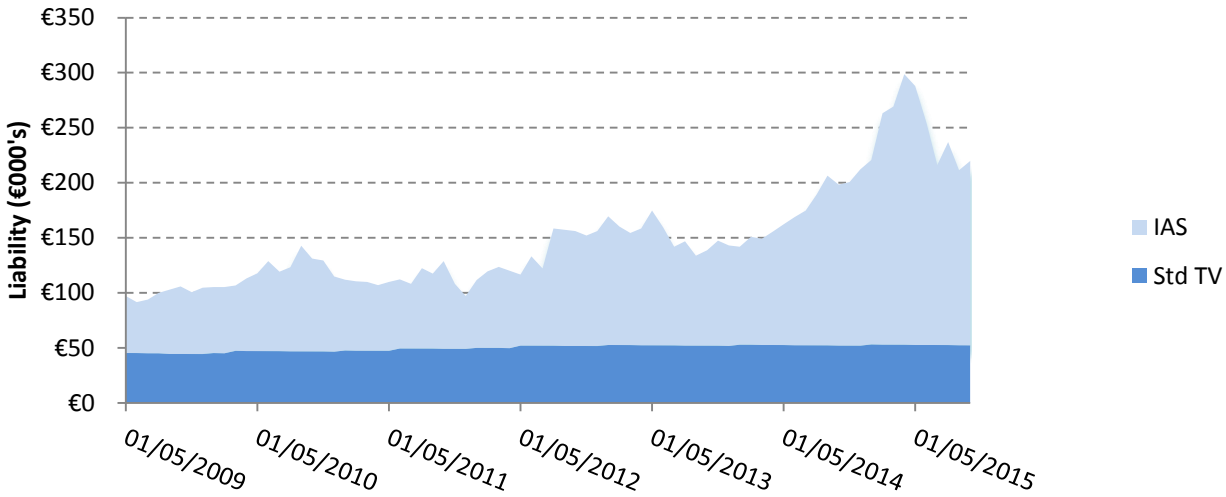
Deferred members of a pension scheme are entitled to exchange their defined benefit (DB) pension for a lump sum payment (known as a transfer value) to an alternative pension arrangement. Legislation requires that this transfer payment is at a minimum, calculated in accordance with guidance issued by the Society of Actuaries in Ireland (ASP PEN-2) and statutory guidance issued by the Pensions Authority. Under an ETV exercise a company may offer an enhancement above this minimum amount for a limited time in order to incentivise members to transfer out of the scheme.

Under Irish legislation there also exists the facility to transfer deferred members with smaller benefits out of the scheme on a compulsory basis provided that certain criteria are met. These criteria are:

- That the trustees agree to the exercise.
- The member has left the employment of the sponsor for more than 2 years.
- The member has been contacted and notified of the transfer out.
- The total transfer value (including any enhancement paid from the trust or AVCs held under the trust) is less than €10,000.

Employer perspective

The main benefits to the employer are financial. If a member's liability can be extinguished for less than the reserve held for them on an accounting basis then the balance sheet position will improve. The below chart illustrates the potential gain an accounting basis for a 40 year old member with a deferred pension of €10,000 p.a. transferring out.



The darker blue shows the standard transfer value at the start of each month from 1st May 2009 up to 1st November 2015. The lighter blue colour shows the liability on an accounting basis on the same date. If the enhancement is between these two points there will be a gain to the scheme on an accounting basis if the member opts to transfer out. Under FRS102 and IAS19R this gain can be banked as a credit in the pension expense in the year in which the exercise is completed.

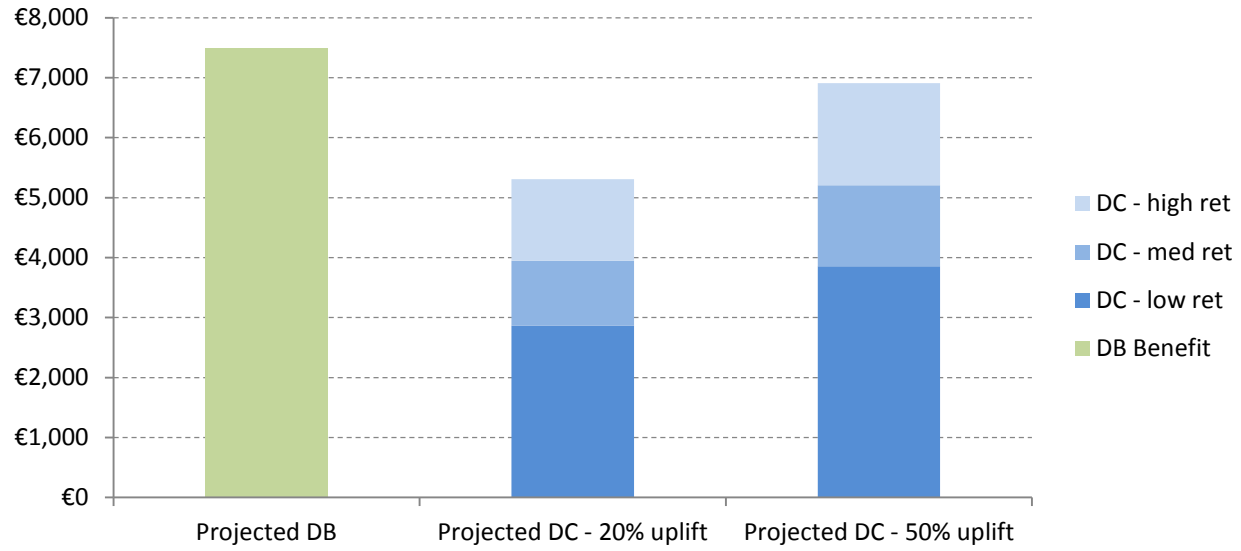
It is important to note the level of volatility in this potential gain. If an ETV exercise was run in 2015 the standard transfer value for the above member would have been €53,000. If an enhancement of 20% was offered this members liability would have been extinguished for a €64,000 payment. If the transfer had taken place on 1st April 2015 a gain of €200,000 would have been realised. This would have fallen to €125,000 if the transfer had taken place on 1st September 2015.

There is the additional benefit to the employer of a reduction to future risks associated with members transferring out of the scheme and a reduced headcount can improve the smooth administration of the scheme.

ETV Member's perspective

The standard transfer value is a weak basis. As a result it is unlikely that a member would be expected to replicate their DB benefit if they exercise the option to transfer unless a very significant enhancement is offered and the member engages in a high risk investment strategy.

To illustrate this we return to the example of the 40 year old with a deferred pension of €10,000 p.a. I have assumed that the member will commute 25% of their projected defined benefit pension at retirement. The below chart shows the expected DB benefit for the member at retirement on the left most column and shows the expected DC benefit if a 20% or 50% enhancement is offered.



The projected DC benefits are estimated using the assumptions set out in ASP PEN-12. I have shown the projected benefits using investment returns of 3%, 4% and 5% p.a.

However, there may be other reasons why taking a transfer is attractive to the member. In particular:

- Earlier access to retirement benefits.
- Greater flexibility when taking benefits. e.g. ARF or different annuity options
- Consolidation of pension arrangements.
- Protection against future reductions to DB benefits.

Trustee perspective

In order for a CTV or an ETV to be offered to the members of a scheme trustee approval is required. In the case of an ETV offer there is no obligation on the member to transfer. Each individual member can make the decision to suit their individual circumstances. As the trustees have an obligation to act in the best interest of the member they will endeavour to ensure that members are given the appropriate tools to make the decision that is best for them. This may involve the provision of sufficiently detailed and easy to understand member communications and the provision of independent financial advice.

In the case of the decision to carry out a CTV exercise, the trustees will need to balance their obligation to all members of the scheme against those who will qualify for a CTV. The benefits from a trustee perspective would be that a reduced headcount post CTV should mean a reduction in the running costs of the scheme. This could free up more company money to fund the provision of member benefits and increase the security for those members that remain in the scheme. It could also help maintain the ongoing viability of the scheme.

Summary

Falling market yields have resulted in significant increases in DB liabilities (on both funding and accounting bases). Companies may opt to run an ETV and/or a CTV exercise to help

reduce these liabilities. A CTV may also help smooth the administration of the scheme by removing members with small benefits.

If we use ASP PEN-12 to compare projected DB benefits to projected DC benefits, members are unlikely to expect a higher retirement pension unless a significant uplift is offered and/or an aggressive investment strategy is adopted. However members may opt to transfer for other reasons, in particular transferring would give additional flexibility.

Trustee approval is needed before a CTV/ETV exercise is run. The trustees will need to make sure any exercise is in the best interests of the membership of the scheme as a whole.

4.5 ASP PEN – 12 Statements of Reasonable Projection – Occupational Pension Schemes and Trust RACs

Version 1.5 of the SORP basis as prescribed by ASP PEN 12 will come into force from 1 April 2016[3]. Financial, demographic and the spouse's age-gap assumptions have been revised. A brief outline of the changes from the current basis is shown below:

Financial assumptions for life and pension products have reduced as outlined in the table below.

Changes to Financial assumptions	
Maximum gross rate of investment return	Reduced from 6% to 5%
Rate of investment return for all assets	Reduction of 1%
Rate of salary escalation or deflation	Reduction of .5%
Rate of change in consumer prices and general earnings	Reduction of .5%
Interest rate to calculate an annuity factor	Reduced from 3% to 2%
Escalation rate for annuities	Reduced from 2% to 1.5%

Mortality rates for converting a retirement fund to an annuity have been revised as follows:

Revised Mortality rates	
Female mortality rate	50% ILT15 (Females)
Male mortality rate	42% ILT15 (Males)
Annual improvement factor to be applied to both single life and joint life cases*	0.33% p.a.

