

(Translation)

(Counterpart)

OIC

**Notification of the Commissioner
re: Standard of Actuarial Practice Regarding Reserve Valuation
for Maintenance of Risk Based Capital
B.E. 2557 (2014)**

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As the provisions in clause 4(2)(a) of the Notification of the Commissioner re: Rules for Consideration of Actions of Actuaries That May Result in Suspension of Actuary Licenses under the Life Insurance Law by the Commissioner, dated 31 July 2014, and clause 4(2)(a) of the Notification of the Commissioner re: Rules for Consideration of Actions of Actuaries That May Result in Suspension of Actuarial Certificates under the Non-Life Insurance Law by the Commissioner, B.E. 2557 (2014), dated 31 July 2014, prescribe that the Commissioner has the authority to suspend an actuary license when it is evident to the Commissioner that the actuary fails to comply with the actuarial standards of practice prescribed by the Commissioner or the Society of Actuaries of Thailand, the Commissioner hereby issues the following notification to prescribe the Standard of Actuarial Practice regarding reserve valuation for risk based capital requirement.

Clause 1 This Notification shall be called " Notification of the Commissioner re: Actuarial Standards of Practice Regarding Reserve Valuation for Risk Based Capital Requirement, B.E. 2557 (2014)."

Clause 2 This Notification shall come into force on the date on which it is notified.

Clause 3 An actuary shall comply with the Actuarial Standards of Practice regarding reserve valuation for risk based capital requirement

Notified on 29 August 2014.

-Signature-

(Mr. Prawet Ong-aatsitthikul)
Secretary-General
Insurance Commission
Commissioner

(Translation)

Remark:- The rationale for this notification is to ensure that the actuary perform their professional role up to the actuarial standards under the actuarial code of conduct with respect to valuation of reserve for risk based capital requirement.

Drafted and typed by Lalisa

/Reviewed

(Translation)

**Standard of Actuarial Practice
Regarding Reserve Valuation
for Maintenance of Risk Based Capital**

1. Introduction

Under the Insurance Development Plan No. 2 (2010 - 2014), the second measure regarding enhancement of insurance system stability provides for main measures for strengthening the insurance system by requiring that insurance companies maintain total available capital as prescribed in risk based capital (RBC). Risk based capital framework requires that valuation of assets and liabilities of an insurance company shall be based on fair value. As a result, the calculation method for insurance reserve under the risk based capital requirements calls for more complicated actuarial principles.

Due to the changing trend of reserve calculation, actuaries, who are considered the core personnel in the estimation of reserve of insurance business, must adjust themselves and develop their potential in order to accommodate the new reserve calculation principles under the risk based capital requirements enforced in September 2011.

The Office of Insurance Commission (OIC) has prepared the Actuarial Standards of Practice Regarding Reserve Valuation for Maintenance of Risk Based Capital as best practices for actuaries, in line with the following objectives and principles.

2. Objectives

- (1) To establish the best practice to be observed by actuaries in Thailand.
- (2) To establish a guideline in reserve valuation for actuaries.
- (3) To establish an actuarial standard under the actuarial code of conduct.

3. Principles

The Life Insurance Act, B.E. 2535 (1992), as amended by the Life Insurance Act (No. 2), B.E. 2551 (2008), and the Non-Life Insurance Act, B.E. 2535 (1992), as amended by the Non-Life Insurance Act (No. 2), B.E. 2551 (2008), require that actuaries certify the estimation of insurance liability under an insurance policy and that such certification be consistent with relevant laws and notifications, as follows.

(1) Valuation of insurance reserve shall be in accordance with the notifications of the Insurance Commission concerning valuation of assets and liabilities of life and non-life insurance companies.

(2) Actuarial Report on valuation of insurance liability under insurance policies certified by actuaries shall be in accordance with the notifications of the Insurance Commission concerning determination of forms, rules, procedures, conditions, and durations for submission of actuarial report on valuation of insurance liability under insurance policies of life or non-life insurance companies.

(3) Actuaries shall comply with the actuarial code of conduct under the notifications of the Insurance Commissions concerning code of conduct of actuarial profession under the law concerning life or non-life insurance.

Actuaries shall include a person who has the duty to certify the actuarial report on valuation of insurance liabilities under insurance policies of non-life insurance companies in accordance with section 64 of the Non-Life Insurance Act (No. 2), B.E. 2551 (2008).

(Translation)

Companies shall comply with this performance standard and actuarial professional standards of the Society of Actuaries of Thailand.

The following actuarial practices may not cover every case that may arise. However, actuaries shall exercise their professional judgment, observe generally accepted actuarial practices when considering insurance risks of insurance companies, and determine the reserve to be maintained by the insurance company based on its risk profile. Actuaries shall also provide insurance companies with advice on how to improve the quality and effectiveness of operation and data collection, and discuss, present data, analyze, and express opinion as an actuary in a thorough and reasonable manner in the actuarial report on valuation of insurance liabilities under insurance policies.

4. Minimum Actuarial Standards of Practice regarding reserve valuation for risk based capital requirement, with respect to certification of actuarial report on valuation of insurance liabilities under the insurance policies.

(1) Actuaries shall certify the reserve valuation in the report using their professional knowledge, ability, expertise, and judgment to determine whether the reserve is adequate for the insurance company's risk profile.

(2) Reserve valuation shall be consistent with the notifications of the Insurance Commission concerning valuation of assets and liabilities of life or non-life insurance companies.

(3) Actuaries shall communicate, disclose, and provide advice openly and clearly to the insurance companies and the OIC.

5. Reserve valuation

Valuation shall be carried out on a fair value basis. Fair value of insurance reserve shall equal the sum of the best estimate and provision for adverse deviation (PAD) at 75th percentile confidence interval.

(1) For life insurance contracts and long-term insurance contracts, the premium liabilities shall be calculated using the gross premium valuation (GPV) method.

(2) For non-life insurance contracts and short-term insurance contracts, reserve is categorized into two parts, namely claim liabilities and premium liabilities.

(a) claim liabilities may be calculated using various standard and accepted actuarial methods, such as Chain Ladder, Bornhuetter-Ferguson, and expected loss ratio. Actuaries shall choose the most suitable method for nature of insurance coverage.

(b) premium liabilities is the greater of the unearned premium reserve (UPR) and the unexpired risk reserve (URR).

6. Categorizing long-term insurance contracts and short-term insurance contracts

Normally, insurance policies issued by life insurance companies employ valuation methods for life insurance contracts, while insurance policies issued by non-life insurance companies employ valuation methods for non-life insurance contracts. However, life insurance companies may sell insurance policies or riders that has characteristic of non-life insurance policy such as personal accident insurance contracts or health insurance contracts. On the other hand, non-life insurance companies may sell insurance policies that cover death arising from accidents and health insurance with a coverage duration that is longer than one year, making them similar to life insurance in some aspects.

