

The Actuarial Profession
making financial sense of the future

Pensions, benefits and social security colloquium 2011
Asahiro Kishimoto



Reduction of miscalculation risk of defined benefit obligation

25-27 September 2011

© 2010 The Actuarial Profession • www.actuaries.org.uk

Contents

- Purpose of this presentation
- Abstract
- 1. Calculation of defined benefit obligation
- 2. Recognition of miscalculation risk
- 3. Peculiar risks of defined benefit obligation calculation
- 4. Reasons of miscalculation
- 5. Review by the entity
- 6. Advice from external actuaries
- 7. Audit by an audit firm
- 8. Conclusion

© 2010 The Actuarial Profession • www.actuaries.org.uk

1

Purpose of this presentation

- The purpose of this presentation is to consider how to reduce miscalculation risk of defined benefit obligation.
- I'm working for an audit firm as a pension actuary.
- This presentation is mainly based on the experience.
- All opinions in this presentation are presenter's personal ones, Not of the firm presenter is working for.

Abstract

- Defined benefit obligation is one of the most important items of financial statements in Japan too.
- But not many entities recognise its importance enough.
- Calculation of defined benefit obligation has peculiar miscalculation risks.
- I considered how to reduce this miscalculation risk.
- The conclusion is establishment of effective internal control of the entity.
- Ask to help external actuaries that calculate the obligation and actuaries in audit firm.

1. Calculation of defined benefit obligation

1.1. Situation of calculation in Japan

- Japan has 18 thousand defined pension plans and 8.5 million participants at the end of March 2011.
- Defined benefit obligation must be calculated by the Unit Credit method from the period beginning on or after 1 April 2000.
- But simplified method (ex. total amount of necessary payment if all employees retire voluntarily) is allowed for the entity that its employees are fewer than 300.

© 2010 The Actuarial Profession • www.actuaries.org.uk

4

1. Calculation of defined benefit obligation

1.2. Cases requesting external actuary

- The entity generally requests the calculation to a life insurer or trust bank that it already asked to manage its pension plans to.
- But some entities request the calculation to other external actuaries.
- If the entity requests the calculation to external actuary not managing its pension plan, the entity must inform its pension plan and pension beneficiary data properly.
- The entity must take care its communication than actuary managing its pension plan.

© 2010 The Actuarial Profession • www.actuaries.org.uk

5

1. Calculation of defined benefit obligation

1.3. Cases calculating in the office

- A small number of Japanese entities calculate its defined benefit obligation in the office without actuaries.
- In this case, most entities are using software on the market.
- A certain research said this approach was hard to image in Europe. Then it may be a peculiar problem in Japan.
- Persons in charge of calculation have less technical knowledge.
- Then it causes more errors.

2. Recognition of miscalculation risk

- Not many Japanese entities recognise miscalculation risk of defined benefit obligation enough.
- Because internal controls for the obligation are not suitable in many entities.
- It is hard for persons in charge of the entity to understand this calculation. Then they have less intention to review the calculated result.
- But there are a lot of risks to miscalculate the obligation by errors of the entity itself.
- The entity should recognise miscalculation risk first.

3. Peculiar risks of defined benefit obligation calculation

- Defined benefit obligation is one of the most important items of financial statement. But calculation of it has following peculiar risks

3.1. Difficult to understand and easy to misunderstand

- It is difficult to understand details of calculation without pension actuarial knowledge. And misunderstanding is not rare.
- This fact often make the entity to accept calculated result by external actuaries without review.

© 2010 The Actuarial Profession • www.actuaries.org.uk

8

3. Peculiar risks of defined benefit obligation calculation

- The entity can analyse the result by comparing previous year verifying reasonableness. But some pension actuarial knowledge is necessary for this analysis.

3.2. Depend on entity's benefit plan

- Calculation of defined benefit obligation is depend on entity's benefit plan. Then method of calculation is different by each entities. It makes more miscalculation for actuaries too. It also makes communication between the entity and actuaries more important.

© 2010 The Actuarial Profession • www.actuaries.org.uk

9

3. Peculiar risks of defined benefit obligation calculation

3.3. Error of assumptions or data makes huge mistake

- If error of assumptions or data occurs, it may causes the result of calculation far from the truth.

4. Reasons of miscalculation

- I considered practical reasons of miscalculation as followings.
- I consider them only in the cases requesting external actuary.

