Actuarial Careers and Hot Topics

24\textsuperscript{th} March 2015
The Society of Actuaries in Ireland

• The governing body for actuaries in Ireland
  – Develop the role and standing of profession in Ireland
  – Support actuaries throughout their careers
  – Enforce standards of practice/regulate actuaries

• Small profession – circa 800 Fellows
  – Everyone knows everyone!
The Society of Actuaries in Ireland

• Not an examining body
  – Students do exams of the UK’s Institute and Faculty of Actuaries

• The Society does represent students in Ireland
  – Liaise with IFoA to discuss student needs and exams
  – Representatives on IFoA student forums
The Society of Actuaries in Ireland

• **Student Society**
  – Organises social events for students

• **New student seminar every September**
  – Make sure you come when you start full time

• **Guide for new students**
  – Published on SAI website
  – Irish perspective guide to registering for and taking exams

• **Join when you can**
Agenda

6.30pm – 8pm:
- Life & Health update – Eamon Comerford
- Working in Life Insurance – Patrick Meghen
- Solvency II – Patrick Meghen
- General Insurance – Majella McDonnell
- Pensions – Sarah Kelly
- Career Advice – Jenny Johnston

8pm – drinks reception next door
Life Overview

- Market overview and developments
- M&A activity

Disclaimer:
The material, content and views in the following presentation are those of the presenter(s).
Market overview

• Domestic market
  – c.13 life companies

• Cross-border market
  – c.57 life companies
  – Including: Aegon, Allianz, AXA, Generali, Intesa Sanpaolo, MetLife, SEB, Standard Life International, ... Zurich

  – c.110 reinsurance companies and SPVs (includes non-life)
Market overview – New Business Premiums

Source: 2013 and older Blue Books (CBI Insurance Statistics)
Market overview - Domestic Premiums

Annual Premium Equivalent (APE) = AP + 0.1 * SP

Market dominated by a few players

Source: 2013 Blue Book (CBI Insurance Statistics)
Market overview - Cross Border Premiums

Total Premium Income (Gross) 2013

- Italy: 47%
- UK: 30%
- Germany: 9%
- Sweden: 7%
- France: 3%
- Spain: 2%
- Other: 1%

Italy focus: 10 Companies
UK focus: 7 Companies
Multi-territory: 15 Companies
### Domestic Market - Market Consolidation

<table>
<thead>
<tr>
<th>Irish Life &amp; Canada Life</th>
<th>Aviva &amp; Ark Life</th>
<th>New Ireland</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image1" alt="Image of wedding rings" /></td>
<td><img src="image2" alt="Heart crossed out" /></td>
<td><img src="image3" alt="Single symbol" /></td>
</tr>
</tbody>
</table>

- Danica Life
- HSBC Life
- AVIVA Life & Pensions
Health Overview

- Market overview
- Market developments

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Market overview

- Four main players:
  - VHI Healthcare
  - Laya Healthcare (formerly Quinn Healthcare)
  - Aviva Health
  - Glo Health

Market share (December 2014)

- VHI
- Laya
- Aviva
- Glo

Restricted Undertakings
Two main problematic issues:

1. Vicious cycle of contraction

- People leave (mainly young and healthy)
- Affordability issues
- Costs go up for all
Market developments - contraction

• Two main problematic issues:
  1. Vicious cycle of contraction

**Number of people with private health insurance in-patient cover (m)**
Market developments – product proliferation

- Two main problematic issues:
  2. Proliferation of products
Actuarial Careers & Hot Topics
Working in Life Insurance

Patrick Meghen - 24.03.2015
Life Insurance – Related Subjects

- Financial Mathematics (CT1)
- Finance & Financial Reporting (CT2)
- Survival Models (CT4)
- Actuarial Mathematics/Contingencies (CT5)
- Actuarial Risk Management (CA1)
Life Insurance – Types of Jobs

• Large Life Company
• Small Life Company
• Reinsurer
• Consultancy
Life Insurance – Different Areas

• Reporting
  – Data, setting assumptions, running models, analyse changes, reporting

• Pricing
  – Market analysis, update pricing models, profit analysis, product documentation
What’s it like?
What’s it like?

- Working in Excel
- Modelling Software (Prophet/MoSes/MG-Alfa)
- Cash flow models
- Not all mortality tables
- Most jobs are in the Life Insurance sector
- Practical solutions & problem solving
Life as a Consultant

- A lot more variety
  - Working for several different companies
  - Reporting & Pricing work
  - Project work
  - M&A experience

- Longer hours, more demands
Practical Tips

1. Read the job specs
2. Try get some insider knowledge before applying
3. Focus on qualification
4. Consider changing job
5. Build your experience
6. Think of the “long term”
7. Have a nice working environment
Solvency II Overview & Update

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Solvency II – why should I care?