Actuaries shall consider categorizing long-term insurance contracts based on the definition of long-term insurance contracts as follows:

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6.1 Insurance contracts that cover critical illnesses, personal accident insurance, or health insurance, with a coverage duration exceeding one year, where insurance companies may not terminate the contracts, increase or reduce the premium, or change any benefits under the insurance policy throughout the duration of the contract; or

6.2 Insurance contracts that cover critical illnesses, personal accident insurance, or health insurance, with a coverage duration of one year or less, but with guaranteed automatic renewal, where insurance companies may not terminate the contracts, increase or reduce the premium, or change any benefits under the insurance policy throughout the duration of the contract.

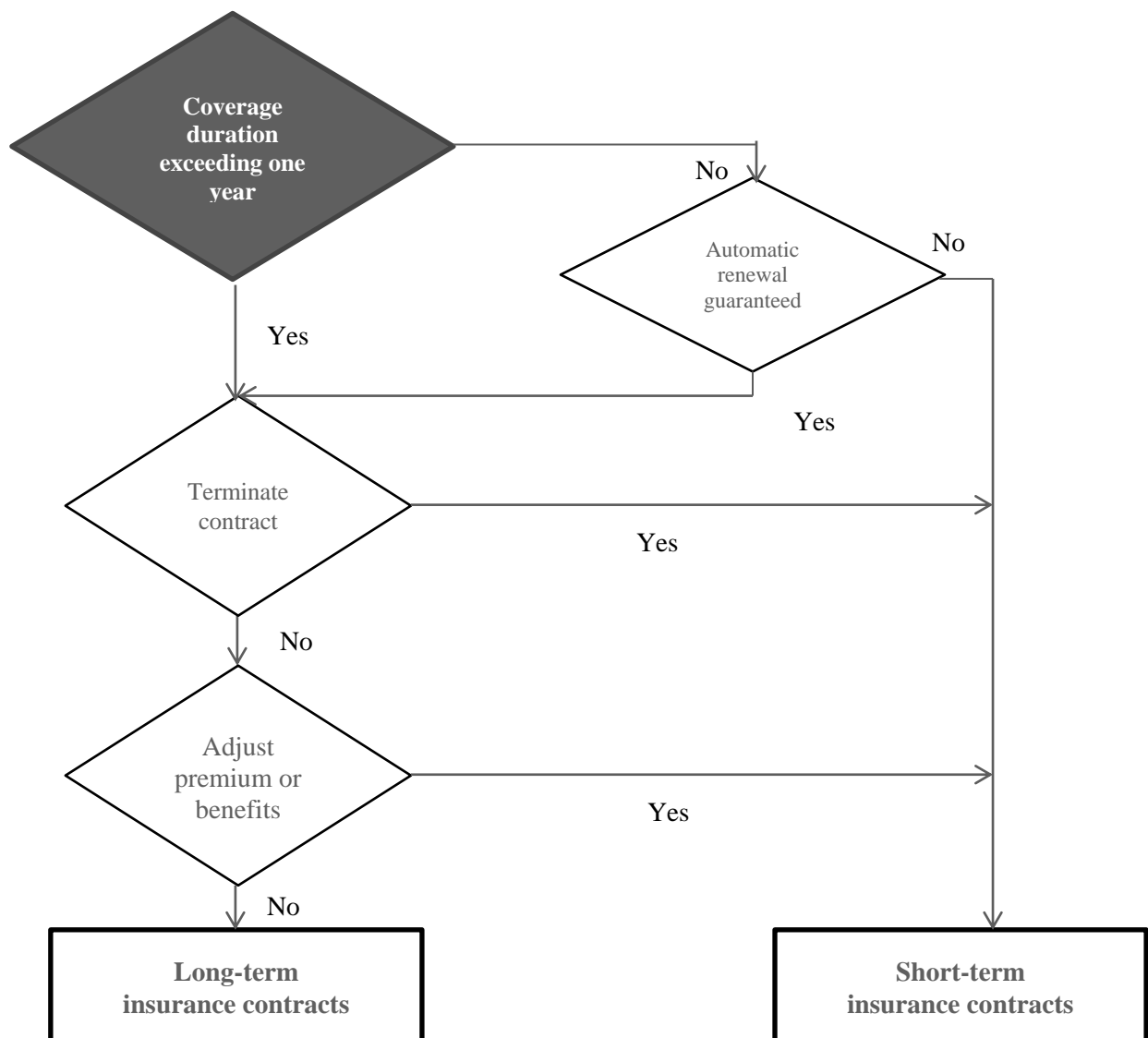
In the case that the insurance policy covers critical illnesses, personal accident insurance, or health insurance, specify the following conditions:

(1) conditions regarding change in declarations of policies in order to allow the insured to amend or change information regarding the insured or beneficiary, such as change in name and surname, occupation (affecting the premium specified based on relativity for level of rating variable), without the objective to allow for amendment or change of premium or benefits; or

(2) conditions regarding change in premium and/or any benefit in the insurance policy specified in the contract, such as specification of premium payment schedule or any benefit in the insurance policy based on age range;

the conditions under (1) and (2) shall not be considered increase or decrease of premium or change in any benefits provided by the insurance policy during the term of the contract under sections 6.1 or 6.2.

Diagram on steps for categorizing long-term and short-term insurance contracts



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7. Practices of reserve valuation for life insurance contracts and long-term insurance contracts

(1) Actuarial data

(a) Data standards

Actuaries shall familiarize themselves with the strategies, directions, and operating procedures of the insurance company, as well as the details regarding the process of payment of benefits under insurance policies, recording of data in the insurance database, and bookkeeping system.

Actuaries have the responsibility of ensuring that the data used for determining assumptions and reserve valuation of the insurance companies, whether obtained from the insurance company or elsewhere, is correct and results in adequate insurance reserve for the risk profile of the insurance company.

If the available data is limited, actuaries shall exercise their actuarial judgment and experience in determining the adequate reserve for the risk profile of the insurance company and provide clear reasoning in the actuarial report on valuation of insurance liability under insurance policies. Furthermore, actuaries shall consider providing guidelines for improvement of data collection that is beneficial to the insurance company regarding its insurance risk assessment.

(b) Data source and examination

Actuaries shall reasonably examine the data, taking into consideration consistency, completeness, and accuracy of the collected data, as follows:

- 1) verify the data with the audited financial statements;
- 2) verify the data previously used for the valuation and data movement between the past valuation and the current valuation;
- 3) examine the reasonability of sum insured, premium, effective date, and age of the insured;
- 4) compare the data in the insurance policy record and the operation system of the insurance company; and
- 5) verify the data by comparing policy surrender value in the records and in the operation system of the insurance company.

Actuaries must provide the sources, steps and results of data examination in the actuarial report on valuation of insurance liabilities under insurance policies and the data used in determining actuarial assumptions and in reserve valuation.

