31 October 2014

SST 2014 Survey

FINMA Report on the Swiss Insurance Market
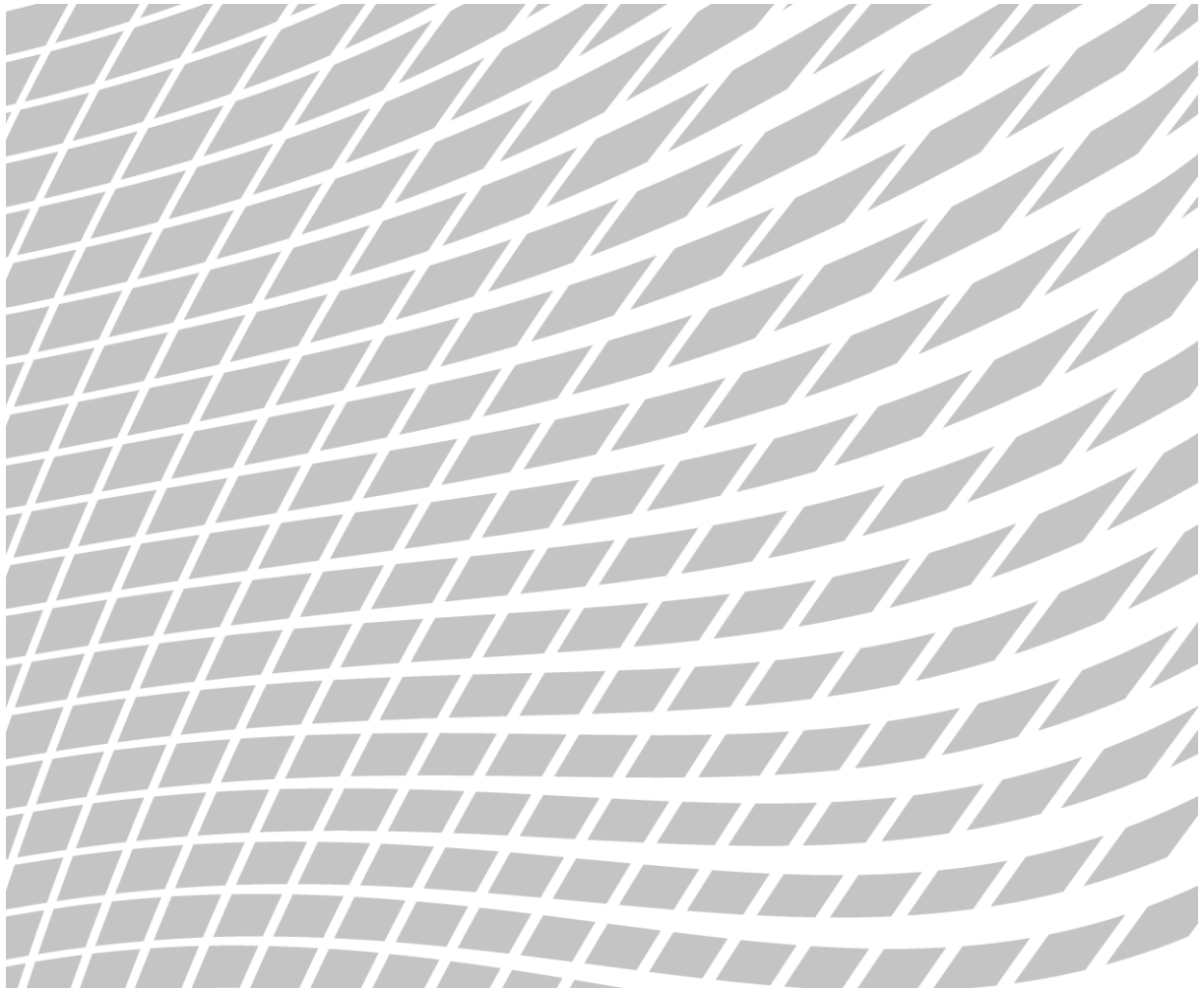
Contents

1 Introduction

This document shows the SST results 2014 and includes the statistics of 128 insurance undertakings (18 life companies, 58 general insurance companies, 22 health insurers and 30 reinsurers); insurance groups are not part of this survey.

The survey is performed on the level of peer groups, defined by branch (life, health, general insurance, reinsurance), and shows breakdowns of various key indicators such as the total assets or liabilities or the target capital.

Quality and completeness checks for each key indicator were performed. If the figures of a company do not meet the quality and completeness requirements, the corresponding data is excluded from the analysis. Therefore, approximately 3% of the datasets per graph could not be used. For example, an insurance company's market risk figures will be excluded if the market risk diversification effect is positive.

The goal of FINMA's preliminary checks is to exclude those datasets with obvious deficiencies. The data that passed this pre-examination test, however, may still be erroneous. The resulting FINMA corrections based on their thorough reviews are not incorporated in this report.

The main changes in comparison with the previous surveys are:

- More comprehensive explanations regarding the types of analyses and the definitions of the key indicators;

- Additional sections on assets and liabilities;

- New visual depiction of the best estimate of liabilities and the target capital in relation to the balance sheet total;

- Scenario impacts shown as the ratio between the risk-bearing capital after scenario and the risk-bearing capital before scenario impact

With effect from 1 January 2013, FINMA decided to introduce temporary adjustments to the SST for the years 2013 to 2015, see the FINMA Circular 13/2 "Temporary Adjustments to the Swiss Solvency Test (SST)". The most important adjustment concerns the yield curve for valuing liabilities. Insurers can opt for a yield curve based on swap rates minus 10 bps as a reference yield curve. This adjustment impacts the risk-bearing capital which will be increased by the so called 'adjustment term'. The latter equals the difference between the liabilities valued by means of the risk-free yield curve and the liabilities valued by means of the swap-based reference curve ('risky yield curve'). These adjustments solely apply to the valuation of insurance liabilities (back book); the calculation of the target capital is unaffected. The analyses presented in this document refer to the risk-bearing capital that may or may not include the adjustment term, depending on whether an insurance company claimed for it or not.

The so called "Fundamental Data Sheet" (FDS) is the data source for this survey. The FDS contains detailed quantitative information such as the decomposition of the risk-bearing capital and the target capital. Each insurance undertaking is requested to fill in the FDS and to submit it to FINMA, regardless of whether they use the standard model or an internal model.

In order to make the survey meaningful, companies of comparable size are grouped together. For this purpose, the supervisory categories according to the FINMA Newsletter 19 (2011) "Overhaul of FINMAs supervisory approach" are used. All insurance companies under FINMA supervision are allocated to the categories 2 to 5; neither category 1 nor category 6 are relevant for insurance companies.

2 Solvency overview

Table 1 shows the number of companies whose data were used in the present survey (column "Considered") and the total number of insurers subject to SST reporting requirements (column "Participants").

	Considered	Participants
Life	18	18
Health	20	22
General insurance	53	58
Reinsurance	28	30
Total	119	128

Table 1: Number of companies considered in the current analysis and total number of insurers subject to SST reporting requirements.

This report is structured around the four branches life, health, general insurance, and reinsurance. Because the Swiss insurance market is rather heterogeneous, the volume-weighted figures of the larger companies would outweigh the numbers of the smaller ones and therefore 'distort' the results. To circumvent this problem, the categories according to the aforementioned FINMA Newsletter 19 (2011) will be used as a further dimension. Table 2 shows the breakdown of the 128 insurers into the dimensions "branch" and "category".

	Category 2	Category 3	Category 4	Category 5	Total
Life	2	12	4	0	18
Health	0	6	11	5	22
General insurance	2	9	17	30	58
Reinsurance	1	13	11	5	30
Total	5	40	43	40	128

Table 2: Split of all insurers subject to SST reporting requirements according to branch and supervisory category.

If required, the data of two neighboring categories will be pooled in order to avoid conclusions that can be drawn regarding the individual risk profile of an insurance undertaking. The figures presented in Table 3 show the aggregated SST results of all participants split by branches. The overall solvency situation improved compared to 2013. The increase is most prominent for life insurers. Whereas in 2013 the aggregated SST ratio for life insurers equaled 145%, it now increased to 153% (including adjustments). The improvement is mainly due to a more favorable economic environment (higher interest rates) and risk management oriented actions taken by insurers. In total, 23 insurers opted for the temporary adjustments (13 life, 2 health, 8 general insurers, 0 reinsurers).

	Excluding adjustments			Including adjustments		
	RBC	TC	SST ratio	RBC	TC	SST ratio
Life	46′939	32′979	142%	50′440	32′979	153%
Health	9′696	2′867	338%	9′710	2′867	339%
General insurance	72′589	37′799	192%	72′904	37′799	193%
Reinsurance	56′131	24′623	228%	56′131	24′623	228%
Total	185′355	98′267	189%	189′185	98′267	193%

Table 3: Risk-bearing capital (RBC, in MM CHF), target capital (TC, in MM CHF) and SST ratios as of 1 January 2014, split by branches.

3 Life

3.1 Goals of the analyses

The analyses presented in this chapter aim to give insight into the following:

- Investment structure
- Liability structure
- Best estimate of the liabilities and target capital in relation to the total assets.
- Split of the target capital into its components such as e.g. market, credit and insurance risk.
- Split of the market risk into components like interest rate risk, equity risk etc.
- Split of the interest rate risk into different currencies.
- Scenarios and their impact on the risk-bearing capital. Indication of whether the SST capital requirements after scenario impacts are still fulfilled.

Two types of visual depiction are shown:

- Waterfall diagrams,
- Boxplots, providing information on the dispersion of the data.

In order to avoid conclusions that can be drawn regarding the individual risk profile of an insurance undertaking, the data of two neighboring categories (e.g. categories 2 and 3 or categories 4 and 5) are pooled. This in case an individual category includes the data of less than five insurance undertakings.

Assets

The total assets of the market consistent balance sheet will be shown as the sum of the different asset types (such as bonds, real estate, shares, etc.).

Liabilities

The total liabilities of the market consistent balance sheet will be shown as the sum of the different liability types.

Best estimate liabilities and target capital in relation to the balance sheet total

The market value of the assets (MV(A)) is decomposed into the following components:

- The best estimate liability (BEL)
- The market value margin (MVM)
- The solvency capital requirement (SCR), which is given by the difference between the target capital (TC) and the market value margin. The TC, SCR and MVM are related through

$$TC = SCR + MVM. \tag{1}$$

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- The excess capital (EC), which is defined as the difference between the risk-bearing capital (RBC) and the target capital (TC). Thus, we have

$$RBC = TC + EC. \qquad (2)$$

- The supplementary capital (SC)
- The deductions (D)

More precisely, we have the following decomposition of the assets:

$$MV(A) = BEL + MVM + SCR + EC - SC + D.$$

To show this, recall that the core capital (CC) and the risk-bearing capital (RBC) are related through

$$RBC = CC + SC. \qquad (3)$$

Now CC can be expressed in the following form

$$CC = MV(A) - BEL - D,$$

from which we derive by means of (3) the relation

$$MV(A) = BEL + RBC - SC + D.$$

By means of (1) and (2) we conclude that

$$\begin{aligned} MV(A) &= BEL + EC + TC - SC + D \\ &= BEL + MVM + SCR + EC - SC + D. \end{aligned}$$

Target capital decomposition

The target capital equals the sum of the one-year solvency capital requirement (SCR) and the market value margin (MVM). In turn, the key components of the SCR are the market risk, credit risk, insurance risk, scenarios, and diversification.

Market risk analysis

Market risk plays a dominant role in an economic, risk-oriented solvency regime. A number of risk factors such as interest rates, credit spreads, exchange rates, real estate to name but a few contribute to the market risk. Waterfall and boxplot diagrams are presented for the most important market risk factors.

Interest rates risk analysis

Insurance companies with assets and liabilities denominated in different currencies are exposed to currency risk and generally also to interest rate risk. In such a case, the total interest rate risk consists of the interest rate risk of each currency. We show the decomposition of the total interest rate risk into its components stemming from the four currencies CHF, EUR, USD and GBP, including diversification.

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Scenarios

For each scenario we compute the so called *impact ratio*, which is given by the sum of the risk-bearing capital (RBC) and the scenario impact (c), divided by the RBC:

$$\text{Impact ratio} = \frac{\text{RBC} + c}{\text{RBC}}.$$

Typically, a scenario impact c will have a negative value, representing a loss.

Furthermore, a reference scenario called *excess capital loss* is introduced. The loss of this scenario equals the excess capital (EC), that is $c = -\text{EC}$. This loss is the maximum loss an insurance company can endure while remaining solvent. It should be noted that the impact ratio of this reference scenario can be expressed with the help of the target capital (TC). We use the relation $\text{RBC} = \text{TC} + \text{EC}$ in order to obtain the corresponding impact ratio:

$$\text{Impact ratio} = \frac{\text{RBC} - \text{EC}}{\text{RBC}} = \frac{\text{TC}}{\text{RBC}}.$$

In order to facilitate the comparison of the scenarios with this reference scenario, the latter one is shown in a different color.

Scenarios which are exempted from the target capital aggregation are called stress tests, and are marked with the label "(ST)".

Note that there are scenarios which are relevant only for some but not all the branches. For example the scenario "Default of UVG pool" may be relevant for general insurers, health and reinsurers. It this is not the case, the scenario will not be displayed.

3.2   Comments on results

The life insurers' risk-bearing capital has exceeded the 50 billion francs mark with CHF 50'440 million, corresponding to an increase of 20.6%. Accordingly, the target capital figure has also risen, albeit to a lesser degree, and stands at CHF 32'979 million. This has improved the SST solvency ratio by eight percentage points to 153%. As in 2013, life insurers benefited from the adjustment of the interest curve, which added 11 percentage points to the solvency ratio. The capital requirement is influenced in particular by market risks (52% of target capital), which are dominated by interest rates and spread risks. The financial crisis scenario demonstrates how susceptible life insurers are to market risks, given that numerous of them would have SST solvency ratios below the threshold of 100% stipulated in the regulation.

3.3 Assets
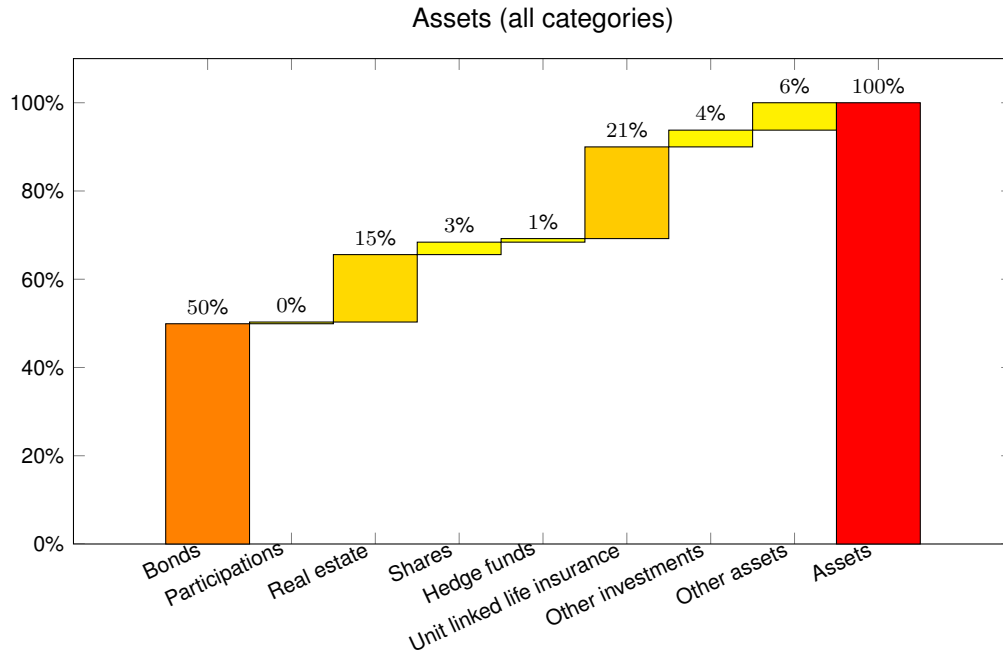
Figure 1a: Life (mean values)
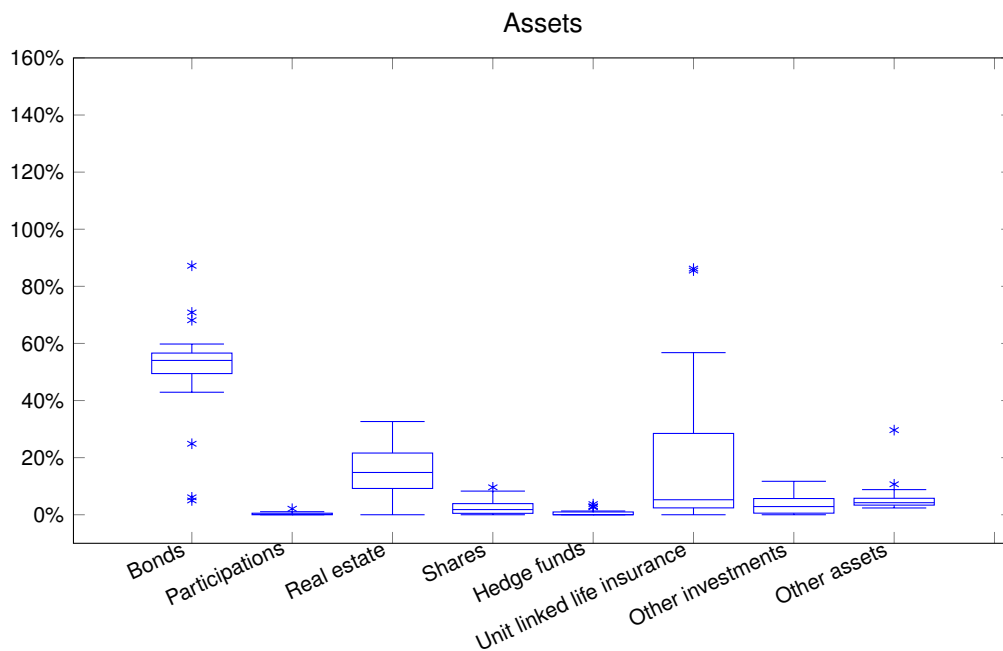
Figure 1b: Life (distibution)

Assets (categories 2 and 3)
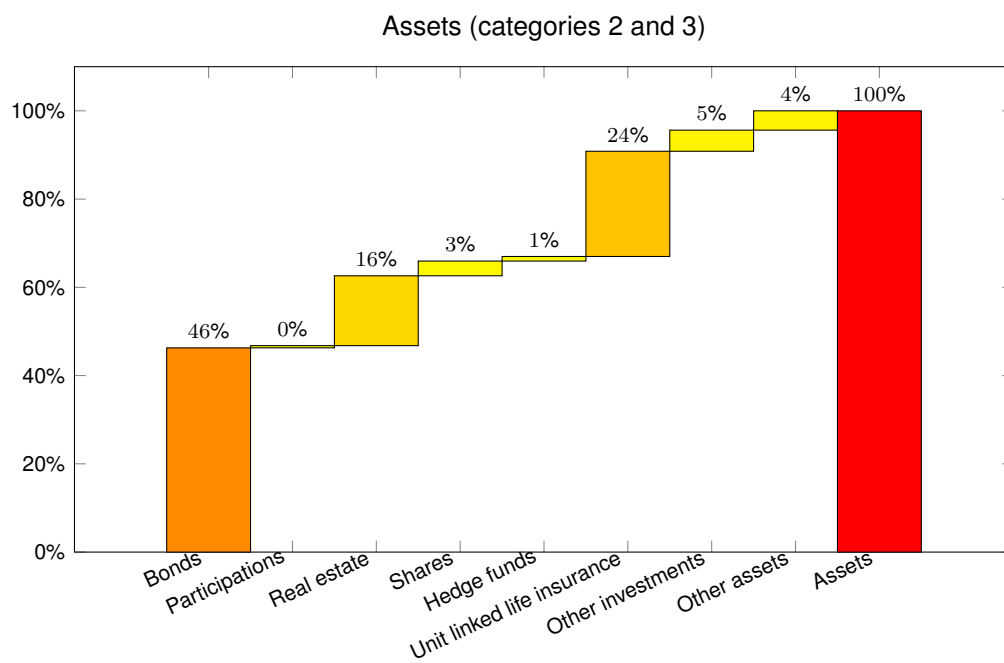
Figure 1c: Life (mean values)

3.4 Liabilities
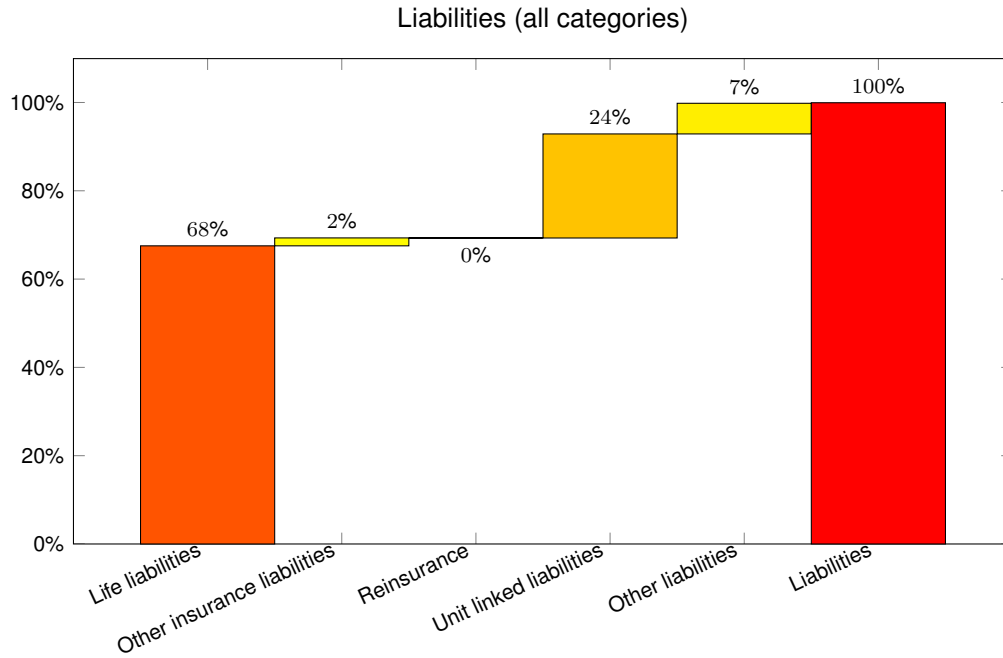
Figure 2a: Life (mean values)

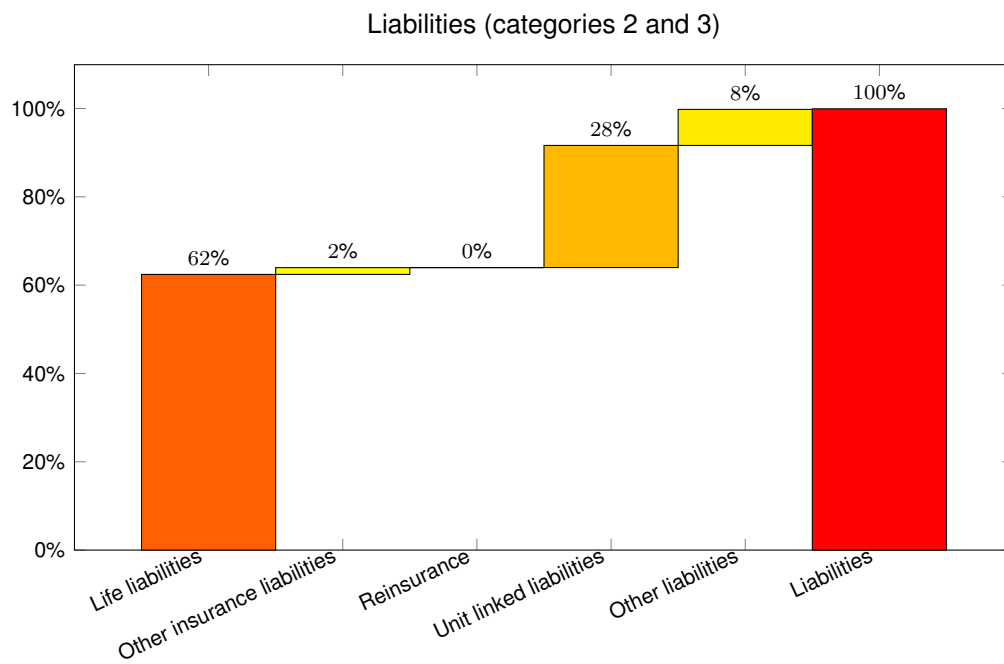Figure 2b: Life (distibution)

Liabilities (categories 2 and 3)
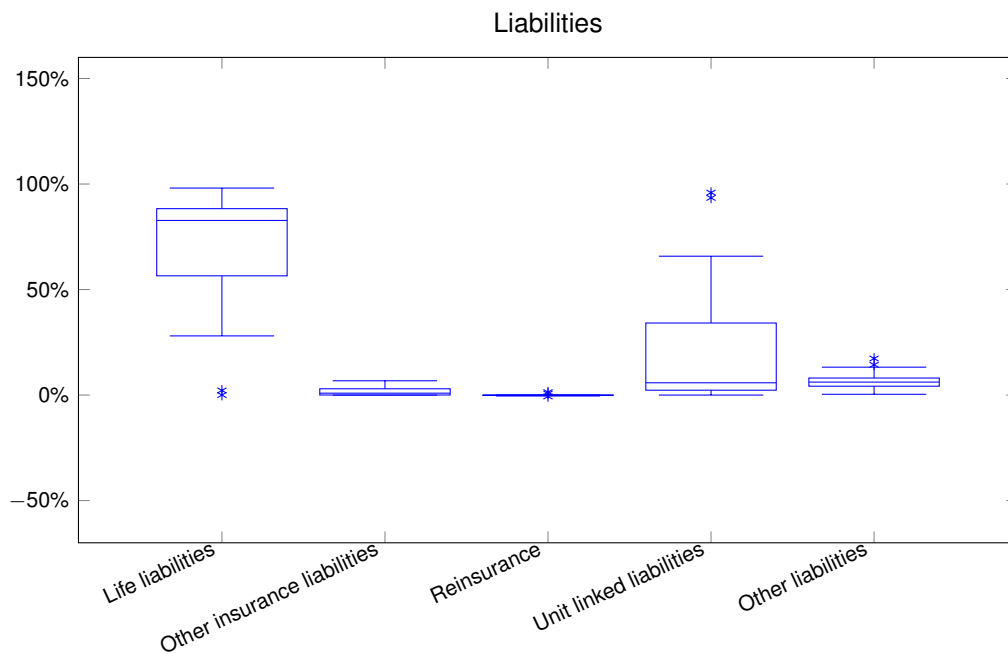
Figure 2c: Life (mean values)

3.5 Best estimate liability and target capital in relation to the balance sheet total

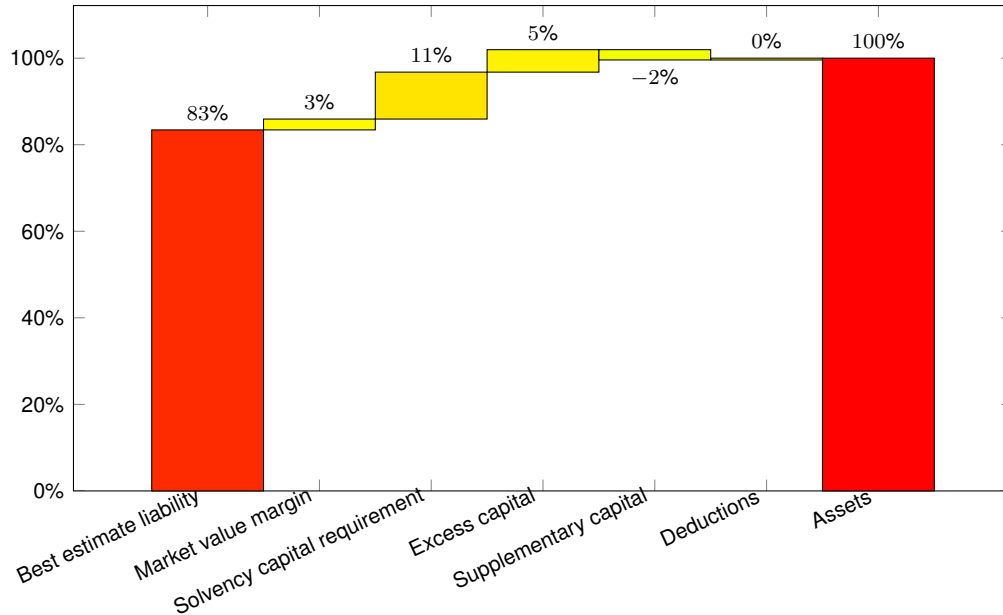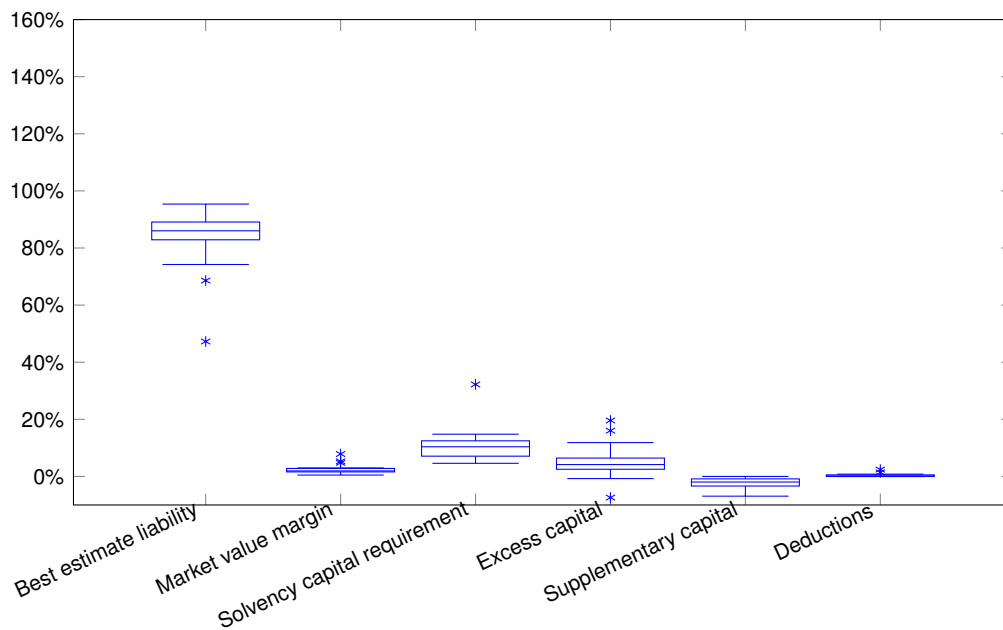Best estimate liability and target capital in relation to the balance sheet total (all categories)

Figure 3a: Life (mean values)

Best estimate liability and target capital in relation to the balance sheet total

Figure 3b: Life (distibution)

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Best estimate liability and target capital in relation to the balance sheet total (categories 2 and 3)
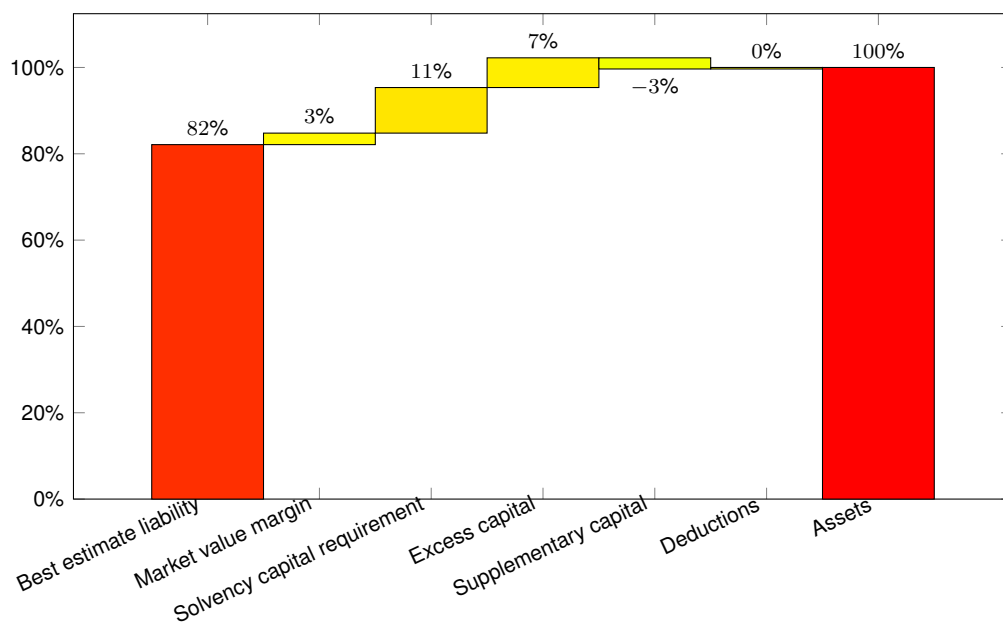
Figure 3c: Life (mean values)

3.6 Target capital decomposition
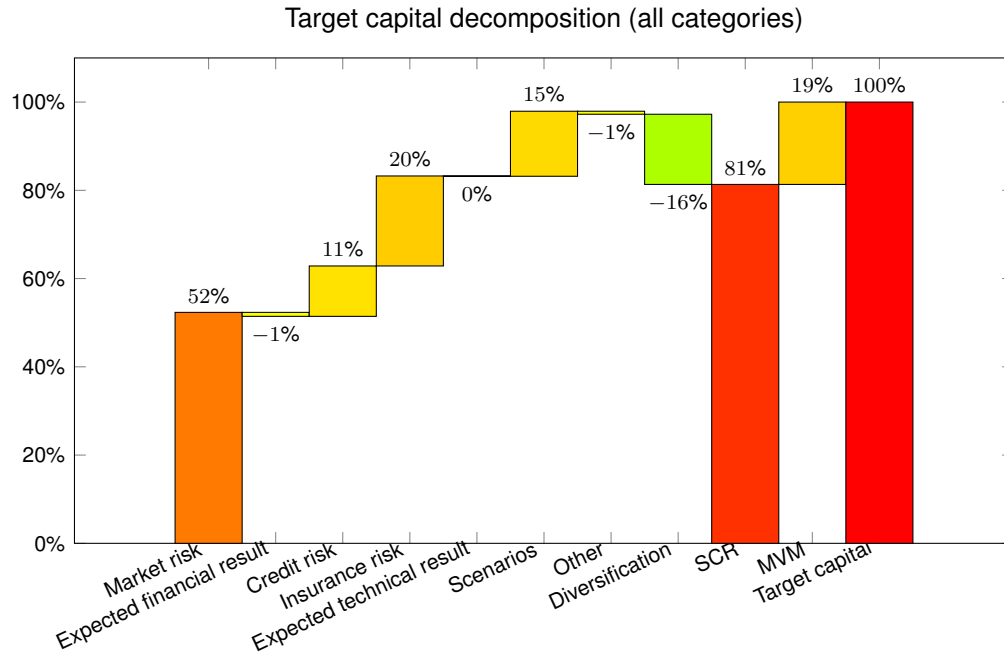
Figure 4a: Life (mean values)

Figure 4b: Life (distibution)