• 1. Exams
• 2. Job Interviews
• 3. Your future job
Key points to be covered

- Solvency II – the “3 Pillars”
- The “3 Levels” (not the 3 Pillars)
- Implementation Timetable
Solvency II – definition

• New regulatory regime for (re)insurance companies

• Same rules apply for all countries in the EU

• “Risk based approach”
Solvency II - 3 Pillars

- Pillar 1: Quantitative Requirements
- Pillar 2: Supervisory Review
- Pillar 3: Disclosure
Solvency II - Legislation

Pillar 1
- Calculations
- Quantitative Requirements

Pillar 2
- Governance & Risk Mgt.
- Supervisory Review

Pillar 3
- Reporting
- Disclosure

Solvency II
Pillar 1

- Value Assets & Liabilities on a market consistent basis
- Technical Provisions, SCR/MCR
- Internal Model/Standard Formula
Pillar 1 – Assets & Liabilities

- Total Assets
- Free Capital
- MCR
- Risk Margin
- Best Estimate Liabilities
- Other Liabilities

SCR
TP
Companies are well prepared (generally)

Some points to note:
- Technical Provisions (data quality, assumptions, automation)
- Own Funds (classify capital)
- Capital Requirement Calculations (SCR & MCR)
- Internal Models
Pillar 2

- Governance
- Policies
- Functions
- Own Risk & Solvency Assessment (ORSA)
- Risk Management
Pillar 2

• Systems of Governance
  – Organisational structures
  – Segregation of responsibilities
  – Written policies

• Risk Management Systems
  – Strategies, processes, reporting, procedures, contingency plans
  – Specified minimum requirements
  – Risk Management Function
Drafting Policies & Documents

- Solvency II requires **a lot** of written policies!

<table>
<thead>
<tr>
<th>General Governance Requirements</th>
<th>Internal Controls</th>
<th>Capital Management</th>
<th>Group Governance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Risk Management</td>
<td>Internal Audit</td>
<td>Own Funds Requirements</td>
<td>Actuarial Function</td>
</tr>
<tr>
<td>Fit &amp; Proper</td>
<td>Outsourcing</td>
<td>ORSA</td>
<td>&amp; lots more...</td>
</tr>
</tbody>
</table>
A lot of companies are forming separate risk departments.
ORSA/FLAOR

Requires companies to **project** their **economic balance sheet** over their **business planning horizon**, subject it to a **range of stresses and scenarios** and determine their **capital needs**.

Challenges:
- Hard to do the actual projections (nested calculations)
- Modelling management actions included in the stresses
- Lots of documentation
- Board involvement
- Review and validation
Progress Update – Pillar 2

• Companies are getting there

• Some points to note:
  – A lot of work done to date on policies etc.
  – ORSA/FLAOR being improved upon this year
Pillar 3 - Reporting

- SFCR (public)
  - Solvency & Financial Condition Report

- RSR (private)
  - Regular Supervisory Report
Pillar 3 - Lots of Reporting

- QRTs (quantitative)
  - Quantitative Reporting Templates
  - Liabilities
  - Assets
  - Extra Information
Progress Update – Pillar 3

• Not very good
  – Not implemented yet
  – Not fully automated
  – Not tested

• Preparatory Phase
  – Reporting

• Solvency I Reporting
  – until 2016
Solvency II - Legislation

Level 1

Pillar 1
Quantitative Requirements

Pillar 2
Supervisory Review

Pillar 3
Disclosure

Level 2

Level 3
## Solvency II – Building Blocks

<table>
<thead>
<tr>
<th>Level</th>
<th>Description</th>
<th>Purpose</th>
<th>Responsibility of</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Directive</td>
<td>Sets out overall framework</td>
<td>Council &amp; Parliament</td>
</tr>
<tr>
<td>2</td>
<td>Delegated Acts</td>
<td>Give more detail on specifics</td>
<td>Commission (with advice from EIOPA)</td>
</tr>
<tr>
<td></td>
<td>Implementing Technical Standards</td>
<td>Conditions of application of delegated acts</td>
<td>Commission (drafted by EIOPA)</td>
</tr>
<tr>
<td>3</td>
<td>Supervisory Guidelines</td>
<td>EU wide regulatory guidelines</td>
<td>EIOPA</td>
</tr>
</tbody>
</table>
Solvency II – Regulatory Timetable