Actuaries shall have a good understanding in the steps of operation and bookkeeping of the insurance policies and payment of benefits under the policies related to reserve valuation, and shall provide a summary of the steps in the actuarial report on valuation of insurance liabilities under insurance policies.

Actuaries shall discuss the credibility of the data obtained from the insurance companies and the audited financial report, and restriction on use of the audited data in actuarial reports.

Actuaries shall discuss material defects in the data such as errors and omission, inconsistency of figures with the audited figures or the data used in previous valuation.

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Actuaries shall refer to the material defects that result in the uncertainty of valuation using actuarial methods in the actuarial report on calculation of insurance liability under insurance policies.

If the data is incomplete, inaccurate, unreliable, or unfit for a particular purpose, the actuaries shall consider whether use of such information may cause a significant deviation, appropriate provision for deviation shall be determined, as well as the estimation of uncertainty of estimation arising from incompleteness of data.

Actuaries shall provide the insurance company with advice on improvement of operating process of the insurance company necessary for correcting incomplete data that is significant and results in uncertainty of results, and set out the same in the actuarial report on valuation of liabilities under insurance policies.

(c) Data used for reserve valuation

Actuaries shall value the reserve effective as of the valuation date, as well as the insurance policies under which the insurance company has an obligation, including inward or outward cash flows after the valuation date.

(2) Actuarial assumptions

(a) Choosing an assumption

The best estimate employed by actuaries are assumptions about events expected to occur in the future, taking into consideration past experience of the insurance company. The assumptions chosen shall enable the actuaries to estimate a reserve that is not overstated or understated, using perspective method.

In order to choose an assumption, actuaries shall consider the actual experience of the insurance company and the changes that can render future experience different from past experience, such as changes in underwriting criteria or plan to increase commission fee in the next year. Changes in operating process or profit of the insurance company may be considered to the extent that the changes are documented and binding on the insurance company. For example, a plan to improve the efficiency of the insurance company will only be considered when determining an assumption only if the insurance company has a clear plan and budget to realize such improvement or it is clear that such plan will result in growth of the business and thereby result in distribution of overheads.

Some insurance companies do not possess sufficient information regarding death, injury, lapse of insurance policies, policy surrender, or expenses to determine the assumptions based on the experience of the insurance company. Furthermore sale of new forms of insurance or through new distribution channels often means insufficient experience to determine an assumption. Actuaries may determine an assumption partly or wholly using a weighted mean, based on the industry data, or may determine the assumption by adjusting assumptions based on industry data to reflect in the data used for determining the best estimate of the emerging experience from the insurance company, as well as the nature of business of the insurance company such as underwriting process or distribution channel. This data is processed in terms of effect on the experience the insurance company expects to face in the future. Before using industry data, actuaries shall verify that the data based on insurance coverage and distribution channel is a good representation of the industry data and that the selected method is appropriate. Actuaries shall discuss the rationale of the selected set of assumptions in the actuarial report on valuation of insurance liabilities under insurance policies.

An example of methods for adjusting industry's mortality table to experience of an insurance company includes determination of the average of the ratio of actual-to-expected claims (the expected death benefit is based on the industry's mortality table). Age ranges or other factors might be applied as deemed appropriate by the actuaries based on data of at least the last five

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years immediately preceding the valuation date. The average ratio shall be multiplied with the mortality rates from the industry's mortality table to be used for valuation.

Assumptions of third parties (such as reinsurance companies) may be used instead of the industry's data. However, the actuaries shall consider its suitability and set out the analysis and rationale for determining the selected set of assumptions in the actuarial report on valuation of insurance liabilities under insurance policies.

(b) Analyzing experience of the insurance company in comparison to the previous valuation

Actuaries shall set out the analysis of actual experience of the insurance company in the actuarial report on calculation of insurance liability under insurance policies. The analysis of the data on experience shall depend on the historical data of the insurance company, but shall at least include the following:

Assumption	Duration between the end of the experience analyzed and the valuation date not exceeding	Duration of data
Mortality rates	15 months	at least 12 months
Morbidity rates	15 months	at least 12 months
Lapse and surrender rates	15 months	at least 12 months
Expenses	12 months	at least 12 months but not exceeding 24 months
Bonuses related to the future investment return	Data must include the latest payment declared before the valuation date	at least 12 months

Actuaries shall quantify financial impact arising from changing selected assumption from the previous valuation, and shall discuss the impact of the change in each assumption separately in the actuarial report on valuation of insurance liabilities under insurance policies.

(c) Determination of assumption

1) Discount rate

Discount rates for reserve valuation on guaranteed benefits such as non-participating policies, guaranteed portion of participating policies, and non-unit reserves of investment-linked policies, shall be in the form of zero coupon yield of government bonds of a match duration for duration of the projected cash flow from insurance policies. For example, cash flow from insurance policies on which a discount rate applies for fifth year after the date of valuation shall employ the yield of government bonds with the duration of five years. With respect to cash flow from insurance policies with longer duration than the longest term government bonds, the rate of the longest term government bonds shall be used. However, in order to limit the volatility of reserves in Thailand's market conditions, it is required that the risk-free discount rate be used, based on the greater of the current yield of government bonds and the average of yield of the government bonds as at the end of each of the past eight quarters immediately preceding the valuation date. The weight used for the end of the latest quarter equals 51 percent, while the mean used for the end of each of the past seven quarters prior to the latest quarter equals 7 percent.

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The source of risk-free discount rates is the Thai Bond Market Association's website: <http://www.thaibma.or.th/yeildcurve/yeildzero.aspx>

The discount rate for reserve valuation on non-guaranteed benefit shall be equal to the discount rate for the reserve valuation with guaranteed benefit with the same duration plus no more than six percent.

2) Future dividend payment

Estimation of dividend expected to be paid in the future shall take into consideration the following reasons in their order:

- a) policy on determination of dividend rate or policy on latest dividend payment approved by the board of the insurance company;
- b) declaration of dividend payment for the current year; and
- c) setting out dividend in sales illustration document.

The policy on determination of dividend rate established by the board of the insurance company shall take into consideration various factors. Actuaries shall determine assumptions related to future payment of dividend and apply actual experience to support the assumptions. For example, if future payment of dividend depends on future return on investment, actuaries shall determine the assumptions regarding the return, and show how they correspond with actual current experience, as well as current asset allocation and investment strategy of the insurance company, etc. Actuaries shall also discuss the rationale on determination of assumptions in the actuarial report on valuation of insurance liabilities under insurance policies.

3) Mortality rate

The best estimates for mortality rate shall take into consideration factors related to in-force insurance policies of the insurance company. Actuaries shall consider the following issues:

- a) age, gender, smoking habit, health and lifestyle of the insured;
- b) term of the policy;
- c) type of product and benefits under the policy;
- d) underwriting practices, whether fully comply with the underwriting guideline, partially comply with underwriting guideline, or not comply with underwriting guideline;
- e) sum insured;
- f) distribution channel and other marketing practices;
- g) effects, both positive and negative, from underwriting new business and possible lapse rate arising from the new business; and
- h) actual past experience and changes in expected future experience as a result of changes in the operation or improvement of mortality rate.

