2016 Stress Tests of the Bulgarian Insurance Sector

02.02.2017

Contents

Abbreviations

AoL – Assets over Liability

BSCR – Basic Solvency Capital Requirement

BSR –Balance Sheet Review

CSR – Country Specific Recommendations

DT – Deferred Tax

DTA – Deferred Tax Asset

DTL - Deferred Tax Liability

EC – European Commission

EOF – Eligible Own Funds

EQ - Earthquake

EIOPA – European Insurance and Occupational Pensions Authority

ESMA - European Securities and Markets Authority

GTPL – General Third Party Liability

GWP – Gross Written Premium

IER – Independent External Review

LAC – Loss Absorbing Capacity

LoB - Line of business

MCR – Minimum Capital Requirement

MTPL - Motor Third Party Liability

NSLT – Non Similar Life Techniques

OF – Own Funds

OCR – Outstanding Claims Reserve

PD – Property Damage

PML - Probable Maximum Loss

QRT – Quantitative Reporting Template

REITs – Real Estate Investment Trusts

SCR – Solvency Capital Requirement

SLT – Similar Life Techniques

SC – Steering Committee

TP – Technical Provision

TVOG – Time Value of Options and Guarantees

UL - Unit Linked

1. Introduction

1.1 Background

On 26 February 2016, the European Commission (EC) published its Country Report for Bulgaria for 2016. The report assesses the progress in the execution of Bulgaria-specific recommendations approved by the Council on 14 July 2015. The report also includes results from the in-depth review[1] on the prevention and correction of macroeconomic imbalances. The analysis of the EC gives grounds to conclude that there are excessive macroeconomic imbalances in Bulgaria. A part of country specific recommendation (CSR) requires performing a portfolio screening for the pension funds and insurance sectors.

With a view to guarantee efficient functioning for the financial system and to ensure better transparency of transactions on the local financial market (and in accordance with the National Reform Program[2]), the Financial Supervision Commission (FSC) organized the review of the (re) insurers' balance sheets (BSR) in addition to a Stress Test exercise in order to assess the resilience of the Bulgarian insurance market to different shocks and scenarios. The initial phase of the exercise, the BSR, was carried out with the support from eight independent external parties (seven external audit firms and an external consultancy firm) while, the second phase, the Stress Test, was organized and performed by an external independent entity.

This report covers only the results generated by the Stress Test exercise. The results from the BSR exercise are presented in a separate report.

1.2 Scope and Purpose

EY has been engaged by the FSC as the independent external entity responsible for organizing and performing the Stress Test exercise for 42[3] Solo (re) insurance entities in addition to 7[4] Group entities operating in the Bulgarian market. The main purpose of the exercise was to assess the resilience of the Bulgarian insurance sector to different market and insurance stress scenarios.

The baseline of the scenario testing were the adjusted Solvency II Balance Sheets and the Quantitative Reporting Templates (QRTs) resulting from the BSR exercise. EY assessed the resilience of the (re) insurance entities under the stress test scenarios specified by the Stress Test Methodology provided by the FSC.

The reference date for the Stress Test exercise was 30th June 2016. The report includes aggregated results pre and post stress in addition to per (re) insurance entities results (Appendix 4). Appendices 1 & 2 & 3 detail the stress parameters applied, the methodological framework in addition to the limitations of our work and the data quality issues faced.

[1] Under Article 5 of Regulation (EU) No. 1176/2011
[2] 2015 update to reach the objectives of Europe 2020 strategy adopted with the Council of Ministers decision No. 298 of May 2015 and on the grounds of § 10 of the Transitional and Final Provisions of the Law on Recovery and Resolution of Credit Institutions and Investment Firms (LRRCIIF)
[3] The current version of the report covers the results for 42 Solo entities (however Nadejda (0,03% market share in terms of GWP) is included on Solvency I basis due to pending Solvency II information and data and should be reassessed in regards of the application of the Solvency II framework.
[4] The current version of the report covers the results for 5 out of a total of 7 Groups (re) insurance entities. To date we have not received data regarding Armeec and Euroins Groups.

1.3 Project Overview

The Stress Test exercise is overseen by a Steering Committee (SC) that includes representatives from the FSC, the Ministry of Finance (Observer), the Bulgarian National Bank (Observer) and from international organizations; the EC (Observer), European Securities and Markets Authority (ESMA – Observer) and the European Insurance and Occupational Pension Authority (EIOPA - member of the SC).

The Stress Test was carried out by EY with input data and information received by the participating (re) insurance entities. We have relied on the accuracy and completeness of the data provided by the (re) insurance entities and have performed high level data consistency & completeness checks and reconciliations to the adjusted Solvency II balance sheets produced by the BSR exercise.

EY has been commissioned to prepare an aggregated market report of the conducted Stress Tests in addition to an individual report of each (re) insurance entity. In the case where the (re) insurance entity is part of a group or subgroup, a final individual report at the level of the group or subgroup will be prepared.

As per the guidance of the FSC the report on the results of the stress test shall include the following:

- Aggregated results for the Solvency position and the Own Funds
- Analysis of the risk profile
- Own Fund movement under each of the different scenarios
- Methodological framework and model assumptions
- Model Limitations where applicable
- Data quality issues

The reports were based on information and data provided to EY up until the 31 January 2017.

1.4 Insurance Market Overview

The Bulgarian market is underpenetrated compared to the Central European Insurance market. Low household incomes and discretionary spending have constrained the growth of the sector, resulting in the dominance of compulsory lines such as motor vehicle insurance in place of life insurance and other discretionary lines. While a favourable economic climate and rising household incomes should support growth in both the life and non-life sectors, the expansion is likely to be at a moderate pace. It is expected that insurers will continue to gradually increase their exposure to the market through the introduction of new product lines.

The Bulgarian Insurance industry consists of Life and Non-Life (re) insurance entities while composite (re) insurance entities are not permitted. Specifically, there are 29 Non-Life and 13 Life (re) insurance entities which account for 87,9% and 12,1% of gross written premium (GWP) respectively as at HY16[5] of the Bulgarian insurance market share.

The tables below present the split of the aggregated market share in terms of GWP in Life and Non-Life (re) insurance entities as at HY16.

[5] Source: FSC of the Republic of Bulgaria

Table 1.4.1a: Non-Life GWP as at HY16

No.	Non-Life Insurance Entity	GWP as at HY16 (BGN '000)	Non-Life Market Share	Overall Market Share
1	BULSTRAD_NL	104.931	13,09%	6,16%
2	LEV_INS	95.775	11,94%	5,62%
3	ARMEEC	94.044	11,73%	5,52%
4	DZI_NL	85.013	10,60%	4,99%
5	BUL_INS	78.142	9,75%	4,59%
6	ZAD_ALLIANZ	77.640	9,68%	4,56%
7	GENERALI	64.785	8,08%	3,80%
8	EUROINS_NL	55.953	6,98%	3,28%
9	OZK	40.487	5,05%	2,38%
10	UNIQA_NL	28.575	3,56%	1,68%
11	DALLBOG	28.176	3,51%	1,65%
12	ZAD_ENERGY	10.042	1,25%	0,59%
13	ASSET	6.420	0,80%	0,38%
14	UHIF	6.220	0,78%	0,37%
15	GROUPAMA_NL	5.674	0,71%	0,33%
16	BULGARIA_INS	5.619	0,70%	0,33%
17	BAEZ	4.369	0,54%	0,26%
18	NOVA	2.130	0,27%	0,13%
19	MEDICO	1.887	0,24%	0,11%
20	TOKUDA	1.751	0,22%	0,10%
21	EZOK	1.338	0,17%	0,08%
22	FI HEALTH	1.292	0,16%	0,08%
23	NADEJDA	553	0,07%	0,03%
24	ZOI	287	0,04%	0,02%
25	SANGLASIE_NL	284	0,04%	0,02%
26	OZOK	281	0,04%	0,02%
27	EUROINS_HEALTH	145	0,02%	0,01%
TOTAL NON-LIFE		**801.813**		
TOTAL MARKET		**1.703.864**		**47,06%**

Table 1.4.1b: Non-Life Reinsurance GWP as at HY16

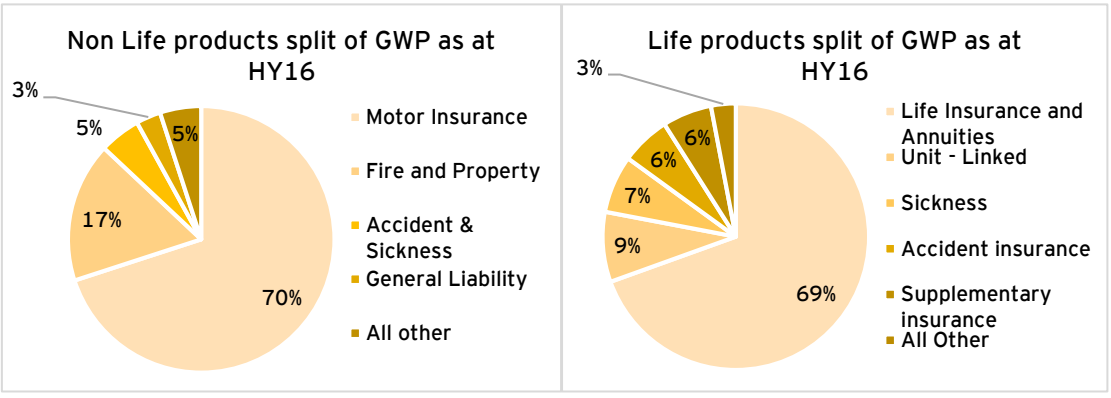
No.	Reinsurance Entity	GWP as at HY16 (BGN '000)	Reinsurance Market Share	Overall Market Share
1	GP_RE	693.063	99,69%	40,68%
2	EIG_RE	2.136	0,31%	0,13%
TOTAL REINSURANCE		695.199		
TOTAL MARKET		1.703.864		40,80%

Table 1.4.1c: Life GWP as at HY16

No.	Life (re) Insurance Entity	GWP as at HY16 (BGN '000)	Life Market Share	Overall Market Share
1	BULSTRAD_LIFE	42.574	20,58%	2,50%
2	ALLIANZ_LIFE	36.418	17,61%	2,14%
3	UNIQA_LIFE	32.367	15,65%	1,90%
4	DZI_LIFE	29.660	14,34%	1,74%
5	METLIFE	21.833	10,55%	1,28%
6	SIVZK	14.843	7,18%	0,87%
7	GRAWE	10.965	5,30%	0,64%
8	SOGELIFE	6.352	3,07%	0,37%
9	GROUPAMA_LIFE	5.266	2,55%	0,31%
10	SAGLASIE_LIFE	2.411	1,17%	0,14%
11	CCB	2.072	1,00%	0,12%
12	JZI	1.443	0,70%	0,08%
13	EUROINS_LIFE	648	0,31%	0,04%
TOTAL LIFE		206.852		
TOTAL MARKET		1.703.864		12,14%

The main Non-Life and Life product categories are presented in the charts below.

Graph 1.4d: Structure of Non-Life & Life Products as at HY16



For Non-Life business the Motor insurance business dominates the market, whereas the property lines of business i.e. Fire and Natural forces and Property account for 17% of the total

Non-Life GWP. This is primarily targeted at business customers as opposed to individual insurers at the household level. Also, few products exist for basic, low-cost home and contents insurance to appeal to the large number of low income consumers in Bulgaria.

Bulgaria's Life insurance sector is dominated by life insurance and annuities products (69%), which mainly consist of products with the main risk driver is death and smaller proportion of general annuity business. The Unit - Linked (UL) products account for 9% of the market share.

2. Executive Summary

The current macroeconomic environment possess several challenges for the Bulgarian insurance market. To assess the resilience of the insurance industry to the most prominent and prevalent risks, FSC launched a Stress Test exercise with reference date the 30th of June 2016. EY has been engaged by the FSC as the independent external consultant responsible for organizing and performing the Stress Test exercise for 42 Solo (re) insurance entities in addition to 7 Group entities located in Bulgaria[6].

The valuation of the post stress test Balance Sheets was based on the Solvency II regime for all (re) insurance entities except for those which report under Solvency I regime where the valuation was based on Solvency I principles.

The baseline of the scenario testing was the outcome from the BSR exercise (Adjusted Solvency II Balance Sheet and QRTs). Therefore, EY assessed the compliance of the (re) insurance entities' post-stress Eligible Own Funds (EOF) with the pre-stress Solvency Capital requirements (SCR) for each of the scenarios required under the Stress Test Methodology provided by the FSC.

The Stress Test exercise was based on both market and insurance stress scenarios.

For market stress scenario, the FSC addressed a double-hit scenario with two different "shock-oriented" stress tests in order to reflect the main exposure of the Bulgarian insurance sector. The scenario represented an extreme situation triggered by two events, namely a rapid increase of all sovereign bond yields of the EU countries complemented by a drop in the risk free rate. Shocks to sovereign bonds were reflected in other financial market by increase in the corporate bond yields and a drop in values of stocks and the prices of other asset classes. To compensate for such severe market stresses, no insurance stresses were included in the market stress scenarios. In addition, the insurance liabilities have been affected by the market scenario since they have been revaluated using the shocked yield curves and hence both asset and liability side of the Solvency II Balance Sheet have been affected.

In respect of the three pre-defined insurance single-factor scenarios, for the Non-Life (re) insurance entities these included an Earthquake Stress, a Flood Stress and a Provisions Deficiency Stress. One pre-defined scenario for the Life (re) insurance entities was set as the Longevity Stress. Total aggregation was not required as all stresses are considered to be independent from each other.

On aggregate, the majority of the (re) insurance entities show an excess of assets over liabilities in the baseline scenario while 1 (re) insurance entity shows negative own funds. Tier 1 own funds account for 98% of total own-funds of the (re) insurance entities, indicating the high quality of the own funds in the market. However, their specific composition varies across the (re) insurance entities.

The aggregated SCR ratio for the insurance market amounts to 145% and the aggregated MCR ratio to 295%. 12 (re) insurance entities reported an MCR ratio below 100% accounting for approximately 9% of the total Gross Written Premiums of the participating entities as at HY2016.

[6] The current version of the report covers the results for 42 Solo entities (Nadejda is included on a Solvency I basis) and the results for 5 out of a total of 7 Groups (re) insurance entities. To date we have not received data regarding Armeec and Euroins Groups.

The double-hit scenario for Solo (re) insurance entities resulted in a 4.5% decline (m BGN 282) of the total assets in the baseline. As liabilities only increased by 0.7% (m BGN 31) of the total liabilities in the baseline scenario, this scenario had a negative impact on the aggregated Balance Sheet of stress test participants of 15.8% (m BGN 313) of the total excess of assets over liabilities. The government bonds portfolio (38.8% of aggregated total assets), which is mainly composed of Bulgarian, Czech Republic and Hungarian bonds (77.2%), is the key driver of the decrease in total assets (m BGN 97).

Conclusions on the vulnerability of the Solo (re) insurance entities need to consider the sensitivities to the shocks applied as well as the initial level of capitalization. The market stress results indicated that 21 (re) insurance entities would not meet the SCR under the assumption of a double hit scenario. Overall the market stress scenario has the most significant impact on aggregated own funds.

For the Provisions Deficiency Stress test, the stress scenarios impact on the majority of the (re) insurance entities liabilities, with the MTPL related scenarios producing the most significant losses, given the dominance of the MTPL insurance portfolio across the Bulgarian Insurance market. The Provision Deficiency Stress scenario for Solo (re) insurance entities resulted in a 6,6% increase (m BGN 166) of the total gross best estimate liabilities in the baseline. Reinsurance recoverables on the asset side increased by 9,7% (m BGN 51) in the baseline scenario, and overall this scenario had a negative impact on the aggregated Balance Sheet of stress test participants of 5.8% (m BGN 115) of the total excess of assets over liabilities. The provisions deficiency stress results indicated that 13 (re) insurance entities would not meet the SCR.

In the Earthquake and Flood stress scenarios, the excess of assets over liabilities decrease by 8,9% (m BGN 134). Moreover, for 2 (re) insurance entities the current reinsurance capacity has been exhausted by the Earthquake stress event which was the most severe in the vast majority of the (re) insurance entities. The Earthquake and Flood stress event results indicated that 9 (re) insurance entities would not meet the SCR, from those that were applicable for the stress.

In the Longevity risk scenario, for the 13 Solo (re) insurance entities, the excess of assets over liabilities increase by 0,7% (m BGN 2,3). The volume of change in their excess of assets over liabilities shows that the life products in the Bulgarian Insurance market are not sensitive to the longevity increase scenario. The dominant impact on own funds comes from Traditional Liabilities, representing c.90% of Life liabilities' portfolios.

Regarding the impact of Stress Test scenarios across Group entities, it is concluded that Market Stress scenario has the most significant impact over other scenarios, resulting in a reduction of the total excess of assets over liabilities by 15,9%. The Provision Deficiency Test results in 14% devaluation of own funds. In Earthquake and Flood scenario, Group entities lose 9.7% of their excess of assets over liabilities. Finally, longevity risk scenario shows the least impact on own funds across all stress scenarios.

Overall, the implementation of the Stress Tests scenarios concluded that the Bulgarian Insurance markets' (re) insurance entities were impacted the most by the market stress scenario with a 15.8% reduction in excess of assets over liabilities. The provisions deficiency and the EQ and Flood stress scenarios, resulted in an impact of 5,8% and 8,9% decrease in the excess of assets over liabilities respectively. The (re) insurance entities showed resilience to the Longevity scenario with a 0,7% increase in the excess of assets over liabilities at a solo level.

3. Definition of the Stress Test

The Stress Test exercise aims to assess the resilience of the Bulgarian insurance sector through market stress scenarios (simultaneous shocks to different variables) and insurance stress scenarios (three pre-defined single-factor scenarios for Non-Life (re) insurance entities and one pre-defined scenario for (re) insurance Life entities). The basis of the Stress Test exercise were the adjusted Balance Sheets (i.e. post-review Final Adjusted Solvency II Balance Sheets) and post-review QRTs resulting from the BSR exercise.

Market Stress Scenario

The market stress scenario is developed with a view to assess the resilience of the insurance sector to potential adverse market developments and to extract valid conclusions to support the stability of the financial system. The scenario represents an extreme situation triggered by two events; a rapid increase in all sovereign bond yields of the EU countries and a drop in the risk free rate. The economic rationale of such a stress is that shocks to sovereign bonds may be triggered by the increased uncertainty of EU countries creditworthiness (e.g. Greece, Spain). Shocks to sovereign bonds are reflected in other financial markets by an increase in the corporate bond yields and a drop in values of stocks and prices of other assets classes.

Shocks are assumed to be instantaneous and occur at the same time in an independent manner.

The parameters of the adverse market stress test scenarios are listed below:

- Interest rate stresses for maturities of 1, 2, 5, 10, 20 and 30 years;
- Equity stresses for the stock market (drop in prices);
- Corporate bond stresses – Financials (yield increase) for the EU-aggregate market for rating classes: AAA-AA-A-BBB-BB- B or lower -unrated;
- Corporate bond stresses – Financials covered (yield increase) for the EU-aggregate market for rating classes: AAA-AA-A-BBB-BB-lower B-unrated;
- Corporate bond stresses – Non-Financials (yield increase) for the EU-aggregate market for rating classes: AAA-AA-A-BBB-BB-lower B-unrated;
- Government bond stresses for the EU countries (yield increase);
- Stresses for residential property prices on EU country bases (drop in prices);
- Stresses for commercial property prices on EU country bases (drop in prices);
- Alternative investments: (drop in prices) for private equity, Real Estate Investment Trusts (REITs), hedge funds, and commodities.

Additional details of the market Stress Test parameters can be found in Appendix 1.

Insurance Stress Scenario

The insurance stresses were carried out in isolation from the market stresses and assess adverse outcomes under a number of independent scenarios. Three single factor scenarios are predefined for non-life (re) insurance entities and one scenario is predefined for life (re) insurance entities. An outline of the scenarios is listed below, and additional details are included in Appendix 1 of the report.

1. Earthquake (EQ) Scenario
   - This scenario is applicable for Non-Life (re) insurance entities covering earthquake perils;
   - For EQ: the severity of losses is assumed to be 20% higher than in the 1-in-200 event calculated according to the Standard Formula, i.e. 120%* probable maximum loss (PML).

2. Flood Scenario
   - This scenario is applicable for Non-Life (re) insurance entities covering flood perils;
   - Similarly to the EQ scenario the Flood severity of loss is assumed to be 120% of the PML.

3a. Provisions Deficiency Stress Test: Motor Liability Portfolio
   - This scenario is applicable for Non-Life (re) insurance entities with Motor third party liability (MTPL) portfolios;
   - A 10% per annum inflation increase for MTPL claims related to accidents occurring outside of the territory of Bulgaria;
   - A 5% increase in claims inflation for all MTPL Property Damage claims;
   - A 10% increase in claims inflation for claims under litigation.

3b. Provisions Deficiency Stress Test: Other Non-Life Lines of Business
   - This scenario is applicable for Non-Life (re) insurance entities with General Third Party Liability (GTPL) lobs and portfolios with claims in litigation.
   - A 5% per annum inflation increase in liability claims reserves;
   - A 10% increase in claims inflation for portfolios with claims under litigation.

