A brief discussion on the similarities and differences in delivering a pension benefit through insurance or a pension fund (or other occupational vehicle)

Further to earlier discussion in IAA committees, this paper considers in high level terms similarities and differences between life insurance and pensions. It is written in generic terms informed by legislation and practice across a range of countries.

A. Preliminary

Through (or in connection with) the employment contract, an employer makes a promise to pay an employee deferred pay (the ‘benefit’ - typically in the form of a lump sum or annuity) in the future in return for services carried out now from the employee. The terms of the employee’s employment contract dictate the nature of the promise, including formalising part or all of it as a contractual commitment under local law, which typically is subject to uncertain risks (longevity, early retirement, price inflation, pay inflation etc). Social and labour law may place conditions around the promise (e.g. the concept of accrued rights, or mandatory indexation etc).

The nature of the employment contract, and therefore the nature of the promise the employer is making, varies with local law. Elements of the promise may be guaranteed in nature, others may depend on the discretion/goodwill and financial success of the employer.

Depending on local law and market development, an employer may have a number of mechanisms (individually or in combination) to fulfil its commitment/promise to pay the pension e.g.

a. out of revenue on a pay as you go basis (with or without a book reserve under local GAAP, or backed by interest in specific assets on the employer’s balance sheet)
b. using a pension fund or similar financing vehicle
c. by taking out a policy with an insurer as an asset of the employer (or an asset of the pension fund which the employer sponsors)

or
d. by paying premiums to an insurer who takes on legal and economic risk from the employer to pay the employee/beneficiary.

For the purposes of this paper, insurance is taken to mean retirement related products only provided by insurers. In insurance, the policyholder takes out a commercial contract with an insurer. The policyholder pays one or more premiums to the insurer and the insurer takes on the uncertain risk to make future payments to the insured according to the terms specified in the policy. Matters can become more complex where, depending on local law, the policyholder could be

- the employer acting in beneficial interest of the employee through group policies, or
- the employee direct through an individual policy paid for by the employer

and this can have a bearing in practice on factors such as how risk is shared between the parties.

There are many models in force around the world for delivery of a retirement benefit promise by an employer. This paper attempts to describe how the nature of the pension promise changes when the employer has chosen either insurance or a non-insurance mechanism as the instrument to deliver that promise.

Of course, people do save for retirement in other forms too – e.g. property, self employed sell their businesses etc. Comparison with other forms of savings are out of the scope of this paper.

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1 Australia, Brazil, Canada, Caribbean, Finland, Germany, India, Japan, Mexico, Netherlands, Russia, Spain, UK and US
2 The term includes employment offers and other formal documents for those countries that do not require employment contracts in the literal sense of the term
For simplicity, this paper will term the non-insurance route as ‘pension’ recognising that the term ‘pension’, as discussed above, covers a broad range of delivery mechanisms in its own right (pension funds, book reserves etc as illustrated by examples a) to c) above).

The term ‘insurance’ similarly merits discussion as it can mean different things in different countries according to the interaction of employment and insurance contract law in those countries. As with pensions, this can lead to an incorrect understanding of risks between what seem like similar insurance products operating in two different countries. Two core scenarios arise

1. after the employer has paid the premiums due, the insured benefit is purely a matter between the insurer and the employee
2. the insurer pays the benefit but the ultimate responsibility (risk) to see that the benefit promised through the employment contract is paid, remains with the employer.

Two common examples of the first bullet are
- where an employer pays premiums direct to an insurer to purchase benefits with the insurer, e.g. purchase of a deferred or immediate annuity direct with an insurer
- where trustees of a funded pension plan, ‘buy out’ the liabilities by selling assets and liabilities to an insurer who takes over the legal and economic obligation to pay benefits going forward.

Two common examples of the second bullet are
- where an employer sets up a pension plan and asks an insurer to manage that plan for the employer but not insure it, i.e. the employer retains beneficial interest in gains and losses arising in the plan’s assets and liabilities: this paper terms such a plan a ‘pension’ as the insurer is acting in a management not an insurance capacity
- where an employer takes out insurance as a form of asset to help meet the cost of the pension promise which the employer retains. This is seen in particular in pension funds where the trustees ‘buy in’ the liabilities by purchasing an insurance policy as an asset of the pension plan, the pension plan retaining the legal and economic obligation to pay benefits going forward.

Finally, we note that depending on the benefit design and local law there can be interactional elements between the insurance and pension routes. For example, non-insurable benefits (e.g. for a classical final pay income plan an insurer will not be able to insure the final pay element other than as it accrues year by year with any variation being recognised in current or past service cost) remain a risk of the employer even if the base plan is insured.

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3 Which may include the risk of the insurer defaulting when the employer still has the obligation to pay under local law
Graphically the different scenarios can be summarised as follows

Employer establishes benefit promise

**Insurance**
Delivered through an insurance contract

Obligation to pay the employee (beneficiary) lies wholly with the insurer

There are scenarios where part or all of the obligation (risk) may revert back to the employer

“Pure insurance”

Insurer defaults, employer re-assumes obligations

**Non-Insurance**
Delivered through a pension fund, book reserve or other non-insured vehicle

Collectively termed “pensions” in this paper

Interactional elements like

Non-insurable benefits (e.g., future salary growth)

(Retrospective) legislative change of an employment law nature (e.g., impact of age discrimination legislation)

Includes scenario where an insurer is appointed to manage (but not insure) the pension obligations

Finally a word of caution on terminology. It is tempting to refer to pensions and insurance as different products – different financial products even – and this paper adopts this generalism as a helpful shortcut. It is important to recognise though that we live in a complex world with many benefit types, social and labour law models and cultural expectations, it may not always be appropriate to take this generalism too far.

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4 Both pensions and insurance fulfil social policy aims too. They do so in different ways and through different regulatory means in different countries however as this paper explores below.
B. Overview
In its recent consultation paper "Towards Adequate, Sustainable and Safe European Pension Systems" the EU re-sparked the debate whether the principles of Solvency II should apply to pensions. “The Institution for Occupational Retirement Provision (IORP) Directive’s minimum prudential requirements include solvency rules for defined-benefit (DB) schemes. With the entry into force of the Solvency II Directive in 2012, insurance undertakings will be able to benefit from a three-pillar, risk-based solvency regime and the question is whether this new regime should also apply to IORPs”

This is not to say that pensions (IORPS in EU terminology) are or must be treated in some respects like insurance rather that because pensions and insurance share many similarities e.g. both
- involve obligations to another party (members/policyholders) which may be of long duration and uncertain in nature
- have assets and future contribution/premiums which together with investment returns are used to meet these obligations5
- may have access to additional funds (deficit contributions/sponsor covenant/shareholder funds/free reserves) to meet shortfalls
- are complex mechanisms with significant communication and financial awareness challenges for employees/policyholders and the public at large
it may be appropriate to consider pension solvency in a similar risk based frame.

