

Evaluation of the 2014 Quinquennial Valuations of Social Security Pension Plans in Japan[†]

--- with reference to ISAP2 and the draft ISSA-ILO Guidelines ---

Nobuhiro Shimizu^{*}

Abstract

The 2014 Quinquennial Valuations of social security pension plans (SSPs) in Japan revealed several key challenges for social security actuaries. Firstly, it abolished the main-scenario approach and put all the economic scenarios on an equal footing. Meanwhile, the pension law requires the government to determine whether and when to stop applying the automatic adjustment mechanism. Secondly, it was assumed in the 2014 Valuations that the excess return obtainable by diversified investments under the risk level of domestic bonds is, at most, 0.5% per annum. However, the special subcommittee set up for developing the framework of economic assumptions changed the recognition and the measurement of investment risk completely and the government instructed them to the investment institution. Thirdly and most importantly, the valuations highlighted the major vulnerability of the SSPs in Japan as a whole. That is, although the Basic Pension is the common part among all participants, its benefit levels will be determined by the financial status of the National Pension, which is the most financially constrained SSP in Japan. This paper will analyse these key challenges from the actuarial standpoints and suggests possible solutions, while referring the Peer Review Report on the 2014 Valuations, ISAP2 and the ISSA-ILO Guidelines on Actuarial Work for Social Security.

Key Words

Social Security Pensions, Actuarial Valuation, Peer Review, ISAP2, ISSA-ILO Guidelines on Actuarial Work

[†] This paper is an expression of strictly personal opinions of the author and has no relation to the Actuarial Committee or its Secretariat.

^{*} Former Actuarial Superintendent placed in the Pension Bureau of the Ministry of Health, Labour and Welfare.

1. Introduction

- 1.1 IAA developed ISAP2 in 2013 and ISSA and ILO jointly developed draft guidelines on actuarial work for social security in 2015. These guidance and draft guidelines provide opportunities to review the actuarial work carried out continuously. In this paper, we will consider major issues of the 2014 Valuations of the social security pension plans (SSPs) in Japan, referring the Peer Review Report of the Actuarial Committee of the Social Security Council in February 2016, ISAP2 and the ISSA-ILO Guidelines (draft version) and point out challenges that will require further investigation.
- 1.2 More specifically, we will consider the following questions. Firstly, how we should line up the assumptions of a valuation? The 2014 Valuation abandoned the main-scenario approach that was a common practice in the past and put all the economic scenarios on an equal footing. Is this approach justifiable from the point of view of fulfilling the requirements of the pension law? We will consider this issue in Section 2.
- 1.3 Secondly, to what extent and how we should keep consistency between the assumptions of the valuation and the actual investment policies, especially with regard to the recognition and the measurement of investment risks? In Section 3, we will point out a serious inconsistency between the 2014 Valuation and the Mid-term Target Statements instructed to the investment institution immediately after the 2014 Valuation and suggest possible measures to avoid such a serious inconsistency.
- 1.4 Thirdly, should the expression of uncertainty be subordinate to political considerations? The 2014 Valuation Report does not provide sensitivity analysis with regard to individual economic variables. In Section 4, we will consider how to upgrade the environment friendly for disclosing the sensitivity analysis.
- 1.5 Fourthly, are actuarial qualifications not relevant for performing actuarial work in the field of social security? In Japan, currently no staffs of the actuarial division in the MHLW responsible for performing the valuation of the SSPs have a qualification as a fellow member of a relevant national actuarial association. In Section 5, we will refer the ISSA-ILO Guidelines and consider how to encourage the staffs in the government to obtain actuarial qualifications.

1.6 Fifthly, what is the expected role of the opinion of the actuary in the overall process of the valuation concerned? In Japan, it is not a common practice that the actuary performing the valuation provides an opinion on the valuation concerned. The Actuarial Committee asked to submit the opinion of the actuary but the Peer Review Report did not comment on the matter. In Section 6, we will refer the opinion submitted and consider possible ways of enhancing the role of the actuary's opinion and the status of social security actuaries.

1.7 Lastly, we consider the major vulnerability of the SSPs in Japan as a whole. In Section 7, we will point out a very singular financial structure and explain the background of the structure. The singular structure might be easily understood from the fact that the more the active participants of the National Pensions decrease, the more the financial status of the NP will be enhanced. The financial status of the NP, as a plan for self-employed and atypical workers is much weaker than that of the Employees' Pension Insurance (EPI), which integrated several plans for national and government employees and for employees of private schools in October 2015.

2. How we should line up the assumptions of the valuation

2.1 The 2014 Valuation put eight sets of economic assumptions on an equal footing as shown in the following table and did not specify the main scenario.