*Note: Mortality improvement factors apply for each calendar year after 2013

To remove ambiguity and address the potentially inconsistent application of assumed age differences between spouses and civil partners when converting a retirement fund into an annuity, the following wording has been inserted in the guidance note:

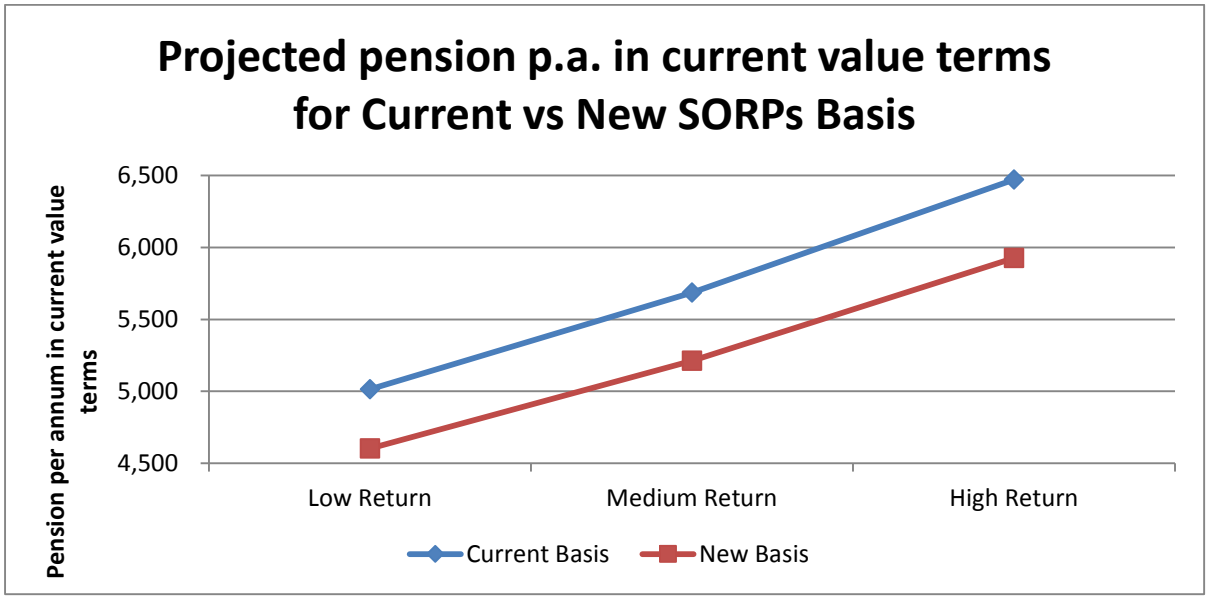
"Assume that spouses or civil partners are the same age, or where actual age is known this may also be used"

We can see from the below graph that version 1.5 of the basis results in a lower projected pension than the current basis. The impact of the revised basis is age dependant and has a

[3] Data Source: Statements of Reasonable Projection - Occupational Pension Schemes and Trust RACs published by the Society of Actuaries in Ireland.

more significant impact on both younger members and those close to normal retirement age.

Across comparative low, medium and high investment return assumptions, a comparison for a 40 year old woman results in a c. 10% reduction in projected pension on the current and revised basis.



Note: Calculations are based on a 40 year old woman, salary of €50,000, normal retirement age of 65 with no past pension benefits. The high return assumption is assumed to be the maximum allowable equity return less 0.25% for expenses, which is 5.75% for the current basis and 4.75% for the new basis. Medium and low returns are each 1% p.a. lower. For example, we have assumed 5.75%, 4.75% and 3.75% for the high, medium and low assumption on the current basis.

4.6 Defined Benefit Financial Management Guidelines

The Pensions Authority published financial management guidelines for defined benefit schemes on 22 May 2015. The guidelines focus on 4 key areas[4]:

1) Data about the scheme that trustees should have available to them
    - Scheme asset value
    - Investment return
    - Investment allocation
    - Scheme liabilities and solvency position
    - Costs compared to budget where they are borne by the scheme
2) Governance practices relevant to financial management
    - Regular trustee meetings should take place
    - Delegation of functions is permitted and clearly documented
    - Appoint a scheme actuary and other advisers
    - Written agreement in relation to the costs of running the scheme
    - Statement of Investment Policy Principles
    - Understand their investment powers
    - Understand the contribution provisions
3) Processes that the trustees should follow
    - Review investment strategy
    - Review contribution funding and adequacy
    - Implement and review a risk matrix
    - Discussions with employer regarding contributions and other issues
    - Review investment manager performance
    - Review scheme costs
4) Analysis that the trustees should undertake in order to arrive at decisions
    - Contribution requirements in the short and long term
    - Consider the biggest risks faced by the scheme.

The guidelines put in place a framework for trustees to focus on and set out practices which trustees are expected to follow at a minimum. While many of the items are already being carried out by trustees, it is important to remember that ultimate responsibility for the pension scheme lies with the trustees. This has become more prevalent over the last number of years with the recent court cases where trustees have had to justify the reasons for their decisions. Even though the trustees seek their own independent actuarial, investment and legal advice they are the ones who must make the final decisions. Therefore it is important that they understand the advice they receive.

[4] Data Source: Pensions Authority publication – Financial Management Guidelines for Trustees of Defined Benefit pension schemes

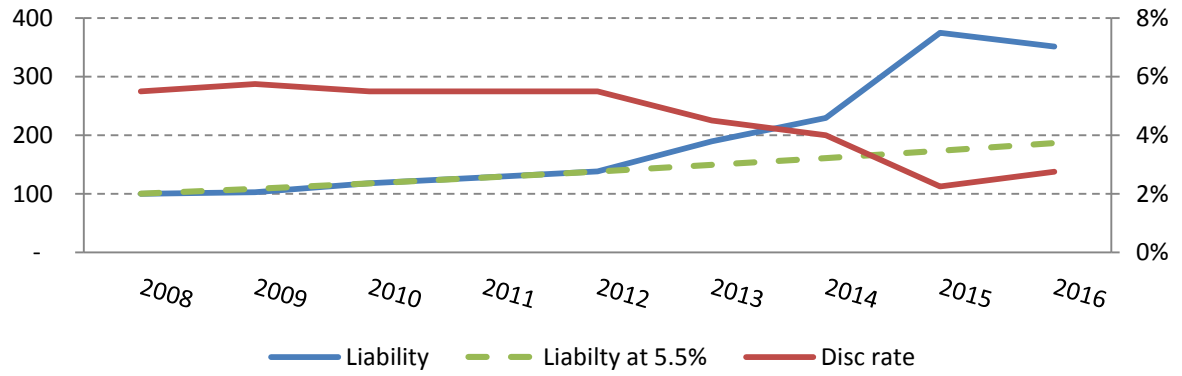
The Pensions Authority have indicated they will be meeting the largest pension schemes initially to see how they are implementing the guidelines and so it is important that all schemes keep these items on their agenda.

4.7 Impact of low bond yield environment on accounting disclosures for pension schemes.

Since the emergence of the Eurozone debt crisis in 2008, market yields on high quality Corporate and Sovereign bonds have fallen significantly. The ECB's announcement to begin quantitative easing in January 2015 caused yields to fall further resulting in historic lows at the end of Q1. Since then yields have risen slightly but remain well below long term norms. This has had a significant impact on both accounting disclosures shown in a company's annual accounts and the contribution recommendation made as part of the triennial valuation.

Impact on accounting disclosures

The below chart illustrates the growth in the pension fund liability disclosed on an accounting basis (under FRS, IAS or FAS) over the last 8 years for a sample pension scheme. The blue line shows the liability disclosed; the red line shows the progression of the discount rate on a secondary axis and the broken green line shows the liability that would have been disclosed if the discount rate remained unchanged over the 8 year period at 5.5%.



The above graph shows that the fall in discount rates since 2008 from 5.5% to 2.75% has caused a significant increase in a sample schemes liability. The liability has almost doubled due to the change in the discount rate. These increases are a cause for concern for employers who may see their pension fund liability rise to become a significant portion of their market capitalisation. In many cases this can lead employers to consider the risk management tools available to them.

4.8 Investment update

Falling equity and commodity markets, turbulence in currency markets, widening credit spreads and falling bond yields have led to a volatile start to 2016. Although the causes of this volatility are complex, contributing factors since the beginning of 2016 include:

- A fall in oil prices
- Ongoing rebalancing of the Chinese economy
- Some signs of slowdown in the US economy
- Introduction of negative interest rates by the Bank of Japan

Fall in oil prices

The price of oil fell below $30 per barrel due to an oversupply of oil coupled with a simultaneous fall in demand. An increase in production by Organisation of the Petroleum Exporting Counties (OPEC) members and a lifting of sanctions in Iran has led to an expectation of increase in oil production globally. Demand for oil fell as a result of a slowing Chinese economy and a mild winter in the US. In February 2016, OPEC members Saudi Arabia, Venezuela and Qatar, along with Russia, announced a plan to freeze output at current levels.

Ongoing rebalancing of the Chinese economy

Growth in China is expected to slow to 6.3 percent in 2016 and 6.0 percent in 2017[5]. This reflects an expected gradual slowdown of the Chinese economy and rebalancing economic activity away from investment and manufacturing toward consumption and services.

Increased market volatility reflects faster than anticipated slowdown in imports and exports, reflecting weaker manufacturing and investment activity, leading to a 19% drop in the Shanghai Composite to from 1 January to 17 February 2016[6].

Signs of slowdown in the US Economy

The US economy showed some signs of slowing with business confidence and GDP weaker than expected. In her semi-annual congressional testimony, Federal Reserve Chair Janet Yellen said (Fund, 2016) “financial conditions in the US have recently become less supportive of growth” and confirmed that if these conditions “prove persistent, could weigh on the outlook for economic activity and the labour market, although declines in longer-term interest rates and oil prices provide some offset”.