Target capital decomposition (categories 2 and 3)
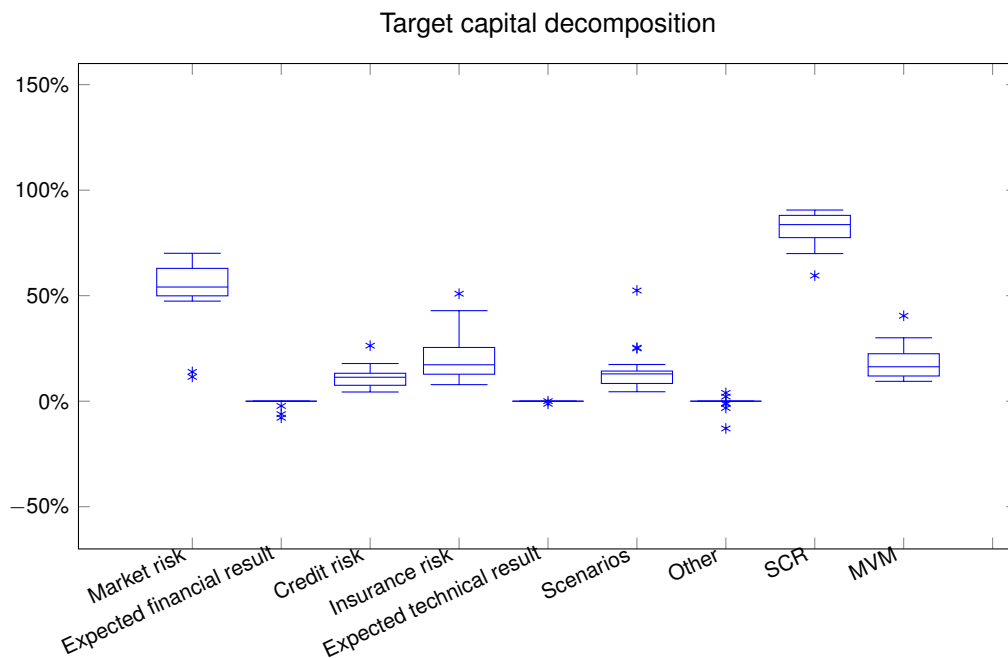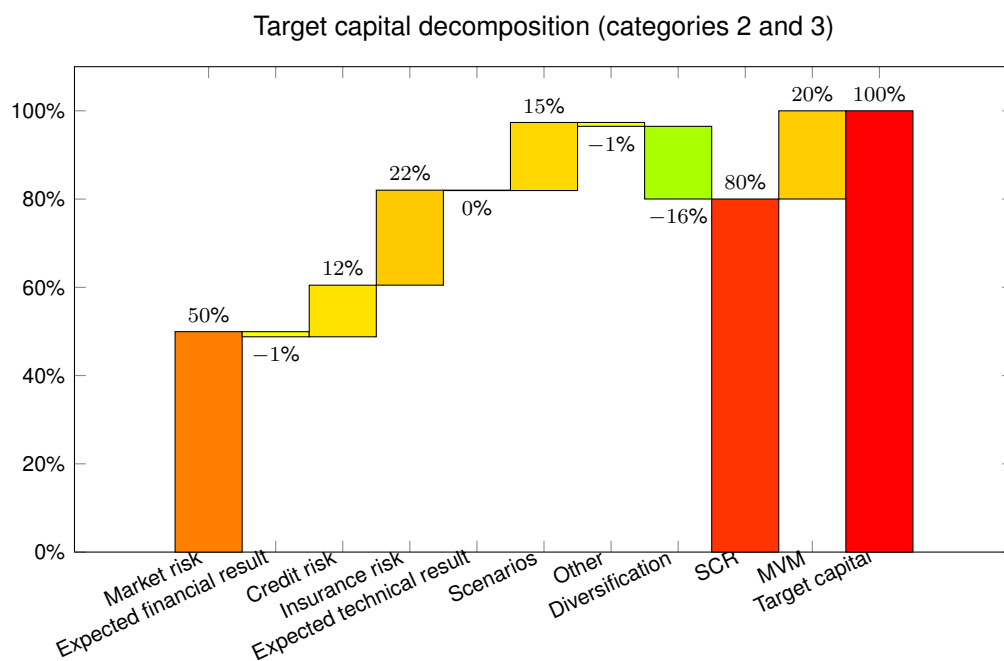
Figure 4c: Life (mean values)

3.7 Market risk analysis

Market risk analysis (all categories)
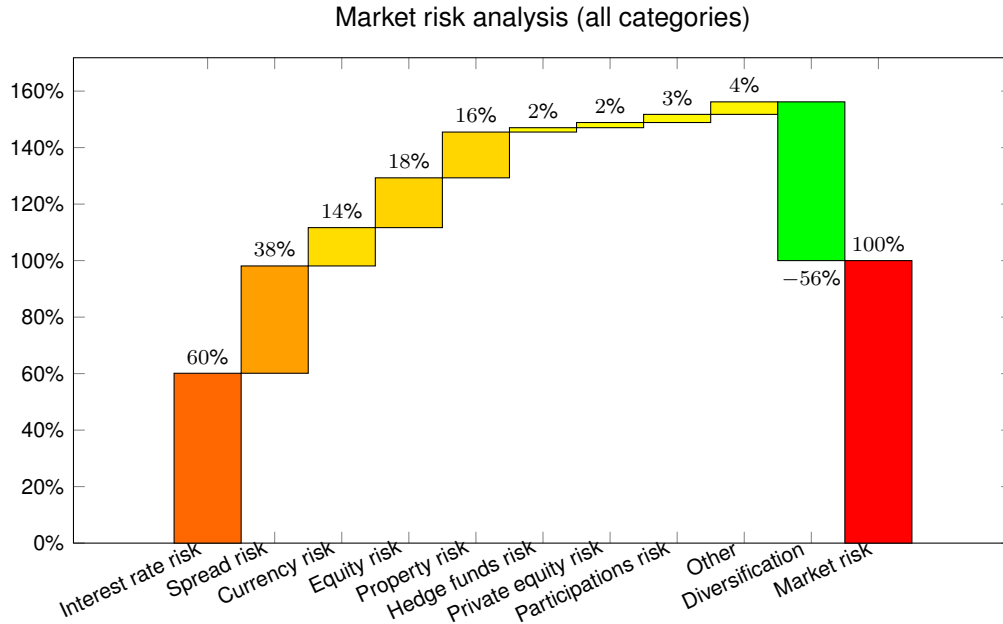
Figure 5a: Life (mean values)

Market risk analysis

Figure 5b: Life (distibution)

Market risk analysis (categories 2 and 3)
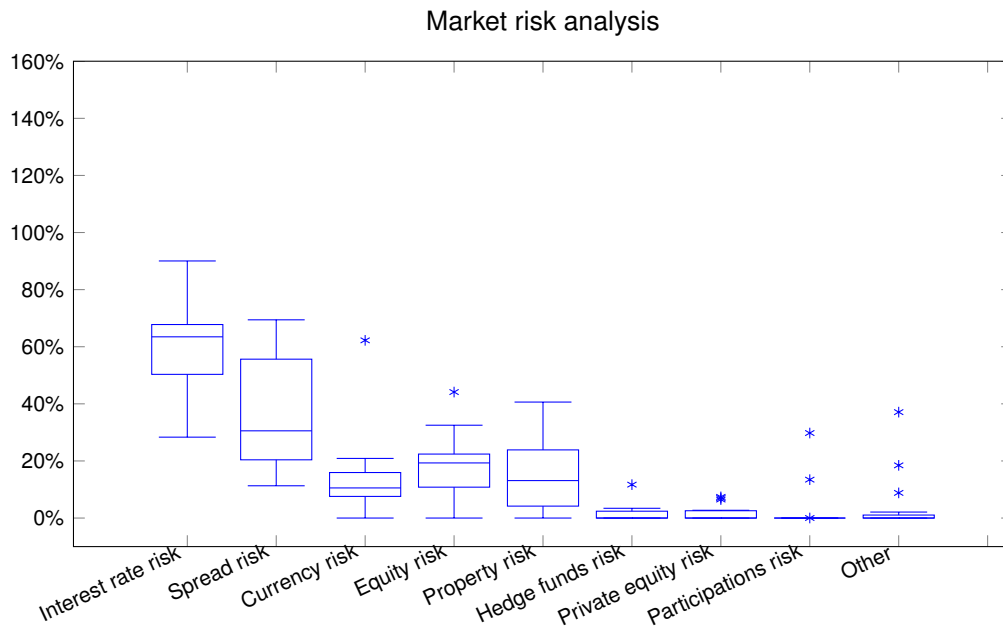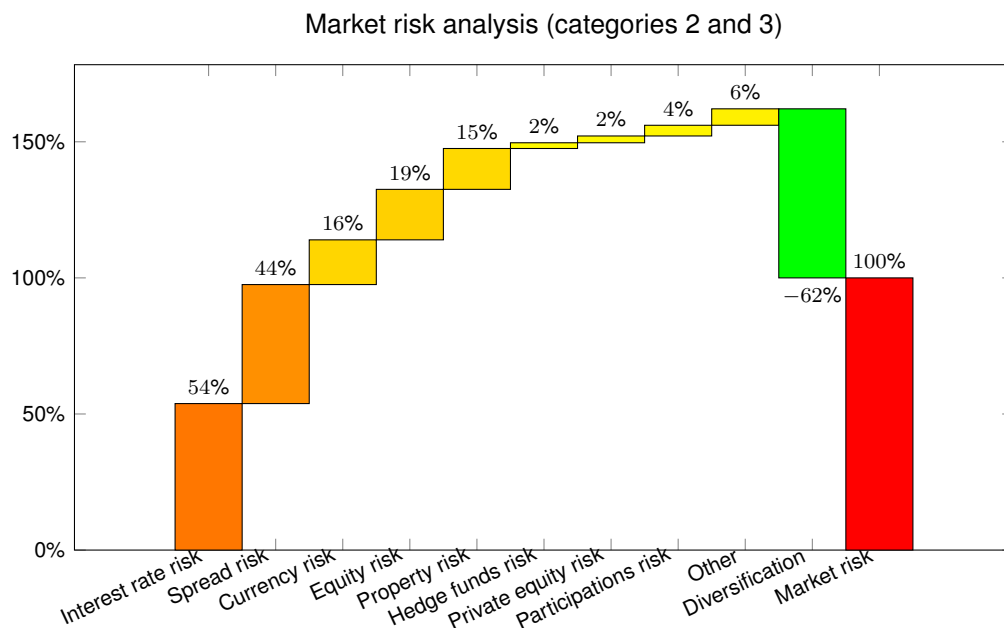
Figure 5c: Life (mean values)

3.8 Interest rates analysis

Interest rates analysis (all categories)
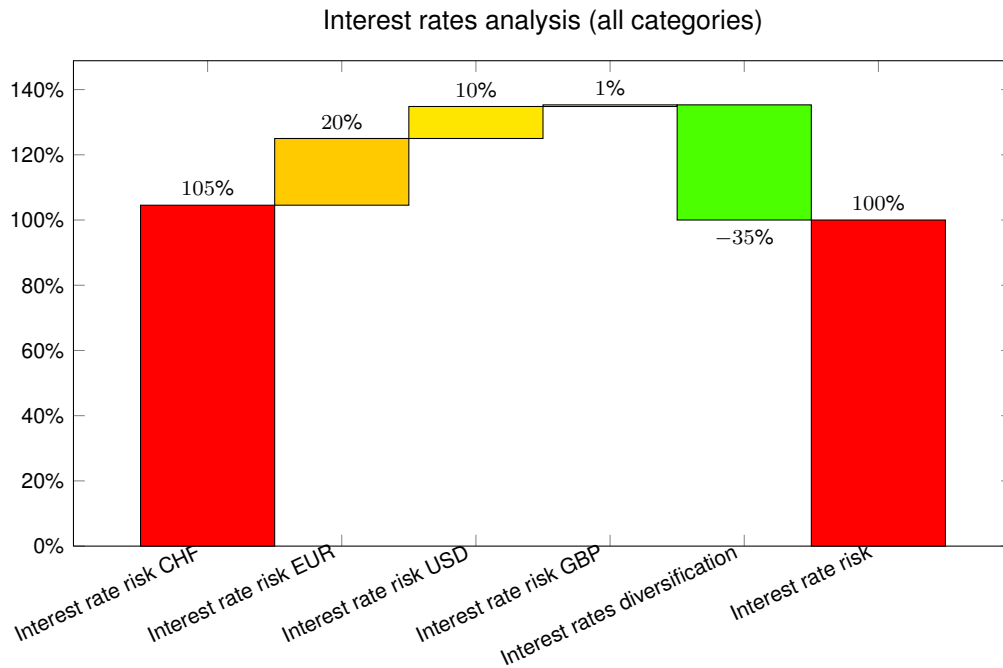
Figure 6a: Life (mean values)

Interest rates analysis

Figure 6b: Life (distibution)

Interest rates analysis (categories 2 and 3)
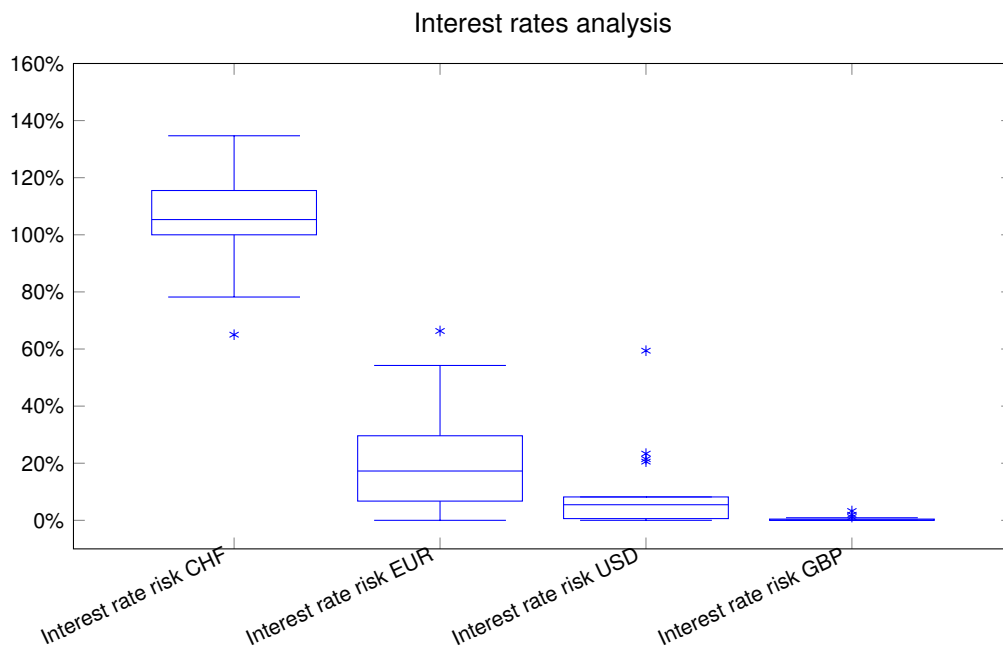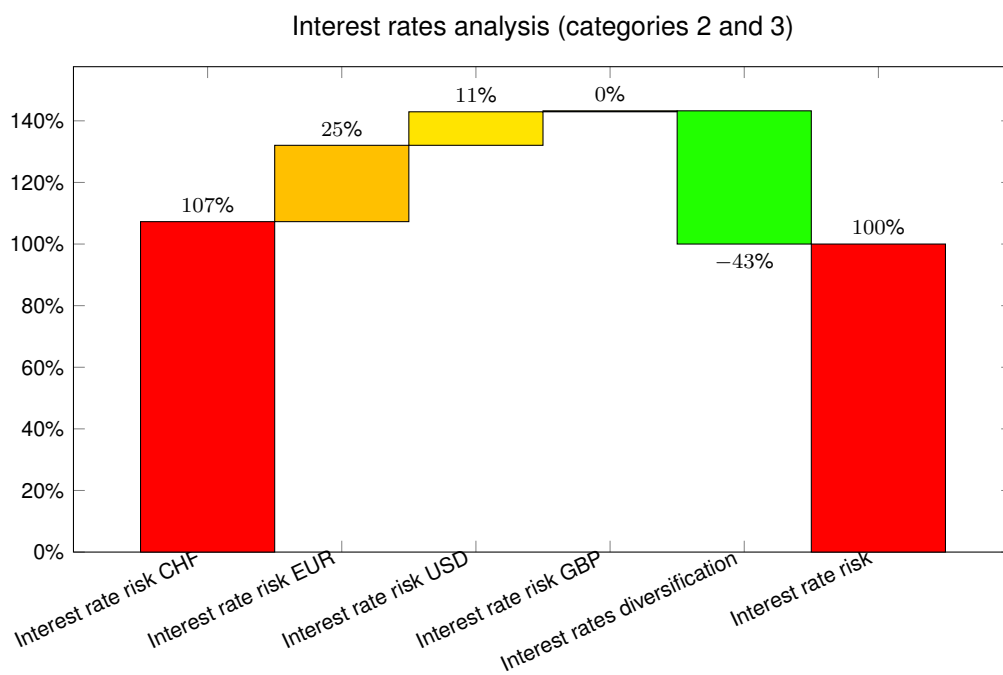
Figure 6c: Life (mean values)

3.9 Market and credit risk scenarios

Market and credit risk scenarios (all categories)
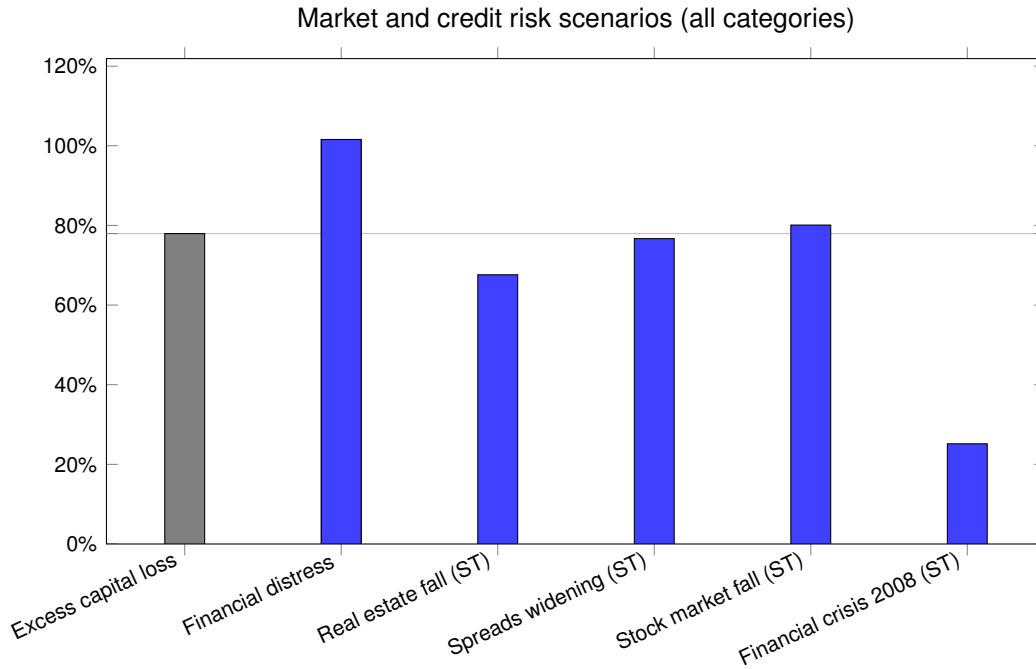
Figure 7a: Life (mean values)

Market and credit risk scenarios

Figure 7b: Life (distibution)

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Market and credit risk scenarios (categories 2 and 3)
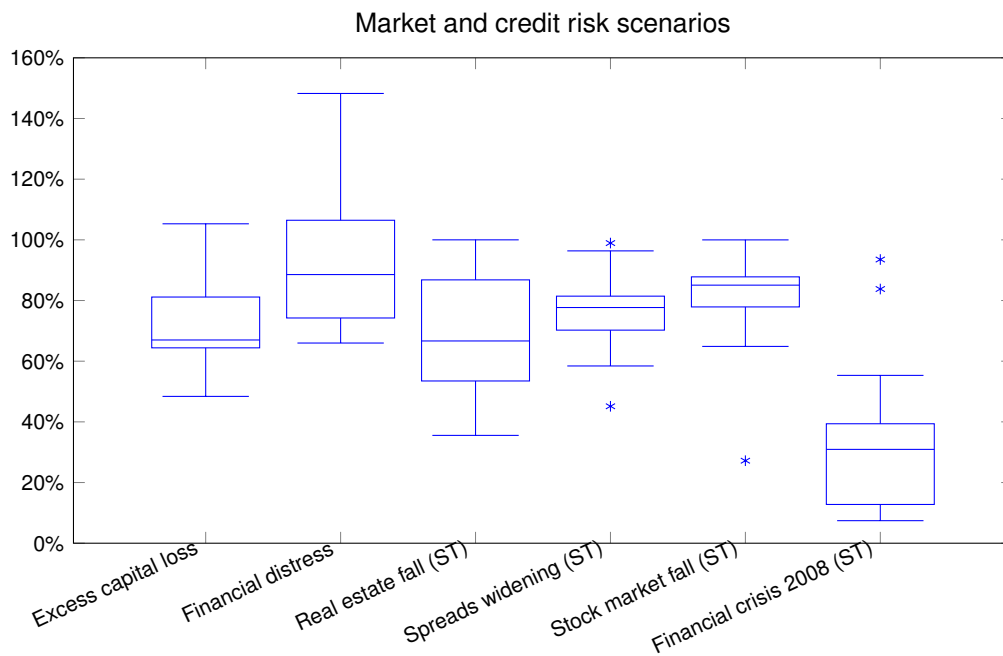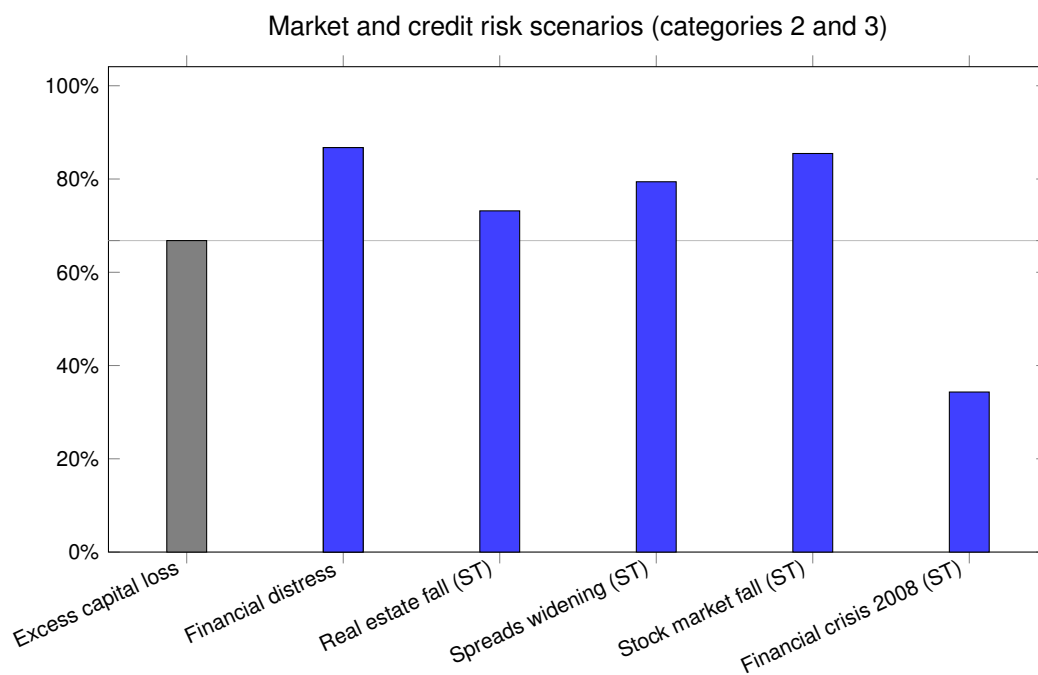
Figure 7c: Life (mean values)

3.10   Insurance risk and global scenarios

Insurance risk and global scenarios (all categories)
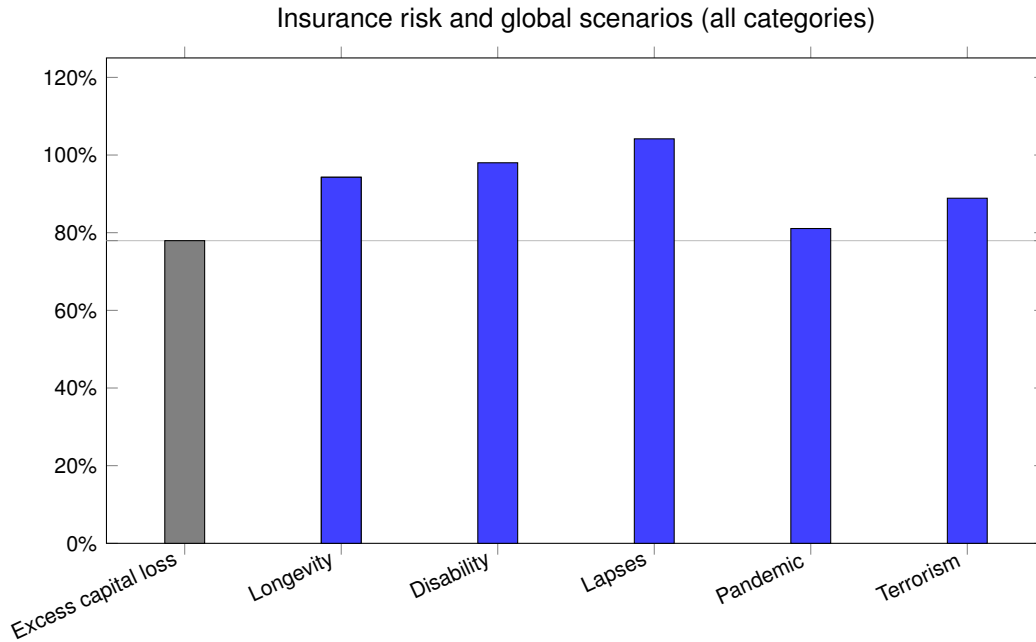
Figure 8a: Life (mean values)

Insurance risk and global scenarios

Figure 8b: Life (distibution)

Insurance risk and global scenarios (categories 2 and 3)
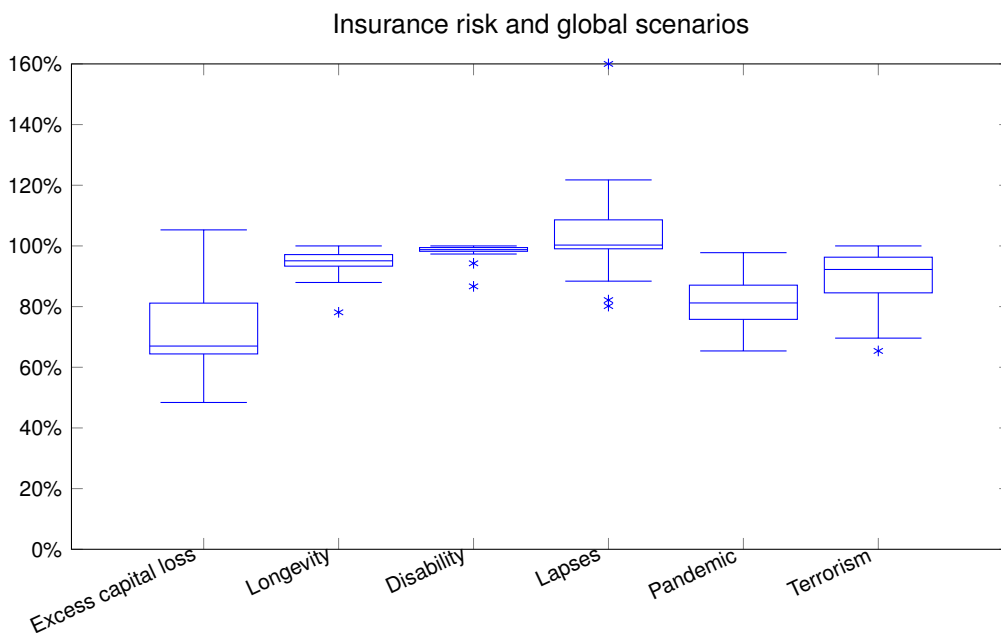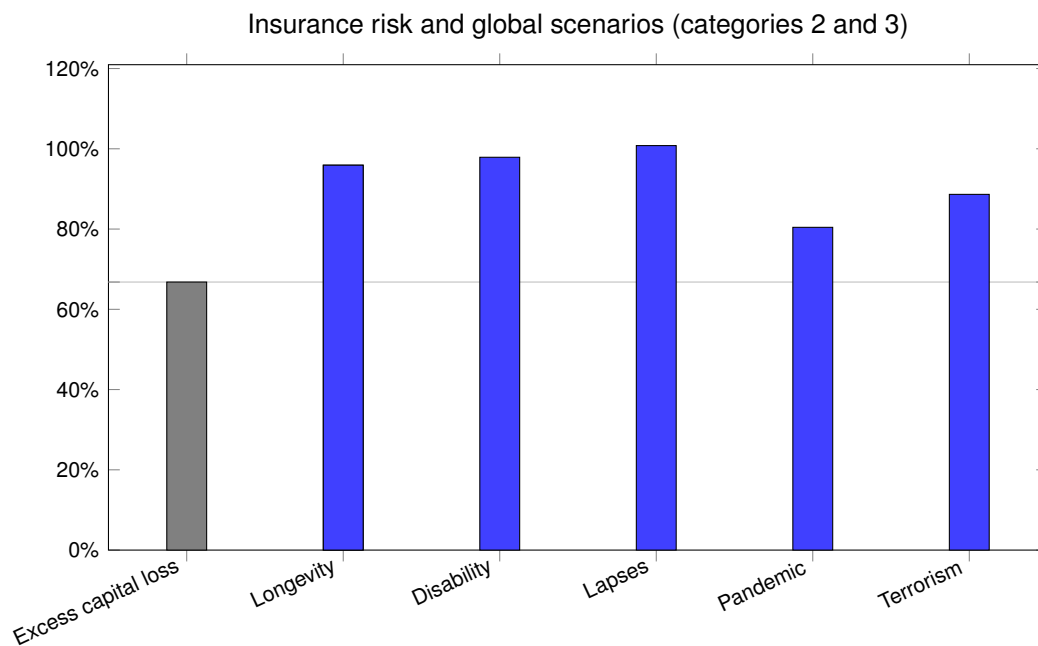
Figure 8c: Life (mean values)

4 Health

4.1 Goals of the analyses

The analyses presented in this chapter aim to give insight into the following:

- Investment structure
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$$TC = SCR + MVM. \tag{1}$$

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- The excess capital (EC), which is defined as the difference between the risk-bearing capital (RBC) and the target capital (TC). Thus, we have

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- The supplementary capital (SC)
- The deductions (D)

More precisely, we have the following decomposition of the assets:

$$MV(A) = BEL + MVM + SCR + EC - SC + D.$$

To show this, recall that the core capital (CC) and the risk-bearing capital (RBC) are related through

$$RBC = CC + SC. \qquad (3)$$

Now CC can be expressed in the following form

$$CC = MV(A) - BEL - D,$$

from which we derive by means of (3) the relation

$$MV(A) = BEL + RBC - SC + D.$$

By means of (1) and (2) we conclude that

$$MV(A) = BEL + EC + TC - SC + D$$
$$= BEL + MVM + SCR + EC - SC + D.$$

Target capital decomposition

The target capital equals the sum of the one-year solvency capital requirement (SCR) and the market value margin (MVM). In turn, the key components of the SCR are the market risk, credit risk, insurance risk, scenarios, and diversification.

Market risk analysis

Market risk plays a dominant role in an economic, risk-oriented solvency regime. A number of risk factors such as interest rates, credit spreads, exchange rates, real estate to name but a few contribute to the market risk. Waterfall and boxplot diagrams are presented for the most important market risk factors.

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Scenarios

For each scenario we compute the so called *impact ratio*, which is given by the sum of the risk-bearing capital (RBC) and the scenario impact (c), divided by the RBC:

$$\text{Impact ratio} = \frac{\text{RBC} + c}{\text{RBC}}.$$

Typically, a scenario impact c will have a negative value, representing a loss.

Furthermore, a reference scenario called *excess capital loss* is introduced. The loss of this scenario equals the excess capital (EC), that is $c = -\text{EC}$. This loss is the maximum loss an insurance company can endure while remaining solvent. It should be noted that the impact ratio of this reference scenario can be expressed with the help of the target capital (TC). We use the relation $\text{RBC} = \text{TC} + \text{EC}$ in order to obtain the corresponding impact ratio:

$$\text{Impact ratio} = \frac{\text{RBC} - \text{EC}}{\text{RBC}} = \frac{\text{TC}}{\text{RBC}}.$$

In order to facilitate the comparison of the scenarios with this reference scenario, the latter one is shown in a different color.

Scenarios which are exempted from the target capital aggregation are called stress tests, and are marked with the label "(ST)".

Note that there are scenarios which are relevant only for some but not all the branches. For example the scenario "Default of UVG pool" may be relevant for general insurers, health and reinsurers. It this is not the case, the scenario will not be displayed.

4.2   Comments on results

The 15.4% increase in risk-bearing capital to CHF 9'710 million would have been larger if not for FINMA's intervention in 2013 to reduce certain supplementary health insurance tariffs with effect as of 1 January 2014 and, in some cases, correct the 'best estimate' assumptions used to calculate actuarial liabilities. This increase is due in particular to the optimistic financial markets. The target capital logically followed this trend but rose to an even greater degree, increasing by 19.7% to CHF 2'867 million. The result is an SST solvency ratio of 339%, equivalent to a decrease of 12 percentage points but still at a comfortable level.