**Level 1**
- **Q2 2014**: Omnibus II becomes legally binding
- **1 Jan 2016**: Solvency II Implementation Date

**Level 2 Delegated Acts**
- **October 2014**: Final set published
- **January 2015**: Delegated Acts accepted

**Level 2 ITS**
- **Q4 2014**: Publication of first wave
- **Q1 2015**: Public consultation on second wave

**Level 3**
- **Q1 2015**: Public consultation on 2nd wave & publication of 1st wave
- **Q4 2014**: Public consultation on first wave
- **Jul 2015**: Publication of second wave
Solvency II – Regulatory Timetable

Level 1
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Level 2 ITS
- Q2 2014: Public consultation on first wave
- Q4 2014: Publication of first wave
- Q1 2015: Public consultation on second wave
- Q4 2015: Publication of second wave

Level 3
- Q1 2015: Public consultation on 2nd wave & publication of 1st wave
- Q4 2014: Public consultation on first wave
- Jul 2015: Publication of second wave
Solvency II – Early Implementation

• Preparatory Guidelines
  – Individual regulators have started implementing parts of SII
  – These guidelines help ensure consistency

• Central Bank of Ireland has its own Preparatory Guidelines
  – Sets out their early implementation plans
  – Amount required is based on a company’s PRISM rating

• Areas covered
  – Submission of Information
  – Systems of Governance
  – FLAOR (Forward Looking Assessment of Own Risk)
The End!

Solvency II - it’s coming for you!
Objectives of the session

- What does a GI actuary do?
- Non-life market developments
- Pricing topics
- Reserving topics

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What does a GI actuary do?

- **Pricing**
  - Generalized Linear Models (GLMs)

- **Reserving**
  - Run-off Triangles

- **Capital Modelling**
  - Modelling internal economic capital

- **Risk**
  - Identifying, measuring and controlling risk
What does a GI actuary do (ctd)?

- **Range of risk types:**
  - *Personal lines*
    - Private Motor
    - Household
  - *Commercial lines*
    - Fire
    - Commercial Motor
    - Employers’ / Public / Product Liability
    - Marine and Aviation
Distribution of market share

Market Share (GWP %)

<table>
<thead>
<tr>
<th>Company</th>
<th>% 2013</th>
<th>% 2012</th>
</tr>
</thead>
<tbody>
<tr>
<td>RSA</td>
<td>14%</td>
<td>14%</td>
</tr>
<tr>
<td>FBD</td>
<td>14%</td>
<td></td>
</tr>
<tr>
<td>Aviva</td>
<td>13%</td>
<td></td>
</tr>
<tr>
<td>Allianz</td>
<td>12%</td>
<td>12%</td>
</tr>
<tr>
<td>AXA</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Zurich</td>
<td>10%</td>
<td></td>
</tr>
<tr>
<td>Liberty</td>
<td>7%</td>
<td></td>
</tr>
<tr>
<td>Other</td>
<td>17%</td>
<td></td>
</tr>
</tbody>
</table>

% 2013 vs % 2012
2014 market developments

- Collapse of **Setanta Insurance** in April 2014
  - 75k policies in-force at time of liquidation
  - Outlook for regulation of EU insurers in Ireland?

- Impact of **weather events**
  - Storm Darwin (Feb 2014): €110m
Impact of Storm Darwin
Pricing topics

- Telematics
  - Relates motor premium to measured driving ability
  - AXA DriveSave product, [www.boxymo.ie](http://www.boxymo.ie)
Pricing topics

• **Postcode System**
  - New postcode database (Eircode) to be rolled out this year
  - Availability of more granular rating information

• **Office of Public Works (OPW)**
  - Insurers to take OPW flood defence info into account
Reserving topics

• **Periodic Payment Orders (PPOs)**
  - Annual payment rather than lump sum
  - Transfers risk from claimant to insurer

• **Increases to court award limits**
  - From €6.4k to €15k in District Court
  - From €38k to €60k in Circuit Court

• **Reduction in discount rate**
  - Judge Cross ruling to be appealed by the State
Questions during Q&A session
AGENDA

1. Overview of Pension Provision in Ireland
2. State Pension
3. Need for Pension Planning
4. Defined Benefit Pensions
5. Defined Contribution Pensions
PENSION PROVISION

- Self Employed / Additional needs
  - Pre-funded by individual

- Maintain standard of living
  - Pre-funded
  - Employer and Employee

- Minimum level of income for all in retirement
  - Pay-as-you-go
  - Taxation

PRIVATE PENSION

OCCUPATIONAL PENSION

STATE PENSION
STATE PENSION – SOCIAL INSURANCE FUND

- Employer PRSI
- Employee PRSI
- Subvention from Exchequer

Social Insurance Fund
STATE PENSION - INTER-GENERATION SUPPORT?
STATE PENSION

Present value of future shortfalls expected to build up in the Social Insurance Fund between 2011 and 2066

Source: Actuarial Review of the Social Insurance Fund 2010
STATE PENSION – STRIKING THE RIGHT BALANCE?

