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Abstract :
The fundamentals of pension actuarial and accounting standards are being thoroughly revisited on both sides of the Atlantic.
This paper intends to illustrate that allowance for future employee contributions if introduced in actuarial methods to be used to calculate the employer's periodic benefit (pension) cost and liability would achieve more consistency inside current accounting / actuarial pension frameworks and thus improve the reporting on benefit (pension) costs.

Keywords : Actuarial valuation methods, funding of pension plans

Title of proposed paper :

Employee's participation (contributions) to the funding of pension benefits : how to best incorporate it in the actuarial valuation of pension obligations ?

Full paper

1) Context : the pension accounting revolution

2) Current treatment of employee contributions by internationally recognized actuarial valuation standards for accounting purposes (US GAAP, IASB)

3) Alternative potential treatments in actuarial valuations

4) Conclusion and recommendation

Summary

In many representative pension plans in Europe, employees significantly participate into the funding of their future pension benefits through specific contributions, which are often a key condition to their actual entitlement to receive pension benefits.

Under current predominant actuarial and accounting standards to measure employer's pension obligations, this funding contribution from employees has a very limited impact on the measurement of companies' obligations. This is probably due to the fact that pension accounting standards derive mostly from US inspiration (SFAS 87 developed in 1985) where contributory plans are rare.

Between now and 2010, the fundamentals of pension actuarial and accounting standards will be profoundly revisited on both sides of the Atlantic (Europe and the USA), and we strongly believe that our profession should engage and invest into these technical debates.

Our paper would like to be a contribution to these debates, as we suggest alternative possible treatments of employee contributions to pension schemes in actuarial and accounting techniques for reporting pension costs of sponsoring corporate entities.

Presentation of the Author

Jean-François Gavanou :

- current co-chairman of the IAS 19 Committee of the Ordre des Experts Comptables (French Chartered Accountants)
- current member of the IAS 19 Committee of the French accounting standard setter (Conseil National de la Comptabilité)
- Global Benefits & Finance Director with Atos Origin
- co-author of 2 books :
    - « Gouvernance Sociale et Fonds de Pension » (Economica 2004)
    - « Controlor / Auditor » (Dunod, 2006)

1) Context : the pension accounting revolution

The 2 major accounting standards used by actuaries to value pension obligations (SFAS 87 for US GAAP*, IAS 19 for the IFRS** framework) are under major revisions, questioning the fundamentals of valuation and recognition principles used to account for pension obligations and related assets.

IASB project (from public information available)

In July 2006, the IASB added a project on post-employment benefits to its agenda. The project is to be conducted in two phases, which would involve a fundamental review of all aspects of post-employment benefit accounting.
The first phase would consider issues that could be resolved within the next four years, namely:

- *presentation and disclosure*
- *definition of defined benefit and defined contribution arrangements and accounting for cash balance plans*
- *smoothing and deferral mechanisms*
- *treatment of settlements and curtailments*

The aim is to issue an interim standard that would significantly improve pension accounting by 2010. However, the Board noted that the definition of defined benefit/defined contribution arrangements and accounting for cash balance plans component of the project could be difficult. If resolving the issues in this component would jeopardise the timing of completing the other components it could be treated as a discrete project.
The Board also noted that the FASB had initiated a comprehensive examination of pension accounting as part of a two-phase pension project. The Board observed that it is important to monitor the FASB's progress and reiterated that, although the timing and scope of the first phases might differ, the objective of both boards is ultimately, to develop a converged standard.

FASB project (from public information available)

The objective of this project is to comprehensively reconsider guidance in FASB Statements No. 87, Employers' Accounting for Pensions No. 88, Employers' Accounting for Settlements and Curtailments of Defined Benefit Pension Plans and for Termination Benefits, No. 106, Employers' Accounting for Postretirement Benefits Other Than Pensions, and No. 132 (revised 2003), Employers' Disclosures about Pensions and Other Postretirement Benefits, in order to improve the reporting of pensions and other postretirement benefit plans in the financial statements by making information more useful and transparent for investors, creditors, employees, retirees, donors, and other users

Because of the various committees to which we belong, we have had access to various accounting research papers, which, combined with the public announcements made by both IASB*** and FASB**** representatives on their projects to profoundly revisit pension accounting principles, demonstrate that the actuarial valuation principles which have been used over the past 20 years (SFAS 87 dates back 1985…) will be significantly revised in the coming years.

