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**Report on long-term guarantees measures
and measures on equity risk
2019**

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Executive summary

The Solvency II Directive requires a review of the long-term guarantees measures (LTG) and the measures on equity risk until 1 January 2021. As part of this review, EIOPA reports annually on the impact of the application of the LTG measures and the measures on equity risk to the European Parliament, the Council and the Commission. This report on the LTG measures and the measures on equity risk is the fourth annual report.

The LTG measures are the extrapolation of risk-free interest rates, the matching adjustment, the volatility adjustment, the extension of the recovery period in case of non-compliance with the Solvency Capital Requirement, the transitional measure on the risk-free interest rates and the transitional measure on technical provisions. The equity risk measures are the application of a symmetric adjustment mechanism to the equity risk charge and the duration-based equity risk sub-module.

The use of the matching adjustment, the volatility adjustment, the two transitional measures and the duration-based equity risk sub-module are not mandatory for undertakings. In the European Economic Area (EEA), 699 insurance and reinsurance undertakings in 22 countries were using at least one of these measures on 31 December 2018.

The aggregated amount of technical provisions for the undertakings using the matching adjustment, the volatility adjustment, the transitional measure on the risk-free interest rates, the transitional measure on technical provisions and the duration-based equity risk sub-module amounts to 75% of the technical provisions in the EEA insurance and reinsurance market. 660 undertakings representing 67% of the overall amount of technical provisions at EEA level are using the volatility adjustment. The transitional on technical provisions is the second most used measure, applied by 159 undertakings representing 25% of the overall amount of technical provisions at EEA level. The matching adjustment is used by 34 undertakings representing 15% of the overall amount of technical provisions in the EEA. The transitional on the risk-free interest rates is used by 6 undertakings with a negligible market share in technical provisions. Finally the duration-based equity risk sub-module is only used by one undertaking.

The impact of the measures on the financial position is reported to national supervisory authorities through the regular annual reporting. For the undertakings using these measures, removing the measures would result, on average, in a reduction to the Solvency Capital Requirement ratio of 76 percentage points; the weighted average ratio with the measures is 235% while the same ratio without the measures would be 159%. Insurance and reinsurance undertakings comply with the Solvency Capital Requirement if their Solvency Capital Requirement ratio is at least 100%. Removing these measures would decrease the amount of eligible own funds to cover the Solvency Capital Requirement by 159 billion euro and increase the Solvency Capital Requirement by 84 billion euro.

Where insurance or reinsurance undertakings depend on the transitional measures to comply with the Solvency Capital Requirement, national supervisory authorities are generally confident that undertakings will be able to reduce the dependency on transitional measures, to the point of no dependency by 1 January 2032. National

supervisory authorities reported that the measures planned by undertakings in their phasing-in plans have already provided an effective contribution to strengthening undertakings' solvency position under the low-rate environment. However, they also noted that it is still very early in the transitional period. The total number of undertakings not complying with the Solvency Capital Requirement without the transitional measures at EEA level decreased by 6 from 27 undertakings at the beginning of 2018, to 21 undertakings at the end of the year. The missing amount of eligible own funds to comply with the Solvency Capital Requirement without the transitional measures decreased by 2.5 billion euro, from 6.82 billion euro at the beginning of 2018 to 4.32 billion euro at the end of the year, with one jurisdiction (UK) accounting for 86% of this amount.

In order to assess the impact of the extrapolation of risk-free interest rates EIOPA carried out an information request to insurance and reinsurance undertakings. Undertakings assessed the impact of two scenarios to change parameters of the extrapolation. At EUR level, scenario 1 (increase of the last liquid point for the euro from 20 to 30 years) would result in a reduction of the SCR ratio by 31 percentage points and scenario 2 (increase of the last liquid point for the euro from 20 to 50 years) would result in a reduction of the SCR ratio by 52 percentage points. The average change in SCR ratios is the highest for undertakings in Germany, and Netherlands. For scenario 1 the eligible own funds to cover the SCR decrease by 27,8 billion euro and the SCR increases by 14,2 billion euro. For scenario 2 the eligible own funds to cover the SCR decrease by 47,4 billion euro and the SCR increases by 27,2 billion euro. Scenario 2 is the scenario with the highest impact for the whole sample.

At the end of 2018, the symmetric adjustment to the equity capital charge, which can vary from -10 to +10 percentage points, was at -6.34 percentage points. At EEA level the estimated average impact of removing the symmetric adjustment on the SCR is +4%.

The feedback from national supervisory authorities indicates that there is no specific case yet where undue capital relief was observed for an undertaking due to the application of the LTG measures or measures on equity risk.

Most of the national supervisory authorities have identified no relevant and significant trends in the investment behaviour of the insurance undertakings they supervise. Most of the trends that were identified relate to search-for-yield behaviour in the ongoing context of low interest rates. None of the observations could be clearly linked to the use of LTG-measures on the basis of factual evidence. A search-for-yield through increased investment in bonds was identified by seven national supervisory authorities, with two explicitly mentioning a move from government bonds to corporate bonds and mortgage loans. Three national supervisory authorities mentioned a general trend towards more illiquid investment, with infrastructure assets, bonds of local, unrated, undertakings and property market investment vehicles being explicitly mentioned by several national supervisory authorities.

Consistent with the trends observed in the last years, availability of long-term guarantee products is mainly stable or decreasing across EEA. In the 2018 report, approximately half of the jurisdictions observed a reduction in the availability of traditional life

insurance products with long-term guarantees and an increase in the availability of unit-linked business. All jurisdictions that observed this trend last year, have responded that the trend has continued this year. Overall, national supervisory authorities have observed a decrease in the size and duration of guarantees.

With regard to the impact of the LTG measures and the measures on equity risk on competition and level playing field or on financial stability, the majority of national supervisory authorities did not report any observed impact.

I. Introduction

I.1 Review of the LTG measures and measures on equity risk

The long-term guarantees (LTG) measures were introduced in the Solvency II Directive¹ through the Omnibus II Directive² in order to ensure an appropriate treatment of insurance products that include long-term guarantees. The measures on equity risk should ensure an appropriate measure of equity risk in setting the capital requirement for insurance and reinsurance undertakings in relation to the risks arising from changes in the level of equity prices.

The Solvency II Directive requires a review of the LTG measures and the measures on equity risk by 1 January 2021. The review consists of the following elements:

EIOPA annually reports on the impact of the application of the LTG measures and the measures on equity risk to the European Parliament, the Council and the Commission.

EIOPA provides an opinion on the assessment of the application of the LTG measures and the measures on equity risk to the Commission.

Based on the opinion submitted by EIOPA the Commission submits a report on the impact of the LTG measures and the measures on equity risk to the European Parliament and to the Council. The report will be accompanied, if necessary, by legislative proposals.

The 2019 EIOPA report on the LTG measures and the measures on equity risk is the fourth annual report³. The 2019 report is structured in three main sections. The first section provides introductory information, among others on the legal background of the review of the LTG measures and measures on equity risk and on the data used for this report, and concludes with a short overview of the European insurance market. The second section captures the overall impact of the LTG measures and measures on equity risk on the financial position of the undertakings, the impact on policyholder protection, the impact on investments, the impact on consumer protection and availability of products, the impact on competition and level playing field in the EU insurance market and the impact on financial stability.

The third section of the report sets out in more detail the impact of each of the measures.

¹ Directive 2009/138/EC of 25 November 2009 of the European Parliament and of the Council on the taking-up and pursuit of the business of Insurance and Reinsurance (Solvency II), OJ L 335, 17.12.2009, p.1.

² Directive 2014/51/EU of the European Parliament and of the Council of 16 April 2014 amending Directives 2003/71/EC and 2009/138/EC and Regulations (EC) No 1060/2009, (EU) No 1094/2010 and (EU) No 1095/2010 in respect of the powers of the European Supervisory Authority (European Insurance and Occupational Pensions Authority) and the European Supervisory Authority (European Securities and Markets Authority), OJ L153, 22.05.2014, p.1.

³ The 2016, 2017 and 2018 reports can be found on EIOPA's website at the following links:
https://eiopa.europa.eu/Publications/Responses/EIOPA-BoS-16-279_LTG_REPORT_2016.pdf
<https://eiopa.europa.eu/Publications/Reports/2017-12-20%20LTG%20Report%202017.pdf>
https://eiopa.europa.eu/Publications/Reports/2018-12-18%20_LTG%20AnnualReport2018.pdf

EIOPA plans to submit the opinion on the assessment of the application of the LTG measures and the measures on equity risk to the Commission in 2020, based on the annual reports submitted by then.

In February 2019, the European Commission issued a request to EIOPA for technical advice on the review of the Solvency II Directive⁴ on several topics, including LTG measures and measures on equity risk. EIOPA will provide its technical advice in the form of an opinion, in line with the requirement of Article 77f(2) of the Solvency II Directive to provide an opinion on the assessment of the application of the LTG measures and measures on equity risk. On 15 October 2019, EIOPA has published a consultation paper on the opinion on the 2020 review of Solvency II⁵, which includes a draft assessment on the application of the LTG measures and measures on equity risk based on the LTG reports 2016-2018. EIOPA will provide its final assessment, including eventual proposed changes regarding the measures, by 30 June 2020.

I.2 Legal background

Article 77(f)(1) of the Solvency II Directive requires EIOPA on an annual basis and until 1 January 2021 to report to the European Parliament, the Council and the Commission about the impact of the application of Articles 77a to 77e and 106, Article 138(4) and Articles 304, 308c and 308d, including the delegated or implementing acts adopted pursuant thereto.

The table below summarises the LTG measures and the measures on equity risk subject to the review and the relevant articles of the Solvency II Directive.

Table 1.1

Articles	Name of the measure	Abbreviation in this report
77a	Extrapolation of the risk-free interest rates	-
77b, 77c	Matching adjustment	MA
77d	Volatility adjustment	VA
106	Symmetric adjustment mechanism to the equity risk charge	SA
138(4)	Extension of the recovery period	-
304	Duration-based equity risk sub-module	DBER
308c	Transitional on the risk-free rate	TRFR
308d	Transitional on technical provisions	TTP

⁴ Commission's call for advice can be found in the following link: https://eiopa.europa.eu/Publications/Requests%20for%20advice/RH_SRAnnex%20-%20CfA%202020%20SII%20review.pdf

⁵ See Consultation paper in the following link: <https://eiopa.europa.eu/Pages/Consultation-Paper-on-the-Opinion-on-the-2020-review-of-Solvency-II.aspx>

The review also covers Article 77e of the Solvency Directive on technical information on the risk-free interest rates produced by EIOPA.

