

June 2020

Bermuda Monetary Authority

# 2019 Insurance Stress Test Report



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## 1 INTRODUCTION

The Bermuda Monetary Authority (BMA) and the Prudential Regulatory Authority (PRA) have conducted a joint exercise on natural catastrophe and economic scenarios for Property and Casualty insurers<sup>1</sup>, reflecting a commitment to transparency, supervisory cooperation and information sharing by both Authorities, in line with the Insurance Core Principles (ICP) of the International Association of Insurance Supervisors (IAIS).

Many London market insurers are exposed to similar risks to those based in Bermuda; furthermore, UK-based insurers cede a significant proportion of risks to Bermuda-based reinsurers. This joint exercise allows us to understand the interdependencies between the London market and Bermuda-based reinsurers in more depth and will be used to inform the ongoing supervision of the insurers we regulate. The corresponding PRA report for this exercise can be found on the regulator's website<sup>2</sup>.

In coordination with the PRA, a sample of nine large Bermuda commercial insurers (Class 4 and Class 3B) with material natural catastrophe business both in the UK and on a global basis have been selected to participate in this joint exercise. Between them, they held approximately \$35 billion of Capital and Surplus (C&S) as of 31 December 2018.

Section A of the 2019 Insurance Stress Test (IST) instructions document included an Insurance Asset Shock (IAS) and Section B included four natural catastrophe scenarios<sup>3</sup>. The details of the scenarios and their design are available in our publication from 18 June 2019<sup>4</sup>.

This exercise is in addition to the Catastrophe Risk Return and Schedule of Risk Management the Bermuda Insurance Market is required to complete as part of the annual statutory filing. The annual return includes a range of stress tests performed for different perils and regions, exceedance probability curves, exposure statistics and other information on insurers' catastrophe exposures and modelling. More details on these returns and results can be found in the BMA's latest annual Catastrophe Risk Report<sup>5</sup>.

This exercise was conducted in 2019 before COVID-19. COVID-19, as it pertains to the Bermuda Insurance Market has been elevated to be a central focus of our supervisory efforts. The Authority has initiated a proactive assessment of its impact on Bermuda's insurance sector including analysing stress test information from previous filings and this exercise and increasing the frequency of prudential meetings with the registrants. A Market Survey was also undertaken to assess the financial and operational impact of COVID-19. Further, amongst other matters, the Authority has issued instructions to commercial insurers and groups in relation to liquidity, return of capital, dividends, and share repurchases.

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<sup>1</sup> The term 'insurer' is used consistently with the Insurance Act definition and therefore refers to a person carrying insurance and reinsurance business.

<sup>2</sup> <https://www.bankofengland.co.uk/-/media/boe/files/prudential-regulation/letter/2020/insurance-stress-test-2019-feedback.pdf>.

<sup>3</sup> Scenario B1 – Set of three US Hurricanes (Set of 3 US HU), Scenario B2 - California Earthquake with Aftershock (Cal EQ + Aftershock), Scenario B3 - Japanese Earthquake with Tsunami (JPEQ + Tsunami), Scenario B4 - UK Windstorm with Storm Surge and UK Flood (UK WS SS FL).

<sup>4</sup> <https://www.bma.bm/viewPDF/documents/2019-06-14-16-37-47-Joint-Stress-Test-with-the-PRA---Instructions.pdf>.

<https://cdn.bma.bm/documents/2019-06-14-16-30-03-Joint-Stress-with-the-PRA---Template.XLSX>.

<sup>5</sup> <https://cdn.bma.bm/documents/2019-12-20-09-54-17-Catastrophe-Risk-in-Bermuda---2018.pdf>.