4. Longevity Stress: Life (re) insurance entities
   - This scenario is applicable for Life (re) insurance entities.
   - The stress scenario considers an uplift to the best estimate expectations of life of 15%.

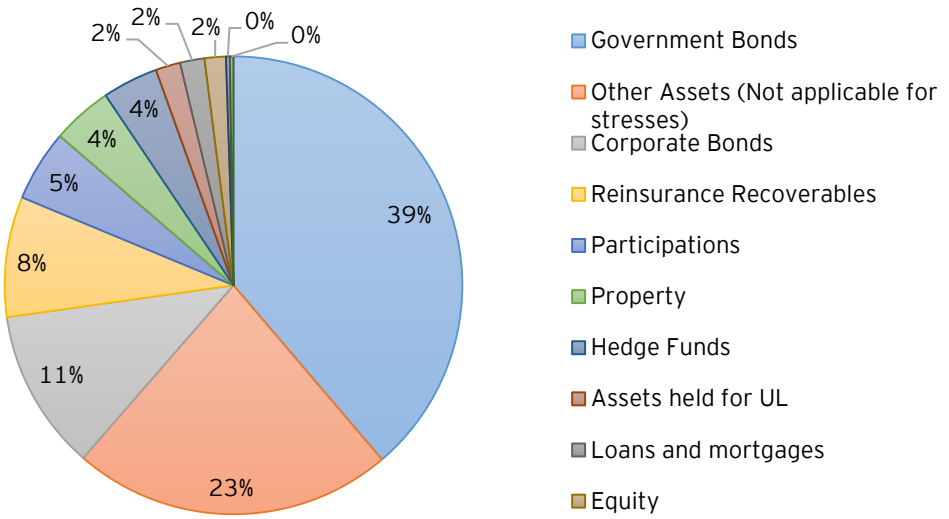
4. Pre Stress Situation – Solo (Re) Insurance Entities

The section below presents the aggregated pre-stress balance sheets composition, the risk profile and the SCR and MCR coverage ratios of the Solo (re) insurance entities. Additional details on the pre-stress situation for each (re) insurance entity can be found in Appendix 4.

4.1 Asset Profile

The analysis of the aggregated total assets for Solo (re) insurance entities is shown in the graph below.

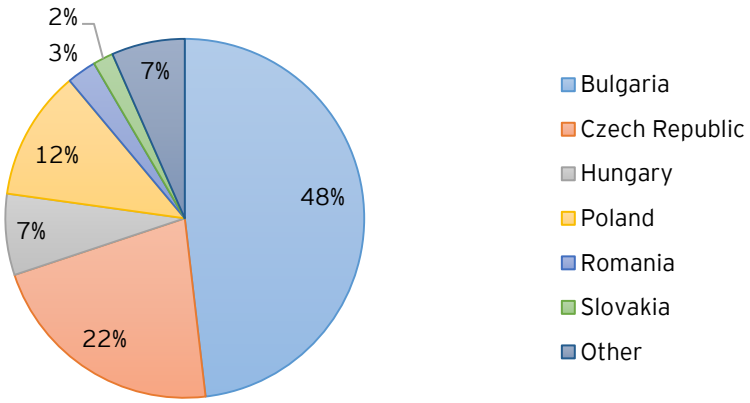
Graph 4.1a: Aggregated pre-stress asset structure as at HY16



The structure of assets, indicates that the most significant asset classes are government bonds, corporate bonds and reinsurance recoverables, accounting for 39%, 11% and 8% respectively of the total aggregated asset portfolio. The concentration in Government bonds indicates that the post-stress position in respect of the market stress scenario will be driven by this asset class.

The chart below shows the aggregate government bond exposure as at HY16 split by country.

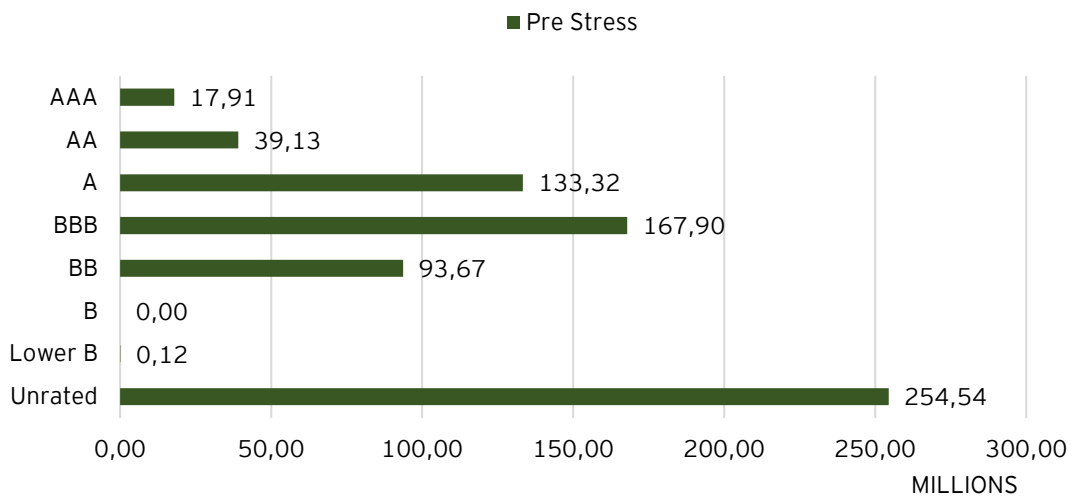
Graph 4.1b: Aggregated government bond exposure by country as at HY16



Based on the above graph, the Bulgarian government bonds represent the most significant component of the total government bond exposure. Bulgarian, Czech Republic, Polish and Hungarian government bonds account for 89% of the aggregated bond exposure and are split by 48%, 22%, 12% and 7% respectively. The concentration of government bonds which are shocked in the range of 43Bps-105Bps indicate that the market stress scenario will impact significantly on this asset class.

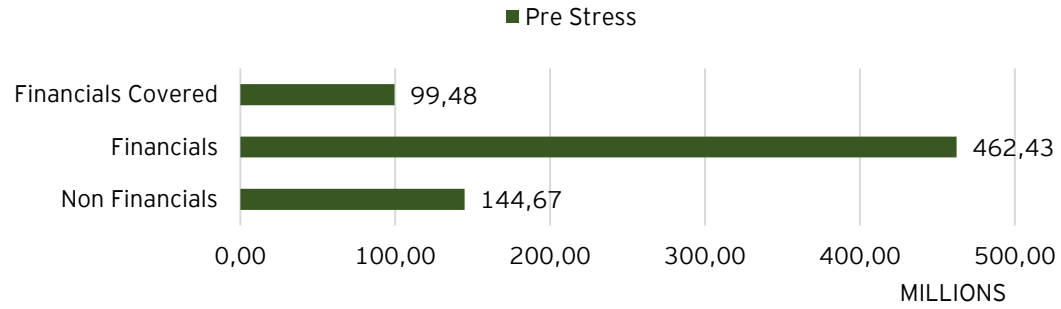
The chart below shows the aggregate corporate bond exposure as at HY16 split by credit quality classes.

Graph 4.1c: Aggregated corporate bond exposure by credit rating as at HY16



Based on the above graph, the corporate bonds are of low quality with unrated (m BGN 254,54) and rated BBB (m BGN 167,90) accounting for 36% and 24% of the total corporate bonds exposure respectively.

Graph 4.1d: Aggregated corporate bond exposure across Non Financials, Financials and Financial Covered as at HY16

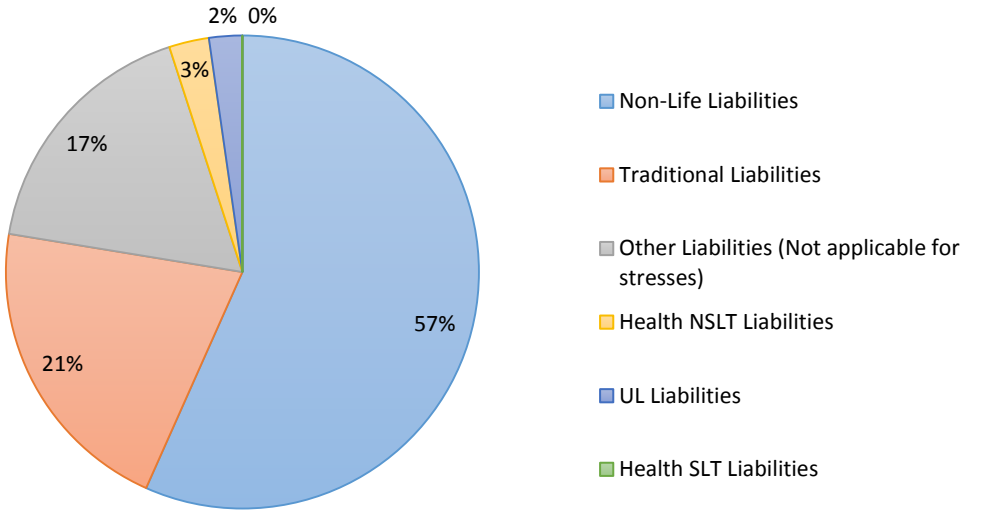


The corporate bonds categorized as Financials (m BGN 462,43) represent the most significant component accounting for 65% of the total corporate bonds exposure.
In effect, the majority of corporate bonds are clustered in Financials and in BBB rated and unrated corporate bonds. Based on the market stress test parameters regarding the type of shock for such bonds (in the range 372bps – 516bps), a significant decrease of their post-stress value is expected, on aggregate.

4.2 Liability Profile

Out of the 42 Solo (re) insurance entities currently operating in the Bulgarian Market, 29 are Non-Life (re) insurance entities and 13 are Life (re) insurance entities.

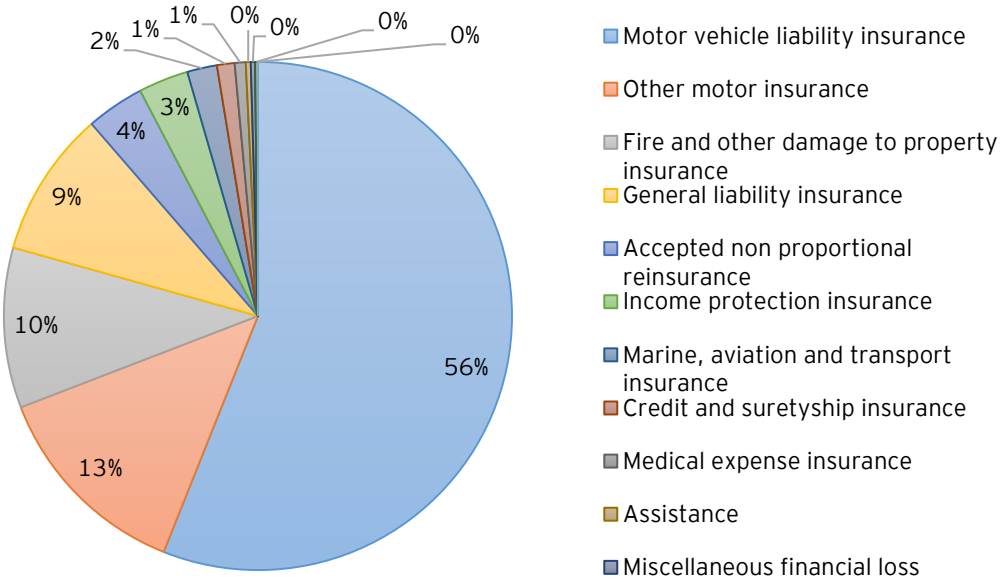
Graph 4.2a: Aggregated Liability structure



The non-life technical provisions and NSLT Health technical provisions represent 57% and 3% of the Bulgarian Market liabilities mix respectively while the traditional and UL technical provisions represent 21% and 2% respectively.

The graph below (Graph 4.2b) presents the split of the market non-life gross technical provisions as at HY16 per line of business.

Graph 4.2.b: Aggregated Liability structure Non-Life Gross Technical provisions as at HY16

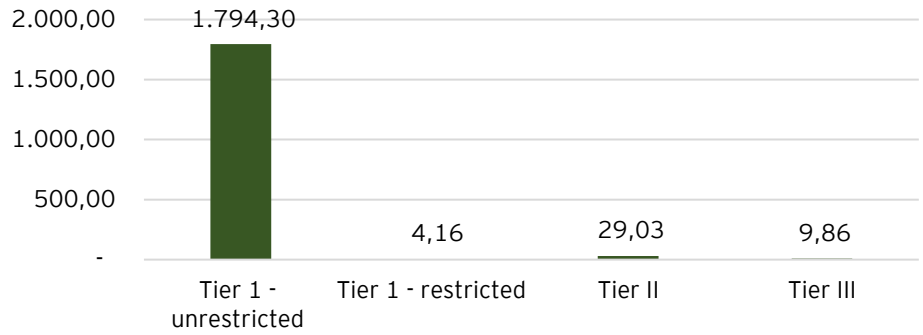


The most significant lines of business are Motor Third Party Liability insurance and other motor insurance, consisting 56% and 13% of the aggregated Non-Life technical provisions. The MTPL lines of business dominates the non-life market and is one of the key focus areas of the Stress Tests. In particular, Scenario 1, Scenario 2 and Scenario 3, which impact on the MTPL portfolio, are expected to drive the overall impact of provisions deficiency stresses.

4.3 Own Funds

Overall the market capitalization as at HY16 of the (re) insurance entities is of high quality, details of which can be found in Graph 4.3a below.

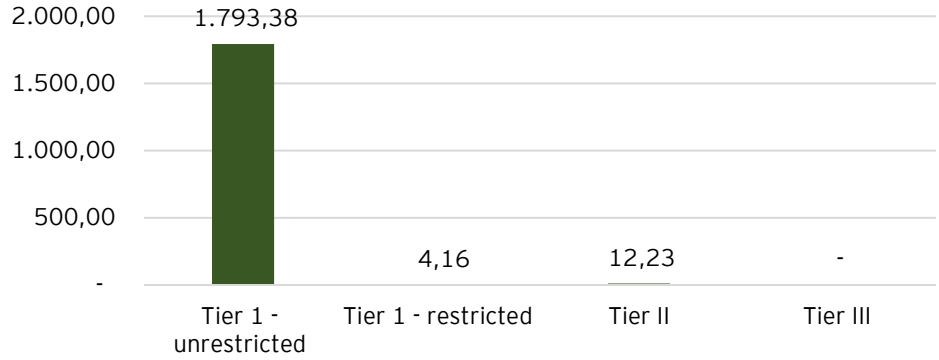
Graph 4.3a: Eligible own funds to meet SCR as at HY16



The aggregated eligible own funds to meet SCR (m BGN 1.837) are categorized as follows:

- Tier 1 funds (m BGN 1.798) composing the 97,88 % of the total capitalization
- Tier 2 funds (m BGN 29) composing the 1,58% of the total capitalization
- Tier 3 funds (m BGN 10) composing the 0,54% of the total capitalization

Graph 4.3.b: Eligible own funds to meet MCR as at HY16



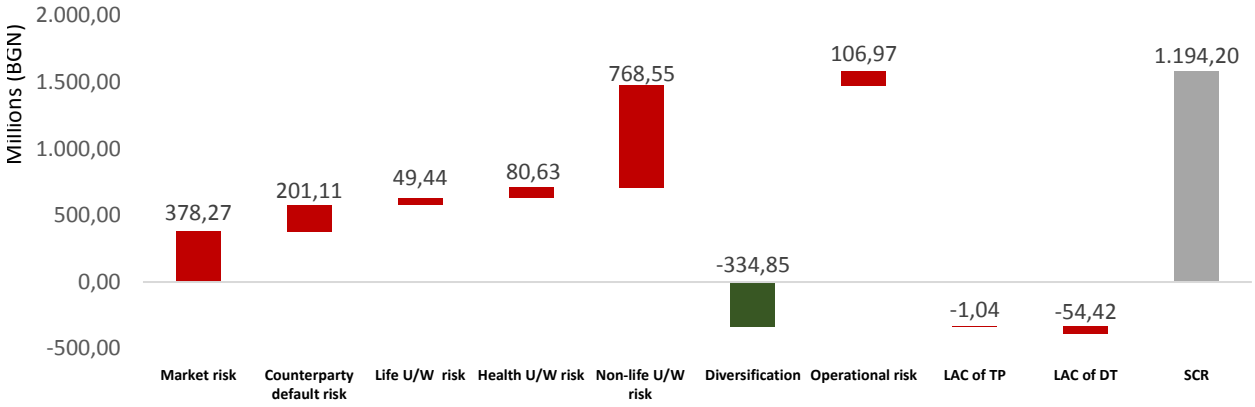
The aggregated eligible own funds to meet MCR (m BGN 1.809) are categorized as follows:

- Tier 1 funds (m BGN 1.798) composing the 99,32 % of the total capitalization
- Tier 2 funds (BGN 12M) composing the 0,68% of the total capitalization

4.4 Risk Profile

In this subsection, the pre-stress aggregated risk profile of the Solo (re) insurance entities is analysed into the respective SCR sub risk components[7]. An overview of the aggregated SCR is presented by Graph 4.4a.

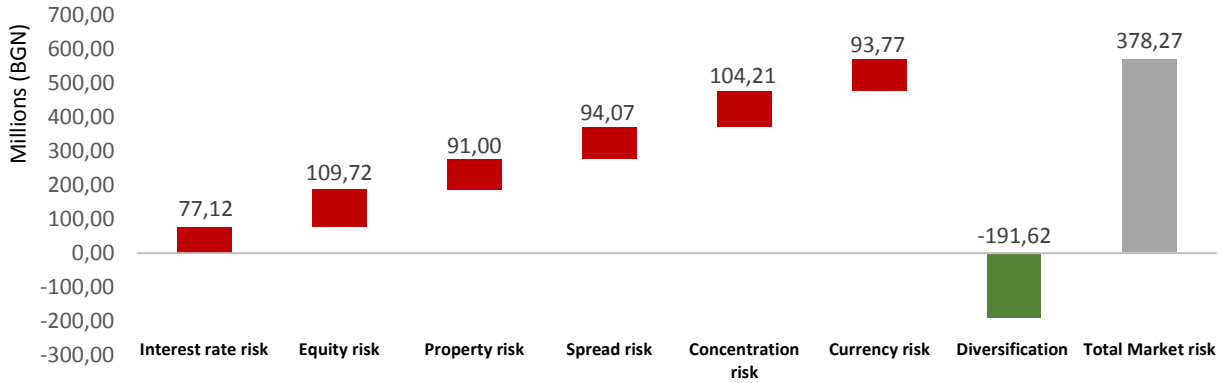
Graph 4.4a: Aggregated SCR components as at HY16



The total net SCR of the Bulgarian Insurance market amounts to (m BGN 1.194). The most significant exposure is the Non-life underwriting risk (m BGN 769) accounting for 52% of the total BSCR, followed by the market risk (m BGN 378) accounting for 26% of the total BSCR. Counterparty default risk (m BGN 201) represents 14% of the total BSCR, while health underwriting risk (m BGN 81) and life underwriting risk (m BGN 49) contribution is 5% and 3% respectively. The significance of the Non-Life underwriting risk is expected given the dominance of the MTPL portfolio in the Bulgarian insurance industry.

Further analysis of the aggregated Market, Life, Non-Life and Health modules are presented in the graphs below.

