Guideline No: ID 01/20

Issued Date: 23 DECEMBER 2020

GUIDELINES ON THE PREPARATION OF THE ACTUARIAL INVESTIGATION REPORT

[Note: These Guidelines should be read in conjunction with the Insurance (Valuation and Capital) Regulations 2004 (G.N. No. S 498/2004), MAS Notice 133, MAS Notice 129 and MAS Notice 130.]

Introduction

1 Section 37 of the Insurance Act ("the Act") requires a licensed insurer, for each accounting period, to have an investigation made into the financial condition of each class of business that it carries on by an actuary appointed with the approval of the Authority under section 31 of the Act (an "**actuary**"). As set out in regulation 11 of the Insurance (Actuaries) Regulations 2013, such investigation by the actuary must consist of, amongst other things, valuing the liabilities of the licensed insurer with respect to its policies for the class of business to which the investigation relates. The manner of calculation of policy liabilities and capital requirements are prescribed in the Insurance (Valuation and Capital) Regulations 2004 ("the Regulations") and specified in MAS Notice 133. The intent of these guidelines ("the Guidelines") is to provide guidance on the information that should be disclosed when an actuary prepares a report referred to in section 37(1)(b) of the Act (an "**actuarial investigation report**"). The Guidelines also includes disclosures that should be made in relation to the calculation of the policy liability risk requirement for life business set out in paragraph 4.2.5 of MAS Notice 133.

2 These Guidelines apply to any licensed insurer[1] required under section 37 of the Act to have an investigation made by an actuary into the financial condition of each class of the business that it carries on.

3 These Guidelines set out the following in two parts:

(a) Part I – Guidelines on the preparation of the actuarial investigation report (the "**life actuary report**") by the actuary in respect of life business;

(b) Part II – Guidelines on the preparation of the actuarial investigation report (the "**general actuary report**") by the actuary in respect of general business.

4 While any deviation from these Guidelines does not of itself amount to an offence under the Act, the Authority may consider such deviation as one of the factors in determining whether the licensed insurer should be subject to additional supervisory requirements as a result of the increased risk in the operations of the licensed insurer, including a fund solvency or capital adequacy requirement which is higher than those prescribed or specified under section 18(1) of the Act.

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[1] Marine mutual insurers and Special Purpose Reinsurance Vehicles are exempted from Section 37 of the Act under regulation 8 of the Insurance (General Provisions and Exemptions for Marine Mutual Insurers) Regulations 2018 and under regulation 5 of the Insurance (General Provisions and Exemptions for Special Purpose Reinsurance Vehicles) Regulations 2018 respectively.

5 The expressions used in these Guidelines shall, except where expressly defined in these Guidelines or where the context otherwise requires, have the same respective meanings as in the Act, the Regulations, MAS Notice 133, MAS Notice 129 and MAS Notice 130.

Effective date

6 These Guidelines take effect in relation to an actuarial investigation report for an accounting period that begins on or after 1 January 2020.

Part I – Guidelines on the preparation of the actuarial investigation report ("the life actuary report") by the actuary in respect of life business

Data and valuation system

7 The following should be presented by the actuary in the life actuary report:

(a) the steps taken by him to verify the consistency, completeness and accuracy of the data collated;

(b) where he has made any adjustment to the data, the nature, amount and rationale for such adjustment;

(c) the valuation system (for example, actuarial valuation software, Excel or Visual Basic Program) used;

(d) the amount of policy liability valued by each valuation system used; and

(e) the steps taken by him to review the accuracy of the valuation system.

Valuation methodology

8 In relation to the valuation methodology, the actuary should —

(a) explain the method used for carrying out the valuation;

(b) disclose any approximation or simplification made; and

(c) disclose and justify any significant change in valuation methodology used from that used in the immediately preceding life actuary report (if any), and quantify the financial impact arising from the change (if any).

9 Where (a) the simplified method, as described in Regulation 20(11) of the Regulations, is used to determine the value of liabilities (net of reinsurance) in respect of the short term policies mentioned in Regulation 20(8) of the Regulations; and (b) the simplified method, as described in Regulation 20A(12) of the Regulations, is used to determine the value of the liabilities (gross of reinsurance) in respect of the short-term policies mentioned in Regulation 20A(9) of the Regulations in carrying out the valuation, ((a) and (b), together, referred to in this paragraph as the "simplified method"), the actuary should –

(i) explain the appropriateness of using the simplified method; and

(ii) disclose the verification done to ascertain that the simplified method did not understate the policy liability.