## 2 EXECUTIVE SUMMARY

### 2.1 Participating Insurers Loss

	Pre - Stress	Insurance Asset Shock (IAS)	Insurance Asset Shock + Set of 3 US Hurricanes (IAS + Set of 3 US HU)	Insurance Asset Shock + California Earthquake with Aftershock (IAS + Cal EQ + Aftershock)	Insurance Asset Shock + Japanese Earthquake with Tsunami (IAS + JP EQ + Tsunami)	Insurance Asset Shock + UK Windstorm with Storm Surge and Flood (IAS + UK WS SS FL)
Reported in \$ billions						
No. of insurers with material exposure to scenario		8	9	9	9	8
C&S 31/12/2019 (insurers with material exposure only)	38.8	36.4	38.8	38.8	38.8	36.4
Net Loss as % of C&S at 31/12/2019 (insurers with material exposure only)		23%	30%	29%	26%	28%
No. of insurers with ECR Ratio < 100%		0	3	2	1	2
No. of insurers with Net Loss > 50% of C&S		0	0	0	0	0
C&S 31/12/2019 post-stress (insurers with material exposure only)		28.1	27.3	27.6	28.9	26.1
Average post-stress ECR Ratio (all participating insurers)	229%	183%	157%	155%	172%	169%
Average post-stress ECR Ratio (insurers breaching ECR only)			86%	91%	93%	95%

Participating insurers show resilience to the scenarios. The group demonstrates healthy capitalisation levels with the average post-stress projected 2019 Enhanced Capital Requirement (ECR) ratio remaining above 150% across all scenarios. Additionally, no insurer would breach the ECR under any individual scenario<sup>6</sup>. All insurers would be able to meet their obligations, under the most material scenario (IAS + Set of 3 US HU), three insurers would breach their ECR but still maintain an average ECR ratio of 86%.

### 2.2 Reinsurance Flows

	IAS (Insurance Asset Shock)	Set of 3 US Hurricanes (Set of 3 US HU)	California Earthquake with Aftershock (Cal EQ + Aftershock)	Japanese Earthquake with Tsunami (JP EQ + Tsunami)	UK Windstorm with Storm Surge and UK Flood (UK WS SS FL)
Reported in \$ billions					
Estimated Market Loss		181.0	70.0	30.0	28.6
Gross Loss (participating insurers)	8.4	13.1	14.6	2.4	4.2
Net Loss (participating insurers)	8.4	3.2	2.8	1.6	2.1
% ceded		76%	81%	36%	50%
% ceded to Bermuda - Fully Collateralized Structures only		34%	26%	11%	17%
% ceded to Bermuda - excluding Fully Collateralized Structures		10%	11%	4%	9%
% ceded to Other Regions		32%	44%	21%	25%
% Loss retained in Traditional Bermuda Insurance Market		34%	30%	68%	59%

	Set of 3 US Hurricanes (Set of 3 US HU)	California Earthquake with Aftershock (Cal EQ + Aftershock)	Japanese Earthquake with Tsunami (JP EQ + Tsunami)	UK Windstorm with Storm Surge and UK Flood (UK WS SS FL)
Recoveries %				
Bermuda - Fully Collateralized Structures	44%	32%	31%	33%
Bermuda - ex Fully Collateralized Structures	13%	14%	10%	17%
Europe ex UK	15%	29%	8%	20%
UK	3%	4%	10%	5%
USA	5%	5%	8%	6%
Other	19%	16%	33%	18%

The tested scenarios are severe but plausible, as shown by the gross loss amounts. While gross incurred losses are material for the participating insurers, net losses are notably reduced due to a significant amount being ceded out<sup>7</sup>. A substantial portion of the reinsurance recoveries is from the Bermuda market with the biggest contributor being fully collateralized structures funded by the

<sup>6</sup> i.e. IAS only or any catastrophe scenario excluding IAS.

<sup>7</sup> As most of the inwards losses to the Bermuda participants are not from direct insurance business, the corresponding outwards reinsurance is retrocession in its majority.

capital markets and regulated under the BMA's prudential regime. Details on Bermuda's alternative capital market can be found in the latest BMA Alternative Capital Report<sup>8</sup>.

