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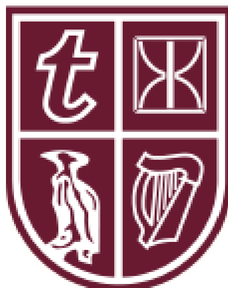

Current Topics 2009

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1 Foreword

This paper presents the "hot topics" from each of the four main practice areas of life, investments, pensions and general insurance. This is the fourth such paper produced by the Society of Actuaries – the most recent was presented in 2007.

As before, the aims of this "hot topic" papers are two-fold:

- To provide a summary of the issues affecting actuaries in Ireland in 2010;
- To provide newly qualified actuaries with the opportunity to participate in the Society of Actuaries in Ireland.

The recently qualified actuaries contributing to this year's paper are:

- Fiona O'Mahony, Stuart Redmond (Investments)
- Naomi Cooney, Niamh Crowley (Life)
- Conor Gaffney (General)
- Kevin Begley, Emma Townley (Pensions)

The editor for this paper was Mary Hall. A huge amount of work has gone into preparing this paper and I would like to thank everybody involved, including Mary Hall, for their time and effort. I would encourage you to read this paper and reflect on the wide range of issues facing actuaries. This paper provides an excellent record of the main issues facing actuaries in 2010 - both as an overview for current actuaries and a resource for actuaries of the future seeking to understand our times.

We have drawn material widely for this paper, and have listed the major sources in the Appendix. Any opinions expressed are those of the authors and not necessarily those of the Society of Actuaries in Ireland, the authors' employees or colleagues. We have checked source materials where possible, but any errors remain our own.

Maria Quinlan

Chairman, Education Committee of the Society of Actuaries in Ireland

17 February 2010

2 Investment

Pension schemes, insurance companies and investment managers all have assets that must be invested in an appropriate manner, with due regard for relevant legislation and the specific requirements of the investor. Investment markets therefore impact on the work of all actuaries to some degree. The turmoil of recent years in investment markets has only emphasised this.

In this section we look at a number of topical investment issues that impact on pension schemes, insurance companies and also retail consumers. It is no surprise that the concept of managing investment risk is a consistent theme through this section.

The following topics are covered in this section:

- Market update
- Impact of Financial Crisis on Investment Trends
- Consumers and Investment Risk
- Providing Investment Guidelines
- Impact of Section 50 on Pension Scheme Investment

Appendices B and C also provide further discussion on the trends for investment in alternative asset classes and life styling strategies for DC Schemes.

2.1 Market Update

2.1.1 Equity Markets

2008 was a year that will stay long in the memory of all investors. Almost every week brought a new crisis to the front pages of the world's financial media. Organisations that would never have been expected to fail were bailed out by national governments. Most developed economies entered recession, with the Eurozone entering recession for the first time in its history. Emerging economies slowed rapidly. In response to the threat of deflation and a deep recession, central banks slashed interest rates and fiscal boosts were launched by most major governments.

The first half of 2008 was a volatile time for equity investors. All markets fell sharply in Euro terms. The ISEQ was down 23.3% to end June 2008 and was the worst performing market in Euro terms. The best performing market over the first six months of 2008 was the FTSE Japan which was down 11.9% over the period.

Over the second part of the year, investors witnessed further dramatic declines in equity markets which left the FTSE World Index down -37.8% for the year to end December 2008. In Q4 2008, the ISEQ continued to take a large hit suffering a loss of 14.5% for the month of October alone. This brought the losses for 2008 year for the Irish stock exchange to a staggering -65%.

2009 began like 2008 ended, with global markets mirroring the gloomy and pessimistic economic outlook of 2008. During the first two months of 2009, market volatility persisted and all of the main equity markets remained in negative territory. Investor optimism was in short supply.

There was a negative reaction to President Obama's fiscal stimulus package in the US with the Dow Jones slipping to a six year low. Global equities were down 9.1% in Euro terms during the month of February with the FTSE Eurobloc down 10.9% for the month. The ISEQ slipped a further 10.3% amid a bleak chapter in the history of the Irish banking industry.

March 2009 saw equity markets recover slightly, especially in the second part of the month. There was a substantial rally in equity markets as investors responded positively to actions by the US authorities to deal with the issue of 'toxic assets' in the financial system, as well as to comments from some central bankers that the global economy may begin to improve in 2010. All of the main equity markets gave positive returns in March 2009.

In Q2 2009, the co-ordinated efforts of world governments to save the global economy appeared to be taking hold; at the same time investors were rediscovering an appetite for risky assets. The threat of meltdown in the global banking system receded.

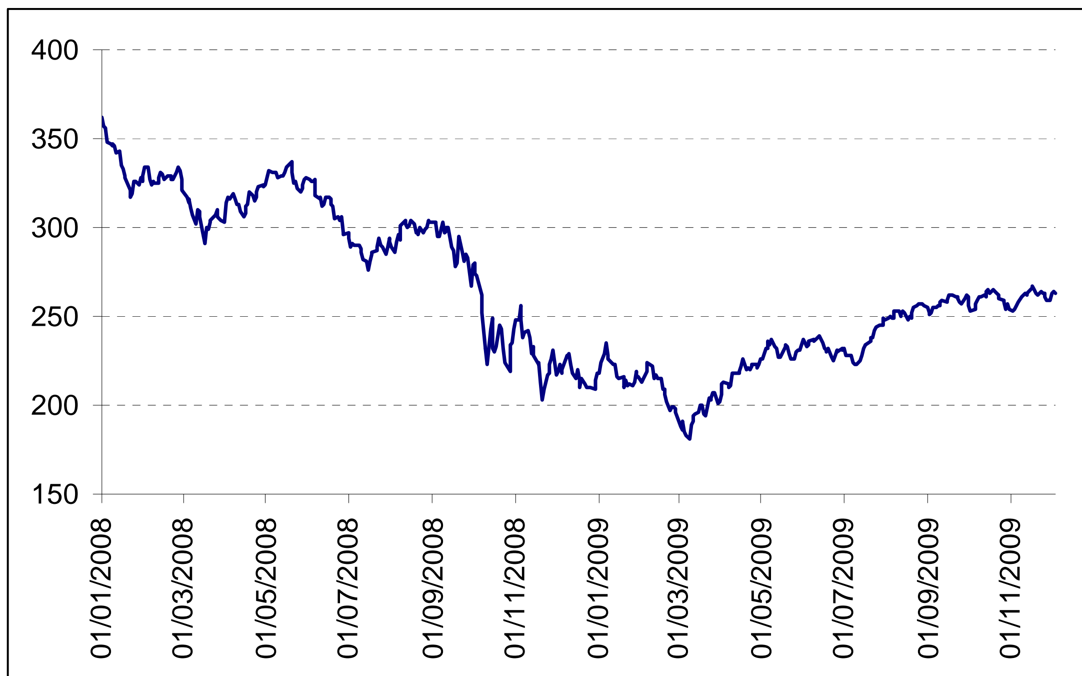
In April 2009, equity markets recorded gains for the second month in a row, with the FTSE World Index returning +12% in Euro terms. Also, emerging markets were given a boost by investors increased risk tolerance with the MSCI Emerging markets index returning +17% for the month.

In May 2009, global and European stocks rallied over 25% from the low levels experienced earlier in the year. Equity markets were boosted in part by the decisive action taken on interest rates and stimulus packages by governments and central banks.

The equity market surge eased off a little in June 2009. Nevertheless, Q2 2009 was one of the strongest quarters in the previous 18 months with global equity markets rallying over 15.6%.

Equity market returns were again positive in Q3 2009, boosted by improving economic data and strong performance from the financial sector. With investor risk aversion continuing to fall, there was a strong appetite for equities, pushing the FTSE World to return 22.3% for year-to-date.

October 2009 was the first negative month for equity markets since the rally began in March 2009. Investor confidence in the global economy fell when economic data released in October for Europe and the US was weaker than expected. Most equity regions were negative for the month, with the FTSE World down 2%. The ISEQ fell 14.3%.



2.1.2 Bond Markets

With dramatic declines in equity and property markets during 2008, bond markets benefited from their 'safe haven' status and investors flight to safety. They returned +10.5% for the year (Merrill Lynch EMU Government Bond >10 yr index).

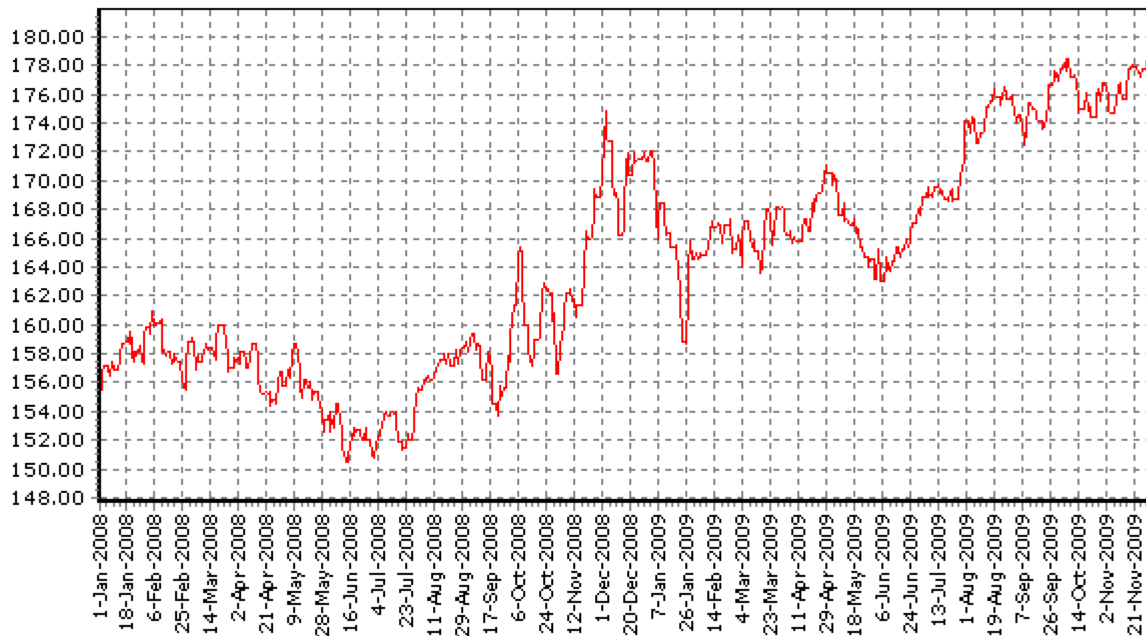
Government bonds struggled in January 2009 with rising bond yields offering some welcome relief for pension liabilities, but leaving the Merrill Lynch over 10 Year Bond Index with a return of -4.0%.

Nominal bond markets were one of the only positive sectors during the month of February 2009. The Merrill Lynch EMU Government >5 year Index returned +0.9% for the month while the Merrill Lynch EMU Government >10 year index returned +0.4%. March and April 2009 also saw positive returns from bond markets as the 'quantitative easing' policies in the US and the UK added to demand for government bonds (this policy involved central banks buying such bonds).

In May 2009, bond yields moved higher, as markets saw a possibility of inflation returning to the main economies over the next few years. This gave negative returns in bond funds. However, bond returns reverted to more positive territory in June.

Bond markets were positive in Q3 2009 with the Merrill Lynch 5+ EMU Government Bond Index up 4.1% and the Merrill Lynch 10+ EMU Government Bond Index up 5.7%.

Euro Government > 10 year Bond Index
1 January 2008 to 3 December 2009



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2.1.3 Property Market

Property markets were very weak during 2008 with the average pooled Irish property fund returning -38.7%. For 2009, the downward trend continued, with the average pooled Irish property fund returning -18.6% for the year to end October 2009.

Many institutional investors are now shifting focus to the European market, in a bid to diversify overseas. However, redemptions from Irish property funds have been hindered by illiquidity of the underlying investments. Also, many investors who still have holdings in Irish property funds are understandably worried that if they try to sell these investments, they may end up selling at the very bottom of the market. While they understand the diversification benefits of using, for example, European property funds, they are concerned that lack of liquidity in the Irish market means they will end up selling at a depressed point.

SUMMARY

- 2008 was an unprecedented year for global equity markets with collapsing stock markets around the world, failing banks and financial institutions and government bail outs of national banking systems.
- Global equity markets started to rise in 2009 and the threat of financial meltdown receded but markets still remain extremely volatile.
- In contrast bond markets rose in 2008 and 2009 as investors sought more stable investments relative to the volatile equity markets and on the expectation of future inflation.
- The Irish property market fell significantly in 2008 and 2009 with many institutional investors now seeking better returns in the European market.

2.2 Impact of Credit Crisis on Investment Trends

The credit crisis has focused attention on the need to manage risk both at the individual asset level and the institutional level when making investment decisions. The focus of this section is on topical risk management issues for both insurance companies and pension schemes and will cover:

- Credit risk for insurers and pension schemes.
- De risking of pension schemes.

It should be appreciated that risk management is common to all institutional investors and that many of the issues discussed below would be relevant to other types of investor and organizations. However this section will focus on the different issues from the point of view of pension schemes and insurers.

2.2.1 Credit Risk for Insurers and Pension Schemes

Insurers and pension schemes frequently enter into contracts with other parties in order to more closely match their assets and liabilities and hence reduce risk. These transactions do however introduce a new risk that must itself be managed – credit risk.

The UK FSA defines credit risk as arising whenever a company is 'exposed to loss if a counterparty fails to perform its contractual obligations including failing to perform them in a timely manner'. The principle sources of counterparty risk in an actuarial context include the bond investments of insurers and pension schemes, the counterparty risk on over the counter (OTC) derivative contracts (e.g. on a longevity swap entered into with an investment bank) and reinsurer default.

The very real nature of these risks has been highlighted by the near failure of Bear Stearns and AIG and of course the bankruptcy of Lehman Brothers on September 15 2008 with debts of $613 billion. In entering into any transaction regardless of the counterparty it is important to assess the extent to which credit risk exists and put in place risk controls to mitigate it.

Bond and Derivative Credit Risk

The risks associated with bond investments and over the counter (OTC) derivatives are similar in that both transactions involve the purchase of financial assets the returns on which are dependent on the continued credit worthiness of a third party.

An assessment of the credit risk of the counterparty should form an integral part of any investment decision-making process. The traditional tool for assessing creditworthiness has been the reports published by rating agencies (Standard & Poor's, Moodys, A.M. Best etc). While these are a useful starting point given that few insurers have the resources to conduct in-depth reviews of the balance sheets of everyone they do business

with, ‘independent’ ratings should not be the sole measure relied upon. These ratings are typically based on historic default rates, which the credit crunch has proved to be a poor indicator of actual default experience. In addition, all assets with the same credit rating are not created equal. For example a vanilla bond and structured product may have the same rating but very different mark-to-market movements. Solvency II attempts to address this by imposing greater capital requirements on structured products in recognition of their higher expected volatility in market values.

Other publicly available information that can be used to supplement rating agency analysis includes credit default swap[1] spreads (if the counterparty is an issuer with credit default swaps written on their securities). For a more general indication of market sentiment the CDR Counterparty Risk Index can be used. This is designed to track the credit risk of those investment banks that are the principle counterparties traded in the credit default swap market.

Another measure which came to prominence during the credit crisis was the LIBOR-OIS spread[2] which provides a measure of the perceived credit risk in the interbank market and by extension the credit worthiness of banks. It is calculated by comparing the LIBOR (London Interbank Offer Rate), the rate at which banks borrow unsecured funds from each other in the London market with the overnight indexed swap rate which is considered less risky. For example, in the US, OIS rates are determined by the federal funds rate.

Up until mid 2007 the long-term LIBOR-OIS spread was about 10 basis points. Following the Northern Rock crisis in September 2007 the spread rose to 84 basis points and after the failure of Lehman Brothers it was 365 basis points. It has since returned to levels close to the long-term average.

The need to look beyond credit ratings was highlighted in the UK FSA’s review of structured products[2] which stated that firms would be expected to also consider ratings outlook, CDS spreads and the ‘fundamentals’ on the issuers balance sheet. In addition an analysis should be conducted on whether the terms offered by a particular counterparty are more ‘aggressive’ than others.

Having identified the extent to which any transaction introduces credit risk control measures must be put in place to mitigate that risk. These can include:

- Limits on the credit ratings of counterparties
- Collateral arrangements
- Limiting derivative trades to those through a clearing house where possible
- Using credit derivatives (e.g. credit default swaps, total rate of return swaps) to protect against default.
- Limits on the total exposure to any one counterparty.

Collateral arrangements in particular have become more important in the post Lehman world and are now frequently offered in support of long-term contracts. The quality of collateral to be posted is a key concern with more collateral required if the securities

posted are not of a sufficiently high rating. However, even if a transaction is properly collateralised some risk remains. In particular, the bankruptcy of the counterparty can pose challenges in liquidating the value of the collateral posted. For example, the rehypothecation of collateral can lead to competing claims for the same assets.

Collateral arrangements can also indirectly contribute to the financial distress of a company. For example, a rating downgrade may require a company to post collateral which worsens its funding position thus leading to further downgrades and another round of collateral calls. This path dependency together with the increased volatility of asset values in a crisis can create a viscous circle.

Reinsurer Credit Risk

Reinsurance plays a crucial role in managing the risks of most insurance companies. It allows insurers to diversify risk, reduce the variability of claims experience and can also help in capital management and pricing. Given it's importance, it is essential to consider what would happen if one of your reinsurers was unable or unwilling to fulfil its obligations, in particular to pay claims in a timely manner.

A particular problem in managing the risk of reinsurer default is the lack of diversification. While it is possible to spread you exposure among several reinsurers all reinsurers are exposed to similar risk factors. For example, trends in mortality and longevity will be consistent across all reinsurers in a given market; a pandemic or other shock will also affect everyone to some extent and in the case of non-life reinsurers a natural disaster will impact many market participants. All reinsurers also invest in the same investment markets and operate under the same regulatory constraints. So while diversification certainly has some benefits it cannot provide complete protection. While all reinsurers may not necessarily fail, the high degree of correlation means that where one reinsurer defaults the other market participants may be unwilling or unable to take on the risks in question forcing the ceding company to retain them in full.

It should also be noted that the correlations described above apply equally between reinsurers and the ceding insurer so it is likely that your reinsurer will experience problems just when you need them the most. This makes it particularly important to include an explicit credit risk assessment when choosing a reinsurance partner and to monitor the credit worthiness of your reinsurers on an ongoing basis.

In April 2008 the Financial Regulator issued guidelines[3] which recommend the following criteria be considered when assessing the financial security of reinsurers (comments are the authors own):

- The size of the reinsurer – in general smaller reinsurers are more likely to be threatened by insolvency, especially if they only write business across a narrow geographic range class of business.
- The rating of reinsurers from independent rating agencies – however these are subject to the same limitations discussed in the preceding section

- The nature of the business to be reinsured – for example where the business is long term in nature or involves a significant degree of asset accumulation on the part of the reinsurer then security will be off greater concern.
- Continuity of relationships with existing reinsurers – in particular, where existing reinsurers have accommodated the ceding office during periods where the availability of reinsurance coverage was limited.
- Limit the amount of exposure by the size of the reinsurers shareholder surplus – the extent of the shareholder surplus will determine the amount of risk the reinsurer is able to retain on its own book and thus its reliance of retrocessionaires. If a reinsurer uses a large amount of retrocessionaires then their financial security is equally important and should be assessed using the same criteria as the initial reinsurer. It should also be remembered that extensive use of retrocessionaires may lead to delays in claim payment.
- Limit they amount you cede to any one reinsurer on the basis of your own shareholder surplus - the amount of exposure to any one reinsurer should not be greater than the amount that the insurer is willing to retain on any one primary risk or catastrophe.

To minimise credit risk the following can be included in reinsurance treaties:

- A right of offset clause – where the reinsurer is in default on payments due to the ceding insurer, the insurer can reduce any payment that they may owe to the reinsurer. Of course, the pattern of cashflows on a reinsurance treaty may mean this is of limited use given the full scale insolvency of the reinsurer.
- Posting of collateral – again this is subject to the problem of path dependency. It is certainly prudent to enquire of any potential reinsurer if they have existing treaties that would require the posting of collateral and in what circumstances.

Finally it is a regulatory requirement that all insurers 'follow a systematic program for monitoring changes in the ratings, surplus, assets, reserves, premium volume, ownership, and management, for monitoring news reports, the timeliness of claim payments, and other information from miscellaneous sources'. This should help to inform the insurer of any potential problems and allow them to take corrective action before the situation deteriorates further.

Credit Default Swap – an OTC credit derivative in which the protection buyer agrees to pay a periodic or upfront fee (the "premium") in exchange for a payment by the protection seller in the case of a credit event (bankruptcy, rating downgrade) affecting a reference asset / entity. The premium is therefore an indication of the perceived risk of the reference asset/entity.

Rehypothecation – essentially this involves the re-use of already pledged collateral. Typically a brokerage firm may use securities in customers' margin accounts as security for a bank loan.

2.2.2 Phased De-Risking for Pension Schemes

The negative asset performance experienced during the recent credit crisis has impacted significantly on the financial health of virtually all pension schemes. In addition, the majority of defined benefit pension schemes are now closed to new entrants, while an increasing number of schemes are also closing to future accrual. Consequently, there is a general acceptance among pension scheme trustees and sponsors of the need to reduce the investment risk inherent in their current investment strategies. Some trustees and sponsors are looking towards the "end game" for their schemes: the investment strategy they would aim to have in place before their scheme reaches maturity or prior to winding up the scheme and securing members' benefits.

These considerations are leading Trustees and sponsors to increasingly look for ways to "de-risk" their pension schemes. Phased de-risking is an investment strategy employed to help schemes reduce investment risk over a period of time in an effective manner. It involves switching the asset allocation of a scheme from more risky assets (equities, property) to assets which more closely match the schemes liabilities (e.g. long dated bonds, bonds of appropriate nature and maturity, etc) over a specified time horizon. The aim of phased de-risking is to implement an agreed alternative, and usually less risky, investment strategy over time, rather than considering a complete change in strategy immediately.