4.3 Assets
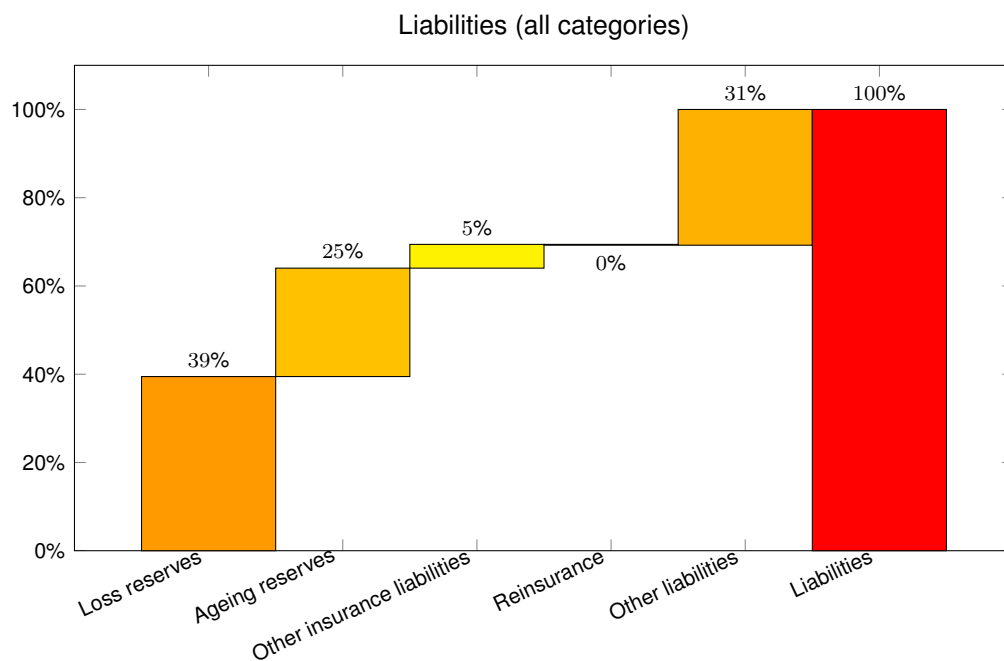
Assets (all categories)
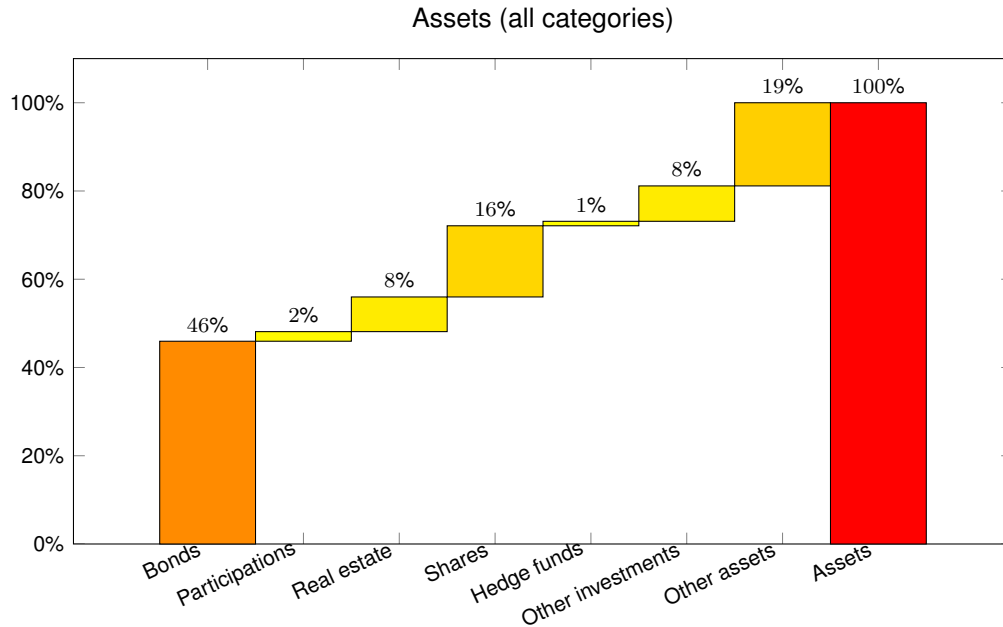
Figure 9a: Health (mean values)

Assets
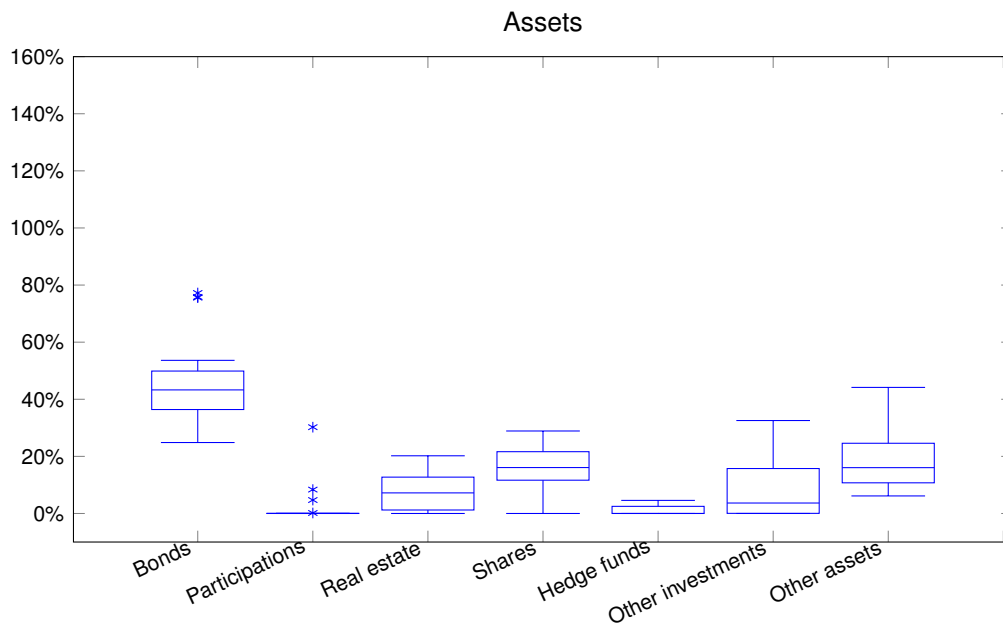
Figure 9b: Health (distibution)
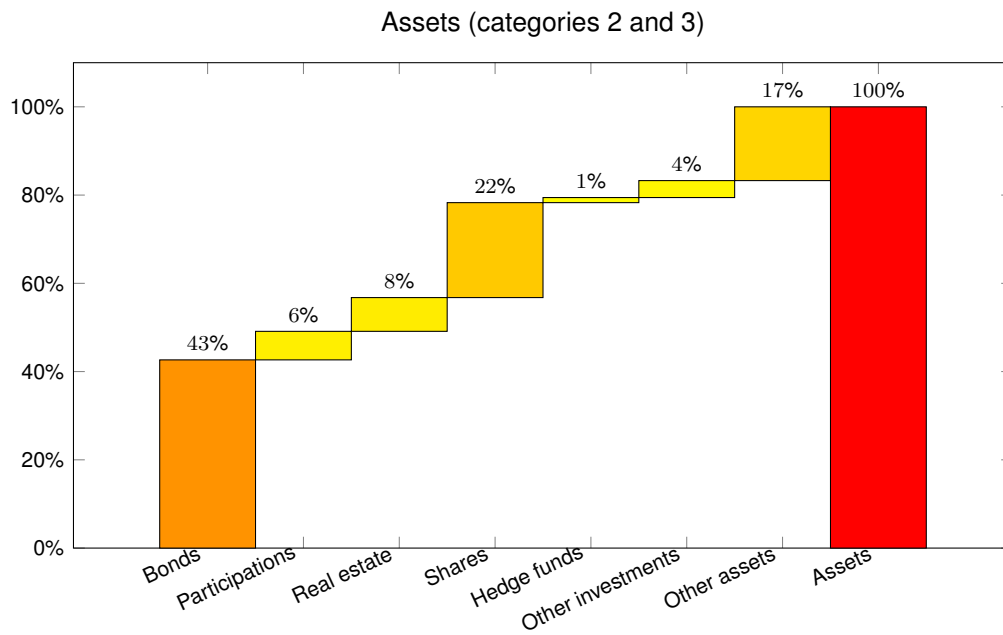
Figure 9c: Health (mean values)
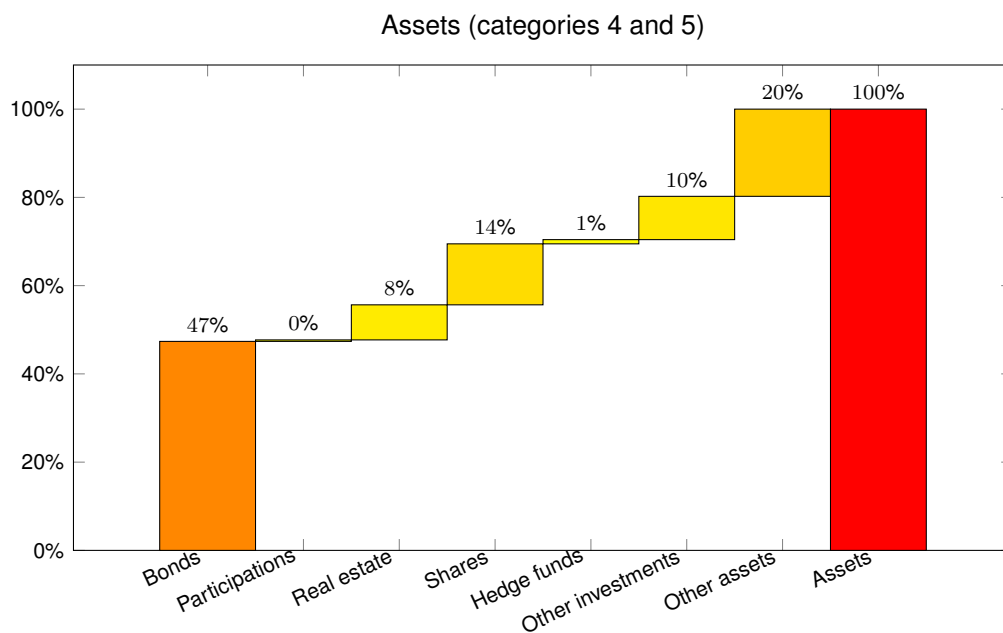
Figure 9d: Health (mean values)

4.4 Liabilities

Liabilities (all categories)

Figure 10a: Health (mean values)

Liabilities

Figure 10b: Health (distibution)

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Liabilities (categories 2 and 3)
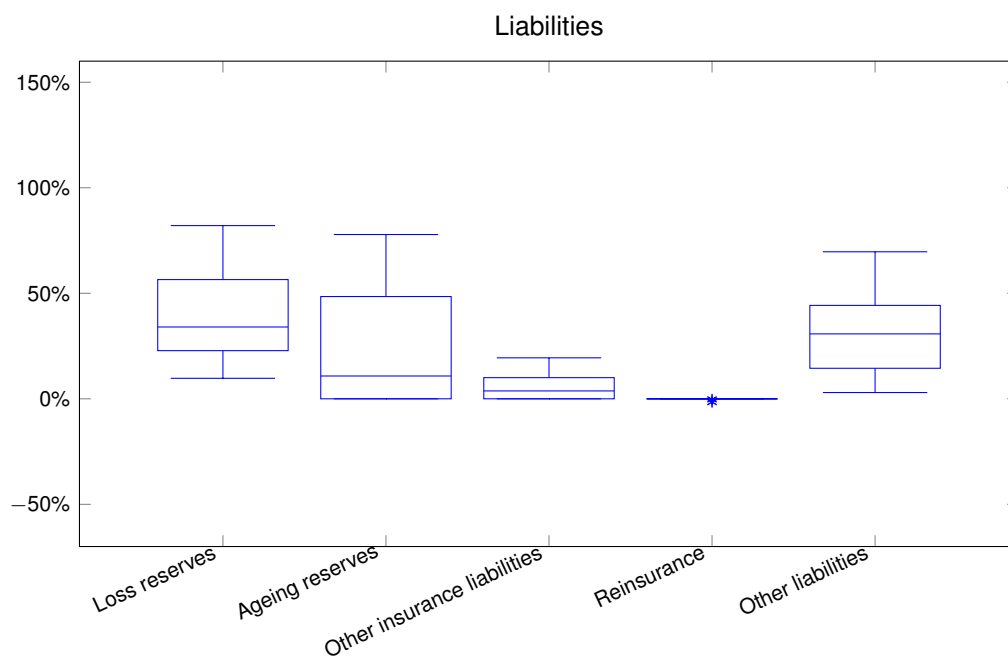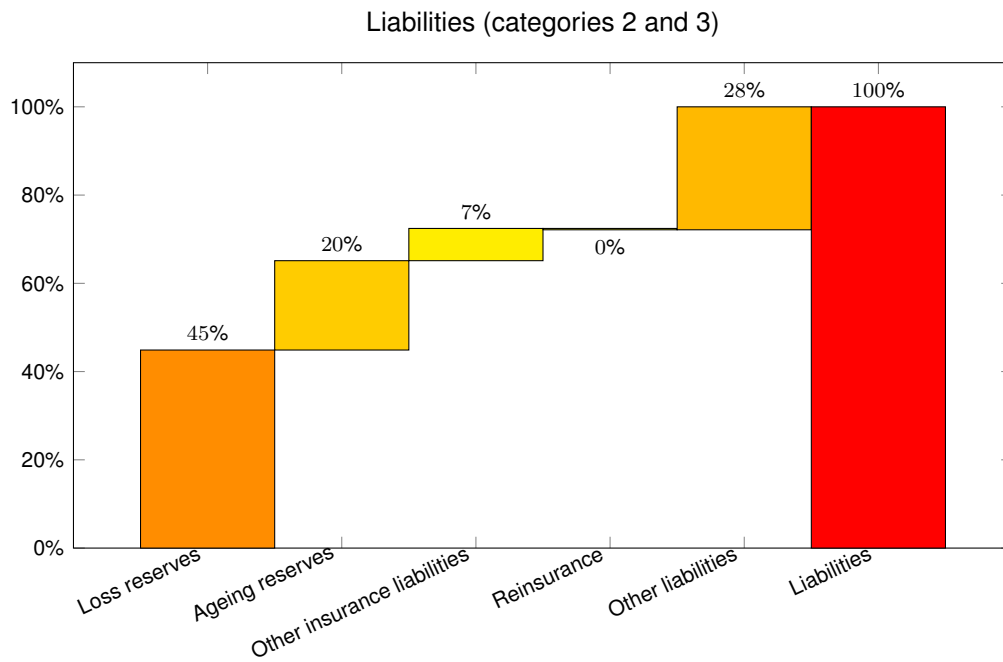
Figure 10c: Health (mean values)

Liabilities (categories 4 and 5)
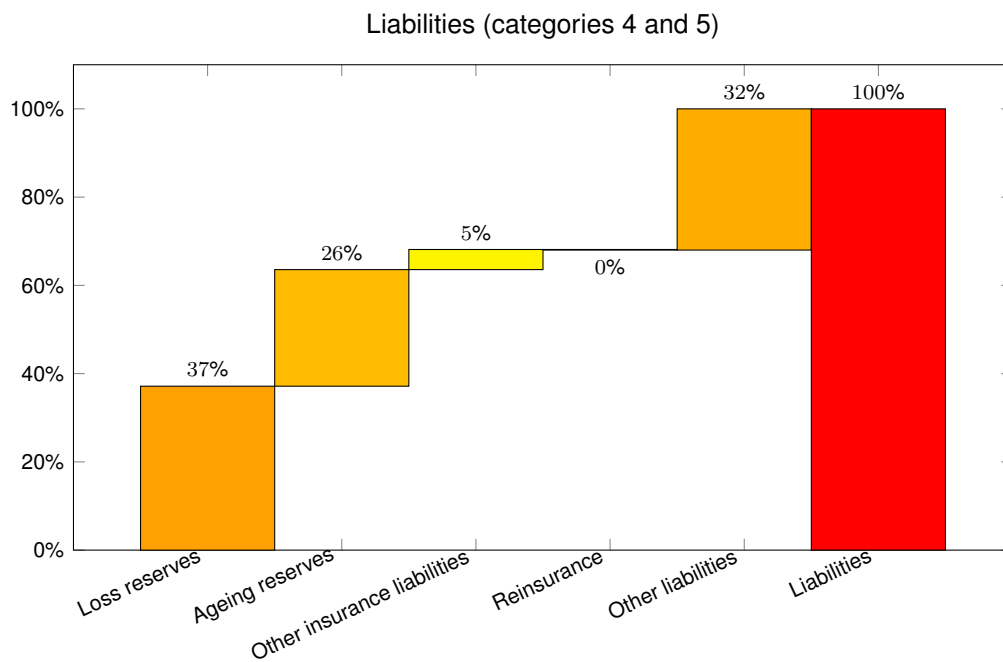
Figure 10d: Health (mean values)

4.5 Best estimate liability and target capital in relation to the balance sheet total

Best estimate liability and target capital in relation to the balance sheet total (all categories)
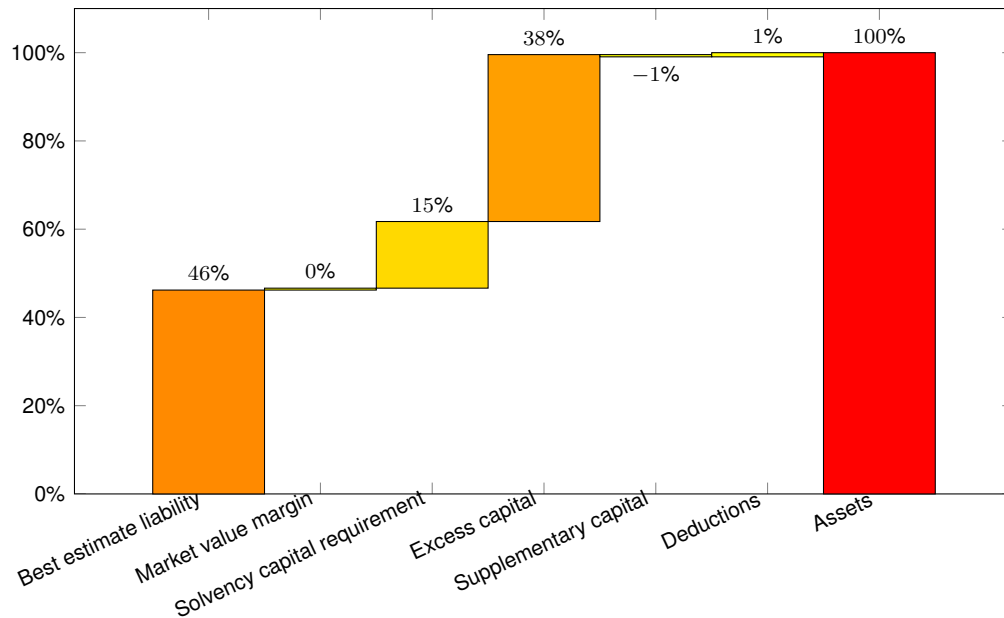
Figure 11a: Health (mean values)

Best estimate liability and target capital in relation to the balance sheet total
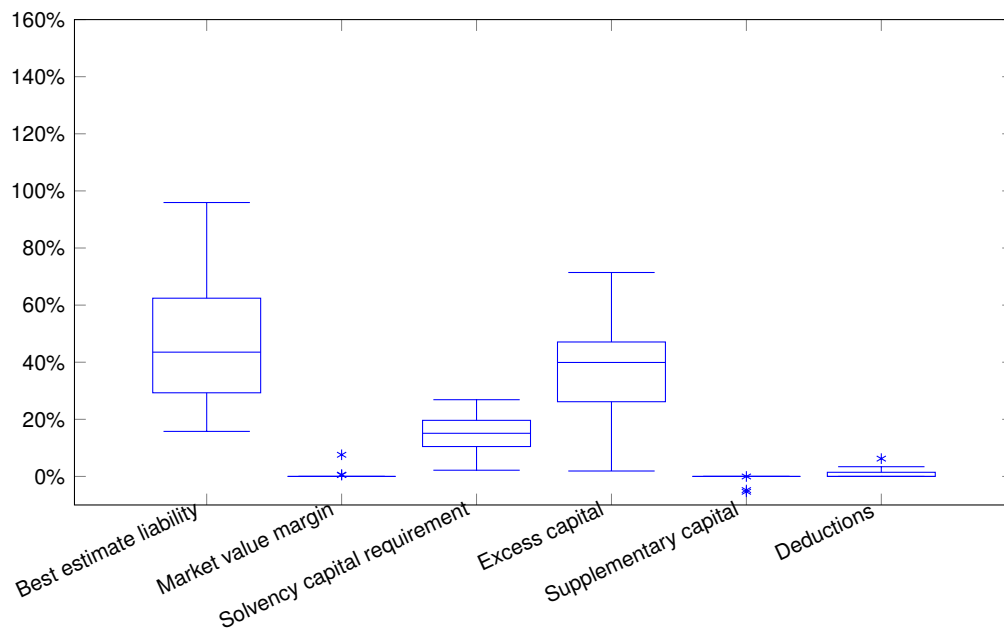
Figure 11b: Health (distibution)

Best estimate liability and target capital in relation to the balance sheet total (categories 2 and 3)
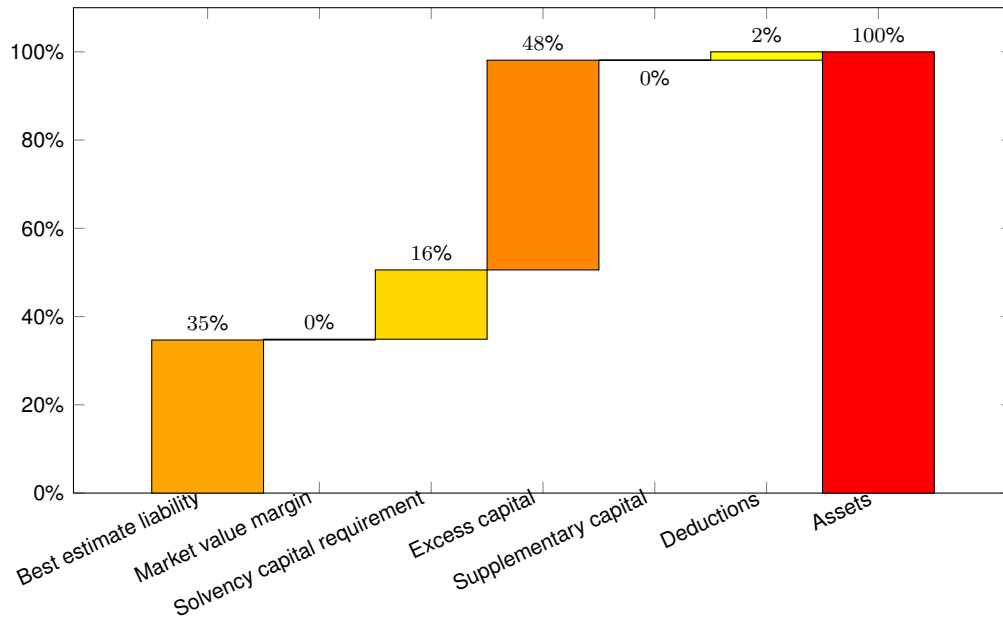
Figure 11c: Health (mean values)

Best estimate liability and target capital in relation to the balance sheet total (categories 4 and 5)
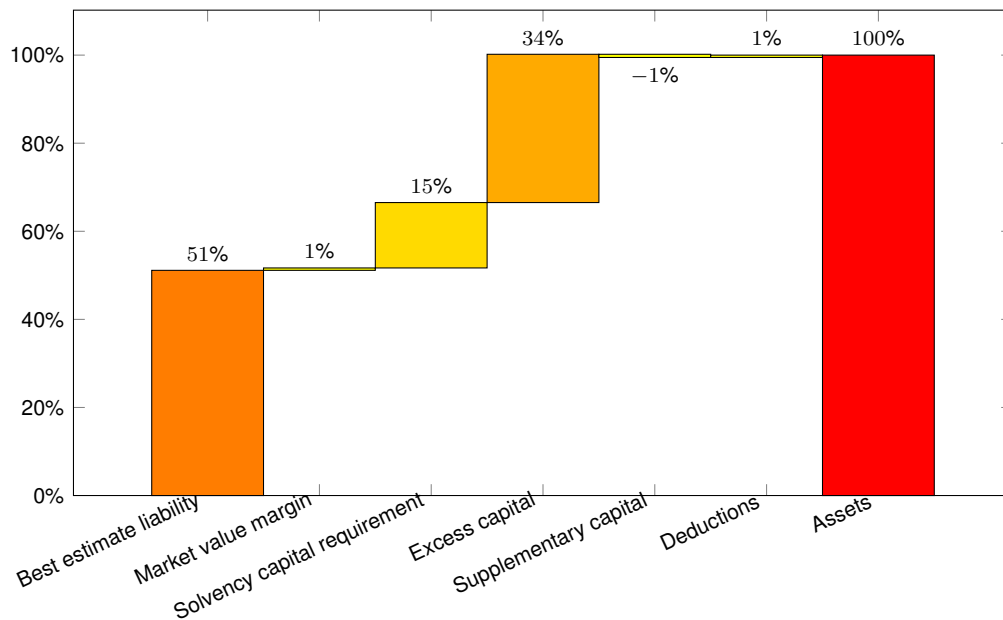
Figure 11d: Health (mean values)

4.6 Target capital decomposition

Target capital decomposition (all categories)
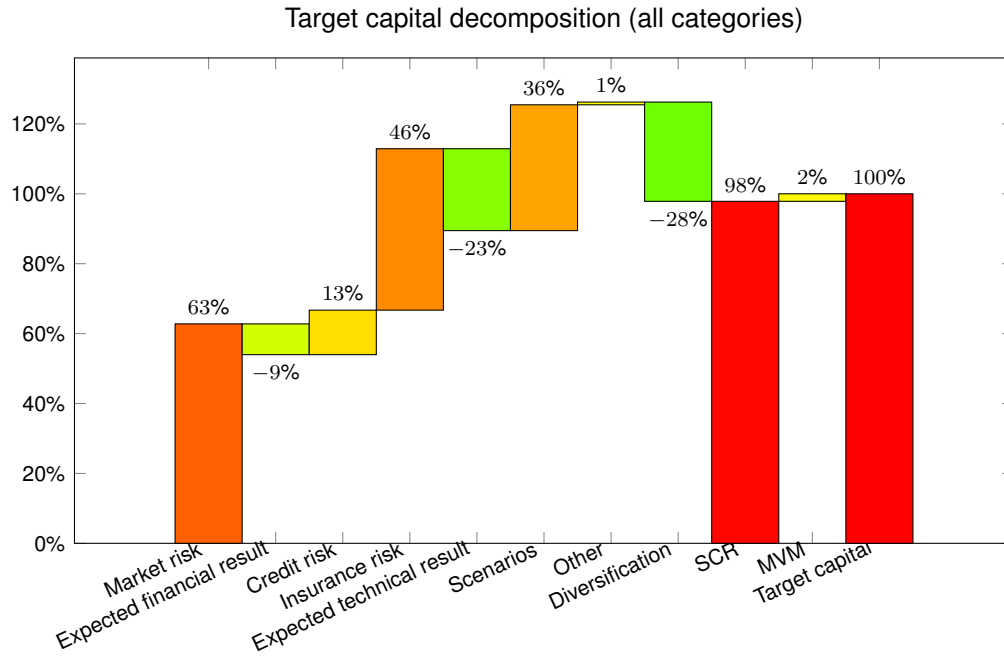
Figure 12a: Health (mean values)

Target capital decomposition

Figure 12b: Health (distibution)

Target capital decomposition (categories 4 and 5)
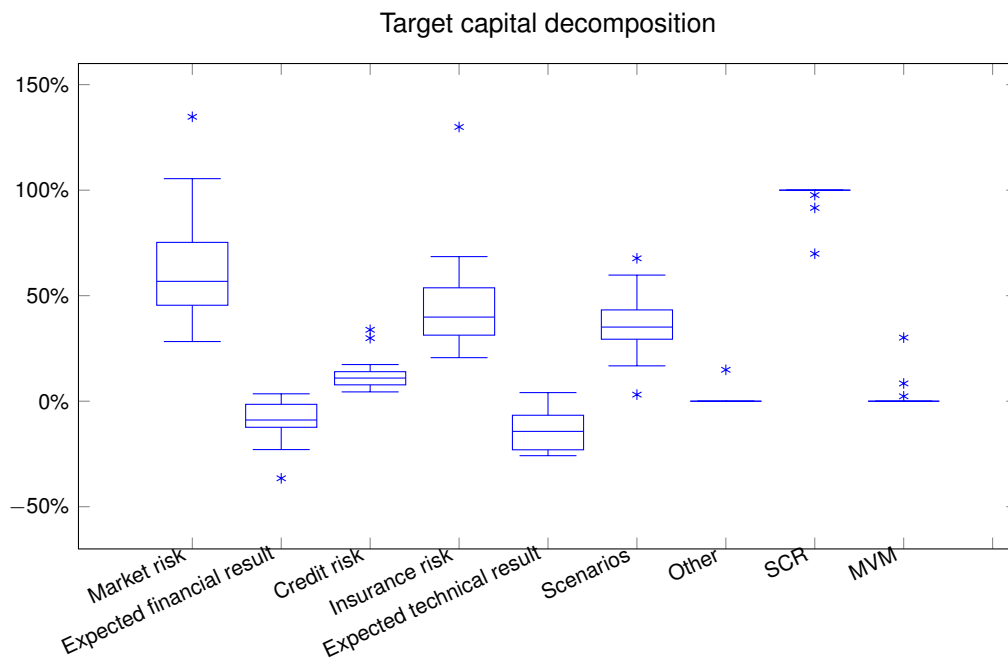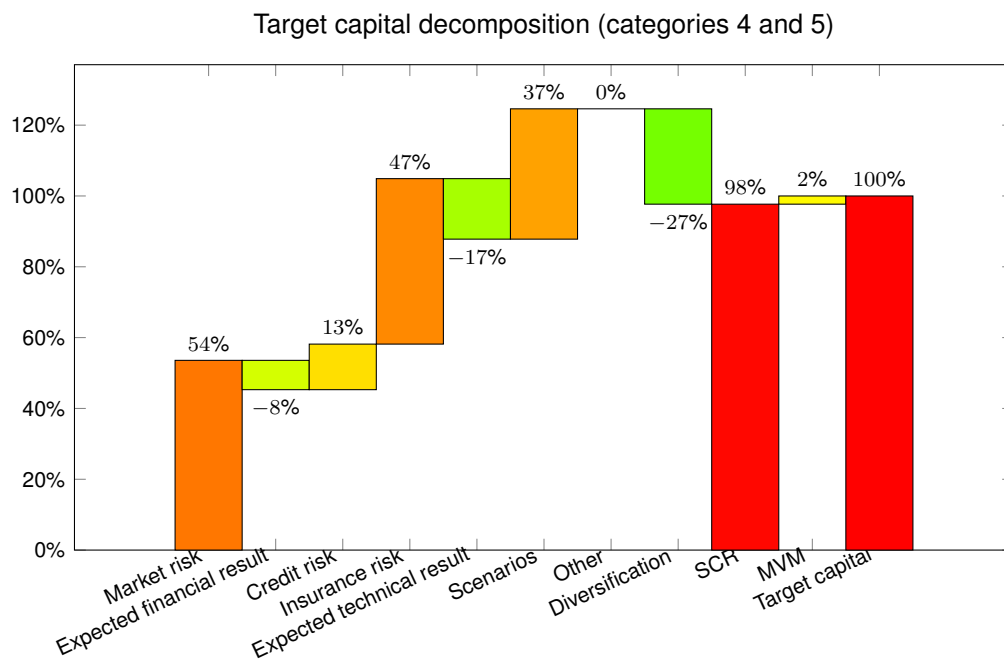
Figure 12c: Health (mean values)

4.7   Market risk analysis

Market risk analysis (all categories)
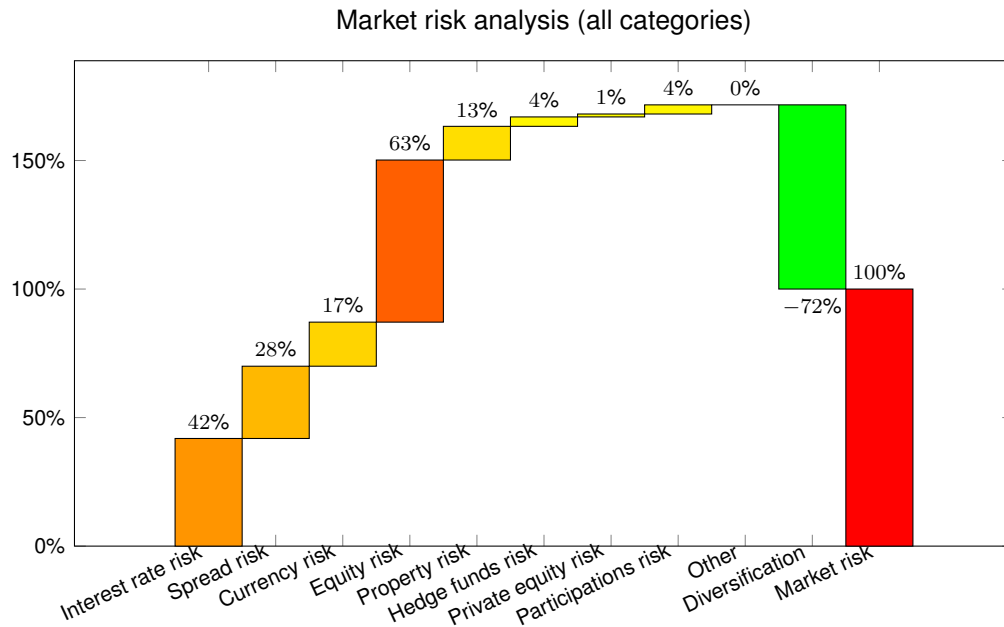
Figure 13a: Health (mean values)

Market risk analysis
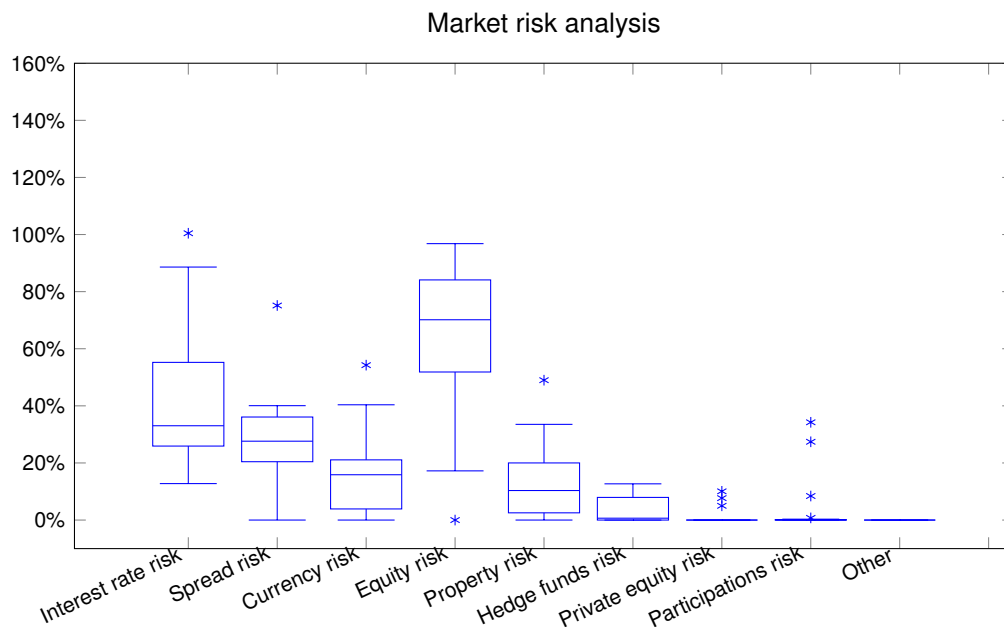
Figure 13b: Health (distibution)

Market risk analysis (categories 2 and 3)
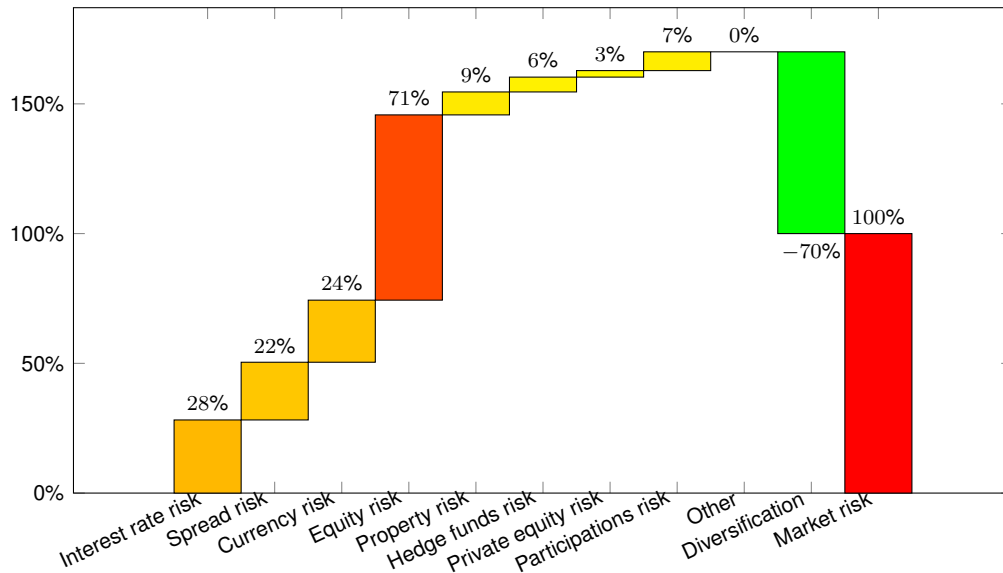
Figure 13c: Health (mean values)

Market risk analysis (categories 4 and 5)
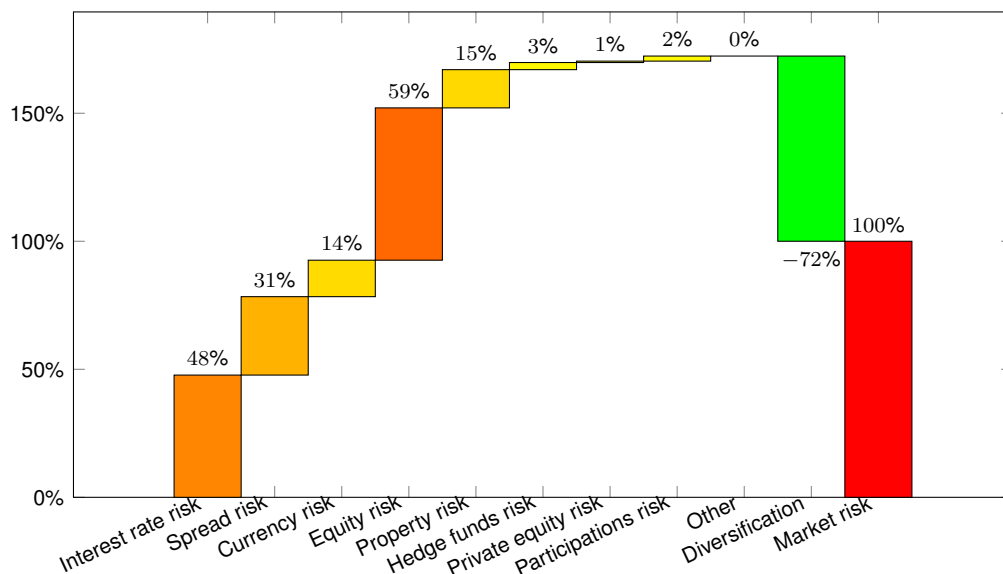
Figure 13d: Health (mean values)

4.8 Interest rates analysis

Interest rates analysis (all categories)
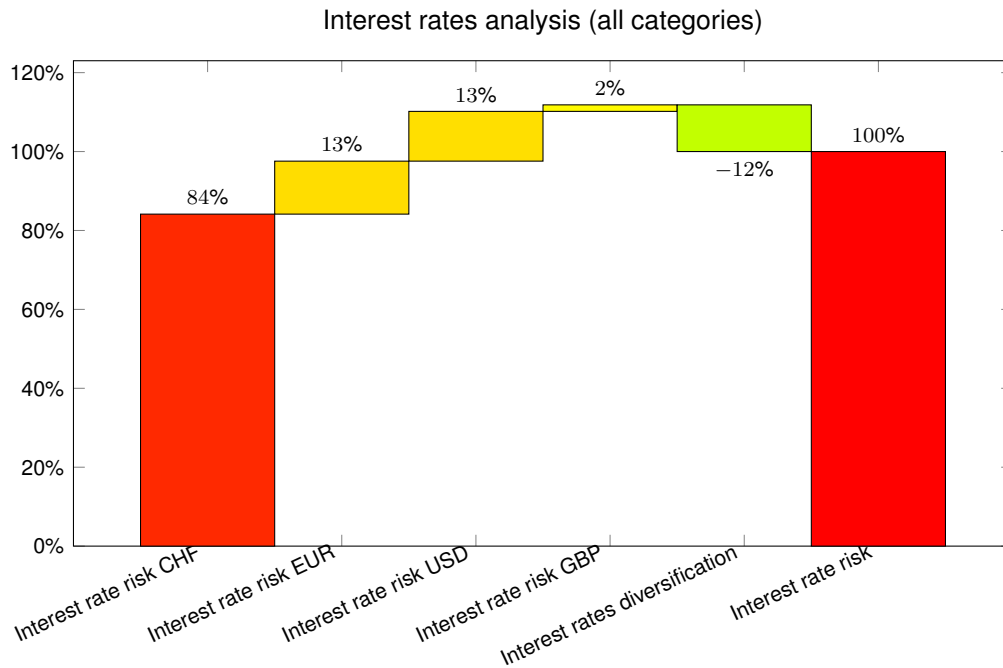
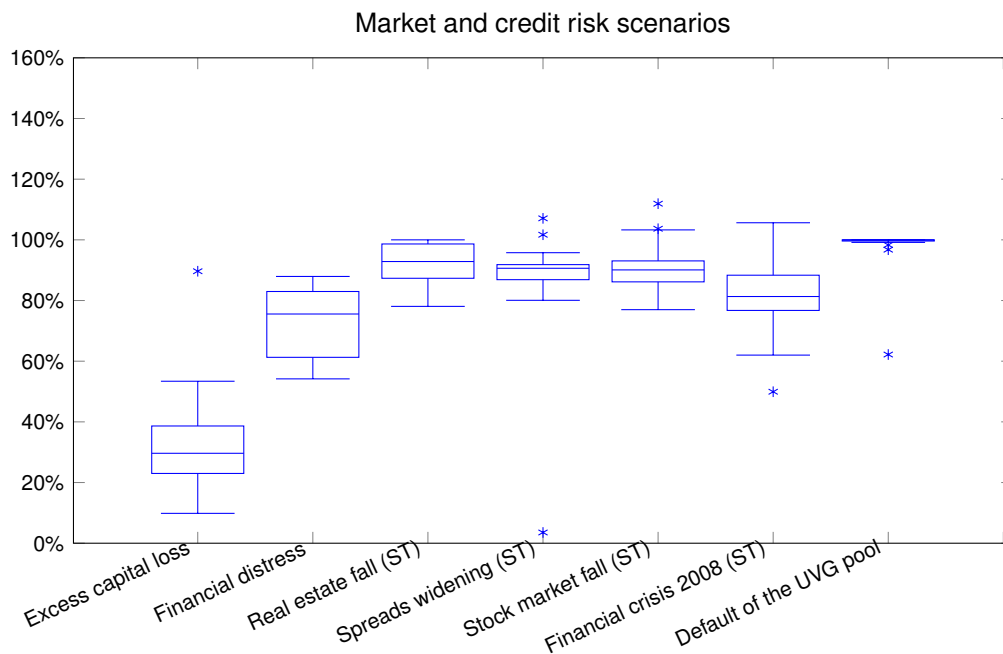Figure 14a: Health (mean values)