For the participating insurers, approximately one-third of the US stress losses are retained in Bermuda by 'traditional' insurance vehicles. The balance is ceded either overseas or to the capital markets.

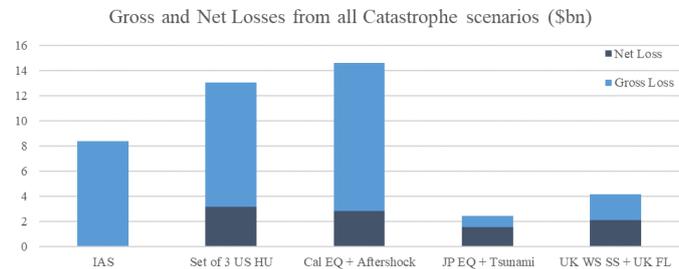
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<sup>8</sup> <https://cdn.bma.bm/documents/2018-12-28-07-22-59-BMA-Alternative-Capital-Report-2018.pdf>.

### 3 RESILIENCE

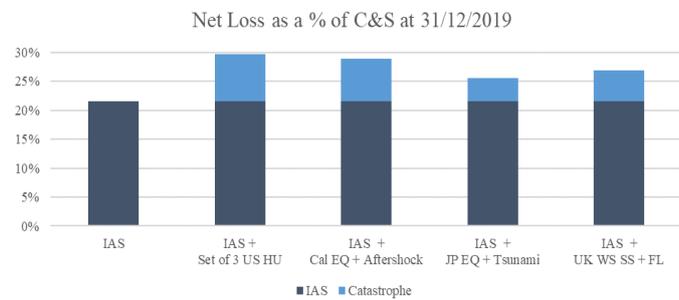
#### 3.1 Participating Insurers Loss

The two US scenarios generated the most substantial gross losses, with California Earthquake (Cal EQ + Aftershock) being slightly more severe than the US Hurricane set of events (Set of 3 US HU). The greatest overall net loss, however, was from the IAS as the catastrophe scenarios benefited from material reinsurance recoveries.



#### 3.2 Impact on C&S and ECR Ratio

The net loss from the IAS would be equivalent to roughly 22% of the C&S as at year-end 2019, while the Set of 3 US HU scenario would be equivalent to approximately 8% of C&S, adding to a combined impact of approximately 30%.



In spite of the severity of the IAS, none of the participants' ECR ratio dropped below 100% under that scenario or, for that matter, under any of the individual scenarios<sup>9</sup>. The most adverse combined scenario is the IAS + Set of 3 US HU with three insurers dropping below 100% ECR. However, these insurers still maintained an average ECR ratio of 86%.

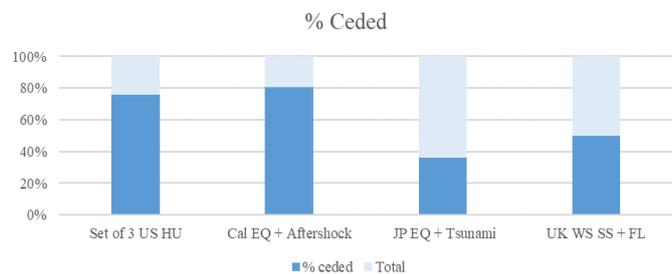
Insurers identified a number of management actions to improve their post-stress solvency levels. These include recapitalisation from the parent, retention of future dividends, purchase of additional reinsurance (either internal or external), loss portfolio transfer and de-risking of asset and underwriting portfolios. We did find that some insurers were better prepared than others in the actions they would take post-stress.

<sup>9</sup> i.e. IAS only or any catastrophe scenario excluding IAS.

