

INSURANCE COMMISSION OF THE BAHAMAS



INTRODUCTION

The primary purpose of this document is to provide guidance and support to actuaries of life insurers in conducting stress tests on their business.

“The business of insurance is based on dealing with uncertainty. Therefore, an insurer needs to consider a wide range of possible outcomes that may affect its current and expected future financial position. Stress tests are a necessary risk management tool for both insurers and supervisors to ascertain whether insurers are financially flexible to absorb possible losses that could occur under various scenarios.”³

Stress testing means a determination of just how far the risk factor(s) in question has to be changed in order to drive the insurer’s surplus negative during the forecast period, and then evaluating if that degree of change is plausible.⁴

The principal goal of this process is the identification of possible threats to the financial condition of the insurer and appropriate risk management or corrective actions to address those threats. The process arms the insurer with useful information on the course of events that may lead to capital depletion and the relative effectiveness of alternative corrective management actions, if necessary. Furthermore, knowing the sources of threat, it may be advisable to strengthen the monitoring systems where the insurer is most vulnerable.⁵

Forecast Period

The forecast period is 5 fiscal years for long-term business and 2 fiscal years for short term business.

Based on the results of the stress tests, the regulator reserves the right to require the company to perform the tests using a different forecast period.

STRESS TESTS FOR THE LIFE INSURANCE SECTOR

Base Scenario

The base scenario should employ assumptions that are consistent with those used in the statutory actuarial valuation. For most companies these would be the same as the assumptions used in the preparation of the financial statements under International Financial Reporting Standards.

The base scenario should also include new business projections consistent with the company’s business plan for the forecast period. Any actions by management such as injection of capital, reduction of per unit expenses etc., as a consequence of the new business production should be included in the base scenario.

¹ Stress Testing by Insurers Guidance Paper: International Association of Insurance Supervisors (October 2003)

² CIA Educational Note: Dynamic Capital Adequacy Testing (November 2013)

⁵ CIA Educational Note: Dynamic Capital Adequacy Testing (November 2013)

Base Risk Based Capital ratio

The risk-based capital (RBC) ratio is determined in accordance with the Long-term Insurance Capital Adequacy Guideline. The base RBC ratio is determined at the calculation date and annually thereafter for the forecast period.

The RBC ratio at the calculation date only, without including future new business, should also be calculated and reported.

If the company currently calculates other risk-based capital adequacy ratios, these should also be calculated and reported for the base and stress test scenarios for the forecast period.

Stress Test Scenarios⁶ Interest Rate Risk

I1: 2% parallel upward shift of the yield curve or discount rate assumption

I2: 2% parallel downward shift of the yield curve or discount rate assumption I3: Downgrade in Bahamas credit rating from B+ to CCC

Asset Price Risk

A1: 35% price decline in domestic and foreign equity investments

A2: 25% price decline in residential and commercial real estate, including mortgages and investment properties

Insurance Risk

M1: Permanent 25 % increase in mortality rates of insured lives M2: Permanent 25 % increase in morbidity rates

M3: Permanent 25 % decrease in annuitant mortality rates

M4: For short term personal accident and sickness: Claims inflation increase of +2% above inflation

M5: For short term personal accident and sickness: Claims frequency increase of 10% of the best estimate

Expense and Inflation Risk

E1: Permanent 25 % increase in per unit renewal expenses E2: Permanent 1% increase in inflation rate

Lapse Risk

L1: Permanent 25% increase in lapse rates L2: Permanent 25% decrease in lapse rates

New Business Risk

N1: Permanent 25% increase in new business volumes

⁶ These scenarios are meant to be a starting point for stress testing of insurers. They are not an exhaustive list of all the risk categories faced by insurers. For a more exhaustive list of categories of risk please see "Stress Testing by Insurers Guidance Paper (IAIS, October 2003).



N2: Permanent 25% decrease in new business volumes

The stress test assumptions are to be applied to the base assumptions for each year of the forecast period. The assumptions applicable after the forecast period would be the base assumptions for that year.

REPORTING⁷

It is recommended that the actuary verify the current regulatory requirements for the company's situation. It is further recommended that the actuary consult the capital guidelines and rules. The following is an illustrative outline of possible elements of a stress testing report.

1. Executive Summary

The executive summary is useful to provide a high-level overview of the results of the stress tests analysis that is described in the report, including:

- summary of the results of the base and required scenario results;
- highlights of the most significant risks to capital adequacy;
- review of the events since the previous stress tests report was submitted, if applicable;
- other significant findings.

2. Introduction

The introduction provides a forum to inform the user about the purpose and basis for the stress test report, consisting of:

- purpose and scope of the stress test report; and
- overview of the processes and methods used for the stress test analysis.

3. Solvency Measurement

The actuary would explain the nature of the regulatory test used to measure the financial condition of the insurer, including:

- definition of RBC ratio requirement;
- description and summary of the insurer's current RBC ratio;
- description and summary of any other solvency / capital ratios used by the company; and
- materiality standard used.

⁷ CIA Educational Note: Dynamic Capital Adequacy Testing (November 2007)

4. Background Discussion

This section of the report would provide an overview of the company, and the economic environment during the forecast period, including such things as:

- summary of the nature of the insurer’s business, products and target markets;
- review of recent and current financial position;
- discussion of any key events or initiatives affecting the insurer in the recent past and any associated expected future developments;
- description of economic assumptions; and
- discussion of the current and expected market condition.

5. Base Scenario

A clear description of the base scenario used in the stress test analysis would include:

- brief description of the model or process used to project the base scenario;
- description of main assumptions especially any capital injections or strategic initiatives;
- discussion of consistency of the base scenario with the insurer’s business plan; and
- description of key financial results, including key income statement and balance sheet items, and solvency and any risk-based capital adequacy test results. A desirable approach would be to display the results for each year in the projection.

6. Stress Test Scenarios

This section of the report would state the required stress test scenarios as well as any other stress tests the actuary deems appropriate giving consideration to the circumstances of the Company. A summary of the results in the prescribed format below is required. Commentary on the results should also be included.

Table 1

	Risk Based Capital Ratio				
	Yr1	Yr2	Yr3	Yr4	Yr5
Base Scenario RBC Ratio without new business	X				
Base Scenario RBC Ratio with new business	X	X	X	X	X
Interest Rate Risk					
I 1 I	X	X	X	X	X
Asset Price Risk					
A 1	X	X	X	X	X



	Risk Based Capital Ratio				
	Yr1	Yr2	Yr3	Yr4	Yr5
Insurance Risk					
M1					
M2					
M3	X	X	X	X	X
M4					
M5					
Expense and Inflation Risk					
E					
1	X	X	X	X	X
E					
Lapse Risk					
L1					
L2	X	X	X	X	X
New Business Risk					
N1					
N2	X	X	X	X	X

A similar table should be included to show any other risk-based capital adequacy levels if the company currently uses such a measure.

7. Conclusions

Overall conclusions from the stress test analysis would be presented including a brief description and summary of the results of the base and required stress test scenarios and highlights of the most significant risks to risk-based capital adequacy.

8. Appendices

Include details of the financial results from the application of the stress test model. Typically, the model creates key elements and pages from the financial statements, such as balance sheet, income statement and regulatory measure of solvency and / or risk-based capital adequacy. Copies of such exhibits for the base scenario and each of the required stress test scenarios for the forecast period should be included.