Questions arise like
- what is the nature of the promise: is its payment guaranteed or subject to conditions like employer discretion or affordability
- what social and labour law objectives are sought for pensions and insurance, which objectives are common between the two product forms, which different
- what regulations are needed to support the delivery of those objectives
- how to measure the obligations arising
- how risk is shared between the parties (employer/insurer and the employee/beneficiary)
- what capital is required to support the obligation and in what form
- which party ‘owns’ that capital and any surplus/deficit arising

Another key question is whether pensions are in effect a form of self insurance by the employer and should be treated like insurance for some (e.g. measurement) or all purposes (e.g. funding). Arguments can be made for and against this proposition. For example,
- from the perspective of the beneficiary, if the employer has guaranteed (through the employment contract) that the benefit will be paid then the beneficiary will expect to receive the promised benefit whether the employer has chosen to deliver the benefit through a pension or insurance route
- however few benefits are guaranteed – there are risks and risk sharing mechanisms
- commercially, the choice between pension and insurance is a matter for the employer shaped by regulatory, financing/capital and other requirements particular to the type of product
- from a regulatory and social policy perspective, no country currently has the same legislation and regulation for pensions and insurance.

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5 True for funded pension plans. For unfunded plans, the assets of the plan are implicit in the capital and return on that capital in the plant, machinery, research, brand etc of the sponsoring entities
Appendix One summarises the principal similarities and differences between insurance and pensions. The paper goes on to consider similarities and differences in the following key areas:

• C. The nature of the benefit provided
• D. Regulation
• E. Capital
• F. Measurement
C. The nature of the benefit provided

Both pensions and insurance incorporate a broad range of benefit designs, within a country (certainly for countries with a long history of pension and insurance products) and across countries, reflecting different fiscal and social legislation influenced by different historical, cultural and political drivers.

Savings/defined contribution products are in many countries provided through both pensions or insurance in the accumulation phase. In the de-accumulation phase, where annuities are purchased from the DC pot, it is by far common for these annuities to be provided through insurance. Defined benefit type designs provided through pension funds often incorporate a broader range of risks than are typically seen in insurance products. Whether this is down to employers not fully appreciating the nature of the risks they have assumed, unions and other employee representative bodies successfully negotiating better benefits and options, benefit designs and governance models that have evolved to reflect changing views of ‘fairness’, over-riding and sometimes retrospective legislation that has served to strengthen or guarantee obligations which were previously discretionary in nature, or employers being confident that they can control certain risks in practice (e.g. pay inflation) is conjecture but it does mean that many pension plans have become more complex and costly than the original intent and understanding of the parties that entered into making the benefit promise some time ago. Given a clean sheet, few employers would establish DB pension plans today.

By contrast, insurers provide insurable benefits. Pure insurance products do not (and should not) assume those risks that are in the employer’s control e.g. pay inflation or other benefits like early retirement where some form of employer consent is required. Discretionary indexation can be provided through participating insurance business.

Where such benefit design features are seen in arrangements with insurers, the employer finances them in the form of additional premiums as and when the additional benefit is triggered – in effect, a current unit type actuarial method is adopted. In other words, when the moral hazard is removed the risk becomes insurable.

Further, where (retroactive) legislative change is considered to be employment related in nature, often the impact falls on the employer even if the plan is insured.

Example 1: In the early 1990s, the European Court of Justice ruled that, across the European Union, men and women had to have the same retirement ages notwithstanding that different retirement ages had been contractually agreed and in force for decades. Employers had to change new hire and existing employee employment contracts to ensure compliance with the new employment law, including changes to retirement benefits under those employment contracts. For such benefits provided through insurance contracts, typically contract law was deemed not to have been breached but employment law had been. Thus, the additional cost of providing benefits to the (unfairly) disadvantaged group of employees of equal amount to the group deemed to have been (unfairly) advantaged fell on the employer not the insurer.

Example 2: In some countries (e.g. Belgium, Germany) the ultimate obligation to deliver a certain minimum benefit under a Defined Contribution plan ultimately lies with the employer and not the insurer.

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6 Examples of DC and DC type products sometimes provided through pensions in the de-accumulation phase include fixed term annuities (US, Japan) in cash balance plans, and where an employer has a standing DB plan paying annuities in retirement of which the DC plan is part.

7 Where an employer sets up a pension plan and asks an insurer to manage that plan but not insure it, i.e. the employer retains beneficial interest in gains and losses arising in the plan’s assets and liabilities, this paper considers such a plan to be a ‘pension’.

8 It can also be said that the employer does not “insure” e.g. future pay growth in advance: the beneficiary doesn’t have a right to future pay growth in the benefit design until the pay growth happens.

9 Alternatively, the employer could seek the agreement of the advantaged group to give up part of their benefits to the benefit of the disadvantaged group.
Another major difference between pensions and insurance is in relation to security.

Non-participating insurance is contract driven: security is a legislated feature factored into the price of the product. Historically, in many countries, pensions were a best endeavour by the employer dependent on affordability and encouraged by a favourable tax system. This is consistent with the employee carrying out a service of imprecise value for the employer whereas insurance is an arms length financial contract paid for by a defined premium. A general impact of changing legislation over time is that security of past service benefits has become a harder feature of pensions. DB pensions are increasingly seen by regulators and employers alike as a business obligation that needs to be managed as part of the employer’s total business assets and obligations conscious of the social and political aspects of change. Benefit designs built around greater risk sharing between the employer and the employee are being seen in all the major pension liability countries.

In participating (with-profits) insurance, policyholders have paid higher premiums (a ‘bonus loading’) than necessary to deliver a stated level of guaranteed benefits and have expectations (subject to investment performance/affordability) of additional benefits. This is similar to the concepts in pensions of constructive and discretionary benefits such as salary growth or price inflation – the better one’s career, the higher your pension will be. Two key differences however are that in participating business

- there is greater compulsion on the insurer to share profits than there is on the employer in pensions to apply its discretion to increase benefits: insurance regulation often specifies that a high (80+%) proportion of the profit arising must be allocated to policyholders, and
- the assets from which bonuses are declared are well defined. In contrast, the capital that is represented by the employer covenant in pensions is neither clearly defined nor ring fenced for the purpose of discretionary benefits.\(^{10}\)

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\(^{10}\) Escrow funds and ringfenced assets are a means of establishing short term security whilst a funding deficit is made good over time through increased contributions or improved investment performance. Such collateral is for the security of the existing benefit promise not for the provision of increased future benefits.
D. Regulation

Benefits delivered through employer pension mechanisms (funds, book reserves etc) and those insured through insurance contracts have experienced regular, some might even say constant, regulatory change. The nature of those regulatory regimes are however different.

**Regulation of defined benefit pensions** has tended to be lighter touch and less risk focussed in nature, built around:

- spot valuations based on deterministic (prescribed or best estimate) assumptions
- no additional solvency or risk margin capital requirements
- medium to long term deficit recovery periods
- disclosure requirements that are typically less onerous than a quoted company would need to provide to its shareholders
- quantitative or prudent man investment restrictions to provide some measure of downside solvency protection

This approach seeks to balance three factors:

- encouraging employers to provide (DB) pension provision
- commercial cost to the employer of doing so
- member security and socio-political risk if/when employers default on their (DB) pension commitments.