## 4 REINSURANCE

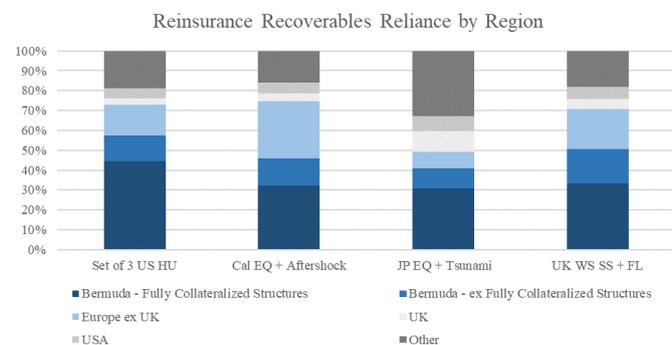
### 4.1 Reliance on Reinsurance

Participants use reinsurance as a key mitigation tool in managing their catastrophe exposure. This is most evident for the peak peril scenarios (Set of 3 US HU, Cal EQ + Aftershock), where more than 70% of the losses are ceded out. The highest reinsurance ceded ratio is observed for Cal EQ + Aftershock at 81%.



### 4.2 Interconnectedness

Bermuda is the region with the most significant share of reinsurance recoverables. For the Set of 3 US HU scenario, 58% of the recoveries originate in Bermuda; this is further split with 44% of recoveries made from fully collateralized structures and 13% from any other type of carrier. A material portion of the exposure is written through intra-group reinsurance arrangements, which highlights the continued importance of supervisory college discussions.



The BMA and PRA results are generally consistent in terms of main drivers and magnitude of losses. Itemised comparisons should, however, be avoided as there are differences in scope and sample size. More specifically, the PRA exercise is designed to cover the majority of the UK market, whereas the selected Bermuda participants are a sample of large commercial insurers with material natural catastrophe business both in the UK and on a global basis, and thus form a segment of the Bermuda market. The results, therefore, do not capture insurers with material exposure to these perils that do not have material catastrophe exposure originating from the UK. Even for the selected sample, it should be noted that the majority of the risk does not originate from UK operations, especially for US risks.

### 4.3 Reinsurer Concentration Risk

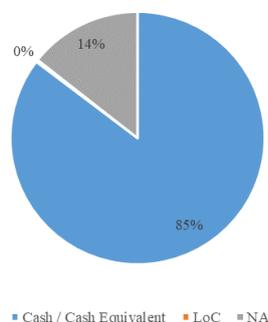
No significant concentration to any single reinsurer or reinsurance group was identified from this exercise. The largest concentration to any one third-party reinsurance group was less than 5% of the total recoveries. The proportion of losses ceded to intra-group reinsurance is, however, higher and remains important for some insurers.

### 4.4 Collateralized Reinsurance

The majority of the collateralized recoveries are backed by cash or cash equivalent types of assets, which highlights that market or liquidity risk is remote under these collateral arrangements.

The results highlight the critical role fully collateralized vehicles have in offering reinsurance capacity. One of the key benefits for cedents using fully collateralized vehicles is the minimisation of credit risk that is typically observed in traditional reinsurance arrangements. On the other hand, the availability of alternative capital following adverse catastrophe experience could show different behaviour patterns than traditional reinsurance capital. Investors' appetite for contributing new funds or continuing to invest existing funds could wane more steeply, or existing collateral might be trapped, thus affecting the capacity of new reinsurance. Assessing these effects is not easy considering the limited historical data available as well as the significant growth and changes in the alternative capital market over the last few years. The most relevant experience is the reaction of the alternative capital market to the 2017 adverse catastrophe experience where, according to AON Benfield's April 2019 Reinsurance Market Outlook Report, alternative capital continued to grow in 2018, albeit at a reduced rate. However, it is noted that the 2017 experience was not of the severity contemplated by the stresses performed in this exercise.

Collateral By Type for Set of 3 US HU



## 5 INSURANCE ASSET SHOCK

### 5.1 Asset Shock

The participants tend to invest in conservative asset portfolios with almost 70% of their total holdings composed of cash and deposits, government bonds or corporate bonds. Consistent with insurers' significant fixed-income holdings, widening of the credit spreads is the largest contributor to the IAS loss (55%).

No material change is observed in the participants' asset allocation following the IAS.