Table 2.1 Economic assumptions for the 2014 Valuation of the SSPs in Japan¹

		Factors of Production		Economic Assumptions for the 2014 Valuation				(For Reference)
		Labour Force Participation	Growth of Total Factor Productivity	Consumer Price Inflation Rates	Real Wage Growth Rates	Investment Yields		Real Economic Growth Rates (for 20 -30 years after 2024)
						Real Yields	Spreads over Wage Growth	
Case A	Connecting to the 'main estimate of the Cabinet Office'	Significantly Improve	1.8%	2.0%	2.3%	3.4%	1.1%	1.4%
Case B			1.6%	1.8%	2.1%	3.3%	1.2%	1.1%
Case C			1.4%	1.6%	1.8%	3.2%	1.4%	0.9%
Case D			1.2%	1.4%	1.6%	3.1%	1.5%	0.6%
Case E			1.0%	1.2%	1.3%	3.0%	1.7%	0.4%
Case F	Connecting to the 'ref. estimate'	Not improve	1.0%	1.2%	1.3%	2.8%	1.5%	0.1%
Case G			0.7%	0.9%	1.0%	2.2%	1.2%	▲0.2%
Case H			0.5%	0.6%	0.7%	1.7%	1.0%	▲0.4%

With regard to Wage Growth Rates, we assumed that the male-female discrepancy will continue shrinking until 2030 (cumulatively by about 15%).

Source: Ministry of Health, Labour and Welfare (2014)

¹ The front sides, the table heads, and the note of this table are author's free translation originally written in Japanese, based on the understanding of the author.

The government explains the reason as follows²:

The valuation results of a SSP are rather a projection of the present data sets to the long-distant future, not an exact forecast of the financial situations of the plan, including demographic and economic environments. Therefore, we set up several sets of economic assumptions for the valuation and we expect that the results shown shall be understood with appropriate widths.

From this point of view, we set up eight sets of economic assumptions spanning widely from an extremely pessimistic one to a very optimistic one. By showing how the financial situations of the plan will evolve respectively under each set of economic assumptions, we tried to provide an objective basis for discussions on various issues of pension reform. For instance, what is the most important factor for the SSP, and what kind of measures we can potentially take for ensuring sustainability of the plan and adequacy of the benefit levels?

Source: The Actuarial Committee (2016), “The Peer Review of the 2014 Valuation”

- 2.2 However, the pension law requires that the government shall determine the stopping year of applying the so-called ‘macro-economic indexation’ when the long-term financial balance of the plan can be secured even if we stop applying the macro-economic indexation within five years from the date of the valuation concerned. The Actuarial Committee pointed out that it would be difficult to determine the stopping year and fulfil the requirement of the pension law in a transparent manner without specifying the main scenario in the valuation.
- 2.3 MHLW explained on this matter that the stopping year of applying the macro-economic indexation should be determined in a comprehensive way taking into account the results of the valuation as a whole. It continued that even if it were forecasted that the long-term financial balance of the plan could be secured without applying the macro-economic indexation under an assumption set of assuming high economic growth, we should not stop applying the macro-economic indexation immediately.
- 2.4 However, one of the major tasks of a valuation is to determine the stopping year of applying the macro-economic indexation. The Actuarial Committee pointed out that if all the sets of assumptions are put on an equal footing and the main (or intermediate) set of assumptions is not specified, then such a

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question would arise that how we should accomplish the purpose of determining the stopping year in a transparent manner.

- 2.5 The Actuarial Committee suggests that utilizing the approach of stochastic projection and expressing each result together with its probability of occurrence. The Actuarial Committee expressed its desire that further considerations should be given to the issue and improve the way of showing the results, while appraising that in the 2014 Valuation wide range of results were disclosed based on eight sets of economic assumptions.
- 2.6 Here, let us refer the relevant description on assumptions in ISAP2. ISAP2 states in 2.3 that if the actuary sets the assumptions, the actuary should use neutral assumptions in a financial analysis of an SSP. ISAP2 continues that neutral assumptions are such that the actuary expects that the resulting projection of the SSP experience is not a material underestimate or overestimate. ISAP2 added in 2.3.6 that the actuary should consider including in the analysis projections based on other sets of assumptions such as those that would result in high projected costs and those that would results in low projected costs when such projections are helpful in analysing the uncertainty of the projections and communicating the financial status of the SSP.
- 2.7 However, it might be difficult to specify a single assumption set as the ‘neutral assumptions.’ Moreover, in the case of Japan, a subcommittee was set up to develop the assumption sets for the 2014 Valuation and the subcommittee considered the issue for two years. Nevertheless, the subcommittee could not reach an agreement on a single neutral set of assumptions and decided to put the possible assumption sets on an equal footing as a compromise.
- 2.8 In the case of japan, the actuary did not have power to fully control on setting the assumptions of the 2014 Valuation. In my view, putting all assumption sets on an equal footing was merely a kind of compromise. We have to expect such a compromise when a committee is set up for developing the assumptions. Thus, it would be sometimes difficult to respect ISAP2 with regard to setting the assumptions.
- 2.9 In the case of Japan, the question of which set of assumptions we should use as the main scenario of the valuation directly relates to the critical issue of determining the stopping year of applying the macro-economic indexation. In addition, the government has been criticized continuously that the main set of

assumptions in the past valuations were too much optimistic. Moreover, how to set economic assumptions is a very contentious issue from the academic point of view. These points would be the major background why the subcommittee could not reach an agreement.

2.10 However, everybody would agree that considering the issue of setting the assumptions from the results of the valuation is the wrong way round and not appropriate at all. Putting all sets of assumptions on an equal footing may result in such a wrong way round and we should avoid such an easy way of compromise. One possible solution might be putting a possibility on each set of assumptions as the Actuarial Committee suggested. The Actuarial Committee pointed out that it is necessary to devise ways to reconcile the principle of setting possible sets of assumptions widely and the principle of showing the results easy to be understood.