Introduction of negative interest rates by the Bank of Japan

The Bank of Japan introduced negative interest in January 2016. This change in monetary policy is significant as it was the first time that Japan has used this tool in over 20 years of a zero inflation/deflationary environment.

[5] Data Source: World Economic Outlook published by the International Monetary Fund
[6] Data Source: Bloomberg.com

The Bank of Japan's Governor Haruhiko Kuroda saying that the decision to introduce negative interest rates was meant to limit the risk that global conditions would derail the central bank's efforts to change Japan's "deflationary mindset".

However the Yen subsequently soared, rather than the intended consequence of weakening the Yen and increasing expectations of inflation.

Outlook for 2016-2017

In January 2016, the International Monetary Fund released the key World Economic Outlook (WEO)[7] projections for 2016/2017 with the following synopsis:

- "Global growth, currently estimated at 3.1 percent in 2015, is projected at 3.4 percent in 2016 and 3.6 percent in 2017. The pickup in global activity is projected to be more gradual than in the October 2015 WEO, especially in emerging market and developing economies.
- In advanced economies, a modest and uneven recovery is expected to continue, with a gradual further narrowing of output gaps. The picture for emerging market and developing economies is diverse but in many cases challenging. The slowdown and rebalancing of the Chinese economy, lower commodity prices, and strains in some large emerging market economies will continue to weigh on growth prospects in 2016–17. The projected pickup in growth in the next two years—despite the ongoing slowdown in China—primarily reflects forecasts of a gradual improvement of growth rates in countries currently in economic distress, notably Brazil, Russia, and some countries in the Middle East, though even this projected partial recovery could be frustrated by new economic or political shocks.
- Risks to the global outlook remain tilted to the downside and relate to ongoing adjustments in the global economy: a generalized slowdown in emerging market economies, China's rebalancing, lower commodity prices, and the gradual exit from extraordinarily accommodative monetary conditions in the United States. If these key challenges are not successfully managed, global growth could be derailed."

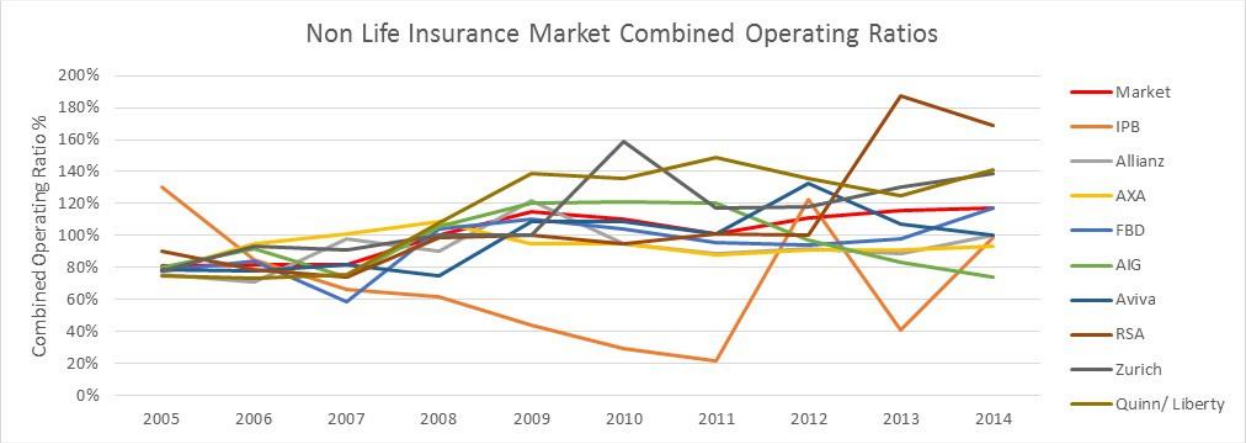
[7] Data Source: World Economic Outlook published by the International Monetary Fund

5. General Insurance

5.1 Market Update

5.1.1 Introduction

In recent years, and continuing into 2016, companies operating in the Irish Non-Life Domestic Insurance market ("the market") are contending with heightened competition, increased claims costs, low investment returns and increasingly complex regulation (both prudential and conduct focused). Insurance Ireland, whose members account for over 95% of the domestic market, reported in its fact files that its non-life members made underwriting losses of €211m and €241m in 2013 and 2014 respectively. This reflects a combined operating ratio ("COR") of 110% and 111% in 2013 and 2014 respectively e.g. in 2013 for every €100 of premium collected insurers paid out c€110.



Source: CBI Returns

The 2014 Insurance Ireland fact file further showed that in the period 2010 to 2014 gross premium income for non-life insurers decreased from €3.035bn to €2.656bn. As a % of Gross Domestic Product non - life premium income has decreased from 1.8% in 2010 to 1.4% in 2014 highlighting the premium reduction is in part due to heightened competition in the market.

In addition to heightened competition there a number of factors driving the recent experience:

- correction for previous under-pricing;
- historic under-reserving;
- additional burden on companies due to Solvency II requirements;
- fraudulent claims;
- increasing award levels as a result of the change in court jurisdictions;
- increasing claims volumes;
- reduction in investment income in the current low yield investment market;

- reduction in real yield underlying Catastrophic bodily injury awards; and
- draft legislation in respect of periodic payment orders and increases in the cost of settling claims.

5.1.2 Market Overview

The market experience in recent years is against the backdrop of some high profile failures, significant shifts in the market and increased public scrutiny on insurance companies.

Quinn

In 2009 Quinn lost €905m followed by an estimated €160m in 2010[1] resulting in the appointed administrators of Quinn and the drawdown of more than €1bn from the Insurance Compensation Fund*. In 2011 Liberty Mutual took over Quinn's Republic of Ireland new business and renewal rights. Following the takeover Liberty Mutual exited certain private motor segments which had been previously targeted by Quinn. In June 2015 they announced plans to cut 270 jobs in Ireland following a decision to exit the personal motor market in the UK, business which was operated out of the Irish Company[2].

Aviva

In 2011 Aviva Ireland announced a number of redundancies in a decision to scale back their operations in Ireland[3]. They re-domiciled to the UK and converted to a branch during 2012.

RSA

In 2010 RSA acquired the online insurer 123, immediately making it the second largest general insurer in the Irish market. They pursed an aggressive strategy to grow keeping the Irish market extremely competitive. During Q4 2013, however, RSA Group delivered three profit warnings and announced a total of £200m of losses within RSA Ireland. These losses were reported to be driven by inappropriate collaboration on large loss reporting and claims accounting, inappropriate accounting for net earned premiums and pipeline earnings and reserve strengthening for business written in 2013[4].

Setanta

In April 2014 Setanta Insurance, a Maltese regulated entity, became insolvent with an estimated €90m shortfall. The insurance firm, which was licenced by the Malta Financial Services Authority and sold car and van insurance in Ireland, had been in the process of winding up its business in Ireland since January 2014. The company, however, then decided that a solvent run-off of the business was no longer viable and at an Extraordinary General Meeting decided to immediately dissolve and surrender its business licence. The Motor Insurance Bureau of Ireland ("MIBI") is currently appealing the 4th of September 2015 High Court ruling under which it is obliged to assume the €90 million in liabilities from the collapse of Setanta Insurance[5]. This decision indirectly makes insurance companies (through their Motor Insurance Bureau fund) liable for the claims costs of Setanta. The indirect implication of the High Court's decision is that all motor insurance providers in the Irish

market will now be held responsible for any potential insolvencies that may occur to their competitors operating in Ireland.

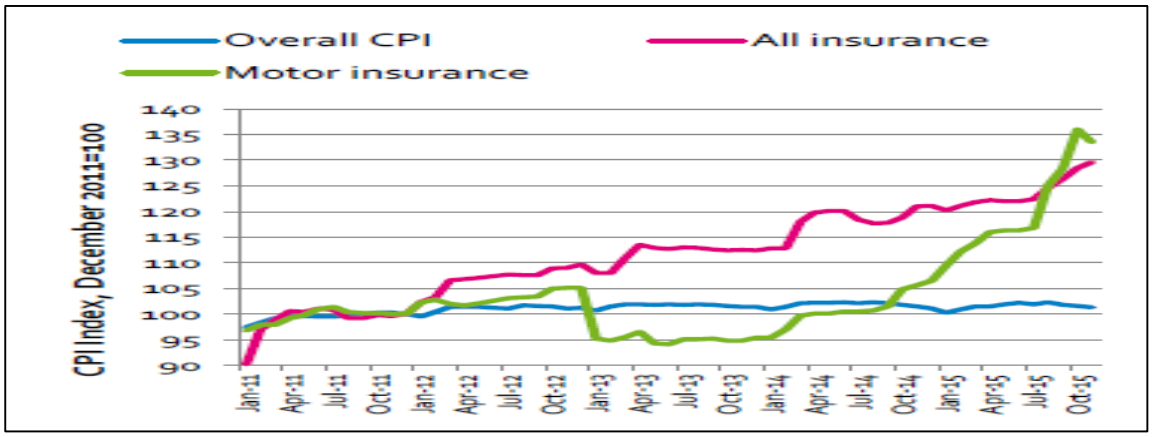
Continuing losses are unsustainable for the market, during 2015 the Central Bank of Ireland ("CBI") stated:

"The insurance sector continued to contend with on-going challenges. Intense competition in difficult operating conditions has resulted in profitability concerns emerging in the non-life sector, with underwriting losses being reported among insurers in 2014 and profitability becoming increasingly reliant on investment returns."

In January 2016 the current Minister for Finance, Michael Noonan, announced that a review of the insurance sector had begun, with a particular emphasis on motor insurance.