It is worth noticing that the UK accounting standard regulator, the ASB, has taken the lead in the thinking about the future of pension accounting, and has produced already research paper on the issue. The project was announced as follows :

ASB (UK accounting standard setter) project

On the 14 October 2005 the Accounting Standards Board (ASB) announced a research project into the financial reporting of pensions. A project update as at 30 June 2006 is attached.

<u>The UK context</u>

The ASB's standard on accounting for pensions, Financial Reporting Standard (FRS) 17 'Retirement Benefits', was published in November 2000, although its requirements have only become mandatory in full for accounting periods beginning on or after 1 January 2005. The recent implementation of FRS 17 has given rise to a number of comments about the accounting for pensions, particularly in respect of defined benefit pension arrangements, which have attracted a good deal of media attention.

The legal and regulatory environment for company pension schemes has also changed significantly since the publication of FRS 17, notably as a result of the Pensions Act 2004. Regulatory changes include the following:

- *there is a new statutory obligation on solvent companies to meet their pension obligations;*
- *the establishment of the Pension Protection Fund (PPF) to provide a partial safety net for employees whose employers are unable to meet their pension obligations; and*
- *the establishment of The Pensions Regulator (TPR), a new regulator with significant new powers.*

These changes could not have been anticipated when FRS 17 was developed and may have an effect on the relevant financial reporting.

<u>The International context</u>

Debate has also been stimulated by the move to International Financial Reporting Standards (IFRS). In many respects, the requirements of FRS 17 are similar to those of its international counterpart International Accounting Standard (IAS) 19 'Employee benefits'. But there are some issues that are addressed by IAS 19 and not by FRS 17, and there are a number of optional accounting treatments in IAS 19 the merit of which requires careful evaluation.
The International Accounting Standards Board (IASB) and US Financial Accounting Standards Board (FASB) have indicated that they may be reviewing their standards on pensions in the reasonably near future.
The ASB is undertaking its research into pensions accounting in the light of these developments. This research will help inform any proposals for future accounting standards (either UK or international).

The European context

There is also an important European dimension. The European Financial Reporting Advisory Group (EFRAG) and European National Standard-Setters (NSS) have agreed to work more closely together on 'Proactive Accounting Activities in Europe', in order to improve the input from Europe to the global standard-setting process. EFRAG and the NSS have agreed to start proactive work on four projects, one is which is pensions accounting, where the ASB will take the lead.

Issues
The project will reconsider the fundamental principles of pensions accounting. Amongst the questions to be addressed by the project will be:

- *how is the relationship between an employer and a pension scheme best reflected in the employer's financial statements?*
- *how should the employer's liability in respect of pensions be quantified? In particular:*
    - *what is the most appropriate actuarial method?*
    - *should the employer's liability reflect future salary increases?*
    - *what discount rate should be used to translate future cash flows into a realistic present value?*
- *what is 'the expected return on assets', and how (if at all) should it be reflected in the employer's financial statements?*
- *what is the impact on financial reporting of pension fund regulation arrangements, such the introduction of the PPF levy?*
- *are the disclosures required by current standards appropriate? This will include consideration of whether liabilities that might arise in the event of a takeover of the employer are adequately disclosed under current requirements.*

The research will also cover the financial reports of pension schemes, including consideration of whether requirements for the accounts of pension schemes secure adequate reporting of liabilities to pay pensions

A significant number of actuaries in our profession work precisely in this area, helping companies to prepare their accounting disclosures on pensions. It is therefore critical that our profession be at the forefront of these technical debates to be able to address the new valuation challenges and needs which are going to emerge from that evolution.

I strongly encourage the Committee to take every opportunity to populate among the actuarial profession internationally the progress made on the reforms announced by both standard setters, and organize / sponsor comments and contributions from the profession.

We need to put ourselves as a profession in a position to be able to be influential in these debates, and not only consulted, as a significant portion of the future of our profession will depend on the outcome of these evolutions.