2.11 ISAP2 should include some descriptions taking account of the issues that actuaries performing a valuation are encountering under the present circumstances.

2.12 The ISSA-ILO Guidelines say in Guideline 2 that the social security institution should guarantee the independence of the actuary and, in particular, ensure that no parties exercise undue influence. However, apparently this guideline will not solve the issue of setting assumptions occurred in Japan. For instance, nobody will say that he/she is exercising undue influence. In my view, Guideline 2 is a little bit naïve and should be given further considerations.

3. To what extent and how we should keep consistency between the actual investment policies and the assumptions

3.1 The relation between the assumptions on investment return and the actual investment policies including risk management employed by the investment institution is often not consistent to a greater or lesser extent. Needless to say, the investment policies should respect the targets and the restrictions given to the investment institution. Some of the targets and the restrictions might be derived from the assumptions and the results of the valuation. However, majority of the targets and the restrictions such as risk tolerance would come from other considerations and the actuary does not always have sufficient power

to exert influence to the targets and the restrictions given to the investment institution.

3.2 In the 2014 Valuation, the subcommittee agreed that the investment institution would only be allowed to take a risk equal to that of domestic bonds. This recognition was the basis of the assumption on investment return that the expected excess return of investments over the expected return of domestic bonds would be 0.4-0.5% per annum at the most. The expected excess return of 0.4-0.5% per annum was based on the empirical experience of the investment institution.

3.3 The actuary explained on the issue as follows³:

We derived the assumption on the effect of diversified investment based on the assumption on the nominal wage growth rate respectively from Case A to Case H.

More specifically, we derived the expected ‘substantial’ return of each asset class (domestic bonds, domestic equities, overseas bonds, overseas equities, and short-term assets) from the assumption of economic growth applying the building block method. Here, ‘substantial’ return of an asset class means the excess nominal return of the asset class relative to the nominal wage growth rate. Then, we calculated the expected variance-covariance matrix of the ‘substantial’ returns of asset classes from the past performances and drew the efficient frontier of investment.

We can calculate the expected ‘substantial’ return obtainable under the risk level of domestic bonds from the efficient frontier obtained above. Comparing the expected ‘substantial’ return of the portfolio and that of domestic bonds, we can obtain the effect of diversified investment.

Source: MHLW (2014), “Reference material for the 20st Meeting of the Pension Committee”

3.4 In this paper, we will concentrate on the recognition and the measurement of investment risks, putting aside the question whether this approach of drawing the efficient frontier of ‘substantial’ return using the variance-covariance matrix of ‘substantial’ returns of asset classes obtained by subtracting the nominal wage growth rate is theoretically justifiable as in the case of nominal or real returns. It is clear from the explanation quoted in 3.3 that the actuary concerned

³ This is author’s free translation of the document originally described in Japanese, based on the understanding of the author.

recognises the investment risk as the standard deviation of the ‘substantial’ return of the portfolio concerned.

- 3.5 The point lies on the fact that the subcommittee recommended changing the recognition and the measurement of investment risks in the very report that made recommendation on the assumption sets to be used in the 2014 Valuation. The report of the subcommittee says as follows⁴:

In composing the policy asset mix, we have evaluated the possibility that the amount of reserves will fall short of the amount of reserves projected in the valuation (and the amount falling short of the projected amount), by stochastically simulating the investment returns and the evolution of the amount of reserves on a long-term basis. However, this approach is very technical and not easy to understand. Therefore, we recommend adopting, as the criteria of investment risk tolerance, that the probability of underperforming the target will not surpass a certain threshold.

In this case, even if we invested the full amount of reserves in domestic bonds, there still exists the risk of underperforming the target of nominal wage growth rate. Therefore, we recommend adopting, as the criteria of investment risk tolerance, that the probability of underperforming the nominal wage growth rate will not surpass the said probability when investing the full amount of reserves in domestic bonds.

In addition, proper consideration should be given to the efficiency of investment return per unit risk and the fact that equities etc. might have greater possibility of underperformance than ordinary assumed.

Further, investment of pension reserves aims at stabilizing the financial situation of the SSP and therefore investigation of the risk of underperforming the projected amount of reserves is still important from the point of view of Asset Liability Management. Until now, the GPIF has been checking the possibility of falling short of the projected amount of reserves and the average amount of expected shortfalls on condition of underperformance (namely, Conditional Value at Risk). The subcommittee recommends that the government should instruct the GPIF to implement this verification of the policy asset mix as a prudent attitude toward the investment risk.

Source: The Subcommittee on Economic Assumptions and the Investments of the Reserves of the SSPs (2014), “How the Economic Assumptions of the Valuation and the Investments of the Reserves of the Social Security Pensions Should Be”.

- 3.6 We can point out several problems in the description of the subcommittee’s report quoted above. Firstly, why the subcommittee changed the recognition and

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the measurement of investment risks in the same report that provides the assumptions on investment return for the 2014 Valuation? The assumptions on investment return provided in this report are based on the previous recognition and the previous measurement of investment risks.