Recognising also that there are many pension plans in mature economies and regulators are usually not in a position to be able to commit resources to take other than a light touch or arms length approach to monitoring all but a small percentage of those pension plans.

Critically pensions regulation relies on:

- the ability to access the employer’s covenant should this need to be called upon
- regulatory checks and balances coupled with a sound governance platform at plan level designed to promote desired behaviours

Some have termed pensions regulation as a *soft capital* regime.

Getting pension regulation right is a delicate balance because when an employer fails (or an employer walks away from, or changes adversely, its obligations) and (expected) benefits are not paid in full, there can be socio-political fallback in response to what may be viewed as inadequate member security. This tends to lead to calls for stronger funding or other regulation. The social element of pensions can lead to political pressure also in good scenarios: when DB pension funds have been in substantial surplus (e.g. towards the end of equity bull market runs) there have been calls for increased benefits either of a ‘voluntary’ nature or mandatorily in the form of ‘quality tests’. E.g. granting of guaranteed increases to DB pensions in deferment and retirement in the UK.

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11 The US, through ERISA legislation, could be argued to be an example of heavier, more rules based regulatory system. The regulatory aspects are heavier in the areas of plan design, reporting and administration than, for example, in funding which is primarily law based. US funding requirements do not have a strong risk focus.

12 Netherlands is the main exception: buffers must be held to ensure a high likelihood that benefits will be paid. Spain also requires a solvency margin of 2% on DB pension liabilities. Other countries could be said to utilise risk margins indirectly by adopting a deliberately cautious discount rate: in practice, this approach is rarely seen as employers don’t look to overfund their pension obligations as this means taking working capital out of the business and it is difficult to return surplus to the employer. More likely, to provide a greater floor on funding levels, employers and trustees could agree on the use of contingent assets such as escrow accounts which do not take effect unless funding falls below a pre defined level.

13 A particular example would be disclosures a quoted insurer would make to its shareholders or providers of capital in general.

14 There are also explicit limits on self investment – typically at the 5% or 10% level. As an aside, the deficit in a pension plan seems to be universally excluded from the definition of self investment notwithstanding that for many plans in deficit, the employer covenant backing the deficit may be the biggest single asset of the pension plan.

15 Including knowledgeable trustees (or similar body) to run the fund independent of the employer.

16 The concept is not limited to pensions. For example, the failure of Equitable Life in the UK has led to new insurance regulations and practices.

17 There is an indirect parallel with calls for the distribution of orphan assets in insurance.
Insurance regulation tends to be more dynamic in nature with explicit recognition and modelling of risks to quantify and disclose hard capital requirements to ensure payment of contractual benefits to policyholders. Regulation through capital is considered to better align shareholder and regulatory interests. However the recent financial crisis has strengthened claims for regulation through additional (non-cash capital) factors and to mitigate systemic risk. In Europe, Solvency II aims to have both quantitative (pillar 1) and qualitative (pillar 2) elements.

It is instructive to think about how the direction of pension regulation, and the role of the regulator in particular, is changing in Europe and in the UK in particular. The UK regulator is focussed on maintaining the direction of travel of existing regulation:

- greater risk management (through adoption of mark to market approaches, reduction in asset/liability mismatches etc)
- strengthening of measurement assumptions (technical provisions in UK terminology)
- reduction in deficit recovery periods

This aligns with the thinking of CEIOPS (now EIOPA), which has a joint insurance and pensions regulatory overview brief at EU level. CEIOPS identified four principles which should underpin a supervisory framework:

- forward looking risk based approach
- market consistency for solvency purposes
- transparency
- proportionality

with particular regard to insurance.

How these principles would apply to pensions across Europe is to be discussed through 2011. As noted earlier in this paper, it is not necessarily the case that application of the principles to pensions should be the same as for insurance. Even if the intellectual argument were proved, there are a number of regulatory and practical difficulties in trying to apply the same or similar approach to pensions as is applied in insurance. Not least, how to incorporate and monitor soft (i.e. non-cash) capital (sponsor covenant etc) and ownership of any explicit solvency capital in the pension scheme. The Groupe Consultatif provided some initial thoughts on this in Appendix E to its 2010 report on security of IORPS. 


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18 For example, UK insurers must hold capital sufficient to cover 1 in 200 events (99.5% certainty) on the models adopted. Also the UK regulator is clear it is not operating a “non-failure” regime
19 This statement balances risk and reward – lower capital requirements generally means shareholders get their returns quicker but they would have a higher risk of the need for future capital injections than if higher capital requirements had been in force. It also means that shareholders have to view regulatory risk as a factor in the insurer’s capital requirements.
20 Does regulation through capital also align policyholder interests? At first sight, implicit in this statement is that the policyholder pays higher premiums to enable that benefit security. However this is not necessarily the case. For policies already in force, higher capital requirements fall on the insurer so generally speaking reduce shareholder returns if the insurer cannot pass the cost of that capital off onto policyholders (i.e. price elastic business). For policies yet to be written, fewer people may buy the policy if premiums are higher.
21 In particular, asymmetric effects in pension funding in many countries whereby employers are required to meet deficits but it is often difficult (if not prohibited) for employers to access surplus. Even where legislation permits access to surplus, the surplus often has to be shared with beneficiaries or the taxman.
Germany is a good illustration of the practicalities of the interaction between different regulatory regimes built up over time for different products - funded pension, unfunded pension and insurance products. In summary,

(a) Promises made directly from sponsor to participant in the form of an unfunded benefit are not regulated in terms of minimum capital requirements other than a book reserve must be established and local GAAP accounting conditions met

(b) ‘Support Funds’ also do not have minimum capital requirements

(c) Pensionsfonds: Regulation under insurance law but distinct from (d) and (e); can be less onerous than (d)

(d) Pensionskassen: Regulation under insurance law but distinct from (e) and generally less onerous than (e)

(e) Direct insurance or re-insurance: Regulation as for insurance companies
E. Capital

DB pensions may be (part) funded through assets explicitly held for that purpose (through a pension fund or otherwise earmarked) or (part) unfunded with reliance on the strength of the employer’s balance sheet. Whether sufficient assets are held at any given time to be able to meet the promised (or expected) benefits is unknown and is managed over time at both the plan and employer level. For example

- Payment of additional contributions or commitment of actual or contingent security
- In some countries, the nature of the benefit may be dependent on affordability, e.g. the funding level in the plan. That is, the promise has both DB and DC elements
- In many countries, the employer can take action to amend or terminate pension benefits to mitigate its obligations. By contrast an insurer may only be able to stop writing new business but is contractually obliged to continue writing current business even if it is loss making.

Insurance operates in a fundamentally different way. It is a risk focused business activity designed to pay out its contracted obligations in all but the most extreme economic scenarios. With time, it has become a business where insurers operate internationally such that although different types of benefit and product designs may be provided across borders, insurers increasingly operate to similar industry and regulatory standards.