Article 77(f)(1) also requires national supervisory authorities (NSAs) to provide the following information to EIOPA on an annual basis:

- the availability of long-term guarantees in insurance products in their national markets and the behaviour of insurance and reinsurance undertakings as long-term investors;
- the number of insurance and reinsurance undertakings applying the matching adjustment, the volatility adjustment, the extension of the recovery period in accordance with Article 138(4), the duration-based equity risk sub-module and the transitional measures set out in Articles 308c and 308d;
- the impact on the insurance and reinsurance undertakings' financial position of the matching adjustment, the volatility adjustment, the symmetric adjustment mechanism to the equity capital charge, the duration-based equity risk sub-module and the transitional measures set out in Articles 308c and 308d, at national level and in anonymised way for each undertaking;
- the effect of the matching adjustment, the volatility adjustment, the symmetric adjustment mechanism to the equity capital charge and the duration-based equity risk sub-module on the investment behaviour of insurance and reinsurance undertakings and whether they provide undue capital relief;
- the effect of any extension of the recovery period in accordance with Article 138(4) on the efforts of insurance and reinsurance undertakings to re-establish the level of eligible own funds covering the Solvency Capital Requirement or to reduce the risk profile in order to ensure compliance with the Solvency Capital Requirement;
- where insurance and reinsurance undertakings apply the transitional measures set out in Articles 308c and 308d, whether they comply with the phasing-in plans referred to in Article 308e of the Solvency II Directive and the prospects for a reduced dependency on these transitional measures, including measures that have been taken or are expected to be taken by the undertakings and supervisory authorities, taking into account the regulatory environment of the Member State concerned.

I.3 Data

The data used for this report are taken from the quantitative reporting templates (QRT) submitted by insurance and reinsurance undertakings to their NSAs with reference date 31 December 2018⁶.

⁶ Few undertakings with a reporting year different than the natural year reported data for a point in time earlier than 31 December 2018. Implausible figures affecting individual data submitted by 10 undertakings were disregarded in the analysis. This is not expected to have a material impact on the results presented in the report. Data from the QRT were

Additionally, EIOPA launched a specific request to insurance and reinsurance undertakings from the EEA and subject to Solvency II to provide the following information: impact of the extrapolation of risk-free interest rates on the financial position of undertakings; losses due to bond defaults and downgrades of bonds in matching adjustment portfolios, assets in matching adjustment portfolios, diversification effects in the calculation of the Solvency Capital Requirement when the matching adjustment is used and overcompensation of the volatility adjustment⁷. This information has been used in the preparation of this report as well as in the preparation of EIOPA's Opinion on those measures and the review of Solvency II.

EIOPA also carried out a questionnaire to ascertain the experience of NSAs with regard to the impact of the LTG measures and the measures on equity risk and the application of the risk management provisions concerning the measures.

I.4 Introduction to Solvency II quantitative requirements

The main objective of Solvency II is to protect the insurance policyholders and beneficiaries. An essential aspect of policyholder protection is the ability of insurance and reinsurance undertakings to fulfil their insurance and reinsurance contracts, even under adverse circumstances, for example in a financial crisis or when a natural catastrophe occurs. Solvency II includes quantitative requirements on insurance and reinsurance undertakings to ensure that their financial position allows them to pay the expected insurance benefits and also to bear unexpected losses that they might incur under adverse circumstances.

The quantitative requirements include in particular:

- market-consistent valuation of assets and liabilities,
- economic determination of own funds,
- risk-based capital requirements.

Assets and liabilities

Solvency II introduced a valuation of assets and liabilities specifically for supervisory purposes. Assets and liabilities are valued at the amount for which they could be exchanged between knowledgeable willing parties in an arm's length transaction.

The assets of an insurance or reinsurance undertaking consist mainly of the investments that insurers make with the insurance premiums they receive. Typically these investments comprise bonds, equities and real estate, held directly or through investment funds.

extracted between 27 June and 7 October 2019. Figures in the report may differ from what is published as part of EIOPA statistics due to differences in sample selection, size and extraction date.

⁷ The detailed content of the information request (i.e. Excel template, technical specifications and technical information) can be consulted on EIOPA's website in the following link: <https://eiopa.europa.eu/regulation-supervision/insurance/long-term-guarantees-review>

The liabilities of an insurance or reinsurance undertaking consist mainly of technical provisions set up for the insurance and reinsurance obligations of the undertaking. Insurance and reinsurance obligations can be of long duration.

The long-term guarantee measures extrapolation, MA, VA, TRFR and TTP relate to the calculation of technical provisions, the first four of them specifically to the risk-free interest rates.

Own funds and capital requirements

Insurance and reinsurance undertakings have to hold own funds that cover their capital requirements. The own funds are based on the difference between assets and liabilities.

There are two capital requirements in Solvency II, the Solvency Capital Requirement (SCR) and the Minimum Capital Requirement (MCR).

The SCR is a risk-based capital requirement. The SCR corresponds to the amount of own funds needed to withstand the worst annual loss expected to occur over the next 200 years. If an insurance or reinsurance undertaking is not complying with the SCR, it has to take measures to meet the SCR again within six months, for example by increasing its capital or by reducing its risk.

The SCR can be calculated with a standard formula that is specified in the law or with an internal model that was approved by the NSA. It is also possible to calculate a part of the SCR with an internal model (partial internal model) and the remaining part with the standard formula.

The SCR standard formula consists of modules for the different risks that an insurance and reinsurance undertaking is exposed to (in particular market risks, underwriting risks, counterparty default risks, operational risks). The risk that relates to the change of equity prices is captured in the equity risk sub-module of the standard formula. The measures on equity risk relate to the calculation of the equity risk sub-module.

The MCR is usually lower than the SCR. It corresponds to the minimum level of security that is required under Solvency II. An insurance or reinsurance undertaking not complying with the MCR would expose policyholders and beneficiaries to an unacceptable level of risk. If an insurer does not cover the MCR with own funds, its authorisation will be withdrawn unless the MCR is covered again within 3 months.

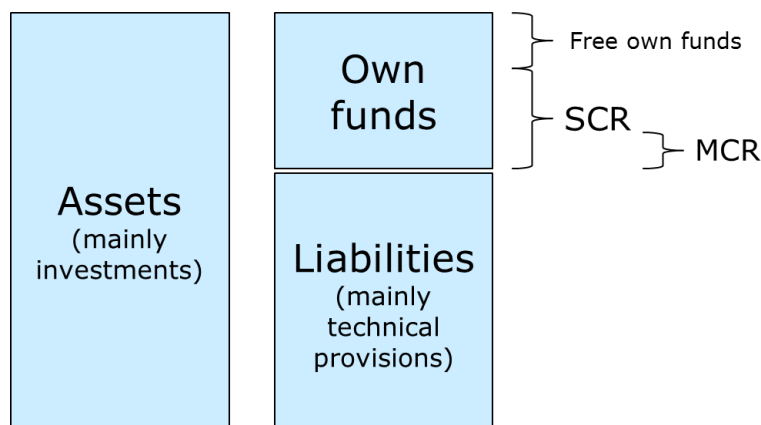
Other than the SCR, the MCR is calculated in a simple manner. The MCR is usually between 25% and 45% of the SCR.

The existence of two capital requirements establishes a "ladder of supervisory intervention". It allows NSAs and undertakings to take early measures to ensure that the capital requirements are met.

The SCR ratio is the ratio of eligible own funds and SCR. If the SCR ratio is 100% or higher, then the SCR is complied with, otherwise not. The MCR ratio is the ratio of eligible own funds and MCR. If the MCR ratio is 100% or higher, then the MCR is complied with, otherwise not.

The following figure provides a stylised description of the quantitative requirements of Solvency II.

Figure 1.1



I.5 Overview of the European insurance market

In the EEA insurance market 2797 insurance and reinsurance undertakings are under supervision according to Solvency II. The table below shows the number of undertakings split by type of undertakings and by the method of SCR calculation (standard formula, partial internal model or full internal model).

The total number of undertakings decreased by 115 compared with data at 31 December 2017. The number of undertakings using a partial or full internal model has increased somewhat.

Table 1.2

Number of undertakings				
	Standard formula	Partial internal model	Full internal model	Total
Life undertakings	503	32	20	555
Non-life undertakings	1451	46	39	1536
Undertakings pursuing both life and non-life activities	358	29	8	395
Reinsurance undertakings	291	5	15	311
Total	2603	112	82	2797

In the EEA insurance market 345 groups are under supervision according to Solvency II. 300 groups use the standard formula, 37 groups use a partial internal model and 8 groups use a full internal model to calculate the SCR.

The following diagram provides an overview of the amount of technical provisions and gross written premiums of all insurance and reinsurance undertakings subject to Solvency II. The amounts are provided separately for life insurance and for non-life insurance obligations. Additional information with respect to the European insurance market is presented in Annex 1 of this report.

Technical provisions and gross written premiums of EEA undertakings

Figure 1.2

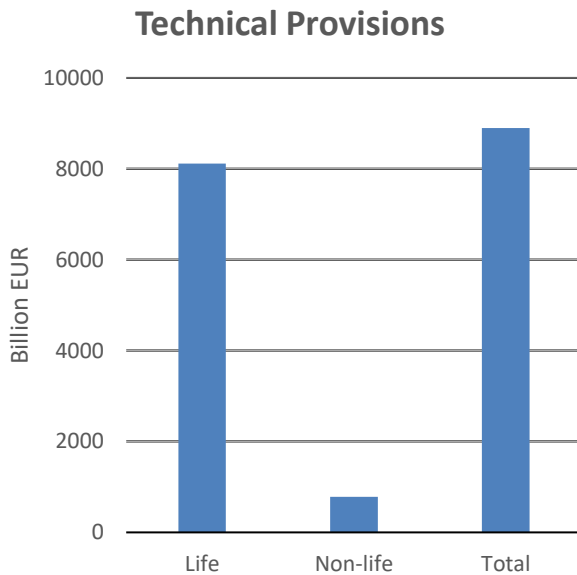


Figure 1.3

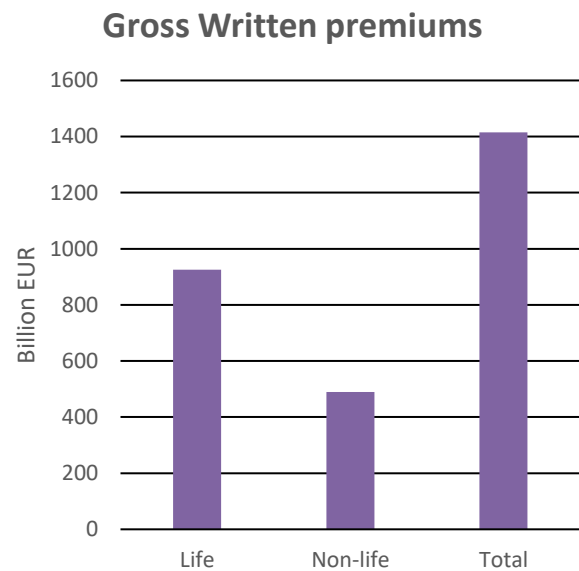


Table 1.3

EEA undertakings	Life	Non-life	Total
Technical provisions (billion EUR)	8118	780	8897
Gross written premiums (billion EUR)	926	490	1415

II.1 Use of the measures

Some of the LTG measures and measures on equity risk are applied by insurance and reinsurance undertakings on an optional basis, while the use of other measures is mandatory.