3.7 If the recognition and the measurement of investment risks to be instructed to the investment institution (GPIF) have to be changed, the assumption on investment return should also be changed for keeping basic consistency between the valuation and the actual investment policies. The subcommittee explains nothing about the issue in the report. I am afraid that this implicit but intended inconsistency might create needless confusion in the future.

3.8 Secondly, the subcommittee downgraded the priority order of the average amount of shortfall relative to the projected amount of reserves on condition of underperformance (CVaR) as a measure of investment risks to be incorporated in formulating the policy asset mix. Certainly, the subcommittee left the measure but supposed that the measure would only play an additional role. The government went further and entirely dropped the CVaR measure in the Mid-Term Target Statements, which is the instruction of the government to the investment institution (GPIF). The Mid-term Target Statements say as follows⁵:

The policy asset mix should be a portfolio suitable for the investment target and GPIF should formulate it from the long-term perspective, based on the forward-looking risk analysis and paying due considerations to the generally approved professional knowledges on investment management and domestic and international economic trends.

In that case, the probability of falling short of the nominal wage growth rate should not surpass the said probability in the case of investing the full amount of reserves in domestic bonds. In addition, GPIF should pay sufficient attention to the empirical experience that equities' probability of underperformance is sometimes greater than ordinary supposed.

Besides, GPIF should evaluate appropriately the probability that the amount of reserves will be smaller than the amount projected in the actuarial valuation. GPIF should also enhance the exercise of verifying the policy asset mix using the scenario analysis by, for instance, applying more depressed plural risk scenarios.

Source: The Mid-term Target Statements for the GPIF directed by the Minister of Health, Labour and Welfare (after the amendment dated at 31 October, 2014)

⁵ This is author's free translation of the document originally described in Japanese, based on the understanding of the author.

- 3.9 It is theoretically impossible to draw the efficient frontier only from the probability of underperforming the projected amount. Therefore, in formulating the policy asset mix, the GPIF added the CVaR measure to the criteria instructed in the Mid-term Target Statements. This means that GPIF upgraded the priority order of the CVaR measure in formulating the policy asset mix than originally supposed in the recommendation of the subcommittee.
- 3.10 Thirdly, the recommendation of the subcommittee does not take account of the fact that the amount of reserves securing long-term financial balance of a SSP in Japan depends on the future development of the wage growth rate. If the wage growth rates were consecutively smaller than the rates assumed in the valuation, then the amount of reserves securing long-term financial balance becomes smaller than the amount projected in the valuation. As the wage growth rate is supposed to be a variant in formulating the policy asset mix, it is indispensable to simulate the amount of reserves required to keep the long-term financial balance together with the investment return. In short, comparing the amount of reserves to the amount projected in the valuation does not make sense at all.
- 3.11 The following table shows the characteristics of the policy asset mix that the GPIF formulated in 2014 in accordance with the Mid-term Target Statements instructed by the government. The expected excess return of the policy asset mix over the expected return of domestic bonds is roughly 2.0%, which shows clear contradiction to the assumption on investment return in the 2014 Valuation.

Table 3.1 Characteristics of the Policy Asset Mix formulated in 2014⁶

	'Substantial' Return	Nominal Return	Standard Deviation	Probability of Underperforming Wage Growth	Rate of Conditional Average Shortage (Under Normal Dist.)	Rate of Conditional Average Shortage (Under Empirical Dist.)
Medium Economic Growth	1.77%	4.57%	12.8%	44.4%	9.45%	11.2%
Based on Current Market	1.98%	4.08%	12.8%	43.8%	9.38%	11.2%

(For Reference) Characteristics of the Portfolio Composed Only by Domestic Bonds

Medium Economic Growth	-0.20%	2.60%	4.7%	51.7%	3.86%	3.52%
Based on Current Market	-0.10%	2.00%	4.7%	50.8%	3.83%	3.48%

(Note 1) The target investment return is 1.7% per annum. However, taking account of the short-term assets composing 2% of the total, it is required to generate the return of 1.77% when assuming medium economic growth and 1.76% under current market conditions.

(Note 2) The rate of conditional average shortage under the empirical distribution was calculated by generating random numbers under the empirical distribution, considering that equities etc. might have the risk of underperformance (tail risk) larger than originally assumed.

Source: GPIF (2014), "On revision of the Mid-term Plan of the GPIF"

3.12 The Peer Review Report of the Actuarial Committee says nothing about the issue. It is probably because the question on the actual investment policies and investment managements are supposed to be out of the scope of the Actuarial Committee. However, in my view, keeping consistency between the valuation and the actual investment policies and investment managements as much as possible is an essential issue for controlling the investment managements from the side of the government or the social security institution.

3.13 ISAP2 does not cover the issue because it is guidance to actuaries performing financial analysis of SSPs as stated in 1.1 and does not pay consideration to the question of which areas the financial analysis that actuaries are required to perform should cover. Therefore, the ISSA-ILO Guidelines should address the issue but currently there is apparently no guidelines directly addressing the issue. Certainly, Guideline 2 states that the social security institution should provide the actuary with proper access to information and knowledge needed for assumption development. However, this statement does not mean that the actuary performing the valuation should be included in the process of determining the policy asset mix.

3.14 Only Guideline 19 on investment governance says as follows (extracts from C. Investment issues) but the description seems ambiguous as far as the relation

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between the valuation and the investment policies including the recognition and the measurement of investment risks are concerned:

The requirement for actuarial input and the role of the actuary should be clearly defined in investment governance framework.