Actuaries may employ different mortality rates for different portfolios, when appropriate.

4) Annuity mortality

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The best estimates for annuitant mortality rate shall take into consideration factors related to in-force insurance policies of the insurance company. Actuaries shall consider the following issues:

- a) age, gender, smoking habit, health and lifestyle of the annuitant;
- b) amount of premium;
- c) type of product and benefits under the policy;
- d) actual past experience and future expected changes in mortality experience;
- e) compulsory or voluntary insurance policy;
- f) anti-selection effects arising from allowing annuitants to choose the annuity period, form or amount of payment, and change from annuity to lump sum payment; and
- g) actual past experience and future expected changes as a result of annuitant's option to select the timing, form or amount of annuity payment or to commute the annuity payment.

5) Morbidity rate

The best estimates for morbidity rate shall take into consideration factors related to in-force insurance policies of the insurance company. Actuaries shall consider the following issues:

- a) age, gender, smoking habit, occupation, industry, health and lifestyle of the insured;
- b) duration since the policy issued;
- c) definition of disability; with respect to loss of income coverage, the employment rate shall be considered; for expected benefit payment, the cause of disability shall be considered;
- d) plan of insurance and benefits under the policy, including the waiting period, guarantee, deductible, co-insurance, benefits, premium refund, benefit limit, indexation, and offsets;
- e) underwriting practices, whether fully comply with underwriting guideline, partially comply with underwriting guideline, or not comply with underwriting guideline;
- f) policy size;
- g) seasonal variations;
- h) participation level for group insurance;
- i) other environmental factors such as changes in the offset to government benefits; and
- j) past experience and any changes in expected future experience.

The assumptions used for accelerated critical illness policies shall include summation of claim rate due to death and critical illness. Actuaries who employ the industry's morbidity rate shall analyze actual to expected morbidity claim (the compensation for expected mortality is based on the industry's morbidity rates for the last five years immediately preceding the valuation date). Actuaries shall then consider whether to adjust the industry's rate. Actuaries shall set

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out the analysis results, supporting data for rate adjustment, and the rationale in the actuarial report on valuation of insurance liabilities under insurance policies.

6) Lapse and surrender rate

The best estimates for policy lapse and surrender rate shall take into consideration factors related to in-force insurance policies of the insurance company. Actuaries shall consider the following issues:

- a) plan of insurance and options given to the insured ;
- b) attained age of the insured ;
- c) term of the policy;
- d) method of payment and frequency of premiums;
- e) premium payment status;
- f) policy size;
- g) competitiveness, policy surrender charges, persistency bonuses, tax benefits from insurance policy, and other incentives and disincentives related to policy lapse or surrender;
- h) policyholder and sales representative behavior;
- i) distribution channel and commission fee, conversion or replacement of insurance policies, and other marketing practices;
- j) other environmental factors; and
- k) interest rate assumption shall be consistent with the financial assumptions (such as dividend payment rate, inflation rate for expenses, etc.).

Actuaries who employ the industry's policy lapse and surrender rate shall analyze the actual to expected policy lapse and surrender rate (the expected policy lapse and surrender rate is based on the industry's policy lapse and surrender rates for the last five years immediately preceding the valuation date). Actuaries shall then consider whether to adjust the industry's rate. Actuaries shall set out the analysis results, supporting data for rate adjustment, and the rationale in the actuarial report on valuation of insurance liabilities under insurance policies.

7) Expenses

Actuaries may determine the best estimates for expense assumptions based on the latest analysis of the insurance company's expenditure or, alternatively, the industry's expense rate. If the industry's expense rate is used, actuaries shall analyze the actual to expected expense (the expected expense rate shall be based on the industry's expense rates for the last five years immediately preceding the valuation date). Actuaries shall then consider whether to adjust the industry's rate. Actuaries shall set out the analysis results, supporting data for rate adjustment, and the rationale in the actuarial report on valuation of insurance liabilities under insurance policies.

Actuaries shall analyze expense assumptions by type, such as distribution channel, expenses related to benefit payment process, etc. Determination of maintenance expense shall take into consideration long term inflation rate and other relevant factors such as payroll trend. Allowance for increasing economies of scale shall be based on a separate assumption and shall not be offset against inflation rate assumption.

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Actuaries shall test and analyze expenses and set out the same in the actuarial report on valuation of insurance liabilities under insurance policies:

- a) compare the expenses within the 12 months preceding the valuation date calculated based on the assumption determined by the actuaries and the actual expenses incurred in the same period;
- b) compare the expenses for the next three years following the valuation date calculated based on the assumption determined by the actuaries and the expense budget under the insurance company's business plan, excluding new businesses.

If the expected expense calculated based on the assumption determined by the actuaries is higher (under run) or lower (over run) than the actual expenses, the actuaries shall explain the cause and adjust insurance reserve to the adequate level of insurance reserve.

If the business plan of the insurance company does not contain sufficient details for the comparison of expense and estimates under b) above, and the comparison results under a) reveals that the actual expense is higher than the expected expense, the actuaries shall estimate whether the difference between the actual expense and the expected expense will remain the same or become greater in the next five years at the least from the valuation date.

8) Taxation and future change in law

Actuaries shall apply current tax rates, unless specific changes have been determined, in which case such changes shall also be considered.

Actuaries shall apply the relevant laws and notifications currently in use, unless specific changes have been determined, in which case such changes shall also be considered.

(3) Actuarial methodology

(a) Gross premium valuation reserve (GPV)

The gross premium valuation reserve (GPV) shall be in accordance with the notifications of the Insurance Commission concerning valuation of assets and liabilities of life insurance companies. Actuaries shall consider relevant issues or factors and take into consideration all inward and outward cash flows. For example, to calculate the outward cash flow, the outward cash flow arising from payment of dividend or cumulative coupon payments deposited with the insurance company, with or without guaranteed interest rate, shall be considered. Actuaries shall also exercise their discretion in calculating and determining the best estimates in accordance with the actuarial standard of practices, to ensure their sufficiency for the insurance company's risk profile.

Unit-linked insurance policy

- 1) With respect to single premium of a policy which offers guaranteed benefits to be at least equal to accumulated premium paid, the reserve must not be lower than the present value of guaranteed benefits (principal and benefit) .
- 2) If the insurance company purchases a structured product from a third party to guarantee the return on investment, calculation of reserve for the return by actuaries shall take into consideration the credit rating of the third party and include the reserve in the non-unit reserves.

(b) Provision for adverse deviation (PAD)

Provision for adverse deviation shall be in accordance with the notifications of the Insurance Commission concerning valuation of assets and liabilities of life insurance companies. Actuaries shall calculate reserve using positive and negative provision for adverse deviation for each of type of policy and determine the overall results in the higher reserve value of each type of policy.