Process

Phased de-risking involves adopting a disciplined, rules-based approach to moving a scheme's asset allocation to less risky assets. The initial steps involved in designing a suitable de-risking strategy for a scheme are:

- Determining the investment risk tolerances of the trustees and the sponsor
- Deciding on the time horizon over which de-risking will take place
- Agreeing the target de-risked investment strategy

A de-risking framework will then be developed for the scheme, which will allow for the level of investment risk the trustees and sponsor are willing to take in the short run. The framework will detail the points or triggers at which asset class switches will occur. At one of these points or triggers, a pre-specified portion of the scheme's assets will be moved from risky assets to assets that more closely match liabilities.

Finally, a monitoring and implementation process will need to be decided on – incorporating elements such as the frequency of monitoring the scheme's funding level, the valuation method to be used to measure the scheme's liabilities, and the structures to be put in place to implement any asset switches.

Triggers

There are various types of triggers that a scheme may use to determine exactly when a de-risk will occur. One approach is to have a structure whereby a scheme can opportunistically de-risk to take advantage of favourable market conditions. This is typically done by setting de-risking trigger points with reference to the funding level of the scheme. In its simplest form, this could involve moving a specified portion of risky

assets to assets that more closely match liabilities when the scheme's actual funding level exceeds a specified level.

Triggers other than those based on funding level are also used. Time-based triggers are a simple alternative, where a de-risk is implemented at a pre-specified point in time e.g. once a quarter, in line with performance reports, etc. Triggers could also be based on changes in bond yields. Ultimately, the objectives of the trustees and the sponsors will determine the phased de-risking approach that will be employed.

Advantages

Employing a phased de-risking strategy has a number of potential advantages for pension schemes:

- The scheme's funding level, and, correspondingly the sponsoring employer's balance sheet will be less volatile
- The trustees and sponsor are less reliant on investment performance, as assets will be better matched to liabilities
- A rules-based phased de-risking strategy creates a more objective de-risking framework and should eliminate much of the subjectiveness in de-risking decisions
- The Pensions Board may look more favourably on extended Funding Proposal applications where the scheme has incorporated a phased de-risking strategy

Sample Approach to Phased De-risking:
De-risk over 10 years with time-based triggers set so that scheme de-risks the strategic allocation every 2 years

Strategic Asset Allocation:	**Current (2010)**	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**	**2017**	**2018**	**2019**
Allocation to Risky Assets (e.g. equities, property)	70%	**60%**	60%	**50%**	50%	**40%**	40%	**30%**	30%	**20%**
Allocation to Long-dated bonds	30%	**40%**	40%	**50%**	50%	**60%**	60%	**70%**	70%	**80%**
Total Allocation	100%	**100%**	100%	**100%**	100%	**100%**	100%	**100%**	100%	**100%**

SUMMARY

- The failure and near failure of large, previously well-respected financial institutions in 2008/2009 has highlighted the importance of assessing the credit risk of counterparties in financial transactions.
- Given the importance of reinsurance to financial organisations the credit risk associated with reinsurers is particularly important.
- The financial crisis has severely impacted on the funding position of many DB pension schemes and has contributed to the increased use of de-risking investment strategies for pension schemes.

2.3 Consumers and Investment Risk

2.3.1 Consumer Understanding of Investment Risk

The substantial falls in the value of many equity based investment products over the last two years have brought into sharp focus the question of whether the consumers of these products truly understand the degree of volatility to which their returns are exposed to.

We as actuaries provide consumers with a significant amount of investment information (fund descriptions, projected values etc) but is this the right kind of information and does it allow the average customer to make an informed decision about the kind of product they are purchasing?

2.3.2 Decision Making and Risk

Before looking at the information needs of customers it is important to understand the basis on which consumers assess risk and make investment decisions. Considerable research has been conducted in this area by both the Society of Actuaries in Ireland and UK Actuarial Profession.

The Society funded research[1] to investigate consumers attitude to investing and their investment knowledge and experience. The findings were that overall investment awareness and experience were low. The majority of those surveyed relied upon financial advisors of one sort or another for advice. One particularly interesting finding was that 39% of respondents were 'equally concerned with risk and return' with 28% most concerned with risk and 20% with return.

Research[2] conducted by the Financial Consumer Interest Group (formerly the Financial Consumer Support Committee) of the UK Actuarial Profession identified a number of interesting features of consumer behaviour by focussing on its underlying psychological drivers.

Consumer education has long been seen as important in improving understanding however research suggests that because most consumer financial decisions are made very infrequently (taking out a mortgage, purchasing a pension plan may only happen two or three times in a persons life) most consumers do not develop the necessary experience to improve decision making. In addition, learning acquired from one financial decision does not transfer easily to another. Tversky and Kahneman, two American psychologists who did pioneering work in this area developed the theory[3] that 'people rely on a limited number of heuristic (i.e. experience based) principles which reduce the complex tasks of assessing probabilities and predicting values to simpler judgemental operations'.

The application of these heuristic principles depends greatly on the way in which information is presented to the customer. In particular, context and language are very important and where possible information should be presented in a familiar context and

using 'plain' English. This may explain why many consumers find the lengthy Customer Information Notices they receive when they purchase a product rather hard to digest.

People tend to be more sensitive to decreases in their wealth than to increases, typically by a factor of two to one, e.g. the utility of gaining €100 is half that of the negative utility from losing €100. Evidence also suggests that individuals will tend to select more risky options when a long-term time horizon is imposed externally. This raises an interesting question about fund choice under long term pensions products, does the long term horizon encourage investors to take higher risks then they rationally would?

People overvalue small probabilities, so if a decision is framed in such a way as to indicate a small probability of incurring losses, then these small probabilities will loom larger, and will also be additionally magnified by the loss aversion effect described above.

Consumers tend to allocate their funds evenly across the investment funds available without regard to the number of funds or the degree of risk they entail. For example, if a retirement plan offered one equity fund and one bond fund, the typical allocation would by 50% of the funds in each. If a second equity fund were added, the allocation to equities would increase to 66%. So by altering the range of options available and the way in which they are presented it may be possible to influence the proportion placed in risky investments.

All in all, there is clear mismatch between a consumer's understanding of risk, his underlying attitude to risk and the financial decisions that are made. The question must then be asked is there more that the financial services industry and the actuarial profession in particular could do to foster greater awareness and understanding of these important issues

2.3.3 Quantifying Investment Risk

In terms of consumer information, we typically provide projected values based on an assumed investment return of 6% a year with the caveat that this rate is not guaranteed and 'your actual investment growth could be more or less than illustrated'. More than anything else, these illustrations serve to illustrate the charging structure of the product and to facilitate the comparison of competing products rather than providing any real indication of the investment risk being taken on. The outcome from any investment is not certain but statutory disclosure currently does little to illustrate to consumers the degree of variation.

Over the last several years the Society has been active in seeking ways to improve the information that is provided and a number of excellent papers have been presented to the Society. Kevin Murphy's paper[4] stressed the need for actuaries to gain 'a deep insight into the outcomes that are possible from the various products which we are involved in with out clients' and suggested the formulation of investment tables to aid that understanding. Building on this John Caslin and Damian Fadden[5] used 'bootstrap'

techniques to illustrate how the risk of different investment funds could be illustrated to consumers. For example, how does this increased risk translate into a probability of how much an investor may gain or lose over a given time horizon.

It is important that this work continues and the focus should be not only on providing an estimate of what the investment will be worth at the end of the term but also how this could vary. Only by doing this can we live up to our core value of 'making financial sense of the future'.

SUMMARY

- ❖ Recent research indicates a clear mismatch between consumer understanding of risk, attitude to risk and the financial decisions that consumers make.
- ❖ Actuaries must develop better ways of communicating investment risk and return to individuals.
- ❖ Consumers of financial products must be made aware of both the expected return on their product and the variability of that return.

2.4 Providing Investment Guarantees

The provision of investment and market related guarantees have been an important part of many life company's activities for more than 20 years. Initially, these guarantees were frequently implicit such as those found in with profits products or guaranteed annuity options. In the case of a guaranteed annuity option (GAO) the customer is offered a guaranteed annuity rate but from the point of view of the insurance company or pension provider this can be viewed as an interest rate guarantee with some longevity risk added in.

In recent years the trend has been towards explicit investment related guarantees initially through tracker or CPPI style products and more recently the advent of variable annuities. Variable annuities were mentioned in the 2007 Current Topics Paper as a product development trend to watch. Put simply variable annuities are unit-linked investment policies with guarantees. The guarantees can take a number of forms for example, a guaranteed minimum accumulation benefit after a number of years or a guaranteed amount of income payable each year. It is common for a single product to offer a number of different guarantees.

In an Irish context the most widespread guarantees offered are those found in structured products such as tracker bonds, where typically a customer will be guaranteed the return of their initial investment after a set period with the possibility of gains if a particular investment index or basket of equities performs well. Sales of tracker bonds in Ireland in 2008 amounted to €324 million[1]. While variable annuities have not yet been marketed domestically in Ireland they are also of interest in an Irish context given the large number of international insurers who have set up offices in Dublin to sell variable annuity business on a cross-border basis into the UK and mainland Europe. The continued proliferation of variable annuities throughout Europe, despite the adverse market conditions means that it is only a matter of time before these products appear in the Irish market.

The impact of the 'credit crunch' and the associated market turmoil of the past two years have highlighted the importance of investment downside protection for consumers. However, recent events have also served to illustrate the dangers posed by offering investment guarantees and variable annuities in particular for the unwary insurer. It is important for all actuaries to be aware of these risks and have an understanding of how they are managed given the likelihood investment related guarantees will become an increasingly important part of the competitive landscape in the future.

2.4.1 Managing the Risk of Providing Investment Guarantees

In essence when offering any form of investment guarantee an insurer has two options in terms of how to manage the associated investment risks:

- Pass the risk to a third party (usually a reinsurer or investment bank) for a price

- Retain the risk themselves and actively manage it; typically through a static or dynamic hedging programme

It is of course possible to simply retain the risk unhedged on your balance sheet but the degree of risk this approach introduces will usually be unacceptable. It is worth pointing out however, that 10%-15% of US based variable annuity provides did not hedge the risks associated with their variable annuity guarantees according to a 2006 Moody's survey[2]. In particular, many companies choose not to hedge the guaranteed minimum death benefits found in their contracts. Many of these guarantees are now deeply in the money and a number of companies have been forced to put in place expensive retrospective hedging arrangements. The appetite of both shareholders and regulators for such unhedged risks has understandably reduced in recent years and it is likely all variable annuity market participants will use a significant degree of hedging in the future.

The risk management approach adopted will depend to a great extent on the complexity and magnitude of the risks being taken on. For example, it is relatively straightforward to hedge the market risks of an index tracker bond by purchasing a government or corporate bond to provide the required level of capital protection and a call option on the relevant index to deliver the upside potential. In essence this approach passes off most of the investment risk to the writers of the bond and option with the insurer principally being left with the risk that one of these counterparties defaults. It may be possible to pass this credit risk to the end customer. It is a considerably more complex proposition to hedge the risk of offering a lifetime minimum withdrawal benefit such as those frequently seen under variable annuity products. It is worth pointing out that investment risk is but one of many associated with variable annuity contracts. Operational, mortality / longevity and behavioural risks must also be adequately managed. In many cases it will be impractical and costly to pass all of these risks to a third party and some element of them will have to be retained.

Regardless of whether an insurer chooses to hedge the risk themselves or pass it to a third party the dramatic events of the past two years have made it increasingly difficult to construct investment guarantees that are attractive to consumers while maintaining an adequate level of profitability for providers. Those wishing to provide investment guarantees are faced with the unenviable proposition of being unable to supply them at precisely the time when the customer proposition is at its most compelling.

2.4.2 Passing the Risk to a Third Party

Setting up and managing a complex hedging programme is clearly a time consuming and expensive task and for many may not be the best use of scarce capital. To meet customer demand for investment guarantees it may be most efficient to pass the associated risks to a third party typically an investment bank or reinsurance company.

In any risk transfer arrangement it is important to be clear on exactly which risks are being transferred and which are being retained. For example, the insurer will typically

retain 'actuarial' risks such as mortality and policyholder behavioural risks while ceding the investment risks.

A principal concern with any risk transfer agreement is the security of the counterparty. Especially where in the event of a default the insurer will need to step in to make good on any guarantees. Counterparty risk can of course be managed through collateral arrangements etc.

Advantages of Passing Off the Risk

- Can take advantage of economies of scale of larger players
- Access to the expertise of dedicated professionals

Disadvantages of Passing Off the Risk

- Cost – the reinsurer or investment bank will charge a premium for accepting the risk
- Availability – the availability of reinsurance may be restricted precisely when it is required. For example during the financial crisis a number of reinsurers (notably Swiss Re) withdrew from the variable annuity market
- Lack of Flexibility – you may be restricted to constructing products using exchange traded derivatives or have to pay a premium for bespoke over the counter options.

2.4.3 Retaining the Risk

Clearly if an institution does not have the capital or expertise to take on the market risk of providing investment guarantees themselves they should seek to pass on the risk but in other circumstances it may be preferable to take on the risk yourself rather than reducing expected profits by paying someone else to take on the risk.

At their most basic level insurers are risk-taking institutions. They put up their capital to back a wide range of risks and through their expertise in managing and pricing those risks hope to earn a return on their investment. Most of the large US based variable annuity providers such as ManuLife, Prudential and The Hartford have chosen to retain the risks associated with their variable annuities on their own balance sheets and use sophisticated hedging programmes to manage those risks albeit with varying degrees of success.

The most common approach to hedging the investment guarantees inherent in variable annuities involves purchasing a basket of equity and interest rate derivatives that mimic the payoff of the guarantees. In order to maintain the effectiveness of the hedge the basket of derivatives will be regularly rebalanced to track the behaviour of the guarantees following movements in the value of the underlying assets or other parameters (interest rates, volatility). Of course this will also lead to increased transaction costs.

The strategies chosen by most companies in recent years involved hedging against 'delta risk' – the risk of equity price changes; and 'rho' – the risk of interest rate changes. Some companies have also hedged 'vega' which protects against movements in implied

volatility. The historically high levels of volatility experienced over the last two years mean that those companies that chose to hedge 'vega' have seen much lower hedge costs on existing business than those who only adopted a delta / rho hedging strategy.

It is important to bear in mind that managing the risk of offering investment guarantees is not simply a case of deciding which of 'the greeks' described above you wish to hedge and then conducting the necessary derivatives trades. Hedging of this kind reduces risk but it does not eliminate it. The effectiveness of a hedge is a measure of how the value of the hedge assets changes for a change in the value of the corresponding liability created by the guarantee. Even in relatively normal market conditions a hedge may only be 95% effective. In addition you must be very clear exactly what risks you are hedging and which are being retained. All of these issues must be adequately addressed in the context of an organisations overall ERM controls.

2.4.4 Tracking Error

Basis risk or tracking error is one of the principle factors that can reduce the effectiveness of a hedging programme. Up until quite recently many variable annuity providers offered investment guarantees as a rider benefit that could be added to a wide range of investment funds many of which were themselves actively managed. This wide choice of funds while clearly very attractive to the end customer posed significant risk to the insurer in that many of funds on offer were not perfectly hedgeable. For example, it is not generally possible to purchase a derivative based on the ABC Insurance Company's Managed Fund. Instead you must construct a hedge based around that fund's benchmark or some other proxy. This means that the performance of the hedge investments may not mirror that of the underlying fund. This can result in the fund value falling much further and faster than it is possible for the insurer to compensate for by dynamically adjusting the hedge. The problem of tracking error is compounded when markets exhibit periods of extreme volatility such as we have seen recently or where guarantees are offered on funds that are managed by an external third party where the insurer does not control the investment decisions.

2.4.5 The Financial Crisis and the Future

In many ways the events of 2008 and its aftermath represented a perfect storm for worldwide investment markets and provided an unprecedented examination of the hedging strategies of those who had underwritten investment guarantees.

In particular the large portfolios of the US variable annuity writers provide an ideal test case. During 2008, the S&P 500 fell by over 38% pushing many of their guarantees well into the money. While individual companies have reported significant losses as a result of their variable annuity portfolios the overall picture is relatively positive. Research conducted by Milliman consultants[3] which focused on the profits and losses of the major US variable annuity writers during September and October 2009 shows that their hedging programmes had been on average 93% successful in offsetting the market losses they

were designed to protect against. Milliman estimate that this saved the US insurance industry $40 billion dollars over these two months.

The key issue of course is that the hedges were 93% effective in offsetting the losses they were designed to protect against. Problems arose for some companies not because their hedging programmes failed to do their job but where the overall risk management structure did not identify all of the risks that should have been hedged. Increased appreciation of the wide range of risks to which guarantee writers are exposed, the increased focus on risk measurement and management by both shareholders and regulators and the lessons learned during the financial crises should leave insurers better placed to mitigate these risks in the future.

That is not to say that some companies did not face significant difficulties due to their involvement in the variable annuity market. For example, in May 2009 four years after launching the first variable annuity style product in the UK, the Hartford announcing that it would be withdrawing from the UK market as well as Japan and concentrating on just its home market in the US. The company incurred significant losses on its variable annuity book in 2008/09, in particular on guaranteed income benefits. For example, its 3W product sold in Japan which allowed policyholders to withdraw some of their money if the value of their policy declines by 20% or more. In a conference call to analysts last year, former Hartford CEO Ramani Ayer commented that 'the risk-reward ratio in the VA market just doesn't make any sense'.

While existing hedging programmes have largely performed, Mr Ayers comment illustrates the fact that many companies have faced significant issues in maintaining the profitability of their products. This applies equally to those who choose to hedge the risk themselves and those who choose to pass it to a third party as ultimately the cost of either approach is driven by the cost of the derivatives required to hedge the investment guarantees. These costs have increased significantly due to two effects of the credit crunch:

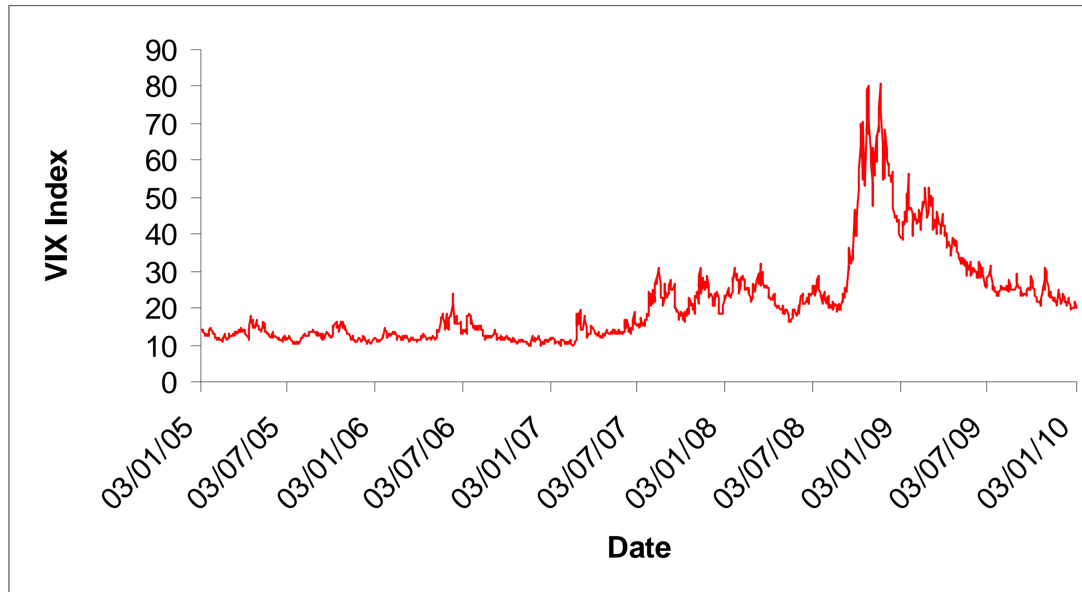
- A dramatic fall in interest rates
- Increases in long term implied volatilities

Since the nominal start of the credit crisis in mid 2007 the US Federal Funds Rate have fallen from 5.25% to 0.25%, a cut of 500 basis points in just 15 months. Similarly the ECB rate fell from 3.75% to 1% in less than a year. At its most simple any hedging programme around investment guarantees is likely to involve purchasing a put option. All things being equal, a fall in interest rates leads to an increase in the cost of put options.

The larger driver of increased derivative costs however has been the increases in the implied volatilities of the underlying assets on which the guarantees are written. A common measure of market volatility is the 'VIX' or more colloquially 'the fear index' published by the Chicago Board Options Exchange. This index measures the implied volatility of S&P 500 index options. A high value indicates high volatility and hence more expensive options. The VIX spiked to over 80 in late 2008 following the collapse of Lehman Bros and the large scale state capital injections around the word and while it has

since fallen to a little above it's long term average the possibility of future spikes has led to greater prudence in pricing guarantees.

CBOE VIX Jan 2005 – Jan 2010



Conclusion

The events of the past two years have shown clearly the value of investment guarantees and the customer proposition is compelling. For insurers the question is how to meet this need while not taking on an unnecessarily high level of risk. European insurers are ideally place to learn the lessons of the US experience in designing their own guaranteed products. For example, the more complex the guarantees offered the more difficult and costly they are hedge. We have already seen a move towards simpler guarantees on more easily hedgeable funds and it is likely that this trend will continue for the foreseeable future.

SUMMARY

- Recent market events have highlighted the conflict between providing investment guarantees that are attractive to consumers while maintaining an adequate level of profitability and risk control for financial institutions providing guarantees.
- Insurers may manage their investment guarantees either by passing it on to a 3rd party or by retaining the risk themselves and actively managing the risk through a hedging strategy.
- Recently there has been a move towards simpler guarantees on easily hedgeable funds.

