ACTUARIAL GUIDANCE NOTE

AGN 7 DYNAMIC SOLVENCY TESTING

1.

This standard applies to the appointed actuary (the "Actuary") of a Long Term Insurance Company or Composite Insurance Company ("Insurer") when preparing a report on the Insurer's financial condition. This Actuarial Guidance Note will apply to business written in or from Hong Kong. For avoidance of doubt, this Actuarial Guidance Note will apply to the Long Term business of an Insurer if it is incorporated in Hong Kong. For an Insurer incorporated outside Hong Kong, this Actuarial Guidance Note will apply to the Long Term business written through its establishment in Hong Kong.

2. Investigation

2. The Actuary should make an annual investigation of the Insurer's current financial position and financial condition of the Long Term business.

2.2 The Actuary should make a report of each investigation in writing to the Insurer's Board of Directors. The report should identify possible actions for dealing with any threats to satisfactory financial condition which the investigation reveals.

2.3 The Actuary should also make an interim investigation if there is a material adverse change in the Insurer's circumstances.

3. Method

3.1 Current Financial Position

The investigation would review current financial position.

3.2 Dynamic Solvency Testing

Dynamic solvency testing examines the effect of various plausible adverse scenarios on the Insurer's forecasted capital adequacy. It is the Actuary's primary tool for investigation of an Insurer's financial condition.

The purpose of Dynamic solvency testing is to identify

the solvency position of an Insurer on an ongoing concern basis;
- plausible threats to satisfactory financial condition;
- actions which lessen the likelihood of those threats; and
- actions which would mitigate a threat if it materialized.

3.2.3 Dynamic solvency testing is defensive: it addresses threats to financial condition rather than the exploitation of opportunity.

3.3 Satisfactory Financial Condition

The Insurer's financial condition is satisfactory if throughout the forecast period:

under the base scenario it meets the minimum regulatory capital requirement, and
under all plausible adverse scenarios the assets exceed the liabilities.

3.4 Forecast Period

The forecast period begins at the most recent available financial year-end balance sheet date. The forecast period for a typical life Insurer would be three financial years. The forecast period should be extended to five financial years if there is reasonable indication that a solvency problem will likely occur after three financial years.

3.5 Scenarios

The scenarios consist of a base scenario and some plausible adverse scenarios, including 6 prescribed scenarios. Each scenario takes into account:

not only inforce policies but also the policies assumed to be sold during the forecast period; and
the events and / or business operations which may adversely impact the financial condition of the long term business.

3.6 Base Scenario

The base scenario is a realistic set of assumptions used to forecast the Insurer's financial position over the forecast period. Normally, the base scenario is consistent with the Insurer's business plan. It is awkward if the base scenario is not consistent with the business plan, because that implies a difference in outlook between the Insurer's management and the Actuary. The Actuary would normally accept the business plan's assumptions for use in the base scenario unless these assumptions are so inconsistent or unrealistic that the resulting report would be misleading. The Actuary would report any material inconsistency between the base scenario and the business plan.

3.7 Prescribed Scenarios

The following prescribed scenarios should be tested by the Actuary

15% deterioration in mortality rates for life business; 15% deterioration in morbidity rates and 15% increase in incidence rates for disability, accident and sickness; 15% improvement in mortality for annuity business.

5% change in lapse rates, applied as product specific, whichever that produced deteriorating results. The 5% applies as addition or subtraction from the original

lapse rates, subject to the normal limit of 0% or 100%. For example, a 3% lapse rate may become 8% or 0%.

interest rate drop of 15% of inforce bond portfolio rate, with equity and real estate drop of 25% over the 3 year period.

interest rate rise by 30% of inforce bond portfolio rate, with equity and real estate drop of 25% over the 3 year period.

high growth with growth rate being the higher of 30% and 150% plan grow rate, with a reasonable increase in general expenses

low growth with year 1 sales being 80% of current year, followed by 20% drop for years 2 and 3, without any saving in general expenses.

3.8 Plausible Adverse Scenarios

3.8. A plausible adverse scenario is a scenario of adverse, but plausible, assumptions about matters to which the Insurer's financial condition is sensitive. Plausible adverse scenarios vary among Insurers and may vary over time for a particular Insurer.

3.8.2 The Actuary would consider the 6 prescribed scenarios above, as well as other plausible material risks to the Insurer. The Actuary has to determine the sensitivity of the Insurer's capital adequacy to each risk. As a minimum, in addition to the base scenario, the 6 prescribed scenarios should be tested independently and reported annually.

3.8.3 To help the Actuary determine if a risk is material and plausible, it may be useful to stress test the capital adequacy of the Insurer. The Actuary might determine how much a base scenario assumption needs to be changed before an adverse scenario gives rise to an unsatisfactory financial condition. The Actuary can then judge whether a plausible risk or event exists for the Insurer over the forecast period.

3.9 Integrated Scenarios

In many cases, plausible adverse scenarios are associated with a low probability of occurrence. In such cases, it is usually not necessary for the Actuary to construct integrated scenarios by combining two or more low probability adverse scenarios.