The social security institution should document the different activities linked to the investment process.

Within this framework, the requirement for actuarial input and/or the involvement of the actuarial department should be specified.

The actuarial department (if existing) within the social security institution should ensure its own work plan and defined responsibilities for its staff are consistent with the requirements of the investment function of the social security institution.

The social security institution should ensure that the investment Beliefs, Mission and Objectives are clearly stated, documented and reviewed on a regular basis. Where there is a contradiction between beliefs, a priority should be assigned to the different beliefs.

Actuarial input is likely to be particularly valuable in aspects relating to the valuation of assets and liabilities, the appointment of third party providers in certain areas, the investment strategy of the institution, the assessment of risks and the measurement of performance of assets. In addition to this technical input, the actuary is likely to input into the overall investment governance structure of the institution given his or her overview of the different processes and appreciation of risk.

Source: ISSA and ILO (2015), "ISSA-ILO Guidelines --- Actuarial Work for Social Security---," (Draft version).

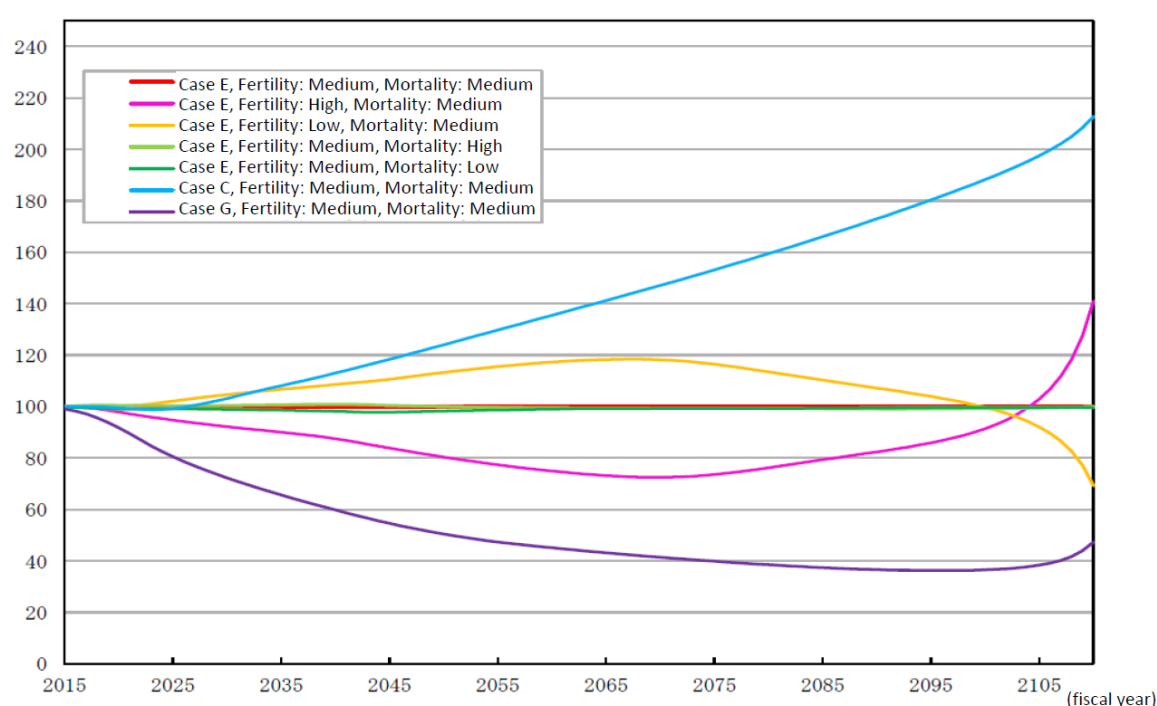
3.15 Keeping minimum consistency between the valuation and the investment management is, in my view, one of the essential requirements when setting the assumptions for the valuation and determining the investment policies including the policy asset mix. In view of the importance of the issue and the nature of the ISSA-ILO Guidelines, there should be some explicit descriptions in Section A (Valuation of social security schemes) and Section C (Investment issues) requiring the social security institution to let the actuary performing the valuation to be properly involved in the process of formulating investment policies.

4. Whether the expression of uncertainty should be subordinate to political considerations

4.1 In the 2014 Valuation, uncertainty of the results was expressed in various ways. For instance, uncertainty of results coming from uncertainty of

demographic factors was expressed by sensitivity tests of individual demographic assumptions. Namely, the National Institute of Population and Social Security Research (IPSS) made public future projection of Japanese population using three sets of assumptions respectively on fertility rates and mortality rates. The 2014 Valuation showed the results of a sensitivity test using these three assumption sets on fertility and mortality as shown in the following chart.

Graph 4.1 Projected amounts of reserves of the EPI under different assumptions on fertility and mortality



Source: The Actuarial Committee (2016), “The Peer Review Report of the 2014 Valuations of the SSPs”

4.2 As for the uncertainty relating to economic factors, the 2014 Valuation showed results based on the eight sets of assumptions as already explained in Section 2. However, sensitivity analysis equivalent to the one in the case of demographic factors was not shown in the Actuarial Report on the 2014 Valuation.