2.5 Impact of Section 50 on Pensions Scheme Investments

The Minimum Funding Standard is a statutory valuation of a Defined Benefit (DB) scheme's assets and liabilities. Every three years, DB scheme trustees are required to test whether the assets of their scheme would have been sufficient at a specified date to meet the liabilities of the scheme if the scheme had wound up on that date. If the assets would not have been sufficient, a funding proposal must be submitted to the Pensions Board. The funding proposal is designed to ensure that the scheme will have enough assets to meet its liabilities at the end of the funding proposal period.

In 2008, almost 90% of Defined Benefit (DB) pension schemes in Ireland failed to meet the Minimum Funding Standard (MFS). The 2009 failure rate is expected to be at least this.

In July 2009, Brendan Kennedy, the chief executive of the Pensions Board, gave evidence to the Oireachtas' committee of public accounts on the Pensions Board's 2008 annual accounts which revealed the typical DB scheme lost between 30-40% of their value in the period between period late 2007 to March 2009. In answer to a question on whether these losses resulted from "bad or risky" investments by the schemes, Kennedy stated: "It is our view that the investment strategy of too many pension schemes was too risky…Irish pension schemes tend to have a considerably higher proportion of stocks and shares in property. Obviously, these were the areas that suffered most since late 2007. As a result, many schemes do not have enough to meet the funding standard". Kennedy admitted: "Unfortunately, there may be cases… where even existing benefits cannot be afforded and will have to be cut back." *(Source: IPE article: "Irish investment strategy 'too risky'" 6 July 2009)*

In order to allow schemes to examine the viability of the schemes, and to cut back benefits if necessary, the following amendments to the Pensions Act were introduced in 2009:

Section 50:

- Extends the category of benefits that can be reduced by Pensions Board direction to deferred benefits and post retirement benefits
- Reduction in benefits must be such that, in the opinion of the Actuary, the scheme will subsequently satisfy the funding proposal

Section 50A:

- Trustees of a scheme may in specified circumstances make such amendments to the scheme as they deem appropriate with the consent of the Pensions Board.

Brendan Kennedy gave a talk to the IIPM in October 2009 where he discussed the Pension's Board Section 50 process. The Pension's Board's perspective is that a Section 50 order represents a broken promise to DB scheme members and that any new promise (in the form of reduced benefits) should be much more robust. In approving benefit reductions, the Pensions Board wants to be satisfied that the chances of a further Section 50 application are small. The two key elements in this regard are **affordability** and **risk**.

On the Pensions Board's website, the Frequently Asked Questions section discusses some of the key aspects of the Section 50/50A legislation:

- The aspects to be considered by the Pensions Board in assessing whether the proposed future operation of the scheme is robust enough to make any further application unlikely include:

  - The proposed contribution rate
  - The ability of the scheme to withstand investment losses, given the proposed investment strategy
  - The proposed responses to short and long-term risks

- Trustees are required to set out the contribution rate calculated using a long-term Irish gilt yield basis and the most recent mortality projections of the Society of Actuaries in Ireland. In the Pensions Board's view, a proposed contribution rate that is less than this will be unlikely to support the robust operation of the scheme unless other factors are or will be in place. The Pensions Board considers that a suitable discount rate is either:

  - the long-term discount rate set out in part (A) of appendix 1 of the Actuarial Standard of Practice Pen-2 issued by the Society of Actuaries in Ireland (4.5% in version 5.6); or,
  - a rate no more than 0.5% (50 basis points) higher than this, where the scheme actuary is satisfied that such an adjustment is appropriate.

- The Pensions Board will assess the ability of the scheme to withstand an investment stress test immediately after the section 50 reduction, and continue to satisfy the funding standard. This stress test will comprise an immediate fall of equity values of 15% and a simultaneous reduction of interest rates (applied to both assets and liabilities) of ½%. The asset allocation used for these assessments will be based on the scheme's proposed investment strategy three years after the submission of the application rather than the current strategy, as it may take time for trustees to realign their investments.

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- The Pensions Board will expect trustees to demonstrate their intended approach to risk management. The main risks to the sustainability of defined benefit schemes include:

- Unmatched assets and liabilities
- Long-term poor investment returns
- Unanticipated increases in pensioner longevity
- The variability of experience when the number of pensioners is small
- The ability of the sponsoring employer to meet its contribution commitments

To some extent, these risks can be managed or minimised by matching assets as far as possible, discretion over some aspects of benefits, margins in contribution rates, and future increases in contributions, where this is consistent with the basis on which the Section 50 application has been made. The Pensions Board will expect trustees to demonstrate that they have considered any remaining risks and have agreed broadly what steps they will take in the event of the risks occurring.

It is clear from the above that the process that the Pensions Board will impose on schemes applying for a Section 50 order is intended to try to ensure that the scheme trustees have conducted a complete "ground-up" review of the scheme and that the Section 50 proposal is robust, and can withstand any reasonably foreseeable event.

If it is assumed that equity outperformance will be achieved, there will inevitably be a time when it has not been achieved and the promises based on it cannot be met. Therefore, the Pensions Board is of the opinion that it is better therefore for schemes to underpromise and overpay.

Investment risk management (or the lack of it) is believed to be the biggest single failure of Irish DB pension schemes. If a scheme take risks, it will have to consider what it will do if those risks occur. The Pensions Board's Section 50 process is intended to require scheme trustees to answer questions in relation to investment risk. The Pensions Board will ask trustees to identify the risks that the scheme faces. For each of these risks, it will want to know what the trustees' response will be if the risk comes to pass. Will they increase contributions, reduce benefits or take some other action? If the questions the Pensions Board asks about risk management are not answered satisfactorily, it will refuse a Section 50 application. If the scheme doesn't qualify for a Section 50, then serious consideration may have to be given to winding up the scheme.

SUMMARY

- ❖ Poor investment risk management is believed to be the biggest single failure of Irish DB pension schemes.
- ❖ The Pensions Board has set out certain requirements in relation to the investment strategy and risk management of pension schemes that wish to avail of the amendments to Section 50 and/or 50A of Pensions Act.

3 Common Issues in Life and General Insurance

The insurance sector is on the brink of some revolutionary changes that will be heralded in by the new Solvency II regime. Some of the major aims of Solvency II are the achievement of a more harmonised European insurance market and a better fundamental understanding and management of the risks involved. Irish insurers are currently preparing for the imminent implementation of Solvency II.

At the same time the Enterprise Risk Management concept is coming to prominence as it sets out the best way forward for risk management.

As these topics are common to both Life and General Insurers this section will give an overview of these common topics and where appropriate more specific information is given in the Life and General Insurance sections.

The topics covered in this section are as follows:

- Solvency II
- Enterprise Risk Management (ERM)

3.1 Solvency II

In the EU Insurance companies are required to demonstrate to regulatory authorities that they hold sufficient capital to meet their liabilities i.e. that they are solvent. Insurance companies currently report their solvency position under the EU directive known as Solvency I which has been effectively in force since the mid 1980's. Solvency I is due to be replaced by Solvency II by the end of 2012.

3.1.1 Solvency II

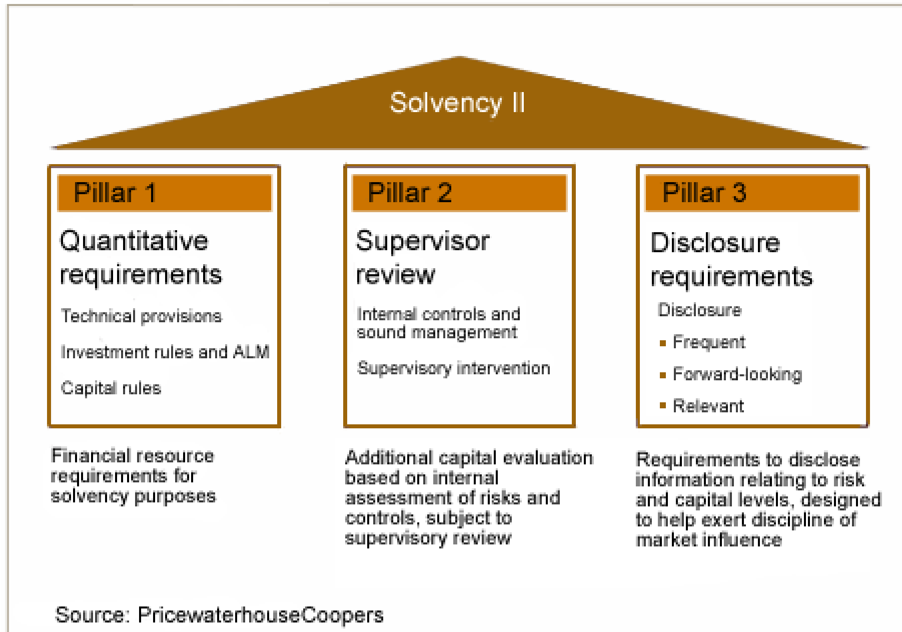
Solvency II is a fundamental review of the capital adequacy regime for the European insurance industry. It aims to establish a revised set of EU-wide capital requirements and risk management standards that will replace the current Solvency 1 requirements. It marks a move away from simplistic capital rules to a system where the regulatory capital requirements of each company are aligned to its own individual risk profile.

Some key objectives of Solvency II are as follows:

- A harmonised pan-European regime
- Deeper integration of the EU insurance market
- Improved competitiveness of insurers
- Enhanced policyholder protection
- Greater transparency and disclosure
- Capital that is risk-sensitive
- Capitalisation of non-financial risks such as operational risk

The new regime will establish a three pillar system of solvency supervision:

- Pillar 1 – Quantitative requirements
- Pillar 2 – Supervisor review
- Pillar 3 – Disclosure requirements



- **Pillar 1**

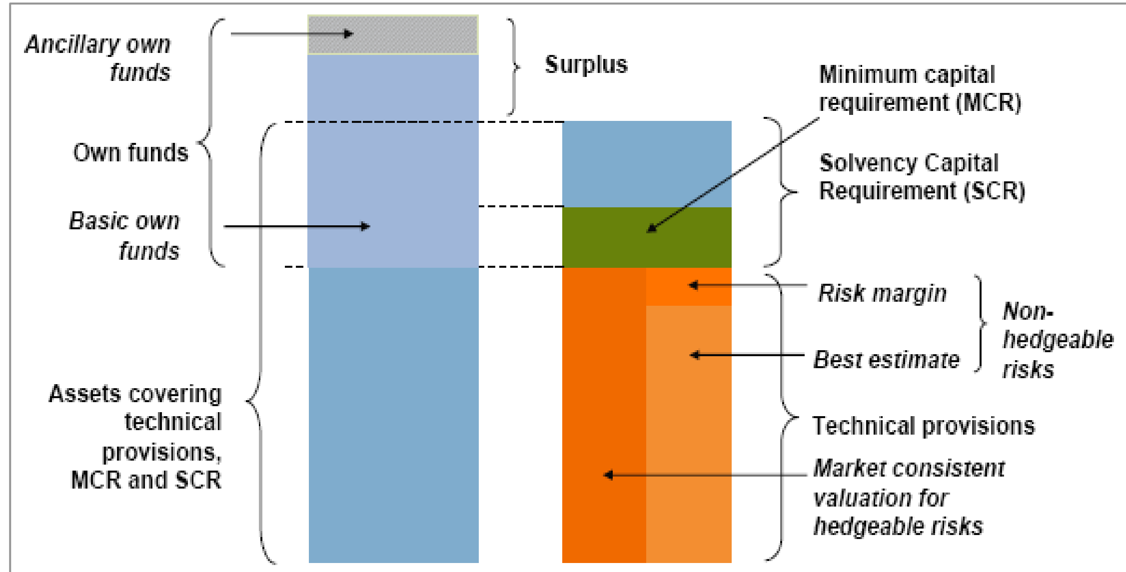
  Pillar 1 will consist of a Solvency Capital Requirement (SCR) in addition to technical provisions. **Technical provisions** will be a best estimate of the liability plus a risk margin to reflect the cost of capital associated with offloading liabilities to a third party.

  The **Solvency Capital Requirement** will be the amount of capital needed to ensure that the company will remain solvent over the next year with a probability of 99.5%[1]. The SCR should at least cover underwriting, market, credit and operational risk. Firms will have a choice whether to use a "Standard Formula" for SCR calculation or their own "Internal Model", subject to a rigorous supervisory approval process. This process will require the supervisor, as a minimum, to subject the model to three tests: 'statistical quality test', 'calibration test', and 'use test'.

  The SCR will be subject to a minimum level called the **Minimum Capital Requirement** (MCR). The MCR will be calibrated to an 85%[2] probability of remaining solvent over a one-year period.

  Breaching the SCR will lead to regulatory intervention. A ladder of intervention is envisaged depending on how far below the SCR the firm falls – ranging from a plan to restore capital to SCR level as soon as possible down to forced closure on breaching the MCR (and failing to produce a credible recovery plan).

Structure of Pillar 1



Source: SAI

- **Pillar 2**

  Pillar 2 will require that institutions have in place a regular practice of assessing their overall solvency needs with a view to their own specific risk profile. This will be called an "Own Risk and Solvency Assessment" (ORSA). The results of each assessment should be reported to the supervisory authority as part of the information to be provided for supervisory purposes.

- **Pillar 3**

Pillar 3 will comprise requirements to publicly disclose information relating to risk and capital levels to potential and actual policyholders, thus designed to help exert a discipline of transparency in the market. Disclosures should include information on the risk profile, governance systems, nature and performance of the business, along with the approaches to valuation and capital management.

3.1.2 Timetable for Solvency II

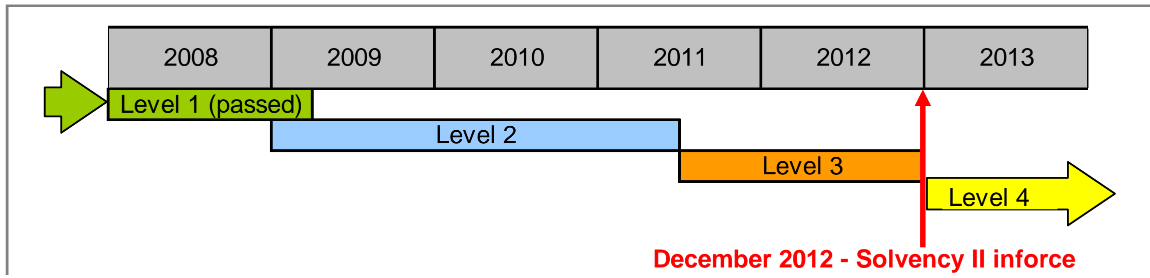
The EU is advancing Solvency II using the Lamfalussy Process – a four level approach to the development of financial industry regulations. The levels are set out below.

Level 1: Setting High Level Principles (Framework Directive passed April 22nd 2009)

Level 2: Formulation of more detailed, technical rules (2009 – 2011)

Level 3: Implementation by member states, companies and local supervisors (mid 2011 – Dec 2012)

Level 4: Compliance and Enforcement (Dec 2012 onwards)



After intensive negotiations between the Commission, the European Parliament and the European Council, the three institutions agreed on a compromise text for the Solvency II Framework Directive that was adopted by the European Parliament's plenary session on 22 April 2009. The main differences in the final directive compared to the initial 2007 draft are:

- Omission of articles related to group support
- Adjustments to the equity risk sub-module in the standard approach
- Allowance for one year of new business when determining expense allowances
- Clarity on the MCR

The process has now moved to level 2 and the way is clear for target implementation of Solvency II in December 2012. In August 2009, the Irish regulator requested firms to appoint a senior executive with responsibility for Solvency II. Firms have also been requested to indicate if they intend to use an internal model.

3.1.3 Quantitative Impact Studies

CEIOPS (Committee of European Insurance and Occupational Pensions Supervisors established by the European Commission in November 2003) has been requested by the European Commission to provide technical advice on the drafting of the details of the Solvency II rules. CEIOPS has carried out a series of Quantitative Impact Studies (QIS) to assess the impact of the proposed measures. The following QIS reports have been published to date: QIS1 (March 2006), QIS2 (October 2006), QIS3 (November 2007), QIS4 (November 2008). A fifth and likely final QIS will take place in the second half of 2010.

SUMMARY

- ❖ Under Solvency II the capital of a business should reflect the risks inherent in running the business.
- ❖ Pillar 1 Capital = Solvency Capital Requirement (SCR) + Technical Provisions.
- ❖ The SCR can be calculated using the standard approach or using company specific "internal models".
- ❖ Approach aims to reward companies which implement good risk management practices by allowing them to hold less capital than companies with less well developed risk management strategies.
- ❖ The Framework Directive has been passed and implementation of the new regime is now scheduled for December 2012.

3.2 Enterprise Risk Management (ERM)

Enterprise risk management (ERM) is a new management discipline\framework for risk management that has emerged in recent years. It has now been adopted by most risk professionals (including actuaries) as a key approach to managing the risks of an organisation.

ERM can also be described as a risk-based approach to managing a company (or enterprise). It brings together the concepts of strategic planning, operations management, and internal control and places emphasis on managing an organisation's risks in aggregate rather than independently.

It calls for corporations to identify all the risks they face, to decide which risks to manage actively, and then to make that plan of action available to all stakeholders (not simply shareholders) as part of their annual reports. It also advocates that companies focus not only on the *downside* of risk but the *upside* as well.

Precursors to the term ERM include holistic risk management, strategic risk management and integrated risk management.

3.2.1 Actuaries and ERM

It is a strategic vision* of the Institute of Actuaries that actuaries are recognised as leading professionals in the field of Enterprise Risk Management.

To reflect this, in March 2008, Enterprise Risk Management was adopted as one of the six actuarial practice areas. From April 2010 actuaries will be able to study ERM as one of the Specialist Technical Stage exams (ST9). This UK syllabus is similar to that of a global ERM syllabus currently in development.

The International Actuarial Association has defined a number of Key Principles of ERM which include the following:

- ERM is concerned with the totality of systems, structures and processes within an insurer that identify, assess, treat, monitor, report and/or communicate all internal and external sources of risk that could impact on the insurer's operations
- ERM implies a common risk management 'language' across the operations of the insurer
- ERM involves systematic organisation of and coordination between risk functions i.e. specialist risk 'silos' operating in isolation from each other are inconsistent with ERM principles
- ERM includes both the management of 'downside' as well as 'upside' risks
- ERM seeks to quantify all risks but acknowledges that not all risks can be measured in currency/financial terms

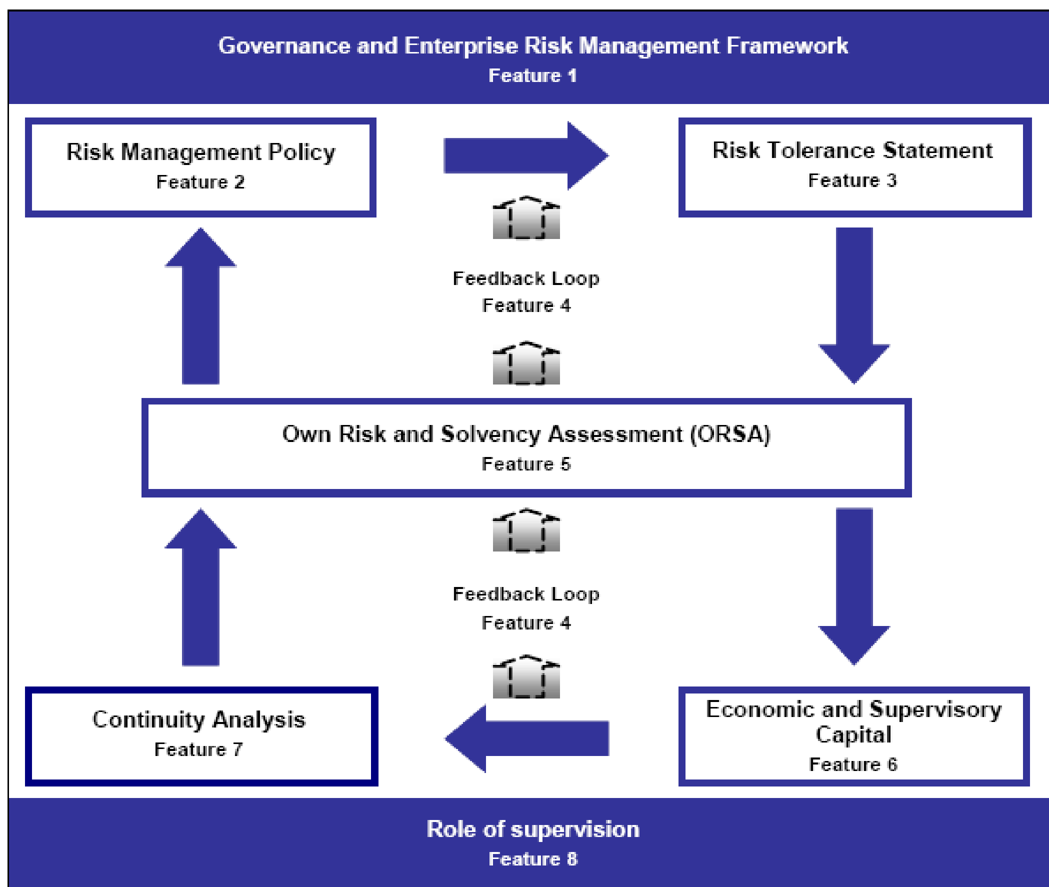
- ERM is concerned with both behaviours (the risk management ‘culture’) and risk control processes
- ERM involves holistic consideration of risk information relating to past events (e.g. losses), current performance (e.g. risk indicators) and future outcomes (e.g. the risk profile or risk assessment).

ERM and Solvency II

Solvency II will introduce a more risk-sensitive approach to supervision. This will encourage alignment between prudential supervision and Enterprise Risk Management.

Pillar 2 will require companies to enhance risk management, upgrade information systems and embed risk awareness more closely into the governance, strategy and operations of their business in order to demonstrate to their supervisor that they are operating on a sound basis.

Below is the International Association of Insurance Supervisors (IAIS) Risk Framework standard.