This follows the thematic review undertaken in 2015 by the CBI on bodily injury claims. The CBI analysis of bodily injury claims found increases in the average cost per claim of approximately 8% in private motor, 27% in employer liability and 8% in public liability from year end 2012 to year end 2014. The CBI also noted that the frequency of private motor injury claims increased by 8.3% between 2013 and 2014 and a slowdown in settlement rates.

Insurance companies are taking both internal and external measures to return to a sustainable business model in the context of the current environment. Central Statistics Office ("CSO") data shows that up to October 2015 insurance prices have increased by 29.6% since 2011 - motor insurance prices have increased by 33.5% over the same period and by 26.4% in the last 12 months alone. CORs are expected to improve as these rates fully earn through and begin to reduce loss ratios but it could be 2017 before the industry achieves sub-100% COR.



Source: CSO

Internal measures taken by companies include Liberty announcing plans to cut 270 jobs in Ireland in June 2015[2], RSA seeking up to 120 redundancies[6] and AXA announcing plans in 2016 to relocate jobs to Derry to reduce cost base[7]. FBD following interim results in 2015 that were their worst in 40 years, posted a loss of €96.4 million, are refocusing their business model to servicing its core agricultural and small business and raising capital through a convertible bond with Fairfax[8].

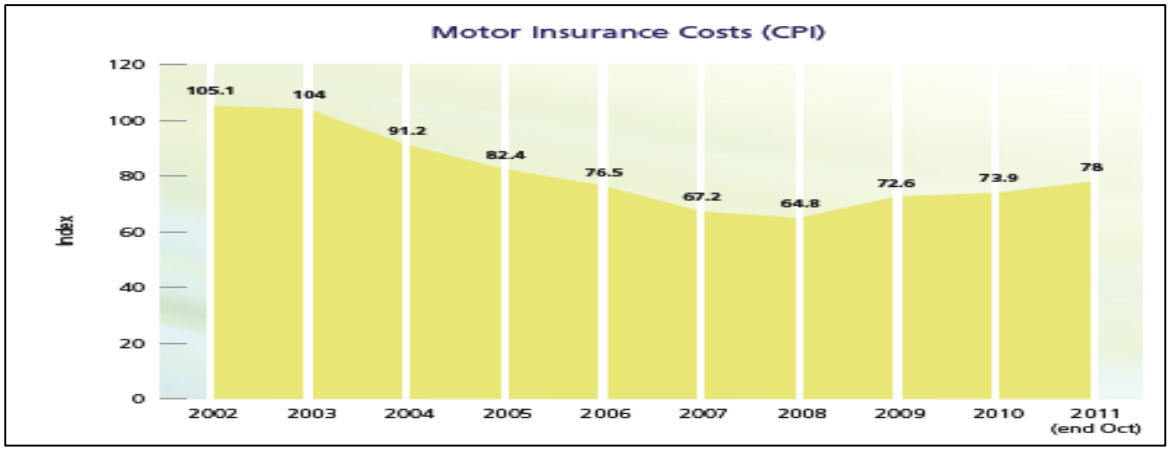
5.1.3 Legal, Regulatory and Economic Environment

There are a number of external environmental factors contributing to the uncertain claims environment and rising claims inflation.

Injuries Board

A report by the Department of Enterprise, Trade and Employment ("Second Report of the Special Working Group on Personal Injury Compensation") in March 2001 showed that motor vehicle premium costs in Ireland as a percentage of GDP were the second highest, after the United States of the countries examined. It also showed that as a percentage of employee earnings, they are twice the average level of the other countries excluding the United States. In response to the high cost of insurance in Ireland at this time the Government set up the Motor Insurance Advisory Board ("MIAB"). In April 2002 the MIAB released their final report on the cost of motor insurance in Ireland making 67 recommendations. The result of one of the recommendations was the establishment of the Personal Injuries Advisory Board ("Injuries Board") in 2004[9].

The aim of the Injuries Board is to mitigate the high costs and delayed settlement periods associated with litigation. Initially this could have been considered one of the most successful reforms introduced by the government with motor insurance costs falling in the period 2002 until 2008.



In 2015, however, up to 60% of the cost of claims were in relation to litigation fees[10]. 90% of claimants are legally represented at outset which contradicts the principle of the Injuries Board to be a lawyer free zone[10]. In a presentation on the 15th October 2015 at the Insurance Fraud Conference, Insurance Ireland stated that an increasing number of claimants are succeeding in circumventing the Injuries Board process through wilful non-compliance e.g. through failure to turn up for a medical examination or refusing to provide information on loss of earnings. The result is that the Injuries Board cannot make an award. Further, 40% of claims that are offered to claimants are rejected and appealed in court[11]. This can be linked to a number of factors including:

- The Book of Quantum, the guide book which is used to assess the level of damages to be awarded in a claim for compensation, has not been updated since 2004; and
- During 2014 the limit for Circuit Court awards was raised from €38k to €60k.

The result is that now only 20% of claims are actually settled by the Injuries Board[14]. Of the 20% of the claims that do get settled by the Injuries Boards there is evidence of claims inflation. In 2013 the total claim amount settled was €244m, this is a 12% increase on the 2012 figure with no corresponding increase in the number of claims reported.

Fraud

Rising claims cost has placed increased focus on the incidence of fraudulent insurance claims. Insurance fraud is estimated to add €50 to the cost of every motor insurance policy in Ireland[13]. Fraud comes in various forms including deliberately staged accidents, driving after insurance has expired etc. A common feature of the staged accidents is the claimant reporting whiplash. These claims are extremely difficult to disprove and carry a high "prize" in Ireland. The average payout for a whiplash claim in Ireland is €15k, which is three times higher than the UK average[13]. The head of Insurance Ireland stated in February 2016 that claims for whiplash in Ireland now accounts for up to 80% of motor insurance claims compared with just 3% in some other countries[13].

Discount Rates

During 2014 an Irish High Court decision set precedence for higher damages awards for people who suffer catastrophic injuries. In December 2014, the Judge, Mr. Justice Kevin Cross, ruled that the assessment of the claim for a catastrophically injured boy (Gill Russell) should assume a real rate of return on investments of 1% for Cost of Care of the lump sum settlement. The rate universally applied by the Irish Courts prior to the Gill Russell case was 3%.

This ruling was appealed to the High Court but in November 2015 the Court of Appeal upheld the original High Court Ruling. It was ruled that the discount rate for calculating all of Gill's outstanding claims for future pecuniary loss to be 1.5%, with the exception of his claim for future care where this rate was reduced to 1%. The 1% was intended to take account of the extent to which wage inflation was likely to exceed the Consumer Price Index over his lifetime.

This ruling is expected to set a precedent for yields underlying the settlement of future personal injury claims. Whilst there is still uncertainty over the full impact that this ruling will have on non-life insurers, it is clear that it will have an adverse impact on the claims cost.

PPOs

In March 2015 draft legislation was introduced intended to empower the courts to award Periodic Payments Orders (PPOs) instead of lump sums in catastrophic injury claims. If introduced it would allow a court to provide for index linked annual payments or periodic payment orders ("PPO") to persons who have suffered catastrophic injuries.

This is discussed in full in the section 5.2.

Economic Environment

Recent low investment returns are adding to the poor performance of the market. There can be significant delays between receipt of premium income and payment of subsequent claims, particularly in the case of personal injury claims. During this time insurers can earn investment income on reserves. Generally the assets or investments of a general insurance company are kept quite liquid and of lower risk like short-dated government bonds. Currently these asset are returning negligible (even negative) interest rates, consequently insurers are suffering as investment income is no longer supporting underwriting profits. The recent economic crisis has also shown that government bonds are not as low risk as previously perceived.

From 2009 to 2012 the insurance market contracted following the credit crisis and subsequent economic recession. The economy is beginning to grow again with the resultant inflationary impact upon wages and in due course claims cost inflation. In 2015 the total number of licensed vehicles in Ireland passed two and a half million for the first time ever. Department of Transport figures for 2014 show there were nearly 33k extra vehicles on our roads by the end of 2014. The insurance market is expected to gain some demand growth through increased vehicle numbers, increased business turnover and payroll and recovery in the construction sector indicating an increase in insurance exposure.

Regulatory Environment

Extensive regulation, most notably Solvency II and the corresponding CBI Domestic Actuarial Regime and related governance requirements under Solvency II (CP92), is creating various challenges for companies. There are tougher capital requirements, additional cost of ensuring sufficient resources are in place to comply with regulation/ new reporting requirements and the challenge associated with integrating the new demands into existing business models.

Further Solvency II is leading to increased mergers and acquisitions ("M&A") activity across the European insurance sector, with analysts putting the likely value of Solvency II-linked M&A activity at £10bn (€13.8bn) in the UK alone. During 2015 Zurich Insurance sought to purchase RSA for more than £5bn in cash, later Zurich Insurance withdrew from the deal citing "weakness in the general insurance environment"[12]. The effect on the Irish insurance market of such global operations merging is the top seven or eight firms that dominate the Irish insurance sector could potentially shrink to just three or four.

5.1.4 Conclusion

Since the appointment of administrators to Quinn in March 2010 the market has seen considerable change to market participants' governance structures, risk selection and portfolio mix. The market has emerged from a prolonged soft market and is now in a hard market phase for motor and liability. CSO inflation data show insurance prices increasing by 29.6% between 2011 and 2015. Profitability, however, continues to be challenging and 2015 continued to be loss making in an uncertain and deteriorating claims environment.

The CBI has responded to recent market turmoil through 'Dear CEO' letters, the Reserving Guidelines for non-life Insurers which set minimum levels of governance around the booking of reserves, undertaking a thematic bodily injury review and a thematic pricing review. Additional to the actions undertaken by the CBI the government has responded by commencing a review of the insurance sector, with a particular emphasis on motor insurance.