Graph 4.4b: Aggregated Market SCR components as at HY16

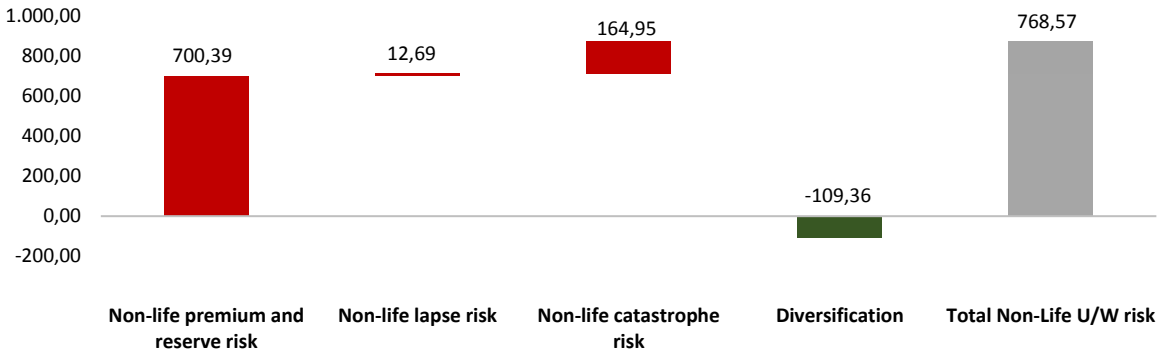


[7] Note that the aggregated SCR component do not include entities reporting on a Solvency I basis

With regards to the Market SCR, the analysis shown in Graph 4.4b, we note the following:

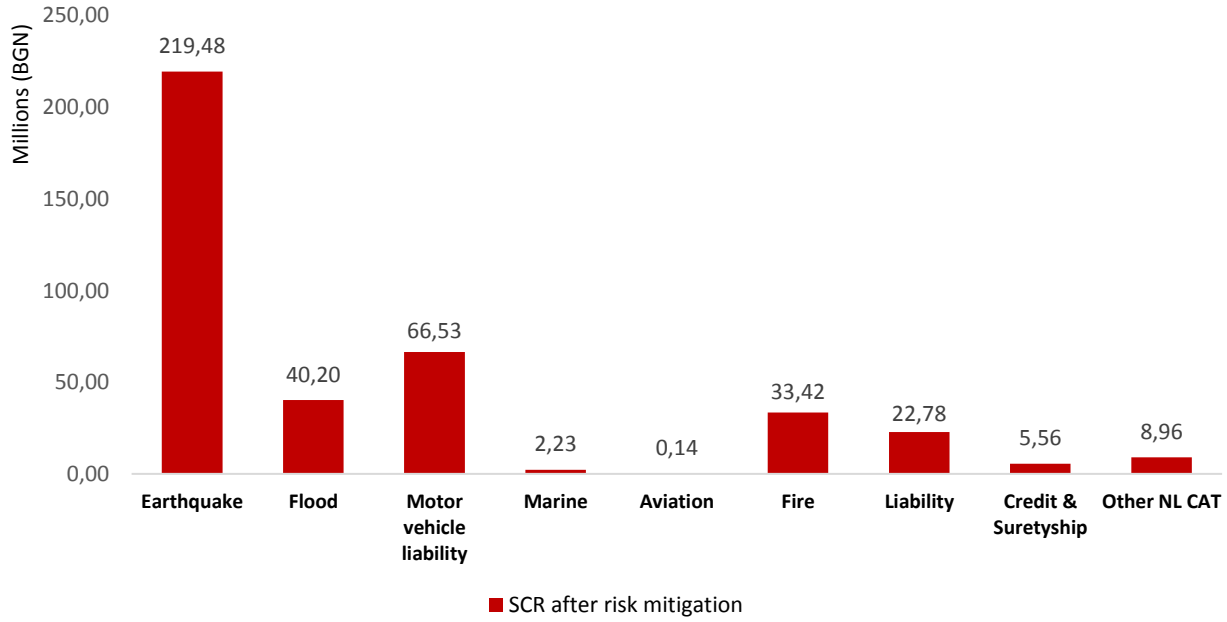
The total Market SCR of the Bulgarian Insurance market amounts to m BGN 378. The most significant exposure is Equity risk (m BGN 110) accounting for 19% of the Market SCR before diversification, followed by Concentration risk (m BGN 104) accounting for 18% of the Market SCR before diversification. Currency risk (m BGN 94), spread risk (m BGN 94) and property risk (m BGN 91) represent 16%, 17% and 16% of the Market SCR respectively, while interest rate risk (m BGN 77) arises as the least significant exposure.

Graph 4.4c: Aggregated Non-life underwriting SCR components as at HY16



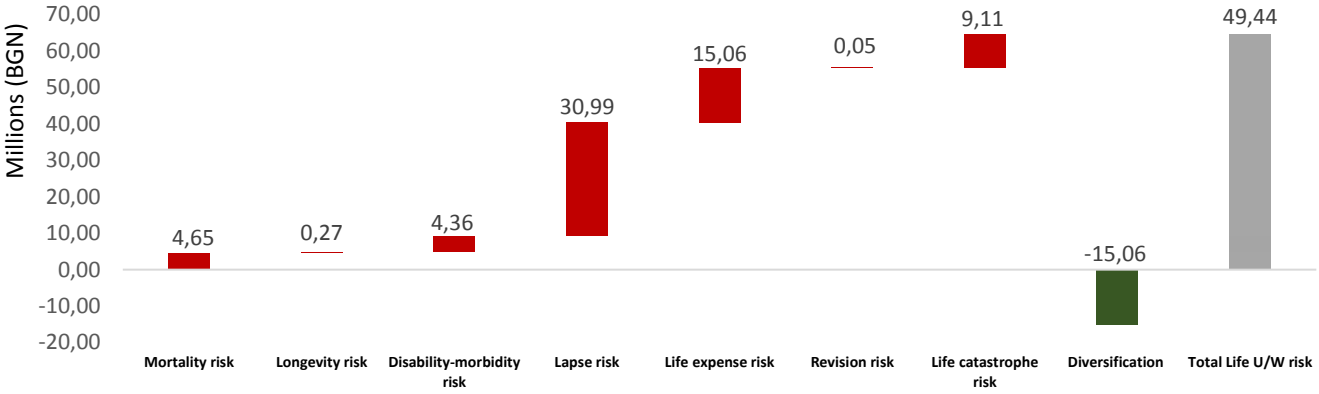
The total Non-life underwriting SCR amount to m BGN 769 mostly driven by Non-life premium and reserve risk (m BGN 700).

Graph 4.4d: Aggregated Non-life CAT SCR components as at HY16



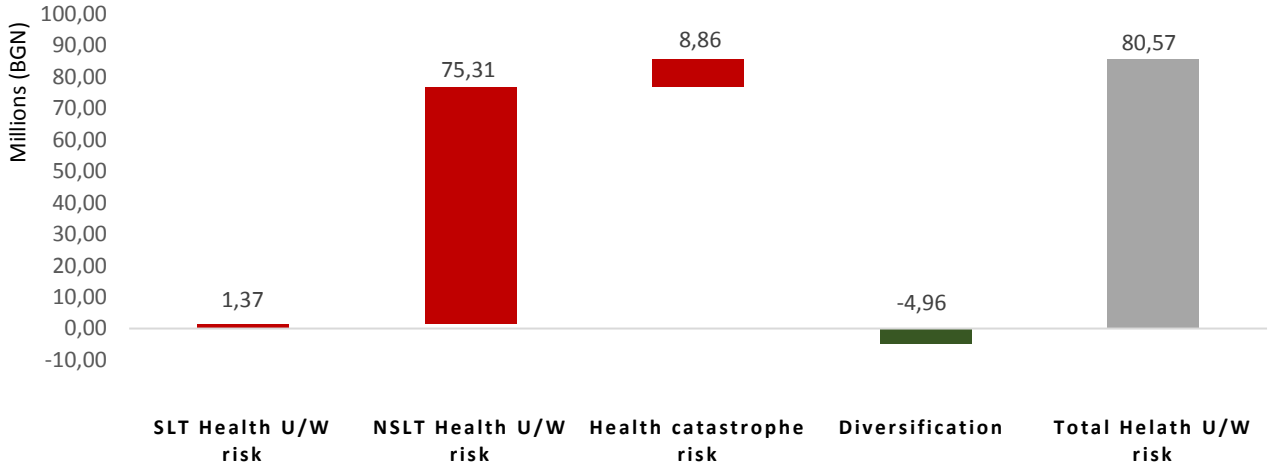
The most significant component of Non-life CAT SCR after risk mitigation is Earthquake (m BGN 219) followed by Motor vehicle liability (m BGN 66).

Graph 4.4e: Aggregated Life SCR components as at HY16



The most significant components of Life SCR is Lapse risk (m BGN 31) followed by Life expense risk (m BGN 15).

Graph 4.4f: Aggregated Health SCR structure as at HY16



The most significant components of Health SCR is NSLT Health Underwriting risk (m BGN 75).

4.5 SCR and MCR ratios

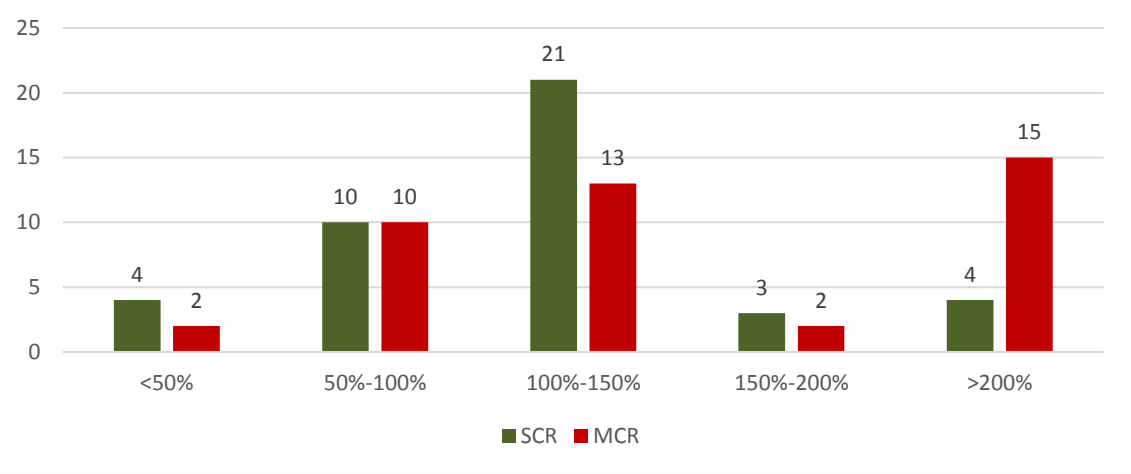
This section covers the SCR coverage ratio[8] and MCR coverage ratio[9] prior to any stress scenarios on the (re) insurance entities at an aggregated level.

Table 4.5a: SCR coverage ratio[10] and MCR coverage ratio Aggregated Solo

(Re) Insurance Solo Entities	Pre Stress (000's BGN)					
	SCR	MCR	Eligible Own Funds to meet SCR	Eligible Own Funds to meet MCR	SCR ratio	MCR ratio
Aggregated Market	1.296.019	626.611	1.876.147	1.848.661	145%	295%

The graph below shows the distribution of the pre-stress SCR and MCR coverage ratios in five different groups: below 50%, between 50%-100%, between 100%-150%, between 150%-200% and above 200%.

Table 4.5b: Distribution of the aggregated SCR and MCR ratios as at HY16



Based on the pre-stress results for the MCR and SCR ratios to eligible own funds, we note the following:

- 30 out of the 42 (re) insurance entities meet the MCR to eligible own funds ratio.
- 28 out of the 42 (re) insurance entities meet the SCR to eligible own funds ratio.

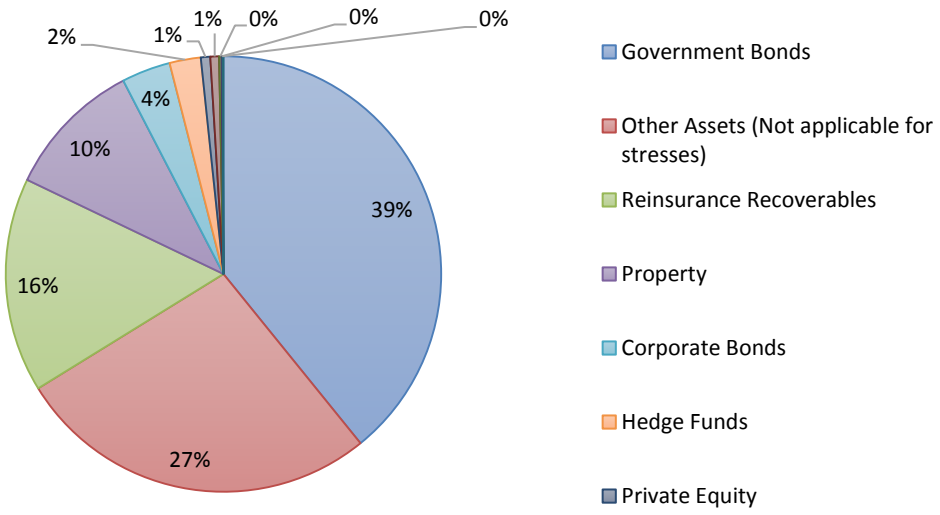
[8] The SCR Ratio is the amount of total eligible own funds to meet SCR divided by the Solvency Capital Requirement (SCR).
[9] The MCR Ratio is the amount of total eligible own funds to meet MCR divided by the Minimum Capital Requirement (MCR).
[10] The SCR Ratio is the amount of total eligible own funds to meet SCR divided by the Solvency Capital Requirement (SCR).

5. Pre Stress Situation – Group (Re) Insurance Entities

This section represents the aggregated results prior to the application of the stress scenarios for Group (re) insurance entities. The pre-stress figures in the section below include aggregated information for 5 out of the 7 group entities.[11]

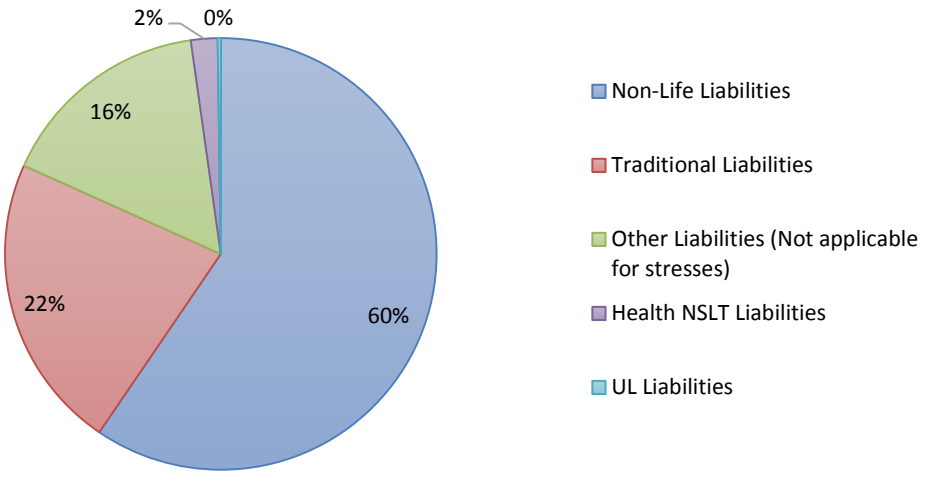
Total aggregated assets amount to m BGN 1.352, with the most significant asset classes being government bonds and corporate bonds, accounting for 39,2% and 3,6% respectively of the total asset portfolio as can be seen in the graph below.

Graph 5a: Aggregated pre-stress asset structure as at HY16



Total aggregated liabilities amount to m BGN 1.026, with the majority of the technical provisions being non-life technical provisions and traditional liabilities technical provisions as can be seen in the graph below.

Graph 5b: Aggregated Liability structure



[11] For the remaining 2 group entities the information required for the application of the stress tests was not received.

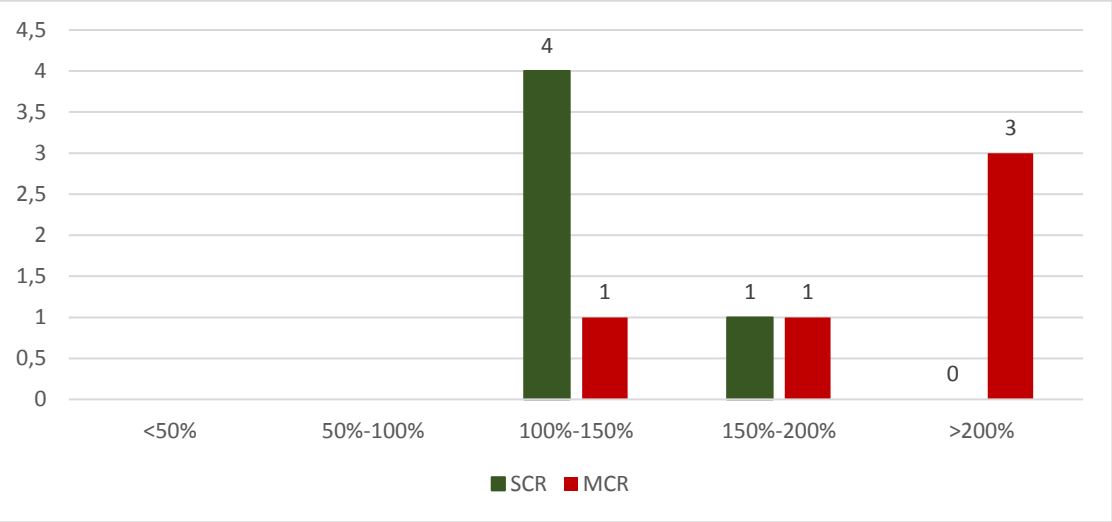
Table 5c depicts the SCR and MCR coverage ratio prior to any stress scenarios on the Group (re) insurance entities at an aggregated level.

Table 5c: SCR coverage ratio[12] and MCR coverage ratio Aggregated Group

(Re) Insurance Group Entities	Pre Stress (000's BGN)					
	SCR	MCR	Eligible Own Funds to meet SCR	Eligible Own Funds to meet MCR	SCR ratio	MCR ratio
Aggregated Market	232.060	113.333	327.596	314.452	141%	277%

The graph below shows the distribution of the pre-stress SCR and MCR coverage ratios in five different Groups: below 50%, between 50%-100%, between 100%-150%, between 150%-200% and above 200%.

Table 5d: Distribution of the aggregated SCR and MCR ratios as at HY16

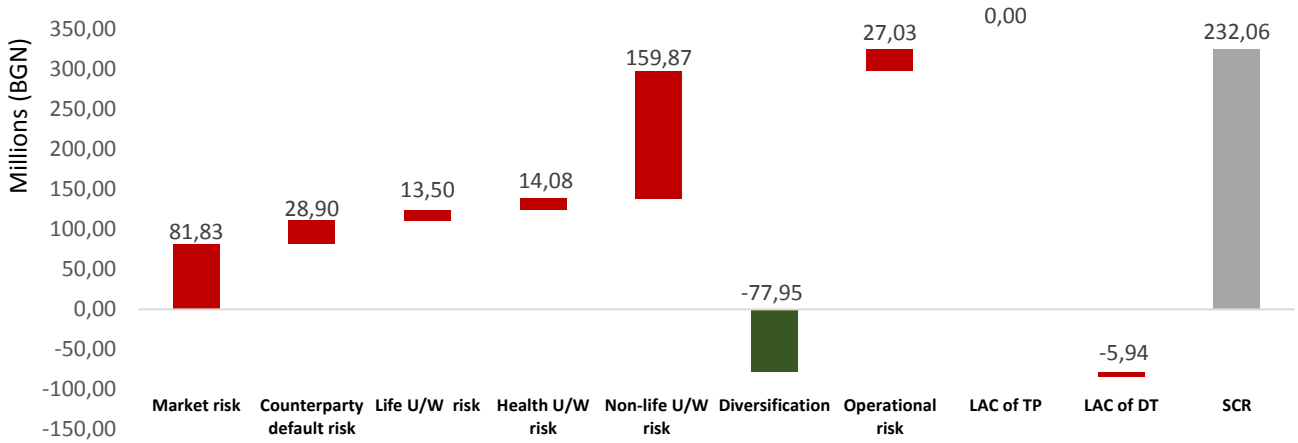


Based on the pre-stress results for the MCR and SCR ratios to eligible own funds all 5 group entities meet both the SCR and the MCR coverage ratio.

The pre-stress aggregated risk profile for the Group (re) insurance entities is analysed into the respective SCR sub risk components. An overview of the aggregated SCR across Group entities is presented by Graph 5e.

[12] The SCR Ratio is the amount of total eligible own funds to meet SCR divided by the Solvency Capital Requirement (SCR).

Graph 5e: Aggregated SCR components as at HY16



As technical provisions are dominated by non-life insurance business, the non-life underwriting risk (m BGN 159,87) is the key driver accounting for 53,6% of the total BSCR, followed by market risk (m BGN 81,83) accounting for 27,4% of the total BSCR. Counterparty default risk (m BGN 28,9) represents 9,7% of the total BSCR, while health underwriting risk (m BGN 14,08) and life underwriting risk (m BGN 13,5) have a relative low contribution of 4,7% and 4,5% respectively to the total BSCR.

6. Post Stress Results - Solo (Re) Insurance Entities

The objective of the stress test exercise is to assess the resilience of Bulgarian insurance sector to adverse market developments, and to assess the potential increase of the systemic risk in stress scenarios. The resilience is assessed through market stress scenarios and single factor insurance stresses.

The results of the Stress Tests aim to identify the (re) insurance entities which are most exposed the specific risks tested in terms of impact on the own funds. The section below analyses the aggregated post-stress impact on Own Funds for each stressed scenario separately. Impact is therefore mainly considered in terms changes in the excess of assets over liabilities and solvency ratios. The results are reported on an aggregated basis for the 42 Solo (re) insurance entities as well as separately for the 7 Group entities[13]. Detailed post-stress results for each (re) insurance entity can be found in appendix 4.

It is expected that entities with well diversified portfolios, asset liability matching (ALM) and effective risk mitigating arrangements (reinsurance treaties etc.) in place would have lesser impact on own funds from the application of the above stresses.