10 The actuary should disclose the contract boundary it has used including –

(a) the actuary's justification for concluding that the insurer has an unconstrained practical ability to reassess the risks of a contract or a portfolio of contracts to which the contract that is valued belongs, and as a result, can set a price or level of benefits that fully reflects the reassessed risk of that policy or portfolio; and

(b) any significant change in the assumptions made from the assumptions made in the immediately preceding life actuary report (if any).

Valuation assumptions

11 With regard to valuation assumptions, the actuary should —

(a) state clearly the key assumptions used in the valuation;

(b) explain how the assumptions are derived;

(c) for the discount rates used in valuation, state the discount rates, including any matching adjustment and illiquidity premium. Supporting information, such as the various strategic asset allocations used to determine the illiquidity premium, should be provided;

(d) where Universal Life policies are valued, state the crediting rates assumed, explain how the crediting rates are derived, and explain any material change in the crediting rates assumed from that which was assumed in the immediately preceding life actuary report;

(e) where the bonus and dividend rates assumed in the valuation are different from the current scale or the scale supportable by the latest bonus investigation study —

(i) disclose such current or supportable bonus scale alongside the assumed bonus and dividend rates; and

(ii) explain any material difference between the assumed dividend and bonus rates and the current or supportable dividend and bonus rates;

(f) briefly explain the bonus policy of the licensed insurer, and such explanation should include the following matters:

(i) the conditions to be fulfilled before a bonus or dividend, is declared, including the number of years' premiums to be paid and the duration for which the policy has to be in force;

(ii) whether the bonus or dividend is allocated in respect of each year's premiums paid, or in respect of each completed calendar year or year of insurance or, if not, how the bonus is allocated; and

(iii) whether the bonus vests immediately on allocation or, if not, the conditions for vesting;

(g) disclose any material reinsurance arrangements (including financial reinsurance arrangements) assumed in the valuation of liabilities of the licensed insurer, and any significant changes in such arrangements from that assumed in the immediately preceding life actuary report;

(h) disclose how the conditions specified in paragraph 10 of Appendix 5E and section 6.4 of MAS Notice 133 are satisfied in relation to the recognition of reinsurance arrangements with head office and branch, and reinsurance arrangement with subsidiar(ies) of the licensed insurer;

(i) disclose and justify the method used in deriving the provision for adverse deviation ("PAD"); and

(j) disclose and justify any material change in assumption used from that used in the immediately preceding life actuary report, and quantify the financial implication arising from such change.

12 The actuary should include in the life actuary report an analysis of the experience of the licensed insurer in respect of life business. The actuary should state in the life actuary report how the actuary has used the analysis to review the assumptions on valuations used in the immediately preceding life actuary report against the actual experience that has emerged during the accounting period for which the life actuary report is being prepared for. If there are material differences between the experience that has emerged and the valuation assumptions used in the immediately preceding life actuary report, the actuary should justify the difference and explain how that has been reflected in the assumptions on valuations used in the current life actuary report.

Valuation results

13 The actuary should present the valuation results following the format in Annex A as an Appendix to the life actuary report. In particular, the actuary should –

(a) state the liability for portfolios where matching adjustment or illiquidity premium has been applied;

(b) state the amount of negative reserves for each product type, before and after the application of life insurance shocks for the C1 requirement, where negative reserves are recognised as a form of positive regulatory adjustment according to section C in Appendix 5E of MAS Notice 133.

14 Where a group of products have been aggregated for the purpose of valuing such products, the actuary should state, in the life actuary report, the products which have been included in the group.

Policy liability risk requirement under C1 requirement

Homogenous risk groups ("HRG")

15 Paragraph 4.2.8 of MAS Notice 133 provides that a licensed insurer may group polices into HRGs for the purpose of calculating C1 requirement for life business in accordance with paragraphs 4.2.18 to 4.2.28 of MAS Notice 133, instead of performing the calculations at

each policy level. Where policies are grouped into HRGs for this purpose, the actuary should –

(a) disclose, and justify the appropriateness of the basis on which policies are grouped into HRGs; and

(b) disclose and explain any material financial impact arising from any change in the basis on which policies are grouped into HRGs from that used in the immediately preceding accounting period.