Capital provides security to policyholders against the failure to deliver benefits. Capital has become the primary means to regulate and operate the global financial (insurance and banking) market. Because capital is expensive, using it efficiently and effectively is key to the operation of a competitive insurance market. Insurers around the world utilize similar techniques and approaches to manage capital.

If pensions and insurance represent different delivery mechanisms for deferred pay, are they in competition for business or capital? For the accumulation phase of DC provision, they do compete in many countries today and were insurers to broaden their product ranges, or employers align their HR and other goals, pensions and insurance would likely compete to a greater degree in those and other countries also.

Although there are many parallels between pensions and participating insurance, it is not clear that pensions and insurance are in competition for DB provision however

- they are different markets
  - DB pensions are a bespoke, internally focused or ‘closed’ market i.e. operated by a given employer for its employees only. Whereas insurance seeks competitive advantage from mass market one-stop-shop products to provide advantages of scale and risk pooling.
  - Insurance and pension products within a market have different regulatory and sometimes tax requirements and an employer’s choice of which product to take is as

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22 The measurement basis used for pension liabilities impacts the pace of funding for funded plans. It may also impact the security of benefits for unfunded plans. This is because financing and operating decisions of the business are taken relative to the pension liability disclosed over time on the company’s balance sheet – for funded plans, this is typically the liability net of the assets held independently of the employer but for unfunded plans, it is the full liability. If the measurement basis used over time doesn’t reflect the cost of providing pensions to a high level of security then, if and when the company is liquidated in the future, the residual assets of the company (for a funded plan, together with the assets held in the pension plan) may not be sufficient to pay pensioners their benefits in full.

23 Except in the special case where either i) the assets are cashflow and risk matched to the liabilities, or ii) the plan is terminated and benefits bought out with an insurer or otherwise cashed out in accordance with the plan rules

24 Capital requirements can be mitigated in part through risk sharing mechanisms e.g. with-profits arrangements

25 A particular, but not significant in volume terms, UK example of competition between insurance and pensions could be in the area of Additional Voluntary Contributions (AVCs) where a pension plan member makes additional savings through the plan which are then used on retirement to buy a pension. Some UK pension plans allow the member to either purchase a pension from the plan using these AVCs on terms set by the trustees or an annuity from an insurer.
often based on these factors as well as the principle of risk transfer through insurance or risk retention through a pension product. In Spain, for example, an employer can tax optimise its finances by using both an insurance product (GIP) and a pension product (CQPP) for different parts of the benefit design.

- Insurers have been particularly successful in attracting pension business of small-medium employers in many countries, it is important to distinguish between situations where the insurer acts simply as a manager of those funds (the employer retaining the risks) and those where the pension is insured with the insurer (i.e. the insurer bears the risks, or at least most of the risks). Taking three of the world’s largest pension obligation countries by way of example:
  - Netherlands has a balance of both types of business for insurers
  - In Japan, true insurance of pension products is rare
  - In the US, insured pension business primarily takes the form of buy-out policies for plans in wind up.

- Different risk appetites of the parties involved including factors such as benefit design and investment strategy:
  - Perhaps because of the soft capital approach in pensions (contingent reliance on employer’s covenant etc) employers/trustees are more inclined to take asset-liability mismatch risks and benefit designs have broader HR or social objectives containing more risky elements (salary growth, guarantees and member options, discretionary or conditional indexation) than are typical for pure insurance products.
  - Although insurance is designed to ensure payment of benefits in all but the most extreme scenarios, there isn’t a similar framework in pensions on a plan by plan basis (with the exception of the Netherlands and the possible exception of the UK).
  - It would be interesting to reflect on what pension plan members think the risk of non or partial payment is in the plan they are a member of. And both what an acceptable risk of non or partial payment would be and what the member would be prepared to give up to increase security.

- With different regulation overseen often by different regulators:
  - In simple terms, pensions operate by a soft capital regime with checks and balances, and insurance is a hard capital risk-focused regime. In Europe, directional alignment on regulatory aims and themes, though not necessarily application of those themes, seems likely.
  - Pensions and insurance contracts have different legal bases and ‘pressure valves’ if obligations become too onerous. Law generally provides for more flexibility for employers to amend the terms of pension plans/promises in difficult economic circumstances. Insurance obligations can generally only be amended prospectively to the extent permitted by the contract boundary clause.

- And although many countries operate guarantee arrangement (government or industry sponsored investor protection or financial compensation schemes) in the event an insurer defaults, few do so for pensions and different arms of government/industry are responsible for each.

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26 Dutch provisions are designed to ensure that the minimum funding requirement (liabilities are 105% funded) is met 97.5% of the time, i.e. 39 out of 40 events. This implies a target funding ratio of 130%. It can be argued that the UK does have a form of plan by plan security framework in that the regulator can impose stronger pension funding (technical provisions and/or deficit recovery and/or Pension Protection Fund levies) requirements on an employer with a weak covenant.

27 For example, would an employee be prepared to accept a salary that is below the market for the job if the job also came with a DB pension? And would the answer differ for senior management in unfunded top-up plans compared to line staff in the main (possibly funded) pension plan? We can also think about the question in reverse: what lump sum would a member of a DB pension plan today be prepared to accept in lieu of their current pension? This question has been the source of some controversy in the UK in terms of the regulatory response to employers offering members so-called ‘enhanced transfer values’ to reduce the plan’s DB risk exposure.

28 US, UK, Germany, Switzerland and the Canadian Province of Ontario provide State or pseudo State insolvency arrangements funded by levies on all employers with pension plans.
F. Measurement

Actuarial measurements fall into two main categories – *matching* and *budgeting* calculations. The calculations differ in the nature and extent to which they embed risk into the discount rate used. Matching calculations set the discount rate independently of the assets held instead having regard to the nature of the liabilities\(^{29}\). Budgeting calculations have some regard (implicitly or explicitly) to the nature of the assets held.

There are examples of both in pensions and insurance – see Appendix Two for an analysis of measurements in use in actuarial work in the UK.

In many countries, local GAAP accounting requirements for insurance have been aligned with *statutory reporting requirements*. Typically this involves setting the discount rate equal to a percentage of the

- gross redemption yield on bonds
- dividend or earning yields on equities and property

held by the insurer. Through market consistent valuation or otherwise, allowance is made for policyholder expectations of interest in participating business.

In Europe, Solvency II is adopting a mark to market approach for regulatory reporting of assets and liabilities based on use of nil risk discount rates (termed the *reference rate*)\(^{30}\) adjusted for the illiquidity of the liabilities\(^{31}\), plus explicit risk margins using stochastic modelling and other techniques.