6.1 Market stress Scenario

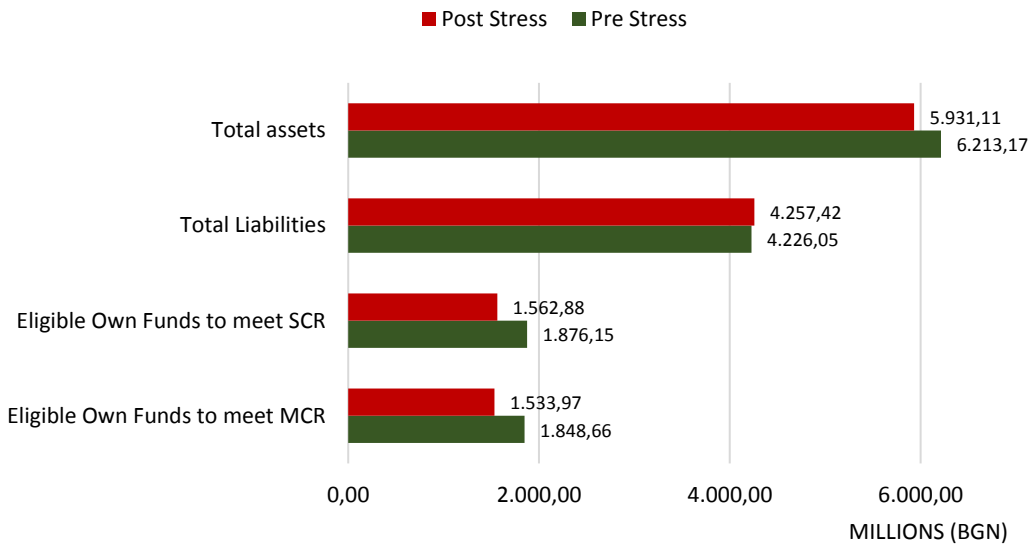
The market stress scenario tests the resilience of each Solo (re) insurance entity's balance sheet to a set of predefined market stresses detailed in section 3 and appendix 1 of the report. The scenario impacts on the entirety of the Bulgarian insurance market, and has been applied to all non-life, life and group (re) insurance entities.

In table 6.1a below we present the post market stress scenario impact on Own Funds for the aggregated Solo (re) insurance entities. On an aggregated level the total assets decrease by m BGN 282 which corresponds to a decrease of 4.5%. Liabilities only increase by m BGN 31 (0.74% movement), and therefore the impact on the aggregated Own Funds amounts to m BGN 313 reduction. The post-stress results imply a reduction of the average assets over liabilities ratio by 5.24%.

[13] The current version of the report covers the results for 42 Solo entities (Nadejda is included on a Solvency I basis) and the results for 5 out of a total of 7 Groups (re) insurance entities. To date we have not received data regarding Armeec and Euroins Groups.

The aggregate market stress results for Solo entities, indicates a significant impact of the market shocks on (re) insurance entity's Balance Sheet position.

Table 6.1a: Aggregated market stress scenario impact on Eligible Own Funds as at HY16

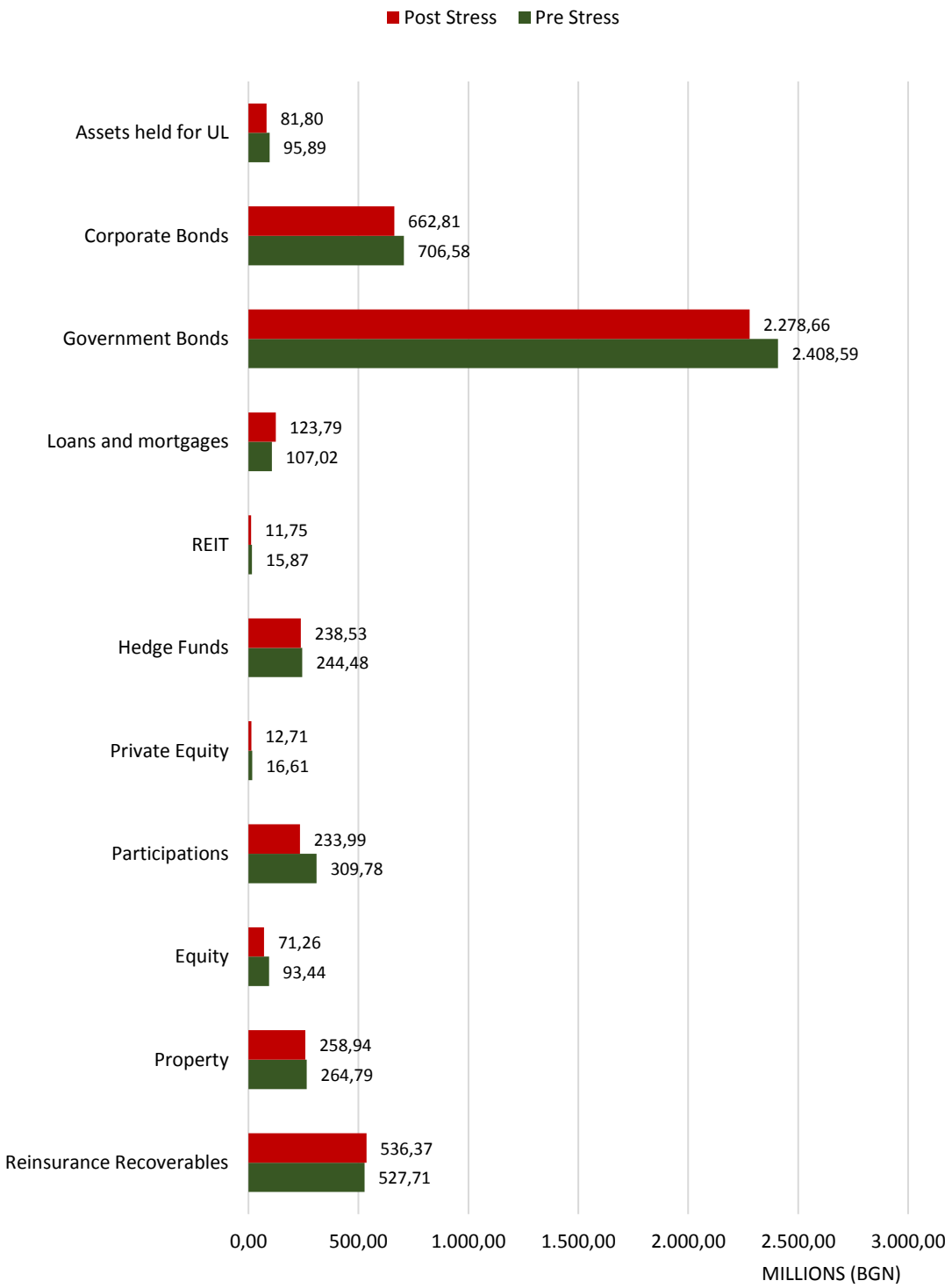


The key drivers of the movements in the Own Funds both on the asset and liability side of the adjusted balance sheets are considered hereafter.

Impact on Assets

Under the market stress scenario the decrease in assets values is directly derived from the exposure mix of the asset portfolio (refer to Section 4.1) and the respective intensity of the shocks prescribed for the different assets. At an aggregated level for Solo entities the impact on Own Funds are shown in graph 6.1b below.

Graph 6.1b: Pre and Post Stress value of Assets by asset type as at HY16



- The most significant asset class at an aggregate level are government and corporate bonds accounting for 38.8% and 11.4% of total assets respectively. The impact of the market stress scenario on the Own Funds amounts to a reduction of aggregated assets by m BGN 173 (55.4% of the reduction).
- The participations are the second key driver of the reduction in the aggregated post-stress assets, resulting in a decrease of m BGN 75,7 (24.2% of the reduction). It should be noted that depending on the underlying composition of the participation the respective shock has been applied. The aggregated participation figure is a mix of equities, REITs, private equities and hedge funds.
- The equities account for a decrease of m BGN 22,1 in assets (7.1% of the reduction).
- The post-stress assets in the market stress scenario that are least affected by shocks are REITs and private equities, mostly due to the exposure of the (re) insurance entities to the aforementioned asset classes.

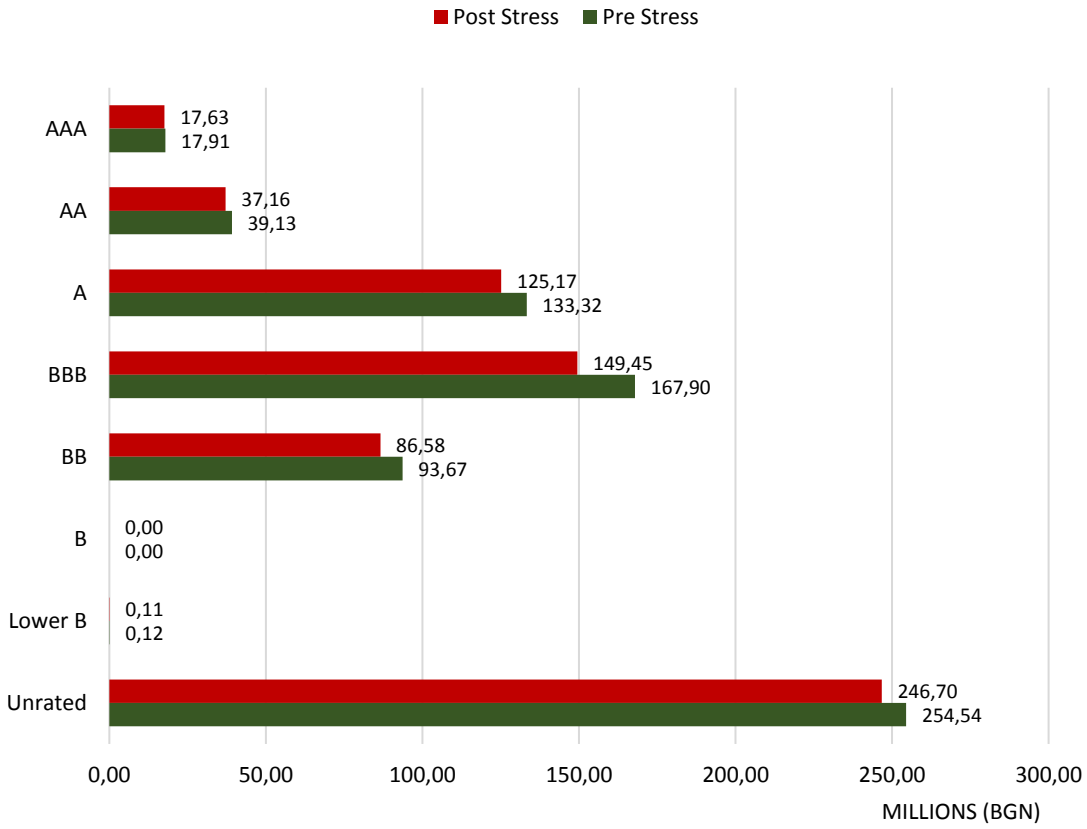
For the Bond portfolio which is the largest asset class we further analyse the movements in respect of the Government and Corporate bonds.

The stress scenario impact with respect to the Government bonds by country of issue is presented in the graph below. The impact on the Bulgarian Government bonds amounts to BGN 66M and accounts for 50.9% of the total movement.

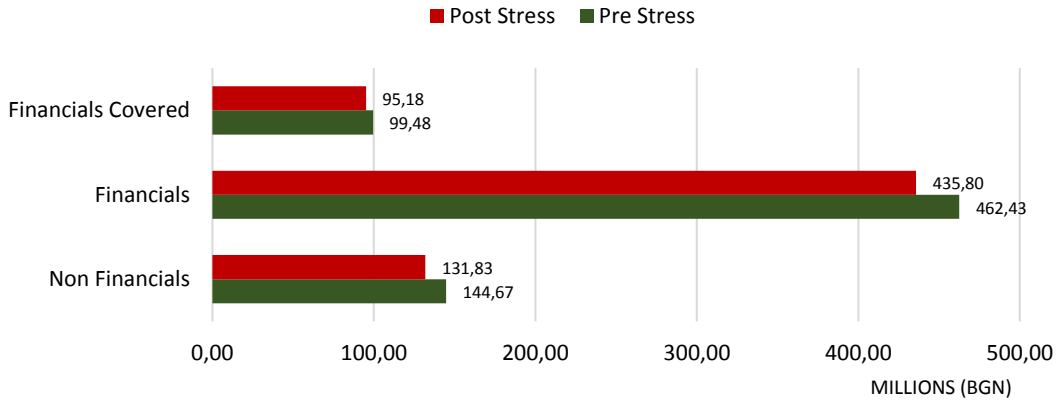
Graph 6.1c: Pre and Post Stress value of Government bonds by country of issue as at HY16

In respect of the corporate bonds we analyse the impact on Own Funds of the stress scenario by bond rating and type (financial, financial covered and non-financials). The majority of the corporate bonds are clustered in BBB rated and Unrated bonds which account for m BGN 26 of the total decrease in value (73.3%). In terms of bond market the majority of the corporate bonds are categorised as financials, which present a decrease of m BGN 26,6 (60.8% of the decrease).

Graph 6.1d: Pre and Post Stress value of corporate bonds by rating as at HY16



Graph 6.1e: Pre and Post Stress value of corporate bonds by type as at HY16

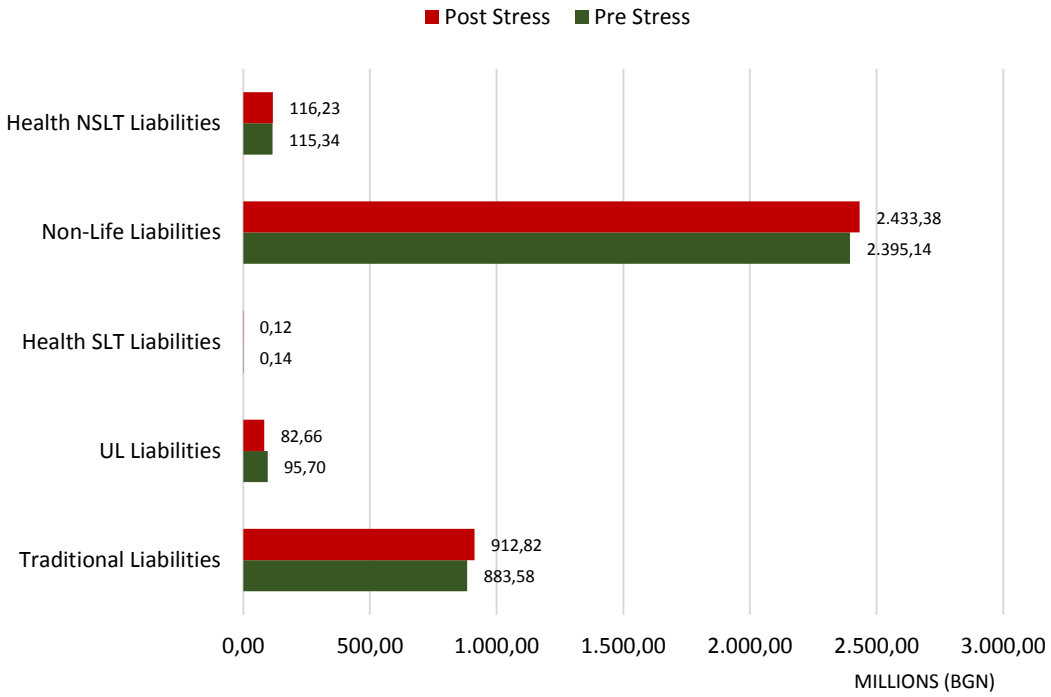


Impact on Liabilities

On the liability side, the movement in technical provisions and other liabilities is significantly smaller than the movement in the asset value.

However, as insurers are long-term investors, and the stress tested in this scenario accounted for changes in asset values, the LTG (combined with transitional measures) allow a relief on the liability side.

Graph 6.1f: Pre and Post Stress value of the Liabilities by product type as at HY16



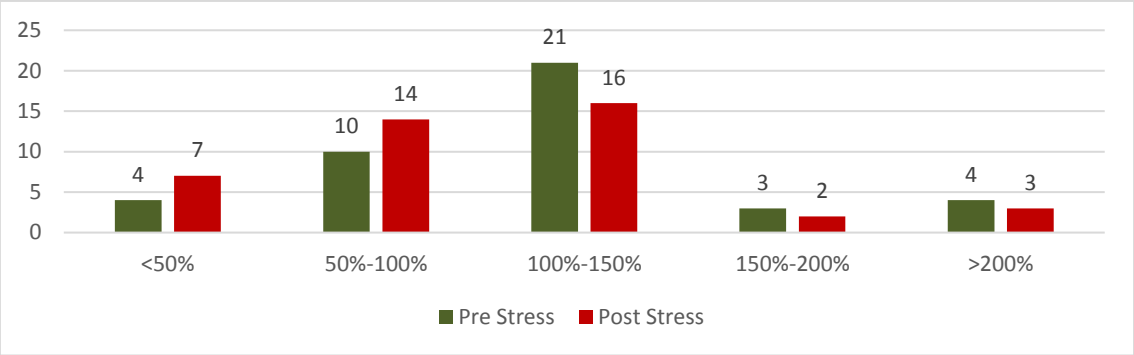
Market Stress Overview

Graph 6.1g demonstrates the vulnerability of the (re) insurance sector to the market stress scenarios. In particular, pre-stress the solvent (re) insurance entities represented the 67% of the market. Post-stress the number of (re) insurance entities that fell below the cut-off solvency margin increased to 21 (50% of the market).

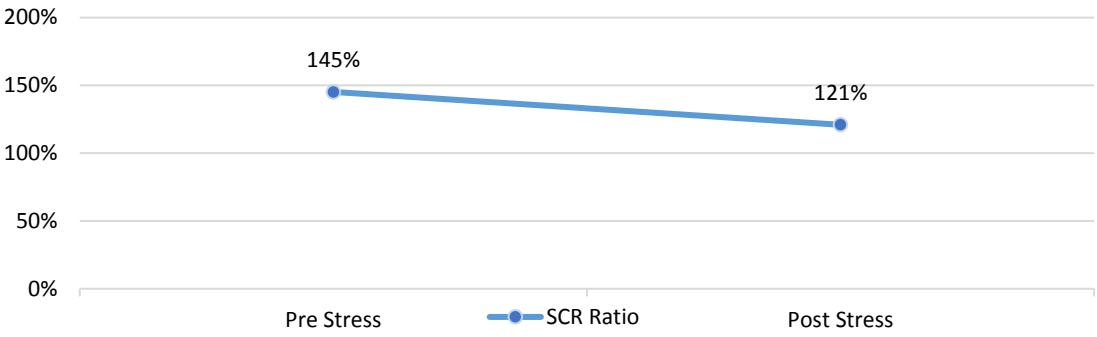
Overall the (re) insurance sector remained solvent at an aggregate level even after the stress scenarios. Graph 6.1h is indicative of the aforementioned fact, as the SCR and MCR ratios moved from 145% and 295% to post-stress SCR and MCR ratios of 121% and 245% respectively.

The analysis showed that, (re) insurance entities with a large share of unit-linked business were more likely to be in the least impacted groups. Additionally (re) insurance entities with asset liability matching and well diversified portfolios showed increased resilience to the market stress shocks.

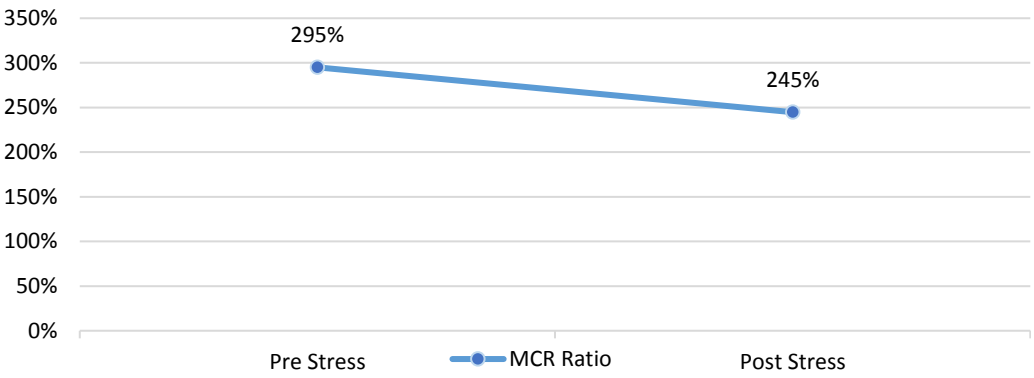
Graph 6.1g: Distribution of the Pre and Post Stress SCR ratio by category as at HY16



Graph 6.1h: Pre and Post Stress aggregated Eligible Own Funds over SCR as at HY16



Graph 6.1i: Pre and Post Stress aggregated Eligible Own Funds over MCR as at HY16



6.2 Insurance Specific Stress Scenario

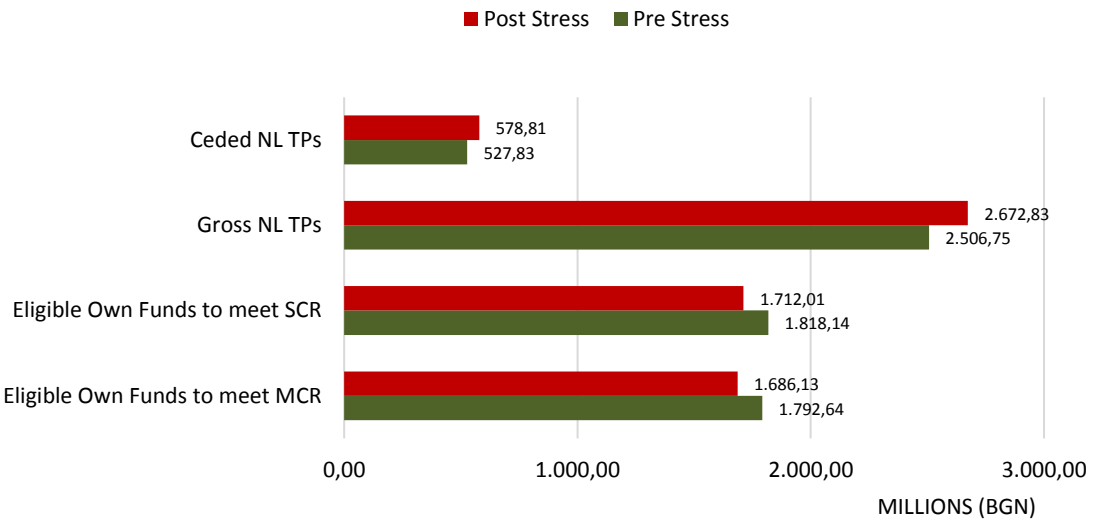
The following subsections present the impact on own funds as a result of the Insurance stress scenarios.