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(4) Analysis of experience of insurance company

Analysis of experience of mortality rate, morbidity rate, and policy lapse or surrender rate require in minimum three to five years of data.

Actuaries may thoroughly analyze the experience every three years for practicality, and compare the actual claims with the expected claims during the years for which there are no thorough analysis, in order to test validity of the results.

Experience of mortality rate, morbidity rate, and lapse rate or surrender rate shall be analyzed by type of insurance, distribution channel, and premium frequency, as well as primary factors affecting the rates, such as age and gender for mortality and morbidity rate, term of insurance policy for lapse rate and surrender rate, as well as nature of coverage of life insurance that shift the lapse rate or surrender rate, such as schedule benefit payments of the policy. Other factors referred to in each assumption are also factors used in the valuation. Therefore, such factors shall also be used to analyze the experience. However, the factors used will depend on each insurance company and the degree of the segmentation in order to ensure sufficient data for each experience group.

Actuaries shall analyze the expenses by activity or operation of each function in the insurance company every two to three years in order to determine the factors for expense allocation from general ledger by type of insurance contract. The expenses can also be allocated to expense per policy or per sum insured, and used as expense assumptions for calculation of reserve based on gross premium valuation.

If no material change is made to operation of the insurance company and general ledger, the above factors may be applied to general ledger entries as the expense assumption for the following year. If there is any material change, actuaries may use the same method in factors selection for factor adjustment using actuarial judgment. If the actuaries consider the previous factors selection to be usable and adjust the same as appropriate, using the data obtained from the latest general ledger entries. However, if there is any material change or if any expense analysis results have been used for more than five years, new analysis must be carried out.

(5) Changes in reserve calculated on the gross premium valuation method

No.	Details	Amount (Baht)
Reserve at the beginning of the year		
Changes arising from		
1	Changes in conditions and rules	
2	Increase/decrease in estimates	
Changes arising from actual experience		
3	mortality rate/morbidity rate	
4	maintenance expenses	
5	lapse rate	
Total sum of 3 to 5		
6	new business	
Changes arising from		

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7	discount rate	
8	mortality rate/morbidity rate	
9	maintenance expenses	
10	lapse rate	
Total sum of 7 to 10		
11	Other, please specify	
Reserve at the end of the year		

Guidelines on completing the table in the report on calculation of liabilities under insurance policies 20xx

(a) reserve at the beginning of the year means the reserve calculated on the gross premium valuation method as of 31 December 20xx-1 and set out in the actuarial report on valuation of insurance liabilities under insurance policies 20xx-1.

(b) change of reserve arising from change in conditions and terms, such as change of software or change of calculation formula, such as from using annual cash flows to using monthly cash flows.

1) reserve shall be calculated based on the data and assumptions used in (a), but the changed conditions and terms shall apply.

2) the difference between (b) 1) and (a) shall be included in the table.

(c) change of reserve arising from increase/decrease in estimates

1) the reserve as of 31 December 20xx for policies effective as of 31 December 20xx-1 shall be calculated using the same method and assumption as (b)1).

2) the difference between (c) 1) and (b) 1) shall be included in the table.

(d) changes arising from actual experience means changes in reserve arising from actual experience.

1) mortality rate/morbidity rate: reserve for policies in-force as of 31 December 20xx with mortality rate in 20xx.

2) maintenance expenses: reserve increased or reduced as a result of maintenance expenses.

3) lapse rate: reserve of policies effective as of 31 December 20xx-1 with lapsing or surrendered rate in 20xx.

(e) new business: reserve as of 31 December 20xx for new policies issued in 20xx.

(f) changes of reserve arising from assumptions: increased or decreased reserve for policies in-force as of 31 December 20xx-1 and remain in-force as of 31 December 20xx, based on new assumptions in the case of change in assumption.

(6) Actuarial points for consideration

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Actuaries shall specify a clear definition of terms or expressions those has unclear or multiple meaning in the actuarial report on valuation of insurance liabilities under insurance policies and disclose content that is consistent with these guidelines.

Actuarial reports on valuation of insurance liabilities under insurance policies shall contain sufficient data and discussion in order for other experienced actuaries to assess the quality of the report and compliance of these guidelines.

In the event of significant difference between assumptions or conclusions between current valuation and previous valuation, actuaries shall explain the reason for such difference and evaluate the financial result arising therefrom.

Actuaries shall provide suggestions and opinions to insurance companies regarding improvement of data collection systems to ensure the reliability of reserve valuation, and set out the suggestions and opinions, as well as the feedback from the insurance company in the actuarial report on valuation of insurance liabilities under insurance policies.

(7) Minor reserves

Incurred but not reported (IBNR) reserve depends on the duration before which death is reported or claim is made under other type of insurance policies, experienced by the insurance company. If data is not available, actuaries shall estimate the reserve for benefits for death reported within four weeks after its occurrence at fair value, and within eight weeks after its occurrence at 95th percentile of confidence level.

To use the grossing up method for reserve valuation, the actuaries shall ensure that the reserve is adequate for the existing risks and obligations.

8. Practices of reserve valuation for non-life insurance contracts and long-term insurance contracts

(1) Actuarial data

(a) Standards of data

Actuaries shall familiarize themselves with the policies, directions, and operation procedures of the insurance company, as well as the details regarding the process of claim handling under insurance policies, recording of data in the insurance database, and bookkeeping system.

Actuaries have the responsibility of ensuring that the data used for determining assumptions and reserve valuation of the insurance companies, whether obtained from the insurance company or elsewhere, is correct and results in adequate insurance reserve for the risk profile of the insurance company.

If the available data is limited, actuaries shall exercise their actuarial judgement and experience in determining the adequate reserve for the risk level of the insurance company and provide a clear rationale in the actuarial report on estimation of insurance liability under insurance policies. Furthermore, actuaries shall consider providing guidelines for improvement of data collection for the benefit of risk assessment which can be executed by the insurance companies.

(b) Data source and examination

Actuaries shall reasonably examine the data, taking into consideration consistency, completeness, and accuracy of the data collected, as follows:

1) reconcile the accuracy of premium and paid claim history and compare the same with the insurance company's audited financial statements. The reconciliation shall include the

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sum of the diagonal of the paid loss development triangle compared with the paid claims in the audited financial statements for the year in which valuation is performed;

2) reconcile the accuracy of the loss development triangle with the claims database; and

3) verify the reasonableness of the claims database, such as by ensuring that the claims are within a plausible range, and explain claims that may be irregular; seek explanation on the reserve for incurred but not reported (IBNR) damage in negative value.

Actuaries must provide the source, process and result of data examination in the actuarial report on valuation of insurance liabilities under the insurance policies and the data used in assumption selection and in reserve valuation.