Interest rates analysis
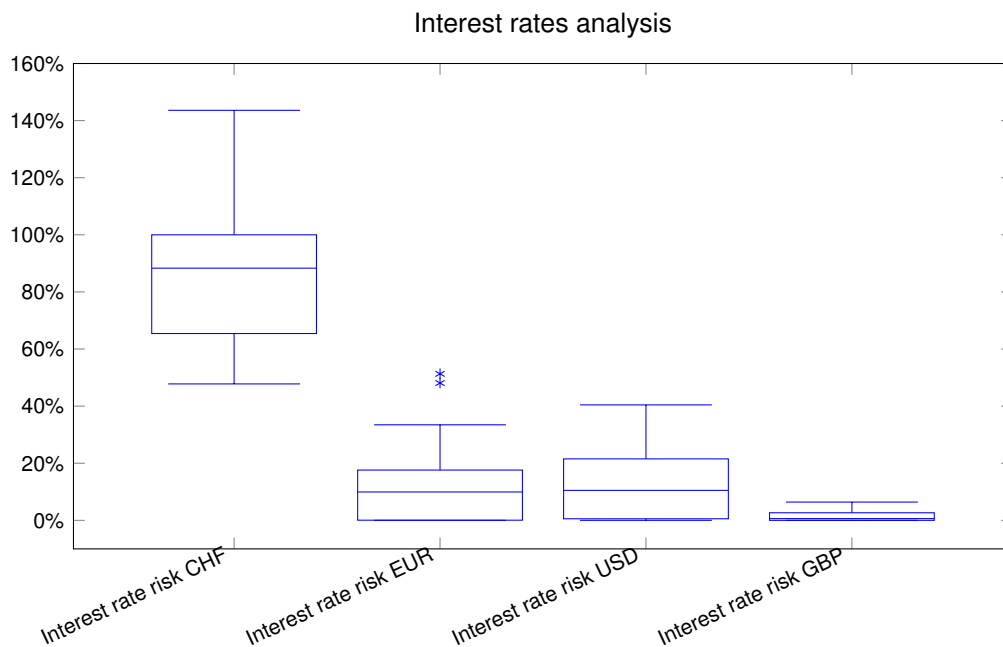
Figure 14b: Health (distibution)
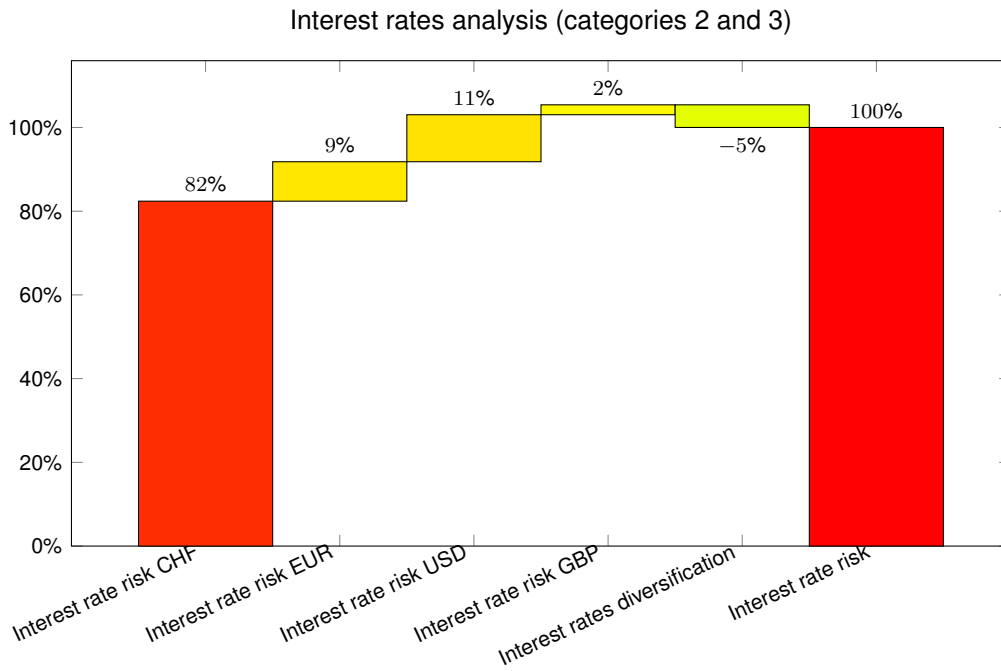
Figure 14c: Health (mean values)
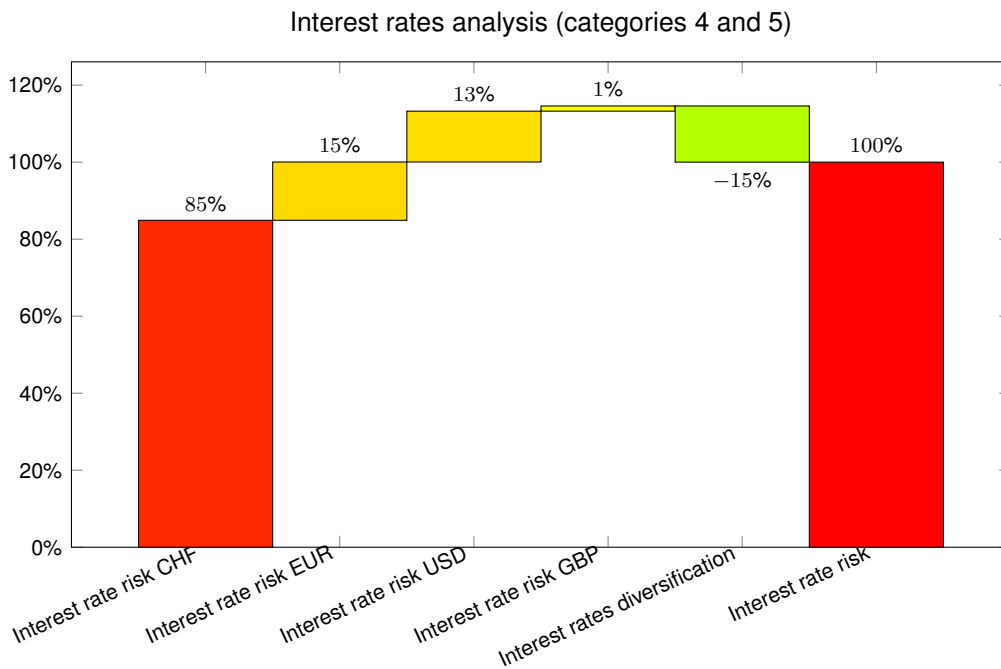
Figure 14d: Health (mean values)

4.9 Market and credit risk scenarios

Market and credit risk scenarios (all categories)
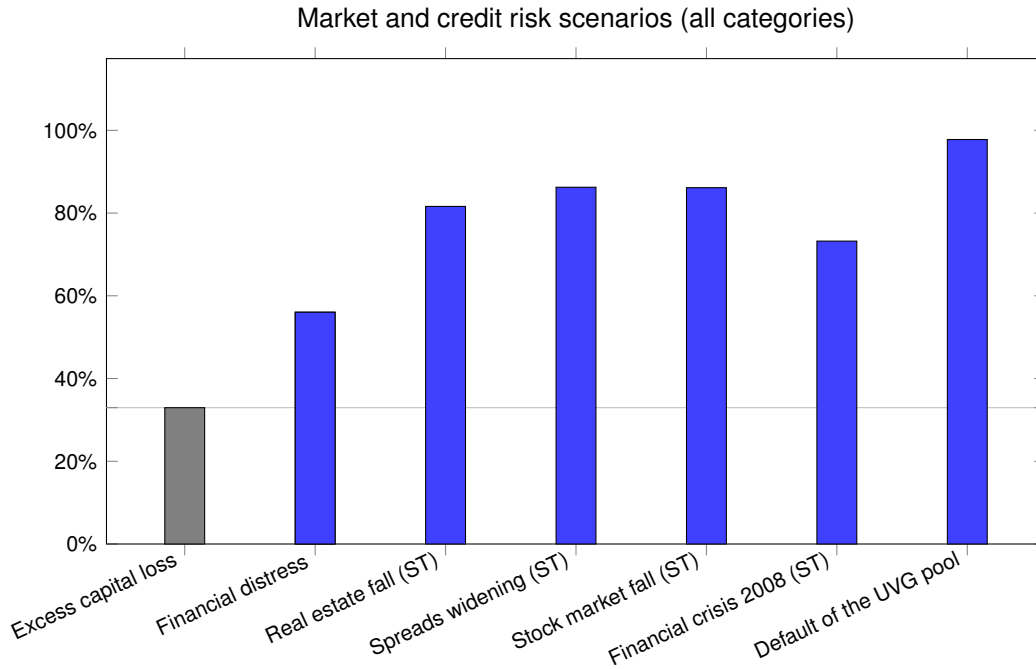
Figure 15a: Health (mean values)

Market and credit risk scenarios

Figure 15b: Health (distibution)
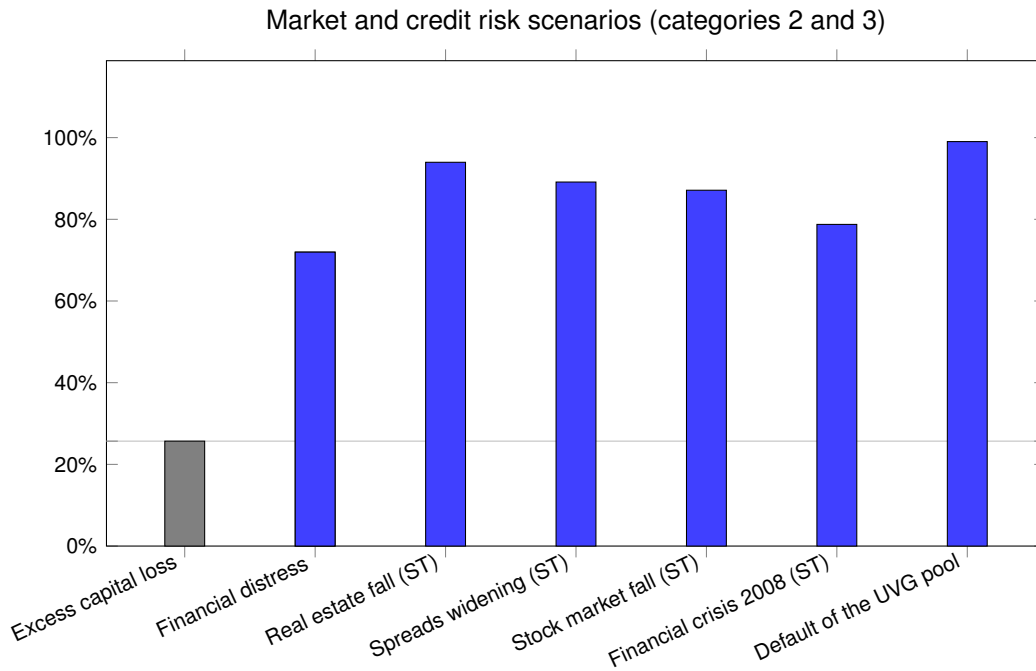
Figure 15c: Health (mean values)
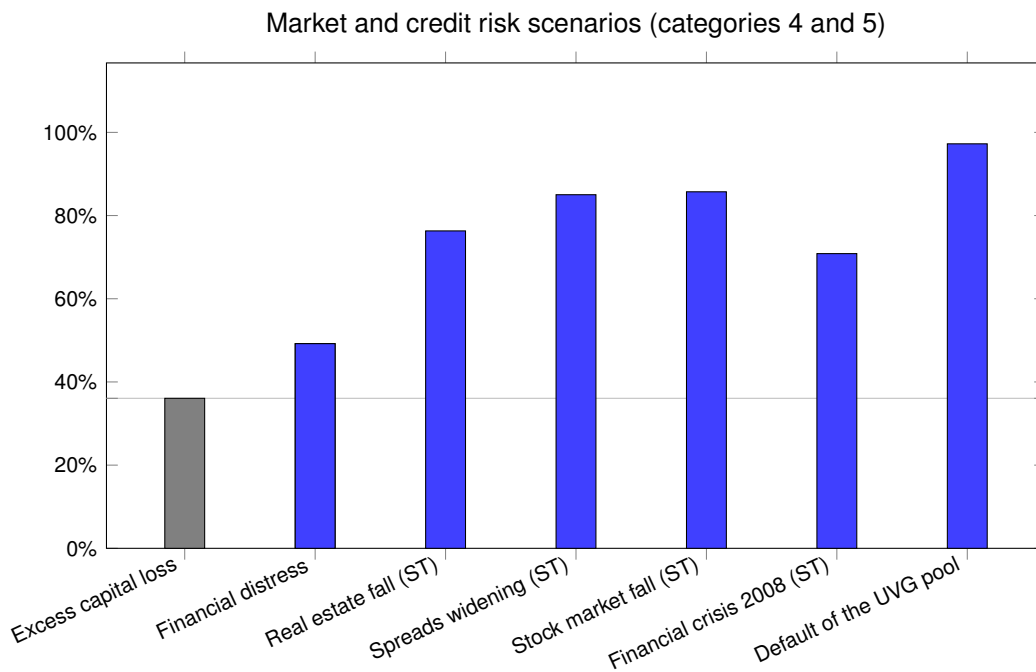
Figure 15d: Health (mean values)
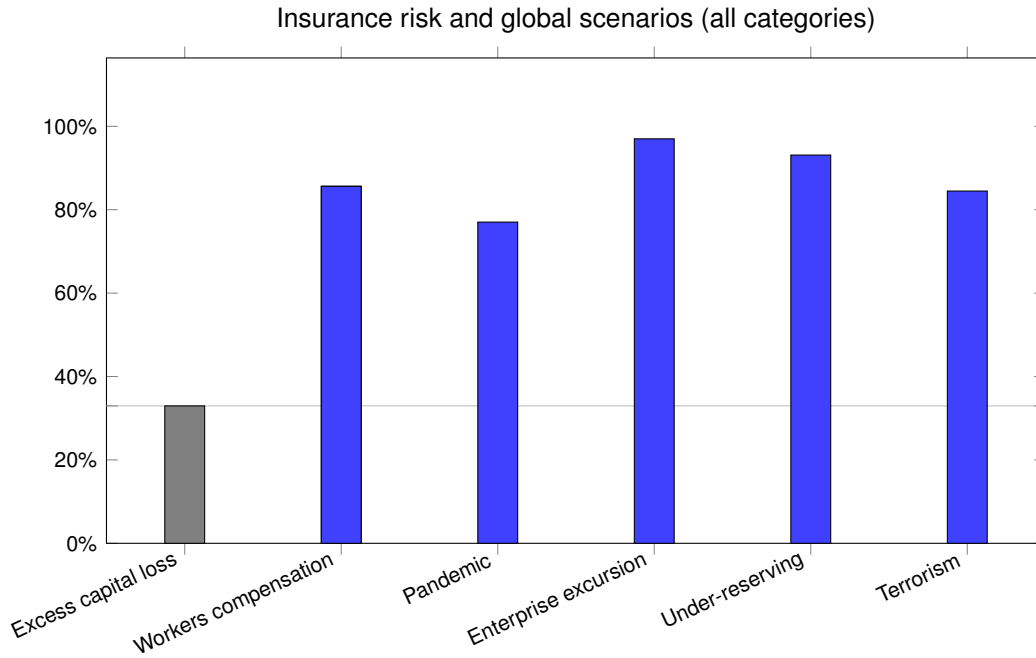
4.10 Insurance risk and global scenarios

Insurance risk and global scenarios (all categories)

Figure 16a: Health (mean values)

Insurance risk and global scenarios

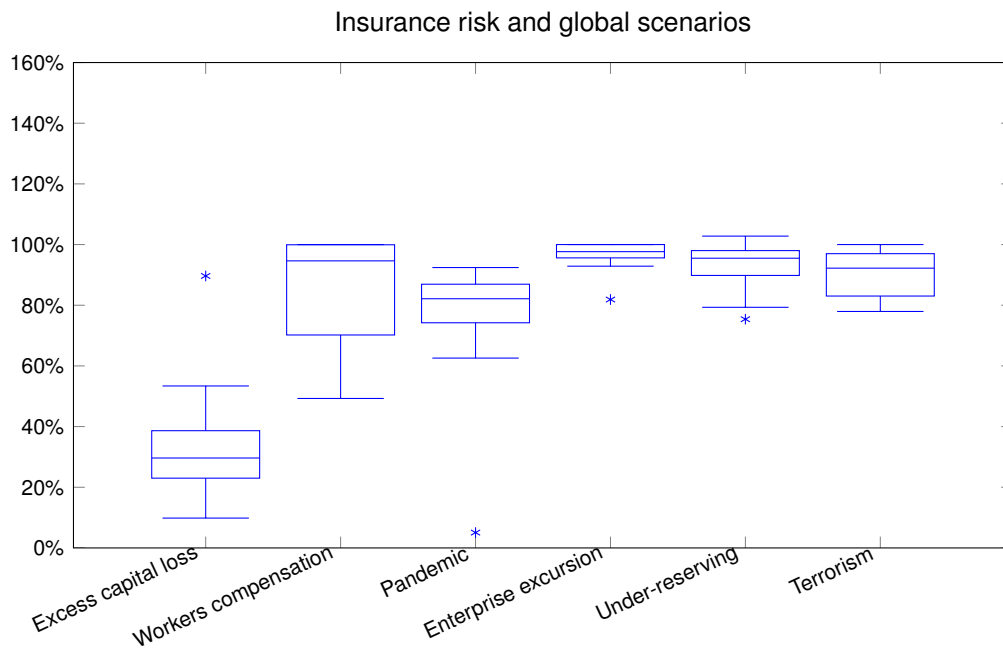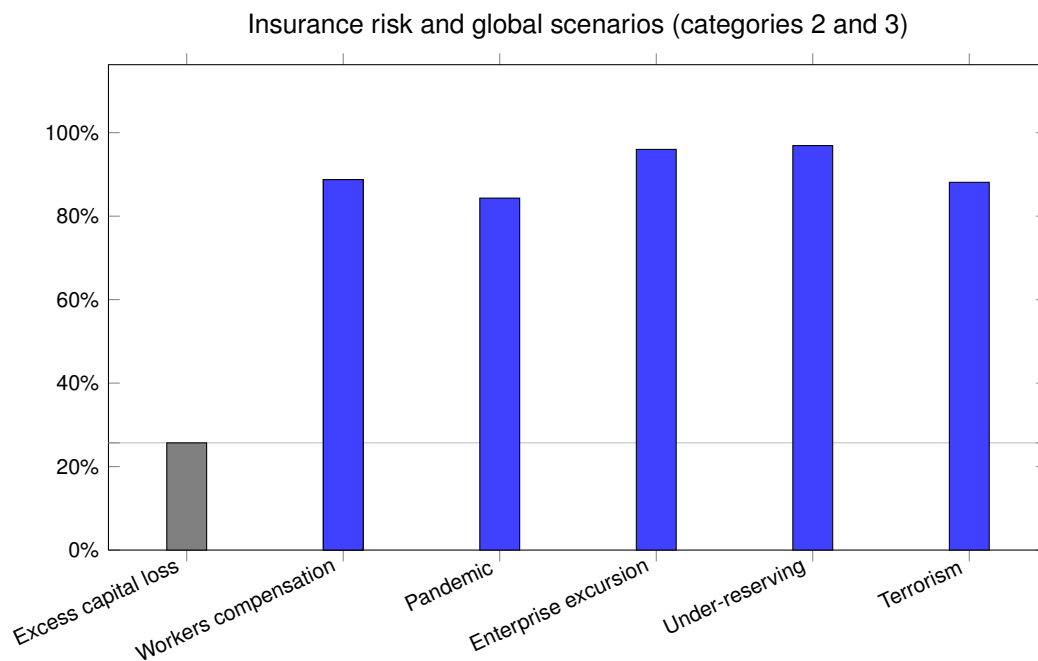
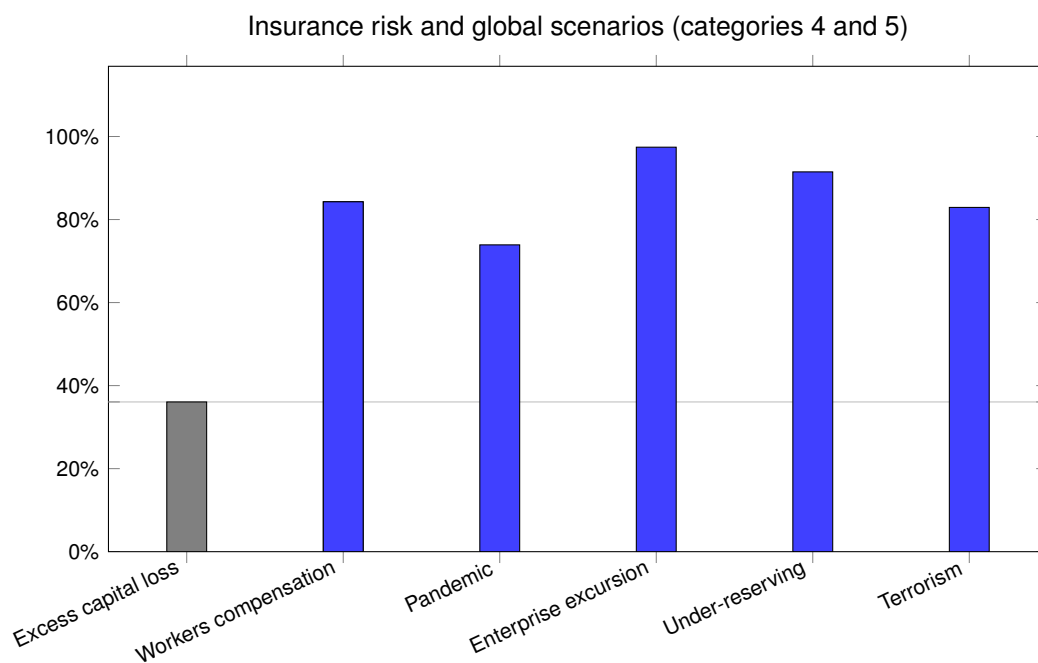Figure 16b: Health (distibution)

Figure 16c: Health (mean values)

Figure 16d: Health (mean values)

5 General insurance

5.1 Goals of the analyses

The analyses presented in this chapter aim to give insight into the following:

- Investment structure

- Liability structure

- Best estimate of the liabilities and target capital in relation to the total assets.

- Split of the target capital into its components such as e.g. market, credit and insurance risk.

- Split of the market risk into components like interest rate risk, equity risk etc.

- Split of the interest rate risk into different currencies.

- Scenarios and their impact on the risk-bearing capital. Indication of whether the SST capital requirements after scenario impacts are still fulfilled.

Two types of visual depiction are shown:

- Waterfall diagrams,

- Boxplots, providing information on the dispersion of the data.

In order to avoid conclusions that can be drawn regarding the individual risk profile of an insurance undertaking, the data of two neighboring categories (e.g. categories 2 and 3 or categories 4 and 5) are pooled. This in case an individual category includes the data of less than five insurance undertakings.

Assets

The total assets of the market consistent balance sheet will be shown as the sum of the different asset types (such as bonds, real estate, shares, etc.).

Liabilities

The total liabilities of the market consistent balance sheet will be shown as the sum of the different liability types.

Best estimate liabilities and target capital in relation to the balance sheet total

The market value of the assets (MV(A)) is decomposed into the following components:

- The best estimate liability (BEL)

- The market value margin (MVM)

- The solvency capital requirement (SCR), which is given by the difference between the target capital (TC) and the market value margin. The TC, SCR and MVM are related through

$$TC = SCR + MVM. \tag{1}$$

- The excess capital (EC), which is defined as the difference between the risk-bearing capital (RBC) and the target capital (TC). Thus, we have

$$RBC = TC + EC. \tag{2}$$

- The supplementary capital (SC)
- The deductions (D)

More precisely, we have the following decomposition of the assets:

$$MV(A) = BEL + MVM + SCR + EC - SC + D.$$

To show this, recall that the core capital (CC) and the risk-bearing capital (RBC) are related through

$$RBC = CC + SC. \tag{3}$$

Now CC can be expressed in the following form

$$CC = MV(A) - BEL - D,$$

from which we derive by means of (3) the relation

$$MV(A) = BEL + RBC - SC + D.$$

By means of (1) and (2) we conclude that

$$\begin{aligned} MV(A) &= BEL + EC + TC - SC + D \\ &= BEL + MVM + SCR + EC - SC + D. \end{aligned}$$

Target capital decomposition

The target capital equals the sum of the one-year solvency capital requirement (SCR) and the market value margin (MVM). In turn, the key components of the SCR are the market risk, credit risk, insurance risk, scenarios, and diversification.

Market risk analysis

Market risk plays a dominant role in an economic, risk-oriented solvency regime. A number of risk factors such as interest rates, credit spreads, exchange rates, real estate to name but a few contribute to the market risk. Waterfall and boxplot diagrams are presented for the most important market risk factors.

Interest rates risk analysis

Insurance companies with assets and liabilities denominated in different currencies are exposed to currency risk and generally also to interest rate risk. In such a case, the total interest rate risk consists of the interest rate risk of each currency. We show the decomposition of the total interest rate risk into its components stemming from the four currencies CHF, EUR, USD and GBP, including diversification.

Scenarios

For each scenario we compute the so called *impact ratio*, which is given by the sum of the risk-bearing capital (RBC) and the scenario impact (c), divided by the RBC:

$$\text{Impact ratio} = \frac{\text{RBC} + c}{\text{RBC}}.$$

Typically, a scenario impact c will have a negative value, representing a loss.

Furthermore, a reference scenario called *excess capital loss* is introduced. The loss of this scenario equals the excess capital (EC), that is $c = -\text{EC}$. This loss is the maximum loss an insurance company can endure while remaining solvent. It should be noted that the impact ratio of this reference scenario can be expressed with the help of the target capital (TC). We use the relation $\text{RBC} = \text{TC} + \text{EC}$ in order to obtain the corresponding impact ratio:

$$\text{Impact ratio} = \frac{\text{RBC} - \text{EC}}{\text{RBC}} = \frac{\text{TC}}{\text{RBC}}.$$

In order to facilitate the comparison of the scenarios with this reference scenario, the latter one is shown in a different color.

Scenarios which are exempted from the target capital aggregation are called stress tests, and are marked with the label "(ST)".

Note that there are scenarios which are relevant only for some but not all the branches. For example the scenario "Default of UVG pool" may be relevant for general insurers, health and reinsurers. It this is not the case, the scenario will not be displayed.

5.2 Comments on results

General insurers as a whole posted a stable SST solvency ratio of 193% (a decrease of three percentage points). This results from parallel increases in risk-bearing capital (an increase of 8.0% to CHF 72'904 million) and target capital (up 9.7% to CHF 37'799 million).

Insurance risk dominates the target capital and is essentially due to reserve risks and the risk of new ordinary claims in equal parts.

It should be noted that some general insurers have participations (which may be modelled via a look-through method) in life insurance companies. The corresponding assets and liabilities, which are specific to life insurers, are however not displayed. This is the reason why the assets and liabilities of general insurers do not always sum up to 100% in the waterfall diagram decompositions.
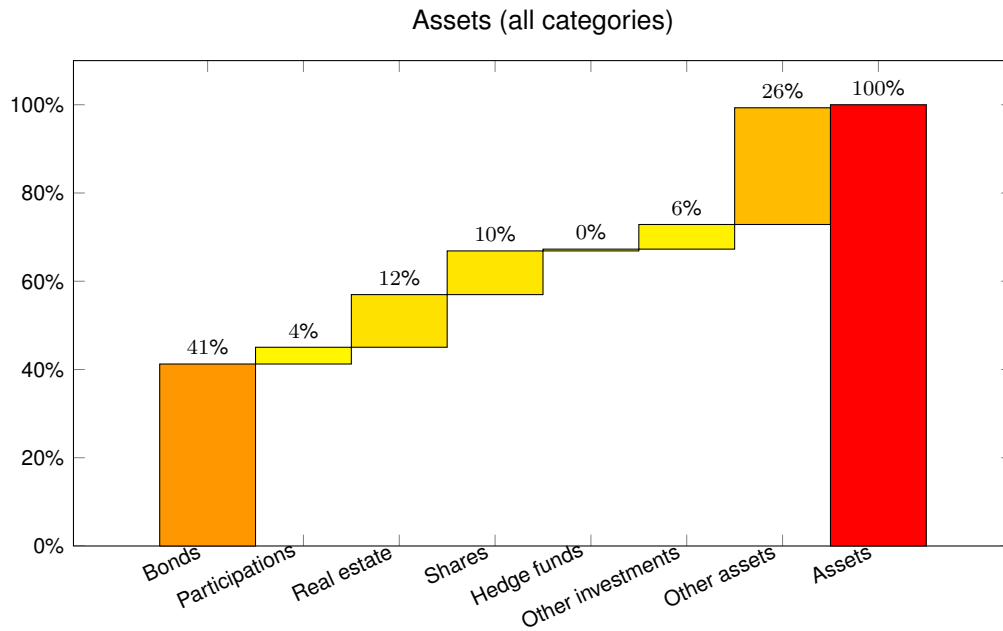
5.3 Assets

Assets (all categories)

Figure 17a: General insurance (mean values)

Assets
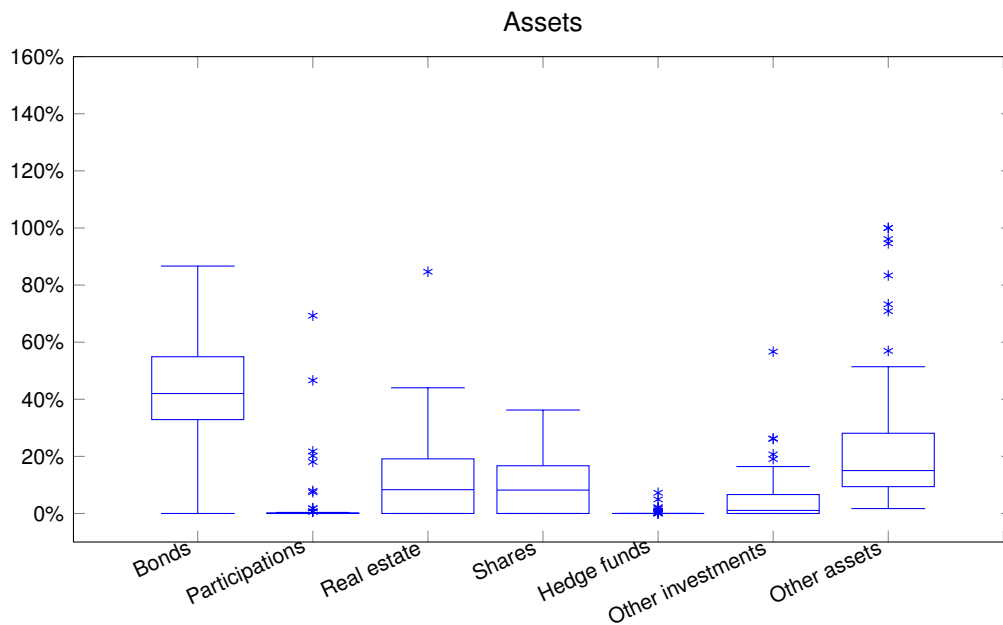
Figure 17b: General insurance (distibution)

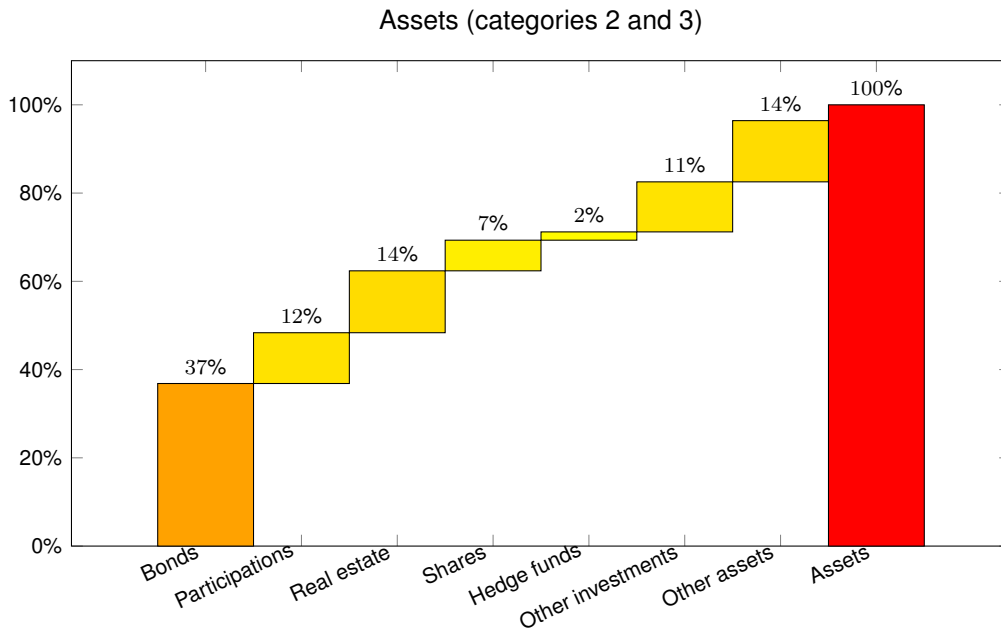Assets (categories 2 and 3)

Figure 17c: General insurance (mean values)
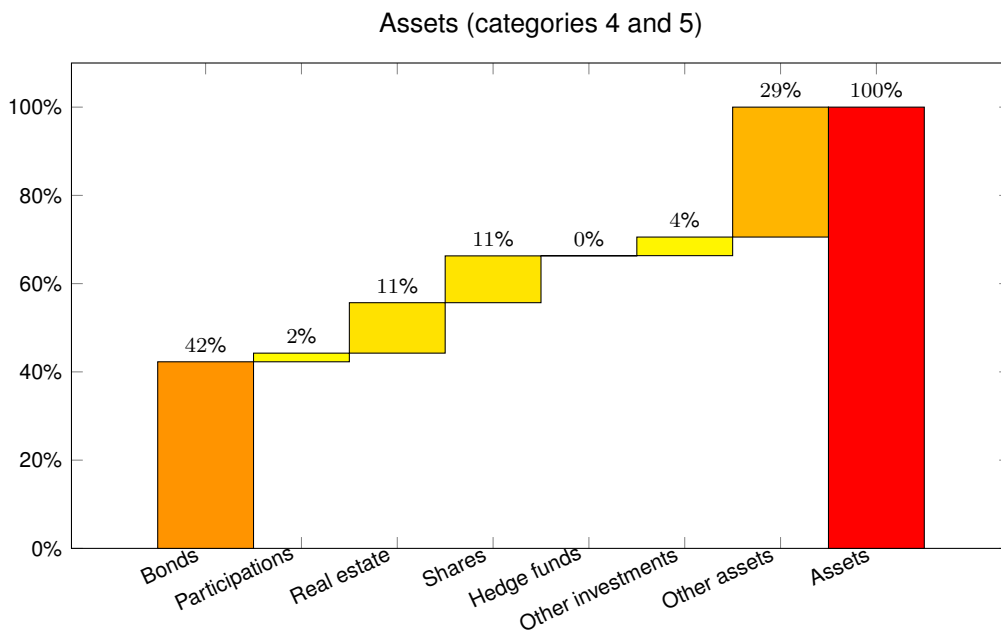

Assets (categories 4 and 5)