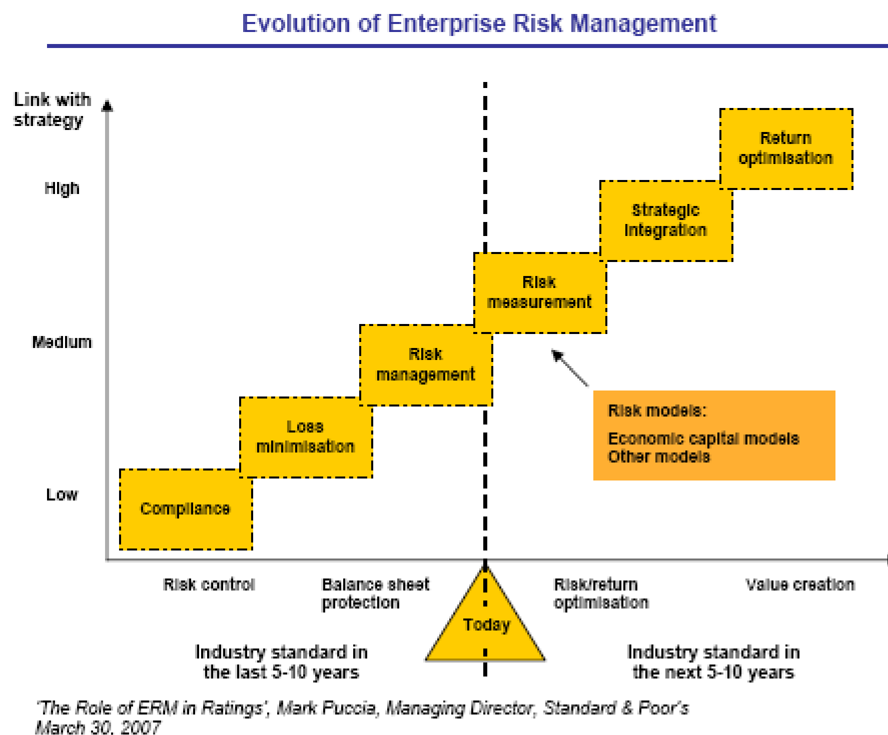


Source: International Actuarial Association

Rating Agencies
Debt rating agencies have increased their scrutiny of the risk management processes of companies.

At the end of 2005, rating agencies added a new criterion "ERM" when deriving the credit rating for insurance companies. ERM classifications are excellent, strong, adequate and weak. Only very few insurance companies obtained the status "excellent" and most were "adequate". This means that for many companies there is plenty of room for improvement in their risk management processes.

In order to comply with the new requirements issued by regulators and rating agencies, many insurers have invested significant resources in ERM recently. The financial crisis has revealed some significant challenges for the market consistent value methodologies and risk management practices within different insurers.



Activities of Actuarial Bodies
The SAI has recently set up an ERM committee to consider the opportunities and issues arising for actuaries from the risk management requirements of Solvency II, and how the Society can support members in expanding into new roles in this area.

The Institute of Actuaries issues a monthly newsletter to communicate the ongoing work that the profession performs in respect of ERM.

International Organisations
The following are some of the many international risk management associations currently in operation:

- Professional Risk Managers International Association (PRMIA)
- Association of Insurance and Risk Managers (AIRMIC)
- Chief Risk Officer Forum (CROForum)
- Global Association of Risk Professionals (GARP)

3.2.2 Resources

The Institute of Actuaries has an ERM resource centre at the following location: actuaries.org.uk/practice_areas/erm

The International Actuarial Association has produced the following document available online: *'Practice note on Enterprise Risk Management for capital and solvency purposes in the insurance industry'*.

Gloriamundi.org is a useful source of technical information on Value at Risk (VAR) and other risk measures.

*Institute of Actuaries ERM Practice Executive Committee 9 Sept 2008

SUMMARY

- ❖ Rather than managing risks independently ERM is a framework for collectively managing a company's risk.
- ❖ Actuaries are well placed to become the leading ERM professionals.
- ❖ Credit rating agencies now include ERM as a criterion when setting a companies credit rating.

4 Life Insurance

There have been significant changes in the life insurance industry since the previous *Current Topics* paper in 2007.

The financial crisis that escalated in 2008 changed the landscape for the life insurance industry and we will look at the key issues facing life insurers in the aftermath of this crisis. Companies, however, continue to innovate with new products and in this section we touch on the recent developments in the variable annuity market.

The Society of Actuaries in Ireland has been busy drafting new and amending existing guidance for members in the life insurance industry and we cover the major changes since 2007.

While the mergers and acquisitions landscape changed in 2008/2009 there has been considerable corporate activity over this period and we highlight the main developments in this area. In addition we describe the controversial changes to the taxes applicable to holders of insurance policies introduced in the 2008 supplementary budget.

The topics covered in this section are as follows:

- Product Development – Update on Variable Annuities
- The impact of the Financial Crisis on Life Insurers
- Professional Issues
- Corporate Activity
- Policyholder Tax Changes

4.1 Product Development – Update on Variable Annuities(VA)

The *“Current Topics 2007”* paper introduced and described variable annuity products. Part of the report covered the reserving and capital requirements for variable annuity business. In August 2009 the Financial Regulator issued a discussion paper on the Capital Requirements for Variable Annuities. There has been considerable market development since the *“Current Topics 2007”* paper was published. The discussion paper from the Regulator along with recent market developments are outlined below.

4.1.1 Discussion Paper from Regulator

Over the last two years there have been a number of large losses publicized internationally by companies transacting VA business and therefore the Regulator has deemed it necessary to examine the reserving standards. There is no peer reviewed standard generally accepted in EU actuarial circles. The paper from the Regulator outlined one possible methodology for discussion. With the imminent approach of Solvency II, it is highly desirable that any method will also be suitable for the new regime and the Regulator has sought to ensure that the proposals outlined below are a good fit.

- *Basic Principle*
  Companies transacting VA business should calculate required capital using stochastic projection methods of current assets and liabilities, assuming no credit for future trading or hedging (Basic Guarantee Liabilities or BGL). Companies may also calculate an offset for the impact of future trading (‘FTO’) which may be offset against the first calculation with agreement from the Regulator.
- *Basis Guarantee Liabilities*
  BGL are calculated using a stochastic model based on assets and liabilities at the valuation date. The Regulator has not suggested a standard model (such as CTE or VAR). Models must be realistic or the test must be of suitable strength. It is suggested that the model should reflect market conditions and in particular taking into account market volatilities. Shock tests should be used as reasonability checks of the results from modeling.
- *Future Trading Offset*
  FTO would be calculated by stochastic projection and should reflect the hedging program in place at the time of valuation. The liability cost from the stochastic program allowing for future trading should be subtracted from the BGL to give the FTO. It is envisaged that the FTO would only be allowed to apply to a pre-justified percentage (Percentage Offset Credit or “POC”) that would depend on a number of factors:
    - Clearly Defined Hedging Strategy
    - Proven Operation of Hedging Program
    - Basis Risk
    - Delay Risk
    - Testing Nature of Stochastic Model
    - Operational Risk and Governance

    - Extent of Modeling

- *Other Assumption and Valuation elements*
  Solvency I still applies and the valuation reserve should allow for usual Solvency I practice. It is not proposed to relax the condition of requiring 100% persistency for direct insurance (unless such an assumption reduces liabilities). For reinsurance prudential persistency may continue. Prudence should be applied to demographic assumptions as appropriate.
- *Reinsurance*
  The above should apply even to companies where the liability is reinsured fully onwards as assessment of credit exposure is important under both Solvency I and II. In such cases the gross reserves would reflect the BGL without any FTO.
- *New business*
  It is believed that some companies might experience difficulties in raising their charges for guarantees on new business even when the market cost has risen substantially. This needs consideration also.

The SAI established a working party to review and respond to the discussion paper. A summary of the working party's review was discussed at the SAI Life Forum in November 2009. A summary of their response was as follows:

- The working party welcomed the discussion paper
- They see 'variable annuity' as any product where significant policyholder options and guarantees are present.
- They agree with a Total Capital Requirement approach.
- They see the key issue as how to move from Solvency I to Solvency II:
    - Currently at Solvency I (with adjustments)
    - Solvency II should be the final destination for the approach

4.1.2 Market developments since Current Topics 2007 paper

There has been a considerable amount of activity in the VA market since the last current topics paper.

- Insurers generally allow clients with VA accounts to choose their own investments and often promise to shoulder at least a portion of any losses in exchange for a fee. Companies suffered rising costs tied to variable annuities as the stock market plunged in 2008. Carriers are now raising prices and cutting benefits to guard against losses in the event of another economic slowdown.
- On 1 May 2009 Hartford suspended all sales in the UK including variable annuity business as it posted a £818m loss in the first quarter of 2009 across the global group (sourced from www.insurancelife.blogspot.com). Hartford also announced it was pulling out of writing VA business in Japan and abandoned plans to launch in Germany.
- Companies are still entering the variable annuity market despite the economic crisis. The VA product is still meeting a customer need. Re-pricing and new product designs are being used to manage the risk. The continuation of companies selling VA business despite the costs and risks can be seen by the number of new

product launches across Europe from the start of 2008 to August 2009 (sourced from Milliman by the Institute of Actuaries VA Member Interest Group):

Company	Product	Type	Country	Date
ING	Europerspectiva	AB / DB	Poland	Jan 08
AXA	Twinstar	AB	Switzerland	Jan 08
ERGO	Global Top Retuen	IB / AB	Germany	Feb 08
AXA	Accumulator	AB	Portugal	Apr 08
ING	RVS Guarantee Perspective	AB / DB	Netherlands	Mar 08
Aegon	Income for Life	WB / IB	UK	May 08
MetLife	Retirement Portfolio	WB / AB	UK	Jun 08
Allianz	Invest4Life	WB	Germany	Jul 08
R+V	PremiumGarantieRente	IB	Germany	Aug 08
MetLife	Citi VA Orchidea	WB	Poland	Sep 08
Swiss Life	Champion	IB	Germany	Oct 08
Balaoise Life	RentaSafe	WB	Switzerland	Oct 08
Allianz	Invest4Life	WB	France	Oct 08
AXA	Twinstar	WB	Switzerland	Nov 08
MetLife	Citi VA Investment Bond	WB	UK	Jan 09
Aegon/ LA Mondiale	Terre d'Avenir	WB / DB	France	Jan 09
MetLife	Citi VA Auvida	WB	Greece	Feb09
Allianz	Invest4Life	WB	Italy	Feb09
ING	Lifelong Income Guarantee Investment	WB	Belgium	Feb09
Canada Life	Rente	WB	Germany	Mar 09
Swiss Life	Exclusive Ivvest DWS	AB	Germany	Apr 09
MetLife	Citi VA Auvida	WB	Spain	May 09
Metlife	Citi VA	WB	Belgium	May 09
AXA	AXA pensiones privelge	AB / DB	Spain	Jun 09
ERGO	Versorge Invest Plus	AB	Germany	Jun 09

SUMMARY

- ❖ The Financial Regulator recently reviewed the reserving standards for VA's and put forward a number of proposals for discussion.
- ❖ A key issue is how to ensure Regulators proposals will comply with the requirements of Solvency II.
- ❖ Despite the financial crisis new companies are continuing to enter the VA market.

4.2 Impact of the Financial Crisis on Life Insurers

In September 2008 a global financial crisis escalated, turning a large scale crisis of confidence into a global financial panic. The financial system as it worked over the past decade – with its flawed incentives and its overly complex products and with global imbalances as its macroeconomic backdrop – was no longer sustainable. The asset cycle turned, the weaknesses were exposed and investors suddenly lost confidence. After years of exceptional risk appetite and high profits, the pendulum swung in the opposite direction, as markets became extremely sensitive to financial risk. We take a look below at how the financial crisis has impacted the life insurance / reinsurance industry and the ongoing considerations for companies as a result of the crisis.

What customers, investors, governments and regulators expect from insurers has changed rapidly. This environment will continue to evolve at a rapid pace over the next two to three years, ruling out any return to the relative stability and certainty that preceded the financial crisis. The new environment is challenging the competitive relevance of some insurers. However, it is also offering farsighted firms a once in a generation opportunity to catapult themselves to the front of what is a very different racing order within many markets and classes of business. The companies that will come through strongest are not just looking at how to stabilise their businesses but how the crisis will shape the competitive environment and what they need to do to adapt and succeed.

The financial crisis has changed the industry landscape and presented some key considerations for insurers. Some of these key considerations and the issues facing the life insurance industry in the aftermath of the financial crisis are presented below.

New Business:
New business premium has fallen to low levels and presents a significant challenge for life insurers. In 2008 the life insurance industry in Ireland saw a 30% fall in new business premium. Gross new business life premiums in Ireland fell from €32.61bn in 2007 to €22.88bn in 2008 (2008 Insurance Statistical Review).

Before the financial crisis customers expectations evolved quite slowly and the resulting changes were relatively easy to manage. Retail investors had become accustomed to high yields and were largely unaware of the full extent of the risks entailed. The demand profile of consumers has changed significantly as a result of the financial shock which has crucial implications for both product design and distribution. The change in consumer behaviour has resulted in sales of some particular products being discontinued in the market. More consumers are now requiring investment guarantees and simpler more transparent product structures.
These new tough trading conditions have forced the closure of some companies in the European and worldwide insurance market.

Capital Issues:
The sharp fall in equity and property markets meant companies began to experience capital difficulties. Some insurers saw a threat of reaching Solvency I capital limits.

There is a significant challenge now in getting over the gap that will bring insurers from Solvency I to Solvency II. Even where strong balance sheets exist, many insurers have faced pressure from stakeholders to preserve their capital bases and therefore are unable to commit to large-scale investment to acquistions.
Insurers experiencing capital difficulties in the Irish market needed to explore possibly new means of capital injection to their business. This capital has come from sources such as:

- Capital from parents
- Financial Reinsurance arrangements
- Traditional reinsurance arrangements
- VIF securitisation
- Internal captive reinsurer set-up
- Subordinated debt
- Mergers
- Special Purpose Reinsurance Vehicles (SPRV's)

Persistency:
Persistency of business has become a major issue for insurers in the aftermath of the crisis. Large losses are being experienced due to poor persistency of business. Consumers are lapsing, surrendering or making policies paid up as a result of changes in their financial circumstances. Many companies are now setting up business retention teams in an effort to keep existing business on their books. Related to the persistency issues facing companies are customer satisfaction and treating customers fairly (TCF) issues. Policyholders facing large losses in savings and pension related contracts are questioning the sales and investment practices of insurers.

Reinsurance:
There are two views on the future of reinsurance. One believes that reinsurance demand will revert to pre-crisis levels and may even increase as primary insurers seek to transfer more risk. The other view predicts a far rockier and uncertain future for the sector.
The trend towards higher retention of straightforward risks, that had been evident in many developed markets prior to the crisis, could be accelerated. As insurers become more risk aware through advance in enterprise risk management, they will be better able to choose what risks they retain and what risks to reinsure. The bulk of the business reinsured could thus be the most volatile which will change the risk profile of many reinsurers, increase their capital requirements and raise the return expectations of capital providers.

Regulatory Supervision
The regulatory emphasis is shifting to the macro-prudential fundamentals of solvency, governance and prudent risk management. As balance sheet strength comes back to the fore, regulators will insist on tougher stress tests that gauge companies' ability to withstand a range of extreme and potentially interacting scenarios.

Firms are facing greater scepticism over model outputs and a higher burden of proof in demonstrating capital adequacy. This can be seen in the domestic market through the

greater presence of the regulator of late in the analysing of results and the investigation of issues. While actuarial submissions and issues were always examined by the regulator, the increased capacity within the regulator in Ireland over the last year has meant that submissions and issues can now be examined more closely.

SUMMARY

- The 2008 global financial crisis has created a new financial operating environment.
- Consumers are now demanding more investment guarantees and simpler, more transparent products.
- The key issues facing life insurers in the aftermath of the financial crisis are new-business, capital, persistency, reinsurance and regulatory supervision.

4.3 Professional Issues

With effect from 30 December 2006, the Society's guidance notes have been renamed "Actuarial Standards of Practice" (ASPs). The ASPs are numbered separately within each practice area, and are classified as either "Mandatory" or "Recommended". The following summarises some of the more important changes to the ASPs in recent months:

ASP LA-11
ASP LA-11: Statement of Actuarial Opinion on Life Reinsurance Business

ASP LA11 became effective on 30 December 2007 and some minor changes were subsequently made to the ASP with effect from 30 December 2009.
Reinsurance companies are required to provide to the Financial Regulator each year for solvency purposes an SAO (Statement of Actuarial Opinion) relating to their life reinsurance business. ASP LA11 provides actuarial guidance to the Signing Actuary, appointed by the reinsurer, to provide such an SAO. The SAO must be accompanied by a report by the Signing Actuary.

Actuarial sign off is required in relation to

- Technical provisions gross and net of retrocession including credit for DAC;
- Solvency Margin;
- Opinion
- Reserves comply with Irish Legislation and other relevant regulatory returns;
- Solvency margin calculated based on the applicable data in the reinsurers returns to the Financial Regulator and in accordance with Irish Legislation and other relevant regulatory requirements; and
- Consideration of the retrocession program.

ASP LA-11 provides guidance to the Signing Actuary in relation to the following areas:

- The SAO
- Relationships
- Data and information
- Valuation principles
- General
- Reserving Methodologies
- Lack of data for assumption setting
- Impacts of outwards reinsurance
- Valuation data lags
- Review of documentation
- Interest Rate assumptions
- Claims decrement assumptions
- Expense assumptions
- Lapse rate and other assumptions
- Options and guarantees

- DAC
- Total required solvency margin
- The report

Minor changes were made to ASP LA11 which became effective on 30 December 2009 and are applicable for year end 2009 work. A review of ASP LA11 was instigated by the general insurance practice committee. There was a desire for maximum (appropriate) consistency between the life and non-life ASP's. There were no major developments as a result of the review. The changes in the ASP were essentially clarifications of points.

ASP LA-12

ASP LA-12: Life Reinsurance Business: Actuarial Reports.

ASP LA12 became effective on 30 December 2007. The purpose of this ASP is to specify the circumstances in which a member should normally prepare a formal report in the field of life reinsurance, and to describe the basic elements that should normally be included in such a report.

ASP LA12 provides best practice for actuaries in preparing and submitting formal reports in respect of life reinsurers. The actuary must consider whether the work requires a formal report. The ASP provides guidance for consistent style and content for actuarial reports. The purpose and scope of the report should be clearly defined.

Specific areas that the report should make reference to are as follows:

- Comment on data and information - in particular the report should draw attention to any shortcomings or limitations in the data (this is typically a key aspect for life reinsurers).
- Analysis of emerging experience – the report should comment on the variation/ change to key elements in the period e.g. changes in data or approach.
- Comment on key methodology and assumptions.
- Results
- Include interpretation of any point estimates shown
- State whether the results comply with the governing accounting principles or legislation
- Comment on uncertainty
- Indicate the nature, degree and sources of uncertainty
- If there is substantial probability of material adverse deviation from the modeled results then this should be highlighted.

Updates to Other ASP's

ASP LA-3

ASP LA-3: Additional Guidance for Appointed Actuaries on Valuation of Life Assurance Business

ASP LA-3 provides additional guidance to Appointed Actuaries on the valuation of life assurance business. In particular it provides guidance on the application of the rules within the statutory regulations relating to the calculation of life assurance policyholder liabilities. The guidance has been in place since 1995 and changes were made to this ASP with effect from 01 July 2008 for the following reasons:

- Recommendations from the valuations working party;
- Reports of the expenses working party;

- To give additional guidance on some other areas where relevant;
- Tidy-up the ASP and ensure consistency with other ASP's in particular ASP LA1

This latest version of the ASP contains more detailed guidance, especially in relation to the approach required from appointed actuaries to allowances within the valuation for expenses, policyholder options and lapses.

Additional guidance is provided with respect to the treatment of future expenses within the valuation. The guidance includes details on the treatment of Third Party Administration (TPA) agreements, and the likely costs to be incurred on the closure to new business.

The guidance requires policyholder options to be valued using a stochastic approach where appropriate.

It requires a prudent allowance for lapses to be adopted, over and above the traditional assumption of nil lapses, should this produce a higher reserve. There is also additional guidance relating to the treatment of withdrawals and paid-up policies.

It provides additional guidance on the establishment of terminal bonus reserves where current payouts exceed asset shares.

The following are the main sections in which changes were made to the ASP:

- Valuation of with profits (2.3 – 2.5)
- Policy options (2.6, 3.6.1 – 3.6.6)
- Regular withdrawals (3.6.7)
- PUPs (3.6.8)
- PHI (2.8)
- Expense assumptions and reviewable charges (2.9)
- Altered policies (2.10)
- Resilience testing (3.2)

ASP LA-8

ASP LA-8: Life Assurance Product Information

Changes were made to ASP LA8 with effect from 01 July 2009 to ensure consistency with the new ASP PEN 12. ASP LA8 provides guidance to the Appointed Actuary or any actuary advising a life assurance company on the provision of product information pursuant to the Information Regulations or otherwise.

The society carried out a review of rates of mortality improvement in 2008. Following this the Demographic Committee produced a report setting out recommendations on the proposed mortality rates for the purpose of product illustration under ASP LA8. The post-retirement mortality assumptions under ASP LA8 have been updated as follows:

- Males:52% PNMA00 Females: 60% PNFA00

- To provide for improving mortality beyond 2008, assume that the price of annuities will increase by the following annual compound rates for each calendar year after 2008:
- Male annuities with no attaching spouse's annuity: 0.44%
- Female annuities with no attaching spouse's annuity: 0.36%
- Last survivor annuities: 0.27%

SUMMARY

- ❖ A new ASP (ASP LA-11) provides guidance to the Signing Actuary of a Reinsurance Company when preparing an SAO for the Financial Regulator relating to their life reinsurance business.
- ❖ A new ASP (ASP LA-12) specifies the circumstances an actuary should normally prepare a formal report in the field of life reinsurance and describes the basic elements of such a report.
- ❖ APS LA-3 updated to take account of recommendations from various working parties and to ensure consistency with other ASP's.
- ❖ APS LA-8 updated to ensure consistency with ASP PEN-12.