6.2.1 Provisions Deficiency Stress Scenario

The Provisions Deficiency Scenario is a set of five scenarios affecting specific parts of the insurance liability portfolios. The aggregated Solo (re) insurance entity results for the provisions deficiency stress tests are summarized is this subsection. The stress scenarios have been applied to all Non-Life undertakings (29 (re) insurance entities in total), covering the 88% of the market in terms of GWP and the Life/Health undertakings with HNSLT portfolio.

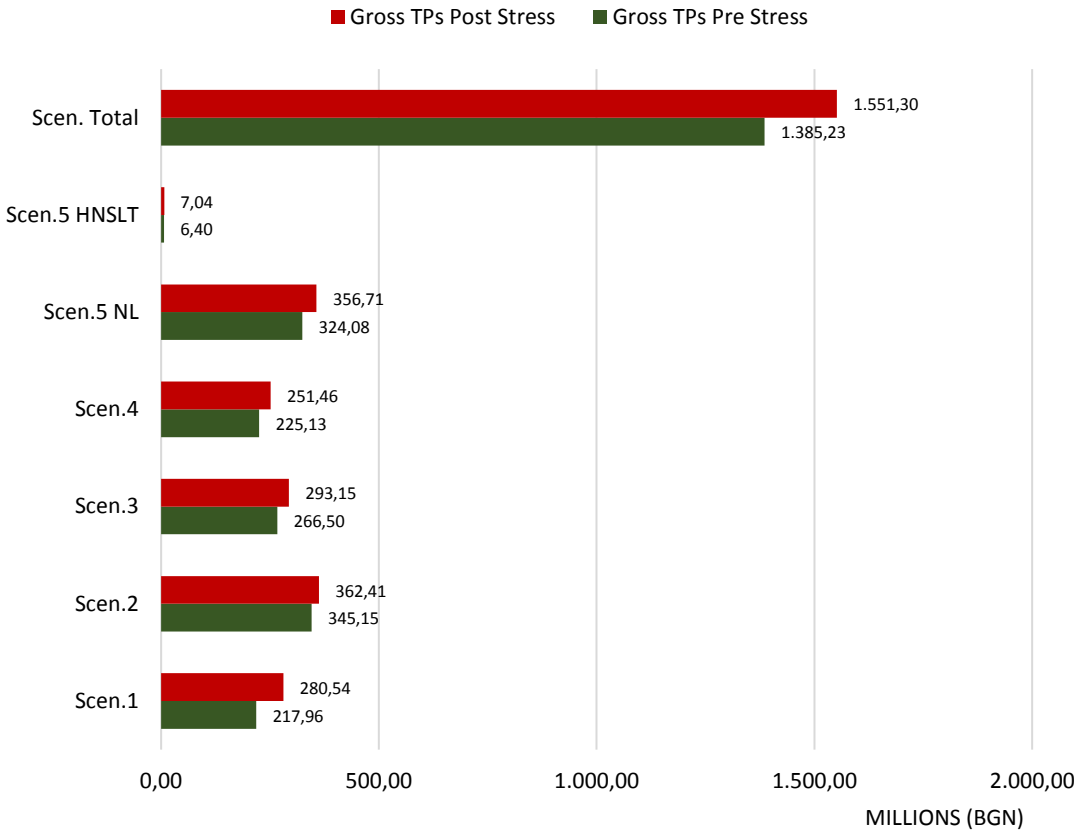
The Provisions Deficiency Stress scenarios directly affects the (re) insurance entities liabilities as well as the reinsurance recoverables. The aggregate performance of the market suggests significant impact on the eligible own funds for these scenarios. Due to the direct correlation of reinsurance recoverables and technical provisions, the reinsurance recoverables increase by m BGN 51, which corresponds to an increase of 10%. Similarly, the Best Estimate Liabilities increase by m BGN 166 (7% movement), and therefore the decreasing impact on the aggregated Own Funds amounts to m BGN 115. The post stress results imply a reduction of the excess of assets over liabilities by 6%.

Graph 6.2.1a: Aggregated non-life provisions deficiency stress impact on Eligible Own Funds as at HY16

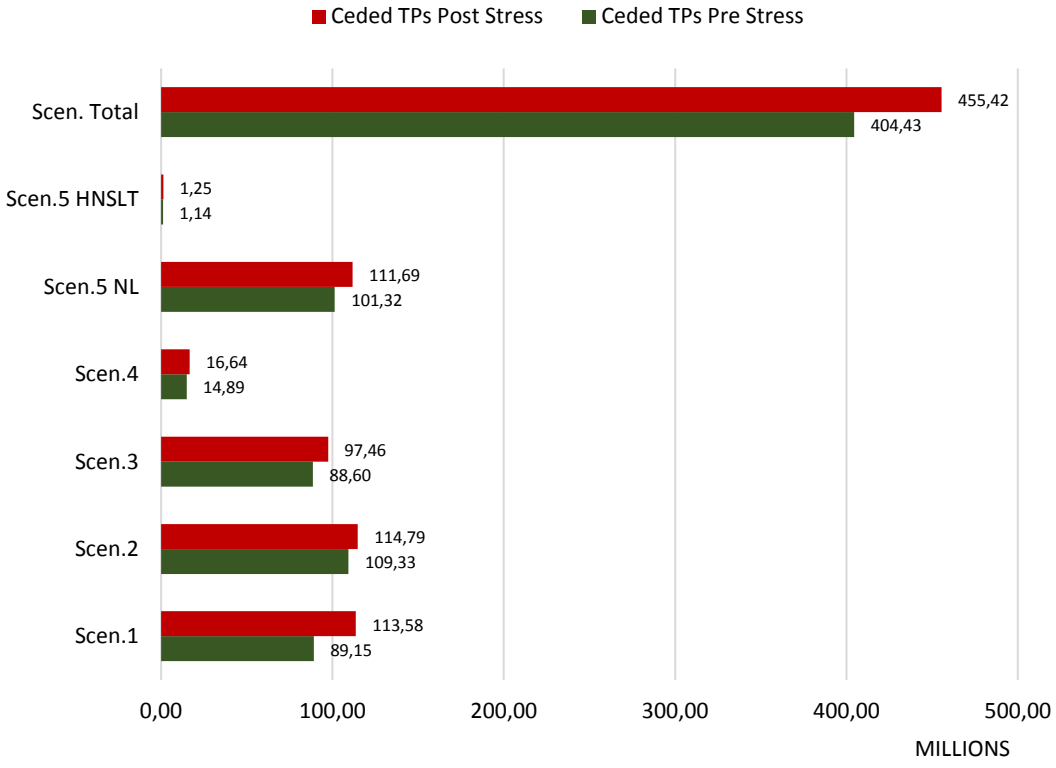


The impact of the provision deficiency stress scenario is shown in the graphs below. The impact of each insurance stress scenario is presented separately for the effect on the reinsurance recoverables and the technical provisions, (the movement in the Gross, Ceded and Net technical provisions are presented).

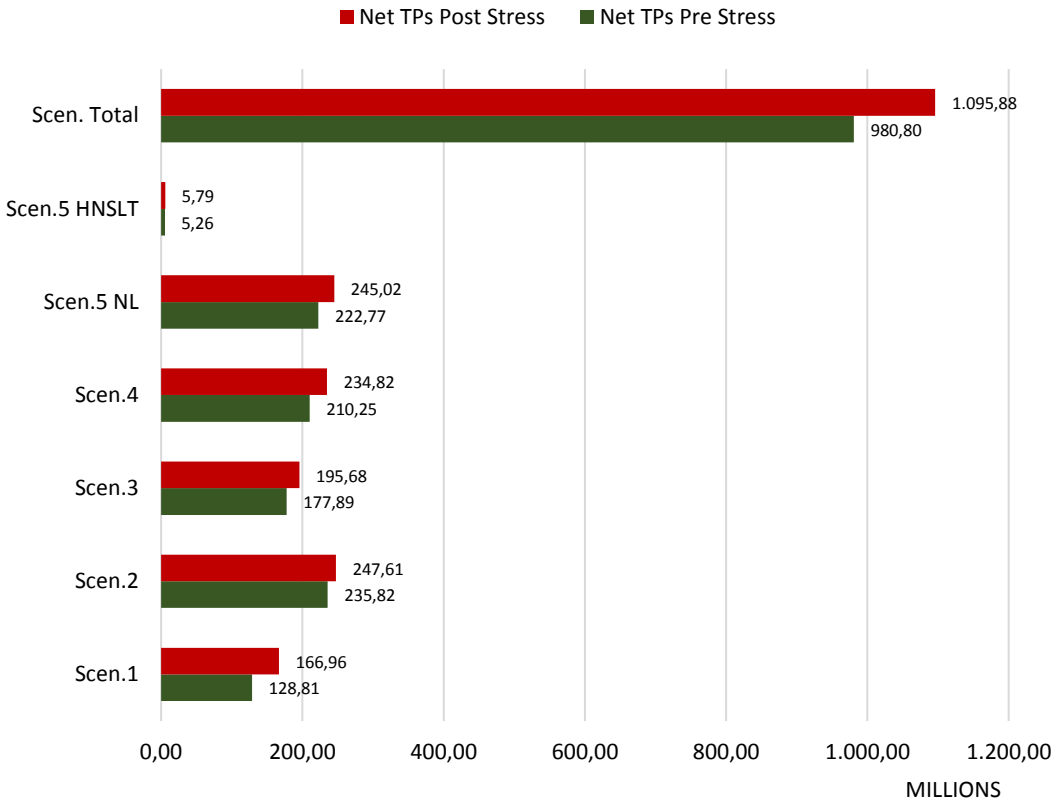
Graph 6.2.1b: Pre and Post Stress value of Gross Best Estimated Liabilities as at HY16



Graph 6.2.1c: Pre and Post Stress value of Ceded Best Estimate Liabilities as at HY16



Graph 6.2.1d: Pre and Post Stress value of Net Best Estimate Liabilities as at HY16



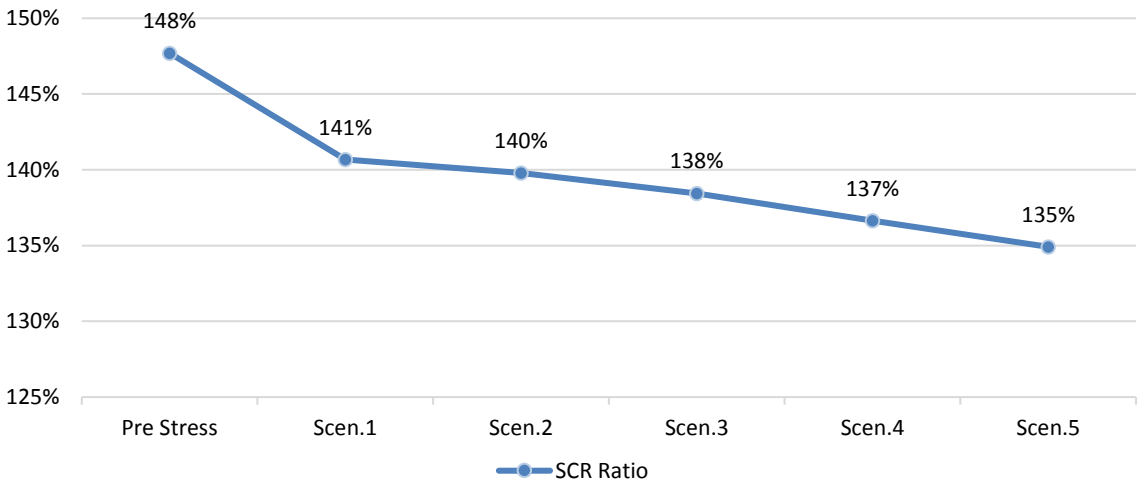
As can be seen from Graph 6.2.1d:

- Scenario 1 affects the MTPL claims occurring in markets other than the Bulgaria (green card claims). The effect of Scenario 1 is significant, resulting in an increase of the net of reinsurance Best Estimate Liabilities by m BGN 38 (30% movement in terms of the shocked net Best Estimate Liabilities). In addition to the volume of claims occurring outside of Bulgaria, an important factor for the heavy effect of Scenario 1 is the MTPL lob's claims long tail development.
- Scenario 2 affects the future car repair costs related to the property damage claims of the MTPL business. Therefore, Scenario 2 was applied for all Non-Life (re) insurance entities with MTPL portfolios. The effect of Scenario 2 is high, resulting in an increase of the net of reinsurance Best Estimate Liabilities by m BGN 12 (5% movement in terms of the shocked net Best Estimate Liabilities).
- Scenario 3 affects the MTPL claims in litigation. Despite the fact that in most (re) insurance entity portfolios, the part of litigated claims (amounting to 12% of the market aggregated BEL) is smaller than the Property Damage exposure included in Scenario 2, Scenario 3 presents more significant impact compared to Scenario 2 which is solely due to the heavier stress scenario. Scenario 3 resulted in an increase of the net of reinsurance Best Estimate Liabilities by m BGN 18 (10% movement in terms of the shocked net Best Estimate Liabilities).
- Scenario 4 is only applicable for the (re) insurance entity with General Third Party Liability (GTPL) portfolios. Despite the fact that GTPL business is not a key non-life portfolio on an aggregated basis (about 10% of the aggregated BEL correspond to GTPL portfolio) the effect on the net of reinsurance Best Estimate Liabilities amounts to m BGN 25 (12% movement in terms of the applicable Best Estimate Liabilities).

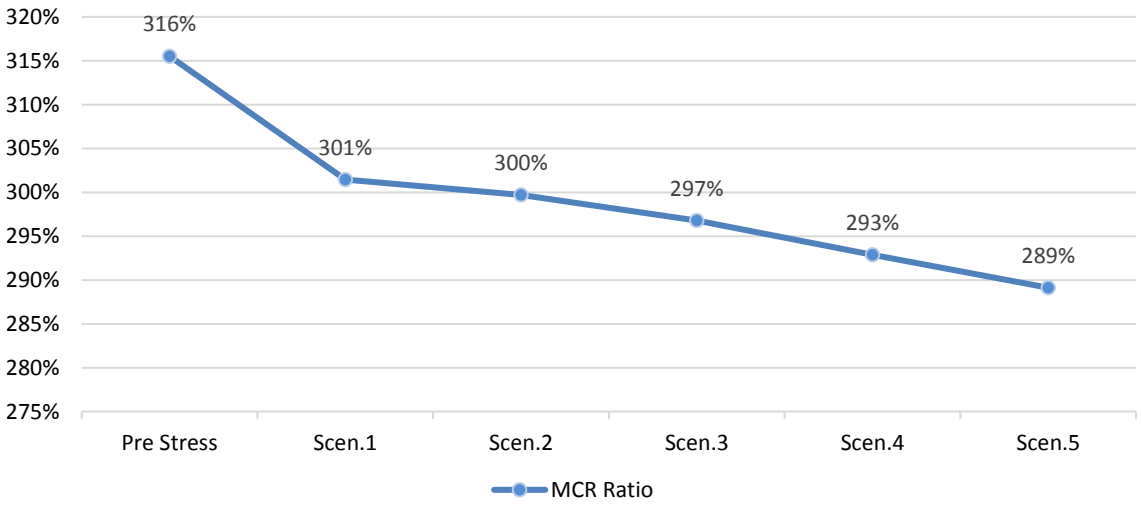
- Scenario 5 has a significant impact on the aggregated position due to the significant exposure in litigated claims (i.e. 15% of the market aggregated BEL corresponds to litigated claims). The effect on the net of reinsurance Best Estimate of litigated Liabilities corresponding to the lines of business other than MTPL and HNSLT amounts to m BGN 22 (10% movement).
- Scenario 5 HNSLT shows the least impact compared to the aggregated market effect. This is due to the small number of (re) insurance entities with claims in litigation related to HNSLT business. About 4% of the Non-Life and HNSLT market aggregated BEL corresponds to litigated claims in the HNSLT portfolios and hence the respective impact on the HNSLT business amounts to m BGN 0,5 (10% movement).

As presented in Graphs 6.2.1e and 6.2.1f, the SCR and MCR ratios have declined moderately. The SCR ratio drops from 148% to 135%, whereas the MCR ratio drops from 316% to 289%.

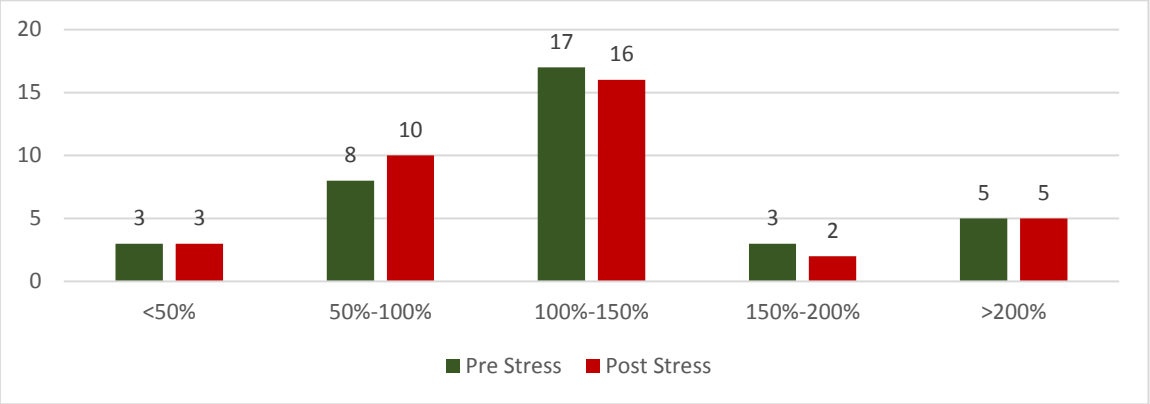
Graph 6.2.1e: Pre and Post Stress Aggregated Eligible Own Funds over SCR as at HY16



Graph 6.2.1f: Pre and Post Stress Aggregated Eligible Own Funds over MCR as at HY16



Graph 6.2.1g: Distribution of the pre and post stress SCR ratios by category as at HY16



In accordance with graph 6.2.1g in the Bulgarian insurance market 13 (re) insurance entities would not meet the SCR after the application of the Provisions Deficiency Stress scenarios (2 additional entities compared to the pre-stress situation).

6.2.2 Natural Catastrophe Stress Scenario

The Natural Catastrophe Stress scenarios are considered independently to the other Market and Insurance stress scenarios. The Natural Catastrophe Stress consists of two separated scenarios namely, Earthquake and Flood. Stress scenarios are presented below both separately and on aggregate basis. In the section below we present the results of the stress scenario for the insurance entities for which Earthquake and Flood risk is applicable (18 entities in total). The EQ and Flood stress scenarios have been performed separately only for the insurance entities using as PML the Standard Formula's Earthquake and Flood CAT risk calculation and not for the reinsurance entities.

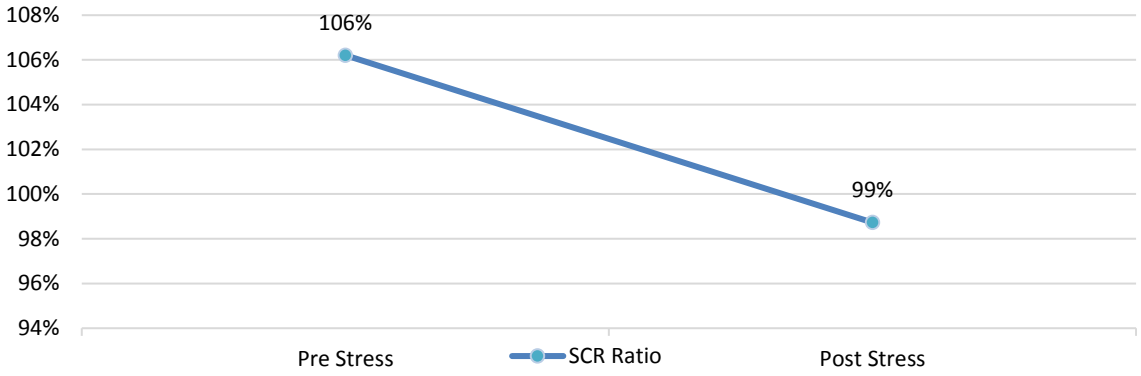
For the aggregated EQ and Flood scenario both insurance and reinsurance entities are considered. Given that the Standard Formula's Earthquake and Flood CAT risk has been calibrated based on direct and proportional indirect business and the reinsurance entities' Natural Catastrophe portfolio mainly consists of non-proportional contracts, the non-proportional CAT risk has been used instead of the NAT CAT risk charge.