Interim summary

Accounting and actuarial standards used to measure company's pension obligations are currently under a very profound review on both sides of the Atlantic (IAS/IFRS and US GAAP), which happens only very 20 years.

Internationally and through local standard setters and marketplace committees, we believe that actuaries should maximise their contribution to this research effort.

As part of this effort, I have been mandated by the French National Accounting Standard Setter to further explore one particular topic of pension finance which is :

"valuation and accounting implications for the sponsoring employer / reporting entity of having employees contributing into a pension scheme"

as this is not – to the best of my knowledge - currently covered by research papers revisiting the fundamentals of pension accounting.

This forms the background and subject of this paper.

2) Current treatment of employee funding of defined benefit arrangements by internationally recognized pension accounting standards

2.1) Description of the underlying contribution mechanisms

Depending on local customs, tax or solvency constraints, beneficiaries (employees, retirees, deferred members, dependents,…) may or may not be associated to the funding of their future pension (or post employment benefits).

The following levels of employee participation to the funding of pension benefits are typical :

a. **no advance funding** : some pension plans are not funded in advance, which means that no employer nor employee contributions prevail (unfunded plans) – issue raised in the paper not relevant; this situation used to be very common in Germany

b. **funding but no employee participation** : other pension arrangements are funded in advance by employer contributions to external funds, without any employee contributions– issue raised in the paper not relevant; this situation is still very common in the USA

c. **advance funding including expected employee contributions** : still, a large number of pension plans rely on contributions expected from employees, creating relevance for the issue raised in the paper

d. **advance funding with defined split between employer / employee portions** :in many cases, the accrual and payment of pension benefits is even conditional upon employees having effectively contributed at a certain rate over defined periods of time into the plan. Typical funding arrangement between employer and employees are based on 2/3 of contributions needed to be paid by employer, and 1/3 by employees (with caps applying on the latest); this situation corresponds to the main provisions of UK or Dutch pension plans

e. **advance funding with complete share of cost between employer and employees** : in some rare cases, pension plans are even funded based on a “share of cost” approach whereby employees are sharing a certain percentage (up to 50%) of the cost of the plan; some plans in the UK and the Netherlands have this type of provisions

Interim summary

The participation of employees in the funding of their future pension benefits can be very significant (33 to 50% of the total costs) in Europe in particular. We believe that this element is not fairly reflected in current pension accounting standards for plans of the c to e types, as will be exposed in the next chapter.

2.2) Employee contributions and US GAAP – IAS/IFRS

2.2.1) Currently a very limited impact on pension accounting and valuation techniques

No allowance for future employee contributions is made when valuing the employer pension obligations at a certain date.

Employee contributions are simply deducted form the yearly service cost recognized in the P&L of the employer, but not factored into future cost projections in the projected unit credit "actuarial" method.

2.2.2) A significant exception : the measurement of " net" post medical healthcare costs

Nevertheless, in certain relatively common circumstances (c to e of 2.1), employer net obligations are estimated based on projected costs of the plan (benefit payments) less the present value of employee contributions and financial interests to be expected from these contributions.

This approach is suggested by another US accounting standard for employee benefits, SFAS 106, which covers post employment medical plans. When valuing employer's obligations, the standard prescribes to deduct an estimate of the contribution (insurance premium) expected to be paid by beneficiaries.

IAS / IFRS do not differ significantly from US GAAP in this area.

SFAS 106 par 20

*The expected post retirement benefit obligation for an employee is the actuarial present value as of a particular date of the postretirement benefits expected to be paid by the employer's plan to or for the employee, the employee's beneficiaries, and any covered dependents pursuant to the terms of the plan. Measurement of the expected postretirement benefit obligation is based on the expected amount and timing of future benefits, taking into consideration the expected future cost of providing the benefits and the extent to which those costs are shared by the employer**, the employee (including consideration of contributions required during the employee's active service period and following retirement**, deductibles, coinsurance provisions, and so forth), or others (such as through governmental programs).*