The IASB have also exposed a revision to *IFRS 4*. This is based on a *fulfilment* measurement objective, that is that the entity expects to fulfil its obligations over time. *IFRS 4* is broadly consistent with the Solvency II approach assuming fulfilment value embraces the concept of an illiquidity premium. It proposes that the accounting measurement

- should allow for probability weighted cash flows and the time value of money
- the discount rate should reflect the yield curve for instruments with negligible risk (*nil risk rate*) adjusted for differences in illiquidity of the liability
- add risk margins that reflect the maximum amount the entity would rationally pay\(^{32}\) to be relieved of the risk that insurance payments will ultimately exceed those expected
- adopt a residual margin to amortise profit at the time of sale over the life of the contract

For DB plans, pension *funding* measurements differ quite broadly in approach and conservatism between jurisdictions. Budgeting and matching approaches are seen: in particular, budgeting approaches can be argued as natural for pension regimes which have been built around the soft-capital that is the sponsor’s covenant.

The basis and choice of assumptions varies widely in “strength” from country to country as funding measures may be prescribed by local regulations, or determined by the trustees or actuary in consultation or negotiation with the employer.

- The discount rate can either be formed independently of the assets held to pay the liabilities in funded plans, or alternatively bear some regard to the plan assets

\(^{29}\) For clarity of use of language, a matching approach quantifies only the risk implicit in assets with a cashflow profile that matches that of the liabilities. A matching approach does not in itself quantify other risks

\(^{30}\) Because DB pension plans and (life) insurance both can have liabilities with a duration that in many countries is longer than that of available matching assets, where the discount rate is based on market yields extrapolation techniques are required to discount the long tail cashflows.

\(^{31}\) In insurance and pensions, the policyholder/member rarely has the option to transfer a DB contract/benefit to a third party [the UK is a notable exception where by law members of a pension plan have the right to take a transfer value to another pension arrangement – albeit the take up rate is low for other reasons]. Therefore the insurer/plan can seek competitive advantage through investing part of its assets in lower marketability investments and enjoy the illiquidity premium in their pricing.

\(^{32}\) Not necessarily the same as the market price of effecting a buy out or reinsurance policy.

*Fulfillment value* is therefore not necessarily the same as *settlement value*. 
expected to be held (i.e. use a different, typically higher, discount rate being used where a greater proportion of the plan assets are invested in equities rather than bonds

- The other assumptions are either prescribed or tend to be best or prudent estimates in nature. Although stochastic approaches are widely used in investment strategy and for management and ad hoc work, deterministic approaches remain the principal method for determining funding targets. Risk margins are unusual other than where they are implicit in the use of a prudent deterministic assumption
- In practice, both accrued value (i.e. the current benefit amount based on current pay and no allowance for future inflationary impacts on the benefit - \( ABO \)) and projected value (i.e. the current benefit amount increased for expected future inflation (pay, prices, medical) - \( DBO \)) based measures are in force around the world.

There are two types of pension accounting:

a) the accounting for the plan’s liabilities in the accounts of the plan itself (where the plan has a legal or quasi-legal existence and must produce its own accounts under local GAAP)

b) the basis by which pension obligations are reported in the accounts of the sponsor company

By contrast, the core business of the insurance company is insurance such that a) and b) are indivisible for an insurer.

Under many countries’ local GAAP, the liabilities of the pension plan are not recorded in the plan’s accounts. The plan’s accounts in effect form a P&L statement only. Where the liabilities are recognised, the figure shown is typically prescribed or tends to be that from the funding valuation.

Pension liabilities as recorded in the accounts of the sponsor company are by contrast invariably matching calculations in their nature. The trend continues as more countries adopt IFRS. The IASB are considering a fundamental review of the international pensions accounting standard, IAS 19. This could include applying some of the central measurement principles in the proposed IFRS 4 to projected pension cashflows as illustrated in the table below.

<table>
<thead>
<tr>
<th>IFRS 4</th>
<th>Current IAS 19</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nil risk discount rate adjusted for illiquidity of the liabilities</td>
<td>High quality corporate bond yields 33</td>
</tr>
<tr>
<td>Explicit risk margins incorporating liability measurement, and asset measurement</td>
<td>None. Liabilities determined using Best estimate assumptions N/A</td>
</tr>
<tr>
<td>No reserve held for non-insurable risks</td>
<td>DBO approach including allowance for constructive obligations like future pay growth in final pay plans</td>
</tr>
<tr>
<td>Participating business includes allowance for policyholder expectations</td>
<td>DBO approach including allowance for indexation and other discretionary practices where there has been a history of such practices. Or for conditional indexation where affordable.</td>
</tr>
<tr>
<td>Residual margins to amortise profit at the time of sale over the life of the contract</td>
<td>N/A 35</td>
</tr>
</tbody>
</table>

Key to the measurement question for pensions is, in addition to the differing types of benefit design in force globally, whether and how to measure the different employment law, delivery vehicle structures and ‘pressure valve’ mechanisms in force globally (see Appendix One).

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33 This is often referred to as AA corporate bonds however that is a proxy and like all proxies must be used with care. During the credit crunch, many commentators questioned whether some of the bonds which comprised the rating agencies’ AA indices (which were often only updated at the end of a quarter) were truly high quality.

34 A Liability Adequacy Test principle applies with the risk margin built up from component factors Should the risk margins prove unnecessary, further profit arises.

35 It could be argued that by using a higher discount rate than would an insurer, the pension measure already assumes an element of future ‘profitability’ for the sponsor from investing the assets of a funded plan in a non-matched portfolio, or in the assets of the sponsor’s business for an unfunded plan.
What is a contractual obligation (‘accrued right’ and similar pension concepts) in one country may be a contingent obligation under law in another country. Should contingent (or discretionary) obligations be measured as if they were contractual in nature? Does that provide for a fair value or a prudent value (as it would assume that the scenarios that would trigger the contingent nature of the cashflows in question never arise, or that discretionary practices from the past can never change in the future)?

A similar question arises in insurance regarding establishing reserves now for the beneficiaries’ share of profits that will hopefully emerge in the future under participating contracts.

Changing regulatory environments may also impact the discount rate used in the measurement, specifically whether allowance for sponsor default on obligations is taken. In the UK, and increasingly across much of Europe, authorities are looking for stronger commitments from sponsors to their pension obligations and in some countries perhaps this could lead one day to guarantees equivalent to those for insurance obligations. Highlighting the additional cost of these guarantees in funding reports and accounts through the use of closer to "risk free" discount rates is logical.

Finally, although they bring many advantages to employees/policyholders, it can be said that the presence of guarantee arrangements in the event of insolvency of either pensions or insurers creates a moral hazard on employers, trustees and insurers around measurement and financing/funding.

For example, moral hazard can arise from factors like i) inaccurate pricing of plan and plan sponsor risk by the guarantee association and ii) from the plan sponsor being able to unilaterally create past service benefits (this is mitigated from the perspective of guarantee association if the guarantee association discounts benefit improvements made within a certain number of years of the insolvency event; however that is of little comfort to the beneficiary who gets a lesser benefit than they had expected). In the UK, the management of this actual or assumed moral hazard is a core part of the brief of the Pension Regulator and the Pension Regulator has been diligent in managing it, including one high profile court cases where it considered it necessary to defend the Pension Protection Fund from the actions of the trustees of one underfunded plan with a financially weak sponsor that were looking to invest the fund’s assets aggressively in the knowledge that if the investments underperformed the Pension Protection Fund would pick up the (enhanced) deficit when the sponsor defaulted.
G. Summary

Pensions and insurance represent different mechanisms to deliver a benefit promise from the sponsor to the beneficiary. It is not surprising therefore that they bear many similarities.