4.4 Corporate Activity

The mergers and acquisition landscape changed significantly in 2008/2009. Two essential factors in merger and acquisition (M&A) activity are confidence and the ability to finance transactions. Given the shortage of both confidence and liquidity during the financial crisis, it is not surprising that there was a global and Irish downturn in M&A activity.

The insurance industry has now turned from coping with capital constraints and weathering the fierce conditions of the financial crisis to seeking new routes to growth. Over the next few years, insurers and reinsurers may have to acquire to grow or face being acquired. Those that manage the situation appropriately will be well-positioned to take the lead in the market, deploying their capital for optimal returns.

An overview of just some of the notable corporate activities in 2008/2009 in both the domestic and global market is outlined below:

Domestic Market:

- In January 2009 the global insurance giant Aviva announced Dublin as the base for its new worldwide life reinsurance operation. This news came after Avivas 2007 decision to develop its own life reinsurance business rather than rely on life reinsurance from third parties.

- In May 2009 Hartford Life, a subsidiary of the fourth largest US insurer, announced it was downsizing its Ireland office and suspending most of its European operations. Hartford suspended writing of all business in the UK and decided not to proceed with plans to launch into Germany.

- In August 2009 Zurich insurance group announced it was setting up a European hub for its life insurance business in Ireland.

Global Market:

- In October 2008 Europe's largest insurer Allianz made a $2.5 billion capital investment in US insurer Hartford Financial Services Group. This investment came after a difficult trading week when Hartford lost almost $9 billion of its market share as its share price plummeted 52% (www.reactionsnet.com).

- In June 2009 Sun Life Financial announced that it was acquiring the UK operations of Lincoln Financial Group (the UK life and pensions business of Lincoln National Corporation). The value of the transaction was approximately £195m. The combined operation is expected to generate attractive returns and serve to position Sun Life for future growth in one of the worlds largest life insurance markets. The acquisition increases Sun Life's UK's assets under management by nearly 60% to £10.6b and doubles the number of policies to 1.1 million (www.sunlife.com).

- In November 2009 French insurer AXA SA announced the launch of a €2 billion rights issue to part fund growth plans. The rights issue will be used to seize future acquisition opportunities, primarily in high growth markets, including the potential buyout of minority interests in Central and Eastern Europe and the transaction proposed to AXA Asia Pacific Holdings Board while maintaining a strong balance sheet (www.news-insurances.com).

- In December 2009 AIG announced that it has closed a transaction with the Federal Reserve Bank of New York (FRBNY) positioning American Life Insurance Company (ALICO), a leading international life insurance franchise, for an initial public offering or third party sale, depending on market conditions and subject to customary regulatory approvals. In connection with the transaction, AIG has contributed the equity of ALICO to a special purpose vehicle (SPV) in exchange for interests in the SPV. The FRBNY has received preferred interests in the ALICO SPV while AIG holds all of the common interests in the ALICO SPV.

4.5 Policyholder Tax Changes

Life Insurance Levy

A new levy on life insurance policies was introduced in the supplementary budget on 7 April 2009 at a rate of 1%. The new 1% levy is applied to premiums paid into life assurance, pension and investment policies in respect of premiums received by insurers on or after 1 June 2009.

This new levy applies to life cover policies, mortgage protection policies, policies which pay an amount on sickness or disability, investment policies, savings plans and pension policies. However, it is not expected that the levy will apply to self administered pension schemes which are not sold by insurance companies or larger occupational pension schemes.

The Irish Insurance Federation is continuing discussions with the Department of Finance about the potential to put an alternative arrangement to the levy in place. However, as at the date of writing, this levy is being applied to premiums received by insurers after 1 August 2009.

Non Life Insurance Levy

The current non-life insurance levy of 2% was increased from 2% to 3% in the supplementary budget on 7 April 2009. The new rate of 3% was applied to premiums received by insurers on or after 1 June 2009 for renewals and offers of insurance issued by an insurer on or after 8 April 2009.

Exit Tax

Exit tax on life assurance policies was increased from 26% to 28% in the supplementary budget on 7 April 2009. The new rate was applied to payments from midnight on 7 April 2009.

SUMMARY

- ❖ The Supplementary Budget in April 2009 increased the taxation of insurance products for consumers:
  - a new 1% tax on insurance premiums
  - increased the non-life insurance levy from 2% to 3%
  - increased the exit tax on life assurance products from 26% to 28%

5 General Insurance

Section 3, Common Issues in Life and General Insurance, has already outlined the major recent developments in the regulation of the General Insurance industry in Ireland.

This section will look at some of the main issues being faced by general insurers, particularly in Ireland, at the present time.

Section 5.1 looks at the impact of climate change on the operations of a general insurer.

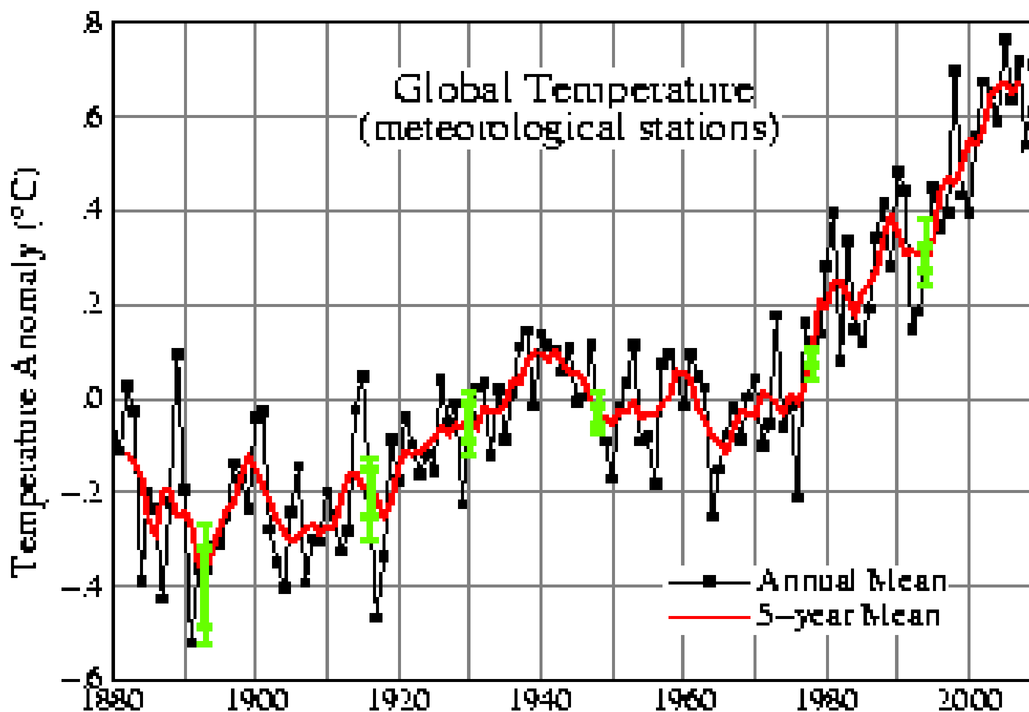
Section 5.2 examines the impact of the Irish Corporate Taxation system on general insurers located here and the potential impact if changes to the system are made.

Finally section 5.3 considers how the General Insurance sector has been impacted by the recent financial crisis.

5.1 Climate Change – Impact on General Insurers

Over the past number of centuries our climate has changed dramatically. Most of the changes in the world climate have been brought about by our actions. Improvements in food production has led to increases in populations worldwide which in turn has led to greater demands for electricity generation.

Greater demand for electricity has led to the burning of more fossil fuels, which in turn has resulted in the release of higher concentrations of carbon dioxide and other harmful gases into the earth's atmosphere. These gases increase the temperature in the earth's atmosphere - "Greenhouse Effect". The graph below illustrates how the earth's temperature has increased over the past century.



Source: NASA- Goddard Institute for Space Studies-Global Annual Mean Surface Air Temperature Change- updated graph from Hansen 2006, figure 1A

It is predicted that greenhouse gas levels will continue to rise into the 21st century, and the result is likely to significantly increase the frequency of natural conditions such as wild fires, windstorms, droughts, floods, tropical cyclones, winter storms and lightning strikes[2].

These climate changes will undoubtedly affect the business model of all general insurers, as it will affect their assets, liabilities, capital requirements and growth opportunities. I will now look in detail at how a general insurer's operations will be affected by such climate changes.

Liabilities

General insurers often cover a wide range of classes, and as such have varied liabilities. I will examine a number of the different classes below and outline how these liabilities will be impacted by climate change:

Property

As alluded to above, climate change has already increased the incidence of natural occurrences which will ultimately increase losses across property classes.

- Global warming will lead to more droughts, and more subsidence claims as the ground beneath properties shifts downwards causing structural damage.

- Drier conditions will lead to more wildfires and more lightning, resulting in destruction and damage to insured properties.

- Rising sea temperatures will increase the frequency and severity of tropical storms which will have a devastating impact on properties located in coastal areas.

- The melting of ice caps will lead to a rise in sea levels, and increase the incidence of winter storms, intense rain and floods worldwide which will lead to catastrophic losses for household insurers.

We are likely to see increased road traffic accidents due to adverse weather conditions (heavy rain, snow, floods, hailstorms) which will lead to higher losses and hence lower profits for insurers involved in **Motor Insurance**.

Insurers writing **Employers Liability** business could see many latent claims, claims from events or causes which were not foreseen at the time of writing the business. For example, construction workers exposed to UVF rays from the sun could deem the employer liable for not providing proper protection against skin cancer, which will lead to higher loss ratios.

Many companies could find themselves facing lawsuits if it is deemed they have contributed to global warming. **Directors and Officers Insurance (D&O)** provides cover for lawsuits arising from alleged wrongful actions carried out by employees whilst acting in their capacity as directors and officers of a company. It is therefore likely that **Directors and Officers** insurers could face many claims as it could be argued that the directors, those responsible for the direction of the company, did not do enough to prevent the organisation's contribution to global warming.

Many professions related to construction will be impacted by the weather related risks brought about by climate change. It could be argued that they did not act sufficiently to adapt their procedures to the changing weather. **Professional Indemnity** insurers provide cover to professionals for losses arising from negligence in the provision of a service. Professions such as architects, engineers, property developers etc. could all see claims on

their PI policies, for example if they are deemed to have planned a project poorly, or not adapted a housing project for exposure to flooding/subsidence/fires/windstorms.

Mortgage Indemnity Guarantee Insurance is purchased by lending institutions such as banks, and provides them with cover for losses which arise if a customer defaults on their mortgage repayments and it is necessary to sell the property on which mortgage is secured. Insurers writing this type of business could experience huge increases in claim severity if property values collapse - consider a scenario where a property is in close proximity to the coast and is heavily exposed to storm damage, factors which are subsequently factored into the property value.

Marine Insurance, which covers losses arising from damage to ships, cargo or terminals, will also be exposed to more uncertainty as the frequency of natural occurrences increases and the risk of damage to insured property increases.

Aviation Hull insurers will be affected by the risk of increased damage to planes caused by hailstorms, lightning strikes or ice storms.

Similar to Professional Indemnity insurer's, **Airline Liability** insurers could face claims from parties who believe that the airline industry has contributed more than most industries to the change in the climate. This is mainly due to the large amount of fuel burned, and subsequent release of harmful gases into the atmosphere, which is required in order for planes to undertake their journeys.

Another point to note from a general insurers perspective is that liability exposures will include **legal defence costs**, irrespective of whether defendants are held liable for damages. These legal costs could be substantial and significantly reduce the profitability of insurers going forward.

Assets

General insurers hold a combination of different assets in order to be able to meet their obligations to policyholders and to simultaneously increase profits and the return on shareholders capital. The following is a list of the assets held by general insurers and how they might be impacted by future climate changes:

Cash is unlikely to be impacted by climate change. It is, and will likely remain, a highly liquid asset and one of the safest in the market. General insurers may feel the need to hold more cash if the returns on other assets are experiencing increased volatility.

Long term government **bond** valuations are determined by many factors, namely interest rates, perception of future inflation, government credit risk and by supply and demand. If liabilities become more uncertain as a result of climate changes, then there will be an increase in demand for bonds which are less risky investments than equities, which will negatively impact yields and investment returns.

General insurers hold substantial amounts of **equities**, which they hope will contribute to their profit in the form of investment income/capital appreciation, and are therefore concerned about how the stocks they hold may be impacted by climate change. Equity valuations are ultimately linked to company profits and the sustainability and potential for growth in company profits, which in turn are tied in to economic growth. Climate change will affect many economies and sectors, some will benefit whilst some will lose. For example, automobile manufacturers and oil companies could see falls in profits due to changes in consumer behaviour or increases in government taxation. Wind energy companies could benefit as governments and consumers in general become more "green conscious". The overriding opinion, however, is that unless direct action is taken to combat the effects of climate change, economies worldwide will achieve lower growth, which will be reflected in lower equity prices. This will, as mentioned above, hit the bottom line profits of general insurers.

Property assets are likely to be impacted by climate change more than any other asset class. The increased likelihood of wild fires, windstorms, droughts, subsidence, floods, tropical cyclones, winter storms and lightning strikes will all cause damage directly to properties held or owned by general insurers. Valuations will change depending on property location- the general belief is again that exposure to weather conditions will ultimately be factored into property prices which could lead to falls in the prices of many properties.
Many general insurers in todays market have global operations, with both assets and liabilities in many different countries, and hence different **currencies**. Most insurers need to convert all assets and liabilities into a single currency for reporting requirements and for producing published accounts. Insurers are, therefore, exposed to currency risk- the risk that there is a mismatch between their assets and liabilities when converted to a single currency. Many political commentators feel that climate change will lead to wars over natural resources in the coming years. It could be argued that it has already begun, an example being the war in Iraq. History has shown that any war or political strife wreaks havoc on the world currency markets and can lead to huge swings in exchange rates. This potential uncertainty in exchange rates will no doubt feed its way through to the results of insurers in the form of lower profits, and may also require insurers to hold greater amounts of capital as they are faced with greater uncertainty.

5.1.1 Capital Requirements

2012 will see the implementation of the Solvency II directive, which will govern the capital requirements and risk management standards adopted by insurance companies in the EU.

Climate change will undoubtedly impact the capital requirements of companies - if losses are expected to increase then so too must the capital base of companies as a counter measure.

The Association of British Insurers recently published a report (The Financial Risks of Climate Change 2009) on how insurers capital bases may be affected by climate change. They stated the following:

- In the UK, for example, a 4°C rise in global temperature would require a further £1.9 billion in capital in addition to the £5.9 billion of capital currently required to cover insured inland flood losses.

- Also in the UK, a southward shift in storm tracks would require a further £1 billion in capital in addition to the £8.6 billion of capital currently required to cover wind losses.

Similar scenarios will be seen all across Europe- climate change will increase losses experienced by insurers and reinsurers alike, thus requiring them to increase insurance premiums and hold more capital. It may also result in reduced capacity for certain weather related risks, and certain risks may become uninsurable.

We could also see insurers issuing more catastrophe bonds as a means of reducing their exposure to weather-related risks and as a way of reducing their capital requirements. Catastrophe bonds allow for the transfer of risk from the insurer issuing the bond to the purchaser (capital markets).

5.1.2 Climate change in Ireland

Like its European counterparts, Irish general insurers will also need to adapt their processes if they are to remain profitable and cope with the challenges brought about by climate change.

As Ireland is an island, it is more exposed to rising sea levels than inland countries and so is likely to be more exposed to certain weather related perils (heavy rain, windstorms, floods). The floods witnessed in November 2009 are a prime example - the Irish Insurance Federation expect the ultimate claims from this to exceed €244M and policyholders can expect to see increased premiums on their household insurance as insurers try to recoup these losses.

A recent report published by the Academy of Engineering (Ireland) states that:

- Ireland risks social and economic disaster from climate change unless the government takes urgent action
- Infrastructure in Ireland is unable to cope with changing weather conditions
- We are at risk of polluted drinking water, extensive flood damage and power blackouts
- Holland is spending €1.5bn per annum each year on adapting to climate change
- If the Irish government doesn't follow suit, many properties and weather related risks will be uninsurable

We can therefore deduce that the profitability of general insurers will be hit if remedial action isn't taken immediately.

Conclusion

Climate change will lead to many challenges and opportunities for general insurers in the future. We can expect to see the following:

- Liabilities to increase
- Asset values to experience greater volatility
- Capital requirements to increase
- Growth opportunities for dynamic insurers- as changes are made to combat climate change (reducing consumption, alternative energy sources etc..), whole sectors of the economy will be altered which will inevitably lead to opportunities for insurers.

General Insurers will need to be proactive in their approach to mitigating the risks associated with climate change. Examples of mitigation techniques are as follows:

- Better and more dynamic underwriting
- More sophisticated pricing techniques- ensure pricing allows for impact of latent claims brought about by climate change
- Develop new product lines as a means of diversification and improving profitability
- Develop closer relationships with policyholders to help them manage the risks faced and to keep premiums low
- Insurers can reduce their own carbon footprint by being proactive- paperless working environments

SUMMARY

- ❖ The frequency of natural disasters may continue to increase in the future if green houses gases continue to rise globally.
- ❖ General Insurers may have to increase their capital requirements if the frequency of and hence the loss associated with, natural disasters increases as expected.
- ❖ As an island nation, Ireland is vulnerable to weather related disasters and proper intervention is needed to ensure that weather related insurance cover remains available in Ireland.

5.2 Irish Corporate Taxation System – Impact on Non-Life Sector

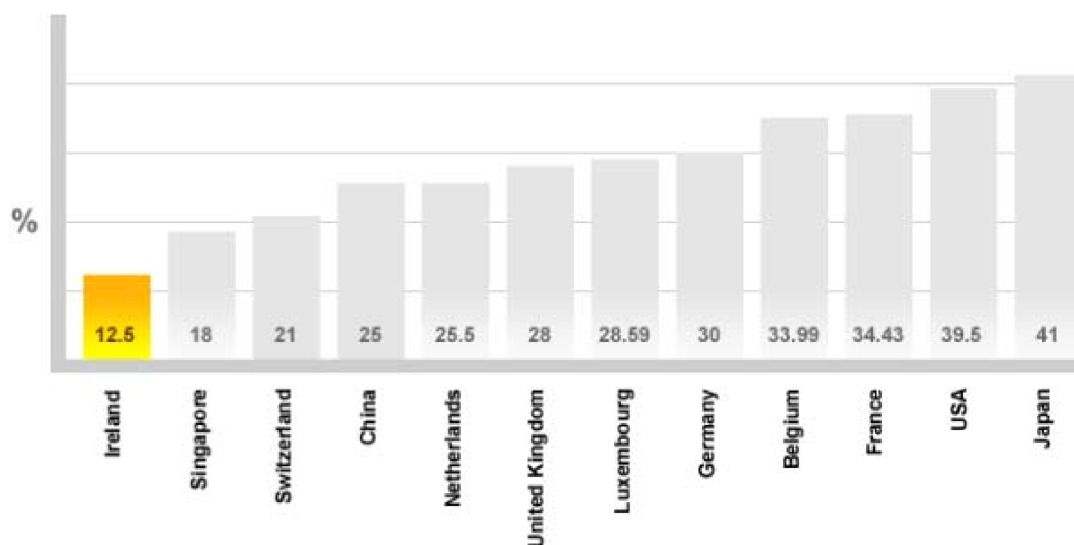
The Irish non-life sector consists of insurers and reinsurers who are authorised to conduct insurance and reinsurance transactions in Ireland. As of the 31st December 2008, there were 236 insurance undertakings in Ireland, and a total of €7.40 bn in gross premium[1] was written by non-life direct insurers. There are also many reinsurers and captives who are domiciled in Ireland. These companies are subject to various forms of taxation levied by the government. The main taxes which affect a general insurer's operations are premium tax and corporation tax, the latter being the more significant of the two. This section will focus on how the structure of our corporate taxation system affects non life insurers domiciled in Ireland, and how any changes to the system might also affect them.

5.2.1 Structure of Irish Corporate Taxation System

A company's liability to corporation tax in Ireland depends on its residency. Irish resident companies are liable to corporate tax on all their income from both Irish and worldwide operations, and on any capital gains. If a company has its "central management and control" located in Ireland, the company is considered to be an Irish tax resident. "Central management and control" is defined as the location where major policy decisions of the company are often taken[2].

- **Irish resident company**- liable to corporation tax on worldwide income
- **Irish branch** - liable to corporation tax on Irish branch income
- **Non-Irish resident with no branch**- liable to tax on Irish source income

The current rate of corporation tax on trading income in Ireland is 12.5% and is one of the lowest rates in the world (excluding tax havens). The diagram below shows how Irelands corporate tax rate compares with other countries worldwide:



Source: Deloitte 2009

This low corporate tax rate explains why many insurers/reinsurers decide to locate their main operations in Ireland- the saving for large insurers can be billions of euro/dollars over a number of years. These savings can be used elsewhere- to bolster the balance sheet, improve market share and increase profitability for the benefit of shareholders. Examples of companies who have moved their legal place of incorporation to Ireland in recent times are Zurich and broking giant Willis.

The benefit of such a low tax rate to the Irish government cannot be overstated. The decision by many multinational non-life insurers and reinsurers to relocate to Ireland leads to billions of euros of additional tax revenue each year and has created thousands of jobs in the non-life sector. A total of 7,417 employees were employed by non-life undertakings in Ireland in 2008[1], a high percentage of which were created by what were formally foreign domiciled companies who are now Irish tax residents.

5.2.2 Potential future changes to the Irish Corporate Taxation system

The Irish government has in the past been put under intense pressure to change the rate of corporation tax in Ireland and this pressure will continue into the future.