The application of MA, VA, TRFR, TTP and DBER is optional for undertakings, subject to conditions laid down in the Solvency II Directive and Regulations.

All other measures are an integral part of the Solvency II framework and hence of mandatory application. In particular, the extrapolation of risk-free interest rates is applicable to all undertakings for the calculation of their technical provisions. The symmetric adjustment mechanism is applicable to all undertakings that use the standard formula to calculate the equity risk sub-module of the SCR, including all undertaking using a partial internal model not covering that sub-module.

Finally, the extension of the recovery period in exceptional adverse situations is only applicable to undertakings breaching the SCR after a declaration of such a situation by EIOPA. So far, EIOPA has not declared an exceptional adverse situation.

All information on the use of the measures set out in this section relates to the situation as known on 31 December 2018. The graphs and tables are predominantly based on QRT data. For a limited number of tables use has also been made of the information in the NSA questionnaires. This applies to the combination of measures and to the use of the symmetric adjustment on equity risk in case of (partial) internal models.

Use of MA, VA, TRFR, TTP and DBER by solo undertakings

In the EEA, 699 insurance and reinsurance undertakings in 22 countries are using at least one of the optional LTG measures MA, VA, TRFR, TTP or DBER. The aggregated amount of technical provisions for those undertakings is 75% of the technical provisions in the European market.

Out of the total 2797 undertakings, 2098 undertakings, nearly three out of four are not using any of the LTG measures MA, VA, TRFR, TTP or DBER. The use of the measures differs between types of undertaking, as illustrated below. The undertakings not using any measures represent 25% of the technical provisions in the European market. There are 9 countries where none of these measures are applied by any of the national undertakings (EE, HR, IS, LT, LV, MT, PL, RO and SI – please see section III for further detail).

The overall picture of the use of the measures is thus very similar to that of last year.

Figure 2.1

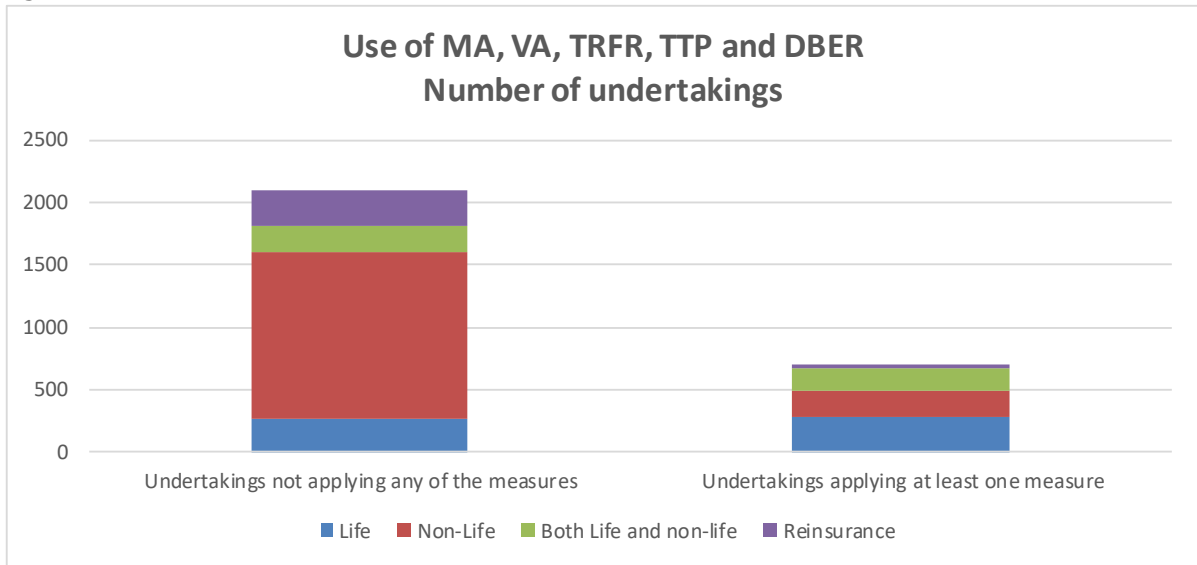


Table 2.1

Number of undertakings			
	Undertakings not applying any of the measures	Undertakings applying at least one measure	Total
Life	271	284	555
Non-Life	1331	205	1536
Both Life and non-life	210	185	395
Reinsurance	286	25	311
Total	2098	699	2797

Figure 2.2

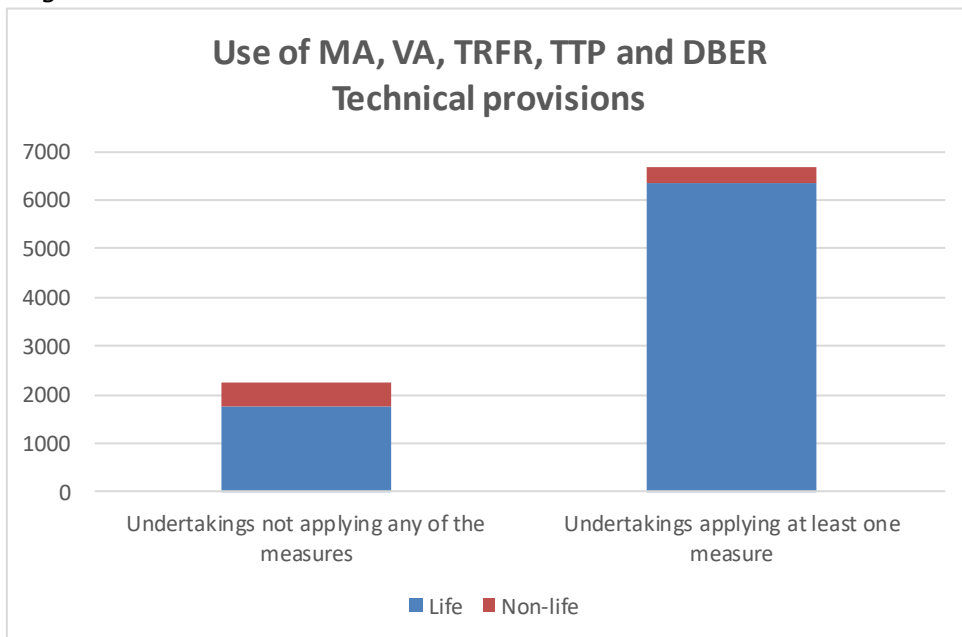


Table 2.2

Technical provisions in EUR billions		
	Undertakings not applying any of the measures	Undertakings applying at least one measure
Life	1759 (22%)	6359 (78%)
Non-life	473 (61%)	307 (39%)
Total	2232 (25%)	6666 (75%)

660 undertakings located in 22 countries are using the VA. The TTP is used by 159 undertakings in 11 countries. The MA is used by 34 undertakings in Spain and the United Kingdom. The TRFR is used by 6 undertakings in 4 countries. Only 1 undertaking (in France) is using the DBER sub-module.

Undertakings may, and sometimes do, use more than one of the measures, as is also illustrated in this table: the total of users per measure and the number of undertakings not using any of the measures exceeds the total number of undertakings. The use of a combination of measures is addressed in more detail in a separate section below.

Table 2.3

Number of undertakings using the measures							
Type of undertaking	Total number of undertakings	VA	TTP	MA	TRFR	DBER	No measure
Life	555	255	105	19	3	1	271
Non-life	1536	203	10	0	0	0	1331
Both life and non-life	395	177	43	14	2	0	210
Reinsurance	311	25	1	1	1	0	286
Total	2797	660	159	34	6	1	2098

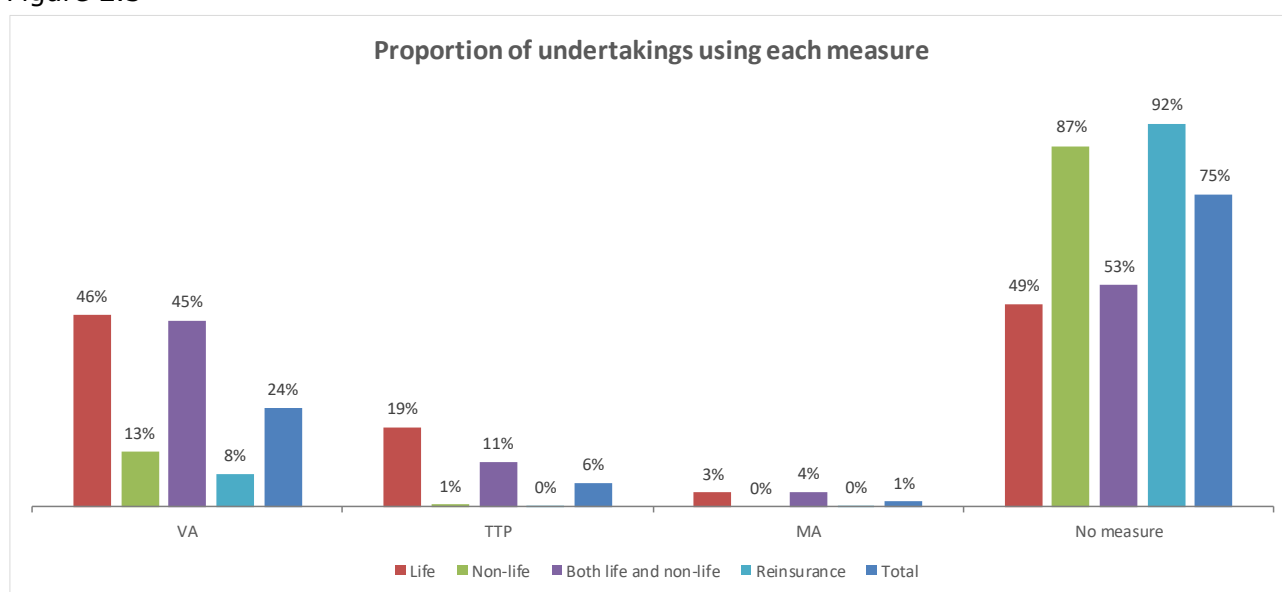
The number of undertakings using the VA decreased by 36 compared with the data as at 31 December 2017. Also, the total number of insurance undertakings as 31 December 2018 decreased compared with the number of insurance undertakings as at 31 December 2017. For the other measures, the number of undertakings using the TTP decreased by 3, whilst the number of undertakings using the TRFR and the MA remained constant, all compared with the data as at 31 December 2017. Finally, the number of undertakings using the DBER was kept at 1.