The Irish market has faced enormous challenges since 2008 which has manifested itself in insurance company failure and near failure. The future for the sector remains uncertain with a claims environment that is now arguably more uncertain than ever. Companies are restructuring themselves to become fit for purpose in a new environment. Market premium rates and risk selection strategies of participants will depend on, amongst other factors, the level of price competition, the speed at which the insurance market actuarial best estimates reflect the expected future claims and speed of rating action in response to an uncertain and deteriorating claims environment.

5.1.5 References

*** The aim of the Insurance Compensation Fund is to protect policyholders if an insurance company goes into liquidation or administration. The fund is supported by a 2% levy on all non-life insurance policies.**

[1] Report on RTE website 13 September 2011 http://www.rte.ie/news/business/2011/0913/306083-insurance/

[2] Irishtimes 25 June 2015 http://www.irishtimes.com/business/financial-services/liberty-insurance-to-make-loss-in-coming-years-1.2262648

[3] Irishtimes 19 October 2011 http://www.irishtimes.com/news/aviva-statement-on-redundancies-1.885610

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5.2 Periodic Payment Orders

5.2.1 Current Settlement Approach in Ireland

Personal injury claims in Ireland are currently settled by means of a once-off lump sum payment to the injured party known as the plaintiff in the case. This award is intended to indemnify them and put them in the same position as they would have been had the accident not occurred – "Restitutio in integrum". In reality, it can often be an impossible task to correct for a wrong suffered by means of a monetary amount. The specifics of each individual case need to be considered carefully. For the purpose of the calculation the lump sum award is usually split into broad categories of loss, known as heads of damage. The split is notional but assists with the calculation. Some of the key factors considered in determining that final settlement amount include:

- Future life expectancy of the plaintiff
- Care needs and associated costs over their lifetime
- Inflation of costs in the future
- Investment income that will be earned on the lump sum over the period
- Loss of earnings and future employment prospects as a result of the injury
- Support needed for dependants
- Loss of amenity of life due to the accident
- Pain and suffering caused as a result of the injury

These factors are not known at the outset and any assumptions used in the calculation of the award may turn out to be different in practice. A prime example of where this could occur would be the plaintiff living longer than expected. Another example could be higher than anticipated medical inflation – Advances in medical research and/or technological improvements in assistive aids and appliances over time could mean that new and better services can be provided but at an increased cost in the future.

The uncertainty surrounding all of the above factors can have serious implications for the plaintiff if they do turn out to be different in practice; in particular, it could mean that the lump sum awarded is insufficient to cover their care needs during their lifetime. This is particularly pertinent in catastrophic injury cases where the plaintiff is reliant on full time care. There is no recourse for the plaintiff in these instances and any shortfall is likely to fall on the State.

In addition to the uncertainties outlined above, the lump sum approach also assumes that the plaintiff has the required knowledge and expertise to be able to invest any lump sum award in appropriate assets in order to achieve the desired return and maintain the adequacy of the funds for their future needs going forward.

The above deficiencies associated with this approach to settlement in personal injury cases have been recognised for a number of decades in Ireland. Throughout this report we

consider an alternative used in other jurisdictions and look at the key developments which have taken place to date in an attempt to implement an improved framework here.

5.2.2 Periodic Payment Orders – An Alternative to the Current Arrangement

Periodic payment orders ("PPOs") are used in other jurisdictions as an alternative to lump sum payments. For example periodic payments on a non-consensual basis have been allowed in the UK since the enactment of the Courts Act 2003.

A PPO operates like a whole of life annuity - The fixed lump sum is replaced with a stream of future cashflows which are intended to more closely match the timing and amount of future costs as they arise over the plaintiff's lifetime. PPOs help transfer the longevity and investment risks back to the defendant (typically the State or an insurer in this context) and reduce the burden on the plaintiff.

PPOs can also be of benefit to the defendant. With a lump sum payment the cost to the defendant is fixed at settlement, irrespective of how long that plaintiff lives. However, if a PPO basis has been adopted the payments will cease on the plaintiff's death.

5.2.3 Developments in Ireland

Working Group on Medical Negligence and Periodic Payment Orders

A working group on Medical Negligence and Periodic Payments was established by the President of the High Court in 2010. One of their primary objectives was to consider the appropriateness of the current approach in catastrophic injury cases and whether the use of periodic payment orders would be preferable in certain circumstances.

The group were in favour of periodic payment orders for certain categories of damages in catastrophic injury cases and stated that "*the present method of awarding damages for future pecuniary loss in this jurisdiction – the single lump sum award – is inadequate and inappropriate in cases where a plaintiff has been catastrophically incapacitated in the long term or permanently and will require on-going care and medical treatment in the future*". However, while recognising the benefits of PPOs they did recommend that certain conditions needed to be considered if PPOs were to be granted:

- Non-consensual PPOs where there hasn't been an agreement between all litigating parties in the case to adopt such a basis, should be permitted for the cost of future care needs, including costs of care, treatment, medical and assistive aids and appliances
- The views of both the plaintiff and the defendant need to be considered in such cases
- PPOs for loss of earnings should be on a consensual basis only
- Security of payment is paramount. Provisions should be made to guarantee payments from non-State defendants

- A combination of lump sum and PPO should be considered. This is the approach followed in the UK and allows greater flexibility for both the plaintiff and defendant in the case
- The CSO should maintain an independent index to track medical and wage inflation. This will help to ensure that appropriate indexation can be applied to PPOs
- The level of the PPO should be capable of review in specified circumstances
- PPO payments should be exempt from income tax and protected from acquisition in the event of bankruptcy

Following the recommendations of this working group new legislation empowering courts to grant PPOs was expected to follow by 2012. In the interim, there was an informal arrangement between the State Claims Agency and the High Court judges to grant PPOs in medical negligence cases where they felt it was in the best interest of the plaintiff to do so. This informal basis continues to apply to date in the absence of formal legislation. It operates as follows:

- An interim payment is made for heads of damage which are expected to be settled by PPO e.g. Cost of future care
- A final lump sum payment is made for the other categories of loss e.g. Award for pain and suffering
- The court case is then usually adjourned for 2-3 years, after which time, the case is reviewed in the hope that a formal PPO basis can be adopted for the outstanding heads of damage

The first case of its kind was agreed in 2010 and circa 30 further cases had been agreed by the State Claims Agency by year end 2014. One such case that went through this process was Gill Russell versus the HSE.

Gill Russell V HSE

Gill Russell suffers from dyskinetic four limbed cerebral palsy following complications at birth and requires 24 hour care. His case was originally heard in 2012 where an interim payment was awarded by way of a periodic payment for 2 years. It was agreed that the case would be revisited in 2014. PPO legislation had not been enacted at that point and it was agreed to grant a lump sum award for future care, treatment and medical appliances in line with the plaintiff's wishes. Judge Cross was faced with the difficulty of translating what he hoped could have been settled by means of a PPO into a full and final settlement for the plaintiff. The plaintiff's long life expectancy and requirement for round the clock care added to the uncertainty in this case. The critical argument centred on the choice of discount rate for cost of care, the Plaintiff arguing for 0% while the State maintaining that the traditional 3% should be considered appropriate.

In the end, Judge Cross ruled that a 1% real rate of return would apply in the calculation of cost of care. His rationale for that decision is summed up by the following statements:

"What is important is that the plaintiff receives full compensation, that the investment be as risk free as possible and that the sum should be invested prudently"

"Should Gill Russell not have the money available to pay for his carers then he is likely to suffer the most severe and adverse consequences including an early death. It is as simple as that"

This case illustrates the difficulties faced in the absence of PPOs. Uncertainty surrounding assumptions can lead to insufficient provision for the plaintiff or overly prudent assumptions being adopted. This is particularly relevant for catastrophic injury cases where the consequences of not providing the relevant care could be detrimental to the plaintiff.

The current arrangement has proved quite costly for the State Claims Agency due to the ongoing legal fees involved in revisiting cases after an interim period. Failure to enact suitable legislation going forward could make this informal arrangement unmanageable.

Civil Liability (Amendment) Bill 2015

The Government approved the drafting of the Heads of a Civil Liability (Amendment) Bill in 2013 to implement the recommendations from the working group in 2010. In April 2014 an Interdepartmental working group was established by the Department of Justice and Equality with the aim of drafting the proposed framework and understanding how the proposal could be extended to non-State defendants. The draft Civil Liability Amendment Bill was presented to industry representatives in July 2015. It followed on from the working group recommendations and addressed a lot of the issues raised, in particular:

- PPOs would apply to catastrophic injury cases which were defined as "*a severe injury, involving serious impairment, the direct and proximate cause of which requires the plaintiff to receive life-long, permanent care and assistance*"
- The level of the PPO could vary to allow for expected changes in the needs of the plaintiff. The rationale, amount and date of any changes would need to be specified at the outset
- In granting the PPO, the court must be satisfied that the continuity of payment is reasonably secure. i.e.
    - It is a State defendant where payments are protected or
    - In the case of a non-State defendant
        - The PPO falls under the remit of the Insurance Compensation Fund ("ICF"). The Insurance Act 1964 will also be amended to ensure that any limits applying to claims paid out of the ICF will not be applicable to PPOs or
        - The defendant can demonstrate by other means that the continuity of payment is reasonably secure

- PPOs will be indexed in line with the Irish Harmonised Index of Consumer Prices (HICP) index published by the CSO. The level of indexation will be reviewed every 5 years to establish its appropriateness. The Minister will be able to amend the level of

indexation after each review. Any changes to indexation will only act prospectively over the subsequent 5 year period.
- The Injuries Board will have the power to issue PPOs

While the Amendments to the Heads of the Civil Liability Bill have brought us one step closer to PPOs, there are still a number of challenges surrounding the proposed legislation in its current form:

- Legal challenge may result in quite a broad interpretation of "catastrophic injuries".
- HICP is a well-established index but doesn't specifically focus on medical care costs, which are likely to be most relevant for PPOs.
- How will limits of indemnity on insurance contracts be applied? PPOs may not be suitable where such limits exist as further payments cannot be made once these limits have been exhausted.
- The ICF is funded by levies paid by the active insurers in the market. The new legislation could act as a barrier to new entrants if they are required to cover the cost of PPOs even though they weren't writing business in the market at the time of loss.