6.2.2.1 Earthquake Stress Scenario

The aggregate Earthquake stress results are presented below. The severity of the net effect of the Earthquake stress scenario is dependent to the characteristics of each insurance entity's reinsurance structure.

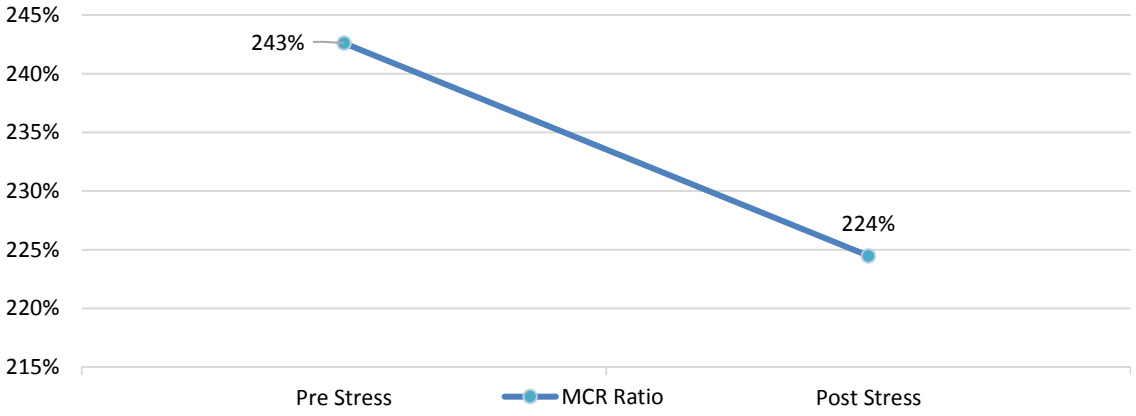
Graph 6.2.2.1c shows that the aggregate eligible own funds to meet SCR have decreased by 7,7%. This results in a post-stress SCR coverage ratio movement from 106% to 99%.

Graph 6.2.2.1a: Pre and Post Stress aggregated Eligible Own Funds over SCR for the Earthquake CAT stress scenario as at HY2016



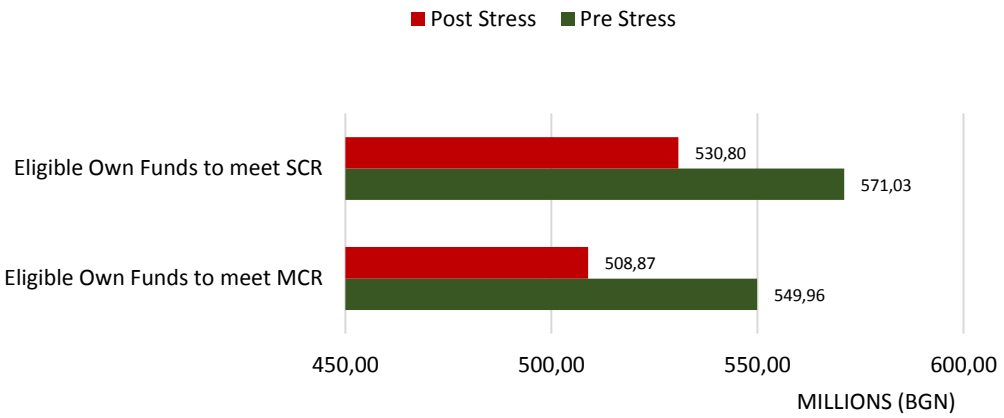
The MCR coverage ratio follows a similar trend to the SCR coverage ratio, with a pre-stress ratio of 243% and a post-stress ratio of 224%.

Graph 6.2.21b: Pre and Post Stress aggregated Eligible Own funds over MCR for the Earthquake CAT stress scenario as at HY2016



The market's dependence on the capacity of the respective reinsurance structure is the key area tested under this stress scenario and the reinsurance capacity or retention limit affects heavily the (re) insurance entities post-stress excess of assets over liabilities. Two (re) insurance entities have been impacted by the scenario due to the exhaustion of the reinsurance capacity. The majority however of the (re) insurance entities presented relative immunity on their own funds, given the estimated reinsurance recoverables arising from the reinsurance structure in place.

Graph 6.2.2.1c: Aggregated Earthquake CAT stress scenario impact on Eligible Own Funds as at HY16

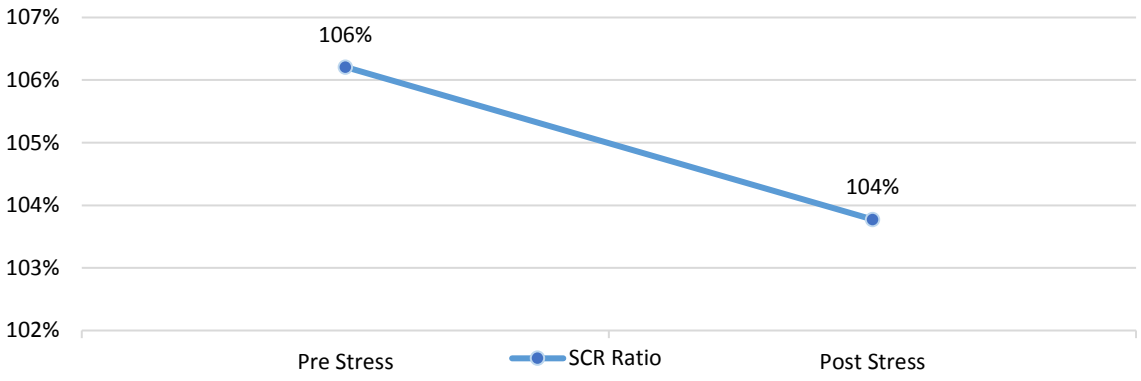


6.2.2.2 Flood Stress Scenario

The aggregate Flood stress scenario results indicate a moderate impact on the eligible own funds. The severity of the net effect of the Flood stress scenario is dependent on the characteristics of each insurance entity's reinsurance structure.

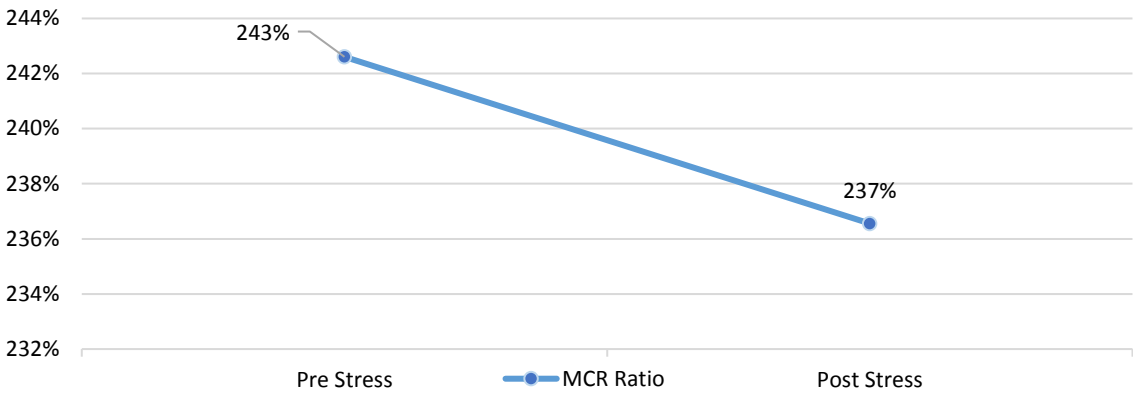
Graph 6.2.2.2c shows that the aggregated eligible own funds to meet SCR have decreased by 2,4%. This results in a post-stress SCR coverage ratio movement from 106% to 104%. This implies that the Flood stress scenario did not materially impact on (re) insurance entities portfolios.

Graph 6.2.2.2a: Pre and Post Stress aggregated Eligible Own Funds over SCR for the Flood stress scenario as at HY2016



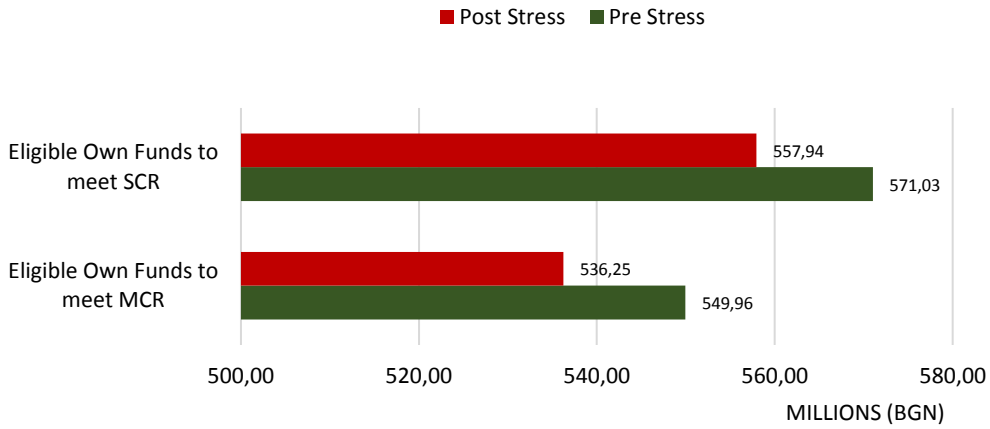
Similar conclusions can be derived for the post-stress MCR coverage ratio, as it fluctuates from the pre-stress level of 243% to a post-stress level of 237% following a similar trend to the SCR coverage ratio.

Graph 6.2.2.2b: Pre and Post Stress aggregated Eligible Own Funds over MCR for the Flood stress scenario as at HY2016



After the application of the Flood scenario on an aggregate level, the resulting decrease of excess of assets over liabilities is mainly driven by cases where the retention limit is high.

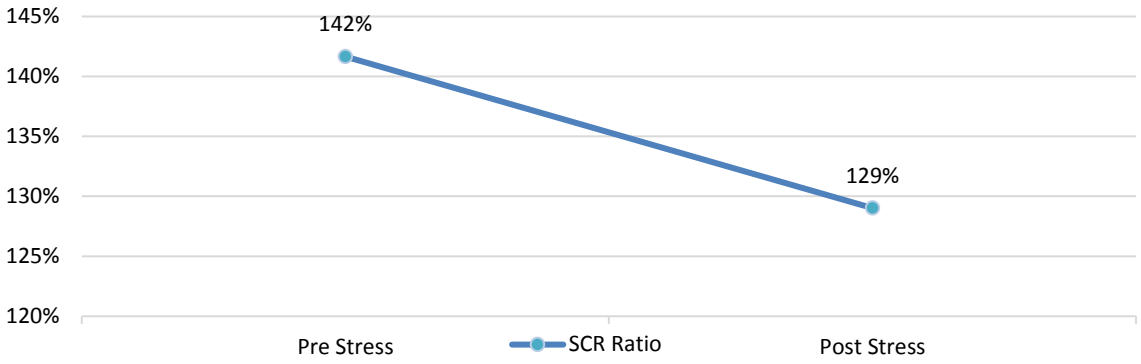
Graph 6.2.2.2c: Aggregated Flood CAT stress scenario impact on Eligible Own Funds as at HY16



6.2.2.3 Aggregated Flood & Earthquake Stress Scenario

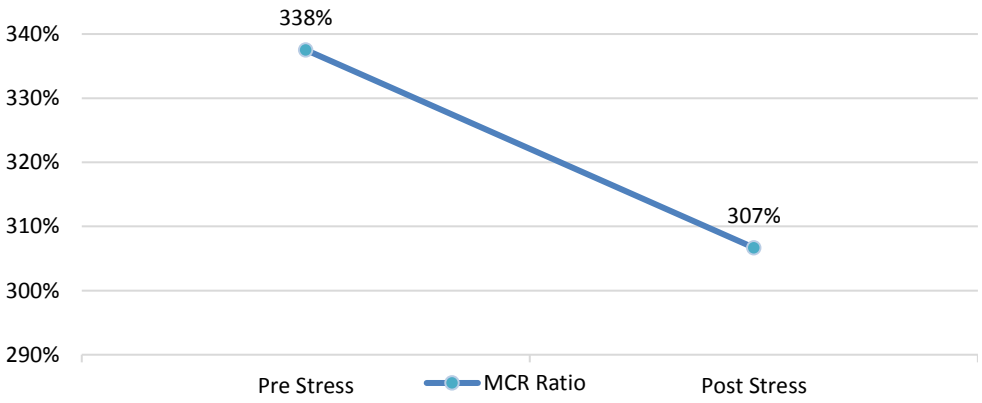
Finally, we provide the aggregated impact of Earthquake and Flood on SCR and MCR coverage ratios. The reinsurance entities were included in the aggregated stress scenario. The combined Natural Catastrophe stress scenario results in a post stress SCR ratio movement from 142% to 129%.

Graph 6.2.2.3b: Pre and Post Stress aggregated Eligible Own Funds over SCR for the EQ & Flood stress scenario as at HY2016



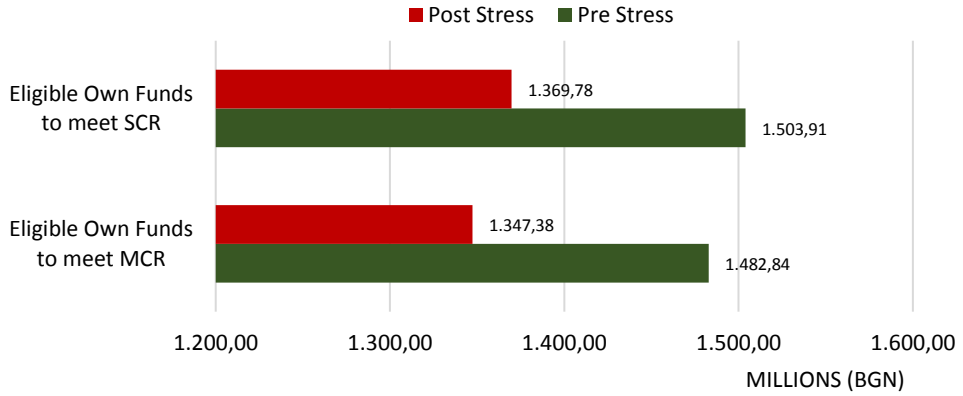
Similar conclusion can be derived for the MCR post-stress coverage ratio, as it fluctuates from the pre-stress level of 338% to post-stress 307% following a similar trend to the SCR coverage ratio.

Graph 6.2.2.3b: Pre and Post Stress aggregated Eligible Own Funds over MCR for the EQ & Flood stress scenario as at HY2016



In Graph 6.2.2.3c the effect on the aggregated Own Funds from both Earthquake and Flood scenario across all undertakings is included.

Graph 6.2.2.3c: Aggregated stress scenario impact Eligible Own Funds as at HY16

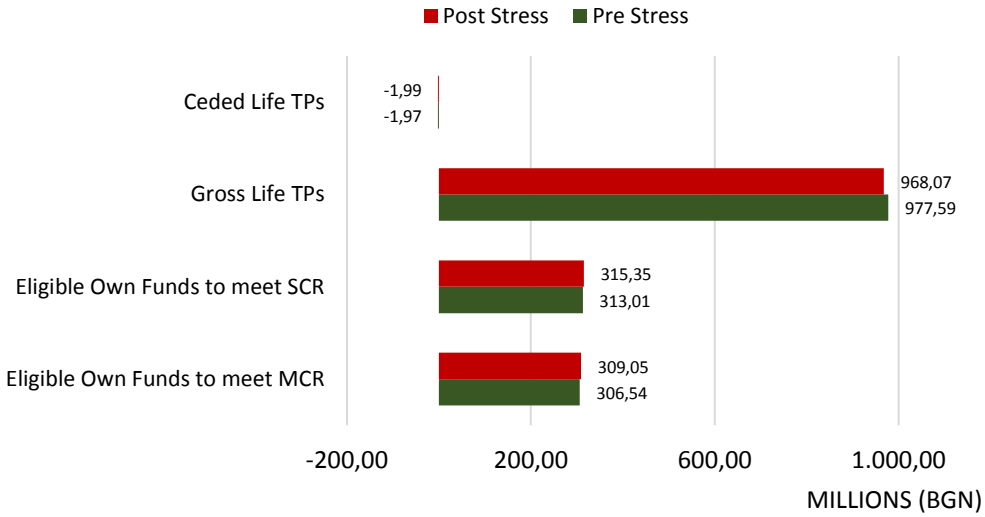


6.2.3 Longevity risk Stress Scenario

The Longevity stress scenario aims to capture the long term nature of guarantees driven by further increase of future mortality improvements. Since in the Bulgarian insurance sector, there is no explicit allowance for mortality improvements, the stress adjustment has been applied implicitly in the mortality table(s) used for the best estimate mortality assumption. Generally, annuities and savings' portfolios are anticipated to have negative effect from the application of this scenario (i.e. liabilities tend to increase) expecting the former to have the most significant effect; while portfolios with mortality as the main risk driver tend to be affected positively (i.e. liabilities tend to decrease). For UL and Health SLT, the effect depends on products' characteristics and composition of entities' portfolios.

The market results of the longevity risk stress tests are summarized is this subsection. This test is appropriate for Life insurance entities, accounting for 12,7% in terms of gross written premiums of (re) insurance entities(and has not been applied to MTPL annuities for Non-Life entities).

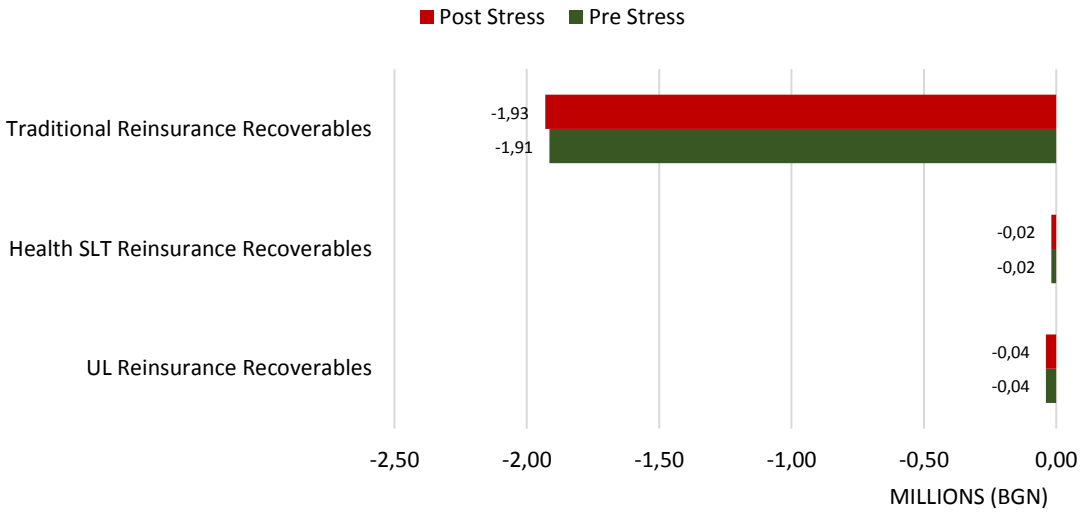
Graph 6.2.3a: Aggregated Longevity stress scenario impact on Eligible Own Funds and Life TP's as at HY16



Graph 6.2.3a illustrates the effect of the longevity scenario to eligible own funds and to Life TP's across all Life insurance entities. The aggregate performance of the market suggests a moderate impact on the eligible own funds from the longevity scenario. In particular:

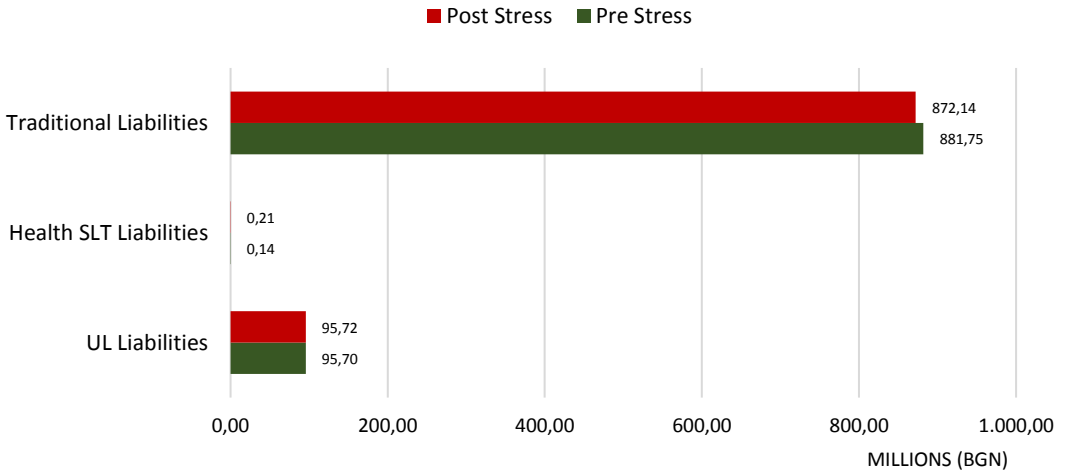
- Aggregated eligible own funds to meet SCR are increased by m BGN 2,34 and the aggregated eligible own funds to meet MCR are increased by m BGN 2,51.
- This moderate increase in own funds is justified by the composition mix of Bulgarian insurance entities' portfolios. Traditional products represent the largest proportion of Life portfolios and the nature of liabilities is mainly driven by mortality risk. Hence, the longevity scenario impacts positively (i.e. provisions are decreased) the major proportion of gross and ceded Life TP's.
- Gross Life TPs are decreased by m BGN 9,52 in the post stress longevity scenario.
- The asset side of life insurance entities' portfolios is less impacted by the longevity scenario. Reinsurance recoverables is the only asset class affected by this scenario and represents a small proportion of Life insurance entities' asset portfolios.