The following table and diagram provide an overview, by type of undertaking, of the proportion of undertakings using each measure. The table and diagram show that the use of the measures is in particular relevant for life undertakings, as well as for undertakings pursuing both life and non-life activities. Nearly half of all life insurance undertakings in the EEA (46%) are using the VA.

Table 2.4

Proportion of undertakings using each measure							
Type of undertaking	Total number of undertakings	VA	TTP	MA	TRFR	DBER	No measure
Life	555	46%	19%	3%	1%	0%	49%
Non-life	1536	13%	1%	0%	0%	0%	87%
Both life and non-life	395	45%	11%	4%	1%	0%	53%
Reinsurance	311	8%	0%	0%	0%	0%	92%
Total	2797	24%	6%	1%	0%	0%	75%

Figure 2.3



The following diagram shows the market share of technical provisions of undertakings using one of the LTG measures. This further illustrates the widespread use of the VA in the European market (with undertakings using the VA holding 67% of all technical provisions in the EEA), followed by the TTP (market share of 25%) and the MA (market share of 15%). These technical provisions, to a very large extent, relate to life insurance obligations.

Figure 2.4

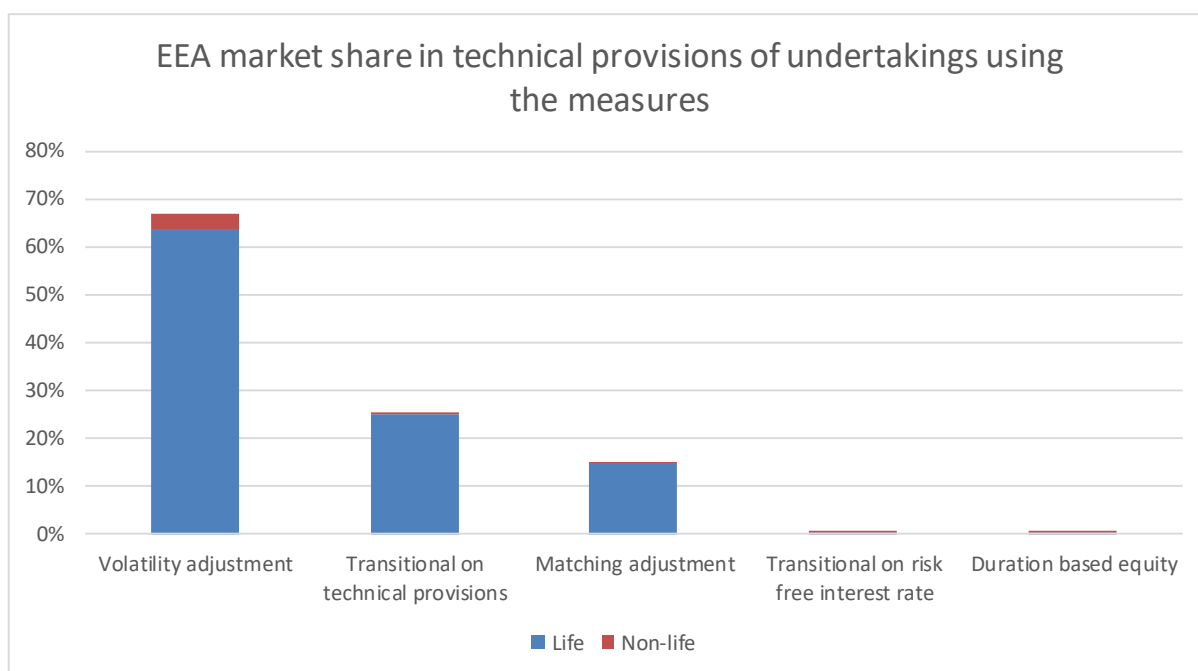


Table 2.5

EEA market share in technical provisions using the measures					
	VA	TTP	MA	TRFR	DBER
Life	64%	25%	15%	0%	0%
Non-life	3%	0%	0%	0%	0%
Total	67%	25%	15%	0%	0%

The overall picture of the use of the LTG measures is thus very similar to that of last year. The measures are most important for life undertakings and undertakings with both life and non-life obligations. Nearly three quarters of the technical provisions in the EEA is calculated using at least one of the measures. This relates nearly exclusively to life obligations. The VA is used most widely, in terms of number of countries, number of undertakings and the amount of technical provisions. The TTP is also quite widely used. The MA is used less, but it is still applied to a substantial part of the technical provisions. The use of the TRFR is limited. However, please note that a measure may nevertheless be of importance in a specific EEA country. Please see chapter III for more detailed information.

Table 2.6

Proportion of use of at least one measure			
	Countries	Undertakings	Technical Provisions
VA	71%	24%	67%
TTP	32%	6%	25%
MA	6%	1%	15%
TRFR	10%	0%	0%

Table 2.7

Proportion of use of at least one measure (last year's report)			
	Countries	Undertakings	Technical Provisions
VA	74%	24%	66%
TTP	35%	6%	25%
MA	6%	1%	15%
TRFR	13%	0%	0%

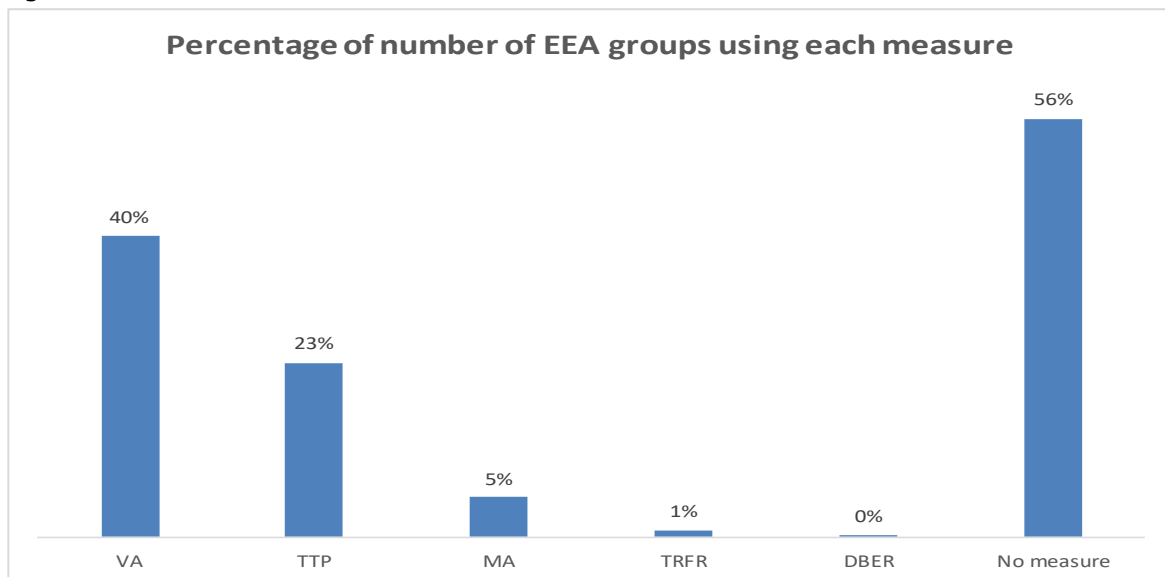
Use of MA, VA, TRFR, TTP and DBER by insurance groups⁸

Of the 345 EEA insurance groups subject to Solvency II, 138 groups use the VA, 80 groups use the TTP and 18 groups use the MA. The TRFR is used by 3, and the DBER by 1 insurance group. Note that, within a group, use can be made of more than one of the measures. This explains why the total of number of groups using the measures and the number of groups not using any of the measures, exceeds the total number of groups in the table and graph below.

Table 2.8

Number of EEA Solvency II groups using the measures							
	Total Number of EEA groups	VA	TTP	MA	TRFR	DBER	No measure
EEA Groups	347	140	80	18	3	1	192

Figure 2.5



⁸ An EEA group using a measure means that at least one solo insurance or reinsurance undertaking part of the group uses the measure.

Use of a combination of the measures MA, VA, TRFR, TTP and DBER

According to the Solvency II Directive it is admissible for an insurance or reinsurance undertaking to apply several measures at the same time. Certain combinations of measures, however, are explicitly excluded:

- Undertakings that apply the TTP cannot apply the TRFR (see Articles 308c(4)(b) and 308d(5)(a) of the Solvency II Directive).
- Undertakings that apply the TRFR cannot apply the MA to the same insurance and reinsurance obligations (see Article 308c(3) of the Solvency II Directive).
- Undertakings that apply the MA to a portfolio of insurance or reinsurance obligations cannot apply the VA to those obligations (see Articles 77b(3) and 77d(5) of the Solvency II Directive).

The following table shows the simultaneous application of two measures with respect to the same liabilities, with the number and market share of undertakings at EEA level applying such combination:

Table 2.9

Combination of measures	Number of undertakings	Market share (technical provisions)
Use of TTP and MA	27	14%
Use of TTP and VA	123	18%
Use of TRFR and VA	5	0%

Note that an undertaking may also use other combinations of measures, e.g. it may combine the use of the VA and the MA, but not to the same liabilities.

Use of Symmetric adjustment to the equity risk charge

The symmetric adjustment mechanism applies to the undertakings that use the standard formula to calculate the equity risk sub-module of the SCR, including all undertakings using a partial internal model not covering that submodule.

Table 2.10

Type of undertakings	Number of undertakings	Market share (technical provisions)
Standard formula	2603	58%
Partial internal model not covering equity risk	37	4%
Total	2640	62%

II.2 Impact on the financial position of undertakings

Background on the impact of the measures MA, VA, TRFR and TTP

The LTG measures MA, VA, TRFR and TTP relate to the calculation of technical provisions. But the impact of these measures on the financial position of insurance and reinsurance undertakings is not restricted to a change in the amount of technical provisions. The change in technical provisions itself can also have an impact on other items of the balance sheet and on the capital requirements and own funds.

This section contains an explanation of how these LTG measures impact the financial position of insurance and reinsurance undertakings. The description is based on the typical effects and may not be applicable to all undertakings.

Impact on technical provisions

Removing MA, VA and TRFR usually decrease the relevant risk-free interest rates used to calculate the technical provisions⁹ and consequently in most cases increase the technical provisions by means of higher discounting effects¹⁰. Apart from the discounting effect the measures may also impact some assumptions made in the calculation of technical provisions, for example about the amount of future discretionary benefits of insurance with profit participation.

The TTP directly impacts the amount of technical provisions. Removing it typically increases the amount of technical provisions.

Impact on assets and liabilities other than technical provisions

Where removing the measures increase the amount of technical provisions this increase in liabilities may often be accompanied by a decrease of net deferred tax liabilities.