It's hoped that final legislation will provide greater clarity on these issues and help reduce some of the uncertainty that will be inevitable for insurers as this new basis is adopted. Some of the possible implications for insurers' business processes are considered below.

5.2.4 Implications for Insurers

- The adoption of PPOs in the settlement of cases will transfer risk from the plaintiff to the defendant. Insurers will be forced to assume new areas of risk, in particular this will include:

    - Investment risk: If the real rate of return achieved on investments is less than expected any shortfall will have to be covered by the defendant. Investments will need to more closely match the nature, term and amount of the liabilities. The ability of insurers to create more closely matched portfolios will depend on the availability of suitable investment products in the market. The NTMA plan to issue long dated index linked bonds to help facilitate new market demand.

      It's also worth noting that PPO indexation under the proposed approach could be subject to change following each periodic review. Even if a suitable investment linked to HICP can be found there is no guarantee that a link to HICP alone will be sufficient. For example, adjustments applied by the Minister could exceed the level available from investments. Adjustments to HICP will be more likely if they don't accurately reflect the pace at which care costs are increasing. It is currently unclear how the NTMA plan to deal with such situations.

- Life expectancy risk: The severity of the injured party's condition could make their life expectancy very difficult to predict. Improvements in medical research over time could further add to this uncertainty. A higher than expected life expectancy will lead to losses for the insurer.

- Reinsurers' reactions to the impact of PPOs in the Irish market are not yet known. Reinsurance forms an integral part of a direct writers business and the following possibilities need to be considered:
    - Reinsurers could choose to reduce reinsurance capacity and/or increase reinsurance rates in response to PPOs. Reinsurers started to withdraw from the market in the UK when the take up of PPOs started to increase in 2008. Many insurers purchase excess of loss reinsurance to protect against large individual claims in their portfolio. In the absence of this reinsurance cover direct writers will be forced to hold more capital to cover the additional risks.
    - Reinsurers may also look to review the terms and conditions under which cover is placed. For example, some reinsurers in the UK market insist on capitalisation clauses in their reinsurance agreements. A capitalisation clause allows the reinsurer to remove the liability from their balance sheet by settling their liability by a once off payment to the direct writer.
    - Credit risk arising from reinsurance will be increased due to the longer mean term of liabilities. Payments are expected to continue for an average term of 44 years in the UK. Recoveries on excess of loss reinsurance are typically triggered when the value of a claim exceeds a specified threshold, known as the retention in the contract. As the claim will be paid out over a longer period of time the trigger on the excess of loss arrangement will also be delayed. There's no guarantee that the reinsurer will be solvent when that trigger occurs.
    - Reinsurers may also choose to index the retention amount in an effort to maintain the real value of cover. If the chosen indexation outstrips HICP then expected recoveries will be reduced and further delayed.

- Lack of data initially will make it difficult to estimate the cost of claims and their impact on capital requirements and pricing targets. Improved data capture over time will help companies to understand the risks better and assist with pricing and reinsurance negotiations.

- Administrative expenses will be increased due to the ongoing involvement in claims over time. As well as data capture improvements, systems will need to be updated to prompt and record claim payments and reinsurance recoveries.

The impact of PPOs won't be known for some time to come but insurers have started to make an allowance for their expected cost in reserves. In a recent review conducted by the CBI, they found that insurers were factoring in an impact in the range of 0.8% to 4.3% on their 2014 booked reserves. This will be influenced by the mix of business underwritten by the individual insurers and is likely to increase as a formal PPO basis is adopted in the settlement of personal injury cases.

5.2.5 Conclusion

The benefits to injured parties associated with PPOs in catastrophic injury cases have been acknowledged for many years. Although PPO legislation has not been finalised yet a number of key developments have taken place in recent years to bring Ireland closer to this type of structure - the most significant of which being the Amendment to the Heads of the Civil Liability Bill in 2015. While this is encouraging progress the hope for injured parties is that this process can be concluded as quickly as possible. Insurers on the other hand are preparing for the inevitable challenges that will be presented by PPOs once legislation has been enacted.

5.3 Solvency II

5.3.1 Introduction

On 4 November 2015 a significant milestone was achieved with the transposition of the Solvency II Directive into Irish Law. Statutory Instrument No. 485 of 2015 (European Union (Insurance and Reinsurance) Regulations 2015) was signed by the Minister for Finance and the notice giving effect to the Regulations was published in Iris Oifigúil on 10 November 2015.

After many years of political and legislative negotiations between the European Parliament, Commission and Council as of 1 January 2016 this new risk-based European supervisory framework for insurance became applicable. Solvency II ("SII") is based on three "pillars" –

- Pillar 1 is a market value balance sheet including a market consistent calculation of insurance liabilities and risk-based calculation of capital;
- Pillar 2 is a qualitative supervisory review process covering Corporate Governance, principles for internal control and risk management and the ORSA; and
- Pillar 3 imposes reporting and transparency requirements. Under Solvency II, companies can calculate their capital using either the standard formula, standard formula with undertaking specific parameters, partial internal model or they can develop their own full internal model.

In general an internal model approach is mostly adopted by large insurance groups or companies writing non - standard risks as their core business. The majority of companies operating in the Irish Non - life Insurance market are Standard Formula companies and the technical aspects of this paper will mainly focus on the Standard Formula.

SII promotes a strong risk culture for companies and enhanced consumer protection. It will tighten requirements for how much capital insurance companies will need to hold, impose tough new rules governing how they identify and monitor risk, and set strict disclosure guidelines to increase transparency.

In Ireland while there is certainty on the SII reporting requirements and timelines there is also considerable uncertainty on how the new framework will embed into companies existing BAU processes and the impact on the wider market.

5.3.2 Transitioning from the SAO to the CP92 Regime

Solvency II introduces an explicit requirement for undertakings to have a formal actuarial function. The Level 1 framework Directive text states these requirements in Article 48. For Non - life companies the requirements on the actuarial function are more onerous than those currently in place under Solvency I.

The majority of the requirements for the SII Actuarial Function ("AF") are concerned with processes and procedures surrounding the setting of technical provisions although there are additional requirements in respect of ORSA, underwriting policy and reinsurance. Further to

these requirements the Central Bank of Ireland in April 2015 issued a consultation paper ("CP92") with additional requirements - "Domestic Actuarial Regime Under Solvency II". This was followed with a feedback statement in October 2015 with revised requirements. The final requirements are expected to be issued by the CBI during 2016.

Under this new regime, the role of the Head of Actuarial Function ("HoAF") will supersede the Non - life Signing Actuary role which operates in the current domestic regulatory framework. The HoAF will be responsible for the production of an annual Actuarial Opinion on Technical Provisions ("AO TP"). In addition, the HoAF must present an Actuarial Report on Technical Provisions ("ARTP") to the Board. Many Non - life AFs will leverage the existing processes from the current Statement of Actuarial Opinion (SAO) regime, enhanced where necessary to ensure SII and CP92 compliance.

The HoAf will further be required to produce reinsurance and underwriting opinions as per the SII Directive. The Domestic Requirements incorporate an additional opinion to be provided by the HoAF on the ORSA process, this opinion is not currently required under the SII Directive. It should be noted, however, that the Directive requires the Actuarial Function to contribute to the risk management system, the CBI is formalising this input. The opinion will require an assessment of the range of risks considered and the adequacy of the scenarios developed as part of the ORSA process.

Irish insurance companies must also appoint a Reviewing Actuary ("RA") periodically to review their TPs and related AO TPs and the ARTP. The frequency of review is dictated by each firm's PRISM rating. High Impact firms will be subject to a review at least every 2 years (every 3 and 5 years respectively for Medium High and Medium Low firms). The timeline for the first peer review required under the new Domestic Actuarial regime will not start from 01/01/2016 but continue from the existing SAO regime i.e. for medium high firms they will need to have their first peer review by done by 31/12/2016.

Technical Provisions

The new requirements will set a high bar for the AO TP provided by the HoAF, requiring the HoAF to consider compliance against all relevant SII requirements. The CBI has issued a draft opinion but at the date of this paper this had not yet been finalised.

While some of the governance and control framework that operates around the calculation of Solvency I and/or statutory reserves is likely to remain in place for the SII TP's, it is likely that this will not cover all of the new requirements e.g. risk margin calculation and the challenge arising if the HoAF does not own the process for calculating the SCR.

Further areas that are new/ changed for Non - life Companies include:

- The definition of Technical Provisions is different between the current SAO regime and the Solvency II/ CP92 requirements;
- It is required to assess whether the IT systems sufficiently support actuarial procedures; and

- The HoAF is required to assess "the sufficiency and quality, including appropriateness, completeness and accuracy, of data used in the calculation of TPs". Similar requirements exist under the current SAO regime, areas that may differ under the new regime include:
    - The extent of review required for the data used to calculate the risk margin and if reliance can be placed on the Function undertaking the SCR calculations;
    - Where deficiencies in data are identified the HoAF is required to identify a time line for implementation of remediating measures;
    - Under the existing regime the Signing Actuary would traditionally act in a reviewing role in terms of data assessment, it is as unclear under the new regime the level of reliance that can be placed on the work of others; and
    - The quality of documentation developed in areas such as expert judgement and known limitations across data, methodology and assumptions will determine the level of effort required for assessment of the sufficiency and quality of the data used in the calculation of TP's and the subsequent provision of the AO TP.