In some cases, however, the probability associated with a plausible adverse scenario may be close to the probability associated with the base scenario. For example, a significant asset on the balance sheet may be showing early signs of distress. In such cases, an integrated scenario would be constructed by combining each more probable adverse scenario, with a low probability adverse scenario, The low probability adverse scenario selected would be the one that has the

greatest effect on the Insurer's financial condition and is plausible when combined with the more probable adverse scenario.

Ripple Effects

3.10.1 Actuary would consider "ripple" effects. Although most of the other assumptions used in the base scenario may remain appropriate under the plausible adverse scenario, some may require adjustment to reflect the interdependence of assumptions in the plausible adverse scenario.

3.10.2 Ripple effects include both regulatory action and policyholder action especially under any plausible adverse scenario where the Insurer fails to meet the minimum regulatory capital requirement.

3.10.3 Ripple effects also include the Insurer's expected response to adversity. Selection of the assumptions for that response would take into account

the effectiveness of the Insurer's management information systems,
the Insurer's historical record of promptness and willingness to make difficult decisions, when faced with adversity, and
the external environment assumed in the scenario.

3.10.4 The Actuary would report the assumed response, so that users may consider its practicality and adequacy.

3.10.5 Sometimes, however, it is useful to also report the results assuming that the Insurer does not respond to the adversity.

Scope of the Investigation and Report

3. The report would contain the key assumptions of the base scenario, the 6 prescribed scenarios, and also other adverse scenarios posing the greatest risks to the satisfactory financial condition of the Insurer. The report would also include comments on each of the risk categories identified in this standard. The meaning of satisfactory financial condition under this standard would be disclosed in the report.

3 .2 The report would also contain the plausible adverse scenarios examined which cause the Insurer to fall below the minimum regulatory capital requirement. Even though the Actuary may have signed a satisfactory financial condition opinion, the report would make it clear that under these scenarios the regulators may impose restrictions on the operations of the Insurer, including its ability to write new business.

3.11.3 For each of the plausible adverse scenarios reported upon, the Actuary would also report the results without the effect of any extraordinary management action and without the effect of any regulatory action.

3 .4 If the investigation identifies any plausible threat to satisfactory financial condition, then the Actuary would attempt to identify management action which would lessen the likelihood of that threat, or which would mitigate that threat, if it materialized.

Revaluation of the Assets

For those scenarios which show a change of interest rate, the invested assets would be revalued throughout the forecast period.

Revaluation of the Policy Liabilities

Ideally, for each adverse scenario, the policy liabilities would be revalued throughout the forecast period. But their revaluation only at the end of the forecast period may be a suitable compromise, unless the Actuary believes, given the financial position at the end of the forecast period, that the financial condition would not be satisfactory at some point during the forecast period if revaluation were performed at that point.

3.14 Interim Investigation

In rare cases, a material adverse change in the Insurer's circumstances since the last annual investigation may be so far reaching that to delay reporting to the time of the next annual investigation would be imprudent. For example, failure to meet the minimum applicable regulatory capital requirement, or adoption of a radically different business plan, may make an immediate report urgent. In such a case, the Actuary would undertake and report on an interim investigation.

4. Reporting

4.1 The Actuary would report to the Board of Directors.

4.2 In order to give the Insurer's management an opportunity to react to the results of the investigation, the Actuary would normally discuss the report with the Insurer's senior management in advance of its submission.

4.3 The report would be in writing. An interpretative report is more useful than a statistical report.

4.4 The timing of the report would depend on the urgency of the matters reported and on the desirability of integrating Dynamic solvency testing into the Insurer's annual financial planning cycle. The annual report would be submitted within six months of each financial year-end.

5. Opinion

5.1 The report should contain an opinion signed by the Actuary. The purpose of the opinion

is to report on the financial condition of the Insurer.

5.2 In this opinion, "future financial condition" has the same meaning as "financial condition". The Actuary may use the words "future financial condition" in order to comply with legislation or regulation in some jurisdictions.

5.3 The wording of the opinion follows: [insert appropriate wording where indicated by [square brackets]

"I have completed my annual investigation of the [future] financial condition of [company name] as at [date] in accordance with accepted actuarial practice.

I have analyzed the forecasted financial positions of the company during the [number] year forecast period under a series of scenarios. A description of these scenarios and their impact on the company is included within this report.

The analysis incorporates assumptions relating to business growth, investments, [mortality, morbidity, claims frequency, capital injections, other policy-related experience] and other internal and external conditions during the forecast period as well as potential management responses to various plausible adverse scenarios. The most significant assumptions are described within this report.

In my opinion, the [future] financial condition of the company [is satisfactory under these assumptions or is not satisfactory for the following reasons)...].

"I have complied with the Actuarial Guidance Note on Dynamic Solvency Testing issued by the Actuarial Society of Hong Kong in carrying out this investigation for the company."

OR

"I have complied with the Actuarial Guidance Note on Dynamic Solvency Testing issued by the Actuarial Society of Hong Kong in carrying out this investigation for the company except with the deviations as set out below: [.........]"

[signature of actuary]

[typed name of actuary]

[report date]"

*** END OF ACTUARIAL GUIDANCE NOTE ***