



BMA House  
43 Victoria Street  
Hamilton HM 12 Bermuda  
P.O. Box 2447  
Hamilton HM JX Bermuda  
tel: (441) 295 5278 fax: (441) 292 7471  
email: info@bma.bm website: www.bma.bm

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## **2011 Capital and Solvency Return**

### **STRESS/SCENARIO INSTRUCTIONS – CLASS E (RE)INSURERS**

The Bermuda Monetary Authority (the Authority) is conducting stress/scenario testing and analysis with all Class E insurers<sup>1</sup>. All insurers are required to complete this exercise. The results are to be submitted to the Authority with the 2011 year-end Capital and Solvency Return.

The objective of stress testing as part of the 2011 year-end Capital and Solvency Return is to assess the capital adequacy of the insurers under adverse economic and underwriting conditions. More specifically, the purpose of the tests is to assess the impact of the events on an insurer's statutory balance sheet (statutory admitted assets, admitted liabilities, and capital and surplus) as determined by the insurers' internal model and/or vendor model(s). Thus, these tests help determine the capacity of insurers to absorb the manifestation of key financial risks, such as shocks to investment performance and the loss profile associated with specific underwriting risks.

#### **General instructions**

*Measurement of impact.* As noted above, the insurer is to provide the post stress/scenario positions of the expected impact and effects on both statutory assets and liabilities.

*Accounting treatment.* The insurer is to use the accounting standard ordinarily used for statutory reporting so that the pre-stress/scenario statutory capital and surplus can be reconciled to the insurer's 2011 year-end statutory balance sheet.

*Timing of impact.* The stress/scenario impact and effects to be reported are those that would be observed immediately upon the occurrence of the event (stress/scenario) as determined by the insurer's internal or vendor model(s) (both with and without the effect of reinsurance and/or other loss mitigation instruments).

*Balance sheet date.* The insurer is to run the stress/scenario tests based on its balance sheet position and aggregate in-force exposures as at 1<sup>st</sup> January 2012<sup>2</sup>.

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<sup>1</sup> In this document, the terms "insurer" and "insurers" include "reinsurer" and "reinsurers", respectively.

<sup>2</sup> Note: Where the fiscal year does not correspond to the calendar year, in-force exposures on the day following the fiscal year-end should be used rather than 1 January 2012.

*Vendor and/or internal model descriptions.* To assist the Authority with comparability, the insurer is to provide a description of the vendor model(s) used to perform the stress/scenario tests, identifying what model and version was used for each stress/scenario. The acquisition of a vendor package is not an obligation. Where an internal model is utilised, the description should also include information on the internal model's key assumptions and parameters.

## **A. Economic Scenarios**

The economic stress scenarios comprise capital market-related single factor shocks (equity returns and credit spreads). The calibration of these shocks is informed by an adverse global macroeconomic scenario. In light of continued sovereign risk concerns and its implications for the investment performance of insurers in anticipation of changes in regulatory standards internationally, this round of economic scenarios also includes foreign currency shocks as well as haircuts on sovereign and financial sector debt that exceed the general adversity of widening credit spreads and are specific to particular exposures.

The insurer is to quantify the implications of the following separate and distinct impacts upon its statutory balance sheet:

<u>Stress Event</u>	<u>Interpretation</u>
<b>R1.</b> Severe decline in equity prices	Equity prices decline by 40% across the board, i.e. there is no allowance for diversification across the markets (it is assumed that all markets are correlated and the impact is on assets only).
<b>R2.</b> General widening of spreads	Rating class-specific widening of credit spreads based on historical calibration (see Table 1). These shocks assume an increase in default risk consistent with market expectations but not a general shift in the yield curve impacting the valuation of fixed income investments.