<u>Underwriting/ Reinsurance Opinion</u>

Under the Solvency I SAO regime there is no requirement under the existing regime for Non - life Signing Actuaries to provide an opinion on the underwriting policy or the adequacy of reinsurance arrangements.

The opinions to be expressed with regards the underwriting policy and reinsurance arrangements are expected to at least include conclusions regarding the below considerations.

Underwriting Opinion:

- Analysis of underwriting policies/guidelines, i.e. with respect to processes, controls, roles and responsibilities, risk selection, underwriting limits etc.;
- Sufficiency of the premiums to be earned to cover future claims and expenses, taking into consideration the underlying risks, target profitability etc.;
- Understanding the assumptions and methods used to calculate the premium; analysis of expected loss ratios/combined ratios and their variability;
- Environmental changes e.g. inflation, legal risk etc.by considering material risks to the profitability of the business and through stress and scenario tests.; and
- Adjustments to premium/ anti-selection understanding ability to adjust premiums and charges and a review of anti-selection risks.

Reinsurance Opinion:

- Understanding the undertaking's risk profile and underwriting policy, this could include an analysis of business and risk strategy and analysis of underwriting policies (leveraging the work performed in respect to the opinion on underwriting);

- Reinsurance providers taking into account their credit standing, this could include analysis of reinsurance providers leveraging existing processes e.g. risk management; consideration of SCR impact following reinsurance stresses e.g. default of major reinsurer;;
- The expected cover under stress scenarios and the interaction with the underwriting policy;
- The calculation of the amounts recoverable from reinsurance contracts and special purpose vehicles;
- "Back-testing" i.e. considering effectiveness of past covers and drawing conclusions to present; and
- Provide recommendations to improve reinsurance arrangements, including advantages and disadvantages of any alternatives.

There is no general consensus or best market practise on the level of detail, the scope etc. for the Underwriting or Reinsurance Opinions. Challenges during 2016 for HoAF's in respect of finalising these opinions include:

- Uncertainty in respect of what exactly should be included in the scope of the opinion. No guidance has been issued to date by the CBI on the Underwriting or Reinsurance Opinion;
- The level of reliance that can be placed on the work of others and the level of review that needs to be undertaken and documented;
- Where the AF takes responsibility for pricing/ reinsurance strategy, potential conflicts of interest might exist; and
- Conversely where the Actuarial Function is not involved in pricing/ reinsurance strategy additional expertise may be required and senior management support needed.

Working groups were set up by the SAI to look at these areas including the development of either guidance or IANs, at the date of this paper their work has not been completed pending whether the CBI issues its own specific requirement and guidance on these topics.

ORSA Opinion

Under SII the Actuarial Function Report ("AFR") is required to describe the areas where the AF has made a material contribution to the implementation of the risk management system and the work performed. In particular, this should cover the contribution of the AF to the risk modelling underlying the calculation of the capital requirements. The domestic actuarial requirements in the consultation paper issued by the CBI incorporate a further actuarial opinion to be provided by the HoAF on the ORSA process which includes an assessment of the range of risks considered and the adequacy of the scenarios developed as part of the ORSA process.

The CBI has confirmed that it won't prescribe a form for the ORSA opinion but expects that the opinion on the ORSA must address at least the following areas:

- The range of risks and the adequacy of stress scenarios considered as part of the ORSA process;
- The appropriateness of the financial projections included within the ORSA process; and
- Whether the undertaking is continuously complying with the requirements regarding the calculation of TPs and potential risks arising from the uncertainties connected to this calculation.

There are no requirements related to Risk Management in the current SAO regime, however the HoAF may leverage off the current SAO regime, where the Signing Actuary is required to consider material risks around the best estimate reserves in the development of the Margin for Uncertainty.

5.3.3 Day One Challenges

Insurance companies have been working towards a Solvency II live environment for almost a decade but many challenges remain following the 1 January 2016 implementation date. 2016 will be a learning curve for most companies as they work to fulfil the new Solvency II requirements and the implications on day to day business functions. 2016 challenges will be further compounded by parallel reporting with the current Solvency I regime. A (non exhaustive) list of challenges that will be faced by Irish Insurance companies over the next few years include:

- The first live run of the Solvency II three pillars (quantitative requirements, supervisory review and disclosure requirements) in a shared governance and management framework. FLAOR/ ORSA exercises have been a starting point for companies to begin to manage the integration of Solvency II requirements into a business as usual ("BAU") environment.
- The level and form of interaction between Irish Insurance Companies and the Central Bank of Ireland ("CBI") will change during 2016. During 2015 the CBI restructured their insurance division, it is understood that the aim is to strength their supervision in the area of analytics and onsite supervision of Irish Insurance Companies. Further in 2015 the CBI issued Consultation Paper CP92 covering the Domestic Actuarial Regime and related governance requirements under Solvency II, discussed above.

  For both the CBI and Irish insurance companies there is a need for a certain amount of time to be invested to understand the new dynamics and the need to communicate internally and externally with shareholders, intermediaries and clients.
- Management, key function holders and members of the Board are embarking on a learning curve in 2016, in particular the new Head of Actuarial Function ("HoAF") PCF role as prescribed under CP92. The HoAF is a broader role than the current Non - life Signing Actuary role under the Solvency I regime. The appointed HoAF's will be required to sign opinions on TP's, Underwriting, Reinsurance and the ORSA, reporting to both the

Board and the CBI on these opinions. There is currently no precedent in the Non - life practice area, excluding the opinion on TP's, for the precise form of these opinions and the level of review required. During the preparatory period HoAf's will have already have been working towards ensuring that they are complying with the new rules, understanding the level of communication required by the board and preparing their new reporting requirements.

- Major data governance projects developed to deal with the increased frequency and level of detail required under SII reporting will be reporting formally for the first time. In many cases, insurers have added new applications to legacy systems, creating complex, multi-layered IT architectures. This has the potential to lead to data duplication and less-than-optimal processes, raising concerns around data quality and making it difficult for the organization to get a broad view of data. 2016 and beyond will be learning process into how to manage and improve data processes.
- Strategic and short-term decision making e.g. reinsurance purchasing, investment mix, underwriting strategy etc. must switch to align with the risk adjusted approach and associated methods of managing the capital volatility introduced by SII. The additional volatility is driven by the way the regulatory balance sheet and capital requirements take into account changes in the market environment e.g. fluctuations in bond or equity markets. Previously for Non - life Insurers the composition of their asset portfolio did not impact their regulatory capital requirement. The challenge now for non-life insurers is how to manage all aspects associated with this volatility, previously non-life insurers were largely concerned with insurance risk. This presents strategic and also tactical issues for senior management as they evolve their risk appetites given Solvency II standards. The focus will be on understanding the particular drivers of capital and balance sheet volatility affecting their company, deciding how much volatility they are prepared to accept and taking the necessary steps needed to control it.
- Similarly there will be bedding in of the work done during the SII preparatory phase in respect of the risk culture and mind-set of Irish Insurance Companies. The requirement is that there must be a focus on a risk-based decision-making process, supported by the ORSA. Forward-looking risk management is needed to make sure that businesses remain fit for purpose.
- The level of external audit in respect of SII TPs, SCR/ MCR, ORSA projections etc. that will be required is still not clear. The CBI currently requires that elements of Solvency I supervisory reports are subject to external audit. EIOPA has noted that the focus on any audit should be on the balance sheet, own funds and capital requirements. EIOPA has also noted the importance for auditors to issue a public opinion and an audit report on whether the disclosed elements have been properly prepared, in all material respects, in accordance with the Solvency II regulatory framework[1]. A consultation paper is expected in early 2016 and the CBI intend to engage with stakeholders to discuss the scope of auditing requirements for regulatory returns for periods ending on or after 31 December 2016. The expectation is that some level of formal external audit review will be required.

- The ORSA requirement for multi-year balance sheet and capital projections has presented a challenge for insurers and is an area that will evolve over the coming years. Senior management are still refining the range of the deterministic scenarios they want to test their business plan against. Once defined modelling challenges remain in respect to the refinement of the projection of multi-year SII capital requirements. Proxy techniques may currently be used to address such challenges but this is an area that will need to evolve over the next few years.
- There is currently no precedent, benchmark or regulatory guidance on a "normal" level of Own Funds buffer over SCR or Target Solvency Ratio. If the precedent for the capital buffer that the market sets is too high this could put pressure on insurers that fall below the perceived market-accepted norm. Conversely whilst a company with a high ratio may be seen as a more secure, by creating a precedent for itself it may need to charge more for products or reduce dividend capacity to maintain this ratio.
- Under Pillar II firms are required to perform an assessment of whether their risk profile significantly deviates from the assumptions underlying the SF Solvency Capital Requirement ("SCR"). The extent of work and documentation required for this assessment is uncertain particularly considering there are in excess of 150 assumptions underlying the SF. Various activities are suggested to assess standard formula suitability including back-testing, comparison of calibration of the SF as detailed in SF papers to Insurers own understanding of their risk profile, assessment of SF parameters, stress and scenario testing etc.
- The majority of companies in Irish insurance companies are SF companies which is designed as a "one size fits all" model. Areas where the SF may be deemed inappropriate for non-life Insurers and may require refinement in the modelling approach, undertaking specific parameters ("USP") or partial internal models in the future include:
    - PPO type liabilities;
    - Alternative reinsurance arrangements e.g. adverse development cover, stop loss treaties etc.;
    - CAT and Operational Risk;
    - Loss absorbing capacity of deferred tax; and
    - Contract boundaries including tacit renewals, written but not yet incepted premiums etc.