Graph 6.2.3b: Aggregated Longevity stress impact on own funds from the asset side as at HY16



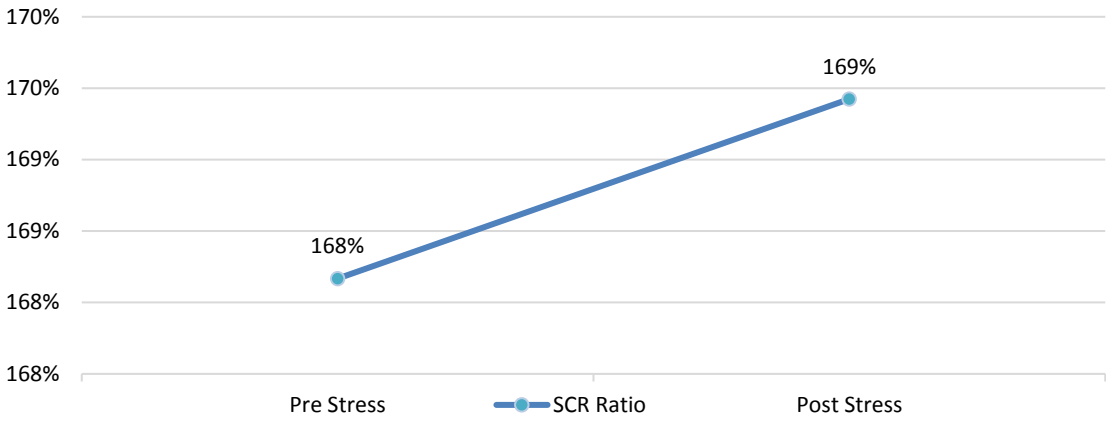
- The impact from the longevity stress scenario on asset side, comes from the reinsurance recoverables. The main driver is Traditional reinsurance recoverables, which have been decreased by m BGN 0,02.
- Health SLT and Unit-Linked reinsurance recoverables are not materially affected (decreased by c.0,47% and c.0,09% respectively) by this scenario.

Graph 6.2.3c: Aggregated Longevity stress impact on own funds from the liability side as at HY16



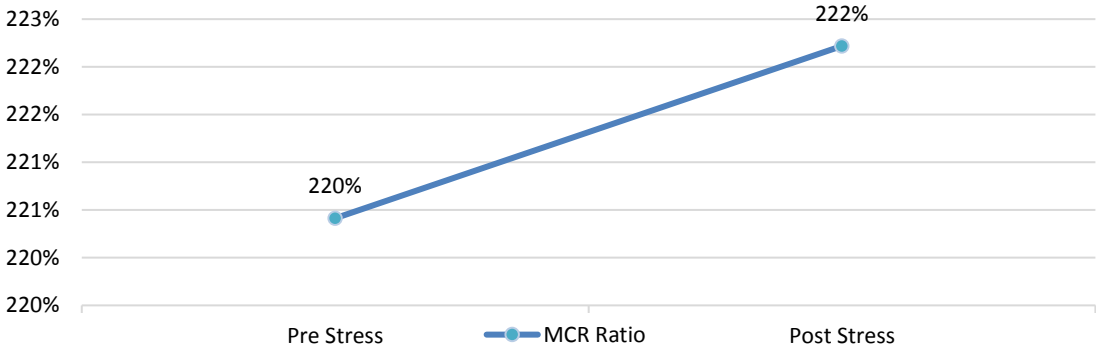
- The dominant impact on own funds comes from Traditional Liabilities, representing c.90% of Life liabilities' portfolios.
- Longevity shock has a moderate effect (c.1,1% decrease) in Traditional Liabilities as the majority of the insurance entities' portfolio include products with mortality representing the main risk driver.
- Unit-Linked liabilities are not materially affected (c. 0,01%) by the referenced scenario.
- Health SLT liabilities are affected heavily (c. 58%); however, the aggregated market liability portfolio is not highly exposed to Health SLT products.

Graph 6.2.3d: Pre and Post Stress aggregated Eligible Own Funds over SCR as at HY16



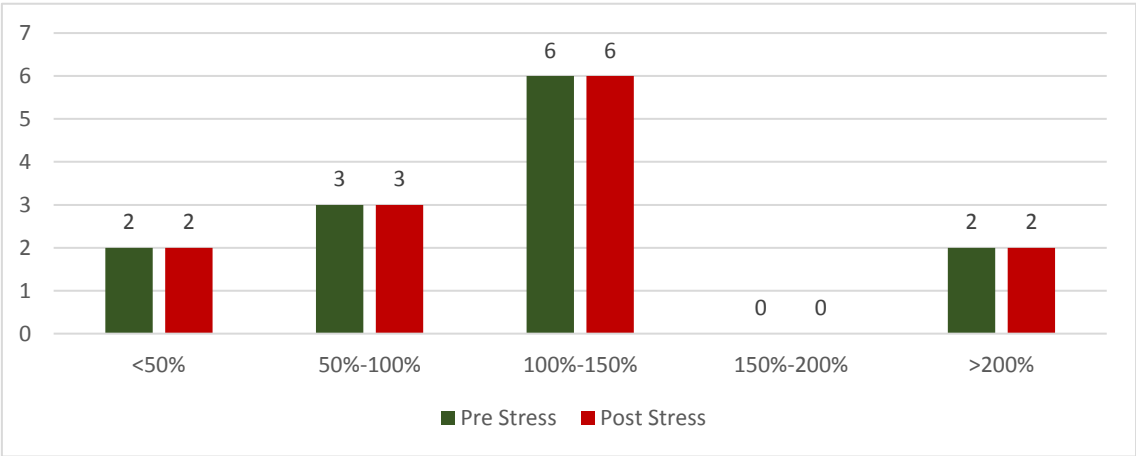
- The eligible own funds to meet SCR have increased by 0,75 % (From m BGN 313 to m BGN 315,4), as shown in graph 6.2.3d. Therefore, the SCR Ratio has moved from 168% to 169%.

Graph 6.2.3e: Pre and Post Stress aggregated Eligible Own Funds over MCR as at HY16



- The eligible own funds to meet MCR have increased by 0,8% (From m BGN 306,5 to m BGN 309,1), as shown in graph 6.2.3e. Therefore, the MCR Ratio has moved from 220% to 222%.

Graph 6.2.3f: Distribution of the Pre and Post stress SCR Ratio by category as at HY16



The graph 6.2.3f shows the distribution of the SCR coverage ratios in five different groups: below 50%, between 50%-100%, between 100%-150%, between 150%-200% and above 200% in the pre and post Longevity stress scenario.

Longevity shock has no significant effect on Life insurance entities' SCR coverage ratios. This is justified by the composition and product mix of entities' portfolios, which are mainly driven by mortality risk.

7. Post Stress Results - Group (Re) Insurance Entities

The section below analyses the aggregated post-stress impact on Own Funds for each stressed scenario separately. The results are reported on an aggregated basis for the 5 out of the 7 Group entities[14]. Further details on post-stress results for each group entity can be found in appendix 4.

7.1 Market Stress Scenario

Under the market stress scenario the decrease in asset values is directly derived from the exposure mix of the asset portfolio and the respective intensity of the shocks prescribed for the different asset classes. As was the case with the Solo (re) insurance entities, on the liability side, the movement in technical provisions and other liabilities is significantly smaller than the movement in the asset value.

Table 7.1a summarises the aggregated results of the market stress scenario and the impact on the eligible own funds to meet SCR and MCR.

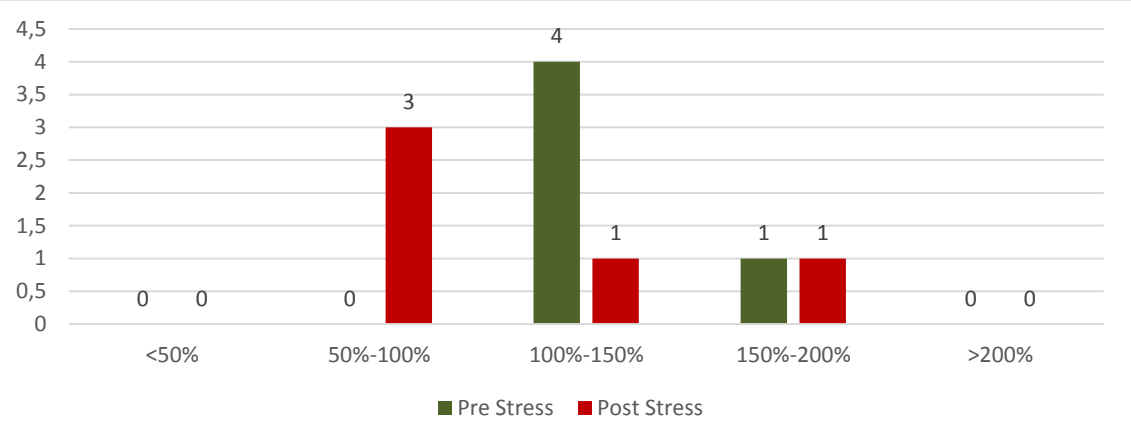
Table 7.1a: Aggregated market stress scenario impact on Assets, Liabilities, Eligible Own Funds and Coverage Ratios as at HY16.

HY16 figures in (000's BGN)	Pre Stress	Post Stress
		Market Stress
Total Assets	1.351.945	1.299.854
Total Liabilities	1.025.666	1.025.311
Excess of assets over liabilities	326.280	274.543
Eligible Own Funds to meet SCR	327.596	275.899
Eligible Own Funds to meet MCR	314.452	265.235
SCR	232.060	232.060
MCR	113.333	113.333
SCR Ratio	141%	119%
MCR Ratio	277%	234%

Graph 7.1b shows the vulnerability of the Group entities to market stresses. In particularly, in the pre-stress situation the Group entities with SCR coverage ratio above 100% were 5. In post-stress the number of Group entities that fell below the cut-off solvency margin amount to 3.

[14] The current version of the report covers the results for 5 out of a total of 7 Groups (re) insurance entities. To date we have not received data regarding Armeec and Euroins Groups.

Graph 7.2b: Distribution of Pre and Post Market Stress SCR ratio on Group entities by category as at HY16



7.2 Provisions Deficiency Stress Scenario

Under the Non-Life provisions deficiency stress scenario (refer to section 3) the Best Estimate Liabilities increase by m BGN 82,36 (14% movement), and the Reinsurance Recoverables increase by m BGN 34,20 (14% movement). The decreasing impact on the aggregated Own Funds amounts to m BGN 45,8. The post stress results imply a reduction of the excess of assets over liabilities by 14%.

Table 7.2a indicates the aforementioned fact, as the SCR and MCR coverage ratios moved from 141% and 277% to post-stress SCR and MCR coverage ratios of 121% and 239% respectively.

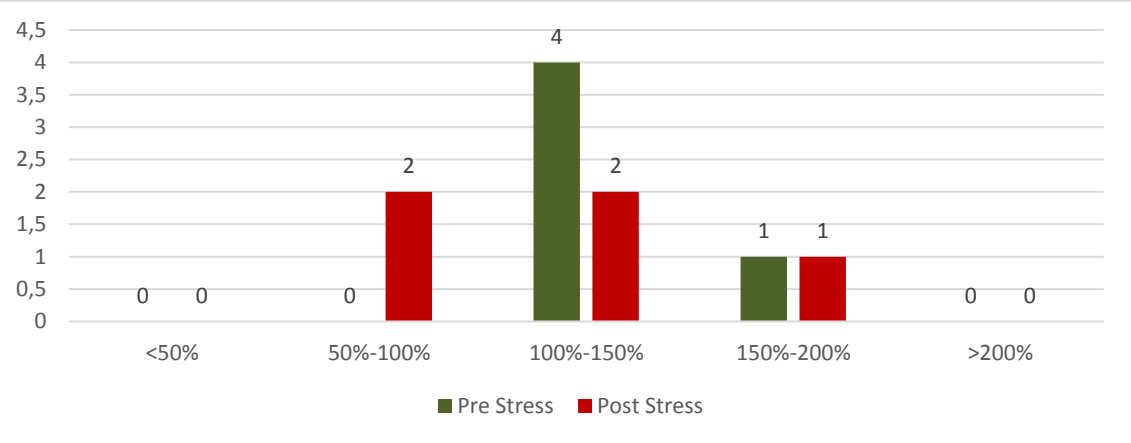
Table 7.2a: Aggregated provisions deficiency stress scenario impact on Assets, Liabilities, Eligible Own Funds and Coverage Ratios as at HY16.

HY16 figures in (000's BGN)	Pre Stress	Post Stress
		Provisions deficiency
Total Assets	1.351.945	1.382.055
Total Liabilities	1.025.666	1.101.585
Excess of assets over liabilities	326.280	280.470
Eligible Own Funds to meet SCR	327.596	281.826
Eligible Own Funds to meet MCR	314.452	271.162
SCR	232.060	232.060
MCR	113.333	113.333
SCR Ratio	141%	121%
MCR Ratio	277%	239%

Graph 7.2b demonstrates the vulnerability of the Group entities to the provisions deficiency stress scenario. Especially, in pre-stress situation the Group entities with SCR ratio above 100%

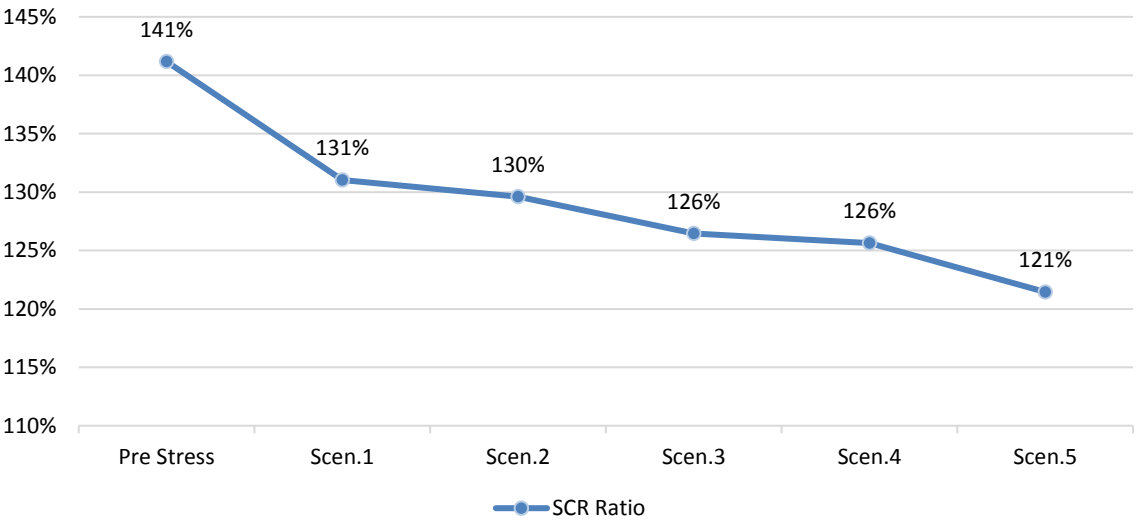
amount to 5. Regarding, post-stress the number of Group entities that fell below the cut-off solvency margin amount to 2.

Graph 7.2b: Distribution of Pre and Post Provisions Deficiency Stress SCR ratio on Group entities by category as at HY16



Moreover, graph 7.2c depicts the most significant impact on the SCR coverage ratio for Group entities under the Non-Life Stress scenarios, which is observed in Scenario 1.

Graph 7.2c: Impact of the provisions deficiency stress test on the Eligible Own Funds over SCR as at HY16



7.3 Aggregated Flood & Earthquake Stress Scenario

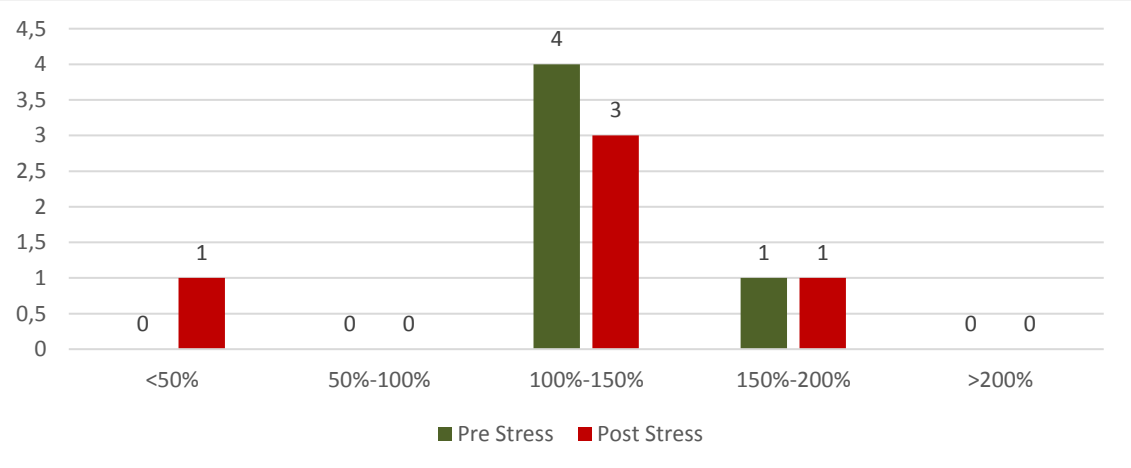
The aggregated impact of Earthquake and Flood on SCR and MCR coverage ratio is presented in this subsection and summarized in table 7.3a below. The decreasing impact on the aggregated Own Funds amounts to m BGN 31,72. The post stress results imply a reduction of the excess of assets over liabilities by 10%.

Table 7.3a: Aggregated provisions of the EQ & Flood stress scenario impact on Assets, Liabilities, Eligible Own Funds and Coverage Ratios as at HY16.

HY16 figures in (000's BGN)	Pre Stress	Post Stress Earthquake & Flood
Total Assets	1.351.945	2.128.636
Total Liabilities	1.025.666	1.834.075
Excess of assets over liabilities	326.280	294.561
Eligible Own Funds to meet SCR	327.596	295.917
Eligible Own Funds to meet MCR	314.452	285.253
SCR	232.060	232.060
MCR	113.333	113.333
SCR Ratio	141%	128%
MCR Ratio	277%	252%

Graph 7.3b demonstrates the vulnerability of the Group entities to Earthquake & Flood stresses. More specifically, in pre-stress situation the solvent Group entities amount to 5. In post-stress the number of Group entities that fell below the cut-off solvency margin amount to 1.

Graph 7.3b: Distribution of Pre and Post aggregated EQ & Flood Stress SCR ratio on Group entities by category as at HY16



7.4 Longevity Risk Stress Scenario

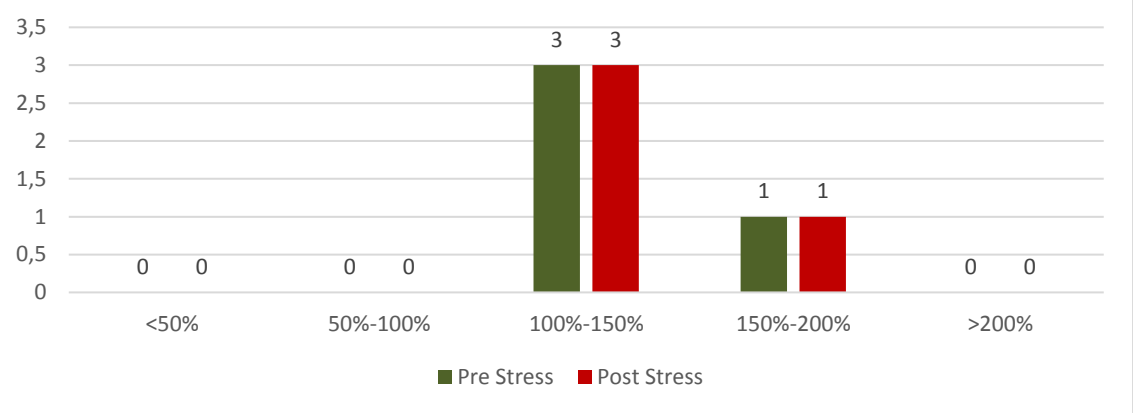
Longevity shock has no significant effect on Group entities' SCR coverage ratios since life insurance portfolio contributes relatively low in SCR.