Intense pressure from other EU member states

As a member of the European Union, Ireland is expected to conform with many of the policies which are agreed upon by other member states. Having adopted the Euro as the single currency across many member states, the next move by the EU could be a consolidation of the corporate tax rate imposed by member countries- a process which has been coined "tax harmonisation". France in particular have strongly voiced their opinions to the European parliament in relation to the apparent unfair advantage gained by Ireland in their ability to attract multinationals. It is not surprising- the graph above shows the Irish rate of 12.5% is dwarfed by that of the French rate of 34.43%! The Irish government will undoubtedly be strongly opposed to any change to the rate of corporate tax, and argue that it is Irelands educated workforce, infrastructure, English language skills and comparative costs which are the driving force behind a multinationals decision to locate here. It remains to be seen whether the government will have to change its corporate taxation policy in the future.

Intense pressure from the United States government

Like many economies worldwide, the United States is in the midst of a deep recession- President Obama is therefore going to take the necessary steps required to reduce the federal deficit and there is no better way to do so than by increasing tax revenue through a crackdown on tax havens. In fact, his election campaign was focused on the fact that if elected, he would propose radical changes in tax rules on American companies operating abroad, insurers in particular. He highlighted the fact that a major concern for US domiciled insurance companies is the fact that competing insurers, domiciled in Bermuda, avail of preferential tax treatment. How? By reinsuring policies written in their US companies to their Bermuda based subsidiaries.

In his attempts to crackdown on tax havens like Bermuda, President Obama has initiated the reopening of the New York Insurance Exchange ("NYIE"). It was formed in the 1980's as a competitor to Lloyds but ceased operating in 1987 when 10 of the 50 syndicates became insolvent. His aim in reopening the NYIE is primarily to take business away from the Bermudan markets[3].

If Bermuda is being targeted as a tax haven, what is to say Ireland will not be next? It should not be a surprise if Ireland does become a target- a White House factsheet in May 2009 listed Ireland, alongside countries like Bermuda and the Netherlands, as havens which helped corporations evade tax. It stated that Ireland, Bermuda and the Netherlands accounted for nearly 33% of all foreign profits reported by US corporations in 2003[4]. Thankfully, any reference to Ireland was subsequently removed from the factsheet within a few days- but the fact that it was even mentioned initially is a concern, it means Ireland is on Obama's radar.

Tax Change Scenarios

Only time will tell if there will be any changes to the corporation tax rate levied by the Irish government. Set out below are 2 scenarios regarding tax changes and how they might impact non-life insurers with their main headquarters in Ireland.

Scenario 1: Irish Corporate Taxation Rate remains unchanged

- Obama initiates crackdown on Bermuda as a tax haven
- Flight of capital outwards from Bermuda: Insurers/reinsurers seek more cost effective headquarters for their worldwide operations.
- Irish corporate taxation rate remains unchanged- Ireland remains a very attractive and cost effective location for those seeking to relocate.
- Inward flight of capital to Ireland: Ireland becomes the legal headquarters for many insurers- place where the decision makers and leaders of the company are located. Relocation of Aviva and Willis Group, mentioned above, being prime examples.
- Helped by the fact that Irish Revenue Commissioners have in a place a programme called the "Special Assignment Relief Programme"- allows certain employees who are assigned from abroad to work in Ireland for a period of at least 3 years to obtain annual tax relief of 50% on all earnings above €100k. This programme could be particularly appealing to the decision makers of the company, who are likely to be earning in excess of €100k.
- Relocation of headquarters should lead to greater employment opportunities for all actuaries working in the non- life sector (and life sector)- positive outcome!

Scenario 2: Irish Corporate Taxation Rate increased to desired EU levels

- Irish Corporate Taxation Rate increased to desired EU levels
- Profits of Non-Life insurers take a considerable hit
- Ireland is no longer the cost effective location it was once was
- Insurers/Reinsurers seek alternative locations- search for new tax havens begins.
- Insurers/Reinsurers switch legal headquarters and a flight of capital from Ireland entails.
- For Irish non-life insurers/reinsurers the result could be devastating- loss of employment inevitable!

Conclusion

Legislation in the United States introduced by Senator Carl Levin in March 2009, entitled the "Stop Tax Haven Abuse Act", outlines a statutory framework to determine what a tax haven is and lists the countries deemed to be tax havens. It is widely believed that President Obama will move to enact the provisions of the Bill into law. Thankfully, Ireland has been omitted from this list, and as such is not seen as a tax haven, at least for the immediate future. It is entirely possible that non-life insurers, through a stroke of luck, will benefit from President Obamas crackdown on tax havens such as Bermuda, as outlined in Scenario 1 above. Irish non-life companies are currently in a much more favourable position than other European based non-life insurers as they benefit from such favourable tax treatment on their profits- long may it continue!

SUMMARY

- At 12.5% the corporation tax rate in Ireland is one of the lowest in the world (excluding tax havens).
- Many multinational non-life and reinsurance companies have relocated to Ireland to take advantage to the low corporation tax guaranting billions of euros in additional profits.
- It is likely that the Irish government will come under intense pressure from the EU and the US to bring the rate of corporation tax in Ireland into line with other, non tax-haven, countries.

5.3 Impact of the Financial Crisis on General Insurers

The current recession, the effects of which are still being felt in countries worldwide, began in July 2007. The onset of the recession can be traced back to the bursting of the housing bubble in the United States in late 2006 as surplus inventories of housing led to an eventual nationwide depreciation in house prices. As house prices began to fall, and initial periods of low interest rates for sub prime borrowers began to wear off, these borrowers found it increasingly difficult to meet the repayments on their loans which lead to mass defaults. The mass defaults resulted in huge losses for banks and investors who had exposure to these loans via mortgage backed securities. The losses were so vast that it resulted in the collapse of prominent US financial institutions like Bear Stearns and Lehman Brothers and required the nationalisation of Freddie Mac and Fannie Mae. As banks needed all the capital they could get their hands on to remain solvent, they were no longer able to provide loans or funding to businesses. Companies that needed cash to undertake their business activities no longer had access to funds which had a catastrophic impact on their ability to survive. It also meant that growth opportunities were few and far between. As companies failed and unemployment rates rose, stock markets worldwide began to reflect the continuing uncertainty in the global economic outlook. Before the US Federal Reserve, the ECB and the Bank of England could react, we were in the midst of negative economic growth: a recession had taken hold.

Similar to other industries, general insurers worldwide have been adversely affected by the recession. It affects every aspect of a general insurers operations: premium rating and underwriting, reserving, claims, expenses, investment performance and the actions of competitors to name but a few.

5.3.1 Premium Rating and Underwriting in a Recession

Premium Rating relates to the process, undertaken by an insurer, of deriving an appropriate price for taking on a certain risk. There are many factors which affect premium rates so sometimes it is difficult to determine precisely what is driving them. It is, however, believed that premium rates move up and down in cycles, called the underwriting cycle.

The basic idea is that when a class of business is very profitable at a point in time, more and more insurers will enter the market to try and tap into these profits. As more insurers enter the market, competition for customers among insurers intensifies. Insurers need to lower premiums to remain competitive. As insurers are forced to drop premiums, the profitability of the class diminishes. There comes a point where the class is no longer profitable for the insurer, and they leave the market. Those insurers with strong balance sheets who are able to withstand the losses endured when premium rates are low, at the bottom of the cycle, find themselves in a dominant market position when other insurers leave the market. This is when we can see increases in premiums as insurers try to capitalise on their market position and recoup the losses of prior years. The recession has brought large losses to many classes of business, and we are already seeing premium

increases across many classes as insurers try to recoup losses incurred over the past 12-18 months.

Trade credit insurers cover the payment risk resulting from the delivery of goods or services. The recession has led to dramatic falls in consumer demand, and hence consumption, of many types of goods and services. This in turn has led to the failure of many suppliers/manufacturers of such goods and services. As trade credit insurers are essentially insuring the risk of insolvency of company debtors, they have experienced huge losses. As a result, many trade credit insurers have ceased operations, which has lead to a fall in capacity for this type of insurance. The fall in capacity means there are fewer providers of trade credit insurance, and those providing it have put massive premium hikes in place. The increase in rates from 2007 to 2008 was in the region of **40%**[2]. The increase in rates from 2008 to 2009 is expected to be similar. Capacity is so low for this type of insurance that it has required government intervention to protect the exportation industry. For example, the French government have introduced a state backed trade credit insurance scheme to cover companies who cannot get insurance to cover the risk that their foreign based customers are unable to pay their bills. The reason is that the French government realise the importance of the exportation industry to the economy, and are willing to do whatever it takes to protect it- providing trade credit insurance is a solution. Other European countries are considering the adoption of similar schemes.

Directors and Officers insurance protects a director/company against losses payable due to the neglect or wrongful actions of the director in their capacity as a company representative. Claims typically arise from shareholders, regulators, customers and other competitors. The collapse of many financial institutions in the US since the beginning of the recession, as mentioned previously, has led many to find and punish those deemed responsible for the failure of the institutions. As directors and CEO’s are essentially responsible for both the direction of the company and protection of shareholder value, they will be liable in many D&O claims. As a result, capacity for this type of insurance has also dried up, and we are seeing **50%**[2] increases in premium rates over the past 12 months in anticipation of enormous claims expected to hit D&O policies. Market experts believe the available D&O capacity (approx. $5BN) is insufficient to cover the vast problems being faced in the global economy, which may ultimately lead to senior directors and officers having to meet claims from their own pocket.

Kidnap and Ransom insurance, typically purchased by ship owners to protect themselves and their crew against losses arising from the actions of pirates, is seeing increases in premiums by up to **700%**[2] from 2008 rates. These rate hikes are due to the increased problems with piracy since mid 2008, which saw 92 attacks, including 36 hijacks, off the Gulf of Aden and east coast of Somalia alone.
Crime rates tend to increase in a recession, so the suggestion that increases in piracy claims are correlated with the recession is not unwarranted.

Terrorism premium rates have also seen dramatic increases in the last year. Terrorist strikes, like that seen in Mumbai (India) in November 2008 , expected to lead to **$600M**[1]

in claims, have lead to increased demand for terrorism insurance, and ultimately higher rates, in anticipation of similar attacks going forward.

During a recession, with no growth, less prospects and higher unemployment rates, default rates on mortgage repayments increase substantially. **Mortgage Indemnity Guarantee (MIG) insurance**, purchased by banks to protect themselves against losses suffered in the event of a default by a customer on their mortgage, has unsurprisingly seen huge rate increases due to a severe lack of capacity. It is ironic that, when bank underwriting criteria was at its lowest, and the risk associated with mortgage default was at its highest, premium rates for this class were at its lowest. What we are now seeing are increases in MIG rates at precisely the same time when bank underwriting criteria is at its most stringent, only the best risks are considered and obtaining a 100% mortgage is a thing of the past. MIG is suddenly becoming a good bet and is likely to be very profitable for insurers/reinsurers writing it over the coming months.

As mentioned above, increases in rates tend to follow increases in claims in an almost cyclical manner. **Warranty** products, which cover the performance of an appliance or product, are a prime example of a class which has been adversely affected by the recession. In a recession, people are much more cautious with their disposable income, which leads to a fall in consumption. This implies people will keep their products, which are under warranty, for longer periods of time instead of replacing them, which is what would happen if the economy were buoyant. As the period of exposure for warranty insurers now implicitly increases, claims are also expected to increase. As claims increase, and large losses are expected, insurers tend to withdraw the amount of business they are will to take on, leading to falls in capacity. As capacity dries up, premium rates increase as demand will typically remain unchanged. You will no doubt notice the pattern of increased claims, and the corresponding lag in increased premiums, which is emerging across many classes in a very similar fashion as the recession takes hold.

Investment returns

Investment income from assets held by a general insurer form a significant component of its operating profits. For insurers who write long tail classes of business, for which claims are not expected to materialise for a number of years, investment income can contribute a larger proportion to operating profits than the underwriting profits. In order to meet solvency requirements set by the regulatory authorities, general insurers are required to hold a large proportion of their assets in secure assets, such as cash and government bonds, for the purposes of policyholder protection. When the assets of a general insurer exceed its liabilities by a certain margin, they are permitted by the regulatory authorities to invest in riskier assets, such as equities and property, in order to increase operating profits. It is those insurers, who have held a larger proportion of riskier assets relative to other general insurers, who have experienced significantly poorer investment results over the past 18 months. This is not a surprise considering the following stock market falls which were witnessed in 2008:

- ISEQ- 66% fall- worst year since foundation of Irish Stock Exchange in 1793! [3]
- NYSE- 33.84% fall- worst performance since 1931[3]

- FTSE 100- 31.3% fall- worst in its 24 year history[3]
- Dow Jones- 34% fall- worst year since 1931[3]
- S&P 500- 38% fall over 2008- worst year since 1937[3]

When assets have performed so poorly since the beginning of the recession, bottom line profits are undoubtedly affected. General insurers need to react to falling investment income, and the easiest approach is to increase premium rates and hence underwriting profits.

The fact that interest rates are at historical lows (practically 0% interest rates in the US, 1% in Europe) is not helping general insurers either as lower interest rates equates to lower investment income, which again reduces profitability.

General insurers are therefore running out of ways to improve profits, and as a last resort need to increase rates, which is what we are seeing across many classes.

Expenses

The recession has resulted in increased claims, increased losses, lower investment returns and has culminated in lower profits for general insurers. Under shareholder pressure, there is a need to improve results. Apart from increasing premiums, there is one option which stands out- reducing expenses and the costs associated with doing business.

General insurers have expenses associated with:

- Acquiring business (commissions payable to brokers, marketing campaigns, advertisement)
- Writing business (legal fees, salaries, administration costs, rent, IT costs)
- Servicing business already written (legal fees, salaries, administration costs, rent, IT costs)

Many insurers are making drastic cuts to reduce expenses and improve the combined ratio. Advertising spends have been cut, staff have been laid off, salaries have been cut, rents have been renegotiated.

M&A Activity

Like any crisis, the recession will throw up many opportunities. Those with strong balance sheets, and who adopted a more conservative investment approach prior and during the financial crisis, are now in a strong position to capitalise on the many M&A opportunities likely to present themselves over the short term.

Opportunities will arise from the following:

- Many governments now hold insurance assets arising from the financial crisis, and over time they will want to divest - the bailout by the US government of AIG being a prime example of a government now in possession of insurance assets.
- Banks, many of whom still need to raise more capital, will look to divest their non-core business units, many of which are insurance related.

- Insurers will look to grow their business through the purchase of less capital intensive targets eg. purchase of a distribution channel
- Historically low valuations, with many insurers trading at a discount to book value, offer opportunities for acquisitions.

Examples of transactions which have taken place over the past few months are as follows:

- Purchase of Lloyds insurer Kiln by Japanese non-life insurer Tokio Marine for €558M[4]
- Purchase of Philadelphia Consolidated by Japanese non-life insurer Tokio Marine for $4.7BN[4]
- Merger of non-life consultants Towers Perrin and Tillinghast[4]

Regulation

Like all insurance companies, general insurers are heavily regulated entities. In Ireland, the financial regulator has come under much criticism for its laissez faire approach to the regulation of bank lending practices. The government is under huge pressure to improve the regulation of the banking system as a whole. This push for increased regulation is likely to lead to more stringent regulation of other financial institutions, including general insurers.

Even though the structure and framework for Solvency II was put in place long before the recession began, the recession means that more weight and importance will be put on its implementation and the outcome of any solvency models. This is positive news for shareholders and policyholders, as the operations of the insurer will be more transparent and documented. Incidents like that seen in the US with AIG should be a thing of the past. The costs associated with Solvency II should be put into perspective when considering the undoubted long term benefits to all parties from its implementation.

Conclusion

The recession has affected every aspect of a general insurer's operations, and has also affected the industry as a whole. Claims have increased, investment returns have fallen and premiums have been hiked across most classes. The outlook for the future is therefore for one of change. Like any period of transition, some insurers will struggle, whilst others will thrive. The general insurance industry as a whole is still fragmented relative to other industries, so the recession will offer plenty of M&A opportunities, which should lead to further consolidation. Consolidation means greater economies of scale for participating insurers, which should lead to lower costs, and ultimately lower premiums. It should also lead to the eventual recovery in the stock price of many insurers capable of surviving the recession.

SUMMARY

- As part of the underwriting cycle insurance premiums are generally increasing as insurers try to recoup heavy losses incurred during the recession.
- The financial crisis has led to large losses for products providing insurance against financial loss thus leading to substantial premium hikes on such products.
- Insurers have implemented drastic cost cutting programmes in order to improve profitability.
- In line with other financial organisations insurers are facing increased regulation which will hopefully improve consumer confidence in the financial industry.
- Possibility of increased consolidation in the General Insurance market which should lead to increased economies of scale for companies involved and ultimately lower premiums for policyholders.

6 Pensions

The years 2008 and 2009 continued to see significant developments in the Pensions Industry in Ireland.

In response to the recent financial crisis the Pensions Board has introduced a number of measures to deal with deficits under Defined Benefit pension schemes. The financial crisis has also resulted in the continued decline of Defined Benefit pension schemes in Ireland.

In contrast, membership of DC schemes continues to grow and we discuss details of trends within DC schemes.

These and other topics are covered in this section as follows:

- Funding of Defined Benefit Pension Schemes
- Trends in Funding Defined Benefit Pension Schemes
- Trends in Defined Contribution Schemes
- Professional Issues
- Legislation Update

6.1 Funding of Defined Benefit Pension Schemes

During 2008, the value of global equities as measured by the FTSE World Index fell by almost 40% with Irish Equities down 65%. It is estimated that at the end of 2008 approximately 90% of schemes failed to meet the Minimum Funding Standard. In response to the financial crisis, the Pensions Board has introduced a number of measures, the most significant of which are detailed below.

6.1.1 Timelines for Certification

The Actuary is required to certify annually on the renewal date whether a scheme meets the Minimum Funding Standard (MFS). Or, if the scheme is already in a Funding Proposal, the actuary is required to certify whether the scheme is “on track” or “off track” to meet the MFS at the end of the period specified in the Funding Proposal.

If the scheme is certified to be “off track” to meet a funding proposal, typically a Funding Proposal would have needed to be submitted to the Pensions Board within 12 months of the certification date.

In recognition of the fact that many schemes face large deficits and are struggling to prepare a recovery plan, the Pensions Board extended the deadline for the submission of Funding Proposals. Where a negative statement (i.e. where the scheme failed to meet the MFS or where a scheme was certified to be “off track” to meet the MFS) appeared in a Trustee Annual Report with effective dates between (and including) 31 December 2007 and 31 December 2008, the Trustees have two years from the accounting date in which the negative statement appeared to submit the Funding Proposal.

The Pensions Board have introduced a subsequent extension for any scheme whose deadline for a filing of a funding proposal expires before 30 June 2010 will be allowed to adopt 30 June 2010 as a revised deadline. There is no change to deadlines occurring on or after that date.

6.1.2 Section 49(3) Changes

Term of the Funding Proposal

Section 49(3) applications (i.e. Funding Proposals longer than 3 years) were previously limited to a maximum term of 10 years. However, the Pensions Board can now approve Funding Proposals with a term greater than 10 years, in appropriate circumstances.

In considering applications for terms of more than 10 years, the Board will have particular regard to the following;

- The extent to which a longer term reduces the contribution rate below that required to fund a 10 year proposal;

- The existence and quality of any enforceable guarantee provided by the employer;
- The proposed investment strategy of the fund, and the extent to which the fund will be exposed to investment risk over the course of the funding period;
- Any exceptional circumstance which differentiates the scheme from other underfunded schemes. The Board have confirmed that inability to pay, on its own, is not considered to constitute exceptional circumstances.

In any event, the Board will only consider an extended period longer than the average future working lifetime of the active members where there are no active members or where the active members have a relatively short future average working life and comprise only a minority of the liabilities of the scheme.

Investment Policy
The Pensions Board acknowledges that there is no single best investment strategy but believes that it is a relevant consideration in deciding on an extension.

The Board will be looking for evidence that the Trustees have fully considered their investment strategy, and have fully considered the effect of potential investment losses under a number of scenarios during an extended funding period on the security of the member's benefits.

Trustees submitting applications under Section 49(3) must demonstrate that the proposed investment strategy is grounded in sound risk management and investment principles. In assessing the Trustees approach the Pensions Board will have regard to

- The extent of the matching of liabilities with appropriate assets
- The Trustees consideration of the implications of possible investment losses and increased liabilities.

Where a change in investment policy is contemplated the Pensions Board would not expect this to be made in a very short time horizon.

Where the trustees have stated that the sponsoring employer is unable or unwilling to pay a higher contribution rate, the Board will pay special attention to the approach the trustees take to investment risk that might result in a requirement for an increase in contribution rates.

6.1.3 Section 50/50A

Brendan Kennedy gave a talk to the IIPM on 20 October, and noted that as at the end of 2008, two thirds of defined benefit schemes had a deficit of 20% of liabilities or greater.

In response to this situation, Section 50 under the Pensions Act has been amended to allow benefits to be reduced, at the order of the Pensions Board. Previously, only accrued benefits for active members could be reduced under a Section 50 application. As a result of the legislative change, accrued benefits for deferred and post retirement pension increases can now be reduced (existing pensions for pensioners' cannot be reduced).

A reduction of benefits under section 50/50A is a serious loss for scheme members. The Boards perspective is that a section 50 order represents a broken promise and the new promise should be much more robust. In approving benefit reductions, it wants to the satisfied that the chances of a further application are small.

The Board will consent to an application only where it is satisfied that the proposed future operation of the scheme is robust enough to make any further application unlikely.

In making this assessment, the Board will consider the following;

- the proposed contribution rate
- the ability of the scheme to withstand investment losses, given the proposed investment strategy. The Board will assess the ability of the scheme to withstand an investment stress test immediately after the section 50 reduction
- the proposed responses to short and long term risks
- any other relevant factors which the Trustees bring to the attention of the Board.

Before making any application, trustees must engage in a comprehensive review of the scheme.