4.3 With this respect, the subcommittee said that only the projections based on the possible combination of assumptions should be shown. It seems that this recommendation was used as the reason of not conducting the sensitivity analysis with regard to individual economic variables.

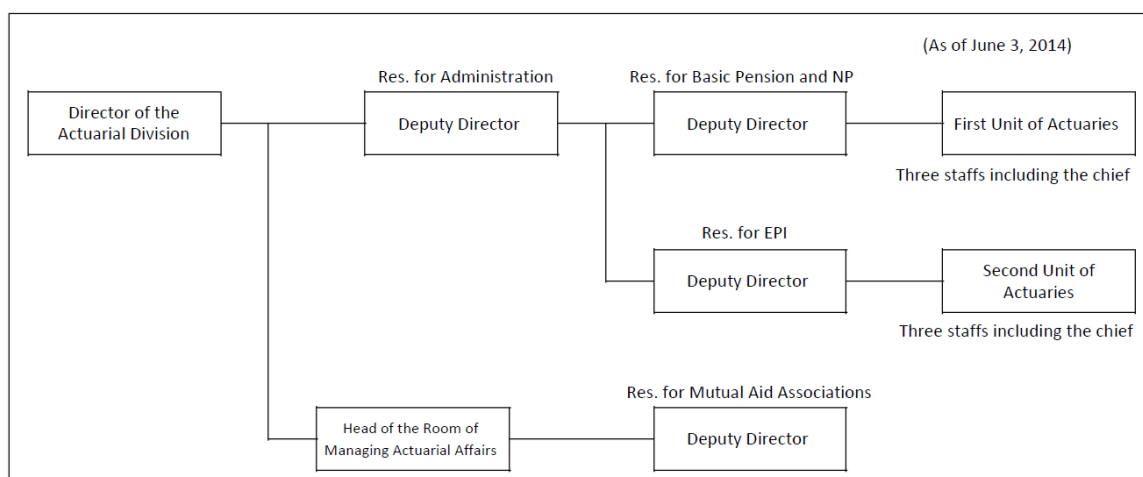
- 4.4 The Peer Review Report of the Actuarial Committee says nothing on this matter, except the need to develop stochastic projections. It says that stochastic projections would be effective for analysing the financial stability in detail. As already mentioned, the stochastic approach would provide a solution to fulfil the requirement of determining the stopping year of applying the macro-economic indexation, while putting several sets of economic assumptions on an equal footing.
- 4.5 In my view, sensitivity tests of individual assumptions will provide valuable insight when analysing the results of the valuation. With this regard, ISAP2 only says in 2.3.6 that the actuary should consider including in the analysis projections based on other sets of assumptions such as those that would result in high projected costs and those that would result in low projection costs. The ISSA-ILO Guidelines say that the valuation of a social security system should include analysis of future uncertainties and their impacts on the system. The Guidelines continue that the relevance and reasonableness of sensitivity tests presented in the uncertainty of results should be reviewed in each valuation.
- 4.6 In the case of the 2014 Valuation, it would be easily imaginable that the actuary cannot make public additional and very sensible information such as the results of sensitivity tests on economic variants after obtaining the agreement of the ruling party about how to make public the results of the valuation.
- 4.7 In light of the experience of the 2014 Valuation in Japan, we have to make public and/or obtain public understanding about how to show uncertainty of results in advance to the valuation concerned.

5. Whether actuarial qualifications are not relevant for doing actuarial works in the field of social security

- 5.1 The Actuarial Committee reviewed the organisation and staffing of the actuarial sections responsible for implementing the valuation. For instance, the Ministry of Health, Labour and Welfare showed the following chart and explained that the valuation of the Employees' Pension Insurance and the National Pension was carried out by eleven staffs belonging to the Actuarial Division of the Pension Bureau. It explained that four staffs are assigned for the

EPI, three staffs for the NP and a staff for coordination with mutual aid associations and a staff for managing the total procedure of valuation.

Chart 5.1 Organisation and Staffing of the Actuarial Division Responsible for Performing the 2014 Valuation of the EPI and the NP⁷



Source: The Actuarial Committee (2016), “The Peer Review Report of the 2014 Valuation of the SSPs”

5.2 As for the expertise of these eleven staffs, the MHLW explained that the head (director) of the Actuarial Division has more than 29 years of expertise in pensions and other staffs have sufficient expertise in pensions and related areas as shown in the following table.

⁷ The English expressions in this chart are author’s free translation originally written in Japanese, based on the understanding of the author.