16 Where the licensed insurer uses an alternative method, as referred to in paragraph 4.2.39 of MAS Notice 133, to calculate the C1 requirement, the actuary should disclose and justify such a method in the life actuary report.

Others

17 The actuary should disclose the extent to which he has deviated from these Guidelines and explain the rationale of such deviation.

18 The actuary should state in the life actuary report his name, professional qualifications and, where the actuary is an employee of the licensed insurer or a related corporation, the capacity in which he is carrying out the investigation.

Part II – Guidelines on the preparation of the actuarial investigation report ("the general actuary report") by the actuary in respect of general business.

19 The actuary should, in preparing the general actuary report —

(a) follow the structure and headings in Annex B;

(b) make such disclosures, under the relevant headings, as described under paragraphs 20 to 36; and

(c) disclose the extent to which, and the reason why, he has deviated from any of these Guidelines.

Basis of data

20 The actuary should disclose —

(a) whether the data used in valuation is on an accident year or underwriting year basis;

(b) whether direct or indirect or both claims handling expenses data were used in the valuation; and

(c) the number of development years of data used in the valuation, and where the number of development years vary by types of business, the number of development years according to the types of business.

Data source and verification

21 The actuary should disclose the steps taken by him to verify the consistency, completeness and accuracy of the data collated. The degree to which the actuary relies upon data provided by the licensed insurer, and the work of external auditors or any other third party, including the limitations such reliance places on the actuary's confidence in the data, should be clearly explained in the general actuary report.

Grouping of risks

22 The actuary should disclose how liabilities are grouped by types of business. Where the actuary has sub-divided a type of business described in Form G1 of MAS Notice 129, and has grouped liabilities with reference to the sub-divisions of such type of business, he should disclose the manner in which the sub-divisions are made and the valuation results for each sub-division.

Data adjustment

23 Where the actuary has made any adjustment to the data to account for abnormal items, such as large losses, he should clearly disclose the nature, amount and rationale for the adjustment.

Business profile

24 The actuary should —

(a) describe broadly the nature of insurance coverage the licensed insurer provides and the mix of risks the licensed insurer has underwritten; and

(b) where he observes any material change in the business mix or strategy of the licensed insurer from that for the accounting period immediately preceding the accounting period for which the current general actuary report is being prepared, comment on the impact any change in the business mix or strategy may have on the valuation of the policy liabilities.

Underwriting policy

25 The actuary should comment on any change in the underwriting policy for each major line of business of the licensed insurer, such as a change in the selection of risks, delegation of authority, key underwriting personnel, rate levels and premium rating methodology, from that for the accounting period immediately preceding the accounting period for which the current general actuary report is being prepared.

Claims policy

26 The actuary should, —

(a) where the investigation relates to the first accounting period of the operations of a licensed insurer, provide a description of the case reserving policy of the licensed insurer, including the setting of initial case reserves; and

(b) in all other cases, comment on any change in the case reserving and other claims policy for each major line of business of the licensed insurer, such as the establishment of claim files, closing of claims, use of loss adjusters or loss solicitors, department structure and case load, claim authority limits and defence of complex claims, from that for the accounting period immediately preceding the accounting period for which the current general actuary report is being prepared.

Reinsurance

27 The actuary should disclose any material reinsurance arrangements (including financial reinsurance arrangements) assumed in valuation of liabilities of the licensed insurer, and any significant changes in such arrangements from that assumed in the immediately preceding general actuary report.

28 The actuary should disclose how the conditions specified in section 6.4 and paragraph 10 of Appendix 5E of MAS Notice 133 are satisfied in relation to the recognition of reinsurance arrangements with head office and branch, and reinsurance arrangement with subsidiar(ies) of the licensed insurer.

General business and industry condition

29 The actuary should disclose whether he has considered economic, technological, medical, legal, judicial and social trends within the broader community that may impact upon the valuation of policy liabilities, and if so, what is his opinion of the impact.