If unchanged, increased longevity and an ageing workforce will result in large deficits or increased subvention.

By 2050 there won’t be enough people working to support the State Pension.
Need for Pension Planning

<table>
<thead>
<tr>
<th>Current income</th>
<th>€40,000</th>
<th>€60,000</th>
<th>€80,000</th>
</tr>
</thead>
<tbody>
<tr>
<td>Percentage drop in income</td>
<td>70%</td>
<td>80%</td>
<td>85%</td>
</tr>
<tr>
<td>Drop in income if single</td>
<td>43%</td>
<td>62%</td>
<td>72%</td>
</tr>
<tr>
<td>Drop in income if you have a dependant spouse</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Source: Irish Life Guide to Pensions
Defined Benefit (DB)

• Set level of pension and/or lump sum at retirement
• The level of benefits depends on your service in the scheme and salary at retirement
• Private sector:
  – pension of 1/60th of salary for every year of service to a maximum of 40/60ths.
• Public sector schemes:
  – lump sums of 3/80ths of salary
  – pension of 1/80th of salary for every year of service maximum of 40 years service
### Defined Benefit Schemes - Lots of Moving Parts

<table>
<thead>
<tr>
<th>Future of State Pension</th>
<th>Increasing Longevity</th>
<th>Pension Levy</th>
<th>Auto-enrolment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Standard Fund Threshold</td>
<td>Sovereign Annuities</td>
<td>Conflicts of Interest</td>
<td>Falling AAA bonds yields</td>
</tr>
<tr>
<td>Regulatory Environment</td>
<td>Increasing Governance</td>
<td>Litigation</td>
<td>Conflicts of interest</td>
</tr>
<tr>
<td>European Legislation</td>
<td>Falling AA corporate bonds</td>
<td>De-risking investment strategy</td>
<td>Priority Order</td>
</tr>
</tbody>
</table>
DEFINED BENEFIT PENSION SCHEMES

Many high profile Companies have had to review their Defined Benefit Schemes

- 49% of schemes met the statutory Funding Standard as at end of April 2014. Most of the remainder having plans in place to address deficits
- 56 schemes had still not submitted recovery plans by end of April 2014
- 35 Proposals to Reduce Benefits
  - 28 accepted, 1 withdrawn and 6 pending review
**Defined Contribution (DC)**

- Employee contribution and the contribution paid by your employer are usually fixed % salary
- Contributions invested in a fund
- No guarantees
- Benefits at retirement will depend on a number of different factors:
  - contribution levels
  - fund performance
  - plan charges
  - Annuity rates available when you retire

- Adequacy of pension benefit?
TYPICAL DEFINED CONTRIBUTION PENSION

- 5% employer & 5% employee contribution
- 30 year old earning €40k p.a. retiring at age 65, contributing 10% salary

<table>
<thead>
<tr>
<th></th>
<th>Value in today's terms</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cash Fund</td>
<td>€535k</td>
</tr>
<tr>
<td>Pension</td>
<td>€21,026</td>
</tr>
<tr>
<td>State Pension</td>
<td>€7,472 + €11,976 State Pension</td>
</tr>
</tbody>
</table>

- Assumes:
  - 5.4% investment growth & 1.25% management fee & 96% allocation
  - Contributions increasing by 3% p.a. & pension escalating by 2% p.a.
  - Annuity rate of 3.93%

Targeting 2/3 of salary at age 65

Assumes:
- Inclusive of State Pension of €230.30 per week
- Investment growth of 5.25%
- Inflation of 3%
- Assumes retirement age of 66

Source: Irish Life Guide to Pensions
Popularity of Schemes

• **Growth of DC**
  – Currently ratio of 2:1 in DB
  – Down from 4.5:1 in 1996*

• **Hybrid Schemes increasingly popular**
  – Combines characteristics of both DB & DC
  – Investment risk shared between employee & employer

*Green Paper on Pensions 2012
ANY QUESTIONS?
Society of Actuaries in Ireland

Career Advice

24/03/2015
UNIQUE

AWARE

SUITABILITY
New UNIQUE
IT Question U Control
UNIQUE Exams
SUITABILITY

GI
- Analytical
- Problem solving
- IT
- Life?

Pricing
- Commercial
- Creative

Reporting & Reserving
- Formulaic
- Attention to detail
- Organised

Flexible
- Multi-task
- Communication

Consultancy
AWARE

Who wants to be an Actuary??

“the people who are crazy enough to think they can change the world are the ones who do.”

Steve Jobs