Actuaries shall have a good understanding in the steps of operation and bookkeeping of the insurance policies and claim payment under the policies related to reserve valuation, and shall provide a summary of the steps in the actuarial report on valuation of insurance liabilities under the insurance policies. The process regarding claims management, claims estimate, and underwriting procedures, as well as industry's environment have material effects on the analysis of reserve valuation by actuaries. Therefore, the actuaries shall hold a thorough discussion with relevant parties within the insurance company, in order to determine the trend of changes in process and practice, and record the discussion results in the report on changes of each party. Examples of changes to be included are changes in premium levels and claims handling process, used by the actuaries for valuation. The actuaries shall keep the documents as evidence and discuss the changes in the actuarial report on valuation of insurance liabilities under insurance policies.

Actuaries shall explain the policies on case reserves of the insurance company in the actuarial report on valuation of insurance liabilities under insurance policies, covering the following issues:

- 1) components of case reserves;
- 2) provision for inflation (if any) when determining case reserves;
- 3) rules for determining initial case reserves;
- 4) adjustment of case reserves, which shall correspond with reserve under 3);
- 5) value of salvage, subrogation, and expenses in claims handling process;
- 6) use of loss adjusters;
- 7) use of lawyers;
- 8) opening and closing claims;
- 9) process for managing reopened claims; and
- 10) changes in case reserve policy of the insurance company during the period of analysis and any change in the claim handling process and other related factors.

Actuaries shall discuss the level of confidence in the data obtained from the insurance companies and the auditor's report, and limitation on use of the auditor's data in actuarial reports.

Actuaries shall discuss material defects of the data such as errors and omissions, inconsistency of figures with the auditor's figures or the data used in previous valuations.

(Translation)

Actuaries shall refer to the defects that result in the inconsistency of valuation using actuarial methods in the actuarial report on valuation of insurance liability under insurance policies.

If the data is incomplete, inaccurate, unreliable, or unfit for a particular purpose, the actuaries shall consider whether use of such information may cause a significant deviation, appropriate provision for deviation shall be determined, as well as the estimate of uncertainty arising from incompleteness of data.

Actuaries shall provide the insurance company with advice on improvement of operating process of the insurance company necessary for improve data quality that is significant and results in inconsistency of results, and set out the same in the actuarial report on valuation of insurance liabilities under insurance policies.

(c) Risk classification

Reserve valuation of an insurance company requires risk classification based on type of insurance with risks of similar nature.

Actuaries shall determine the most appropriate risk classification to achieve the objective of reserve valuation and discuss the criteria in the actuarial report on valuation of insurance liabilities under insurance policies.

Even though classification methodology may be limited by available data, actuaries shall discuss alternative classification methods and recommendation for improving data quality.

(d) Data adjustment

Actuaries may adjust data for irregular items after reconciliation with accounting department, such as extraordinary losses. If any adjustment is made to the data, the actuaries shall disclose adjustment methodology, the amount, and justification of the selected adjustment in the actuarial report on valuation of insurance liabilities under insurance policies.

(2) Actuarial methodology

(a) Best estimates for loss reserve

It is the duty of the actuaries to select the most appropriate valuation method. An actuary may perform more than one method of valuation and shall provide the reasons therefor in the actuarial report on valuation of insurance liabilities under insurance policies. Regardless of the selected method, valuation must be made based on both paid claims triangles and incurred claims triangles. If the data is unreliable, the actuaries may chose to use estimates, in which case the actuaries shall provide suggestion on the process to be taken by the insurance company in order to improve data quality, which in turn improves the reliability of data, and set out the recommendation in the actuarial report on valuation of insurance liabilities under insurance policies.

Actuaries may use multiple standards and accepted actuarial methods, such as chain ladder and Bornhuetter-Ferguson, for valuation of claim reserve, using paid claims and incurred claims, both gross or net of reinsurance, and salvage and subrogation recoveries. Actuaries shall select the best method appropriate to the available data, such as whether the data is based on accident year or underwriting year, and stage of claim development.

The chain ladder method is a more suitable for data with a more developed loss data, while the Bornhuetter-Ferguson method and loss ratio method are suitable for data with less developed loss data.

(Translation)

In the case of extraordinary losses, actuaries shall separate the claims out of the loss development triangle for the purpose of estimate claim reserve from triangle and may include the extraordinary losses back upon reserve valuation. The objectives of such process are: 1) to prevent inconsistency of estimation of loss development factors using the chain ladder or other methods due to extraordinary losses data; and 2) to examine extraordinary losses more thoroughly. Extraordinary losses can normally be detected from loss development triangle. However, valuation of reserve for extraordinary losses shall be verified by the claim handler. It shall also be kept in mind that newly occurred extraordinary losses may not have sufficient details for estimation of loss reserve.

Estimation of ultimate claim for open extraordinary losses requires strict care and prudence. The actuary shall make an estimate from available data, as well as claims adjusters, based on experience in extraordinary losses development.

When using standard actuarial methods, the actuaries shall, in the actuarial report on valuation of insurance liabilities under insurance policies, briefly mention or refer to such method and explain why such method is appropriate for the available data. If non-standard actuarial method is used, the actuaries shall thoroughly explain the method and justify selecting such method in the actuarial report on valuation of insurance liabilities. If the valuation results arising from different methods are significantly different, the actuaries shall explain the possible reasons for such difference and explain the criteria employed by the actuaries in choosing the most appropriate outcome.

To estimate the claim reserve, the actuaries shall set out the results of gross of reinsurance claims estimates and net of reinsurance claims estimates. Best practice requires that gross and net of reinsurance claim data be separately estimated. The consistency of methods used to value gross of reinsurance claim reserve, ceded reinsurance claim and net of reinsurance claim reserve shall be examined by comparison of loss ratio and industrial benchmarks. The effect of reinsurance program shall also be considered. It is generally known that gross of reinsurance data or net of reinsurance data may not be reliable and the actuaries may be forced to use only one set of gross or net of reinsurance data. In this case, an estimate should be made to establish another set of data based on the available set, taking into consideration the reinsurance program. The precision of the estimates will depend on the available data. The actuaries may employ the following formula in order to determine the gross reserve before reinsurance on a grossed up basis, separately by line of business.

The best estimate for gross of reinsurance claim reserve = best estimate for net of reinsurance claim reserve x (GCE/NCE)

Whereas

GCE = gross case estimate outstanding at valuation date

NCE = net case estimate outstanding at the valuation date

If the insurance company does not possess case reserve data, data on paid claims or earned premiums may be used in the formula above.

Therefore, the best estimate for reinsurance recoveries on technical reserve = the best estimate for gross of reinsurance claim reserve less the best estimate for net of reinsurance claim reserve.

If estimates are used, actuaries shall provide suggestions regarding the steps to be taken by the insurance company in order to improve the data collection system to ensure reliability of future data, and set out the same in the actuarial report on valuation of insurance liabilities under insurance policies.