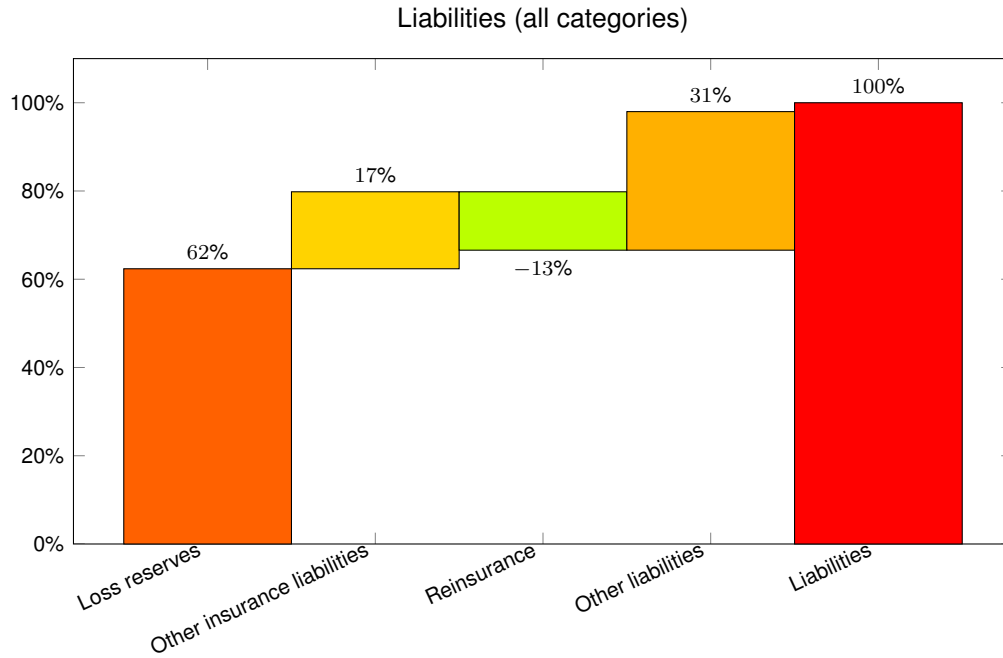Figure 17d: General insurance (mean values)
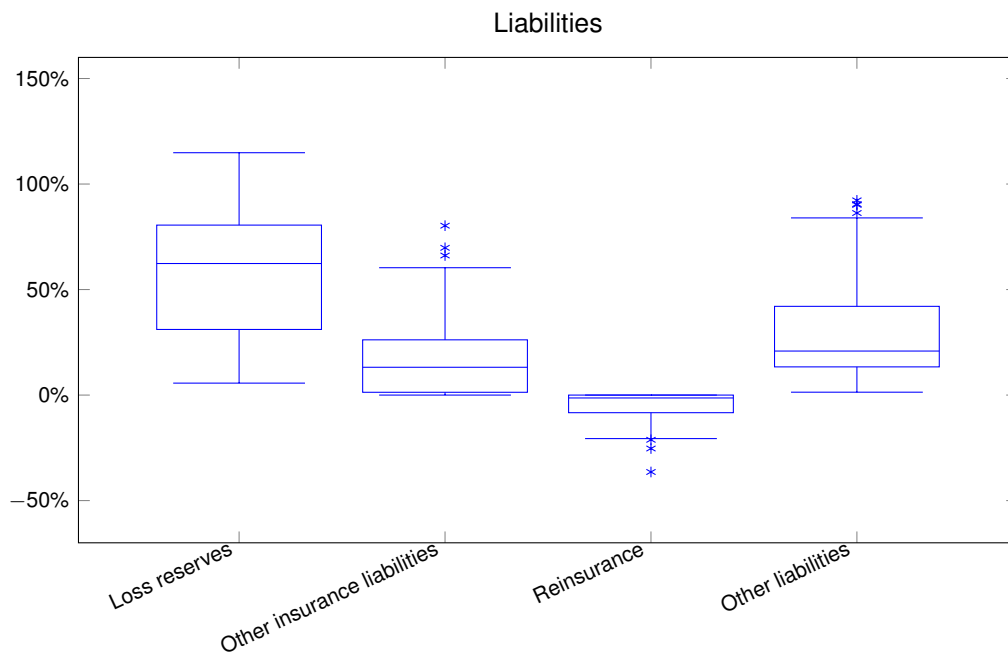
5.4 Liabilities

Figure 18a: General insurance (mean values)
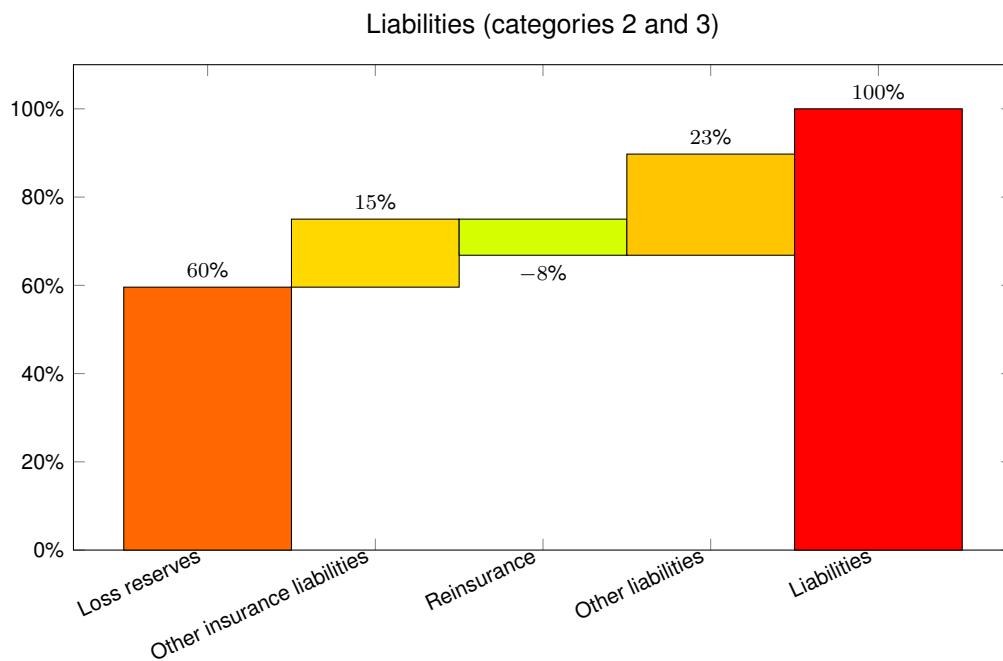

Figure 18b: General insurance (distibution)
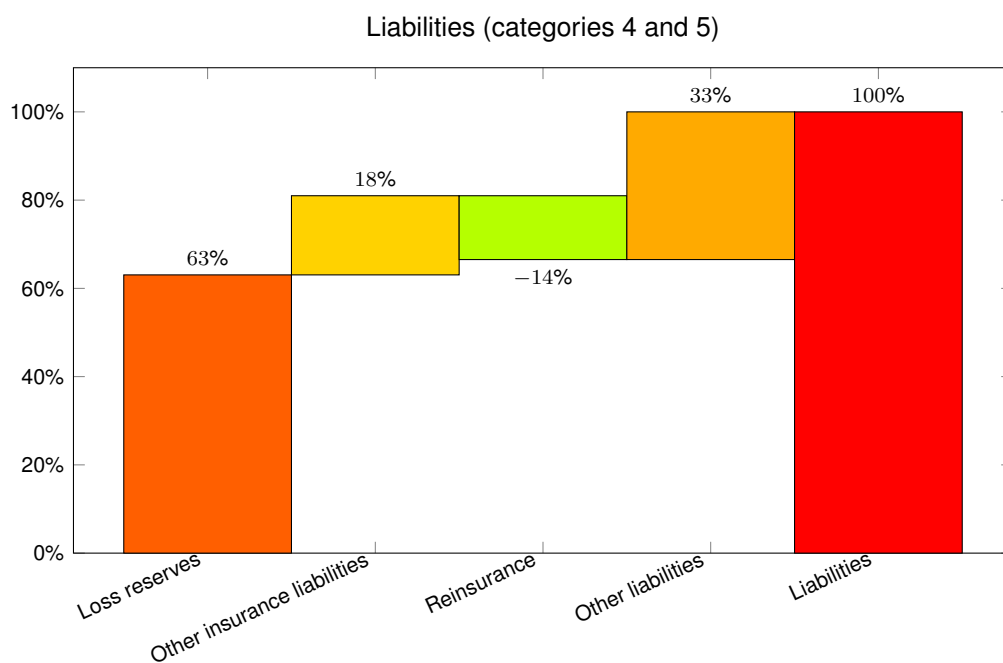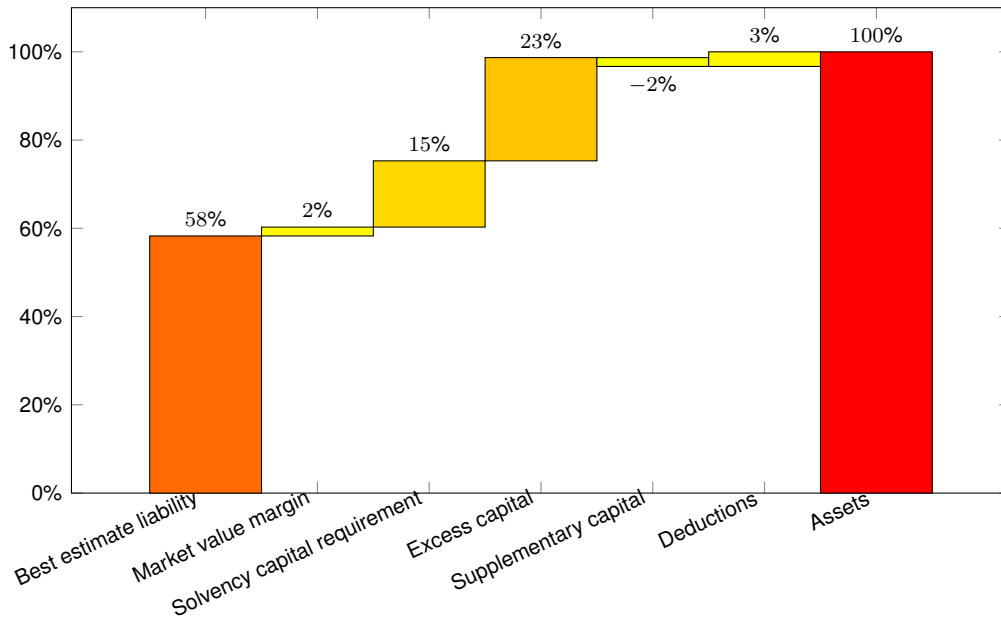
Figure 18c: General insurance (mean values)

Figure 18d: General insurance (mean values)

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5.5 Best estimate liability and target capital in relation to the balance sheet total

Best estimate liability and target capital in relation to the balance sheet total (all categories)
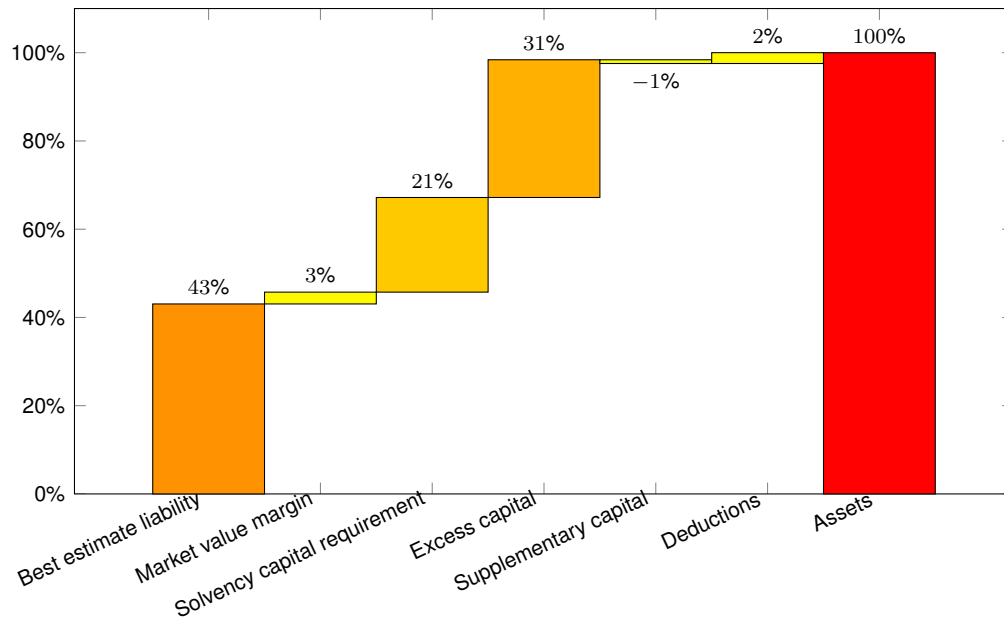
Figure 19a: General insurance (mean values)

Best estimate liability and target capital in relation to the balance sheet total
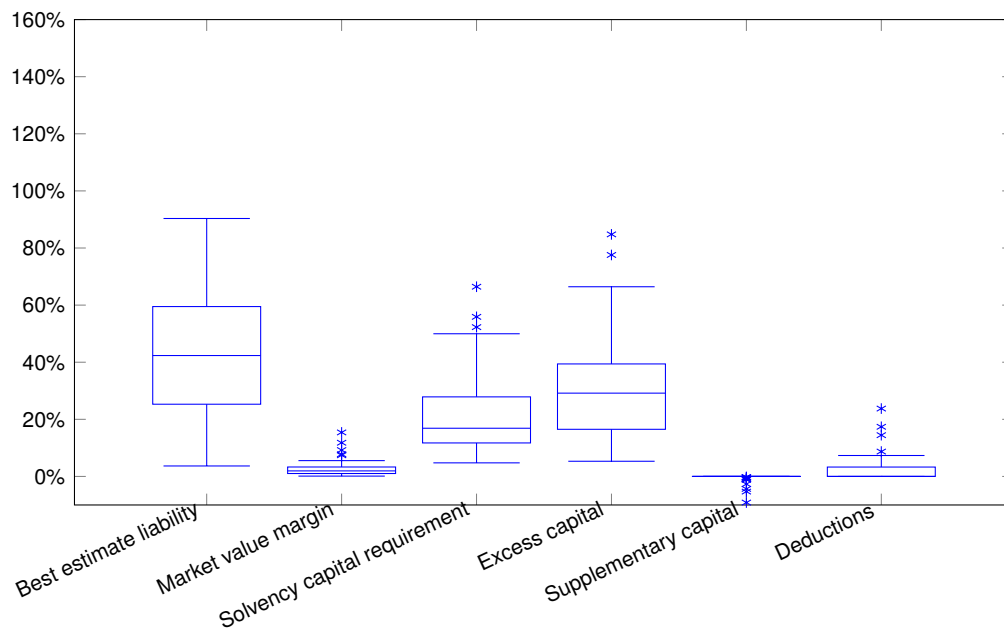
Figure 19b: General insurance (distibution)

55

Best estimate liability and target capital in relation to the balance sheet total (categories 2 and 3)

Figure 19c: General insurance (mean values)

Best estimate liability and target capital in relation to the balance sheet total (categories 4 and 5)
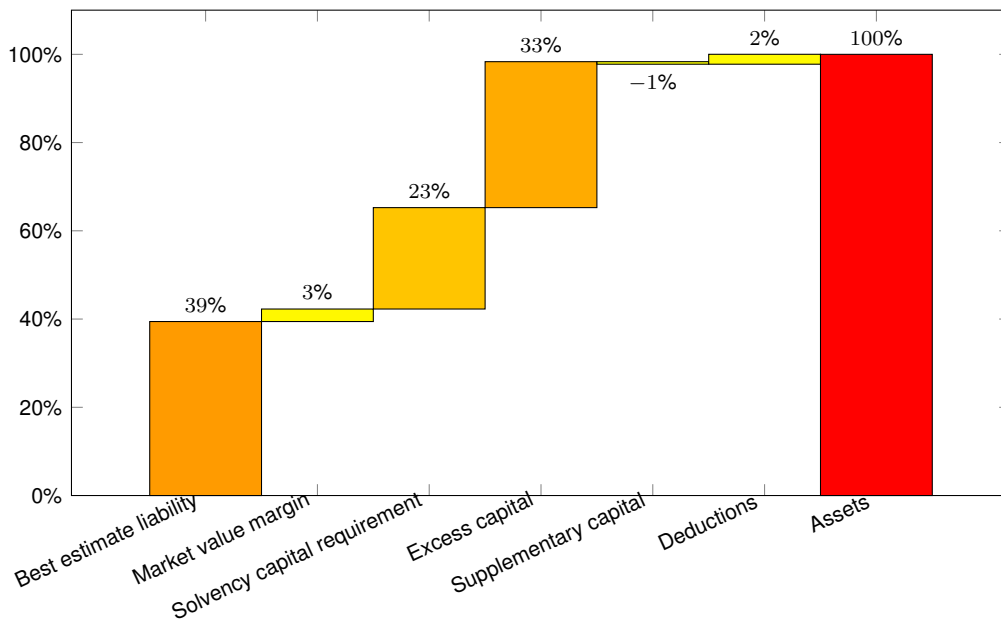
Figure 19d: General insurance (mean values)
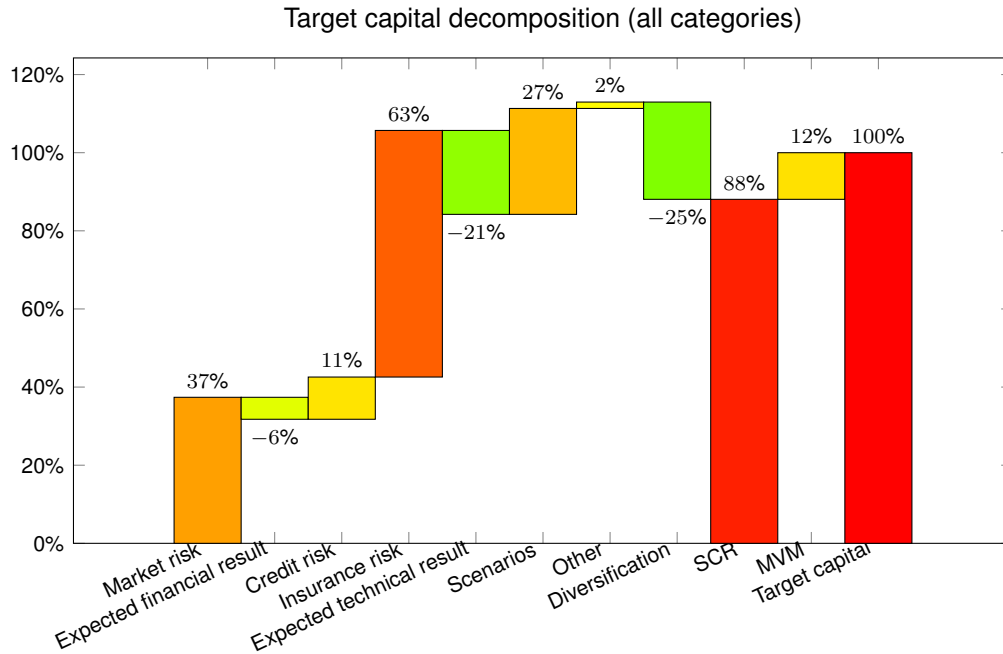
56

5.6 Target capital decomposition
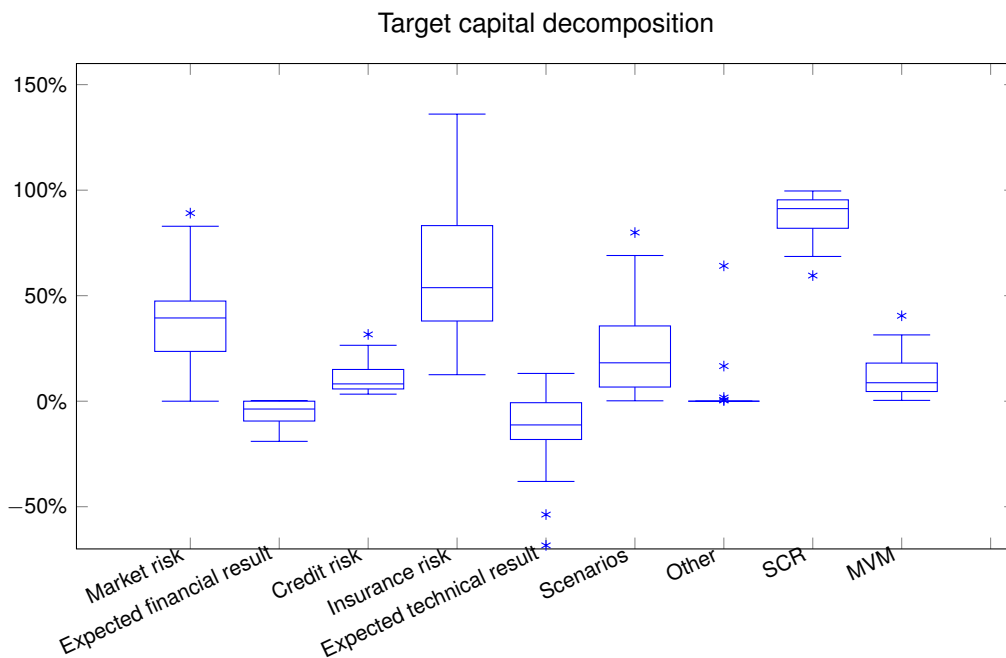

Figure 20a: General insurance (mean values)

Figure 20b: General insurance (distibution)

57
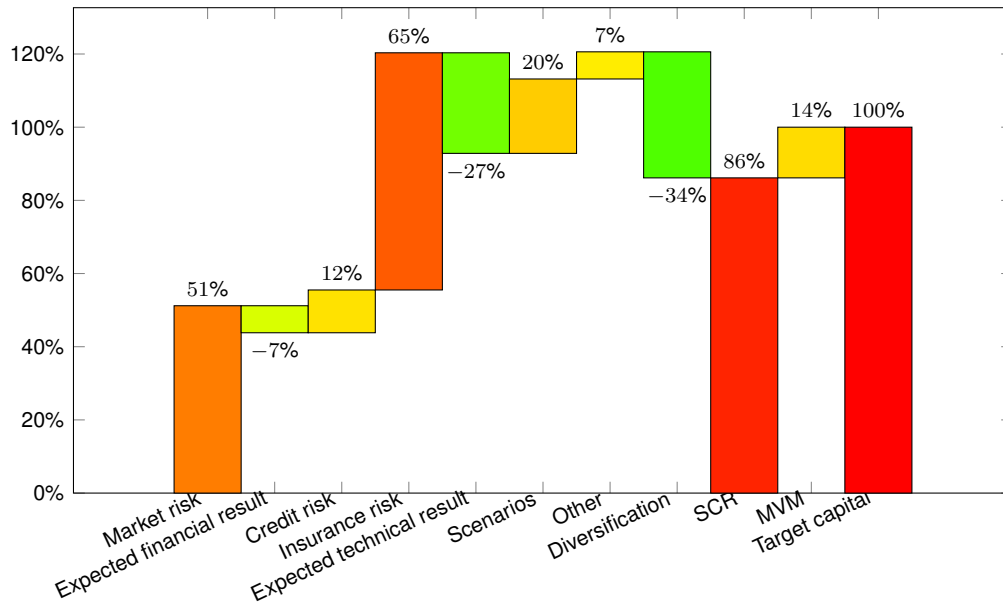
Figure 20c: General insurance (mean values)
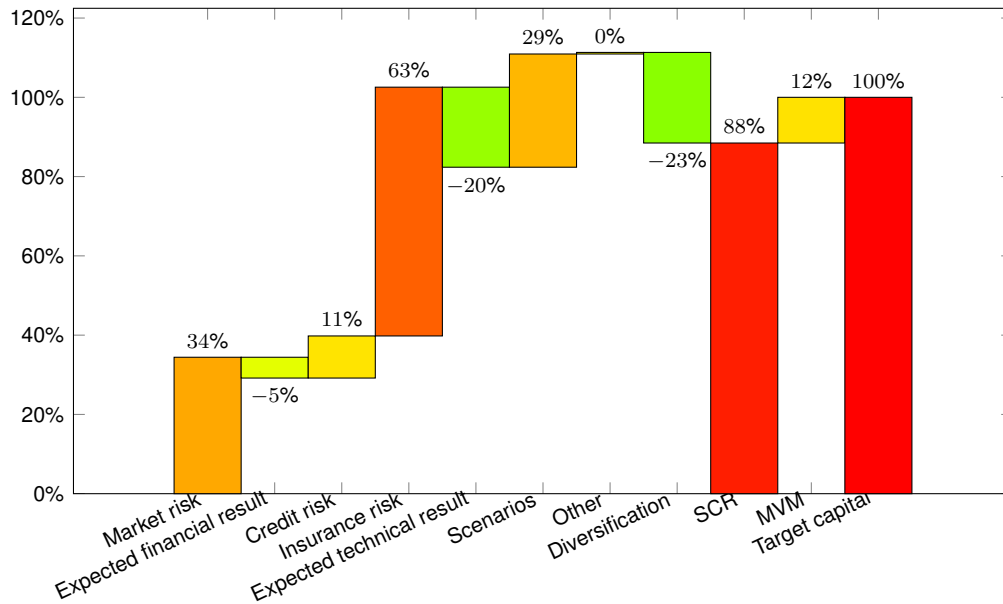
Figure 20d: General insurance (mean values)

5.7 Market risk analysis

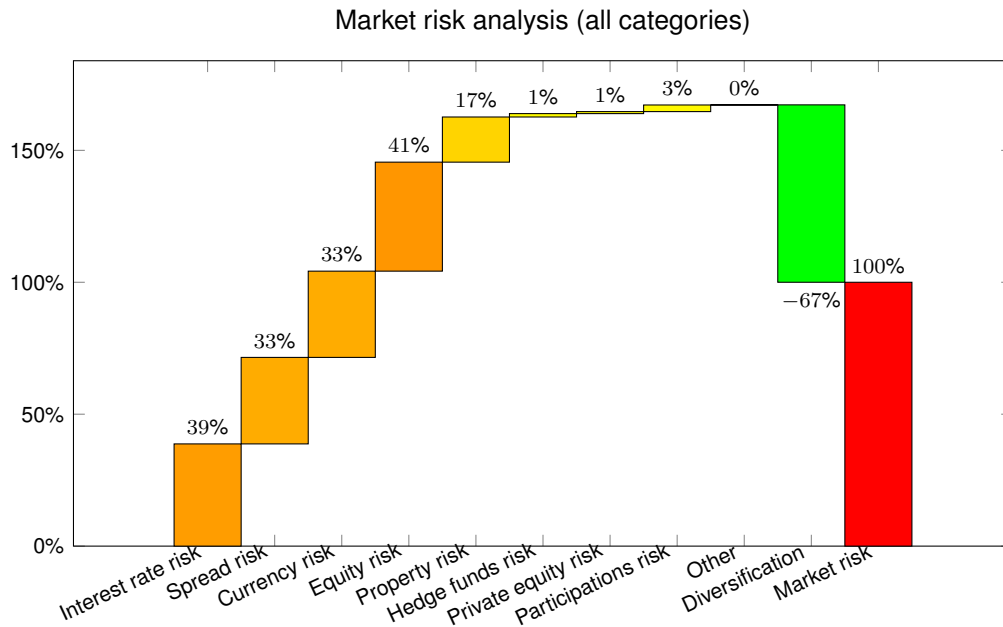Market risk analysis (all categories)

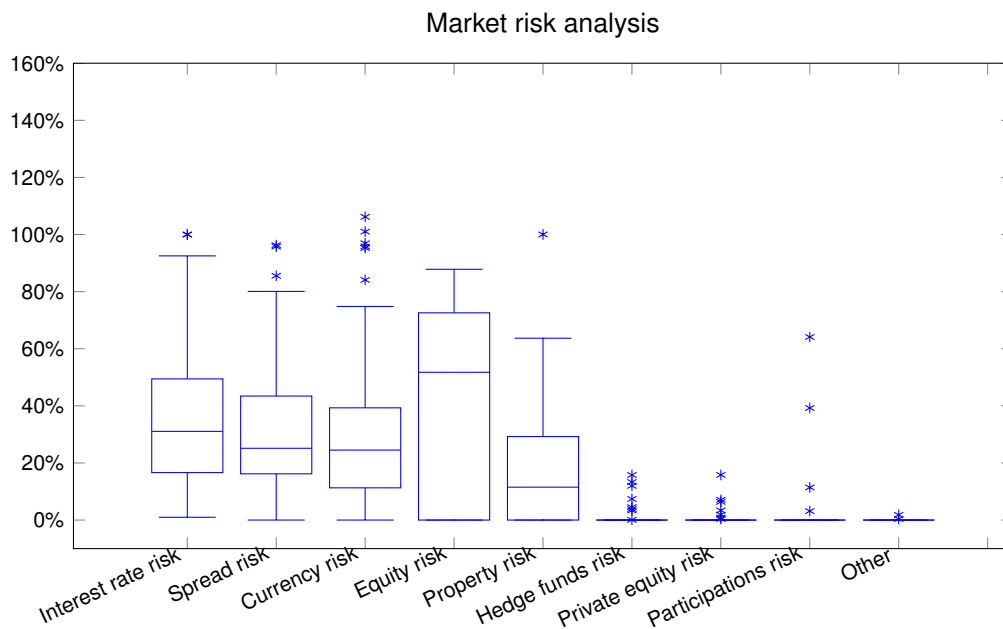Figure 21a: General insurance (mean values)

Market risk analysis

Figure 21b: General insurance (distibution)
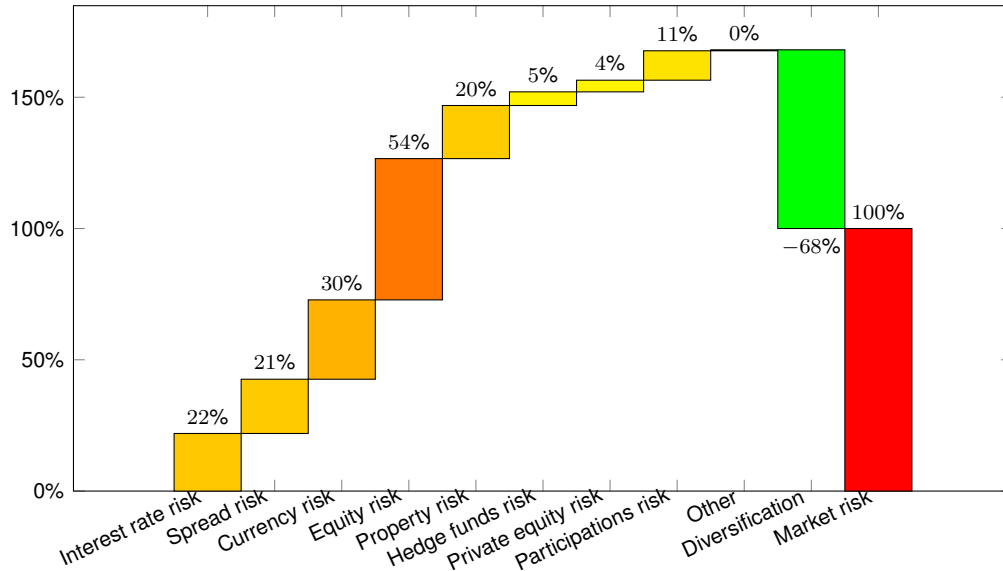
Market risk analysis (categories 2 and 3)

Figure 21c: General insurance (mean values)
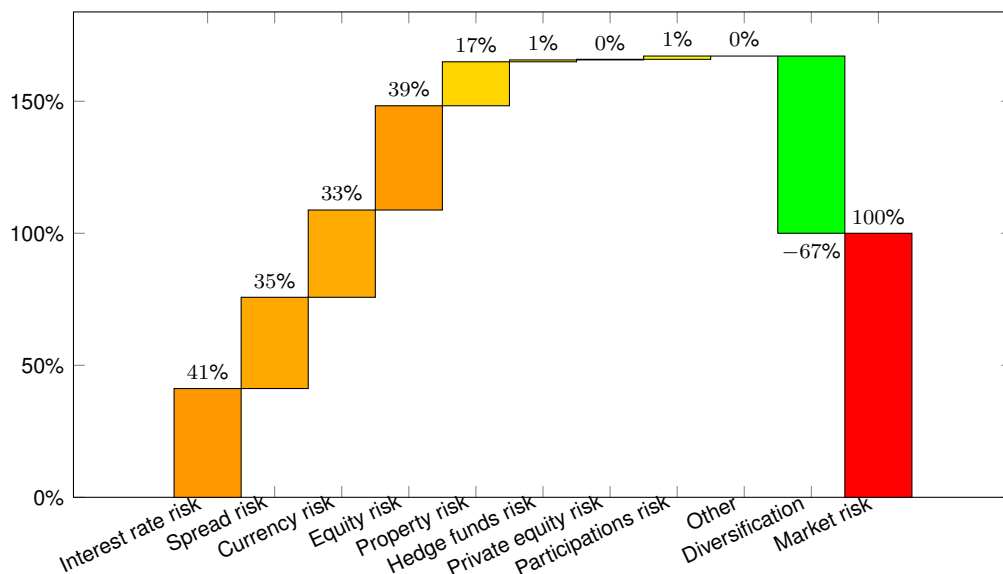
Market risk analysis (categories 4 and 5)

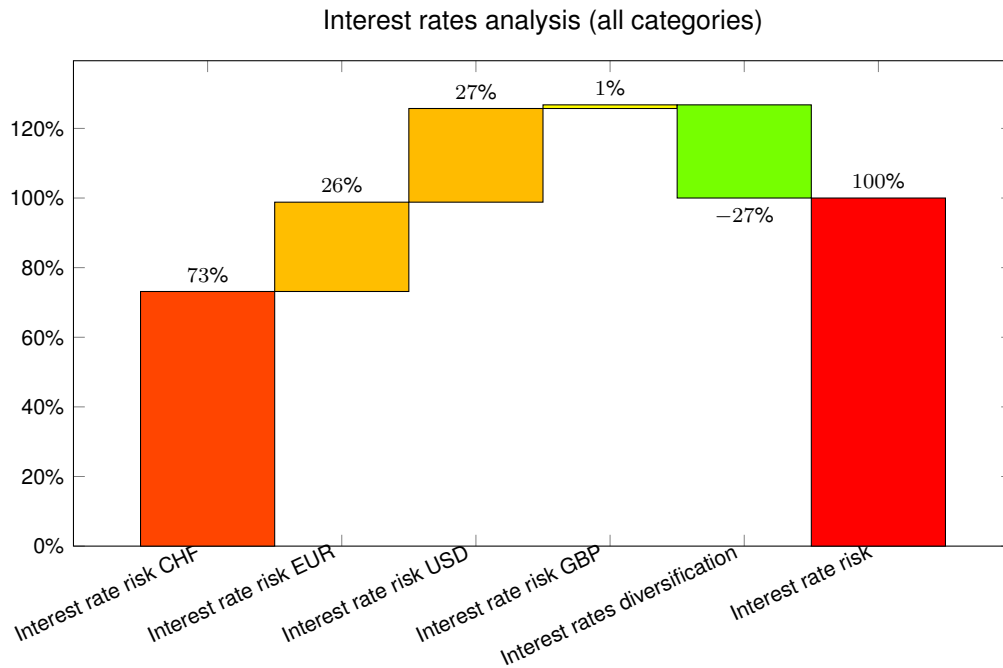Figure 21d: General insurance (mean values)

5.8 Interest rates analysis

Interest rates analysis (all categories)

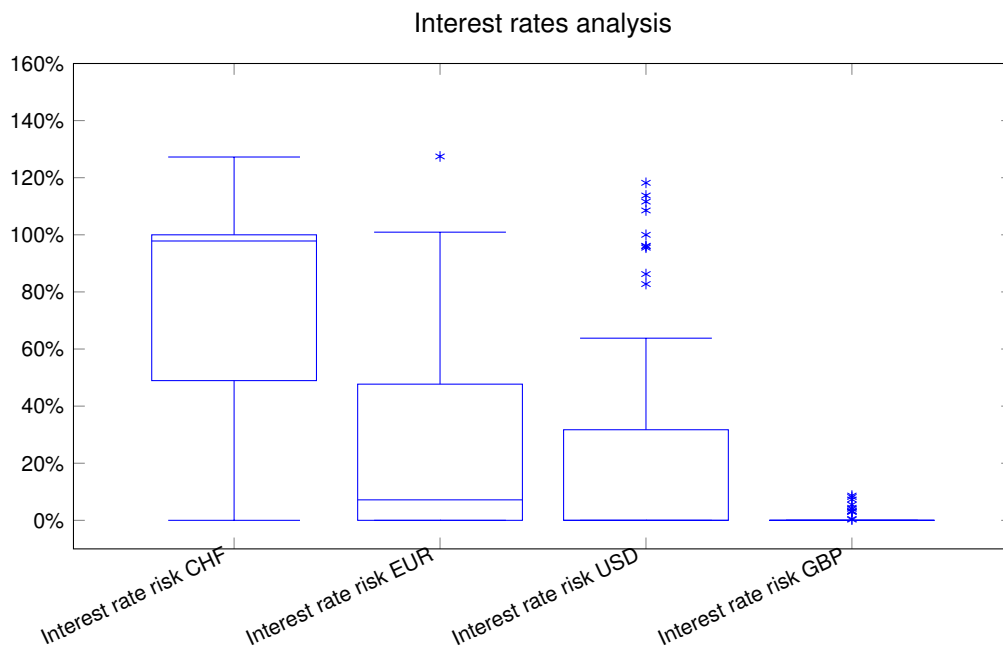Figure 22a: General insurance (mean values)