Assumptions on discounting, premium rate changes, development factors and ultimate loss ratios, expense rate and recoveries

30 The actuary should —

(a) in relation to discount rate, disclose whether discounting was used;

(b) in relation to premium rate changes, disclose his assumptions on premium rate changes;

(c) in relation to development factor and ultimate loss ratios, disclose his assumptions underpinning the development factors and ultimate loss ratios chosen for the valuation;

(d) in relation to the expense rate, disclose his assumptions used on direct and indirect claim expenses rate in the valuation; and

(e) in relation to recoveries, disclose how he has taken into account reinsurance and non-reinsurance recoveries, and any assumptions made relating to them in the process.

Comparison between licensed insurer's actual experience and previous valuation

31 The actuary should —

(a) compare the actual experience of the licensed insurer, for both unexpired risk reserves ("URR") and claim liabilities ("CL"), with the results of the valuation in the immediately preceding general actuary report (if any); and

(b) highlight and clearly explain where any significant difference between the actual experience and the valuation in the immediately preceding general actuary report is observed.

Comparison between current and previous valuation

32 The actuary should —

(a) compare the results of the current valuation with those of the valuation in the immediately preceding general actuary report or earlier general actuary reports of a similar nature;

(b) justify any material changes in the assumptions made, methods used, and conclusions between the current valuation and the valuation used in the immediately preceding general actuary report; and

(c) quantify the financial implication arising from such changes in assumptions, conclusions or methods.

Best estimate ("BE")

33 The actuary should —

(a) disclose and explain in detail the methods used and key assumptions made in deriving the BE of URR and BE of PAD (except where the method used is very widely used, for example, the chain-ladder method or the Bornhuetter-Ferguson method, in which case a brief description will suffice);

(b) where more than one valuation method is used and where the results differ significantly, comment on the likely reasons for the differences and explain the basis for the choice of results; and

(c) where the actuary's choice of result leads to negative incurred but not reported (IBNR) claim reserves, disclose why a release of reserves is justified; and

(d) disclose whether a re-underwriting of the portfolio is made in the derivation of the URR.

Provision for adverse deviation

34 The actuary should disclose the approach used for the assessment of uncertainty and the derivation of the PAD of URR and PAD of CL.

Valuation and Presentation of Results

35 The actuary should present the valuation results for a Singapore Insurance Fund and an Offshore Insurance Fund separately using the table format as stated in Form G3 of MAS Notice 129.

Others

36 The actuary should also include in the general actuary report —

(a) the definitions of terms and expressions used in the general actuary report that may be ambiguous or subject to wide interpretation;

(b) recommendations or comments to improve the reliability of future valuations of policy liabilities arising from the valuation;

(c) the licensed insurer's responses to the comments and recommendations made under sub-paragraph (b); and

(d) the follow-up actions, if any, taken in relation to any comments and recommendations made under sub paragraph (b) in the immediately preceding general actuary report.

Annex A

Valuation results of direct insurer in respect of life business

(Singapore Insurance Fund and Offshore Insurance Fund should be shown separately)

MINIMUM CONDITION LIABILITIES OF PARTICIPATING FUND

Description		Products using Matching Adjustment	Products using Illiquidity Premium	Products not using Matching Adjustment or Illiquidity Premium
GROUP 1 – PARTICIPATING POLICIES				
Whole life:				
Single premium	1			
Regular premium	2			
Endowment:				
Single premium	3			
Regular premium	4			
Term	5			
Accident and health	6			
Annuity	7			
Others	8			
Sub-total (1 to 8)	9			
GROUP 2 – NON-PARTICIPATING POLICIES				
Whole life:				
Single premium	10			
Regular premium	11			
Endowment:				
Single premium	12			
Regular premium	13			
Term	14			
Accident and health	15			
Annuity	16			
Others	17			
Sub-total (10 to 17)	18			
TOTAL (9 + 18)	19			

POLICY LIABILITIES OF NON-PARTICIPATING FUND

Description		Products using Matching Adjustment	Products using Illiquidity Premium	Products not using Matching Adjustment or Illiquidity Premium
Whole life:				
Single premium	1			
Regular premium	2			
Endowment:				
Single premium	3			
Regular premium	4			
Term	5			
Accident and health	6			
Annuity	7			
Others	8			
TOTAL (1 to 8)	9			

(Singapore Insurance Fund and Offshore Insurance Fund should be shown separately)