In some cases, the best estimate for claim reserve determined for one type of insurance may be lower than the total case estimates on the valuation date, resulting in negative incurred but not reported (IBNR) reserves and incurred but not enough reserves (IBNER). In this case,

(Translation)

the actuaries shall consider the reasonableness based on the case reserves on a run-off basis, as well as other data that support the outcome of IBNR and IBNER in negative values, and set out the consideration result in the actuarial report on valuation of insurance liabilities under insurance policies.

(b) Direct insurance company assumes reinsurance

Insurance companies may assume reinsurance from direct insurance companies or reinsurance companies. If an insurance company has assumed reinsurance in a significant amount, the actuaries shall observe (c) reinsurance company assumes reinsurance. Otherwise, the actuaries shall employ claim reserve methods if reinsurance takes up a small portion of the business and if the reinsured risks are similar to those directly insured by the insurance company. It is the actuaries' duty to justify that such conditions are true.

(c) Reinsurance company assumes reinsurance

Generally, based on the nature of reinsurance contracts, the actual total premiums may not be available to actuaries, such as in the case of automatic reinsurance contracts for policies issued by the ceding company throughout the duration of the reinsurance contract, or in the case of reinstatement premiums, which depend on the paid claims experience and the different premium recording methods employed by each reinsurance company. Actuaries shall have an understanding of the practice of the reinsurance company the reinsurance company deals with. However, the actuaries shall ensure that a total estimate of premium receivable under the contract has been determined and that reinsurance recoveries corresponding to the reinsurance premiums shall be recognized in the reserve valuation.

Actuaries shall set out the following particulars based on line of business and underwriting year in the actuarial report on valuation of insurance liabilities under insurance policies:

- 1) projected premium;
- 2) allocation of recognized premiums and unrecognized premiums, based on the accounting practice of reinsurance company;
- 3) allocation of earned premiums and unearned premiums;
- 4) estimate of outstanding claims relating to earned premiums; and
- 5) details of the method used in projection and allocation of premiums. If the actuaries did not make such valuation, the actuaries shall have an understanding of the method used. If the actuaries consider such method to be unreasonable, the actuaries shall express an opinion in the actuarial report on valuation of insurance liabilities under insurance policies.

(d) Unexpired risk reserves (URR)

Actuaries may use the data on unearned premiums calculated by the insurance company in accordance with the guidance above. However, to value unexpired risk reserves, which represent the cost of insurance coverage from the valuation date to the expiration date of the insurance contract for policies in-force on the valuation date, the actuaries shall set out the valuation of best estimate for unexpired risk reserves in the actuarial report on valuation of insurance liabilities under insurance policies determined based on at least the following:

- 1) expenses of administering the policy until expiration of the contract;
- 2) claims expected to be incurred before and after deduction of salvage and subrogation;
- 3) claim handling expenses;

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4) valuation of best estimates for net unexpired risk reserve after reinsurance, which shall include expenses for reinsurance coverage on which assumptions for valuation of claims expected to be incurred is based, whether the insurance company has paid the reinsurance premium before or on the valuation date; and

5) valuation of unexpired risk reserve need not include revenue from future investment.

Regardless of what method is used to determine premium reserve, actuaries shall ensure that the assumption used in the valuation of premium reserve is consistent with the assumption used in the valuation of claim reserve and the expenses for the previous accident year. If the actuaries consider it appropriate to use different assumptions, it is the actuaries' duty to justify the use of different assumptions and ensure that the results are reasonable, and discuss the same in the actuarial report on valuation of insurance liabilities under insurance policies. Such an event may include the known trend of premium rates, factors affecting claims level for unexpired risks, changes in planned or budgeted expenses, and claims level that is irregularly high in the previous year, which is not expected to reoccur. Therefore, if the actuaries see a trend for improvement (or deterioration) of future claim payment, the loss ratio used in the best estimate for unexpired risk reserve may be lower (or higher) than the loss ratio used under the claim reserve.

If the assumption of premium reserve is used independently from assumption of claim reserve, the assumptions and outcomes of premium reserve and claim reserve must be compared. Actuaries shall explain any significant difference in the actuarial report on valuation of insurance liabilities under insurance policies.

(e) Provision of adverse deviations

Provision of adverse deviations shall be in accordance with the notifications of the Office of Insurance Commission concerning valuation of assets and liabilities of non-life insurance companies.

(3) Actuarial assumptions

(a) Choosing an assumption

Assumptions shall be chosen based on the valuation model and the nature of data and information obtained from discussion with the insurance company, and the industry environment, as well as the conditions at the valuation date. To determine an assumption, the actuaries shall mainly consider the experience up to the valuation date. Offset of events occurring prior to the valuation date with expected future experience (smoothing of assumption) is not recommended unless the offset will certainly occur.

Analysis shall take into consideration both internal and external factors of the insurance company that may affect the experience observed by the actuaries. Such factors and changes may include (but are not limited to) the following:

- 1) underwriting procedures;
- 2) mix of business;
- 3) policy coverage, deductible, sub-limit, and exclusions;
- 4) laws;
- 5) economic and social trends;
- 6) claims handling process; and

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7) reinsurance program.

Actuaries shall express an opinion regarding such factors in the actuarial report on valuation of insurance liabilities under insurance policies. In general, assumptions should be supported by documentation or reference based on the nature of the data. If significant changes in experience or operating of the insurance company expected to affect claim reserve or premium reserve, the actuaries shall disclose evidence and documentation.

Actuaries shall express opinions regarding trends of the economy, technology, medicine, laws, and society, that may affect the value of insurance liabilities.

Some insurance companies may not possess sufficient data regarding past claims to be used as the base for establishing a reliable assumption for the valuation model. Actuaries may fully or partly base the assumption on weighted industry data and experience if the actuaries deem it appropriate.

The assumptions used for valuation of premium reserves shall be consistent with the assumptions used for valuation of claim reserve. However, if the actuaries expect the experience to deteriorate (or improve), the ultimate loss ratio under the premium reserves may be higher (or lower) than the ultimate loss ratio. The actuaries shall express their opinions in the actuarial report on valuation of insurance liabilities under insurance policies.

Actuaries shall disclose process to determine assumptions in the actuarial report on valuation of insurance liabilities under insurance policies, as follows:

- 1) assumption on changes in premium rates;
- 2) assumption regarding claims development factors and ultimate loss ratio;
- 3) assumptions on direct and indirect expenses used in claim maintenance and claim handling;
- 4) assumption on reinsurance recoveries; and
- 5) assumption on discount rate (if any).

(b) Analysis of credibility and reconsolidation of data of insurance companies

Analysis of experience vary by line of business, available data, and credibility of data. Such analysis shall take into consideration development of claims payment together with the following audited data:

- 1) number of policies;
- 2) earned premium;
- 3) number of claims;
- 4) reported claims;
- 5) continuing claims;
- 6) settled claims;
- 7) finalized claims;
- 8) reopened claims;
- 9) prior payments;

(Translation)

- 10) case estimates; and
- 11) reported incurred costs.