4.1. Risks of calculation neglecting necessary plans

- When entity doesn't recognise its employee benefit plan appropriately. Calculation is occasionally made neglecting plans that should be calculated.

4. Reasons of miscalculation

- External actuaries cannot recognise all necessary plans of the entity. Then they assume plans the entity informed to are all necessary ones.
- The entity must inform external actuaries of latest employee benefit plans. There is a risk that the entity neglects it, when plans is revised.

4. Reasons of miscalculation

4.2. Risks of using irrelevant data

- Even if the entity recognises its employee benefit plan appropriately. In some cases, it has not appropriate knowledge about employee or retired data for calculation.
- In this case, irrelevant data is informed to the external actuaries.
- External actuaries can not directly review the data informed from the entity. Then they use it as relevant one.
- Following is detail of the risk.

4. Reasons of miscalculation

4.2.1. Problem of completeness and accuracy of the data

- Only a part of employee data or retired data is occasionally informed to the external actuary.
- Retired employee data is likely to be mistake than employee data.
- If pension beneficiary data has error, it has a significant impact on the defined benefit obligation. The entity needs a lot of attention for it.
- If the amount of benefit depends on the leaving reasons, it is necessary information. We found comparatively many.

© 2010 The Actuarial Profession • www.actuaries.org.uk

14

4. Reasons of miscalculation

4.2.2. Lack of update of the data

- Using previous year's salary or miscalculation of accumulated salary occasionally occurs.

4.2.3. Lack of reflect of plan revision to the data

- Certain plan revision causes change of the data to the external actuaries. But Occasionally this change is neglected.

© 2010 The Actuarial Profession • www.actuaries.org.uk

15

4. Reasons of miscalculation

4.3. Lack of reflecting actual payment situation

- The entity must record a payable if some part of pension or lump sum that estimated as paid but not paid yet.
- But some entities occasionally neglect it.
- The entity must understand assumptions for the obligation in pension paying phase and actual payment situation.

4. Reasons of miscalculation

4.4. Irrelevant actuarial assumptions

- There is a risk that the entity makes irrelevant actuarial assumptions, e.g. discount rate.
- If actuarial assumption is irrelevant, it has a significant impact on the defined benefit obligation.

5. Review by the entity

- The entity should make review manual including following items and establish internal control for reviewing calculated result.
- The entity should makes "Job description", "Risk Control Matrix (RCM)", "Flow chart" if necessary.
- Unfortunately only a few entities review its defined benefit obligation as following in current Japan. Even though the entity is big business too.

© 2010 The Actuarial Profession • www.actuarial.org.uk

18

5. Review by the entity

5.1. Understanding employee benefit plan

- A person in charge of the entity should understand the employee benefit plan completely. If the plan is revised or additional plan is introduced, the person should update the knowledge of the plans.
- And the person should understand what plans are calculated for the obligation. (Plan's benefits that can not be estimated rationally should be recorded as expense at payment.)

© 2010 The Actuarial Profession • www.actuarial.org.uk

19

5. Review by the entity

5.2. Notification of plan revision etc. to external actuaries

- The entity should always notify latest employee benefit plans to external actuaries. Basically all revision should be notified to them.
- Some revision of plan cause change of data. The entity should consult with external actuaries if necessary, and document the result of consultation for its manual.

5. Review by the entity

5.3. Clarification of calculation policies of assumptions

- Calculation policies of assumptions, ex. method and renewal period etc. should be clarified for the manual. Basically calculation policies should be used continuously.

5.4. Documentation of assumptions making process

- The entity should document the process of making assumptions and archive it with evidences.

5. Review by the entity

5.5. Making process of basic data

- The entity should document process of making basic data, employee data and retired data etc., in a manual.
- This process is depend on entity's data management system. Then the process should be precisely documented.
- The person in charge should discuss with system department.

5. Review by the entity

5.6. Review process of basic data

- The entity should review completeness (there is no lack of data) and existence (Containing of only actual data) of the basic data. Then the entity should confirm total numbers of the data to its original data and make sample check between the data and original data.
- Comparison with previous year's data is one of important reviewing process. If the plan uses accumulated salary etc. that use previous year's data, the entity should review consistency of the data with previous year's one.

5. Review by the entity

5.7. Review by the person exclude preparer

- The person exclude preparer should review assumptions and basic data before sending them to external actuaries.