Table 5.1 Expertise of the Actuarial Staffs of the Actuarial Division⁸

As of June 3, 2014

Organisational Positions	Carrier in the Govt	Experience in	
		Pensions	Exp. in Actuarial Div.
Director of the Actuarial Division	33 yrs 2mths	29 yrs 2mths	19 yrs 9mths
Responsible for Administration			
Deputy Director	18 yrs 2mths	9 yrs 1mth	6 yrs 1mth
Responsible for EPI			
Deputy Director	13 yrs 2mths	7 yrs 9mths	3 yrs 11mths
Chief of the First Unit	4 yrs 2mths	4 yrs 1mth	4 yrs 1mth
Unit Member	2 yrs 2mths	2 yrs 1mth	2 yrs 1mth
Unit Member	2mths	1mth	1mth
Responsible for Basic Pension & NP			
Deputy Director	10 yrs 2mths	7 yrs 0mth	2 yrs 10mths
Chief of the Second Unit	3 yrs 2mths	11mths	11mths
Senior Unit Member	11 yrs 2mths	11 yrs 2mths	2mths
Head of the Room of Managing Act. Affairs	24 yrs 2mths	15 yrs 10mths	13 yrs 1mth
Responsible for Mutual Aid Ass.			
Deputy Director	14 yrs 2mths	11 yrs 11mths	8 yrs 8mths

※ ‘Experience in Pensions’ means the total length of experiences in the Pension Bureau of MHLW, Mutual Aid Division of the Budget Bureau of MoF, the Japan Pension Service, NPFA, PFA, the Research Institute for Policies on Pension and Aging, etc.

Source: The Actuarial Committee (2016), “The Peer Review Report of the 2014 Valuation of the SSPs”

5.3 However, there might be an issue with regard to Guideline 44 (Qualifications) in the ISSA-ILO Guidelines. Needless to say, ISAP2 is a guidance for fully qualified actuaries performing financial analyses of SSPs. Guideline 44 requires that these staffs should be a qualified actuary. Guideline 44 states as follows:

Actuaries and other social security professionals providing actuarial services for social security schemes should possess appropriate qualifications and expertise to fulfil their responsibilities. In particular, for a qualified actuary this means that he or she should be a member of a national (or international) professional actuarial association and follow appropriate professional standards, rules or professional conduct and continuing professional development requirements.

Source: Guideline 44 of the ISSA-ILO Guidelines --- Actuarial Work for Social Security --- (Draft Version).

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- 5.4 Up to now, the government has not posed any requirements for actuaries performing valuation of the SSPs to have proper external qualifications such as a fellow member of a national professional actuarial association. Still, there have been no significant problems with regard to the quality of the valuation.
- 5.5 Then, can we say that actuarial qualifications are not relevant for performing valuation of the SSPs in Japan? In my view, the answer is no because of the following reasons. Firstly, it will be difficult for a small group of actuarial staffs belonging to the actuarial division to develop and maintain proper professional standards and rules of professional conduct. Even if the actuarial division developed some professional standards, they would not equip sufficient power to protect the actuarial staffs from undue influence from inside or outside of the government.
- 5.6 Secondly, it would also be difficult for a small group of actuarial staffs to provide its members with plenty of opportunities for continuing professional development (CPD). Nowadays, CPD becomes one of the indispensable factors for any profession.
- 5.7 Thirdly and most importantly, any qualification mechanisms, professional standards, or rules of professional conduct that are internally defined and not exposed to market mechanisms seem not sufficient for obtaining trust from the public.
- 5.8 Creating such a situation that several actuarial staffs have proper qualification would be a necessary step before imposing some requirements on the actuarial staffs in the government to possess proper actuarial qualifications. Then, the question would be how to encourage the actuarial staffs to obtain proper actuarial qualifications on a voluntary basis. Here, it should be noted that the government would not provide any financial incentives to obtain actuarial qualifications.
- 5.9 One possible solution would be extending various opportunities of personnel exchanges between the actuarial divisions in the government and/or private financial institutions doing actuarial business. Seconding young actuarial staffs to proven actuarial science courses of overseas universities would also be a good idea.

6. What is the expected role of the opinion of the actuary in the overall process of the valuation concerned

6.1 The Actuarial Committee asked the ministries responsible for conducting valuation of the SSPs to submit the opinion of the actuary performing the valuation concerned. More specifically, the Actuarial Committee asked the actuary's opinion on the following matters:

- (i) Sufficiency and reliability of the data used for the valuation
- (ii) Reasonableness and appropriateness of the assumptions used for the valuation
- (iii) Validity and consistency of the methodologies employed for the valuation
- (iv) Sustainability of the SSP

6.2 The following is the opinion of the actuary submitted from the Ministry of Health, Labour and Welfare⁹.

In the 2014 Valuation, we showed how the financial situation would evolve depending on possible economic situations, by setting eight sets of economic scenarios spanning widely from high economic growth and very low economic growth. By doing so, we provided objective basis for various discussions on pension reforms, such as what is the most important factor for social security pension plans (SSPs), what kind of measures we could take for enhancing the sustainability of the SSPs and ensuring benefit levels.

As a result, we confirmed that it would be possible to ensure the 50% level of the replacement rate for a long time to come under the current pension systems, if we succeed in resurrecting Japan's economy and improving labour market participation of the elderly and females. In the 2014 Valuation, we also made a projection under such a very depressed case where labour force participation of the elderly and females does not improve and negative economic growth continues. In my opinion, it is essential to upgrade the environment friendly for giving birth and growing children and upgrade the working environment friendly for the elderly and females in any case, resurrect Japan's economy and achieve sustainable growth.

It was shown from the results of the optional projections we conducted for the first time that each of the three options have positive effects on the financial balance of the SSPs. In my opinion, it was confirmed again that considering the issues listed in the Program Act is essential for enhancing sustainability of the SSPs and ensuring the benefit levels for the long term in the future.