Actuaries shall compare actual experience to expected paid claim from the previous valuation, and set out the result in the actuarial report on valuation of insurance liabilities under insurance policies. If the actual experience is different from the expectation, the actuaries shall give reasons for the deviation from the expectation and consider adjusting the assumptions to reflect the actual experience trend. Comparison of ultimate loss estimates of each accident year as of the previous valuation date shall be made with the adjusted ultimate loss estimates of each accident year as of the current valuation date. With respect to analysis of impact of changes in premium rates, if accident year data is used the time lag of changes in premium rates that may affect the data used should be taken into consideration. The analysis results shall be set out and explained in the actuarial report on insurance liabilities under the insurance policies.

Actuaries shall consider the reasonableness of estimation and analyze the financial effects arising from any changes in valuation method from the previous valuation, and shall explain the analysis in the actuarial report on valuation of insurance liabilities under insurance policies.

(c) Determination of assumption

The following three expense assumptions are required:

1) allocated loss adjustment expense (ALAE), which can be allocated for each claim;

2) unallocated loss adjustment expense (ULAE), which cannot be allocated for each claim; and

3) expenses used in maintenance: each type of expense shall be separated by line of business. However, if allocation is unobtainable, actuaries shall establish assumptions based on aggregated data, taking into consideration changes in the current and future mix of business, or changes related to paid claims experience.

If ALAE is included in paid claims data, the actuarial method will automatically include ALAE estimates in the estimation of outstanding claims. Actuaries shall ensure that no change is made to the practice of the insurance company that could result in inaccurate estimation.

If the actuaries use only one set of gross of reinsurance data and estimate the net of reinsurance by subtracting the reinsurance ceded from the gross of reinsurance results, the actuaries shall exercise care in adjusting or modifying inappropriate provision of ALAE, as in such case, future ALAE may or may not change as a result of reinsurance.

If ALAE is not included in the claims experience, the method of calculation used to estimate ALAE will be similar to ULAE.

ULAE assumption shall derive from analysis of current experience of the insurance company. Current experience shall cover at least two years immediately preceding the valuation date. A common method is to calculate the ratio of claims expense to gross of reinsurance claims from the latest year, and to determine an assumption based on the ratio calculated, if there is no change in the nature of the data, proportion of each type of insurance, or practice that evidently requires a different assumption.

Since a portion of ULAE occurs upon reporting a claim, ULAE assumptions for reported claims may be lower than the ULAE assumption. With respect to IBNR portion, ULAE

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assumptions for premium reserves are usually similar to assumptions used for estimation of claim reserve. Generally, ULAE amounts for gross of reinsurance outstanding claims and net of reinsurance outstanding claims are equal.

With respect to valuation of premium reserves, assumptions regarding expenses in maintenance must be employed. A general method is to calculate the ratio of expense in maintenance to earned premiums from the latest year, and to determine the assumption based on the calculated ratio, if there is no change in the nature of the data, proportion of each type of insurance, or practice that evidently requires a different assumption.

Expenses in maintenance do not include expenses from acquisition cost and overhead expenses, as they are not directly related to maintenance.

(4) Actuarial points for consideration

To estimate the obligations, the actuaries shall take into consideration the following:

- (a) random fluctuations in the data;
 - (b) errors in claims data, resulting in errors in selecting an assumption;
 - (c) size of provision of expenses for claim handling expense in case estimates;
 - (d) provision for direct and indirect expenses related to unexpired coverage;
 - (e) complexity of actual claims process;
 - (f) fluctuation of claims experience, causing uncertainty in selecting assumptions in the valuation model;
 - (g) possible deviation resulting from change in the past balance dates or early closing of year end account;
 - (h) economical, environmental, and legal factors affecting future claims payment;
- and
- (i) unclosed or pipeline premiums practice.

Actuaries shall have a good understanding of underwriting process and claim handling process of the insurance company and may improve such understanding by discussing with relevant department or consulting the underwriting and claims handling manuals, and summarize the same in the actuarial report on valuation of insurance liabilities under insurance policies.

Annual reports on valuation of insurance liabilities under insurance policies shall contain sufficient data and discussion in order for other experienced actuaries to access the quality of the report and compliance with these guidelines.

The content of the actuarial reports on valuation of insurance liabilities under insurance policies shall include the following:

- (a) brief general data regarding the insurance company's operation of business, business structure, underwriting procedures, claims handling procedures and reinsurance program, overview of insurance business, and market conditions;
- (b) data, steps for valuation of premium reserves, and claim reserve, separated into two sets, namely gross and net of reinsurance;
- (c) data used in the calculation include:

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- 1) data characteristic;
- 2) criteria for risk classification or line of business;
- 3) source of data, steps and process for verifying the accuracy and completeness of the data used for valuation, and results of credibility analysis for paid claim, case reserve, and direct and assumed premium;
- 4) process and assumptions used for data adjustment;
- 5) trends in increase or reduction of premium rate;
- 6) trends in frequency and severity;
- 7) extraordinary losses; and
- 8) other data that may significantly impact the valuation, such as reinsurance recoveries.

(d) Methods and assumptions used in the valuation are as follows.

- 1) The valuation shall be set out in detail. If the method used is not a generally accepted method, the actuary shall explain the use of the data, details and steps of valuation, and rationale for using the method.
- 2) The estimation of best estimates for premium reserves shall set out at least the following data:
 - a) expected claims gross and net of salvage and subrogation;
 - b) expenses used in maintenance until expiration of contracts;
 - c) expenses used in claims handling; and
 - d) expenses for any reinsurance ceded that covers the company's risks, as used as the assumption for claims expected to be incurred, whether or not the company has paid the reinsurance premium before or on the valuation date.
- 3) If the claim reserve is calculated using the chain ladder method, the triangle and valuation process for each risk class or line of business shall contain at least the following:
 - a) paid claim development triangle;
 - b) incurred claim development triangle;
 - c) case reserves triangle;
 - d) development factors and selected development factors for estimating ultimate claims;
 - e) calculated ultimate claims; and
 - f) calculated claim reserve before and after inflation rate and discount rate (if any).
- 4) If the loss reserve is not calculated using the chain ladder method, the assumptions used in the calculation and the reasons therefor, as well as data supporting the assumptions shall be given in detail.

(Translation)

5) If more than one calculation method is used, the criteria for choosing the outcome of each method shall be given.

(e) Analysis of adequacy of reserve and explanation of the analysis results.

(f) Changes in reserve and explanation for any significant changes.

If there is any significant difference between assumptions or conclusion based on the current valuation and previous valuation, the actuaries shall explain such difference and assess any financial effect arising from such difference.

The actuaries shall provide the insurance company with recommendation and opinion regarding development and improvement of data collection systems to ensure the adequacy of reserve valuation, and set out the suggestions and opinions, as well as the feedback from the insurance company, in the actuarial report on valuation of insurance liabilities under insurance policies.