Impact on SCR and MCR

The measures can impact parts of the SCR and MCR calculation in different directions. Some parts may not at all be affected by the use of the measures, for others an increase or a decrease of the capital requirements can occur. An increase of the capital requirement after removing the measures may in particular happen where the technical provisions are used as measure for the size of risk that the capital requirements aim to capture. The capital requirements may also be increased through a higher loss-absorbing capacity of technical provisions where the removal of the measures decreased the amount of future discretionary benefits in technical provisions. A similar effect is

⁹ Removing MA, VA and TRFR will in most instances reduce the relevant risk-free term structures. However, under certain circumstances, the adjustments can turn negative. In that situation, removing the adjustment would increase the relevant risk-free interest rates.

¹⁰ It is possible under Solvency II that the part of technical provisions to which the measures are applied is negative (for example when the value of expected insurance premiums exceeds the value of expected insurance payments). In that specific case, lower discount rates result in lower technical provisions.

the increase of the capital requirements through a higher loss-absorbing capacity of deferred taxes where deferred taxes are decreased by the removal of the measures.

Typically removing the measures will increase SCR and MCR¹¹.

Impact on own funds

The increase in technical provisions leads to a decrease of own funds. A slight relative increase of technical provisions may lead to a significant relative reduction of own funds, in particular for life insurance undertakings. For a typical life insurance undertaking the ratio of own funds and technical provisions is 1/10. Therefore an increase of technical provisions by 1% would lead to a reduction of own funds of 10%. This comparison is only based on the direct impact of changes in technical provisions on the amount of own funds. The impact may be mitigated by indirect effects, for example a reduction in deferred tax liabilities.

Also the changes to the SCR and MCR caused by the removal of the measures can have an impact on the eligible own funds to cover these capital requirements because there are limits to these own funds that depend on the capital requirements.

Typically removing the measures will reduce the amount of own funds.

Summary of the impacts on the financial position

The following table summarises the typical impact on different items of the financial position. The arrows are upward (resp. downward) if it is more likely than unlikely that the items concerned will increase (resp. decrease) when the measures are removed.

Table 2.11

Items	Typical impact of removing MA, VA, TRFR and TTP
Technical provisions	↗
Net deferred tax liabilities	↘
Eligible own funds	↘
SCR and MCR	↗
Loss-absorbing capacity of future discretionary benefits and deferred tax liabilities	↘

Data availability and reliability for assessing the impact of the measures in 2018

Two approaches were used to collect the necessary data in order to produce this report.

¹¹ It should be noted that removing the MA can decrease the SCR due to the gain of the diversification effect between portfolios. This is developed in the MA section of this report.

EIOPA has collected information about the impact of the measures MA, VA, TRFR and TTP on 31 December 2018 through the dedicated Quantitative Reporting Templates that were sent to NSAs in 2019. The information collected allows a consistent analysis of the impact of these four measures. For the SA, whose impact is not directly reported by undertakings, an analysis has been made based on data extracted from the Quantitative Reporting Templates.

As regards to extrapolation, information was collected through an information request. The scope of the request was restricted to life and composite undertakings exceeding thresholds on cash-flows. Therefore the information available to EIOPA about the impact of extrapolation on the financial position of undertakings is limited but considered as representative for those undertakings whose solvency situation is significantly impacted by the measures.

Concerning the DBER, at 31 December 2018 only 1 insurance undertaking was using this measure. For this reason, the remainder of this section deals only with extrapolation, MA, VA, TRFR and TTP. The presented results relate to the reference date of 31 December 2018.

Finally, the ERP has by definition no direct impact on the financial position of undertakings.

Impact of the measures MA, VA, TRFR and TTP

The absolute impact of the measures MA, VA, TRFR and TTP on the whole EEA market is set out in the following tables for all the solo undertakings and all the groups separately. For the whole market (all solo undertakings) removing the measures would increase the amount of technical provisions by 211 billion euro. Eligible own funds to cover the SCR would reduce by 158 billion euro. The SCR would increase by 84 billion euro.

In comparison with last year, the impacts of removing the measures have increased. This is especially the case for the VA which is the main contributor to the increase observed. It should be noted that at 31 December 2018 the VA was 24 bps whereas it was 4 bps at 31 December 2017.

Table 2.12 - **Aggregation of the impact on all the insurance and reinsurance undertakings**

	Amount with MA, VA, TRFR and TTP (billion euro)	Impact of removing the measures (billion euro)					Amount without MA, VA, TRFR, and TTP (billion euro)
		Impact of TTP	Impact of TRFR	Impact of VA	Impact of MA	Impact of all measures	
Technical provisions	8 904	114	1	45	51	211	9 115
Basic own Funds	1 570	-80	0	-34	-43	-158	1 413
Excess of assets over liabilities	1 520	-86	0	-35	-44	-165	1 355
Restricted own funds due to ring-fencing and matching portfolio	19	-5	0	-1	-2	-8	11
Eligible own funds to cover the SCR	1 583	-81	0	-34	-44	-159	1 424
Tier 1	1 477	-83	0	-38	-44	-165	1 312
Tier 2	97	0	0	1	-1	1	98
Tier 3	9	1	0	3	1	5	14
SCR	654	6	0	42	36	84	738
Eligible own funds to cover the MCR	1 497	-82	0	-36	-44	-163	1 335
MCR	231	2	0	13	9	24	255

Table 2.13 - **Aggregation of the impact on all groups**

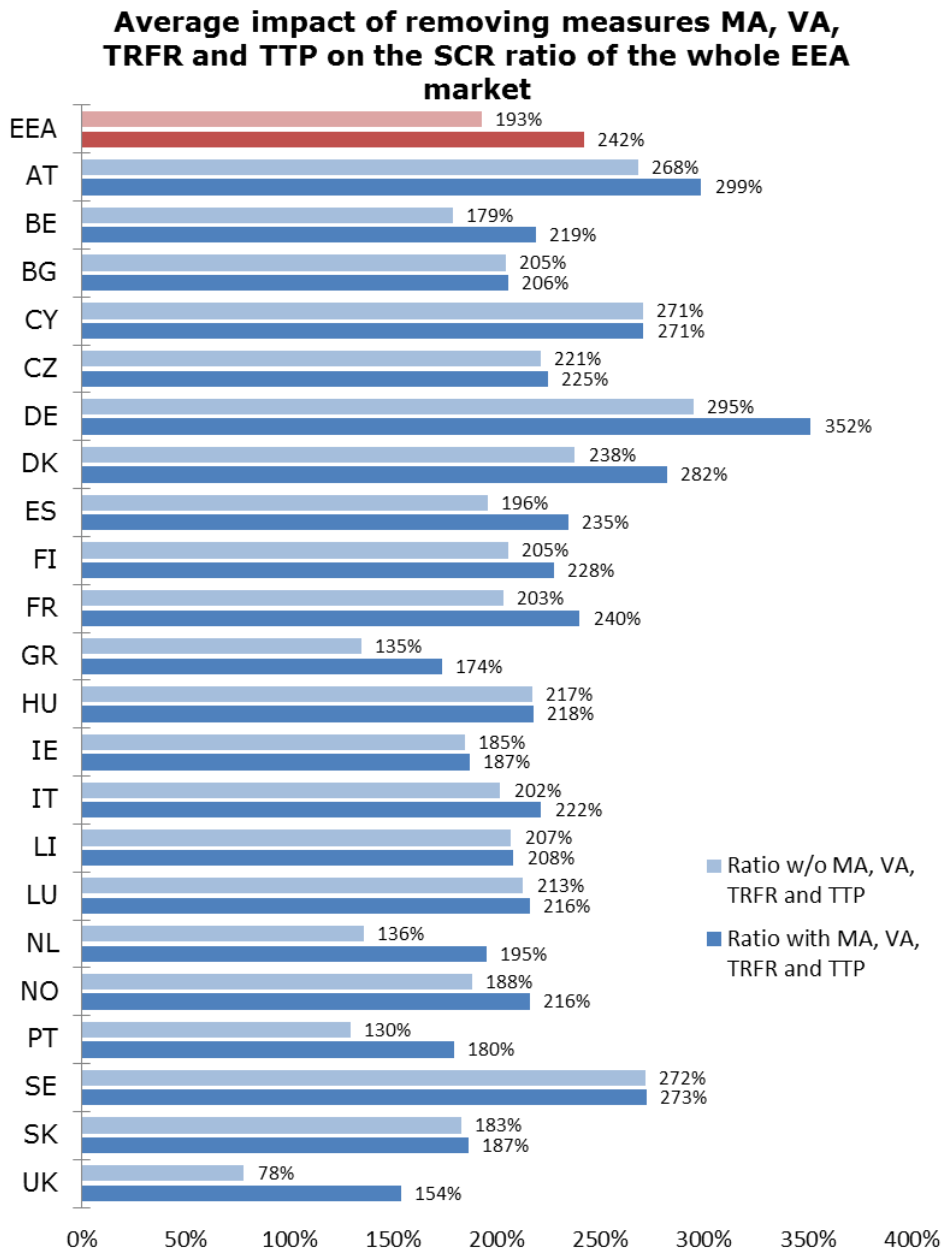
	Amount with MA, VA, TRFR and TTP (billion euro)	Impact of the measures (billion euro)					Amount without MA, VA, TRFR, and TTP (billion euro)
		Impact of TTP	Impact of TRFR	Impact of VA	Impact of MA	Impact of all measures	
Technical provisions	7 420	99	0	43	49	191	7 611
Basic own Funds	895	-65	0	-28	-42	-135	759
Excess of assets over liabilities	922	-77	0	-37	-43	-157	765
Restricted own funds due to ring-fencing and matching portfolio	12	-2	0	-1	-2	-4	8
Eligible own funds to cover the SCR	1 002	-68	0	-28	-47	-143	859
Tier 1	875	-69	0	-29	-44	-143	732
Tier 2	117	0	0	0	-4	-4	113
Tier 3	10	1	0	2	1	4	14
SCR	481	6	0	42	36	84	565

The following graph displays the overall impact of the use of the measures MA, VA, TRFR and TTP on the SCR ratio for the whole EEA market (including both undertakings using and not using the measures). The impact is shown at EEA and at country level. The graph shows the SCR ratio with (dark blue) and without (light blue) these measures. No results at country level are shown for EE, HR, IS, LT, LV, PL, RO and SI because the undertakings from these countries do not apply any of the measures (MA, VA, TRFR and TTP).

At the EEA level, removing the measures would result on average¹² in a decrease of the SCR ratio by 49 percentage points. The largest impact at a country level is 76 percentage points. For one country the average solvency ratios without the use of the measures is below 100%. Throughout this report average ratios are weighted averages, where the denominator of the ratios was used as weights. For example, in the following graph, the average EEA SCR ratio with the measures of 242% is computed as : $\frac{\sum_{undertakings\ EEA} SCR_i}{\sum_{undertakings\ EEA} SCR_i} * \frac{EoF\ SCR_i}{SCR_i}$ where SCR and eligible of own funds to cover the SCR (EoF SCR) take into account the measures at undertaking level and where the sums include all undertakings in the EEA using at least one measure.

¹² Figures at the EEA level are derived through the sum of eligible own funds and SCR of every country, including the ones where no measures are used.