Scheme Review

The scheme review must include:

- Benefits – this must include both accrued benefits and the rate and type of future accrual.
- Investment – the long-term investment strategy must be agreed, including transition from the current position, where relevant. Further information in relation to the investment guidelines that Scheme's who wish to avail of the amendments to Section 50 are outlined in section 2.5 of this report.
- Contributions – as well as the contribution rate for future accruals, and, where relevant, past service deficits, this review must consider the extent to which contributions can be increased should the need arise.
- Risk Management – trustees must carefully consider the possibility of the scheme proving more expensive than anticipated, whether though investment shortfalls, improving longevity or other causes, and identify which steps will be taken in those circumstances, through contribution increases, changes to discretionary benefits or other steps. If the questions in relation to risk management are not answered satisfactorily, the Board will refuse the section 50 application.

The Trustees should obtain legal advice before preparing any application for the purposes of section 50/50A.

Member Communication

While applications under section 50/50A do not require member consent, the Board requires that, prior to any application being made, the trustees must provide information to scheme members on the implications of and rationale for the reduction in benefits. The communication process should remain open for one month to allow adequate time for member response. Each application received by the Pensions Board will be considered on a case by case basis.

SUMMARY

- The funding deficit in Irish Pension DB pension schemes has led to the Pensions Board introducing extensions for the submission of funding proposals.
- In addition the Pensions Board will consider funding proposals of greater than 10 years.
- Section 50 of the Pensions Act, which allows for a reduction in accrued benefits, has been amended to allow benefits to be reduced at the order of the Pensions Board.

6.2 Trends in Funding Defined Benefit Schemes

There are many forms of pension arrangements used by Irish employers, ranging from Personal Retirement Savings Accounts (PRSAs) to the traditional Final Salary form of Defined Benefit (DB) arrangements. The majority of arrangements have to date fallen, into one of two categories – Final Salary designs (the most common form of DB scheme) and conventional Defined Contribution (DC) arrangements.

Final Salary schemes are more likely to be found amongst long established employers. Defined Contribution schemes are more the norm in recently established companies and are also increasing their coverage among new hires, even in traditional employments where Final Salary schemes have previously been prevalent. The most recent survey of the Irish Association of Pension Funds (IAPF) survey published at the end of 2007 showed the following key trends:

Type of pension scheme offered	**2002**	**2007**
Offering defined benefit only	67%	37%
Offering defined contribution only	8%	24%
Offering both DB and DC	21%	36%
Offering Hybrid	4%	3%

Source: IAPF Pension Markey Survey 2007

6.2.1 The decline of Defined Benefit

Defined Benefit schemes have encountered a difficult environment in recent years. Companies are envisaging the "old style" DB pension scheme as an expensive and risky vehicle for their employees. Changes are being made including, for example, the phased de-risking of pension schemes (as discussed in section 2.2.2 of this paper). More extreme changes are also being made - DB pension schemes are being closed altogether with future benefits being accrued in Defined Contribution arrangements where the member takes on the investment and longevity risks. So why has the landscape started to change so dramatically?

The following are the main reasons for the recent decline of Defined Benefit:

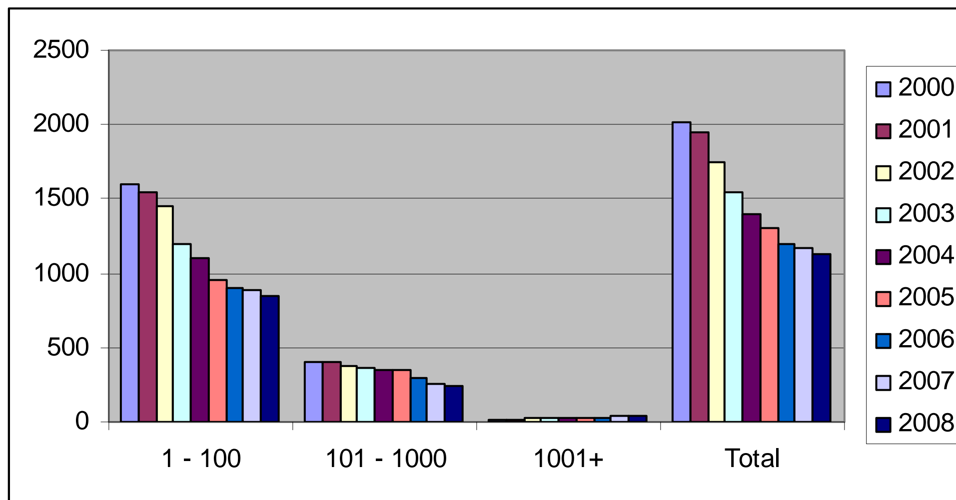
- Accounting for DB schemes - given that the cost of providing a DB scheme impacts on a company's balance sheet, the increase in prescription and transparency and the absence of smoothing is resulting in pension costs having a more direct impact on corporate finances.
- Funding for DB schemes – the cost of funding DB schemes has increased dramatically for the following reasons:

- o Poor investment performance - typically, DB schemes hold a percentage of their assets in equities. The stock market falls of 2008 and 2009 have seen significant drops in the value of DB pension scheme assets.
  - o Annuity costs - there has been an increase in the cost of securing annuities due to a fall in bond yields
  - o Improvements in life expectancy – annuity costs have also increased due to the increasing statistical evidence suggesting people are living longer, with the expectation that this improvement in longevity will increase further.
- Compliance costs – there has been a gradual increase in the burden of disclosure and regulations for DB schemes over many years. Most of this is intended to protect the interests of members but the complexity and costs which have arisen act as a major disincentive to employers running DB schemes.

The design of the typical DB scheme, whereby the majority of benefits are predefined rather than discretionary or dependent on funding levels, has left companies with little room to manoeuvre.

The extent of the decline can be seen from the recent DB survey conducted by the Pensions Board. This showed that only 39% of DB schemes remain open as at November 2009. The decline in DB schemes is clear by looking at the graph below which illustrates the number of schemes subject to the Funding Standard as per the most recent Pensions Board annual report.

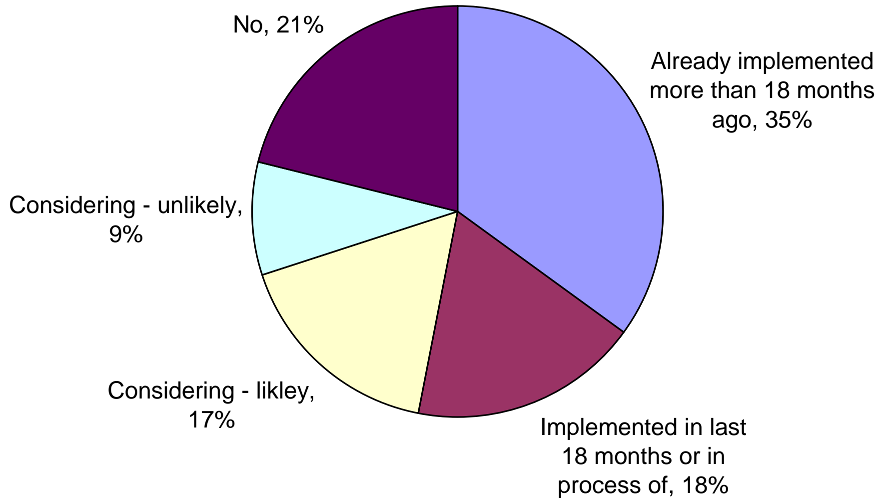
Number of DB Schemes subject to Funding Standard (split by membership size)



Source: Pensions Board Annual Reports

It is expected that the current statutory funding difficulties created by stock market falls will reduce the above statistic further over the coming years. In fact the following graph from a recent IAPF DB Survey shows that as much as 79% of schemes are now either closed or considering closing to new entrants.

DB Scheme Closure to New Employees

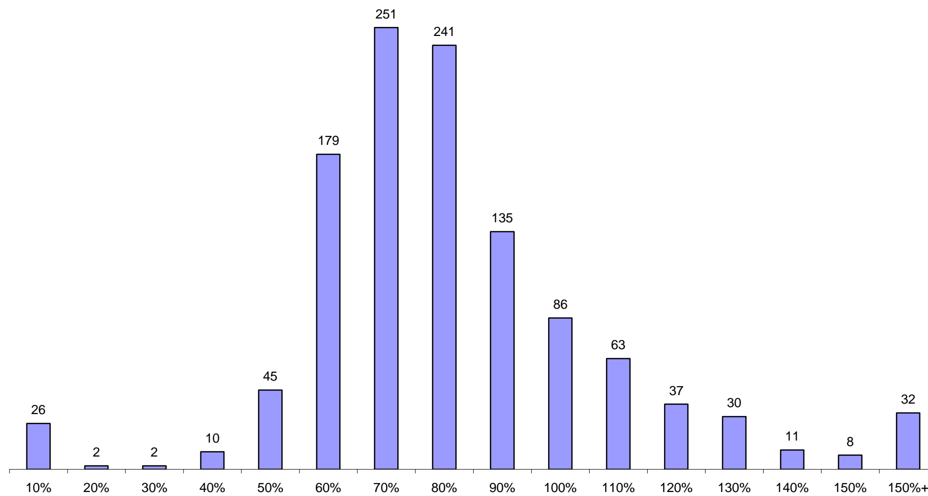


Source: IAPF DB Survey October 209

6.2.2 Funding Position

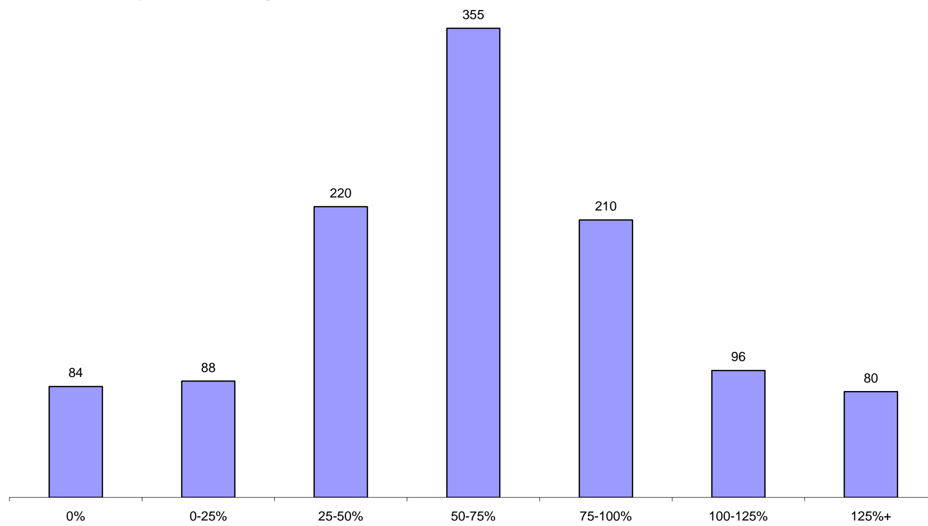
There is no doubt that the poor funding position of many Irish DB schemes together with the economic recession has forced many organisations to examine their pension costs more closely to assess how these can be reduced and controlled going forward. The extent of the poor funding position of DB schemes (under the Minimum Funding Standard) can be seen from the below charts taken from the recent Pensions Board DB survey.

Schemes by Overall Funding Level – end 2008



Source: Pensions Board DB survey November 2009

Schemes by Funding Level of Actives and Deferreds – end 2008



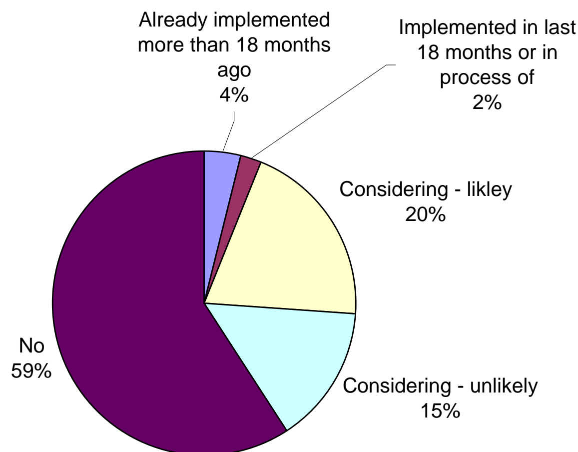
Source: Pensions Board DB survey November 2009

These charts show that over 80% of schemes fail the Minimum Funding Standard and about 90% of schemes have coverage levels of less than 100% for active/deferred members.

6.2.3 Future Plans

Given recent developments in markets, employers are increasingly looking at ceasing future accrual under their Defined Benefit schemes moving instead to the cost certainty of Defined Contribution type arrangements. The recent IAPF DB survey highlights the extent at which employers are looking at this option – you will see from the graph below that over 40% are considering removing or have already removed future accrual under their DB schemes.

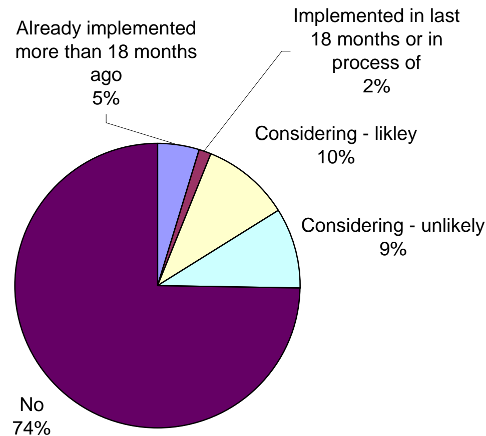
Removal of Future Accrual



Source: IAPF DB Survey October 2009

Looking at the more extreme option of winding up the scheme, it is clear from the below chart from the IAPF DB survey that an ever increasing number of employers are looking at this option.

Main DB Plan Wind Up



Source: IAPF DB Survey October 2009

SUMMARY

- Provision of DB pension schemes in Ireland continues to fall.
- Funding difficulties, which have been increased by the recent financial crisis, will result in the continued decline of DB pension schemes.
- Only 39% of DB pension schemes remain open as at November 2009.
- Over 80% of DB pension schemes failed the Minimum Funding Standard in 2009.
- Over 40% of schemes are considering removing or have removed future accrual from their DB pension schemes.

6.3 Trends in Defined Contribution Schemes

Defined Contribution (DC) is now clearly the predominant approach for future pension provision for new hires. As an indication of the rapid growth of the DC marketplace, 88% of DC scheme responses from the IAPF Pensions Market Survey 2007 were in respect of schemes which commenced since 1990.

There is also a trend emerging whereby DC plans are used to supplement Defined Benefit (DB) provision but with benefits at lower levels than traditional DB plans.

6.3.1 Trends in Contributions

Contribution Rates

Overall average contribution rates have increased by approximately 20% since 2005. This is significantly less than the typical level of increase in contributions payable to DB plans. This increase in average contribution rates is also largely due to larger newer DC plans having higher contribution rates than plans that are longer established. The average employer contribution in 2009 was 7.2%, this compares to 5.9% payable in 2005.

Contribution Structures

There are an increased number of employers matching employee contributions above a certain level, up to a stated maximum. This approach enables employers to target spend on those employees who most value the provision, as evidenced by higher personal contributions. The counter arguments are that it encourages those employees who can afford to contribute more, to the detriment of those most in need of employer assistance.

Age related contributions may become less common in future as employers are unlikely to want to be perceived as discriminating against employees because of their age.

6.3.2 Investment Considerations

Fund Choice

It is generally considered best practice to offer at least four options: cash, fixed interest, balanced and equity funds. The majority (57%) of funds on offer are passively managed funds. This probably reflects Trustee concerns about finding active managers who will outperform the relevant benchmarks.

Trustee Investment Guidelines

The IAPF launched a set of Investment Guidelines that DC Trustees should endeavour to adhere to. These guidelines include the following;

- Trustees should discuss investment matters at least annually

- Trustees should take expert advice in relation to investment issues unless they are satisfied that they already have the necessary skills and information.
- Trustees should ensure that they comply with all relevant investment regulations.
- Trustees have a responsibility to provide a range of appropriate investment options for their members.
- Trustees should ensure sufficient communication exists to enable members to be aware of the important features of the investment options available to them and should provide appropriate default strategies for members.

Annuity Deferral

In December 2008 the Minister for Finance announced that members retiring from Defined Contribution (DC) schemes could avail of an option to defer the purchase of an annuity until December 2010 at the latest. Some factors that the IAPF guidelines recommend that member consider include the following;

- The type of fund currently invested in and the fund options available to them.
- Interest rates are one of the factors that have the biggest impact on annuity prices. Therefore further falls in interest rates between now and the date an individual purchases an annuity are likely to mean the same amount of capital will purchase a smaller pension.

SUMMARY

- ❖ DC is now the main option for future pension provision for new entrants.
- ❖ The average employer contribution in 2009 was 7.2%.
- ❖ The IAPF has issued a set of Investment Guidelines that DC trustees should endeavour to adhere to.
- ❖ Since December 2008 members retiring from DC pension schemes can opt to defer the purchase of an annuity until December 2010 at the latest.

6.4 Professional Issues

Since the 2007 Hot Topics paper, the Actuarial Standard of Practice Pen 12 – "Statements of Reasonable Projection – Occupational Pension Schemes and Trust RACs" is now in place and is effective from 1 July 2009.

Also, there is a proposed Actuarial Standard of Practice Pen 13 – "Conflicts of Interest – Pensions Actuaries". This is in draft format at the moment and is with members for consultation.

I have set out below a brief summary of the Actuarial Standards of Practice Pen 12.

6.4.1 ASP PEN-12 Statement of Reasonable Projection

Regulations have been published which require Trustees to provide members with a projection of the benefits they might expect to receive in the future from the Pension Scheme i.e. to provide members with a Statement of Reasonable Projection. This Actuarial Standard of Practice sets out the principles in accordance with which the various parameters underlying the calculation of the figures required to be provided in such a projection. The Actuarial Standard of Practice has been prepared with the objective of providing illustrations of retirement benefits which are fair, clear and not misleading.

Essentially the purpose of this Statement of Reasonable Projection is to ensure that members get a statement that shows them the possible benefits they may get (based on a range of investment return assumptions). The ASP provides a range of assumptions that are appropriate for individual member projections.

6.5 Legislation Update

Since the last hot topics paper was written in 2007, two Social Welfare and Pensions Acts have been passed.

6.5.1 Social Welfare and Pensions Act 2008

The following measures were introduced under the Social Welfare and Pensions Act 2008, which was signed into law on 7 March 2008.

Trustee Training

The role of trustee is an onerous one and trustees have always been encouraged to ensure they were sufficiently informed to discharge their duties and responsibilities. It was felt that more prescription was required in this regard and so under new rules set out in Section 28 of the 2008 Act, pension scheme Trustees are now required to obtain training on a prescribed frequency.

The training undertaken needs to cover the Pensions Act and regulations, duties and responsibilities of trustees both under the Act and at common law and effective management of a scheme.

While existing trustees in place will have two years during which to complete their first training course, all new trustees will be required to receive training within a six month period after their appointment. In both cases, there is a requirement to re-train every two years thereafter. For the purposes of these rules, trustees are defined to include directors of corporate trustees as well as individuals, and the only categories of trustee who avoid the training requirements are professional trustees and pensioneer trustees.

Where an employer breaches the obligation to provide regular training it may be prosecuted. Where a trustee fails to undertake the required training, section 3A has been amended to allow the Board to apply an on-the-spot-fine.

Trustees are required as a result of an amendment to section 54(1) to confirm in the Annual Report that they have undertaken the required training and to confirm that they have access to the latest edition of the Board's Trustee Handbook.

Further Reading: A list of trustee courses approved by the Pensions Board is provided on the Pensions Board website and further information on the availability of training is available from the Pensions Board. In addition the Pensions Board have recently launched an e-learning tool for trustees – this can be accessed via the Pensions Board website.

Registered Administrators

In order to formalize the role of administrator to a pension scheme, Section 27 of the 2008 Act introduced the concept of Registered Administrators. This part of the Act set out detailed provisions that Registered Administrators must comply with.

With effect from 1 November 2008 the trustees of every scheme (including large trust RAC schemes) needed to appoint a Registered Administrator to provide various services to the scheme known as "core administration functions". The 'core administration functions' in question are the preparation of annual reports and annual benefit statements, together with the maintenance of sufficient and accurate records of members and their entitlements to discharge these functions.

Such administrators are now statutorily obliged to register with the Pensions Board on an annual basis.

The Act sets out various rules that Registered Administrators must comply with:

- A key requirement is that annual reports and benefit statements must be delivered to the trustees not less than one month prior to the date by which they must be made available to members - in effect shortening existing delivery time limits slightly.
- A Registered Administrator must provide an "address for service" in the Republic of Ireland.
- Registered Administrators are obliged under the terms of the Act to provide certain information about Schemes to various parties. These requirements are much like existing provisions under the Pensions Act relating to production of information by trustees.
- There are provisions affecting how administration services are contracted, including a minimum 90 day notice period for termination of appointment and a stipulation that the availability of administration services must not be dependent on buying other services and vice versa.
- Whistle blowing provisions apply to Registered Administrators, but only in respect of information obtained after the commencement of Section 27.

As regards supervision, the Pensions Board has powers to investigate a Registered Administrator and to terminate a registration. The general offences regime under the Pensions Act will be applied to Registered Administrators, but on the spot fines do not apply. It is an offence for a Registered Administrator to fail to carry out the "core administration functions" within the time limits specified in the legislation.

In addition, The Pensions Ombudsman powers have been extended to include Registered Administrators.

Further Reading: Full details of the Registered Administrator function can be found on the Pension Board website article titled Renewal of Registration for Registered Administrators.

6.5.2 Social Welfare and Pensions Act 2009

The following measures were introduced under the Social Welfare and Pensions Act 2009 to support workers in defined benefit pension schemes:

Pensions Insolvency Payment Scheme (PIPS)

Given that many defined benefit schemes in Ireland are being wound up and the priority order on wind up favours the pensioner members, many non-pensioner members are seeing their pension benefits severely reduced. In response to the Governement's Green Paper on Pensions, The Irish Association of Pensions Funds and the Society of Actuaries in Ireland suggested a package of measures to the Government, one of which was that the State could provide annuities on a "not for profit basis".