⁹ This is author's free translation of the document originally described in Japanese, based on the understanding of the author.

Source: Material 1 of the 64th Meeting of the Actuarial Committee held on September 8th, 2015.

- 6.3 This opinion might seem very admirable. However, it does not answer the request (i), (ii) and (iii) above at all. Therefore, the opinion does not follow the format generally required for any opinion of the actuary, as stated in 3.2 of ISAP2. Nevertheless, we can say at the same time that the opinion fulfils the requirement stated in 3.2.2. Following is an excerpt from 3.2.2 of ISAP2. The opinion of the actuary referred above says to what extent the SSPs in Japan are financially sustainable in a very positive way:

The opinion should include a statement with respect to the extent to which the SSP is financially sustainable over the period covered by the projections used for the financial analysis. Financial sustainability of an SSP relates to its continuous capacity to support the benefits offered by the SSP when considering the applicable financing rules and the future demographic and economic environment in which it will operate.

Source: ISAP2

- 6.4 The Peer Review Report of the Actuarial Committee does not make any comments on the issue of financial sustainability, except an important remark on the financing method called the ‘finite period equilibrium method.’ Namely, the Actuarial Committee expressed its concern about the possible further benefit adjustment and increase in contributions in the future, which are not forecasted due to the financing method of leaving the distant future out of the scope.
- 6.5 The ISSA-ILO Guidelines say nothing about the opinion of the actuary performing the valuation of an SSP. In my opinion, the actuary should sign his/her name on the opinion. It would be a step forward to enhance the status of the actuary in the government.

7. Brief comments on the major vulnerability of the SSPs in Japan as a whole

- 7.1 The 2014 Valuation shows a very singular financial structure of the SSPs in Japan. Namely, as pointed out in the Peer Review Report of the Actuarial Committee, the period of adjusting the benefit level of the Basic Pension became longer in comparison to the 2010 Valuation, whereas the period of adjusting the benefit level of the salary related part of the employees’ pension benefits became

shorter. In addition, in 2014 Valuation, in some case (Case H), the reserve of NP will dry up completely.

- 7.2 Why the financial status of NP is weaker than that of EPI? It comes from the structure of sharing the costs of the Basic Pension between NP and EPI and the scarceness of the amount of the reserve of NP.
- 7.3 The costs of paying the Basic Pension are shared pro rata to the number of active participants of the SSPs. And almost all the costs of NP is the costs of Basic Pension assigned to NP. Therefore, the burden of NP becomes lesser if the number of its active participants decreases. It might seem a little bit strange from the fact that the financing of the SSPs in Japan is based on the principle of pay-as-you-go system. The mechanism of sharing the costs of Basic Pension is the cause of this very singular financial structure of NP.
- 7.4 Therefore, there are potentially three options to enhance the financial status of NP. First option is modifying the mechanism of sharing the burden of paying the Basic Pension between the SSPs and mitigating the burden of NP. Second option is decreasing the active participants of NP by transferring them to EPI as many as possible. Third option is directly transferring some of the reserves of EPI to NP.
- 7.5 The third option is recognised as a foul. It might be equivalent to full integration of the SSPs, which was denied when the Democratic Party took the regime. Therefore, it remains the first and the second options. The second option was considered in the optional projections carried out in the 2014 Valuation, such as extending the coverage of EPI to atypical workers as much as possible.
- 7.6 In my view, the first option is also worth being paid consideration. The current mechanism of sharing the burden pro rata to the number of active participants is not the only way. It is because we are considering the mechanism of sharing the burden between the SSPs, but among the active participants.
- 7.7 It is difficult to grasp the income of self-employed workers correctly. However, estimating the total income of the self-employed persons from relevant statistics or finding some proxy variable might be possible. And it might be possible to optimize the sharing mechanism as a whole, by adjusting the current sharing mechanism slightly, using the data on total income or using the proxy variable.

8. Concluding remarks

- 8.1 In this paper, we have pointed out the issues that have not been paid enough consideration in the overall actuarial work of performing valuation of a SSP in Japan, referring the Peer Review Report of the Actuarial Committee, and utilising ISAP2 and the ISSA-ILO Guidelines as reference points from the international point of view. In addition, we also pointed out insufficient parts in ISAP2 and the ISSA-ILO Guidelines by checking whether these guidance or guidelines cover the issues appropriately.
- 8.2 We raised only several key issues on the 2014 Valuation of the SSPs in Japan. There are many other points worth considering, such as the optional projections conducted to provide objective basis for discussion on possible pension reforms. As for the Peer Review Report, the Actuarial Committee reviewed the 2014 Valuation almost exhaustively from wide range of perspectives and made various recommendations. This paper just mentioned some of the issues raised by the Peer Review Report.
- 8.3 Although the 2014 Valuation includes several issues to be addressed in the future, the value of the Valuation would never be reduced. For instance, it should be highly appraised that a great deal of efforts were made for developing rational and consistent sets of economic assumptions, as remarked in the Peer Review Report. It should also be emphasised that, in order to correspond to the integration of EPI enacted in October 2015, a mechanism of close cooperation among the actuarial sections of the social security institutions and/or the ministries was created well in advance of the integration. The computer system was revised drastically to cope with the integration and the optional projections. These comprehensive preparations should also be highly evaluated.

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