Both involve obligations that carry out a key social purpose to a third party and which obligations are typically of long duration (perhaps 60 or more years) and uncertain in the amount and timing of cashflows arising.

The obligation arises from the employee carrying out a service (their job) for their employer, part of the reward for which takes the form of deferred pay.

- If the employer elects the insurance route, it pays a premium today for which the insurer takes on the risk to pay the insured benefit to the beneficiaries in the future. As noted in the Preliminary section of this paper, there are instances and countries though where the employer retains risk even if the employer elects to finance its obligations through insurance. As a statement of the obvious, insurance contracts do not necessarily cover all the risks or the same risks everywhere.

- If the employer elects to finance its obligation through a non-insurance ('pensions') route, the employer retains all of the financing risk and, depending on law, may fund the benefit in advance or otherwise record the liability on its books.

Insurance is a hard capital regime, pensions a soft capital one. Participating insurance contracts are perhaps somewhere in between.

Like insurance, funded pension plans collect and invest assets and future contribution/premiums which together with investment returns are used to meet these obligations. And both may have access to additional funds (deficit contributions/sponsor covenant/shareholder funds/free reserves) to meet shortfalls.

There are a number of key differences also. Primarily the history of the products, how risk sharing mechanisms operate, the nature of the regulatory regimes – in particular, the pace of funding/financing and the ability of the insurer/employer to change the terms of the contract/plan in difficult times – and governance that have built up over time to shape people’s perceptions.

Employment law shapes pension products (and may shape insurance products in some countries also). The concept of accrued rights accords well with the insurance concept of contractual benefits and the accounting concept of contractual obligations. But not all countries operate accrued rights rules – employers or trustees (or their social partner equivalents) may be able to change benefits retrospectively if circumstances merit or agreement is reached otherwise.

Insurance is an international business: through the IAIS, IASB and industry competition, the basis of statutory reserving, capital requirements and accounting for insurance business is converging. Particularly in Europe through Solvency II. Features of pensions like measurement, funding and governance are driven by in-country regulation, country social and fiscal preferences, market depth and size, culture and country politics. The EU aside, cross border influence on pensions is through bodies like the OECD, the World Bank, professional bodies like the actuaries, and businesses (employers, product providers and advisers etc) who operate internationally. They promote greater alignment through sharing of experience and best practice in benefit design, operational efficiency, and regulatory models and oversight.

It is often noted that insurance is more expensive than pensions: this is not representative of a difference between the two products however. Rather the seeming extra employer contribution (premium) in insurance, over and above what may be seen in pensions, is

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36 The cost of a pension is viewed differently by different parties. The actual cost of a pension can only be determined when the last beneficiary dies and all the actual cashflows known. The short term cash cost is the funding contributions over a given time period. The short term accounting cost is the charge to the accounts over a given time period. Risk (financial, demographic, regulatory, political) is the expensive unknown until the last beneficiary dies. Some of these risk factors can be mitigated by purchasing matching assets.
consideration for the risk transfer in insurance. The absolute and relative costs of both insurance and pensions can be mitigated in part through the policyholder taking on more risk such as participating insurance contracts or more defined contribution elements in the pension design.

Perhaps the key difference is that because insurance is a hard capital regime, there is greater clarity in the operation of the insurance contract (who bears what risk and who benefits from that risk, what capital is required etc) although participating insurance arrangements in particular are still criticised for lacking transparency. This flows through to

- Greater clarity about inter-generational wealth and risk transfer
- Ringfencing of the capital available to finance the contract
- Who benefits from surpluses, suffers from losses
- What the parties risk appetites look like accordingly

These themes are also addressed in pensions of course but through different mechanisms set at country and plan level.

A critical question remains however whether regulators, employers, employees and beneficiaries whose retirement benefits are covered by an insurance contact (whether participating in nature or not) or a pensions vehicle (whether defined benefit or defined contribution in nature, funded or not) have an equal understanding of the nature of the risks they face under those products and any national or industry level guarantee arrangements in place around them. Actuaries have a key role to play in ensuring sound levels of financial awareness and understanding of products.
### Appendix One – Summary of Similarities and Differences between Pensions and Insurance

<table>
<thead>
<tr>
<th>Construct</th>
<th>Pension</th>
<th>Insurance</th>
</tr>
</thead>
<tbody>
<tr>
<td>The employer agrees to provide deferred pay (the ‘benefit’) in return for the service of the employee through and as part of the employment offer/contract. The employer can provide the benefit through an insurance or non-insurance (pension fund, book reserve etc) route. The employment offer/contract may guarantee the benefits promised or the benefits may (in whole or in part) depend on the discretion of the employer motivated by goodwill or affordability (on payment of the benefits). What may at first sight look like a DB benefit may in fact have DC or DC type elements.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Product</th>
<th>Range of vehicles such as</th>
<th>A commercial contract whereby one party (the insurer) accepts significant insurance risk from another party (the policyholder) by agreeing to compensate the policyholder if a specified uncertain future event (the insured event) adversely affects the policyholder. The policyholder pays one or more premiums to effect the contract.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pension</td>
<td>pension funds/foundations</td>
<td>Very broad range of benefits nationally and globally. Can be DB or DC in nature Depending on tax rules, payment in lump sum or annuity form</td>
</tr>
<tr>
<td>Insurance</td>
<td>book reserves</td>
<td></td>
</tr>
<tr>
<td></td>
<td>pay as you go arrangements</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Very broad range of benefits nationally and globally, albeit the products may not be the same as, nor necessarily compete with, those provided under pension vehicles due to tax, target market, market penetration or other reasons. A key difference is that the insurer may not insure all the risks inherent in the pension promise. Certain risks like enhanced early retirement terms, pay inflation, or discretionary benefits may not meet an insurable test as they are in the control of the employer or government. Instead they would be insured (subject to additional funding from the employer) as the additional benefit arises.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Nature of benefit</th>
<th>Pension</th>
<th>Insurance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Very broad range of benefits nationally and globally. Can be DB or DC in nature Depending on tax rules, payment in lump sum or annuity form For salary related plans, the employer bears the risk of salary growth (over which the employer has some control). Similarly for plans with early retirement or discretionary benefits like indexation in deferment or retirement. Additionally for plans linked to State/social security benefits, the employer bears the risk of social security evolution (over which the employer has no control).</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Ability to change the benefit promise</th>
<th>Pension</th>
<th>Insurance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Many countries operate accrued rights type regulation whereby once a benefit has accrued and vested it cannot be taken away. In insurance terminology, this would be termed a <code>contractual benefit</code>. The employer has freedom to change the terms of the plan otherwise and for future service in particular, subject in both cases to labour relations issues. In practice, this could include replacing a DB plan for future accruals by a DC plan or higher pay.</td>
<td>The insurer may only to the extent the policy includes an explicit provision to do so (e.g. policy boundary) or by request of the insured. The policyholder has no general option to change the terms of the policy other than to effect certain options that may be written into the contract, or in a regular premium policy to stop paying the premiums and in so doing terminate or pay up the policy according to its terms.</td>
<td></td>
</tr>
<tr>
<td>Insurance</td>
<td>The insurer may only to the extent the policy includes an explicit provision to do so (e.g. policy boundary) or by request of the insured. The policyholder has no general option to change the terms of the policy other than to effect certain options that may be written into the contract, or in a regular premium policy to stop paying the premiums and in so doing terminate or pay up the policy according to its terms.</td>
<td></td>
</tr>
</tbody>
</table>