Table 7.4a: Aggregated provisions deficiency stress scenario impact on Assets, Liabilities, Eligible Own Funds and Coverage Ratios as at HY16.

HY16 figures in (000's BGN)	Pre Stress	Post Stress
		Longevity Risk
Total Assets	1.248.129	1.244.077
Total Liabilities	942.684	937.810
Excess of assets over liabilities	305.445	306.267
Eligible Own Funds to meet SCR	306.761	307.623
Eligible Own Funds to meet MCR	293.617	296.995
SCR	213.550	213.550
MCR	100.933	100.933
SCR Ratio	144%	144%
MCR Ratio	291%	294%

Graph 5.3d demonstrates the vulnerability of the Group entities to Life stresses. More specifically, in pre-stress situation the solvent Group entities amount to 5. In post-stress the number of Group entities that fell below the cut-off solvency margin amount to 0.

Graph 5.3d: Pre and Post Life Stress SCR ratio on Group entities by category as at HY16



Appendix 1 - Stress Test Parameters

Overview of the Stress Test parameters for the market scenario:

Shocks to sovereign bond yields in EU Countries (bp)						
	2Y	5Y	10Y	15Y	20Y	30Y
Austria	40	81	102	97	87	90
Belgium	40	86	116	105	106	100
Bulgaria	43	80	111	99	96	86
Croatia	68	119	155	138	135	120
Cyprus	45	91	132	118	115	102
Czech Republic	53	86	100	98	96	85
Denmark	41	82	94	101	85	76
Estonia	52	100	121	110	98	89
Finland	39	88	102	101	92	49
France	37	89	112	104	102	104
Germany	33	74	92	95	79	73
Greece	204	370	487	303	298	258
Hungary	105	133	170	154	150	133
Ireland	55	86	108	126	123	109
Italy	103	154	166	148	146	136
Latvia	45	117	136	121	118	105
Lithuania	56	127	135	120	117	104
Luxembourg	40	72	95	85	82	73
Malta	56	105	139	124	121	107
Netherlands	36	89	99	94	91	81
Norway	41	78	86	86	89	71
Poland	58	133	142	131	142	116
Portugal	102	165	197	150	127	123
Romania	86	123	162	144	141	125
Slovakia	58	85	95	78	76	68
Slovenia	73	117	146	130	127	113
Spain	91	151	167	156	164	145
Sweden	42	73	78	79	88	81
United Kingdom	46	94	94	95	73	61

Shocks to EURO-SWAP rates							
Maturity (Y)	1	2	3	5	7	10	20
Shocks (bp)	-60	-65	-77	-71	-72	-61	-61

Shocks to corporate bond yields (bp)							
	AAA	AA	A	BBB	BB	B <=	unrated
Non-Financials	24	120	135	214	260	323	350
Financials	16	116	198	372	432	484	516
Financials Covered	20	72	115	162	207	230	247

Shocks to stock prices in EU countries (% drop of end-2015 market value)	
Country	**%**
Austria	-35.8
Belgium	-30.6
Bulgaria	-20.9
Croatia	-20.4
Cyprus	-27.6
Czech Republic	-27.0
Denmark	-30.9
Estonia	-33.4
European Union	-33.4
Finland	-31.0
France	-35.6
Germany	-34.1
Greece	-34.2
Hungary	-25.1
Ireland	-31.3
Italy	-36.5
Latvia	-17.1
Lithuania	-30.1
Luxembourg	-27.1
Malta	-22.3
Netherlands	-34.1
Norway	-32.0
Poland	-26.3
Portugal	-31.3
Romania	-25.1
Slovakia	-22.0
Slovenia	-24.2
Spain	-35.8
Sweden	-28.4
United Kingdom	-32.9

Country	Shocks to residential property prices in EU countries	Shocks to commercial property prices in EU countries
	%	
Austria	-7.4	-6.4
Belgium	-2.6	-1.4
Bulgaria	-4.4	-2.2
Croatia	-14.6	-2.5
Cyprus	-2.4	-1.4
Czech Republic	-1.4	-2.1
Denmark	-5.8	-11.1
Estonia	-8.9	-5.2
European Union	-6.7	-6.0
Finland	-4.7	-3.2
France	-5.3	-4.4
Germany	-2.3	-3.4
Greece	-4.0	-6.5
Hungary	-4.2	-2.7
Ireland	-8.9	-9.6
Italy	-3.2	-6.6
Latvia	-9.8	-7.5
Lichtenstein	-10.8	-7.6
Lithuania	-13.1	-8.2
Luxembourg	-10.8	-7.6
Malta	-4.0	-5.8
Netherlands	-6.7	-11.4
Norway	-4.6	-3.7
Poland	-7.5	-3.0
Portugal	-2.5	-2.4
Romania	-7.0	-5.7
Slovakia	-9.8	-5.6
Slovenia	-1.9	-0.4
Spain	-9	-6.6
Sweden	-4,6	-4.2
United Kingdom	-14,2	-14.7

Shocks to other asset classes				
	Private Equity	Hedge Funds	REIT	Commodities
Global	-23.3	-4.8	-22.4	-16.2
EU	-23.5	-2.3	-26.2	-6.8

Overview of the Stress Test parameters for the insurance scenarios

Natural Catastrophe Events – Earthquake and Flood:

Aiming to reduce the level of complexity and also considering the possible different levels of preparedness of the Bulgarian insurance market, for the two pre-defined earthquake and flood scenarios it is considered that the impact on own funds (pre reinsurance) is equal to 120% * Probable Maximum Loss (PML); meaning that the severity of this loss is 20% higher than 1-in-200 event calculated according to the Standard Formula methodology.

Provisions Deficiency Stress

Non-Life undertakings should assume provisions deficiency stress based on the following (to be applied on a cumulative basis).

Motor Lability:

- 10 percentage points higher claims annual inflation (claims and expenses related to claims) than presumed for existing best estimate calculations for the claims related to accidents which did not occur at the territory of Bulgaria. For example, where non-life insurers assume that claims costs will increase by 0.5% p.a. due to impact of inflation, they would have to add a further 10 percentage points (i.e. a total of 10.5% p.a.) for the post-stress calculations.
- 5 percentage points higher claims inflation (claims and expenses related to claims) than presumed for existing best estimate calculations for all Property Damage claims following an increase in the hourly labour costs in Bulgaria regarding car repair shops.
- 10 percentage points higher claims inflation (claims and expenses related to claims) than presumed for existing best estimate calculations for the claims in litigation.

Other Non-Life LoBs:

- 5 percentage points higher claims inflation (claims and expenses related to claims) for all liability claims reserves. For example, where non-life insurers assume that claims costs will increase by 0.5% p.a. due to the impact of inflation, they would have to add a further 5 percentage points (i.e. a total of 5.5% p.a.) for the post stress calculations.
- 10 percentage points higher claims inflation (claims and expenses related to claims) than presumed for existing best estimate calculations for the claims in litigation.

The provision deficiency stresses for the Non-Life (re) insurance entities are summarised in the table below.

Non-Life LOB	Type of claim	Stress Value	Stress Type
MTPL	Foreign	10%	Per Annum
MTPL	Property Damage	5%	One time
MTPL	Litigated	10%	One time
GTPL	All	5%	Per Annum
All Other Non-Life lob's	Litigated	10%	One time

Life Stresses

Life undertakings shall consider an uplift to the best estimate expectations of life of 15%.

The stress adjustments which are applied should be calibrated so that the increases in expectation of life is met at ages 65 and 75 and should be approximately met at other ages. Where the best estimate mortality assumptions comprise a base mortality table and explicit

allowances for future mortality improvements the calibration should be achieved by increasing the allowance for future mortality improvements, making changes to the base table only if necessary to achieve the calibration. Where best estimate mortality assumptions make implicit allowance for future mortality improvements adjustments to reflect the stress scenario will need to be made to the mortality table. In either case, an iterative approach will probably be required to achieve the calibration.

Appendix 2 – Methodology and Assumptions

This section includes the methodological framework of the stress models, for the market, natural cat non-life and life stresses as well as the main model assumptions.

2a. Methodological Framework

Market Stress Model

The market stress scenario framework has been provided by the FSC in their "Methodology for Insurance Stress Test" document, which is based on the assumptions of the EIOPA stress test 2016 for the insurance sector[15]. Shocks are assumed to be instantaneous and occur at the same time in an independent manner.

Additionally to the adjusted balance sheet information resulting from the BSR exercise each (re) insurance entity provided a detailed Asset List, including asset characteristics for each individual asset, and a categorization according to the pre-defined Complementary Identification Code (CIC) based on EIOPA requirements[16]. In the Market stress model the (re) insurance entities' assets were categorized according to the stress requirements, into the following asset classes: Property (Property for own use and Investment property), Equity, Private Equity, Hedge Funds, REIT, Commodities, Government bonds, Corporate bonds and Other assets. Stresses have not been performed to those assets with classification "Other assets".

For bonds, the pre-stress market value has been provided in the asset lists and reconciled with the values in the adjusted balance sheets. The market value post-stress has been calculated separately for each bond. The stress has been performed based on two events simultaneously, a rapid increase of all sovereign bond yields complemented by a drop in the risk-free rate. All future cash-flows (coupons and redemption values) are projected up to the maturity date of each bond and are discounted back by applying the double-shock to each bond's yield. The shock in bonds' yields has been based on each bond's type and specification, shown in Appendix 1 of the report.

For the remaining asset classes, the pre-stress market value has been provided in the asset lists and reconciled with the values in the adjusted balance sheets. The stress was applied instantaneously as a single shock in the market values, based on the appropriate asset classification shown in Appendix 1 of the report.

In the Market stress model, the impact of the shock on the (re) insurance entities' liabilities and reinsurance recoverables (where cash-flows provided[17]) was determined by discounting the life and non-life cash-flows provided. The interest rate stress was applied to each risk-free curve (or risk-free with Volatility Adjustment –hereinafter VA-, where applicable) for liability values, as described in Appendix 1 of the report. For reinsurance recoverables, the interest rate stress was applied to each (re) insurance entity's risk-free curve.

[15] Technical Information can be found on the EIOPA website at https://eiopa.europa.eu/pages/financial-stability-and-crisis-prevention/stress-test-2016.aspx
[16] Refer to the EIOPA excel: EIOPA-14-052-Annex_IV_V_-_CIC_table
[17] For entities that obtain reinsurance recoverables and have not provided respective cash-flows, a gross-to-net approximation has been performed (cross reference to Appendix 3 on Limitations)

Non-Life Stress Model

The insurance stress scenario framework applicable to non-life (re) insurance entities has been provided by the FSC in their "Methodology for Insurance Stress Test" document. Shocks are assumed to be instantaneous and occur at the same time in an independent manner.

Additionally to the adjusted balance sheet information resulting from the BSR exercise each (re) insurance entity provided detailed information by line of business of claim triangles, payment patterns, claims in litigation, gross and ceded technical provisions etc.

Methodological framework for the provisions deficiency stress scenario: For the inflation scenario for the MTPL claims incurred out of Bulgaria and the liability claims for the GTPL, the inflation has been applied cumulatively in every annual cash-flow. While, for the inflation scenario for the MTPL Property Damage claims as well as for the litigated claims for all the other Non – Life lines of business has been applied as a one-off fixed shock. The shocked reinsurance recoverables have been adjusted for the Reinsurer's Probability to Default, for MTPL and GTPL lobs and have been discounted using the corresponding risk free yield curve by currency.

Methodological framework for the natural catastrophe scenario: Regarding the CAT scenarios, the relevant shock is applied on the provided gross probable maximum loss (PML). The above shock is applied for Flood and Earthquake separately and also on an aggregate basis. For the calculation of the ceded probable maximum loss, the entity's reinsurance structure is applied (Quota share and Excess of Loss treaties are applied in the succession indicated by the (re) insurance entity).

Life Stress Approach

The longevity stress scenario framework applicable to life (re) insurance entities has been provided by the FSC in their "Methodology for Insurance Stress Test" document. The Longevity stress scenario has been run by each entity separately based on the methodology described in Appendix 1 of the report.

EY relied solely on the information provided by each (re) insurance entity regarding the post-stress cash-flows and was not involved in any part of the calculation process, or provided any comments/recommendations on the way that the methodology was applied by each entity.

In particular, the un-discounted stressed model cash-flows have been provided by the (re) insurance entities in a post-stress reporting template separately for each portfolio (i.e. Traditional, Unit-Linked and Health-SLT).

EY has developed a model which calculates the post – stress liability values for each (re) insurance entity, using as inputs the stressed model un-discounted cash-flows provided and applying the discounting effect using the risk-free curve (or risk-free plus VA, where applicable) of each (re) insurance entity.

High level reasonability checks were performed in respect of the pre (cross-reference to Appendix 3 - Limitations) and post stress values calculated by the model, by taking into consideration the composition mix of the entities products' portfolio (information derived from the IBSR exercise) and comparing the observed trend to that of entities with similar portfolio composition mix.

2b. Assumptions

For all stress models, the post-stress SCR was assumed to be stable, given that the point of interest of the exercise was the movement in the Own Funds. In addition, the Risk Margin has not been recalculated, given that the same SCR and future claims payments patterns were assumed stable. The Stress Test was designed in line with the EIOPA Stress Test as a vulnerability analysis and not a pass or fail exercise. It does not attempt to assess capital requirements for the industry and no recalculation of SCR or MCR post stress was required according to EIOPA's Stress Tests 2016 Technical Specifications [p. 20, Article 59, EIOPA-BoS-16-109 Insurance ST2016 Technical Specifications.pdf].

Market Stress Model

For the market stress model the key assumptions in the model are listed below:

- Government bonds issued in non-EU countries are not stressed;
- The liability values of Unit-Linked portfolio were adjusted according to the post-stress movement in the assets held for Unit-Linked contracts;
- Unlisted equities were considered under the Private Equity stresses;
- Private Equity Funds were considered under the Private Equity Stresses;
- Property under construction and Other Property were stressed under the commercial property stresses;
- Plant and Equipment (for own use) assets were not considered under any of the stresses;
- Call Options, Futures and Put Options for Commodities were considered under the Commodities' stress.

Non-Life Stress Model

For the Non-Life stress model the key assumptions in the model are listed below:

- The discounting for both gross and ceded claims was performed in the middle of the year;
- The gross liabilities have been discounted using the BNG risk free yield curve for cases where we were not provided with cash-flows by currency;;
- Gross and ceded claims and premium provisions were assumed to have the same payment pattern;
- The reinsurance structure of the entity applied according the information provided by the (re) insurance entities;
- The payment pattern for MTPL out of Bulgaria is calculated based on the triangles provided by the entity. For the remaining lines of business the payment pattern was provided directly in the reporting templates.

Life Stress

For the Longevity stress scenario, the key assumptions are listed below:

- No model has been developed by EY for the calculation of the longevity stress scenario. EY relied solely on the information provided by each (re) insurance entity separately (i.e. post-stress cash-flows for each portfolio - Traditional, Unit-Linked and Health-SLT) and was not involved in any part of the calculation process, or provided any comments/ recommendations on the way that the methodology was applied by each entity.

- EY has developed a model which calculates the post – stress liability values for each entity using as inputs the stressed model un-discounted cash-flows provided by each entity and applying the discounting effect using the risk-free curve of each (re) insurance entity (or risk-free plus VA, where applicable).
- The discounting effect has been applied using the BGN yield curve for all cash-flows (irrespectively of the currency denomination). The liabilities denominated in other currencies than BGN were considered immaterial.
- The discounting effect is performed in the middle of the year for all cash-flows.
- For Life reinsurance recoverables the gross-to-net approximation is applied to (re) insurance entities where no reinsurance cash-flows have been provided.
- Time Value of Options and Guarantees (TVOG) is not stressed (where applicable) and no further allowance has been made for this.

Post Stress Balance Sheet

For the calculation of the post stress Deferred Tax a 10% Tax Rate is applied on the difference of the pre and post stressed SII adjusted balance sheet for each asset and liability category separately. We have taken into consideration the recoverability plan (available future profitability) for the Loss Absorbing Capacity (LAC of DT) of each (re) insurance entity, in order to determine the final post stress Deferred Tax Assets. The LAC of DT's has not been tested in a post-stress environment. In the case where DTA produced by the Stress Scenarios exceed the amount of future recoverable tax amounts from future estimate profits, the DTA was set equal to the LAC of DT. In addition, the entities that have not prepared a proper recoverability plan, the Deferred Tax Assets being produced by the Stress Scenarios has been set to nil.

The stressed Own Funds are classified as Tier I, II and III own funds. For the tiering of the post stress Own Funds the following assumptions have been made:

- Tier III own funds are considered to be the post-stress net Deferred Tax Assets
- Tier II own funds are assumed the same with the pre-stress amount, included in the QRT's
- Tier I own funds are calculated as the post-stress assets over liabilities minus the foreseeable dividends, distribution and charges and minus the assumed post-stress Tier II and Tier III own funds.

For the post-stress tiering of own funds we have assumed that the foreseeable dividends, distribution and charges remain stable.

Appendix 3 – Limitations & Data Quality Issues

This section lists the limitations subject in the models and the data quality issues.

3a. Limitations

Market Stress Model

Key limitations of the market model are listed below:

- The calculation of the post-stress value of bonds does not account for the reinvestment income and reinvestment risk.
- The credit ratings remains fixed though the years.
- For equities listed on more than one stock exchange, the shock was applied based on the country of origin. This did not allow for European Union shock, which should be applied in the case of an equity is listed on more than one stock exchange.
- For floating coupon rates provided in the asset lists for bonds, a fixed coupon rate is assumed. The fixed rate assumed is the average coupon rate of all the fixed coupon rates in entity's portfolio

Non-Life Stress Model

Key limitations of the non-life model are listed below:

- An approximation for ceded litigated claims reserves has been used for both claims and premium provision based on the gross-to-net ratios for the total portfolio.
- An approximation for gross of reinsurance litigated claims in premium provisions has also been used.
- (Re) Insurance entities which presented negative shock premium provision have not been shocked.

Life Stress

- Time Value of Options and Guarantees (TVOG) is not stressed (where applicable) and no further allowance has been made for this.
- Stresses have not been applied to un-modelled business (considered immaterial).
- For Life reinsurance recoverables the gross-to-net approximation is applied to the entities where no reinsurance cash-flows have been provided.
- For Traditional and Health SLT liability values, the movement between pre and post stress values provided has been added on top of the value of the adjusted balance sheet.
- High-level reconciliation procedures have been performed for the pre-stress cash-flows provided and the liability values in the adjusted balance sheet by taking into account any remaining technical provisions of each insurance entity (OCR, reserves for un-modelled portfolio, TVOG etc.).
- Due to the individual characteristics of each Life insurance entity's Unit-Linked portfolio, the following cases have been distinguished regarding the Life stress (Longevity) scenario:
    - For insurance entities that report only the Unit fund value in the adjusted balance sheet and their Non-Unit reserve is negative in the pre and post stress scenarios, the post-stress value of best estimate of liabilities (BEL) for Unit-Linked and Index-Linked liabilities remains unchanged.
    - For insurance entities that the Unit Linked portfolio is un-modelled, the post-stress value of technical provisions for Unit-Linked and Index-Linked liabilities remains unchanged.

- For insurance entities that report the Unit fund value in the adjusted balance sheet subject to SI regulation, the movement between pre and post stress values provided has been added on top of the value of the adjusted balance sheet.
- For insurance entities that the cash-flows in post-stress scenario remained unchanged and/or confirmed that are not affected by the Longevity scenario, the post-stress value of BEL for Unit-Linked and Index-Linked liabilities remains unchanged.

For the remaining entities, the movement between pre and post stress liability values provided has been added on top of the value of the adjusted balance sheet.

3b. Data Quality Issues

The accuracy, completeness and appropriateness of the data used in our analysis is of key importance in our review process. Reliance has been placed on all figures presented on the adjusted balance sheets and QRTs following the IBSR exercise in addition to the data received for the Stress Test reporting templates provided by each (re) insurance entity. We have performed a high level review of the data received in terms of completeness and reconciliation to the adjusted balance sheet. It should be noted that, reconciliation issues with impact of less than 1% on the total assets have been treated as immaterial.

All issues in data files were communicated to (re) insurance entities. Below we discuss a list of data issues that arose for a number of (re) insurance entities and the approach adopted in order to overcome the modeling implications. The data issues noted are not perceived to have a material impact on the stress test results. Entity specific data issues are noted in the individual (re) insurance entities report.

- For (re) insurance entities that did not respond regarding reconciliation issues between the asset list and the balance sheet provided, we have proceeded with a reclassification of the asset class (CIC code) in the Asset Template List, in line with the values reported in the final adjusted balance sheet.
- Where the country of issue for the property assets were not included in the data files received, it has been assumed that the country of issue is the same to the country of custody. When neither indicator was included, the properties were assumed to reside in Bulgaria.
- For (re) insurance entities where liability cash-flows were denominated in various currencies and we were only provided with information at an aggregated level, the discounting for the stress has been performed using the BGN curve for the entirety of portfolio.
- High-level reconciliation procedures have been performed for the pre-stress cash-flows provided and the liability values in the adjusted balance sheet by taking into account any remaining technical provisions of each insurance entity (OCR, reserves for un-modelled portfolio, TVOG etc.).