Interest rates analysis

Figure 22b: General insurance (distibution)

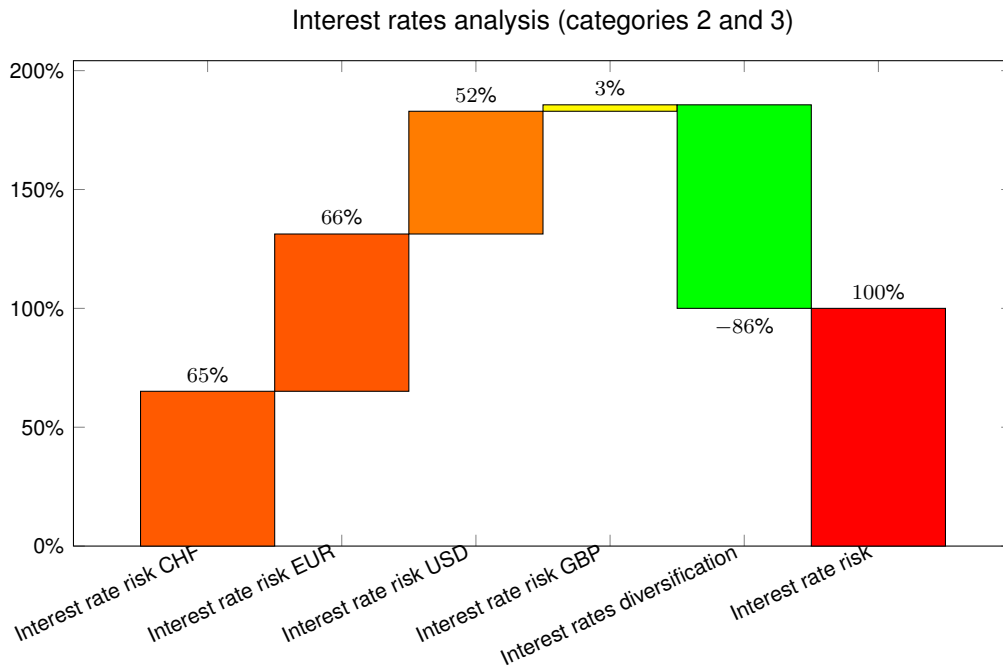Figure 22c: General insurance (mean values)
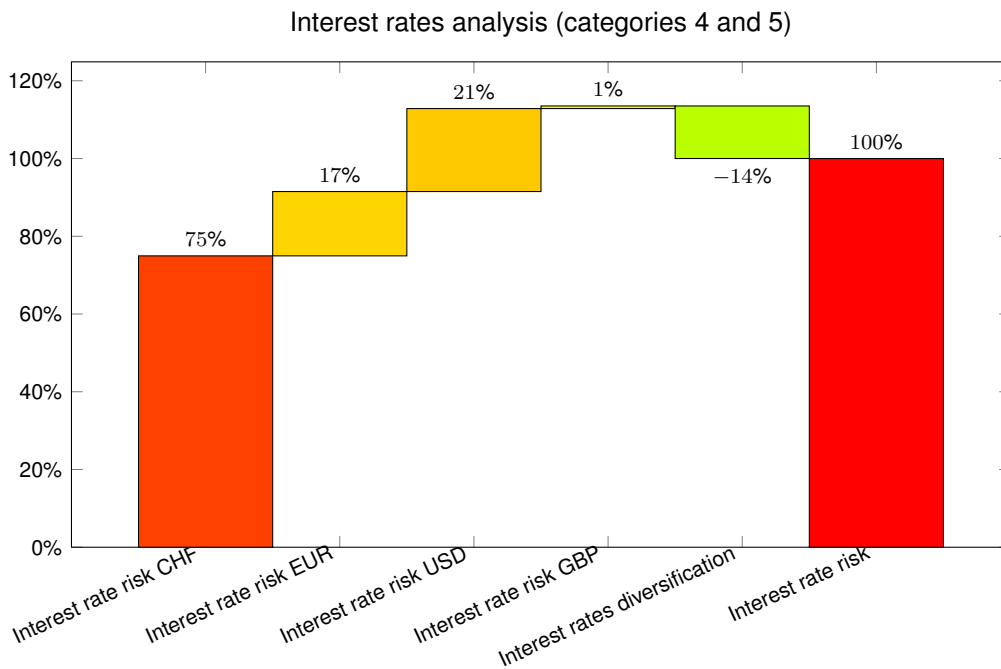
Figure 22d: General insurance (mean values)

5.9 General insurance risk analysis

General insurance risk analysis (all categories)
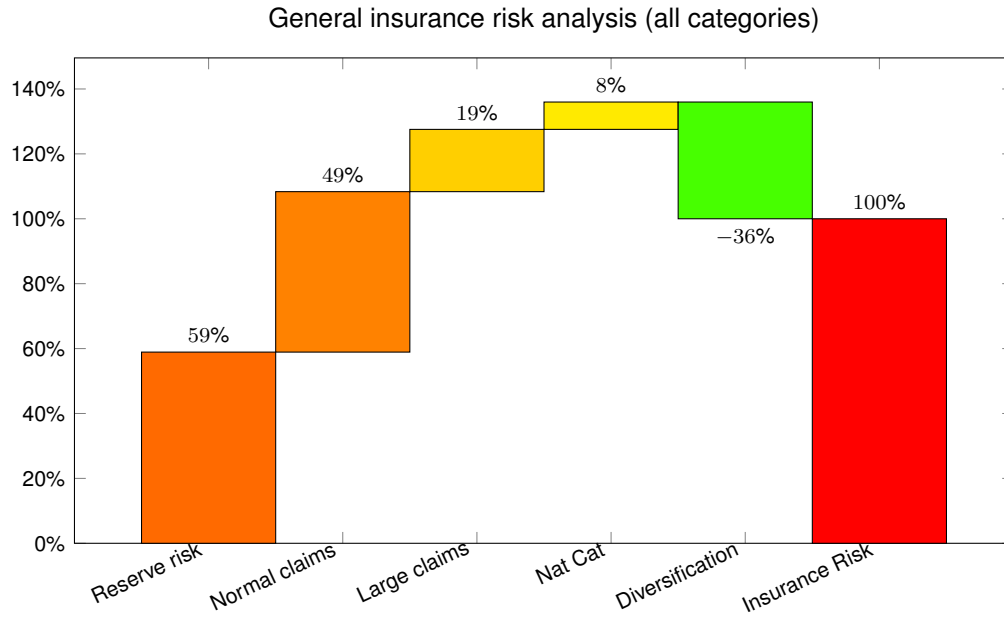
Figure 23a: General insurance (mean values)

General insurance risk analysis

Figure 23b: General insurance (distibution)

General insurance risk analysis (categories 2 and 3)
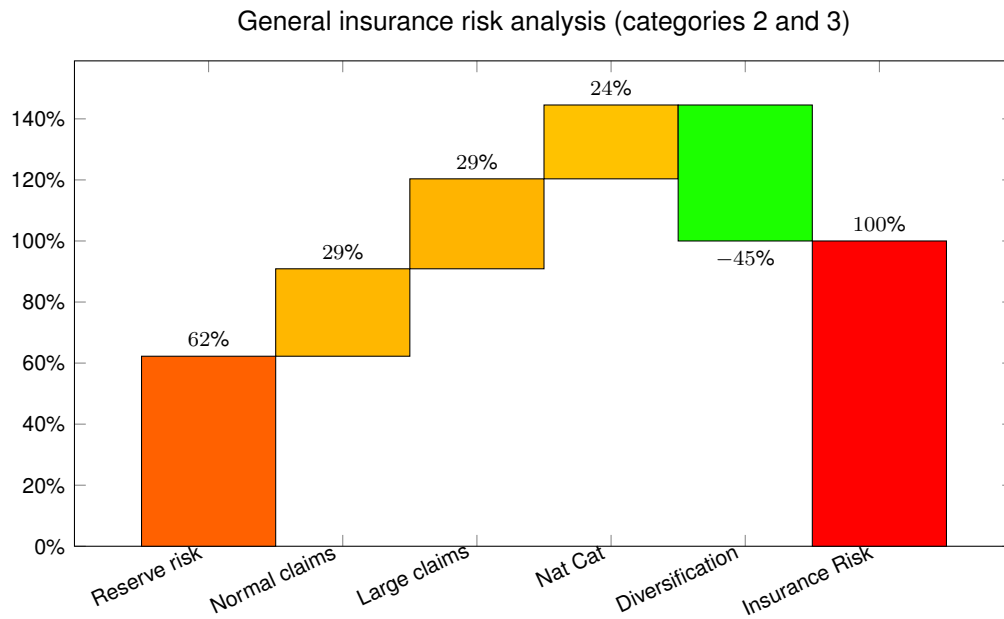
Figure 23c: General insurance (mean values)

General insurance risk analysis (categories 4 and 5)
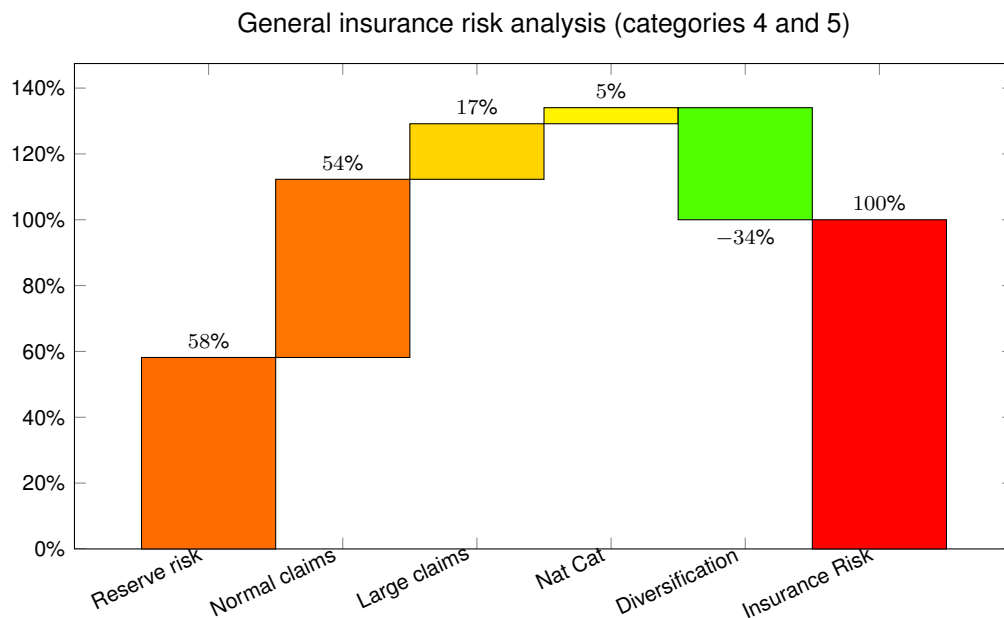
Figure 23d: General insurance (mean values)

5.10   Market and credit risk scenarios

Market and credit risk scenarios (all categories)

Figure 24a: General insurance (mean values)

Market and credit risk scenarios

Figure 24b: General insurance (distibution)

Market and credit risk scenarios (categories 2 and 3)
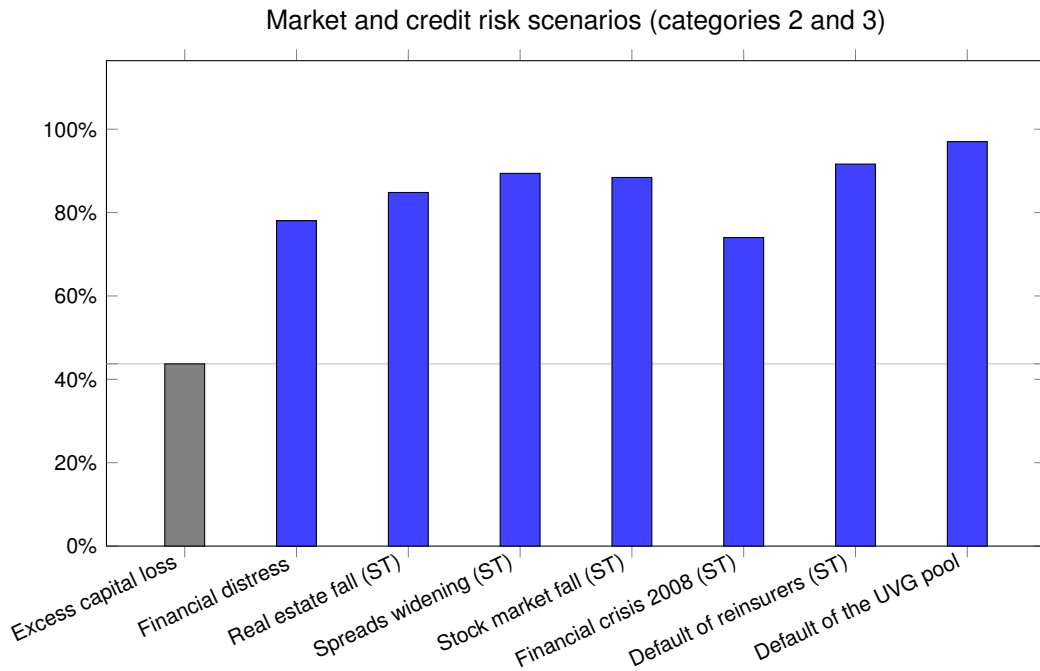
Figure 24c: General insurance (mean values)

Market and credit risk scenarios (categories 4 and 5)

Figure 24d: General insurance (mean values)

5.11   Insurance risk and global scenarios

Insurance risk and global scenarios (all categories)

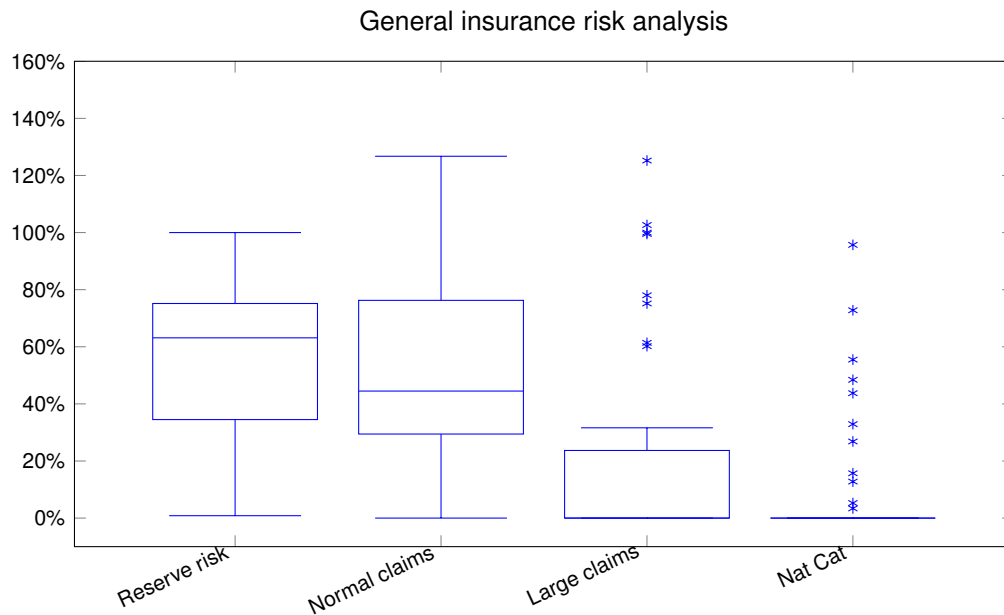Figure 25a: General insurance (mean values)

Insurance risk and global scenarios

Figure 25b: General insurance (distibution)

Figure 25c: General insurance (mean values)
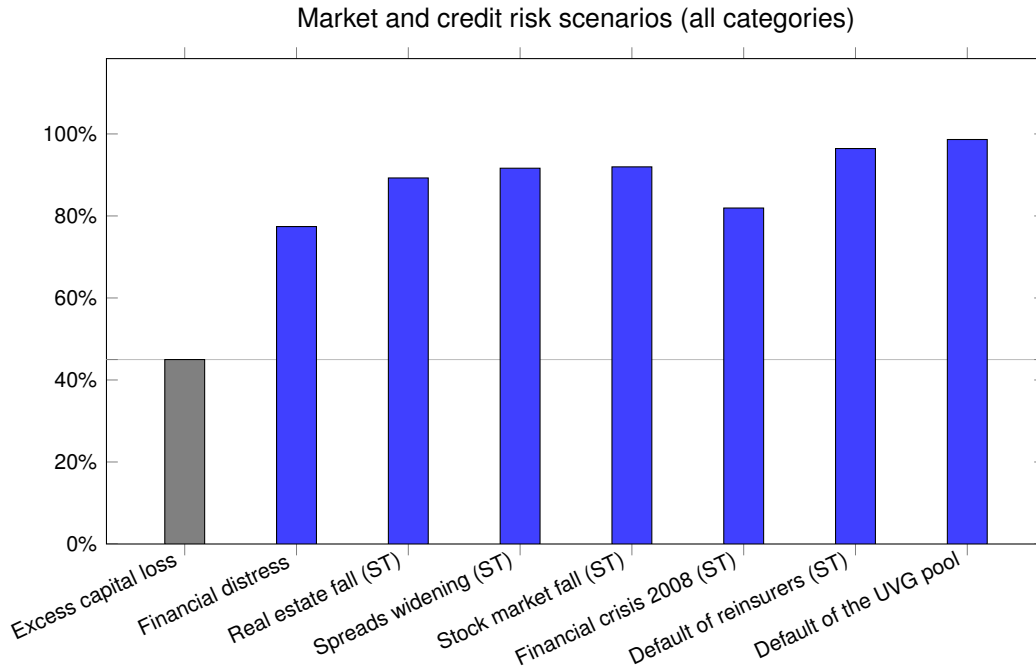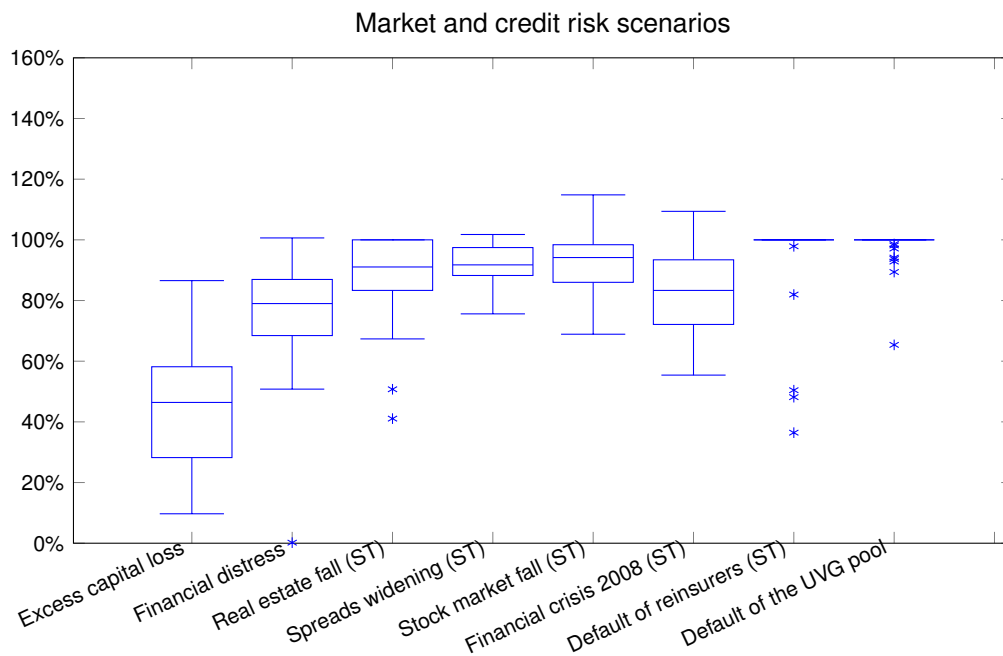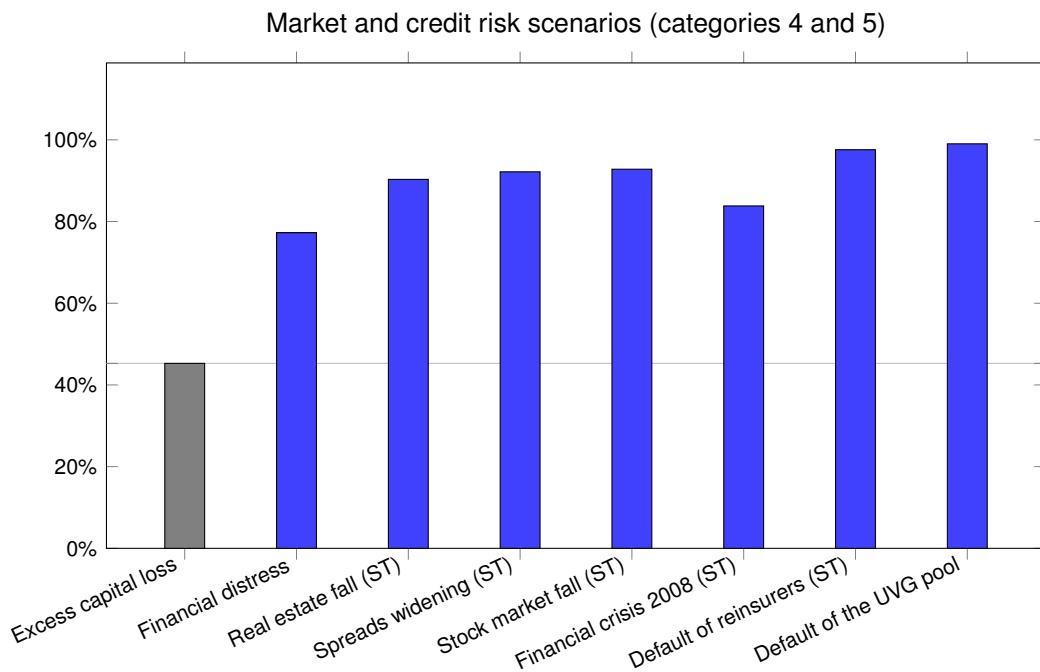

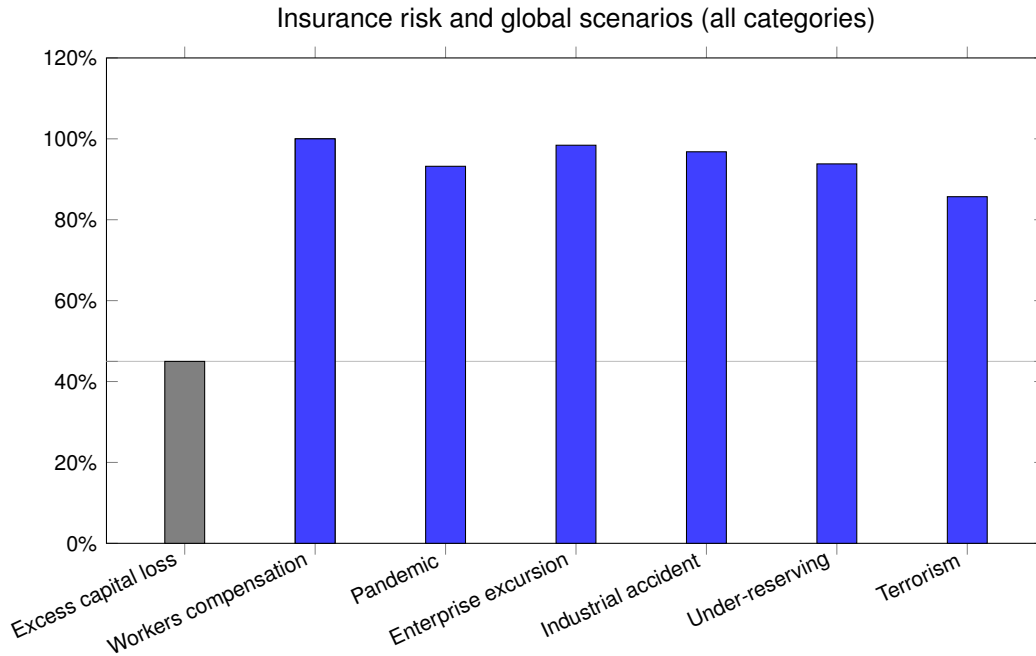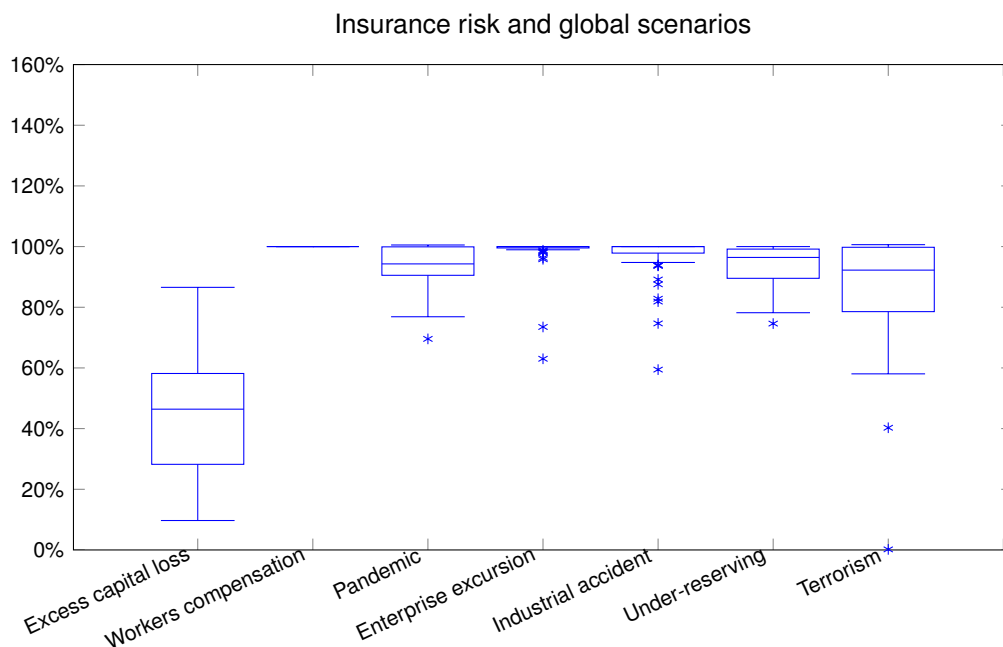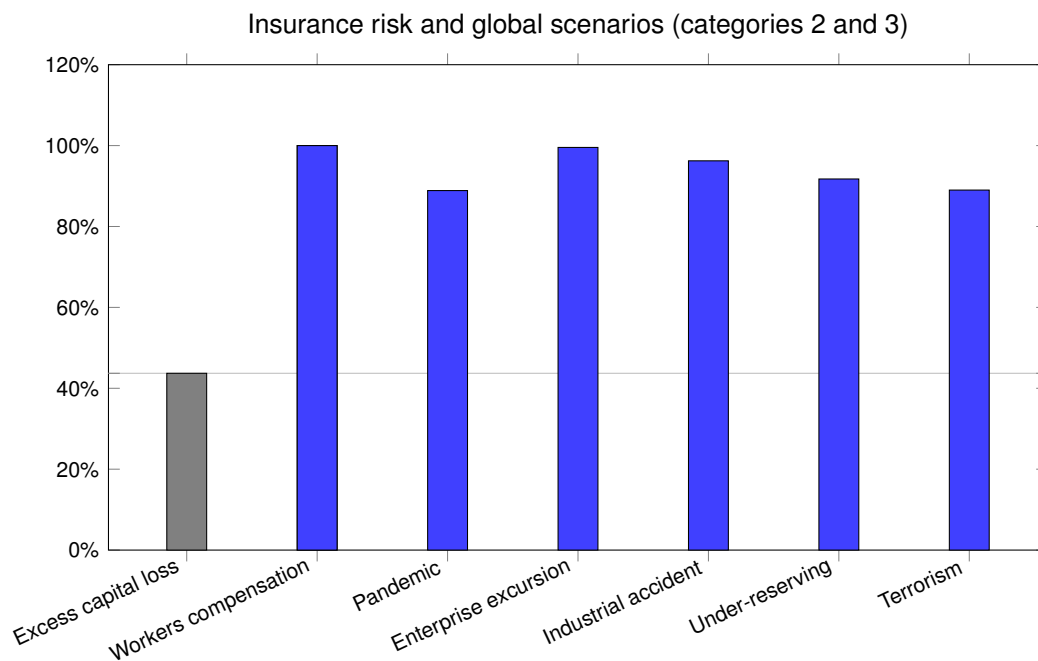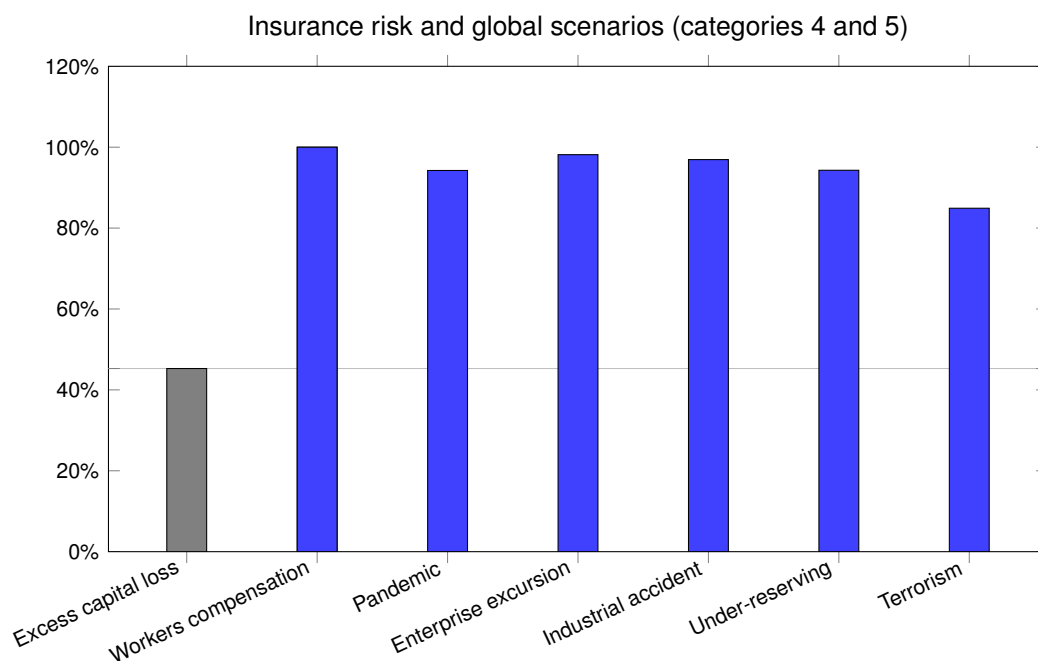Figure 25d: General insurance (mean values)

6 Reinsurance

6.1 Goals of the analyses

The analyses presented in this chapter aim to give insight into the following:

- Investment structure
- Liability structure
- Best estimate of the liabilities and target capital in relation to the total assets.
- Split of the target capital into its components such as e.g. market, credit and insurance risk.
- Split of the market risk into components like interest rate risk, equity risk etc.
- Split of the interest rate risk into different currencies.
- Scenarios and their impact on the risk-bearing capital. Indication of whether the SST capital requirements after scenario impacts are still fulfilled.

Two types of visual depiction are shown:

- Waterfall diagrams,
- Boxplots, providing information on the dispersion of the data.

In order to avoid conclusions that can be drawn regarding the individual risk profile of an insurance undertaking, the data of two neighboring categories (e.g. categories 2 and 3 or categories 4 and 5) are pooled. This in case an individual category includes the data of less than five insurance undertakings.

Assets

The total assets of the market consistent balance sheet will be shown as the sum of the different asset types (such as bonds, real estate, shares, etc.).

Liabilities

The total liabilities of the market consistent balance sheet will be shown as the sum of the different liability types.

Best estimate liabilities and target capital in relation to the balance sheet total

The market value of the assets (MV(A)) is decomposed into the following components:

- The best estimate liability (BEL)
- The market value margin (MVM)
- The solvency capital requirement (SCR), which is given by the difference between the target capital (TC) and the market value margin. The TC, SCR and MVM are related through

$$TC = SCR + MVM. \tag{1}$$

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- The excess capital (EC), which is defined as the difference between the risk-bearing capital (RBC) and the target capital (TC). Thus, we have

$$RBC = TC + EC. \qquad (2)$$

- The supplementary capital (SC)
- The deductions (D)

More precisely, we have the following decomposition of the assets:

$$MV(A) = BEL + MVM + SCR + EC - SC + D.$$

To show this, recall that the core capital (CC) and the risk-bearing capital (RBC) are related through

$$RBC = CC + SC. \qquad (3)$$

Now CC can be expressed in the following form

$$CC = MV(A) - BEL - D,$$

from which we derive by means of (3) the relation

$$MV(A) = BEL + RBC - SC + D.$$

By means of (1) and (2) we conclude that

$$\begin{aligned} MV(A) &= BEL + EC + TC - SC + D \\ &= BEL + MVM + SCR + EC - SC + D. \end{aligned}$$

Target capital decomposition

The target capital equals the sum of the one-year solvency capital requirement (SCR) and the market value margin (MVM). In turn, the key components of the SCR are the market risk, credit risk, insurance risk, scenarios, and diversification.

Market risk analysis

Market risk plays a dominant role in an economic, risk-oriented solvency regime. A number of risk factors such as interest rates, credit spreads, exchange rates, real estate to name but a few contribute to the market risk. Waterfall and boxplot diagrams are presented for the most important market risk factors.

Interest rates risk analysis

Insurance companies with assets and liabilities denominated in different currencies are exposed to currency risk and generally also to interest rate risk. In such a case, the total interest rate risk consists of the interest rate risk of each currency. We show the decomposition of the total interest rate risk into its components stemming from the four currencies CHF, EUR, USD and GBP, including diversification.

Scenarios

For each scenario we compute the so called *impact ratio*, which is given by the sum of the risk-bearing capital (RBC) and the scenario impact (c), divided by the RBC:

$$\text{Impact ratio} = \frac{\text{RBC} + c}{\text{RBC}}.$$

Typically, a scenario impact c will have a negative value, representing a loss.

Furthermore, a reference scenario called *excess capital loss* is introduced. The loss of this scenario equals the excess capital (EC), that is $c = -\text{EC}$. This loss is the maximum loss an insurance company can endure while remaining solvent. It should be noted that the impact ratio of this reference scenario can be expressed with the help of the target capital (TC). We use the relation $\text{RBC} = \text{TC} + \text{EC}$ in order to obtain the corresponding impact ratio:

$$\text{Impact ratio} = \frac{\text{RBC} - \text{EC}}{\text{RBC}} = \frac{\text{TC}}{\text{RBC}}.$$

In order to facilitate the comparison of the scenarios with this reference scenario, the latter one is shown in a different color.

Scenarios which are exempted from the target capital aggregation are called stress tests, and are marked with the label "(ST)".

Note that there are scenarios which are relevant only for some but not all the branches. For example the scenario "Default of UVG pool" may be relevant for general insurers, health and reinsurers. It this is not the case, the scenario will not be displayed.

6.2   Comments on results

Reinsurers experienced a decent nine point increase in their SST solvency ratio to 228%. This came from risk-bearing capital rising by 6.5% to CHF 56'131 million after the deduction of 2013 dividends and the target capital rising by 2.3% to CHF 24'623 million.