---

37 Where employment law operates under strong social principles, e.g. Japan and Netherlands, the employer cannot unilaterally change terms including terminate the plan.
| Discretionary benefits | Not all countries have an irrevocable concept of accrued rights however
| | - pension rights are negotiable in [many countries] if the employer (or the pension fund which provides the benefits) is in financial difficulty or by social agreement otherwise
| | - the trustees/foundation board may determine the benefits payable (eg Netherlands) given the funding available |
| | For participating contracts (like with-profits), the policyholder shares the risk that the expected benefits may not materialise. |
| | The employer can also elect to terminate the plan, buying out accrued benefits with an insurer or, if law and plan rules permit, encashing them direct to the employee. |
| | Depending on the plan rules, these may be determined
| | - by the trustees from surplus assets, or
| | - by the employer from time to time to meet prevailing social goals, subject to affordability or additional funding. |
| | There is no general equivalent in insurance. The insurer remains on risk for the whole of the contract period (though where the contract has a ‘contract boundary’ clause the insurer can vary the terms of the contract after a period of time or a specific event). |
| | There is no direct parallel in insurance save possibly special distributions of free reserves. Regulations in many countries provide that participating contracts share a high proportion (e.g. 80+) of the insurance profits made on like business with policyholders. How profits have been shared over time supports the concept of policyholder expectations which are viewed by the IASB and others more like constructive than discretionary obligations. |
| Legal structure | Three layers
| | - Terms of employment offer and prevailing policies
| | - Employment law ; and
| | - Pensions law (where such exists) |
| | Two layers
| | - Commercial insurance contract written under insurance law
<p>| | - Pensions law (where such also applies to insured products) |
| | Note : contract legislation (both employment and insurance) differs from country to country whereas accounting is converging on international standards. Prudential regulation is also converging, certainly in Europe, but globally also albeit more slowly. |
| Means of delivery | Benefit can be provided directly by the employer (book reserves etc) or through a not-for profit vehicle with quasi-legal status, like a pension fund or similar arrangement, established by the employer for the specific purpose. Such mechanisms are typically operated independently of the employer or within prudential guidelines. It has rules which define what is payable, when, how financed and which parties are empowered to take what decisions around the operation of the fund. |
| | Contract written by a commercial, profit-making organisation (the insurer) which may have external (proprietary) or internal (mutual) shareholders. |</p>
<table>
<thead>
<tr>
<th>Governance</th>
<th>Board of Directors of the insurance company operating within</th>
</tr>
</thead>
<tbody>
<tr>
<td>Depending on social and labour law, governance is usually exercised by one</td>
<td>- General Company law; and</td>
</tr>
<tr>
<td>or more of the following</td>
<td>- Specific insurance law &amp; regulation (a key feature of which is often to</td>
</tr>
<tr>
<td>- Trustee or equivalent body</td>
<td>treat the policyholder ‘fairly’)</td>
</tr>
<tr>
<td>- Social committee like a works council</td>
<td>Increasingly, national regulators and supranational bodies like the IAIS and IASB</td>
</tr>
<tr>
<td>- Employer</td>
<td>are bringing additional transparency into reporting enabling better comparison of</td>
</tr>
<tr>
<td>A system of checks and balances is common over key decision making.</td>
<td>the financials and operation of insurance companies within markets and globally.</td>
</tr>
<tr>
<td>Unions are increasingly taking an interest in governance.</td>
<td></td>
</tr>
<tr>
<td>Funded pension plans are typically subject to audit by an external auditor.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>Regulation</td>
<td>By a specific insurance regulator. In the US, insurance regulation is at State level</td>
</tr>
<tr>
<td>By a specific pensions regulator (if any e.g. India currently does not</td>
<td></td>
</tr>
<tr>
<td>regulate the occupational pensions sector)</td>
<td></td>
</tr>
<tr>
<td>Typically, the pensions regulator is established and operates independently of the insurance regulator. In some countries, e.g Netherlands, Finland, Jamaica, Trinidad and Tobago, the two are the same body though the form of regulation may not be the same. At EU level, CEIOPS (soon to become EIOPA) has been formed to look across both pensions and insurance, though again the form of regulation is currently not, and may not in the future, be the same across both.</td>
<td></td>
</tr>
<tr>
<td>Prudential rules of operation</td>
<td>Risk based supervision principles are common</td>
</tr>
<tr>
<td>Typically not or only partially risk based in nature.</td>
<td>- minimum capital requirements on a market consistent basis</td>
</tr>
<tr>
<td>Assets and liabilities may not be determined on a market consistent basis,</td>
<td>- risk management</td>
</tr>
<tr>
<td>e.g. through smoothing techniques, though a market consistent approach is</td>
<td>- transparency and disclosure</td>
</tr>
<tr>
<td>becoming increasingly common through the influence of supra-national</td>
<td></td>
</tr>
<tr>
<td>bodies like the IASB.</td>
<td></td>
</tr>
<tr>
<td>Funded plans must invest in assets that meet quality tests determined by</td>
<td></td>
</tr>
<tr>
<td>the regulator. This can take the form of a prudent man test / principles (e.g. most of EU) or quantitative restrictions (e.g. Switzerland, Norway).</td>
<td></td>
</tr>
<tr>
<td>Financial awareness &amp; Communication</td>
<td>Assets of a quality determined by the regulator must be sufficient to cover the</td>
</tr>
<tr>
<td>Retirement benefits are valuable but often complex for employees/beneficiaries to understand. Whether provided through insurance or a pensions vehicle, regulation, politics, employment law, tax rules and the particular risks of each product interact to make the product often a challenging one to communicate well, Thorough communications are necessary to ensure understanding and to mitigate risk,. As the beneficiary of a pension plan is often subject to more downside risks than a policyholder to an insurance contract, there is a greater challenge for those in the pensions industry to ensure financial awareness and understanding of pension products. Insurance is also criticised in some quarters for the lack of transparency in some products notably risk sharing in participating business.</td>
<td></td>
</tr>
<tr>
<td>Tax</td>
<td></td>
</tr>
<tr>
<td>Tax systems are set at country level to meet fiscal and social aims.</td>
<td></td>
</tr>
<tr>
<td>Pension type products provided through insurance or through pension funds often share the same tax systems but it is not guaranteed that they do e.g. they differ in Canada. In Germany, the tax system is largely neutral (to first order) to the employer between insuring and book reserving the liability. In Turkey, there are limited tax breaks for DC provision but no tax breaks for pre-funding of DB provision.</td>
<td></td>
</tr>
</tbody>
</table>
| **Asset and Liability measurement** | Different measures can apply for different purposes and be set by different parties accordingly. Measures may be based on expected asset returns or be independent of the assets held.