Figure 2.6



The following graphs display the overall impact of the use of the measures MA, VA, TRFR and TTP on the SCR ratio for undertakings that apply at least one of the measures. The impact is shown at EEA and at country level. The first graphs shows the SCR ratio with (dark blue) and without (light blue) these measures. The red bars are for the EEA level. The second graph shows the impact in percentage points.

At the EEA level, removing the measures result on average in a decrease of the SCR ratio by 76 percentage points. The largest impact at a country level is 109 percentage points. For one country the average solvency ratio without the use of the measures is below 100%. In comparison with last year, average impacts on SCR ratio increased for all countries, except for ES and NO.

Figure 2.7

Average impact of removing MA, VA, TRFR and TTP on SCR ratio of undertakings using at least one of those measures

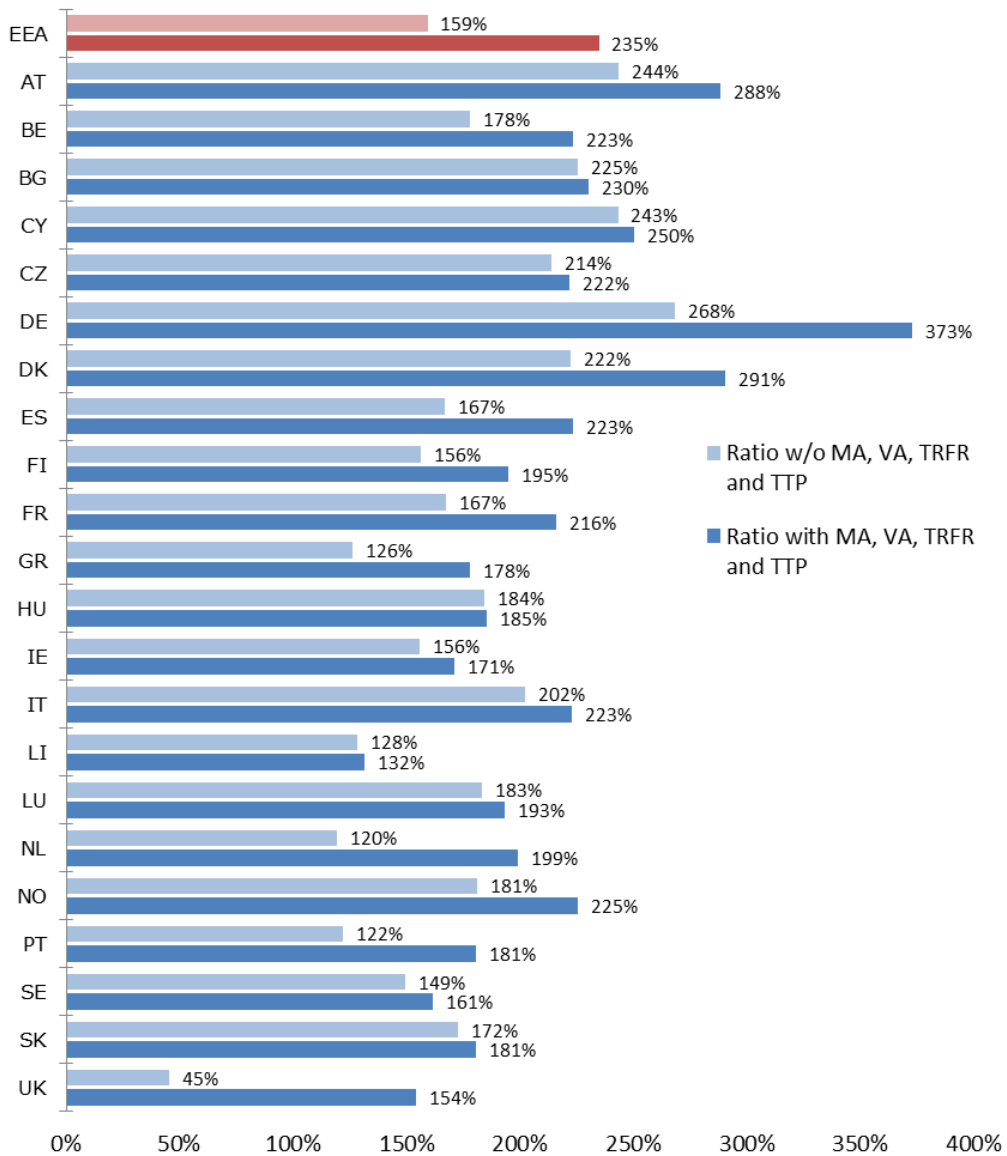
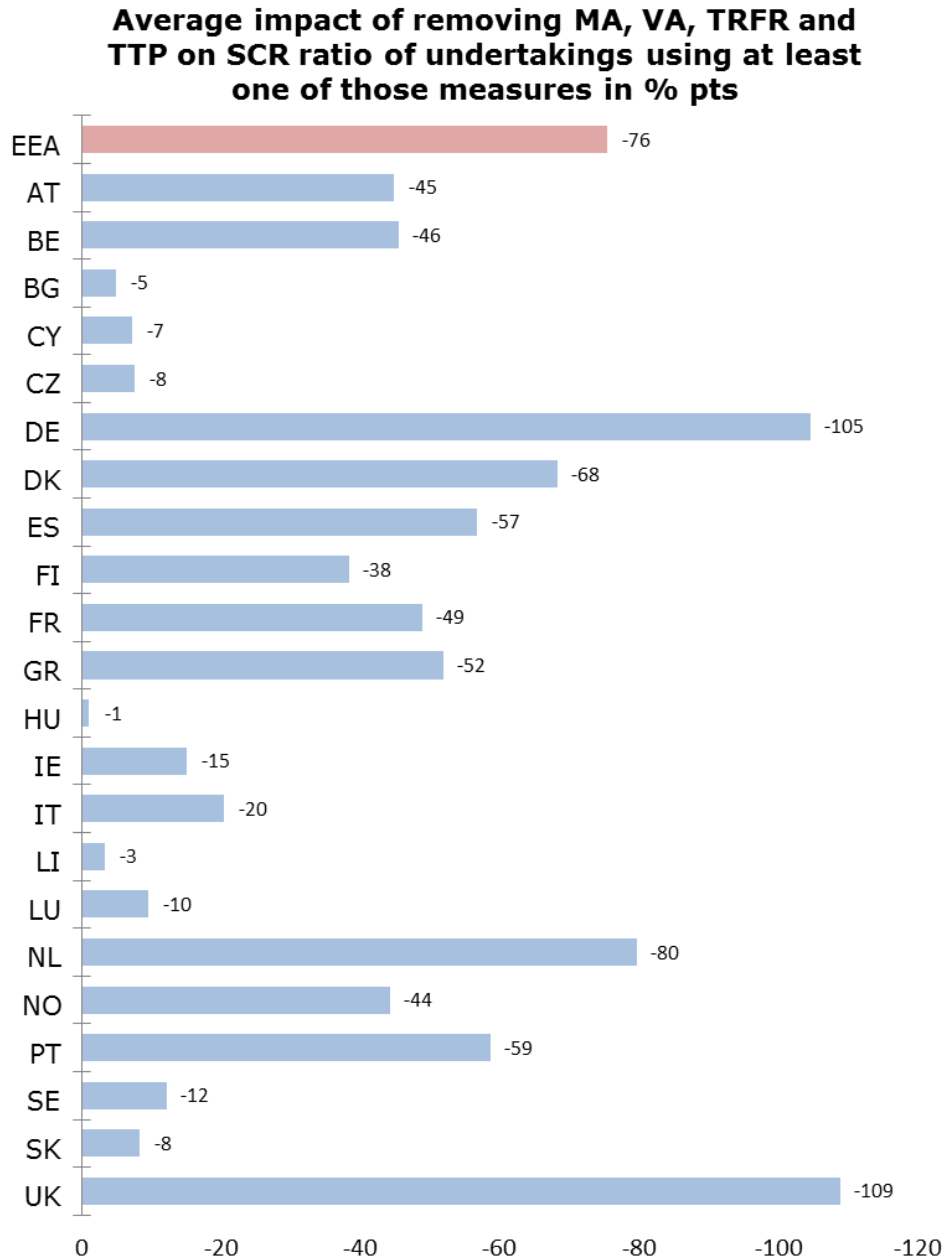


Figure 2.8



The following graphs display the impact of removing the measures MA, VA, TRFR and TTP on the SCR ratio of every undertaking using at least one of those measures. Each dot in the diagram represents one undertaking. The type of each undertaking is indicated by the colour of the dot.

The horizontal axis relates to the SCR ratio without the measures MA, VA, TRFR and TTP. The solvency ratios allowing for the impact of all measures (current SCR ratio) are shown on the vertical axis. The continuous diagonal line corresponds to undertakings without an impact of the measures. Undertakings located on this line have the same SCR ratios with and without measures. The more an undertaking is located away from the diagonal line, the bigger the impact of the measures. The broken diagonal lines corresponds to an impact of 100, 200 and 400 percentage points on the SCR ratio.

Figure 2.9

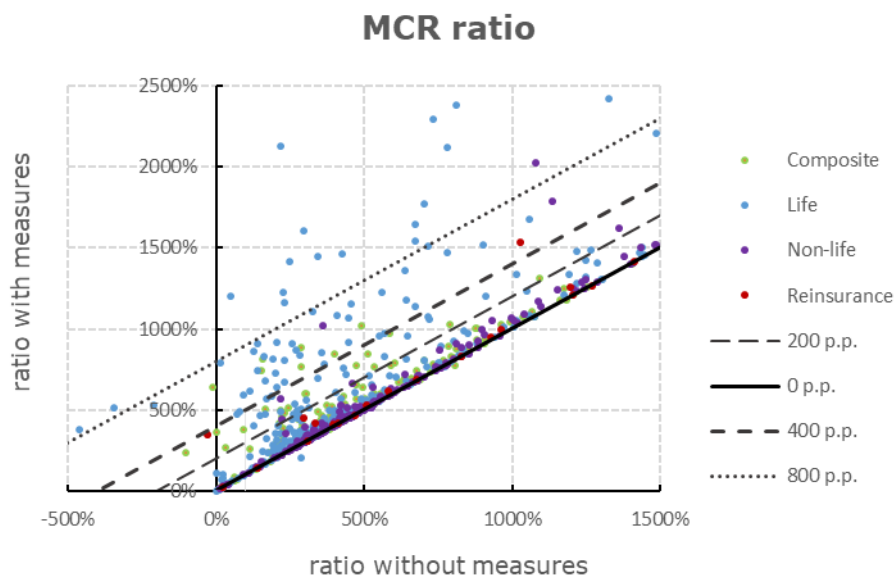


In terms of SCR ratio, 80% of undertakings using at least one measure reported an absolute impact of less than 100 percentage points.