The diversification effect typical of the reinsurance industry allows companies to limit their capital requirement, which is largely determined by insurance risks. Reinsurers estimate their target capital using their own internal risk models since only they properly reflect the specific risks they take on individually.
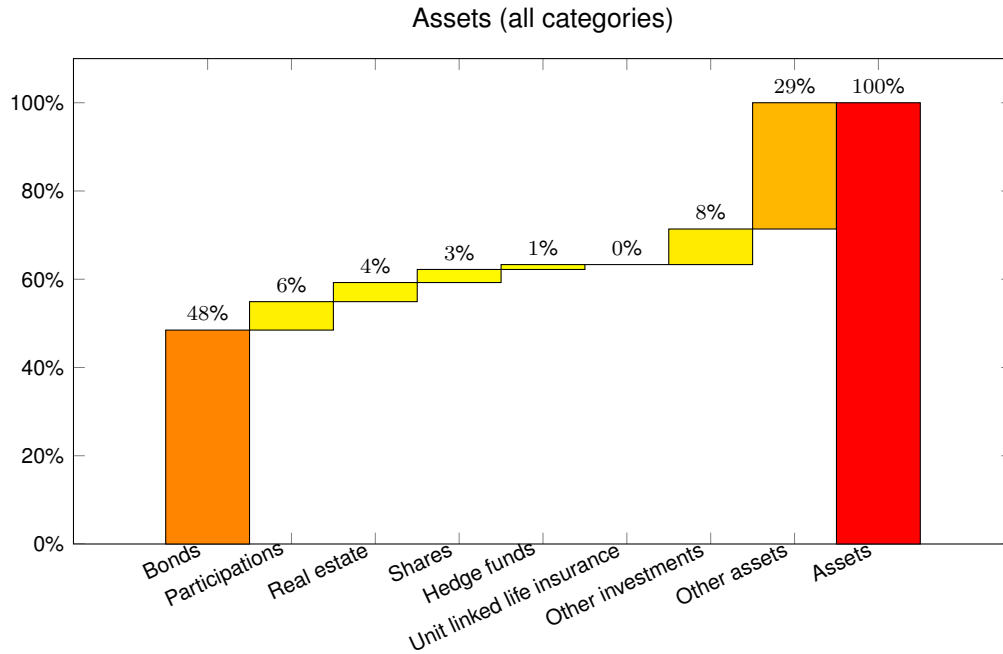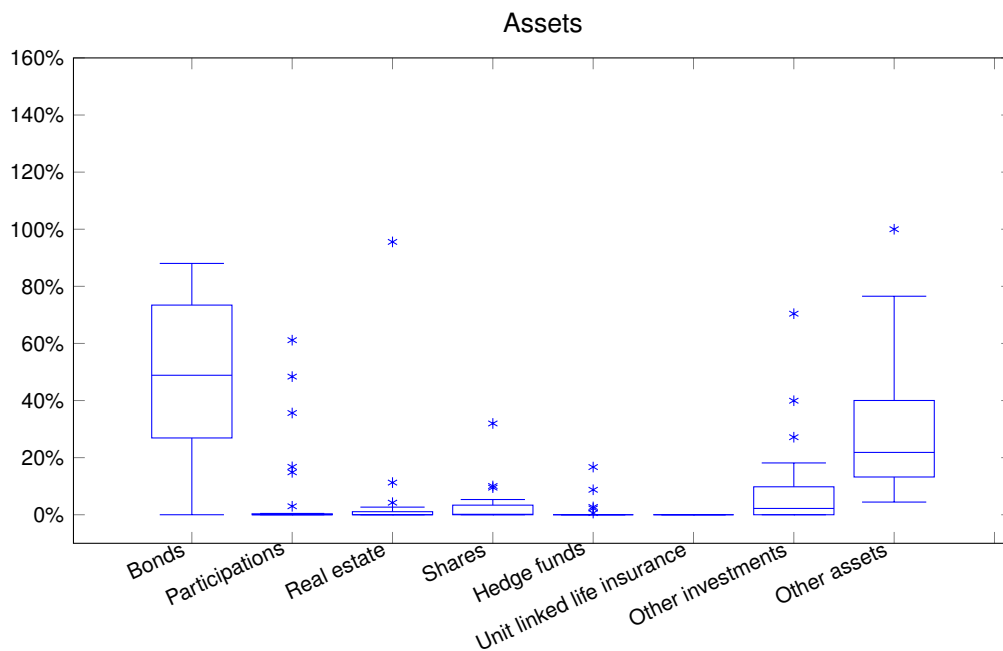
6.3 Assets

Figure 26a: Reinsurance (mean values)
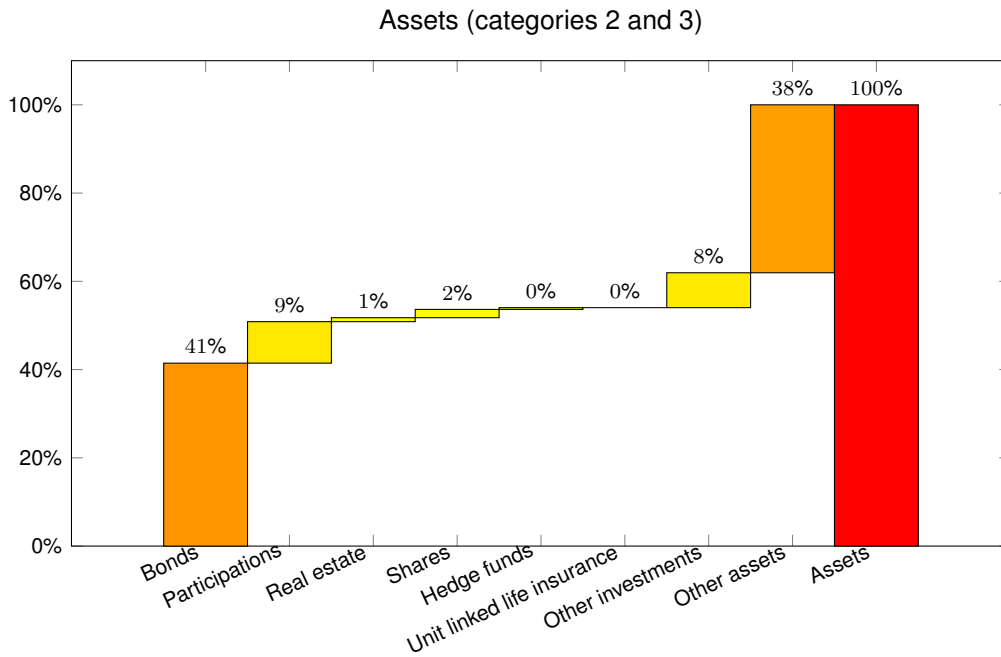

Figure 26b: Reinsurance (distibution)

Assets (categories 2 and 3)

Figure 26c: Reinsurance (mean values)
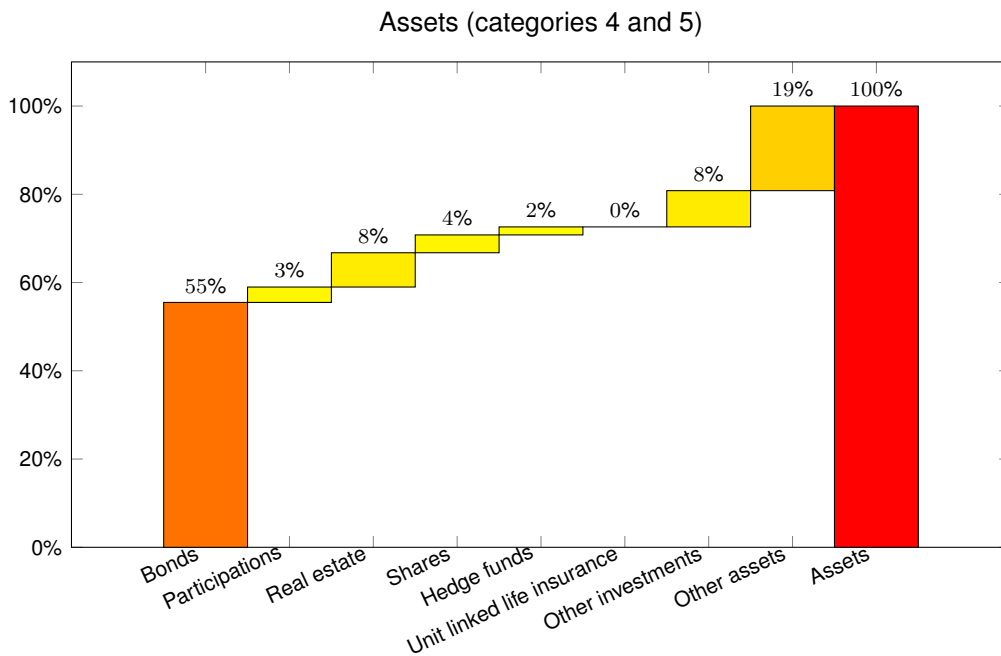

Assets (categories 4 and 5)

Figure 26d: Reinsurance (mean values)

6.4 Liabilities

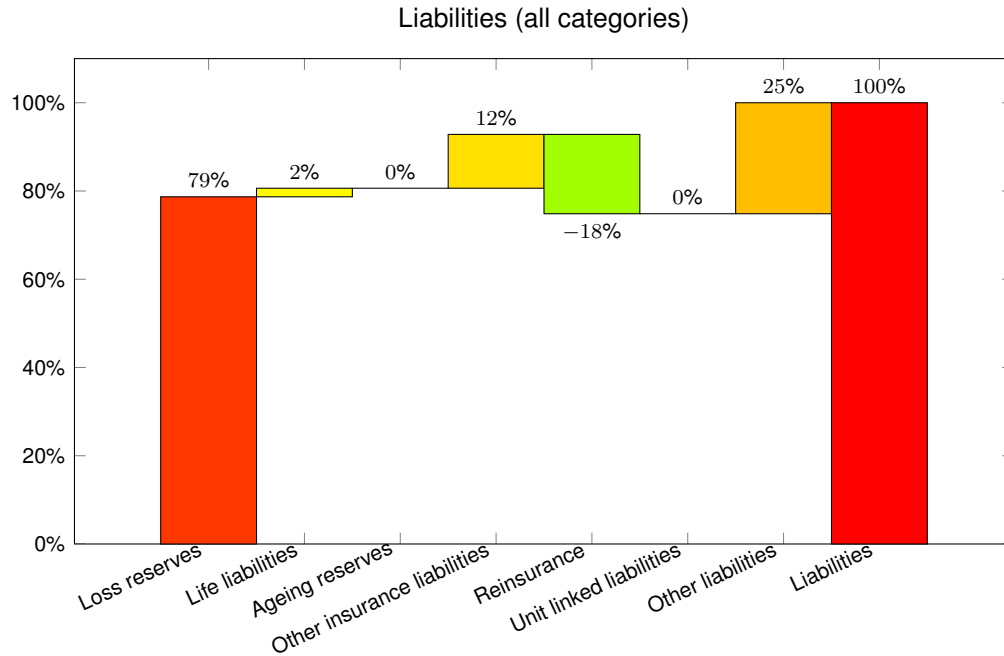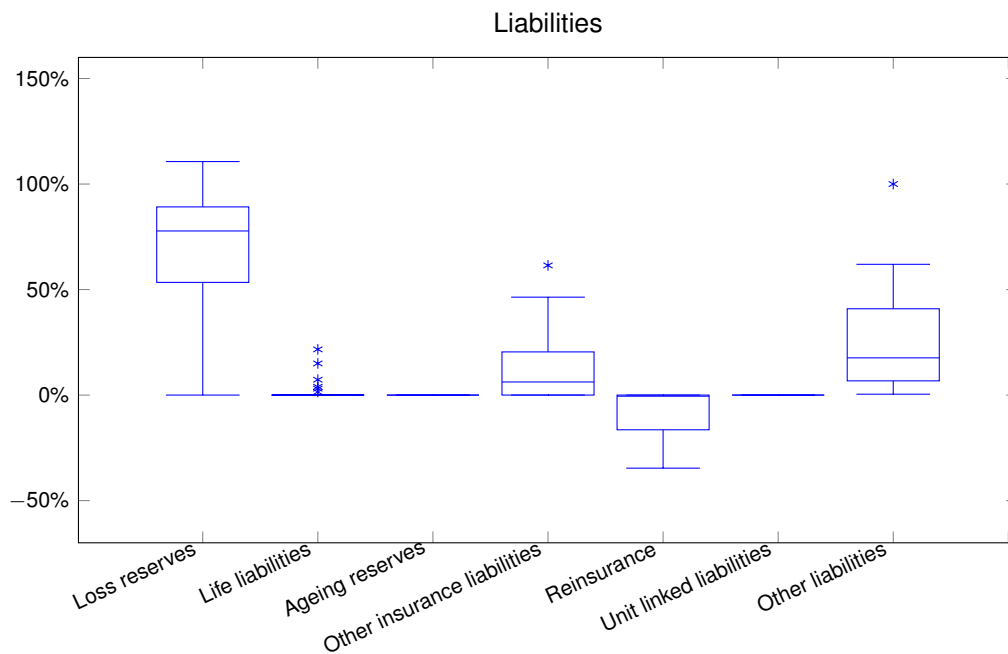
Figure 27a: Reinsurance (mean values)
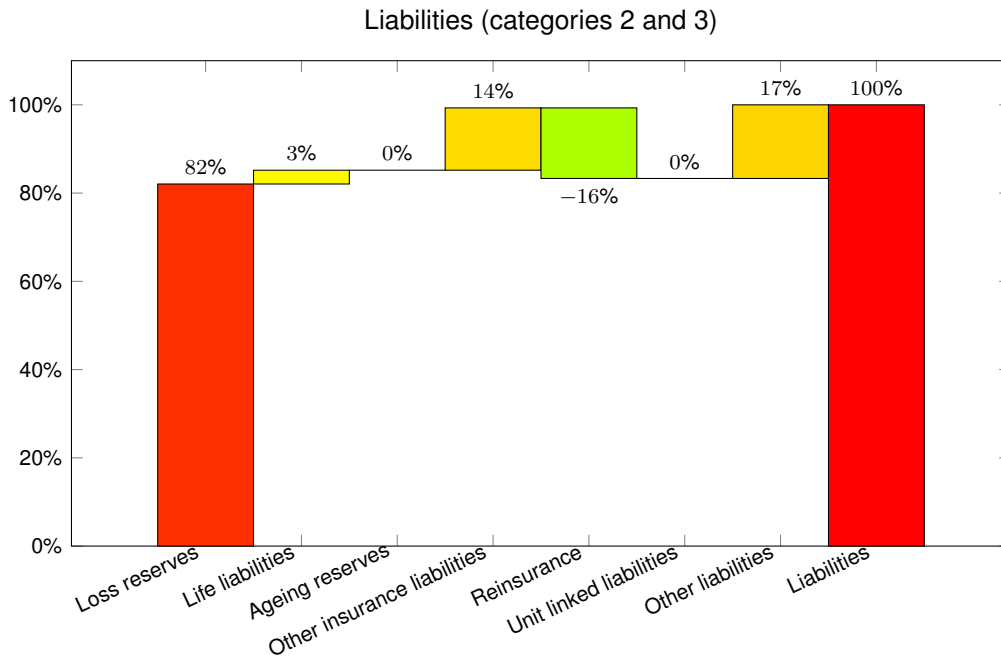

Figure 27b: Reinsurance (distibution)

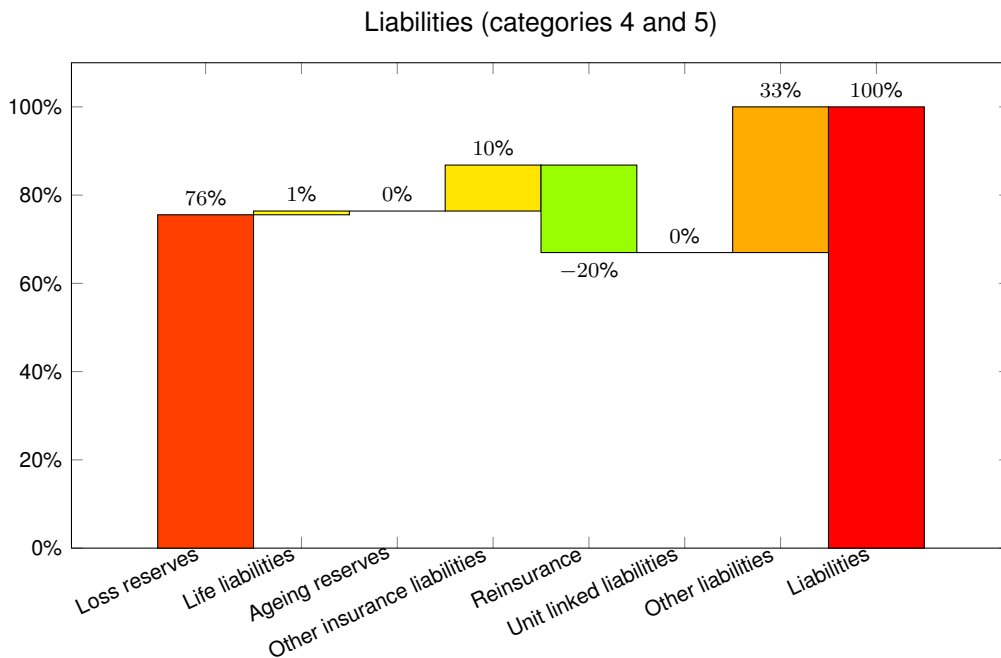Figure 27c: Reinsurance (mean values)

Figure 27d: Reinsurance (mean values)

6.5 Best estimate liability and target capital in relation to the balance sheet total

Best estimate liability and target capital in relation to the balance sheet total (all categories)
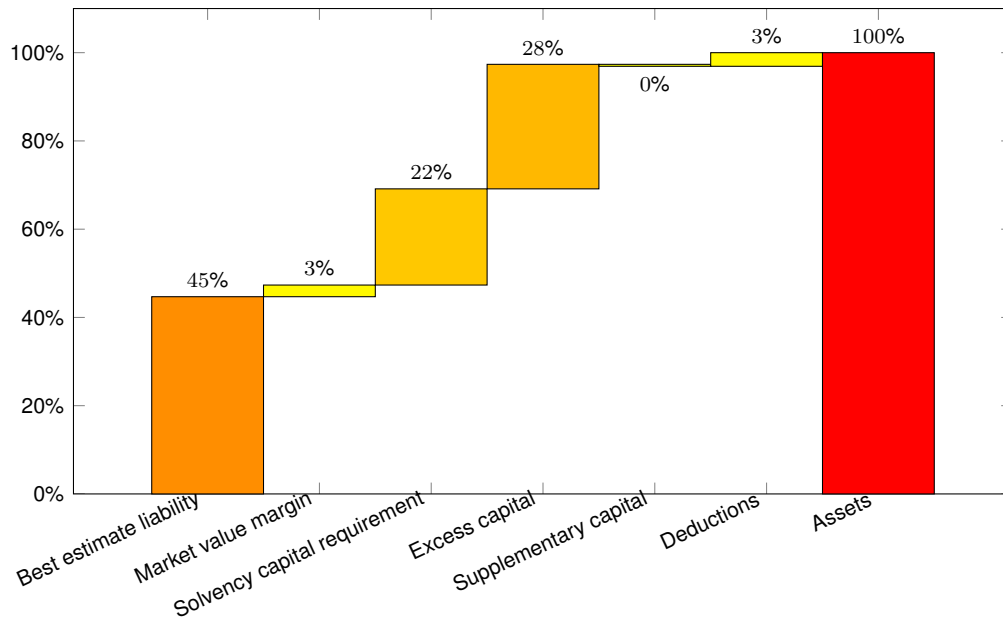

Figure 28a: Reinsurance (mean values)

Best estimate liability and target capital in relation to the balance sheet total

Figure 28b: Reinsurance (distibution)

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Best estimate liability and target capital in relation to the balance sheet total (categories 2 and 3)
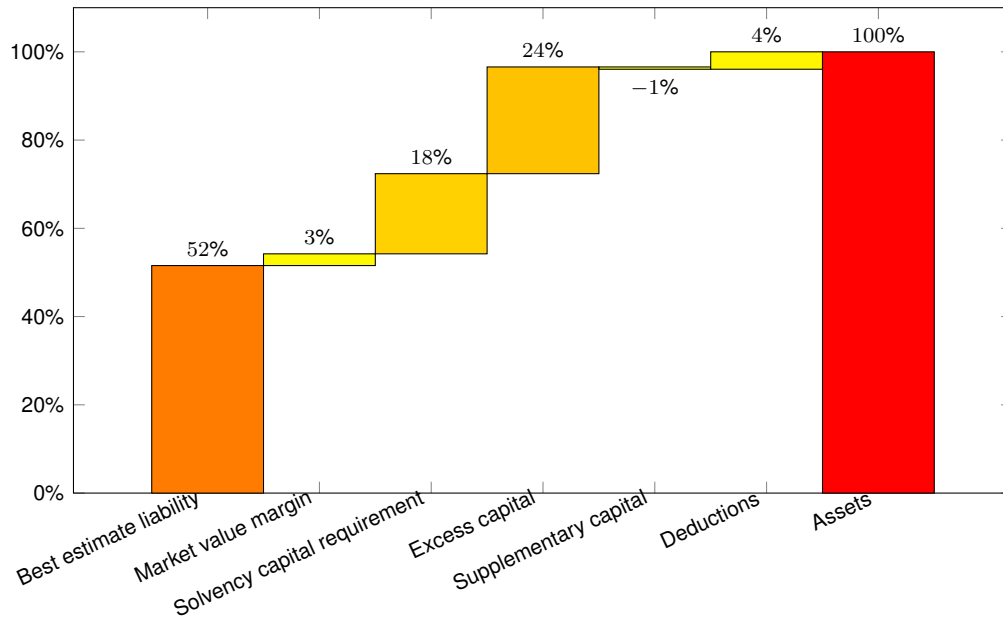
Figure 28c: Reinsurance (mean values)

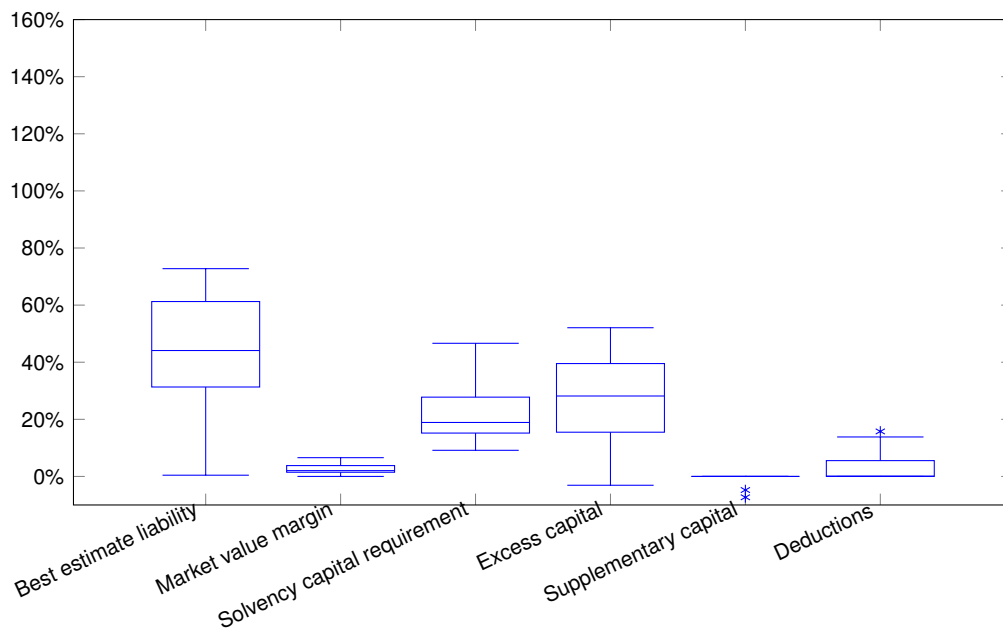Best estimate liability and target capital in relation to the balance sheet total (categories 4 and 5)
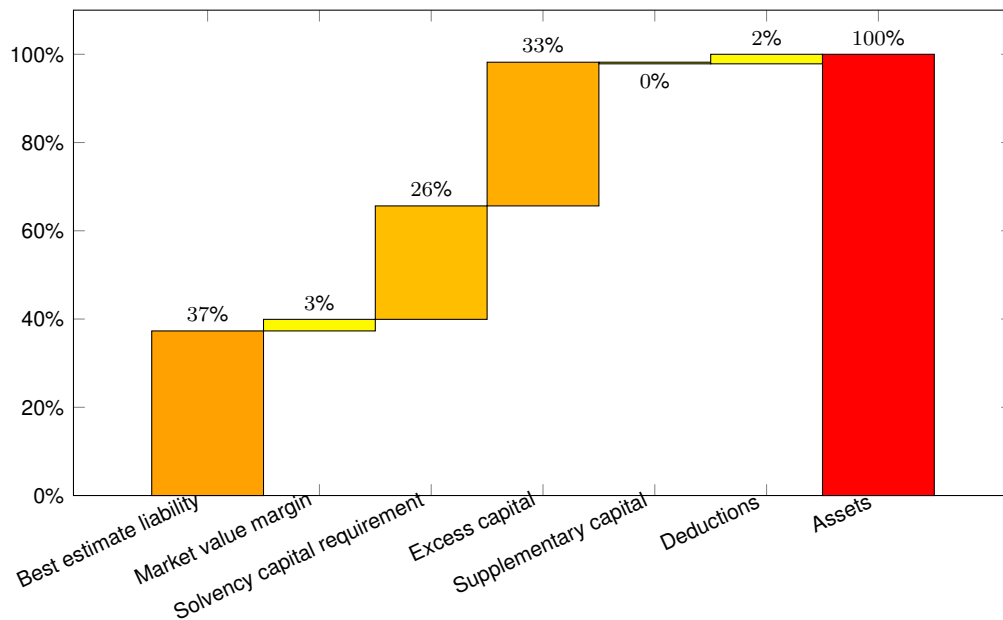
Figure 28d: Reinsurance (mean values)

6.6 Target capital decomposition
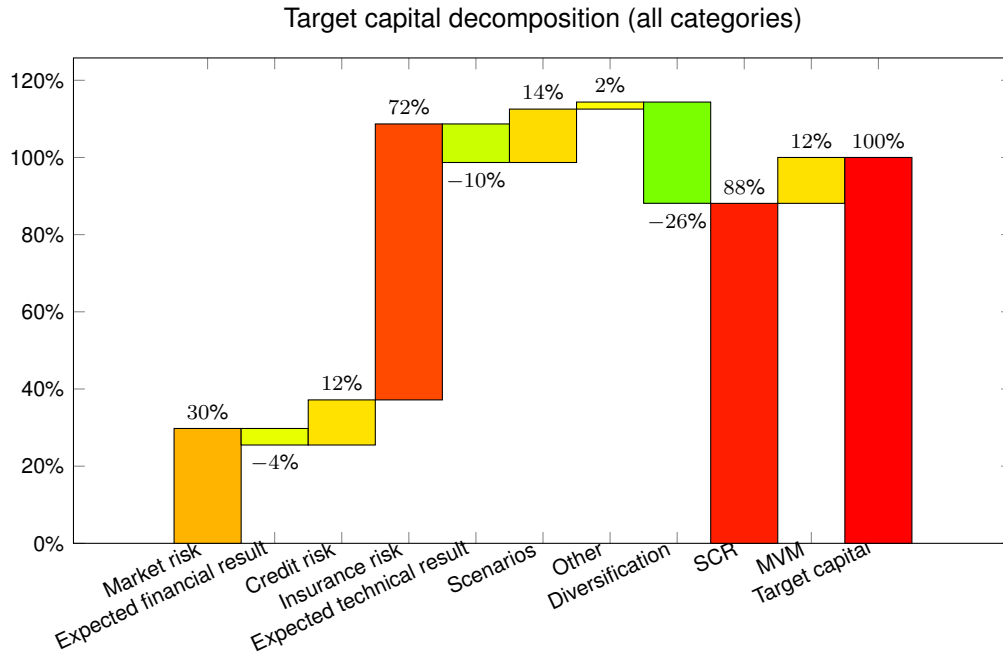
Figure 29a: Reinsurance (mean values)
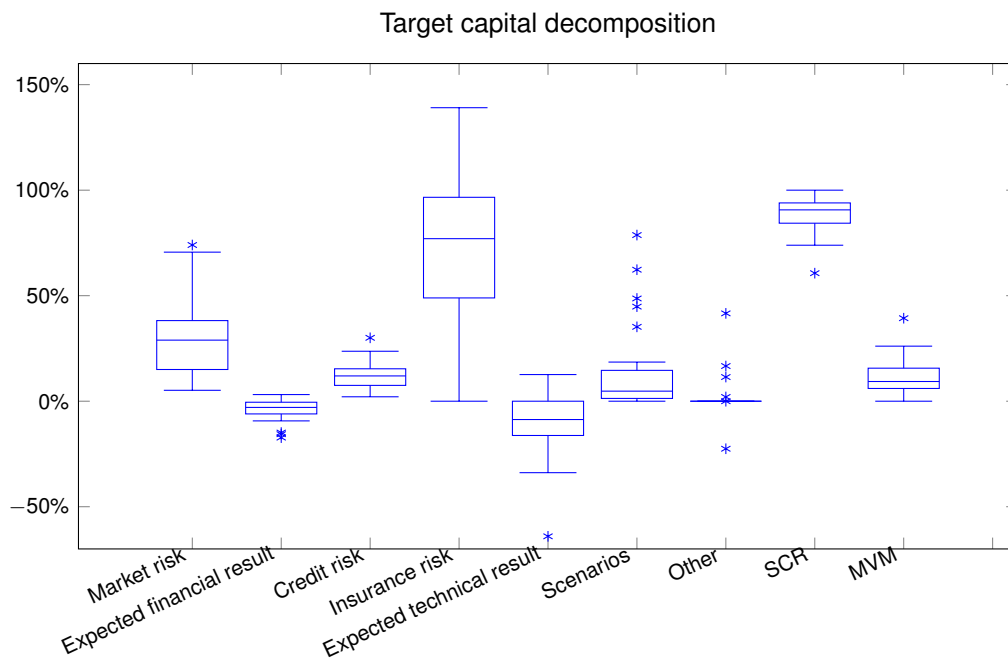
Figure 29b: Reinsurance (distibution)

Target capital decomposition (categories 2 and 3)
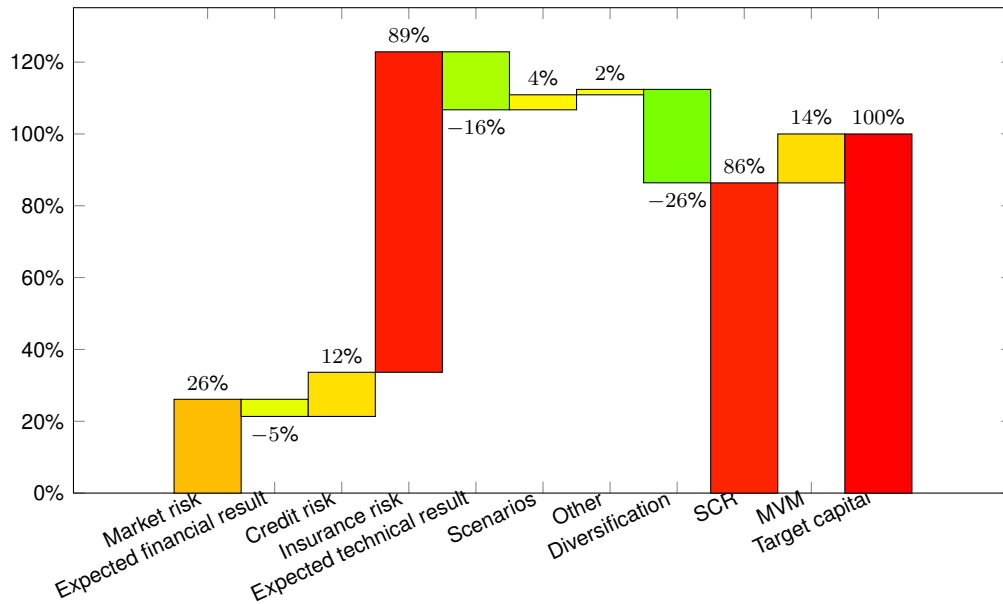
Figure 29c: Reinsurance (mean values)

Target capital decomposition (categories 4 and 5)

Figure 29d: Reinsurance (mean values)

6.7 Market risk analysis

Market risk analysis (all categories)
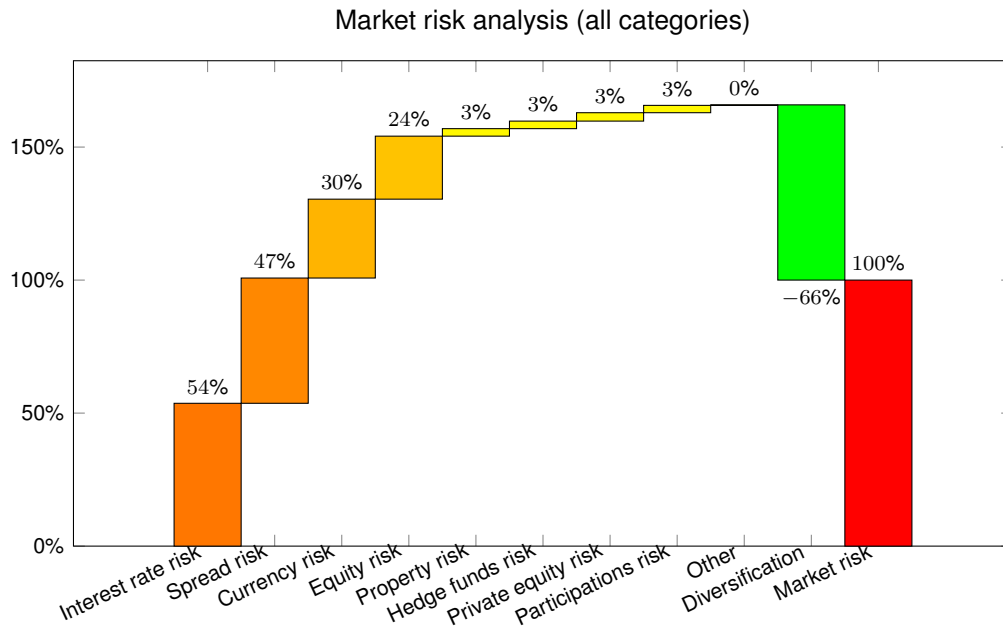
Figure 30a: Reinsurance (mean values)

Market risk analysis
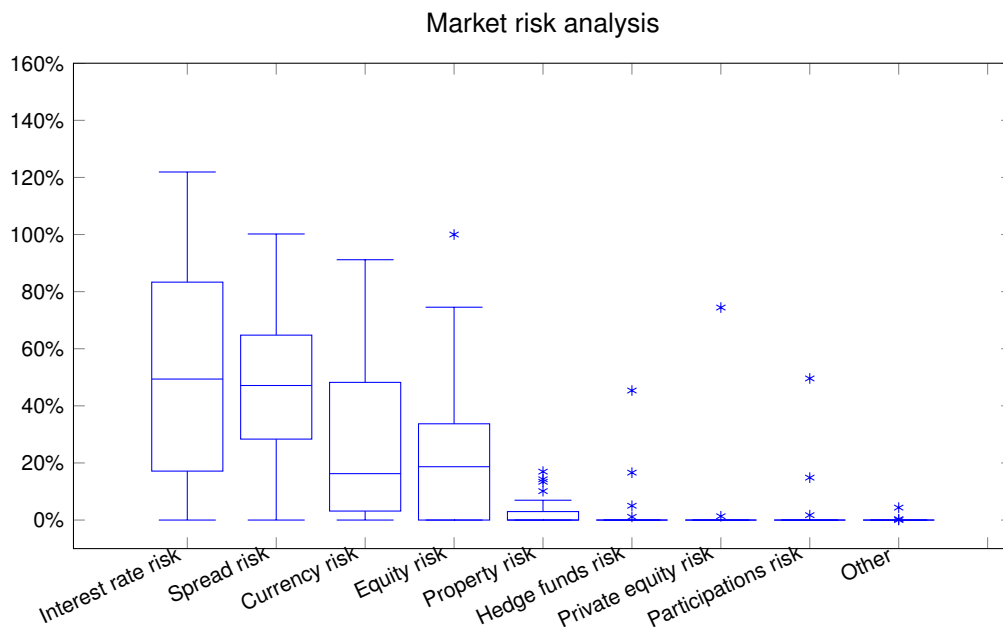
Figure 30b: Reinsurance (distibution)

Market risk analysis (categories 2 and 3)
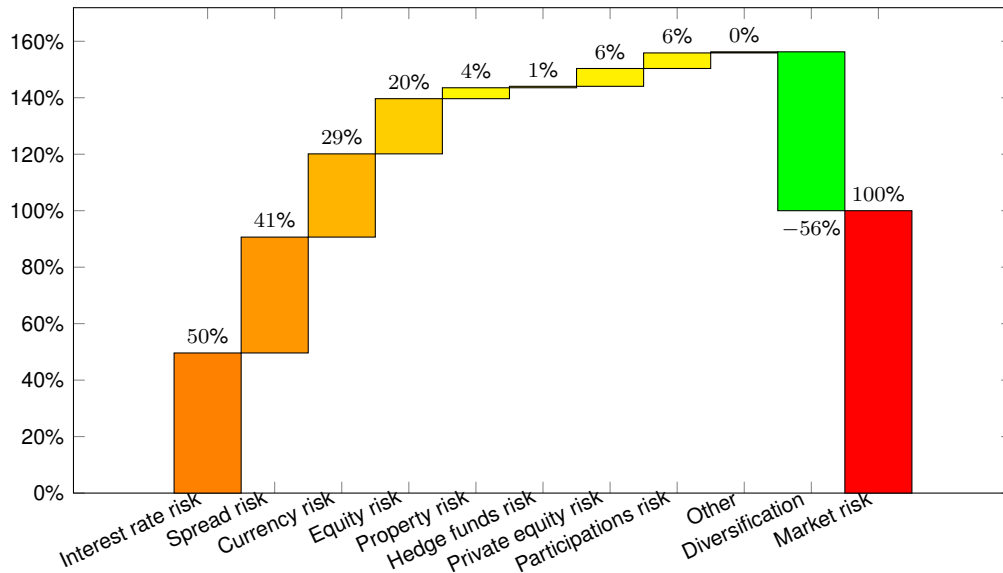
Figure 30c: Reinsurance (mean values)