Funding measures are set by local law and may involve:
- prescribed by local regulations, or
- determined by the trustees or actuary in consultation or negotiation with the employer.

In practice there is a mix of ABO and DBO measures in force internationally.

Accounting measures may relate to the:
- accounts of the plan itself: typically plan accounts focus on P&L impacts only
- accounts of the sponsor: determined by the directors of the sponsor within local or international GAAP

Measures may also be made for ad hoc management or modelling purposes, akin to enterprise value techniques in insurance. |
| **Funding/Capital** | Similarly, different measurements apply for different purposes. Measures are made for:
- regulatory reporting
- accounting, and
- for management or modelling purposes, including enterprise value assessments.

In practice, ABO type measures are the more common. Risk margins are included, either explicitly or implicitly.

The business of the employer sponsoring a pension plan is usually something other than pensions. However, the business of an insurer is insurance and there is a trend to using the same or similar based measures for regulatory and accounting purposes (and that the liability measurement is independent of the assets held) to ensure greater transparency to regulators, investors and policyholders alike of the operations of the insurer. |

---

| **Funding/Capital** | Insurance regulation sets out minimum capital requirements equal to the expected payouts under the policy plus risk margins to cover adverse experience.

The insurer sets the premium to cover these requirements having regard to the reserves held by the insurer. The insurer invests those premiums and bears the risk arising should the funds prove to be insufficient to meet the contractual payments due. For participating contracts, the policyholder shares in the risk that expectations may not be met over and above the guaranteed benefits under the contract. |

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38 The employer’s balance sheet needs to be strong enough, on given assumptions, to cover the balance sheet pension liability. Germany is unique in that it also provides a quasi-State insolvency protection system on unfunded pension obligations (to a cap)
also may not encourage funding.

For funded plans, deficits are recovered over time through (depending on local law)
- additional contributions from the employer
- additional contributions from the employee
- reduction in benefits
- faster than expected future investment returns on plan assets

Typically, the greater the deficit, the faster the recovery period though procyclical rules can mitigate the strain on employers of increased funding in difficult economic conditions (e.g. recent US pension deficit recovery measures). The recovery period can stretch over the future working lifetime of the plan beneficiaries e.g. 10+ years.

Excess capital can only be returned to the employer in exceptional circumstances (if at all), typically only on dissolution of the trust after all benefits have been paid.

In some territories and plan constructions, capital can never be returned to the employer.

---

**Solvency margins**

Unusual to have explicit margins above the liability measure (Netherlands is a notable exception, and some plans hold margins for admin expenses). More usual to have implicit soft forms of capital such as
- Strength of the sponsor’s covenant and the ability to call for extra contributions from the sponsor if the plan were to fall into deficit in the future
- transparency of risk to interested parties through disclosure of fund finances and operation to beneficiaries and regulators
- escrow accounts (harder form of capital)

Minimum capital requirements established by law to mitigate risk exposure to policyholders

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39 Invariably accrued benefits are protected under local employment or pensions law though in extreme circumstances they may be reduced in some countries. Liabilities can also be reduced by changing what were considered constructive obligations (e.g. stop plan to new accruals, salary linked on accrued benefits or beneficial early retirement terms for those who have not yet reached eligibility for such terms) or discretionary obligations (e.g. non-guaranteed indexation of pensions in payment)
An exception is for plans that bear biometric risks directly, i.e., no sponsor to back up the fund. In Europe, for example, such plans adopt solvency margins in line with those of an insurance company.

<table>
<thead>
<tr>
<th>Guarantee fund in case of insolvency</th>
<th>Being considered by some countries (e.g., Europe, Mexico) through new solvency II type regulation currently in development.</th>
</tr>
</thead>
</table>
| Rare, though some of the countries with the largest pension obligations in absolute terms (US, UK, Germany, Switzerland, Ontario province in Canada) operate quasi-State insolvency insurance arrangements that will pay accrued benefits up to a capped level. Insolvency arrangements are financed by mandatory annual premia payable by all funds. In the UK, the premia are risk based. | Some countries provide for a compensation scheme operated at the level of the insurance industry itself, e.g.  
- the UK Financial Service Compensation Scheme  
- in Canada, a non-profit organisation called Assuris  
- in Germany, a similar insurance industry arrangement called Protector.  
- in India, policies sold by the State owned insurer are guaranteed by Law  
- in Japan, the Life Insurance Policyholders Protection Corporation of Japan applies  
Typically, the insurers do not pay actual premiums to cover the risk that they will collectively assume the obligations (to a cap) of one of their number defaulting on its obligations. Rather costs are met when they fall due. |
Appendix Two – Examples of actuarial measurement approaches

The table below is taken from the UK Actuarial Profession’s 2010-11 research project on discount rates. It illustrates which actuarial approaches in common use in UK actuarial work are matching and which budgeting in nature (in practice, elements of both approaches are seen in the areas noted below). Similar results are anticipated if the exercise were repeated in other countries.

Key:
Pension approaches shown in red, Insurance in Blue, Government/Social Security in Green.

<table>
<thead>
<tr>
<th>Matching</th>
<th>Budgeting</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Accounting</td>
<td>• Accounting</td>
</tr>
<tr>
<td>‒ Current IAS19 (pen)</td>
<td>‒ Current (ins)</td>
</tr>
<tr>
<td>‒ Future IFRS4 (ins)</td>
<td>‒ Director’s pensions</td>
</tr>
<tr>
<td>• Statutory reserves</td>
<td>• Statutory reserves</td>
</tr>
<tr>
<td>‒ Future (Solvency II)</td>
<td>‒ Current (ins)</td>
</tr>
<tr>
<td>• Capital requirements (ins)</td>
<td>• Funding (pens)</td>
</tr>
<tr>
<td>‒ Current ICA</td>
<td>‒ Technical provisions</td>
</tr>
<tr>
<td>‒ Future (Solvency II)</td>
<td>‒ Deficit Recovery plans</td>
</tr>
<tr>
<td>• Shareholder (insurance)</td>
<td>• Shareholder (ins)</td>
</tr>
<tr>
<td>‒ Market Consistent Enterprise Value</td>
<td>‒ Traditional Enterprise Value</td>
</tr>
<tr>
<td>• Risk transfer</td>
<td>• Risk transfer</td>
</tr>
<tr>
<td>‒ Section75 (Pen)</td>
<td>‒ Transfer values (pen)</td>
</tr>
<tr>
<td>‒ Hedging (banks, ins)</td>
<td>• Govt Social Time Preference Rate</td>
</tr>
<tr>
<td></td>
<td>• Fundamental value</td>
</tr>
</tbody>
</table>