2016 is the year that SII will become BAU and 2017 will be the year of "coming out" with the first time ever reporting of Solvency II numbers and a detailed SFCR (Solvency and Financial Condition Reports available in the public domain). This is just one year before the European Commission will review the 2009 Directive and new insurance financial reporting standards (IFRS 4 and 9) will add new challenges (2019/2020).

[1]Report EIOPA website 29 June 2015 https://eiopa.europa.eu/Publications/Other%20Documents/EIOPA_high%20quality%20public%20disclosure_Solvency%20II.pdf

5.4 Data Analytics

Data analytics is the science of examining raw data with the purpose of drawing conclusions about that information. It has been used in many different areas to gain economic and political advantages. Loyalty cards are used by supermarkets to gather information on what customers are buying. They then use this data in many ways including targeting advertising to specific groups of customers and placement of items within a shop. Barack Obama's 2012 presidential campaign used data fed in by canvassers to identify voters' top issues and target them at an individual level by email updates, phone calls and running advertising campaigns to the television shows that targeted demographics watched.

Broadly speaking the insurance industry has been slower to implement advances in data analytics. Its relevance has increased as insurers attempt to tackle increased competition, changing customer needs and falling profitability. In Ireland there has been a noticeable increase in focus on this area, it has been the subject of many talks given by the Society of Actuaries in Ireland (SAI). There was also a recent competition hosted by the SAI which challenged teams to predict the types of passengers that survived the sinking of the Titanic.

Big Data

Big data has many definitions but can be defined by three Vs:

- high **v**olume – this refers to the granularity and amount of the data stored, made possible by advances in IT
- high **v**elocity – this refers to the speed at which updates to data are received
- high **v**ariety – this refers to the different formats that data is stored in

What actuaries do can be described as data analytics – data is used to calculate premiums, reserves and capital requirements. The leap from actuarial analysis to data analytics comes from the increased volumes of data available and opportunities to derive value from this outside the traditional actuarial areas. Use of smartphone devices and connected technology has provided a new rich source of data. These developments are often referred to as "big data".

Examples of big data sources which are available to insurers include:

Demographic and segment data

This is data which deals with "who" and "what" the policyholder is and has been around for many years. It contains information a policyholder's individual profile and their risk characteristics. Traditionally insurers have used proxies to best estimate risk for individuals e.g. to model claims cost for motor claims insurers traditionally would have looked at factors such as area, age, driving experience and type of car. Including demographic factors allows insurers to identify and target profitable cohorts within age or area segments – for instance breaking down policyholders into their credit rating or whether they have a young family can be predictive of motor claims cost. Sources of such data include government

census data, external consultancies and major credit bureaus. Some Irish-specific geo-segmentation model providers include Data Ireland, Gamma and Call Credit.

Behavioural data

Behavioural data focuses on the "why" and "how" aspects of the policyholder. This includes individual policyholder driving patterns gathered from telematics devices and mobile apps. This data can be used to understand the risks written by the business in a deeper manner and be helpful in the event of a claim where features of the claimant's driving such as speed, acceleration and braking can be verified. Another example is smart home systems - houses equipped with smart devices and sensors that remotely control lighting, heating and appliances through a smart phone or computer - which some US insurers are using to understand their property risks better and to notify their policyholders in the event of a leak or smoke detection in order to reduce potential claims cost.

Company, industry and competitive data

This is data which can be used by insurers to analyse the performance of their commercial lines policyholders based on competitive standings, market positioning and peer benchmarking data. An example of this is discussed below where an insurer used data on the sales made by supermarkets to segment risks.

Environmental data

These are factors such as geocoding, satellite imagery, census, building code, natural catastrophe, environmental and climate data. This enables the insurer to map addresses of risks at a very precise level and to use this to understand the risk of weather perils and accumulations of risk in a more detailed way. This is a hot topic at present in the aftermath of the weather events in late 2015/early 2016. Despite the construction of flood defences many policyholders cannot get flood cover for their property insurance. While many Irish insurers use geocoding of risks as part of their pricing and underwriting criteria, a challenge is present to use all data on flood defences in order to insure as many policyholders as possible, at an acceptable level of risk.

Internal data

Large amounts of data are held by insurers that may not be used to its full capacity. This includes details gathered during the quotation process, details around the policy itself and granular details around any claims reported, for instance, a loss adjustors notes. These have many uses, including identifying potential for cross sales and identifying fraudulent claims.

Insurance Relevance

As outlined in the market update section, many Irish companies have faced profitability challenges in recent years and the future claims environment is extremely uncertain. Making better use of the data at their disposal is one action which insurers are taking to return to profitability.

Data analytics can be used to understand policyholders and meet their needs in a more effective way. This can help to build trust and improve profitability for the insurer.

Actions insurers are taking include:

- Using sources of big data to identify and target profitable segments. One US commercial insurer, that sold general liability cover, discovered that inner city supermarkets that made more than one-third of their sales from rocket and other fresh produce were better risks than other inner-city supermarkets. This could be because the type of people that shopped there made less claims or because they had better overall maintenance but it is not the type of factor that is traditionally used to rate supermarket liability insurance. After this was discovered, the insurer increased profits by targeting inner city supermarkets with this profile and increasing rates on other supermarkets.
- The handling of claims can be improved by better using the initial data that is received upon reporting of the claim to the appropriate claims handler – for instance high severity claims can be passed to a specialist team which can increase opportunity for direct settlement.
- Potentially fraudulent claims can be identified at an early stage of the claim life and can be directed to the appropriate team for investigation.
- Analytics can be used to identify claims with subrogation potential which may have been missed by claim handlers. Subrogation is the right for an insurer to pursue a 3rd party that caused an insurance loss to the insured e.g. in the case of a car accident where a policyholder makes a claim but a 3rd party is at fault. By identifying these claims, an insurer can increase their recoveries from 3rd parties and reduce their ultimate claims amount.
- Metrics like a customer's Net Promoter Score (NPS) can be modelled. A NPS tracks how policyholders perceive the insurer and its products and services. It then sorts policyholders into promoters or detractors to produce a net score that monitors the quality of customer relationships. When this is modelled, actions can be taken in segments which are poor; to improve policies sold in profitable areas.
- Implementing rates based on big data rating factors can influence policyholder behaviour. A common example in motor insurance is data collected on telematics devices. These devices record, for every policyholder, the location of the vehicle, the speed at which the vehicle is driving and other features of the policyholder's driving habits in intervals of seconds. The idea behind this is that insurers can use this data to assess the quality of a driver's behaviour and load or discount the premium accordingly. The policyholder can also use the feedback they get to improve their driving habits and the insurer's risk. In a life context a life insurer in the US has a program which provides Fitbits to their policyholders and awards a score based on improving and maintaining healthy activities such as going to the gym. The score

drives premium discounts and incentivises policyholders to behave in a healthier way.

Current Environment in Ireland

In order to be successful working in data analytics, a skillset which combines statistics with IT skills and communication is needed. Forfás predicts 21,000 jobs in Ireland in data analytics between now and 2020 across all industries. UCD and DIT are now offering degrees and masters in data analytics to address this demand.

As the skillset is very similar to that of an actuary, an opportunity is present for the actuarial profession to diversify into non-traditional areas within general insurance. There is also an opportunity to apply our skillset to other practice areas and industries. On the other hand, while actuaries have extensive expertise in deriving insights from data, there are areas where data analytics is used that fall outside our current remit. e.g. fraud analytics in claims, targeted marketing campaigns etc.

Another issue is that while actuaries have extensive expertise in deriving insights from data, the level of data now available may not be suitable for traditional actuarial methods of analysis. If actuaries are to diversify into a more analytical area, they need to develop skills in different types of statistical analysis than those traditionally used in actuarial analyses. The American Society of Actuaries (SOA) produced a business analytics white paper in 2012 which among other things outlines tools and techniques which can be used in data analytics and rates them according to usefulness.

Challenges

Large amounts of data are available internally within a company but are often held on separate databases with IT constraints limiting the amount of data that can be on one database. This can create practical constraints around performing highly granular analysis. There is also a cost associated with storing data which needs to be considered and weighted against the potential benefits.

Many insurers are currently using legacy systems which can be quite inflexible when it comes to collecting new types of data or adding in new rating factors. If a new factor is identified that a company wants to segment policyholders by, it can be a timely and expensive process to actually implement it.

Another big challenge is converting additional data collected into a useful usable format. Telematics devices record the location of the vehicle, the speed at which the vehicle is driving and other features of policyholders' driving habits in intervals of seconds. Developing an algorithm to transform this into a rating score is a challenge which insurers have faced in recent times.

Some data is also now available for analysis in unstructured forms rather than databases of text or number fields. Examples of this include notes by claim handlers or customer

feedback via social media. Converting this unstructured data into actions for the company is a new challenge to be explored.

While advances driven by data analytics can drive increased levels of customer satisfaction, there is also the risk of customer backlash due to concerns about privacy. The US insurer using Fitbits as part of their life insurance proposition has found that this risk can be managed by ensuring that policyholders understand how all data collected can drive improved premiums for them but this may prove a challenge going forward.

Conclusion

The rapid increase in the amount of data available and the improvement of computer processing is creating opportunities to improve profitability in the Irish insurance market. Data analytics across all industries is a large growth area in Ireland which presents opportunities for actuaries to move into more analytical roles within the insurance business. To take advantage of these opportunities, actuaries need to continue developing skills in the statistical modelling techniques relevant to big data analytics. This is being facilitated by new UCD and DIT masters courses which have been recently launched. Challenges to insurers implementing these advances include costs, IT constraints and legacy systems.