Market risk analysis (categories 4 and 5)
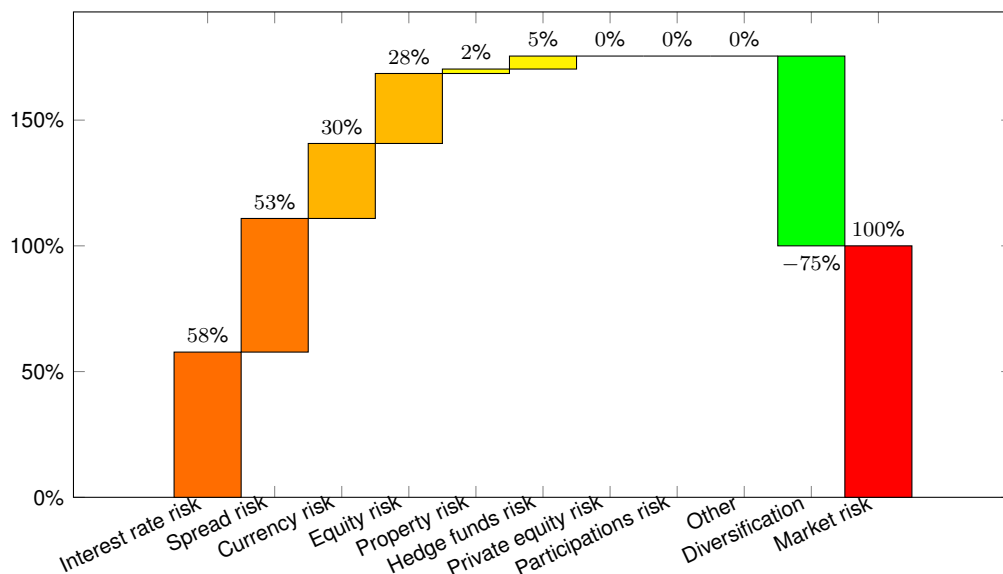
Figure 30d: Reinsurance (mean values)

6.8   Interest rates analysis

Interest rates analysis (all categories)
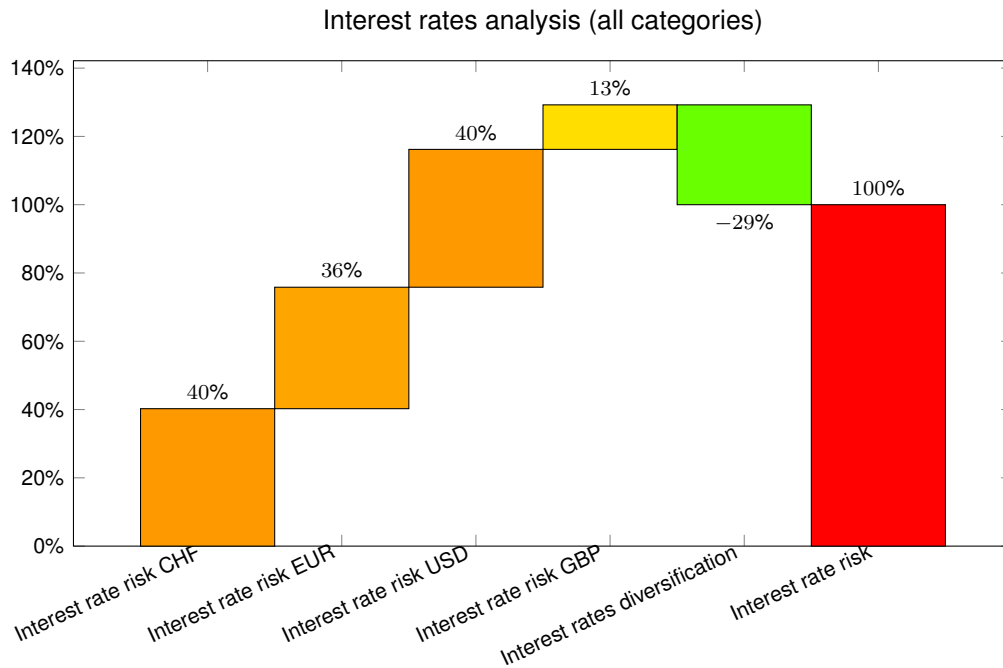
Figure 31a: Reinsurance (mean values)

Interest rates analysis
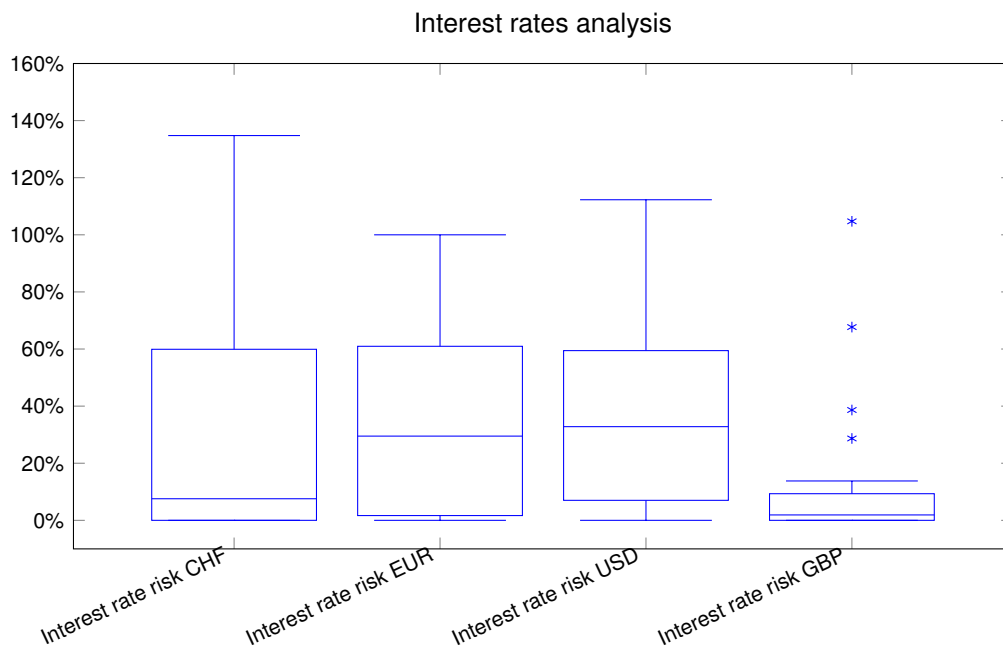
Figure 31b: Reinsurance (distibution)
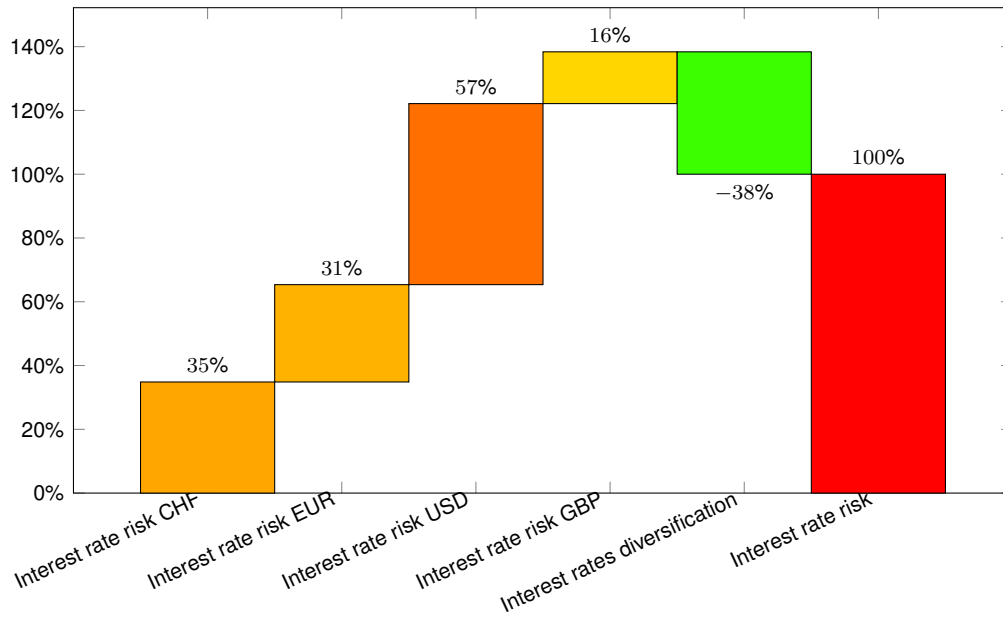
Figure 31c: Reinsurance (mean values)
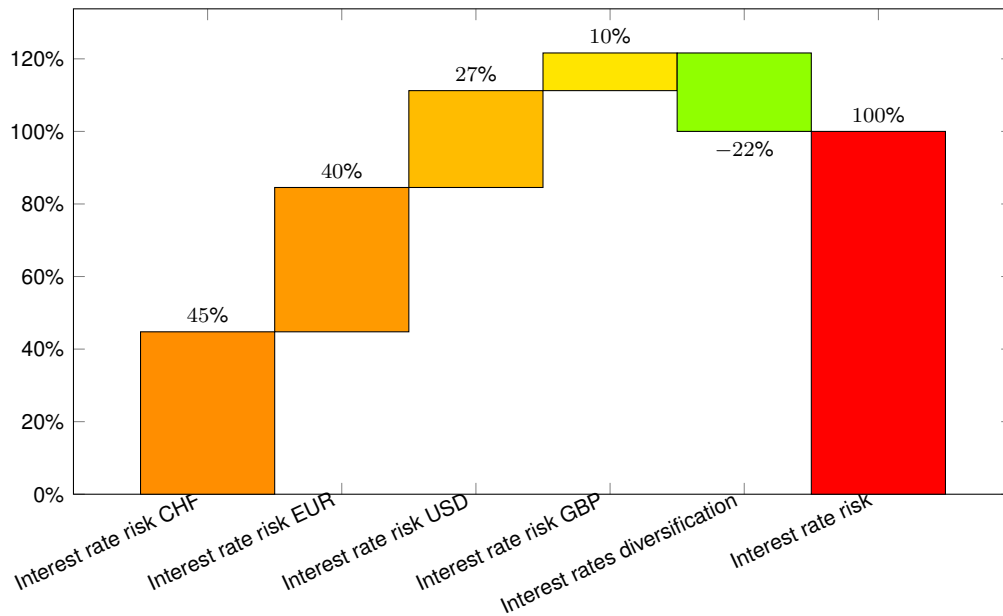
Figure 31d: Reinsurance (mean values)

6.9 Market and credit risk scenarios
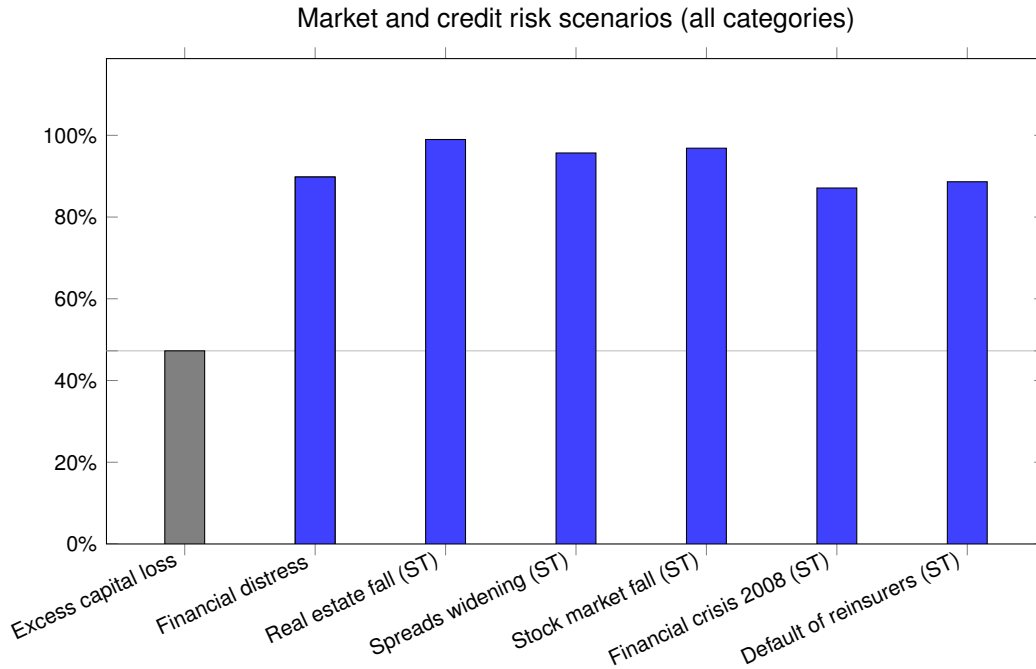
Figure 32a: Reinsurance (mean values)

Figure 32b: Reinsurance (distibution)
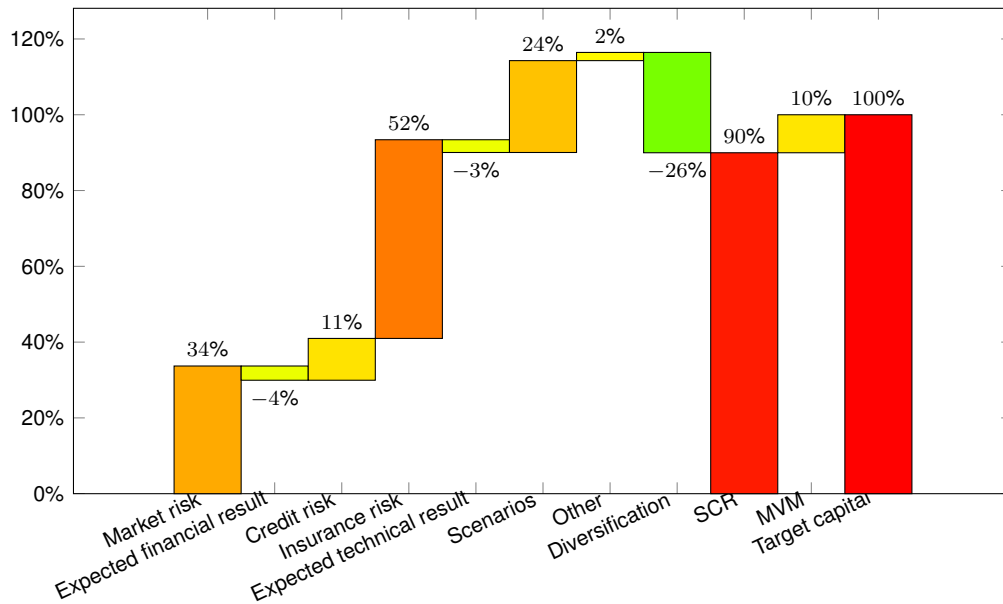
Market and credit risk scenarios (categories 2 and 3)
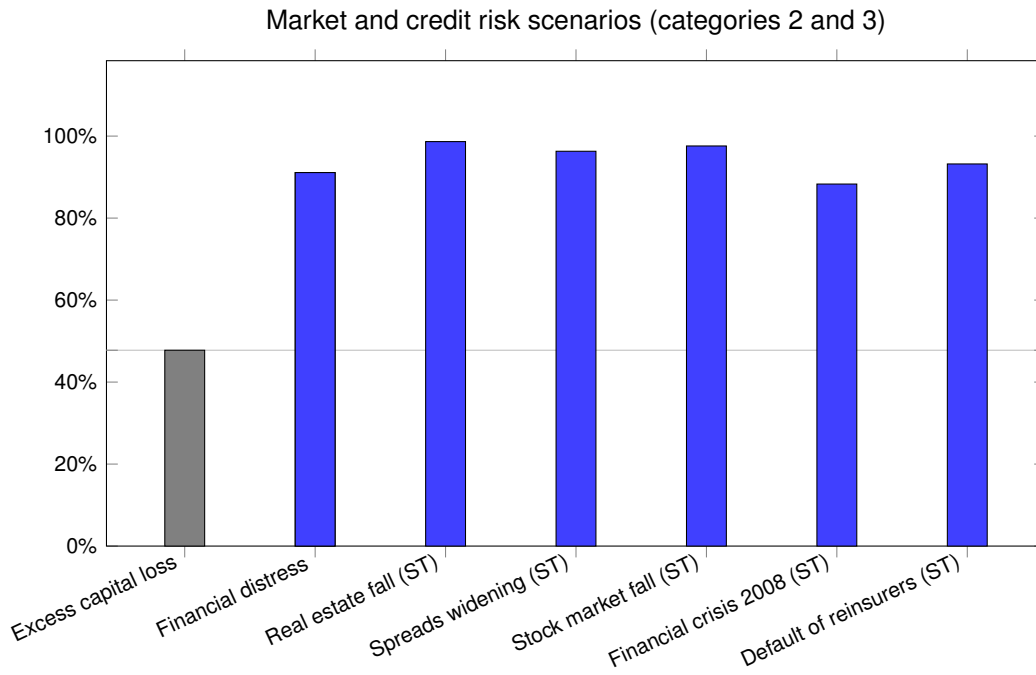
Figure 32c: Reinsurance (mean values)

Market and credit risk scenarios (categories 4 and 5)
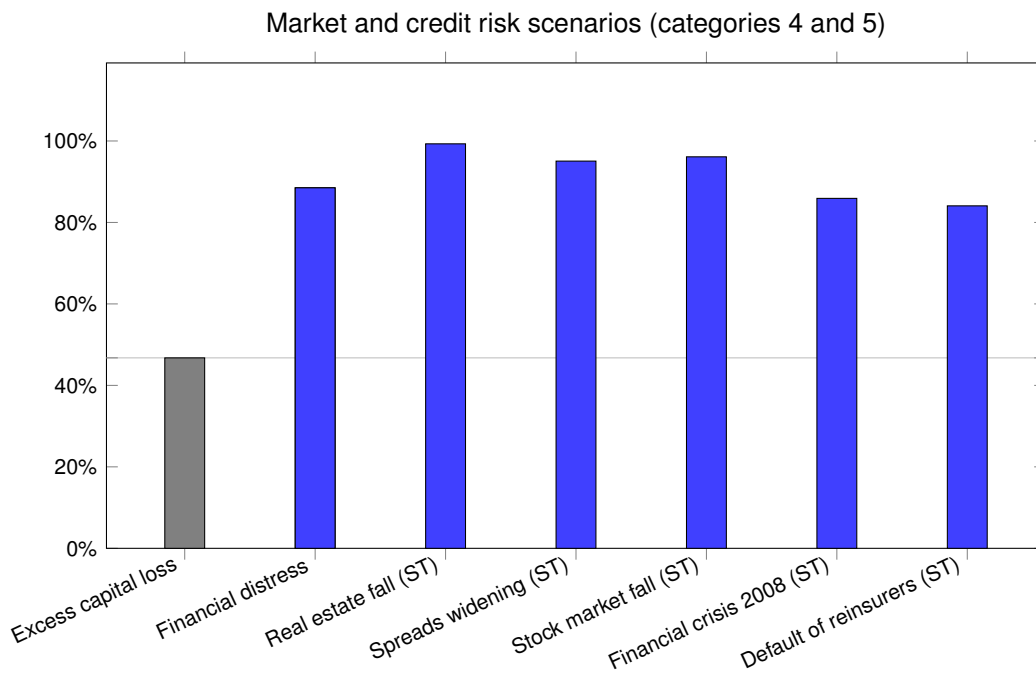
Figure 32d: Reinsurance (mean values)

6.10   Insurance risk and global scenarios

Insurance risk and global scenarios (all categories)
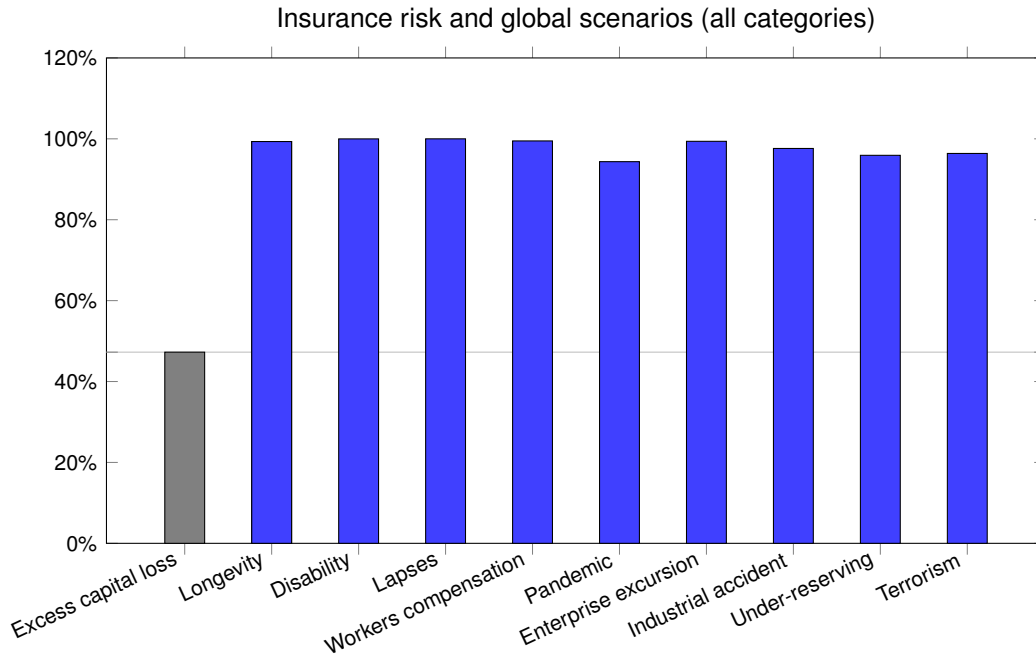
Figure 33a: Reinsurance (mean values)

Insurance risk and global scenarios
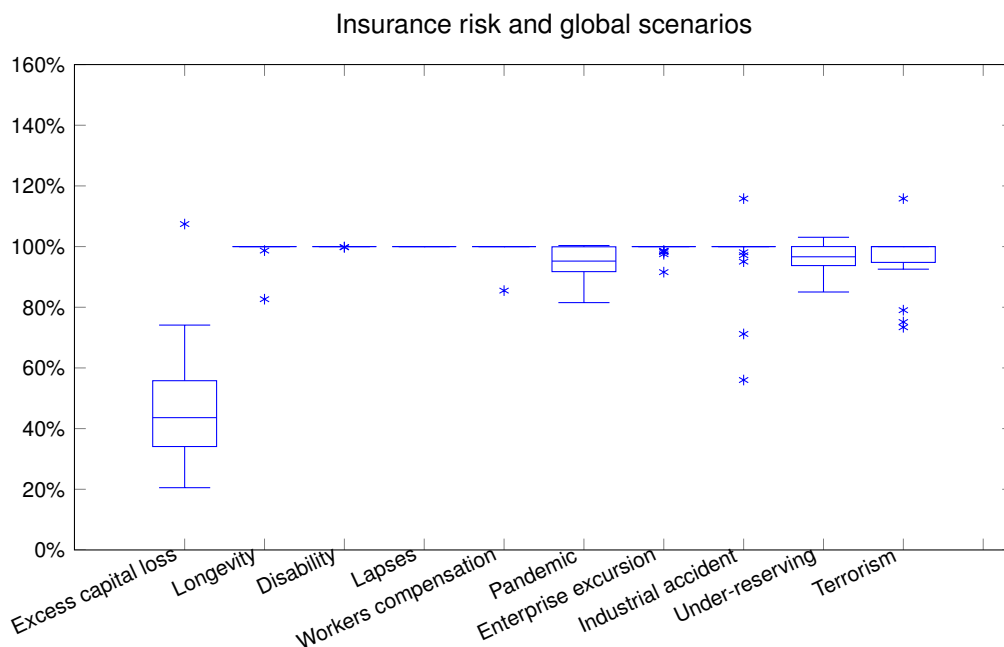
Figure 33b: Reinsurance (distibution)
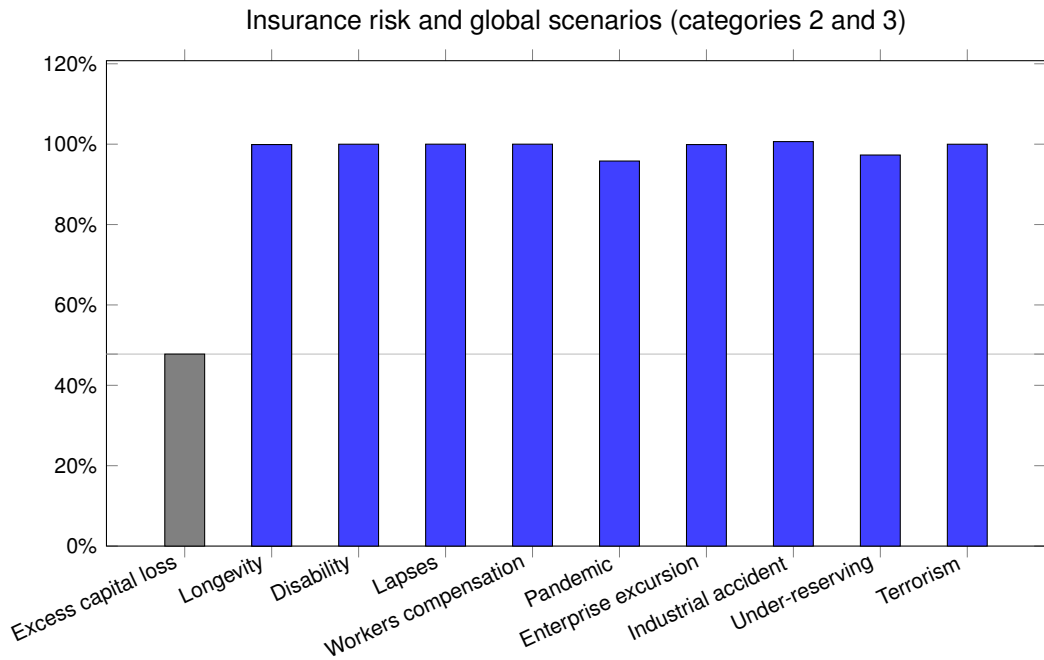
Figure 33c: Reinsurance (mean values)
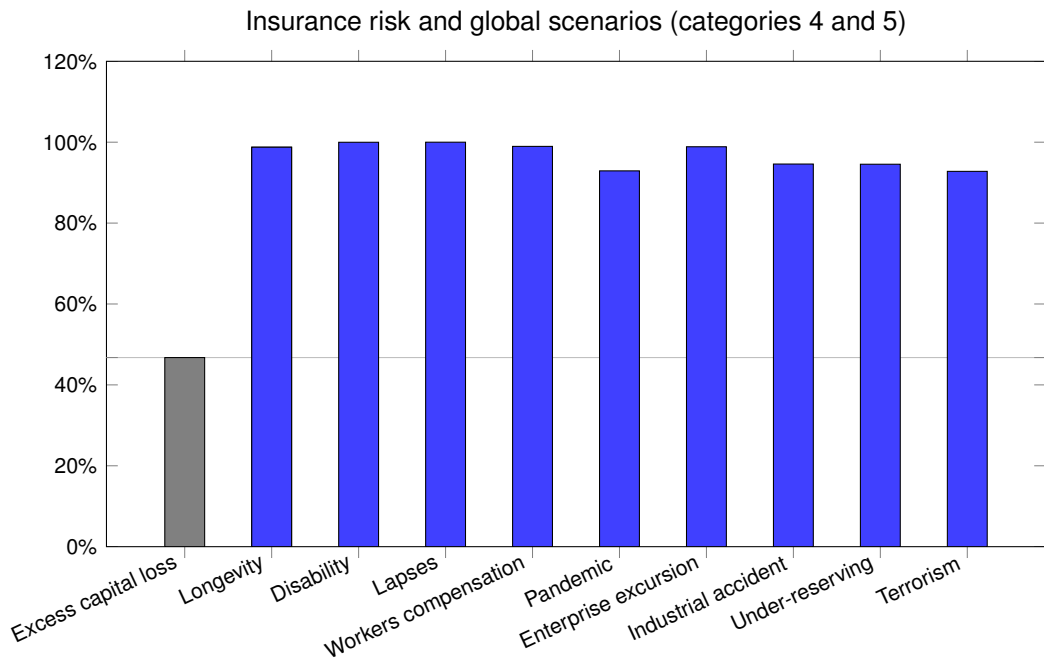
Figure 33d: Reinsurance (mean values)

A   Global glossary

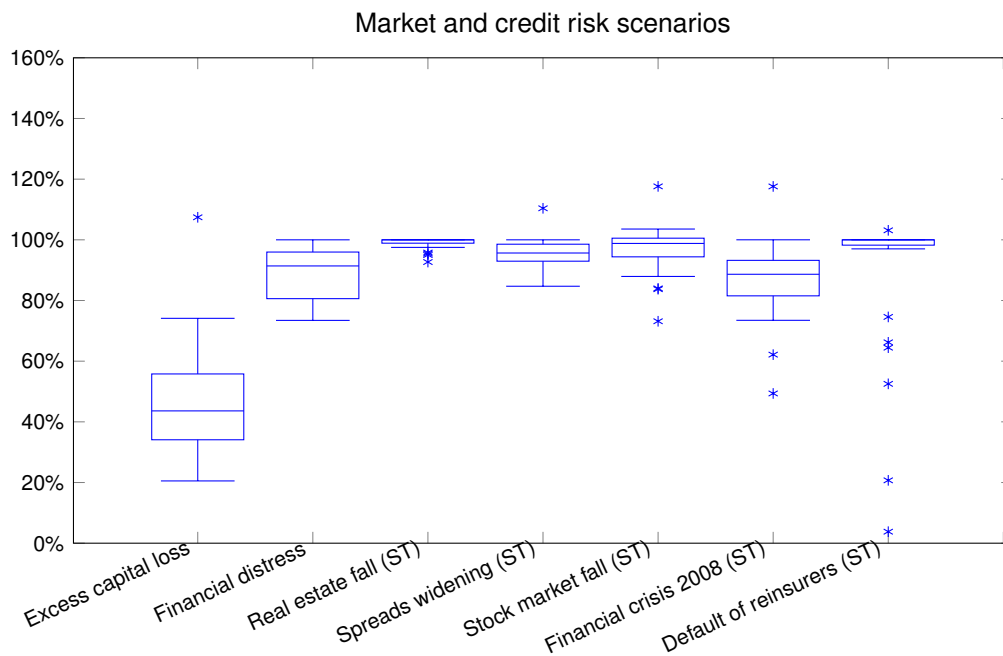|	
Best estimate liability	The expected value (i.e. the probability weighted average) of the present value of future cash-flows for current obligations, projected over the contract's run-off period, taking into account all up-to-date financial market and actuarial information. Abbreviation: BEL
Catastrophe risk	The risk that a single event, or a series of events (natural hazards such as earthquake, flood, hail, storm, etc. as well as man-made disasters such as fire, nuclear fallout, etc.), of major magnitude, usually over a short period (often 72 hours) leads to a significant deviation in actual claims from the total expected claims. Abbreviation : Cat, NatCat Related terms: Premium risk, large claims
Core capital	Core measure of an insurer's strength from a regulatory perspective. Core capital equals the market-consistent value of assets minus the market-consistent value of liabilities minus deductions plus the market value margin Abbreviation: CC Related terms: Market-consistent valuation, market value margin, deductions.
Cost of capital charge	Cost rate used for the determination of the costs expected for all future one-year capital requirements until run-off. Abbreviation: CoC
Deductions	Regulatory adjustments for determining an insurer's core capital. Deductions include, among others, own shares, goodwill and other intangibles, planned dividend payments or repayments of debt. Abbreviation: D Related term: Core capital
Economic balance sheet	Balance sheet statement based on market-consistent values for all assets and liabilities relating to in-force business, including off-balance sheet items Related terms: Market-consistent valuation, total balance sheet approach

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Excess capital	Term commonly used to refer to that part of the risk-bearing capital that is held by an insurer in excess of the target capital, i.e. risk-bearing capital minus target capital Abbreviation: EC Synonym: Surplus capital Related terms: Risk-bearing capital, target capital
Expected shortfall	A coherent risk measure. For a given confidence level of $1 - \alpha$, it measures the average losses over the threshold defined (typically set as the Value-at-Risk for a percentile given), i.e. the conditioned mean value, given that the loss exceeds the $1 - \alpha$ percentile. Abbreviation: ES Related term: Value-at-Risk
Frequency claims	Claims with loss amounts below a certain threshold value, typically characterised by high frequencies and low severities. Abbreviation: NS Synonyms: Normal claims, small claims, attritional claims Related terms: Large claims, premium risk
Fundamental data sheet	Form including the most relevant numbers in the context of the annual SST reporting process. It needs to be filled in by all insurance undertakings, regardless whether they use an internal model or the SST standard model. Abbreviation: FDS
Large claims	Claims with loss amounts above a certain threshold value, typically characterised by low frequencies and high severities. Abbreviation: GS Related terms: Frequency claims, premium risk
Market-consistent valuation	The practice of valuing assets and liabilities on market values where observable with a given quality (mark-to-market), where not, on market-consistent valuation techniques (mark-to-model)

Market value margin	Expected cost of having to hold solvency capital for non-hedgeable risks during the lifetime of the insurance liabilities. Abbreviation: MVM Synonym: Risk margin Related terms: Target capital, one-year capital requirement
One-year capital requirement	The risk measure expected shortfall applied to the one-year change in risk-bearing capital. The sum of the one-year capital requirement plus the market value margin equals the target capital Abbreviation: SCR Related terms: Target capital, market value margin
Premium risk	Risk that ultimate costs relating to *future* claims vary from those assumed when the obligations were estimated. Premium risk originates from claim sizes being greater than expected or differences in claims frequency from those expected. Premium risk is composed of frequency claims, large claims and catastrophe claims. Abbreviation: CY-Risk Synonyms: Current year risks, underwriting risks, pricing risk Related terms: Reserve risk
Reserve risk	Risk that ultimate costs relating to *incurred* claims (existing claims) vary from those assumed when the obligations were estimated. Reserve risk originates from claim sizes being greater than expected or differences in timing of claims payments from expected. Abbreviation: PY-Risk Synonyms: Previous year risks, run-off risk Related terms: Premium risk
Risk-bearing capital	Capital which may be taken into account when determining the insurer's available capital for SST purposes. Risk-bearing capital is defined as the sum of the core capital plus supplementary capital. Abbreviation: RBC Related terms: Core capital, supplementary capital
Risk margin	See market value margin.

Risk-free interest rate	Risk-free interest rate is the theoretical rate of return of an investment with no risk of financial loss Related term: Risk-free yield curve
Risk-free yield curve	Curve that shows the relation between the risk-free interest rate (or cost of borrowing) and the time to maturity, known as the "term", of the debt for a given borrower in a given currency. The yield curves corresponding to the bonds issued by governments in their own currency are called the government bond yield curves and considered as risk-free in the context of the SST. Related terms: Risk-free interest rate, risky yield curve, adjusted yield curve
Risky yield curve	Curve that shows the relation between the interest rate (or cost of borrowing) and the time to maturity, known as the "term", of the debt for a given borrower in a given currency. Risky yield curves are typically higher than risk-free yield curves as they reflect the creditworthiness of the different institutions that borrow money from each other. Banks with high credit ratings (Aa/AA or above) borrow money from each other at the LIBOR rates. The corresponding yield curves are known as the LIBOR curve or the swap curve. The risky yield curve within the SST context is based on the swap curve. Related term: Risk-free yield curve Reference: FINMA Circular 2013/2 "Temporary Adjustments to the Swiss Solvency Test (SST)"
Supervisory category	System of six risk categories into which each supervised institution is allocated. Allocation is based on the risks posed to creditors, investors and policyholders, as well as to the entire system, and to Switzerland's reputation as a financial centre. The supervised institutions in category 1 are characterised by their size and global relevance, and the associated significant risks posed at various levels. In the other categories, the institutions' risk potential decreases incrementally down to category 5, while the market players in category 6 are not subject to prudential supervision. Reference: FINMA Newsletter 19 (2011) "Overhaul of FINMA's supervisory approach"

Supplementary capital	Additional capital eligible to cover an insurer's target capital. Supplementary capital is split between lower supplementary capital and upper supplementary capital, depending on how well the capital can absorb losses. Supplementary capital includes instruments with risk-absorbing properties such as hybrid capital or subordinated debt. For example, perpetual subordinated loans qualify as upper supplementary capital, whereas subordinated bonds with a fixed maturity date would qualify as lower supplementary capital. Abbreviation: SC Related terms: Risk-bearing capital, target capital
Surplus capital	see Excess Capital
Target capital	The amount of capital to be held by an insurer to meet the quantitative requirements under the SST. The target capital equals the sum of the one-year capital requirement plus the market value margin. Abbreviation: TC Related terms: One-year capital requirement, market value margin
Total balance sheet approach	Principle which states that the determination of an insurer's capital that is available and needed for solvency purposes should be based upon all assets and liabilities, as measured in the regulatory balance sheet for the insurer (e.g. market-consistently), and the way they interact Related terms: Economic balance sheet, market-consistent valuation
Value-at-Risk	Value-at-Risk is a percentile of a distribution and is used as a (non-coherent) risk measure. Abbreviation: VaR Related term: Expected shortfall