16% of the undertakings using at least one measure reported an SCR ratio without measures below 100%. 1% of undertakings using at least one measure reported negative eligible own funds to cover the SCR without measures.

The following graphs display the impact of removing the measures MA, VA, TRFR and TTP on the MCR ratio of every undertaking using at least one of those measures.

Figure 2.10

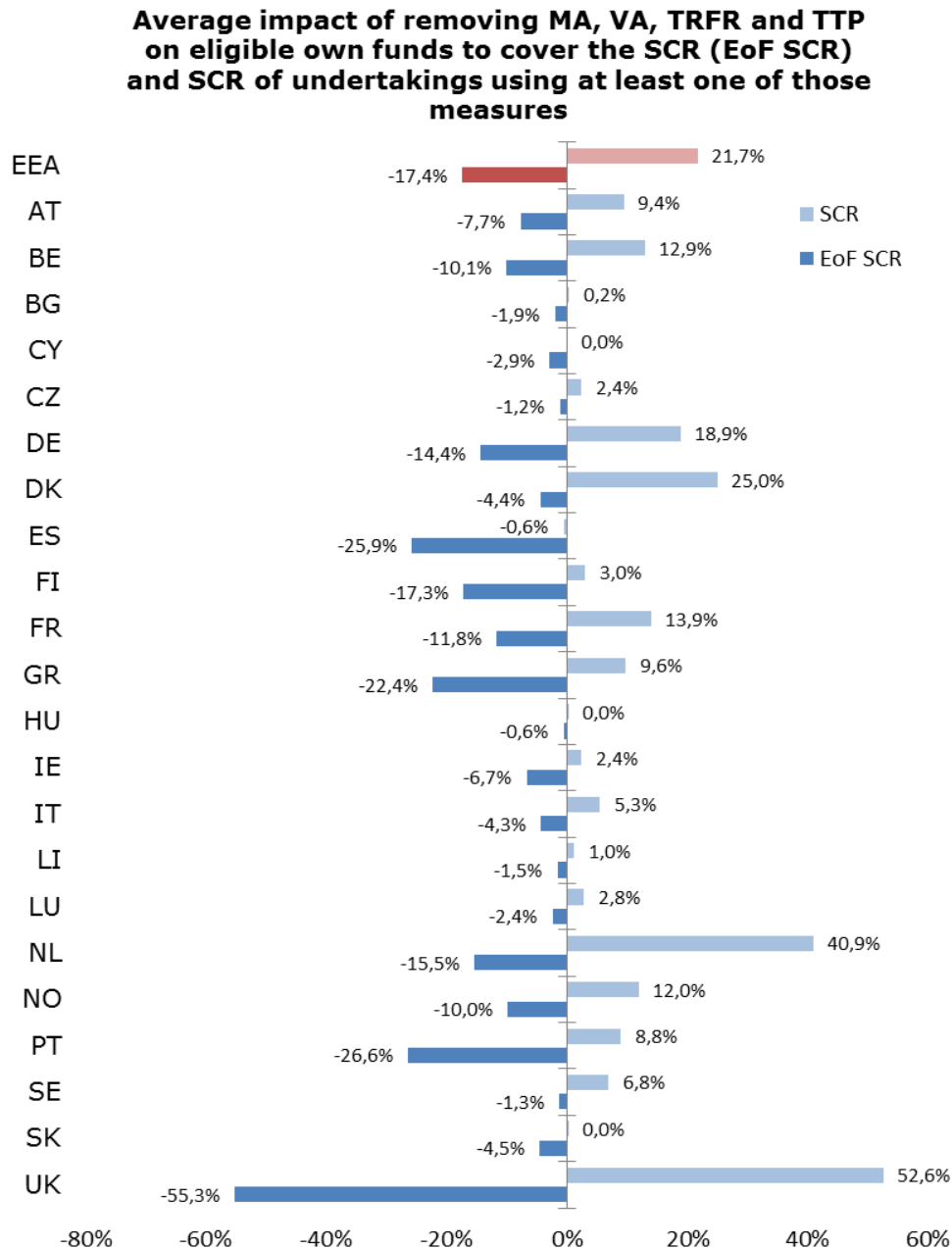


In terms of MCR ratio, 71% of undertakings using at least one measure reported an absolute impact of less than 100 percentage points.

8% of undertakings using at least one measure reported an MCR ratio without measures below 100%. 1% of undertakings using at least one measure reported negative eligible own funds to cover the MCR without measures.

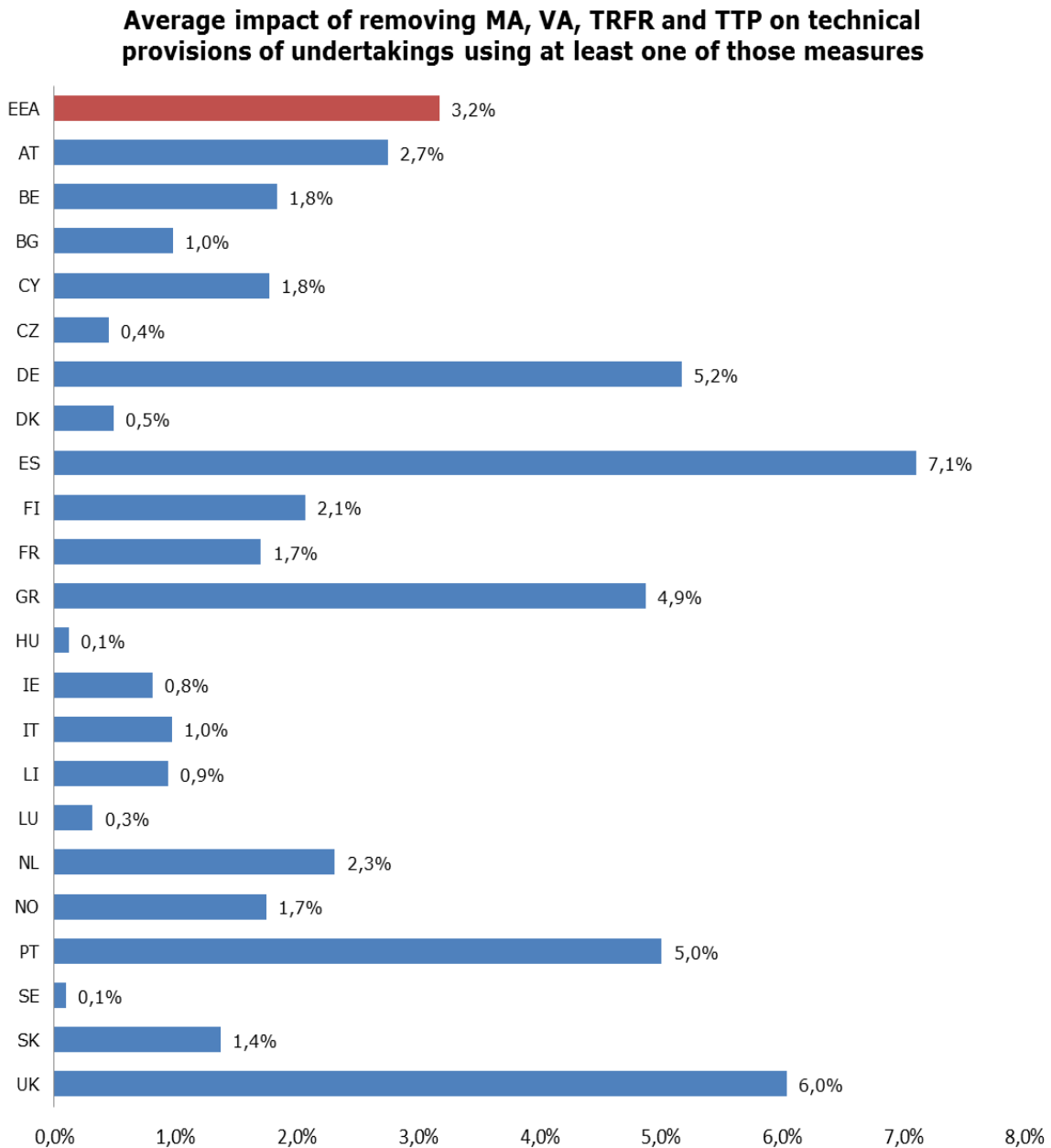
The following graph shows the impact of removing the measures on the SCR (light blue) and on the eligible own funds to cover the SCR (dark blue). The red bars are for the EEA level. On average, eligible own funds to cover the SCR would decrease by 17%, while the SCR would increase by almost 22% if the measures were removed.

Figure 2.11



The following graph displays the impact of removing the measures on the value of technical provisions (TP) at EEA and national level. Removing the measures for those undertakings applying the measure would result in an average increase of technical provisions by 3.2% at EEA level. The impact goes up to 7.1% at country level. Overall, in comparison with last year, average impacts on TP have increased.

Figure 2.12



The following graphs show the impact on the MCR ratio, the MCR and the eligible own funds to cover the MCR for undertakings using at least one of the measures.

At the EEA level, removing the measures to these undertakings would result in an average loss of 185 percentage points with regard to the MCR ratio. The impact goes up to 372 points at country level.

At EEA level, removing the measures decreases eligible own funds to cover the MCR 19%, while the MCR increases by 17%.

Figure 2.13

Average impact of removing MA, VA, TRFR and TTP on MCR ratio of undertakings using at least one of those measures