SFAS 106 par 27

*Contributions expected to be received from active employees toward the cost of their postretirement benefits and from retired plan participants are treated similarly for purposes of measuring an employer's expected postretirement obligation. That obligation is measured as the actuarial present value of the benefits expected to be provided under the plan, **reduced by the actuarial present value of contributions expected to be received from the plan participants during their remaining active service and postretirement periods**. In determining the amount of the contributions expected to be received from those participants toward the cost of their postretirement benefits, consideration is given to any related substantive plan provisions, such as an employer's past practice of consistently increasing or reducing the contribution rates as described in par 24 and 25. An obligation to return*

*contributions received from employees who do not attain eligibility for postretirement benefits and, if applicable**, any interest accrued on those contributions** shall be recognized as a component of an employer's postretirement benefit obligation.*

IAS 19 par 91

*Some post-employment health care plans require employees to contribute to the medical costs covered by the plan. Estimates of future medical costs take account of any such contributions, based on the terms of the plan at the balance sheet date (or based on any constructive obligation that goes beyond those terms). Changes in those **employee contributions** result in past service cost or, where applicable, curtailments. The cost of meeting claims may be reduced by benefits from state or other medical providers*

Interim summary

Despite their potential significant impact, employee contributions are currently not anticipated in the actuarial and accounting measurement techniques of corporate pension obligations imposed by the predominant international accounting standards (IAS/IFRS and US GAAP), but simply reported when paid, whereby the present value of future pension benefit payments forms the very basis of these measurement techniques.

The fact that, under the same accounting frameworks (IAS/IFRS, US GAAP) the present value of these contributions or participations to funding are explicitly deducted from the present value of benefit payments when measuring post employment medical obligations, forms, in our view, an internal contradiction in these frameworks.

We therefore strongly suggest that current accounting revisions make an explicit allowance for employee contributions in the valuation and measurement techniques.

3) Proposed alternative treatment of employee contributions

As a contribution to the current thinking about how to best account for net pension obligations of companies, I would suggest that, on the particular aspect of pension plans being co-funded by employees, the actuarial valuation method to be elected should :

- consider that, the final vesting of pension benefits being conditional upon employees effectively fulfilling their contributive duties, the net probable cost for the employer shall be valued based on the net probable present value of pension benefits to be paid, and employee contributions to be received

- therefore incorporate expected future employee contributions in the determination of the net employer pension costs, by calculating, from the inception of the plan, the present value of future employee contributions based on the expected return assumption to be elected.

We have attempted to illustrate on a simple example what could be the (significant) impact of this approach, and the comparative results produced by an alternative method incorporating future employee contributions in the computation of future pension costs.

3.1) Description of the illustrative example

We have tried to select an illustrative example which shall be representative of typical benefit designs for which IAS 19 or SFAS 87 currently find their main application.

We have also applied some actuarial simplifications to focus on our key research element.

We have therefore chosen to base our simulations on the following example :

- benefit :	Lump sum (capital) payment of 15 years final salary at retirement No death or disability benefits No mortality assumption taken during active life
- active life :	40 years
- final salary :	100
- salary increase assumption :	3% annually
- discount rate :	5%
- investment return :	7% Linear (no investment volatility simulated)
- employee contribution :	50% of total cost

3.2) Simulation work

3.2.1) Determination of balancing contribution rate

We have used the solver facility of Excel to determine the total contribution rate (applied to salary) which would fund the payment of the benefit at retirement.

Under the above described assumptions, the solution is :		15,2 % (total)
	Employer :	7,6 %
	Employee :	7,6 %

3.2.2) Simulation of main accounting results using current actuarial approach (IAS 19 / SFAS 87)

We have then simulated the development of :

- balance sheet
- and P&L

over the active career of the participant, using current actuarial approach (i.e. not anticipating employee contributions in the determination of the present value of the benefit).

3.2.3) Simulation of main accounting results using an alternative actuarial approach

We have then simulated the development of :

- balance sheet
- and P&L

over the active career of the participant, using the following alternative actuarial approach :

(A) the net present probable value of the benefit is determined according to IAS 19 / SFAS 87 current principles

(B) but the net present probable value of future employee contributions is also calculated

A net (C) aggregate amount is then calculated :

(C) = (A) – (B)

being the net present probable value of the employer cost, is then prorated according to current IAS 19 / SFAS 87 techniques.

The simulation of the evolution of the fair value (FV) of the related fund (investment of employer and employee contributions) is performed in line with the central investment return assumption.