5.8. Archiving a file copy of assumptions and basic data

- The entity should make a file copy of assumptions and basic data and archive it.

5. Review by the entity

5.9. Review of actuarial report

- The entity should review the actuarial report from external actuaries confirming using of assumptions and basic data properly.

5. Review by the entity

5.10. Analysis of the calculated result

- The entity should analyse the calculated result using comparison with previous year's result.
- Comparison of obligation, service cost, number of employee, number of beneficiary, total salary, total pension with previous year's one may be effective method to reduce miscalculation risk.
- The entity should make the comparison considering contents of the plan.

5. Review by the entity

5.11. Reflecting actual payment situation

- The entity should understand payment assumptions for the obligation and actual payment situation for recording the obligation in financial statement.
- The entity must record a payable if necessary.

6. Advice from external actuaries

- The entity typically has not pension actuarial knowledge.
- Then external actuaries are expected to do following things.

6. Advice from external actuaries

6.1. Advice about making a manual

- When the entity makes a manual suitable for its employee benefit plan, it is necessary to be helped by actuaries having pension actuarial knowledge.
- External actuaries who calculate defined benefit obligation are expected to advice it.
- Using actuaries in audit firm auditing the entity is an option.

6. Advice from external actuaries

6.2. Advice about making assumptions

- The entity could reduce the risk of using irrelevant assumptions by external actuaries appropriate advice.

6.3 Advice about calculated result

- When the entity has questions about calculated result, external actuaries are expected to explain the questions.

6. Advice from external actuaries

- Explanation of external actuaries may be useful for finding miscalculation that actuaries have no responsibilities.
- If calculated result has any problems, even though external actuaries have no legal responsibility, the entity may think the actuaries inhospitable.

7. Audit by an audit firm

7.1. Calculation of defined benefit obligation and audit

- Audit objective by an audit firm is to provide an opinion that financial statements (including defined benefit obligation) are free of material misstatements.
- In this way, audit is done after the fact of calculation of defined benefit obligation.
- But realistically audit process sometimes find problems.

7. Audit by an audit firm

7.2. Audit process for calculation

- Audit firm should apply following processes for calculation of defined benefit obligation in Japan.
- Audit firm must apply from (1) to (4). If the firm accept the need, it should apply from (5) to (7).
- (1) Review the ability as an expert (of external actuaries)
- (2) Confirm the situation about expert's objectivity
- (3) Estimate the risks about expert's objectivity if he or she has interest with the entity

7. Audit by an audit firm

- (4) Understand work of the expert (including method and assumptions)
- (5) Consider the result of the expert as audit evidence
- (6) Ask or confirm about basic data, check with related data
- (7) Discussion with client and expert, consult with other expert

7. Audit by an audit firm

7.3. Recognition of risks of miscalculation

- I personally think that not only entities but also audit firms should recognise risks of miscalculation of defined benefit obligation more seriously.
- Miscalculation of defined benefit obligation may have the significant impact on the result of audit.
- I think some auditors recognise that defined benefit obligation has low need to be reviewed because it is calculated by external experts.

7. Audit by an audit firm

- But in fact, it is depend on much assumptions etc.. Then if irrelevant assumptions are used, we cannot have valid result.
- The obligation is depend on employee benefit plan that is different by each entity. It also needs huge data, complex calculation. Miscalculation is likely to occur.
- Miscalculations for several years is rarely found. It may cause retrospective correction of financial statement. It may damage audit credibility.
- I think audit firm should ask the entity to establish reliable internal control to calculate the valid obligation.

© 2010 The Actuarial Profession • www.actuaries.org.uk

36

8. Conclusion

- Obviously defined benefit obligation that have an impact on entity's financial statement should be calculated appropriately.
- I think defined benefit obligation has higher risks to be miscalculation than other items in financial statement.
- But I think few entities recognise these risks enough at the current moment.

© 2010 The Actuarial Profession • www.actuaries.org.uk

37

8. Conclusion

- The entity should establish reliable internal control to calculate the valid obligation. It should make an manual including items mentioned in this presentation. And it should operate the control appropriately.
- For this purpose the entity needs help from external actuaries that calculate obligation and actuaries in audit firm.

Thank you all for your attention

- Regrettably I cannot research the situation outside Japan about the subject in this presentation.
- It would be my great pleasure if you would make a comment about this presentation .
- I would like to thank you all for your attention