PARTICIPATING FUND

Description		Negative Reserves (before C1 insurance shocks)	Negative Reserves (after C1 insurance shocks)
GROUP 1 – PARTICIPATING POLICIES			
Whole life:			
Single premium	1		
Regular premium	2		
Endowment:			
Single premium	3		
Regular premium	4		
Term	5		
Accident and health	6		
Annuity	7		
Others	8		
Sub-total (1 to 8)	9		
GROUP 2 – NON-PARTICIPATING POLICIES			
Whole life:			
Single premium	10		
Regular premium	11		
Endowment:			
Single premium	12		
Regular premium	13		
Term	14		
Accident and health	15		
Annuity	16		
Others	17		
Sub-total (10 to 17)	18		
TOTAL (9 + 18)	19		

NON-PARTICIPATING FUND

Description		Negative Reserves (before C1 insurance shocks)	Negative Reserves (after C1 insurance shocks)
Whole life:			
Single premium	1		
Regular premium	2		
Endowment:			
Single premium	3		
Regular premium	4		
Term	5		
Accident and health	6		
Annuity	7		
Others	8		
TOTAL (1 to 8)	9		

INVESTMENT-LINKED FUND

Description		Negative Reserves (before C1 insurance shocks)	Negative Reserves (after C1 insurance shocks)
Whole life:			
Single premium	1		
Regular premium	2		
Endowment:			
Single premium	3		
Regular premium	4		
Term	5		
Accident and health	6		
Annuity	7		
Others	8		
TOTAL (1 to 8)	9		

Valuation results of reinsurer in respect of life reinsurance business

(Singapore Insurance Fund and Offshore Insurance Fund should be shown separately)

Policy liabilities

Description	Row No.	Products using Illiquidity Premium	Products not using Illiquidity Premium
Life (Risk premium)	1		
Life (Coinsurance)	2		
Accident and health	3		
Disability income	4		
Portfolio cover	5		
Others	6		
Total (1 to 6)	7		

(Singapore Insurance Fund and Offshore Insurance Fund should be shown separately)

Description	Row No.	Negative Reserves (before C1 insurance shocks)	Negative Reserves (after C1 insurance shocks)
Life (Risk premium)	1		
Life (Coinsurance)	2		
Accident and health	3		
Disability income	4		
Portfolio cover	5		
Others	6		
Total (1 to 6)	7		

Annex B

Name of General Actuary Report for the accounting period ended 31 Dec 20xx

1 Scope of General Actuary Report

1.1 The actuary should state his name and professional qualifications. Where the actuary is an employee of the licensed insurer or a related company, the capacity in which he is carrying out the investigation to be stated.

1.2 The actuary should confirm compliance with the requirements of the Authority and state the reasons for not complying fully with any requirements.

2 Data

2.1 Basis of data

2.2 Data source and verification

2.3 Grouping of risks

2.4 Data adjustment

3 Business Profile and Strategy

3.1 Business Profile

3.2 Underwriting Policy

3.3 Claims Policy

3.4 Reinsurance

3.5 General Business and Industry Conditions

4 Analysis of Experience

4.1 Assumptions on discounting, premium rate changes, development factors and ultimate loss ratios, expense rate and recoveries.

4.2 Comparison between licensed insurer's actual experience and previous valuation

4.3 Comparison between current and previous valuation

5 Methods

Best Estimate

5.1 Methodology for Best Estimate of Claim Liabilities

5.2 Methodology for Best Estimate of Premium Liabilities

Provision for any Adverse Deviation

5.3 Assessment of Uncertainty

5.4 Methodology for the Level of Sufficiency (for example, at 75% level of sufficiency for a licensed insurer that is not a captive insurer)

5.5 Derivation of the Provision for Adverse Deviation

6 Valuation and Presentation of Results

6.1 Valuation for Singapore Insurance Fund

- Results for premium and claim liabilities presented as per the table format stated in Form G3 of MAS Notice 129.

6.2 Valuation for Offshore Insurance Fund

- Results for premium and claim liabilities presented as per the table format stated in Form G3 of MAS Notice 129.

7 Others

7.1 Recommendations to improve reliability of future valuations

8 Name and signature of actuary, followed by date of general actuary report.

Appendix 1 – Data

- Data after adjustments used by actuary in the valuation

Appendix 2 – Valuation

- For each line of business, show development factors and actuary’s selected factors for each method used. State basis for choice.
- For each line of business, show results of different methods used and actuary’s selected result. State basis for choice.