Cost and balance sheet developments are then produced based on current IAS 19 or SFAS 87 prescriptions.

3.2.4) Principal results

Please find thereafter some comments on the principal results obtained from simulations :

Impact on gross benefit liability shown on balance sheet (before deduction of fund's assets)

As can be easily anticipated :

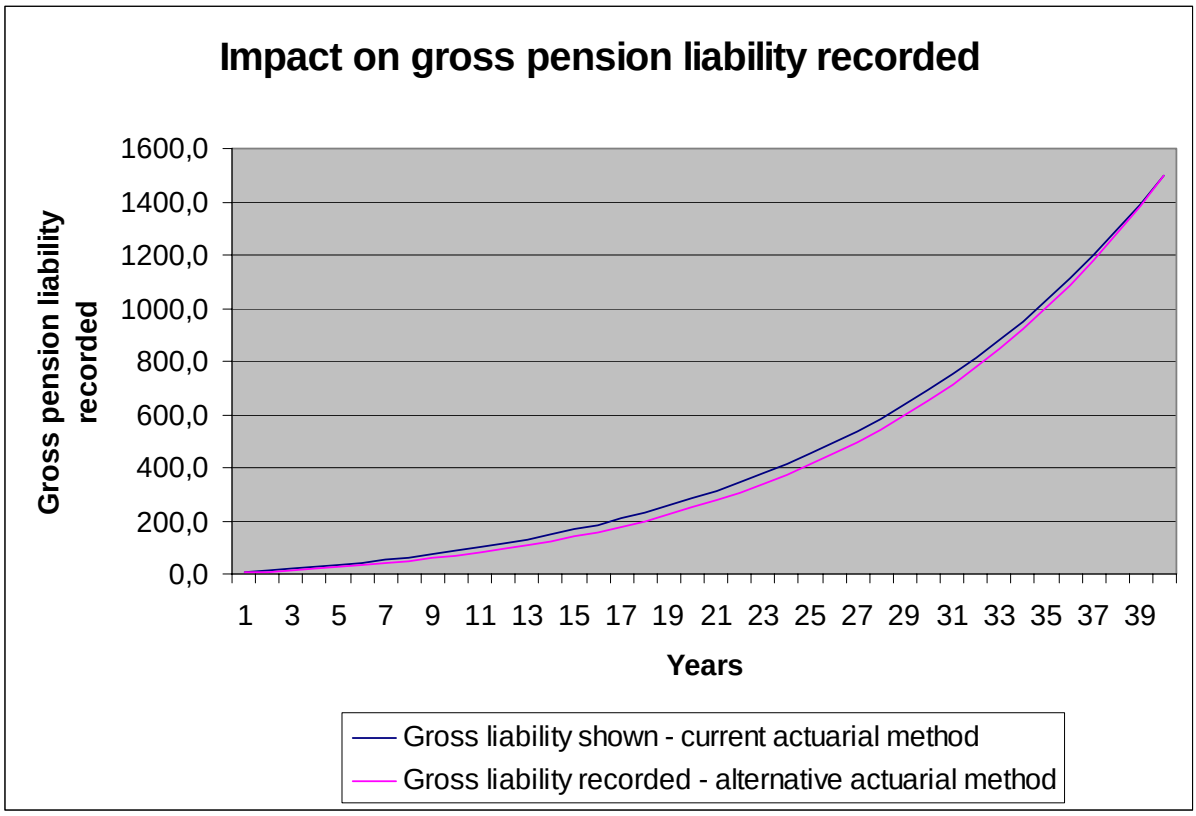
- the gross benefit liability (before deduction of the fair value of the related investment fund) under the alternative actuarial approach