**Table 1. Credit spread widening**

*In basis points (as of end-Oct. 2011, estimated as "through the cycle" adverse scenario)*

<i>Statistical confidence</i>	Rating category					
	<b>AAA</b>	<b>AA</b>	<b>A</b>	<b>BBB</b>	<b>BB</b>	<b>Below BB</b>
95 <sup>th</sup> percentile	81	127	137	199	642	1,152
99 <sup>th</sup> percentile	142	215	224	329	1,030	1,884

Sources: Bloomberg, staff calculations. Note: The adverse scenario ("through-the-cycle") was calibrated to historical price changes of rating-specific baskets of credit default swaps (CDS) with maturity terms of three years. The estimation period covered 1,520 observations between 1 January 2006 and 28 October 2011.

**R3.** Combined R1 and R2.**R4.** Foreign currency shocks

Broad-based depreciation of the U.S. dollar according to Table 2.

**Table 2. FX shock parameters***In percent*

USD/EUR	-20	Exchange rates quoted as units of the other currency per one unit of U.S. dollar (USD). An decrease means a depreciation of the U.S. dollar.
USD/JPY	-10	
USD/GBP	-20	
USD/Other non-EM currencies	-15	

**R5.** Escalation of European sovereign risk

Large valuation losses on government and financial sector debt (debt securities and loans) issued by creditors in Belgium, France, Greece, Ireland, Italy, Portugal, and Spain according to Table 3.

**Table 3. Sovereign Debt Haircut (relative to Dec. 31, 2010)***In percent (as of end-Oct., 2011)*

	Time to Maturity				
	<1 year	<2 years	<3 years	<4 years	>4 years
Belgium	14.05	14.22	14.04	13.73	13.35
France	6.51	6.84	7.13	7.18	6.91
Greece	63.54	60.61	59.39	60.07	61.06
Ireland	41.72	39.63	37.55	37.37	36.97
Italy	20.74	20.90	20.68	20.42	19.95
Portugal	43.71	41.77	40.12	39.83	39.92
Spain	23.57	23.55	23.34	23.17	22.81

Sources: Bloomberg, staff calculations. Note: Based on 90th percentile of past price changes of forward contracts on credit default swaps (CDS) with maturity terms between one and five years respectively (since end-2008).

**B. Other Scenarios**

The insurer should submit to the Authority three of its own underwriting scenarios and also use these in the calculation for **D1**. The insurer is to submit the following for each of the three scenarios:

- Description of the scenarios and related key assumptions; and
- The post stress/scenario positions on aggregate statutory assets and statutory liabilities that would be observed immediately upon the occurrence of the event (stress/scenario) (both with and without the effect of reinsurance and/or other loss mitigation instruments).

**NOTE: The Authority may advise whether it deems the scenarios to be appropriate (e.g. extreme enough based upon the characteristics of the insurer's business) and either request amendments to assumptions or that alternative scenarios are to be submitted.**

### **C. Insurer-Specific Scenario**

The insurer is to submit detailed qualitative disclosure of the impact upon both its statutory statement of income and liquidity positions of a ratings downgrade of its Bermuda legal entity or group by two notches or below A-, whichever is lower. The disclosure should cover and provide an indication of the relative impact/severity of collateral requirements, loss payment triggers on in-force policy contracts, claw-backs, and/or other adverse financial and liquidity implications of the downgrade.

Upon reviewing the disclosure, the Authority may request additional information relating to the liquidity impact and potential losses.

### **D. Worst-Case Annual Aggregate Catastrophe Loss Scenario**

The insurer is to submit the following:

#### ***1. R3 above and three other scenarios***

The aggregate impact of:

- a) An economic scenario which would result simultaneously in the occurrence of R1. and R2. above; and
- b) An aggregation of the three other scenarios disclosed in **B**.

The underwriting loss events follow in quick succession and there is the inability to engage in capital or other fundraising activities. In addition, an assumption should be made that there is no geographic correlation between these non-economic events. The insurer is to disclose its assumptions, including any magnified demand surge, if applicable, from the multiple events.

**and**

#### ***2. Insurer specific worst-case scenario***

The insurer is to submit a description of its own worst-case annual aggregate loss scenario and the underlying assumptions. Although the scenario could, it does not have to exceed a 1-in-250 year event but rather should be at a level considered extreme but plausible by the insurer.