Responding to this, the Government has introduced the Pensions Insolvency Payment Scheme to help current and former employees of an insolvent employer whose defined benefit pension scheme winds-up and is in deficit on the statutory funding standard basis.

Under PIPS, the trustees of a scheme can pay a sum to the Exchequer to cover the cost of paying the non-escalating pensions of retired members, instead of buying annuities. It is intended that the National Treasury Management Agency will be delegated powers by the Minister for Finance to price the cost of pensions on a not-for profit basis. The Government expects that the PIPS will be able to provide guaranteed pension benefits (annuities) at prices that are more attractive than those currently offered by insurance companies with estimated cost savings under the PIPS of between 15% and 20%.

Savings will then be put towards the pensions of those yet to retire, thereby reducing, to some extent, pension shortfalls.

As the PIPS is only available to schemes that wind-up that have an insolvent employer, the expected cost savings can not be reflected in the assessment of a Scheme's Funding Standard liabilities. Therefore the introduction of the PIPS does not in itself reduce statutory funding requirements. This may frustrate the many solvent employers that are facing significant difficulties in meeting the statutory Funding Standard.

Further Reading: Full details of the Pensions Insolvency Payment Scheme can be found on the Department of Social and Family Affairs website.

Changes to Wind-Up Priorities

The package of measures proposed to the government by the Irish Association of Pensions Funds and the Society of Actuaries in Ireland suggested that where a pension plan is insolvent it is unfair if pensioners' benefits are fully secured at the expense of other members. A specific solution was not identified but the inference was that a more equitable distribution is appropriate between all classes of members.

In response to this, the Government have announced a change in the way that funds are disbursed if a defined benefit pension scheme is wound-up with a deficit. Pensioners will

continue to get first priority for their pensions but any future guaranteed pension increases will not be granted until workers who have also contributed to the scheme, and have yet to retire, receive their share of benefits.

This reallocation of resources on wind-up could be significant for Schemes with generous pension increases, for example, schemes that guarantee pension increase at a fixed 3% p.a. in payment or in line with CPI increases. The change will have no impact for Schemes that do not guarantee pension increases.

Clearly this will not be a popular change for pensioners who in some cases would have otherwise had their full pension (including guaranteed increases) secured on wind-up. For example, for pensioners who would have otherwise had a pension secured with 3% guaranteed increases and as a result of these changes are provided with a level pension, the reduction in value terms could be as much as 40%.

The Irish Association of Pension Funds (IAPF) has welcomed this change saying that "The changes in wind-up priorities will provide for better equity between pensioners and members while still protecting those already in retirement"

In response to the above change, Philip Shier, President of the Society of Actuaries in Ireland said: "The reprioritisation of post-retirement increases on wind-up will facilitate a more equitable distribution of the available assets in the event of wind-up of an insolvent scheme."

SUMMARY

- Under the Social Welfare and Pensions Act 2008:
  - trustees will be required to undergo formal trustee training on a prescribed frequency.
  - "Registered Administrators" must be appointed to provide "core administration services".
- Under the Social Welfare and Pensions Act 2009:
  - on the wind-up of a pension scheme pensioners will no longer get future guaranteed pension increases until other members receive their share of the benefits.
  - a Pension Insolvency Payment Scheme was introduced that will provide not for-profit annuities to members of an underfunded pension scheme that winds up and the sponsoring employer is insolvent.

Appendix A – Alternative Asset Classes

Alternative assets are those that sit outside the traditional asset classes of equity, fixed income, money market instruments (cash) and property. There is no set definition of what defines an 'alternative' asset however a broad definition would be that it is an asset who investment characteristics differ markedly from that of the traditional assets classes.

Typical characteristics of alternative assets are:

- Limited investment history
- Low correlation with traditional asset classes
- Traded in illiquid markets
- Specialist knowledge required on the part of the manager

Based on these criteria, examples of alternative assets would include:

- Hedge Funds
- Private Equity
- Emerging Market Equities
- Commodities
- Forestry
- Infrastructure
- Renewable energy
- Structured credit
- Derivatives e.g. volatility swaps
- Insurance securitisations
- CAT bonds
- Carbon Trading

Alternative assets frequently exhibit low correlation of returns with other asset classes and so can be used to create a more diversified portfolio. Alternative assets also provide the potential for higher returns than traditional asset classes but at the price of illiquid markets and frequent information asymmetry between buyers and sellers.

For insurance companies and pension schemes the illiquid nature of many alternative assets is not a significant issue as the nature of their liabilities requires them to take a longer-term view. They can thus benefit from the liquidity premium available on these assets.

The increased volatility in equity markets and the extremely low bond yield of recent times have increased the attractiveness of assets that provide both increased diversification and the potential for higher returns.

As such, alternative assets can fulfil both of these criteria and it is likely that the proportion of institutional funds invested in these assets will continue to increase in the years to come.

Private Equity

Private Equity is one of the largest of the alternative asset classes. At its simplest it is an equity investment in a company that is not publicly quoted. As such, private equity investment is characterised by:

- Illiquid investments with no clear exit strategy
- Difficulty in obtaining independent valuations of holdings
- Fund managers adding value through active and ongoing involvement with the companies in which they invest

There are a number of very different types of investment with varying return characteristics and levels of risk. Two of the most common forms of private equity investment are leveraged buyouts and venture capital.

Leveraged Buyouts

Leveraged buyout (LBO) transactions usually involve the acquisition of established, profitable companies where the deal is financed by significant amounts of debt. This debt is secured on the assets of the company being acquired and the interest serviced from its profits. As such to be attractive as an LBO target a company should have:

- Steady and predictable profits
- Little existing debt of its balance sheet
- Potential for cost reduction

It is also important for investors to have a clear exit strategy frequently trough a trade sale or public offering.

For the institutional investor, exposure to LBOs can be gained through funds run by the major private equity firms such as TPG Capital, the Blackstone Group and Kohlberg, Kravis, Roberts.

In the mid part of this decade LBO investment boomed, fuelled by low interest rates and a strong economy. Records were set on a monthly based for the ‘largest LBO transaction in history. For example in 2006, hospital company HCA was taken private in a $31.6 billion transaction by KKR surpassing the record set by the famous 1989 buyout of RJR Nabiso. However, with the recent turmoil in the market the environment for these types of transaction has become much more challenging

Venture Capital

In contrast to LBO investment, venture capital (VC) involves investment in early stage companies that are believed to offer the potential for significant growth. Venture Capital is synonymous with Silicon Valley and the technology and biotech sectors however it can equally apply to other industries. Venture capital investors are similar to the ‘dragons’ of Dragons Den in that they provide start-ups firms with capital and advice in return for an equity stake in the firm. From the investors point of view they would typically look to realise their investment through an eventual IPO.

More so than other forms of private equity VC is very dependent on the skill of the fund manager to identify those firms that have the potential to become 'the next big thing'. Indeed it is a feature of VC investment in Silicon Valley over the last few years that many of the first generation of successful internet entrepreneurs have become the capital providers for the more recent innovators.

Again access for institutional investors is most frequently through investment funds run by specialist managers such as Sequoia Capital. These funds provide a degree of diversification and access to the specialised knowledge that is required to manage investments of this type.

Commodities

Commodities are a large and important part of the world economy. In the developed markets, the volumes on the exchange-based commodity derivates markets are about five times more than that of the equity markets.

There are five major commodity sectors: Energy, Metals, Food and Fibre, Grains, and Livestock. Commodities are produced "naturally" and subject to extreme demand and supply cycles. A unit of one commodity is broadly interchangeable with another and so they can be traded on exchanges without prior inspection.

Investing in Commodities

Investors usually hold commodity futures, rather than the physical assets. Investors can gain exposure to commodities through the use of swaps, futures contracts (either individual or an index contract), structured products or through the use of fund managers' funds. The latter option is likely to be the most cost effective, easiest and least time consuming to administer.

Characteristics of Commodity Investment

Commodities produce a different pattern of returns to other asset classes. The value of financial assets is tied to their future cash flows, whereas commodities pay no interest and offer no share of any future profits. Current global demand and supply for raw materials is the main driver of commodity prices

Commodities do not match pension scheme liabilities. The attraction is therefore the potential to use commodities to diversify sources of return, i.e. to *reduce risk* relative to the liabilities and /or *provide a source of additional return* in excess of liability growth.

Reducing Risk

Although commodity returns are volatile, with historic volatility similar to equities, the following two characteristics mean that they can reduce the overall risk of an asset portfolio relative to the liabilities:

- **Diversification**- Commodity prices are not driven by the same factors which drive equity and bond markets, therefore their returns are negatively correlated to

the main asset classes. This suggests that the inclusion of commodities in a mixed asset portfolio will provide diversification and reduce overall portfolio volatility over time.

- **Inflation Hedging** – Commodity returns generally move in the same direction as inflation (i.e. the two are positively correlated) and so commodity investment can be seen as a hedge against increases in inflation-linked liabilities. However, many investors can use index-linked bonds to hedge against changes in inflation-linked liabilities which, unlike commodities, have a guaranteed real return.

Adding Return

Historical analysis shows that commodity returns have been equity-like over the last 40 years. However, many commentators view the 1970's oil shocks and the resource boom of the early 2000's, as being the key to these returns.

Investment Risks

There are some risks involved in commodity investment – these include:

- A lack of conclusive historical evidence that commodities provide a real return
- Commodity markets are volatile and can be affected by factors unrelated to underlying economics
- A high level of specialist expertise is required to decide which commodities to invest in
- There is a low correlation between the performance of commodities with pension fund liability values
- There may be currency mismatches, particularly as many commodity investments are denominated in US dollars.

Emerging Market Equities

Emerging markets are markets that are considered to be in a transitional phase between developing and developed status. Emerging markets are not homogenous by geography as they include markets in Asia, Latin America, Europe and the Middle East and Africa. Individual emerging market countries also have very different characteristics in terms of economic factors (budget deficits, inflation, etc.).

Emerging markets have grown significantly over the last five years, partly through strong performance and partly through more companies becoming listed on the market. Currently, there are approximately 28 emerging markets in the world, with the economies of China and India considered to be by far the two largest

One way to invest in emerging markets is to purchase the equity stocks of companies that operate in those markets, either directly or via emerging market equity funds. Another way to gain some emerging market equity exposure would be to purchase the equity stock of Irish companies with substantial overseas subsidiaries, that export most of their output and/or that buy most of their raw materials from overseas.
The potential benefits of investing in emerging market equities include:

- **Diversification benefits –** exposure to emerging markets will increase diversification by region and at the individual stock level within a global equity portfolio.
- **Earnings growth –** Emerging market countries and emerging market firms have higher earnings growth potential.
- **High potential returns –** The higher growth potential of emerging markets supports higher expected returns compared to developed markets (as does the higher level of risk/volatility).
- **Countercyclical nature –** There is an argument that emerging markets are countercyclical, i.e. experience high returns when developed markets experience low returns. Up until mid 2008, there had been some evidence that emerging markets were 'decoupling' from developed markets, but as the inevitability of a global economic slowdown became apparent, the emerging markets fell back very sharply.
- The risks of investing in emerging markets include:
- **High volatility of returns –** Emerging markets are expected to have higher risk (higher volatility of returns) compared to developed economies. There may be periods where emerging markets significantly underperform developed markets.
- **Political risk –** The political environment in emerging markets can be volatile and changes to the political environment can impact on the prospects of emerging markets.
- **Currency risk is difficult and costly to hedge –** This is exacerbated by the fact that emerging market stock returns and currencies can often be positively correlated. Emerging currencies themselves can be highly volatile and there have been, in the past, both devaluations and closing of currency markets.
- **Has countercyclical nature/'decoupling' been significantly tested? -** Global growth and commodity prices are the key drivers of many emerging market economies, therefore emerging markets may still be correlated to developed markets during periods of global downturn (which is arguably the time when you need emerging market diversification the most). This view is supported by the experience of 2008 when emerging market equities fell precipitously, catching up their developed market counterparts after spending a year 'decoupled' from them.

Infrastructure

Infrastructure investment refers to partnerships with public institutions to construct large, fixed assets that provide power, transportation, water etc. Infrastructure investments to date have typically been in economic infrastructure however we are now also seeing investments in social infrastructure such as hospitals and schools.

There currently exists a widespread need for income generating long duration assets to better match long-term liabilities. Infrastructure assets can provide a series of high-

yielding, stable and inflation hedged cash flows that are an excellent match for the liabilities of pension funds in particular.

On the supply side, the ballooning of government debt across the world is likely to mean increased opportunities for public / private partnerships.

The attractiveness of infrastructure as an investment is due to the unique characteristics it displays:

- Essential services – infrastructure assets provide essential services such as water supply or electricity distribution, demand for which is inelastic
- Strategic competitive advantage – in many cases there will be few (if any) competing suppliers in the markets in which the infrastructure assets operate
- Long-tem stable cash flows – the two characteristics above combine to ensure that mature infrastructure assets generate exceptionally predictable returns
- Inflation hedge – infrastructure is a real asset whose cash flows should increase in-line with inflation
- Low correlation with other assets – infrastructure assets should be less susceptible to business and commodity cycle volatilities than traditional assets.

However, infrastructure investment also carries a number of unique risks:

- Political / regulatory risk – a change of government may impact on existing agreements or regulatory intervention may lower prices
- Lack of historical returns – infrastructure as an asset class is relatively new making it difficult to draw conclusions about its long-term risk / return characteristics.
- Leverage risk – the construction of infrastructure assets typically involves significant debt levels.
- Event risk – where investments are not diversified a natural disaster or other event can impact returns.

Institutional investors can access this universe in a number of ways including

- Listed infrastructure funds – which invest in listed infrastructure assets
- Unlisted infrastructure funds – similar in structure to private equity funds
- Infrastructure debt funds – similar to other private debt funds
- Direct investment / co-investment with public bodies – only possible for large funds without compromising diversification.

Listed or unlisted infrastructure investment is probably the most practical choice for Irish investment managers. The advantages of the listed approach include:

- Liquidity – exposure can be altered quickly and cheaply by buying or selling securities
- Accessibility – a large initial outlay is not required
- Diversification benefits – infrastructure funds facilitate diversification in that they can invest in a range of assets, geographic areas and currencies

- Costs – transaction costs and fee structures are lower compared to other investment methods
- Price transparency –assets are priced daily facilitating valuations and performance measurement.

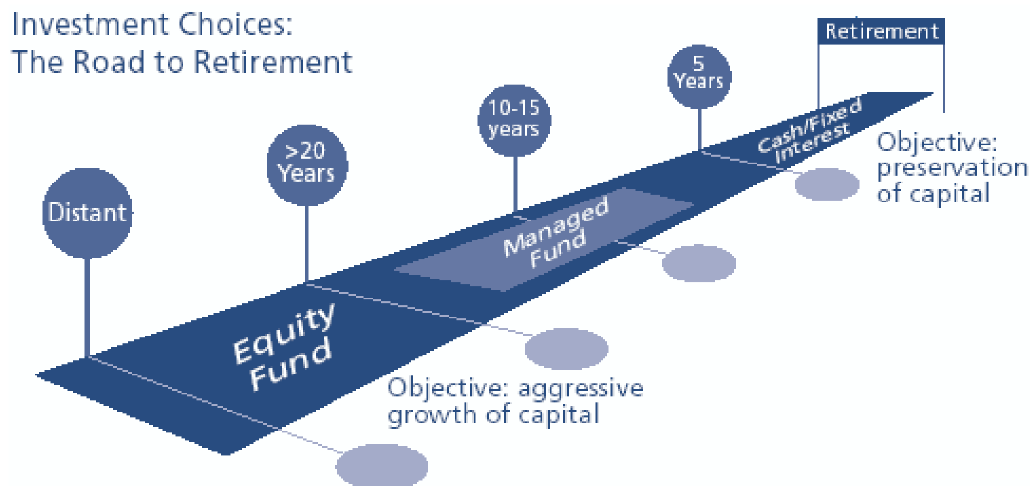
The disadvantage of this approach is that listed infrastructure will by its nature has a higher correlation to equity markets (a higher Beta). Similarly, it is likely to exhibit higher volatility. As such, it offers less risk mitigation at a portfolio level than unlisted investments. The aggressively geared nature of some listed infrastructure funds should also be of concern to investors.
The characteristics of unlisted infrastructure can be similar to private equity

Appendix B – Defined Contribution Lifestyle Strategy

A lifestyle strategy is simply a term for describing the development of a defined contribution (DC) investment strategy over the course of an individual's working life. The traditional form of lifestyle is one that invests predominantly in equities for the majority of the working life. As the individual approaches retirement, investment is switched towards bonds and cash, such that equity exposure at retirement is either nil or very low.

The lifestyle approach mirrors the main investment risks that the DC member experiences during the pre-retirement phase of their membership. For the vast majority of this period, the main investment risk is that the pension fund underperforms salary inflation and therefore the real value of contributions. The aim therefore is to grow contributions so that they outperform inflation – this is referred to as the "growth" phase.

As the member approaches retirement, the reality of purchasing benefits has a greater influence on investment needs and a move to assets that preserve capital and match fluctuations in annuity prices becomes a priority. This latter shorter phase is referred to as the "consolidation" phase. The diagram below gives an overview of how the change in investment priorities looks in practice



Arguments for a lifestyle approach

- A lifestyle approach addresses the most important risks for members of a DC scheme at each stage of their career:

Growth orientated assets like equities that are aimed at protecting against inflation risk when the member has a long time period to retirement,
switching to….
More secure/less volatile assets such as bonds and cash which better protect against market risk (in particular annuity rate risk) close to retirement.

  - The cost of a pension at retirement will broadly fluctuate in line with changes in long-term interest rates. Long-dated bond funds also move in a similar way in accordance with long-term interest rates. Therefore, for funds which will be used to purchase a pension, a long-dated bond fund provides the best match for changes in the cost of buying a pension.

  - Cash provides the best match for members who which to take part of their DC savings as a cash lump sum.

- A lifestyle strategy encompasses the investment needs of members of all ages.

- The use of a lifestyle approach may be a good default option for a DC scheme.

- For members who are uncomfortable with investment choice, it provides a simple solution that is expected to protect them from poorly informed investment choice.

Drawbacks to the lifestyle approach

- Trustees are required to make decisions on a much greater range of issues than simply which investment fund choices to offer.

- A traditional lifestyle approach gears the member to a single retirement date, typically the member's normal retirement date. This may not be suitable for certain members e.g. those who plan to early retire or retire late.

- The lifestyle approach normally targets a fixed mix of assets at retirement, based on the typical retirement benefits taken i.e. a mixture of an annuity and cash. An investment strategy that targets these benefits may not cater well for members with a different mix of retirement benefits wishing to avail of an Approved Retirement Fund (ARF) option in respect of their AVCs or indeed the very few members who do not wish to take cash.

- Members may feel they have passed all responsibility for their DC investment to the Trustees, so may be more inclined to 'blame' them if things go badly.

On balance, the arguments for a lifestyle option outweigh the drawbacks, particularly if a lifestyle option is offered as part of range of other 'self select' DC fund options.

Designing a Lifestyle Strategy

There are a number of important decisions that need to be made in designing an appropriate lifestyle strategy for a DC scheme. These include:

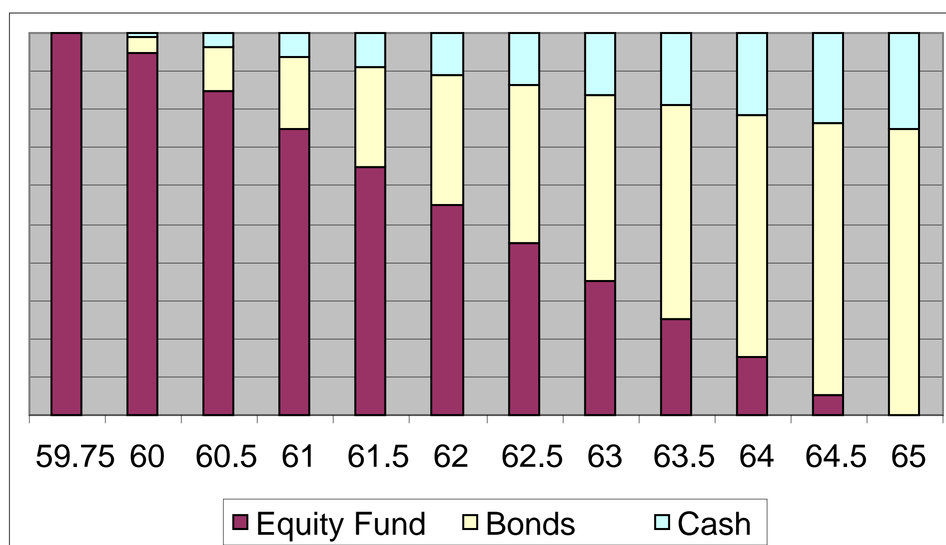
- What fund(s) should be used for the growth phase?
- What is the appropriate length of the switching period (i.e. how many years prior to retirement should assets start being moved from equities to bonds and cash)?
- How frequently should assets be moved from equities to bonds and cash during the switching period?
- What asset mix (i.e. allocation between bonds and cash) is appropriate at retirement date?

As there is substantial flexibility available to DC schemes in how they adopt a lifestyle strategy, available options should be are considered against the objectives of the scheme trustees in providing DC benefits. The key objectives to consider include:

- To provide a logical investment strategy in the event that the member does not make an investment choice;
- To adopt a lifestyle investment strategy which is appropriate for the size and nature of the scheme membership and which is reasonable given DC market practice;
- To adopt an overall investment approach which does not overly complicate the communication of investment issues to members and therefore make the job of educating members about investment more difficult.

Example of a Lifestyle Strategy

The following is an illustration of mix of assets during a five year switching period.



Appendix C – References

In preparing the "Current Topics 2009/2010" paper for the Society of Actuaries in Ireland a wide range of sources were consulted which we have listed below. We would like to express our thanks to the individuals and organisations listed for the information they have provided.

If, however, any source has not been credited or credited incorrectly we would be grateful if you would inform the Society of Actuaries in Ireland so we may update the references section where appropriate.

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