is lower than

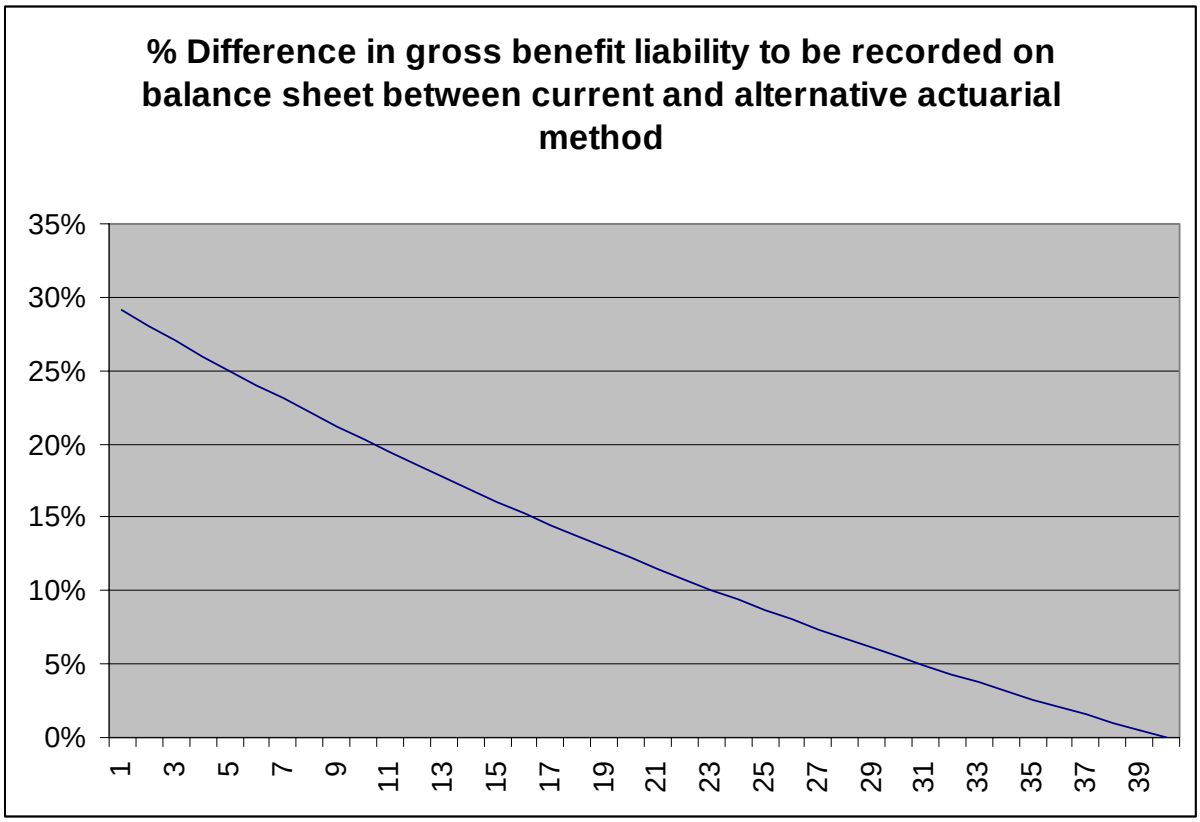
- the gross benefit liability (DBO under IAS 19 or PBO under SFAS 87) calculated under current standards.

This is due to the fact that an allowance is made for the present probable value of future employee contributions, deducted from the cost of the present probable value of the future benefit payment.

This values become convergent at the time of the actual benefit payment.



Expressed in percentage, the difference is more obvious (between 10 and 15% in the middle of the career) :



Impact on net pension liability to be recorded on balance sheet (after deduction of fund's assets)

This is the most interesting result of the research conducted.
The net pension liability is the net difference between, at each end of closing accounting periods (years) :

- current actuarial method :

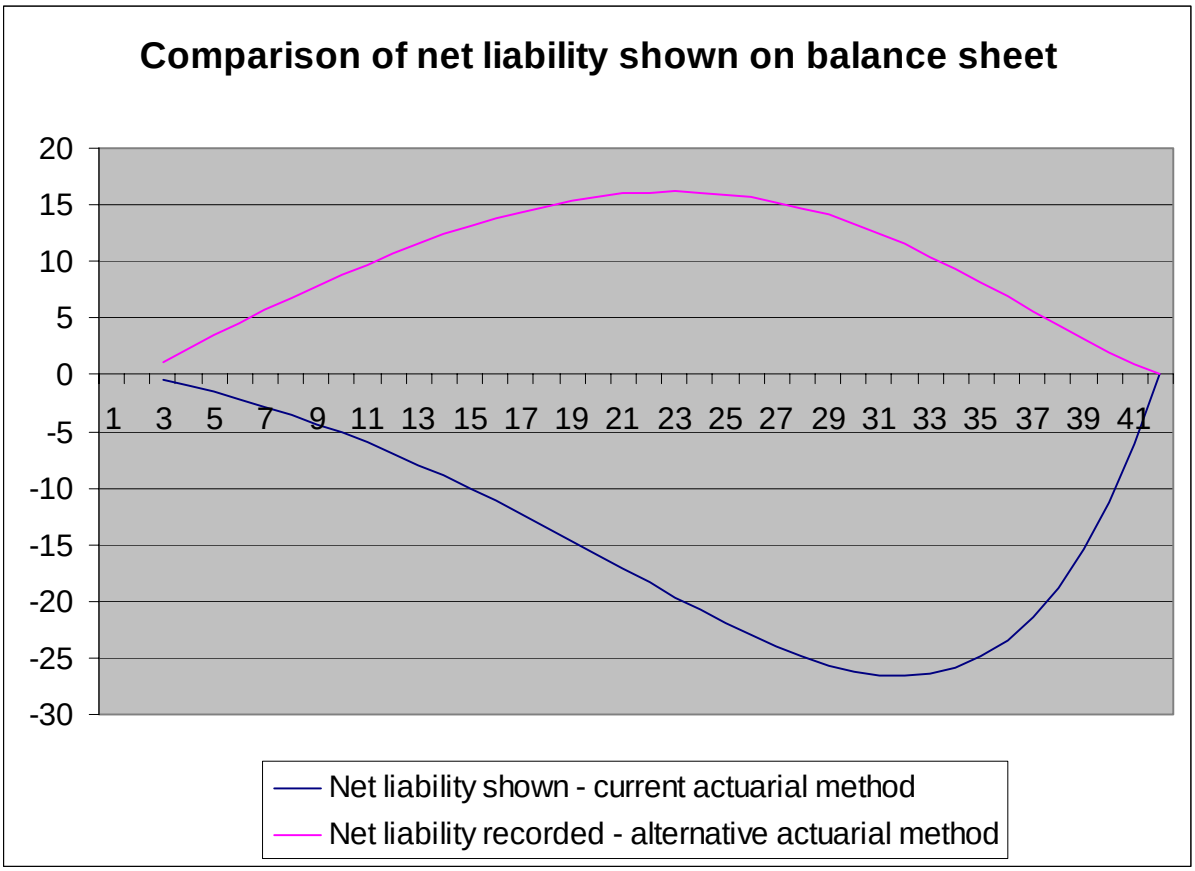
(A)
less
FV

the fair value of the fund where employee an employer contributions are invested

- alternative actuarial method :

(C)
less
FV

the fair value of the fund where employee and employer contributions are invested



- current actuarial method

The blue (or below) curve shows the development of the net pension liability to be recorded on balance sheet following current actuarial methods.

The net pension liability increases until the 31 year of seniority and then decreases to become nil when benefit payment is made.

This profile is due to the "projected unit credit method" which

- does not allow for investment returns to be anticipated in the discount rate to be used to calculate the liability,
- provides for a linear recognition (accrual) of the benefit cost

On the other end, the computation of the balancing contribution is based on expected investment returns.

Therefore, the benefit accrual provision remains greater (more conservative) than the value of the investment fund until the benefit is actually paid.

This can be considered as an anomaly (or excessive prudence) in current actuarial methods.

- alternative actuarial method

The benefit accrual to be shown under the alternative actuarial method is in fact a net asset, because the anticipation of future employee contributions reduces the gross liability to be recorded.

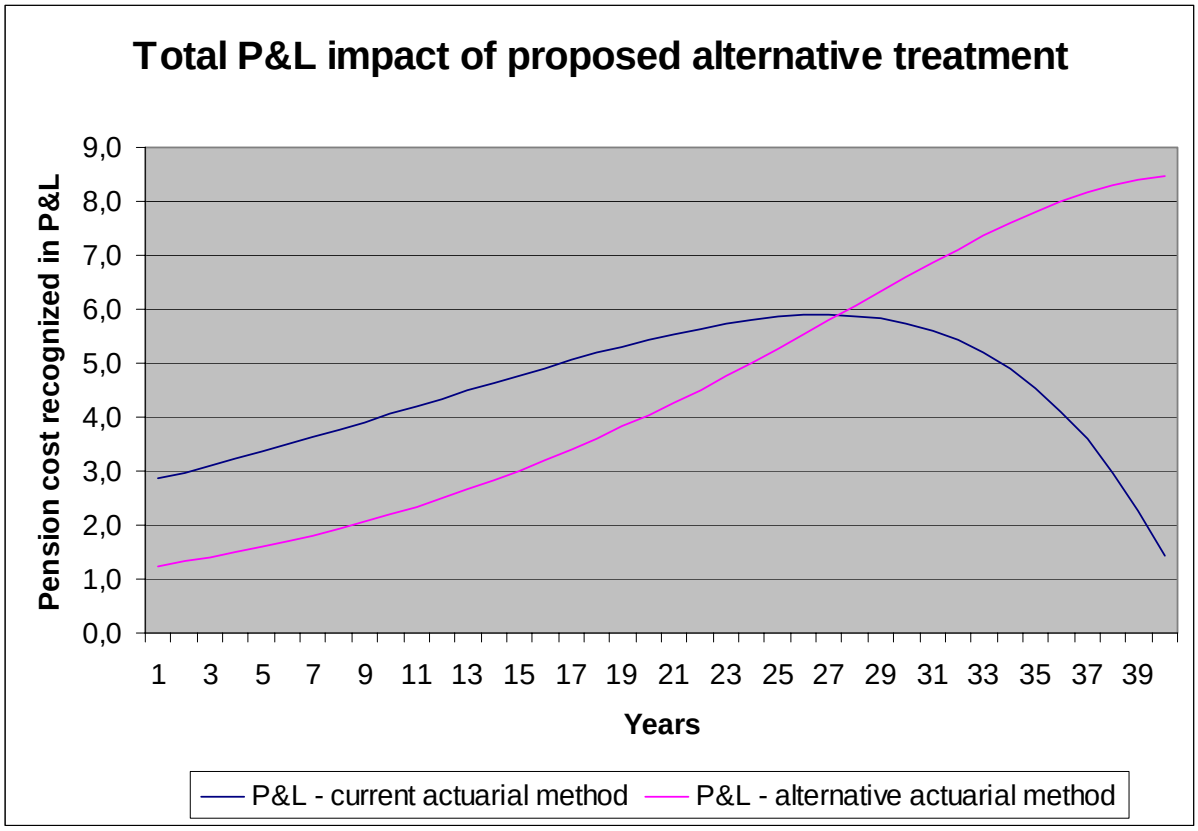
Further research will be needed to fully understand the implications of the use of this alternative method.

Impact on cost to be recognized in the profit and loss (P&L) account of the employer

We have also simulated the various components of the benefit cost to be recognized in the employer's profit and loss account, using current and alternative actuarial methods :

- service cost
- interest cost
- expected return

The total periodic benefit cost compares as follows :



The P&L profile associated with the respective actuarial methods is quite different :

- under the current actuarial method, the benefit cost to be shown in the employer's P&L increases until the middle of the career, and then decreases
- under the alternative actuarial method, the benefit cost to be shown in the employer's P&L is continuously increasing

Employer's benefit cost, in absolute value, should logically increase with age. The particular P&L profile obtained under current actuarial method is due to the fact that investment returns are not anticipated and tend to reduce total benefit cost in P&L at the very end of the career, as a sort of catch up to reach the targeted funding level.

4) Conclusion and recommendation

We believe that the alternative actuarial method suggested in this paper produces interesting results to be contributed to the current debates around the redefinition of the fundamentals of pension actuarial and accounting standards.

Preliminary results indicate that some of the drawbacks of the current actuarial approach seem to be corrected through the introduction of the present probable value of employee contributions.

Further actuarial research will be needed to explore this proposed alternative, and we hope to have stimulated this research in order for our profession to be at the forefront of the technical debates opening around us.

Glossary

*	Generally accepted accounting principles in the US
**	International Financial Reporting Standard (EU standards)
***	International Accounting Standard Board (governing over IFRS)
****	Financial Accounting Standard Board (governing over US GAAP)