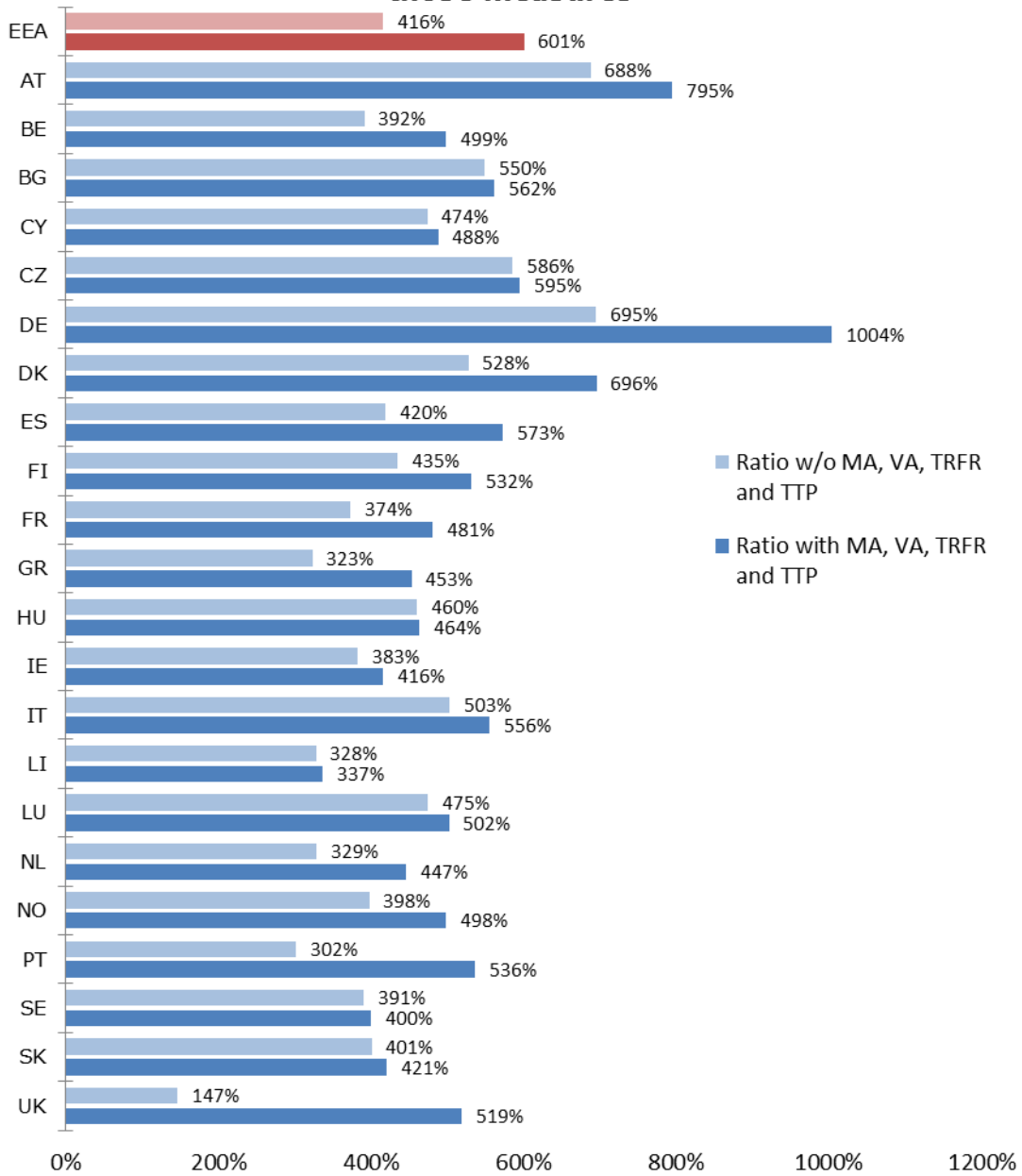
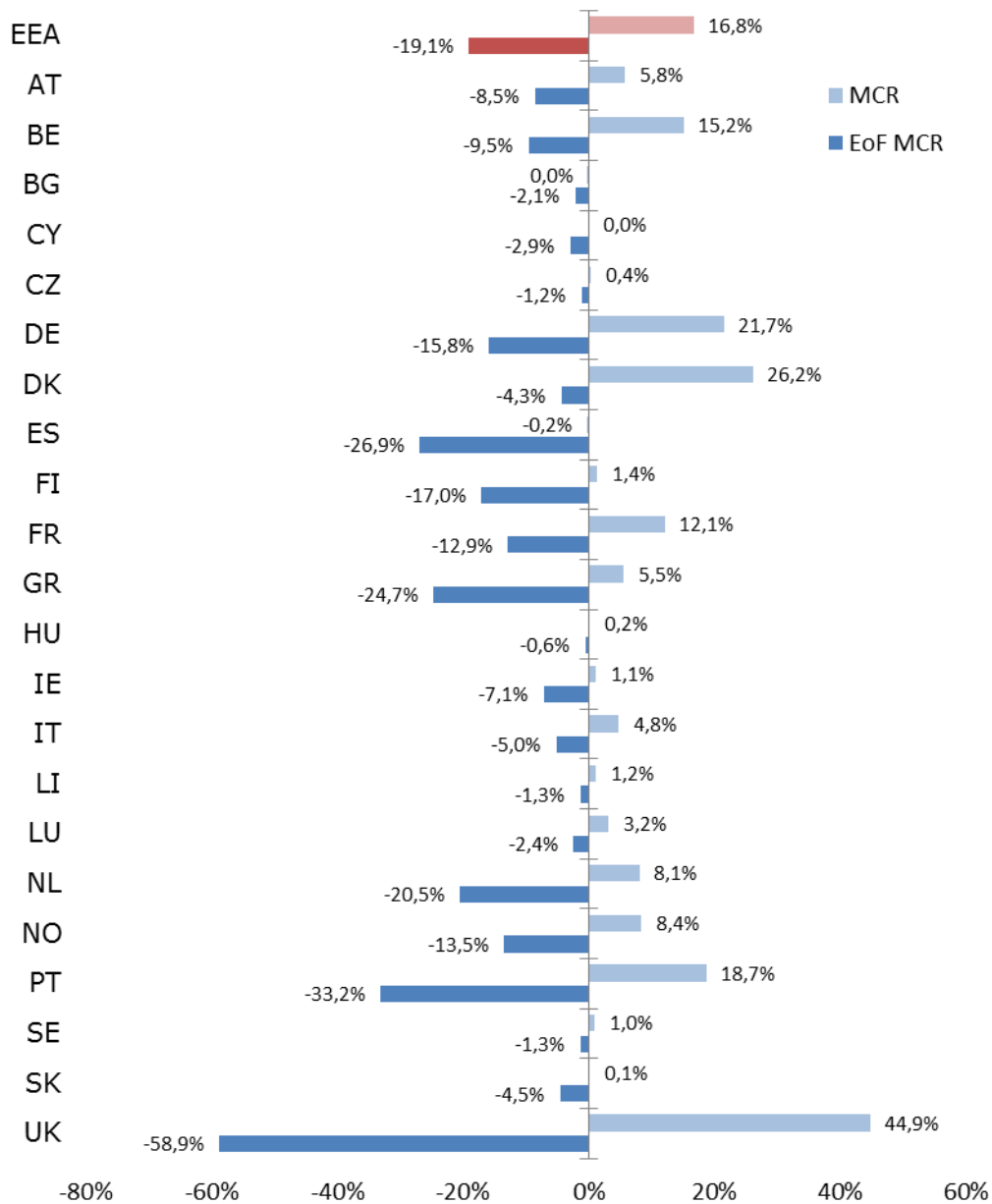


Figure 2.14

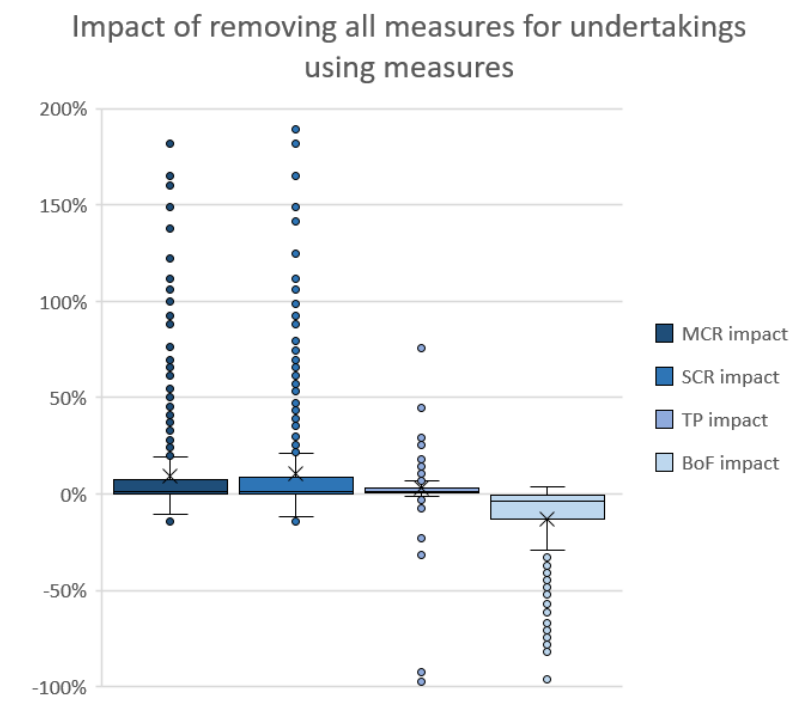
Average impact of removing MA, VA, TRFR and TTP on eligible own funds to cover the MCR (EoF MCR) and MCR of undertakings using at least one of those measures



The box-plots below illustrate how the impact of removing the measures MA, VA, TTP and TRFR is distributed across undertakings. For example, in case the removal of the measures for an individual undertaking would lead to a decrease of basic own funds (BoF) from 100 to 35 units, the relative decrease of -65% is reflected in the box-plot. The bottom of the blue box represents the lower quartile (25th percentile) of the data set. The top of the blue box represents the higher quartile (75th percentile) of the data set. The black band inside the box is always the middle quartile (50th percentile or median). The lines extending from the boxes represent data that lies within 1.5x the interquartile-range (the span of the blue box, covering half of the individual values) from the 25th percentile at the bottom or the 75th percentile at the top. Data points outside of this range are considered outliers and plotted as individual points. Finally, the 'X' marking denotes the mean of the data series. We can observe that, in general,

all relevant variables show skewed distributions and a significant number of outliers, which can also be compared against the scatterplots on SCR and MCR impacts displayed above.

Figure 2.15



Impact and relevance of extrapolation

Market information is only available for a limited amount of years, the risk-free interest rate term structure for the purpose of the valuation of technical provisions needs therefore both, an interpolation between available maturities as well as an extrapolation beyond the existing maturities.

As insurance liabilities can be very long-term, the valuation of the technical provisions requires assumptions about interest rates for these maturities to arrive at a present value of insurance liabilities. Thus, the extrapolation of the risk-free interest rate term structure is a mandatory measure which cannot simply be switched off to quantify its impact on the size of technical provisions, own funds and SCR for undertakings.

It is however possible to vary key parameters of the extrapolation mechanism to assess the relevance of it. The extrapolation of the risk-free curve is performed via the Smith-Wilson approach, key input parameters are the starting point of the extrapolation (the so called last liquid point, LLP), the level of the ultimate forward rate (UFR) to which the interest rates are extrapolated to and the convergence speed.

For this years' LTG report, as for last year's report, an information request to undertakings was put forth including scenario calculations varying the UFR, the LLP and the convergence speed. In this year's report the analysis focusses on the LLP which among the three parameters tested in the previous years appeared to have the most significant impact on the extrapolation of the term structure and on the Solvency position of the undertakings.

The LLP for the euro is currently 20 years, in particular based on the explicit mentioning of that maturity in recital 30 of the Omnibus II Directive. The first scenario moves the current LLP for the euro to 30 years, which is the highest liquid maturity in the euro swap market according to the 2017 DLT assessment.

In June 2017 EIOPA adopted a new methodology for carrying out the DLT assessment. According to that methodology, as applied on data for 2016 and 2017, the maturities for which the swap market for the euro is deep, liquid and transparent are 1 to 15, 20, 25, 30, 40 and 50 years. The second scenario therefore moves the current LLP for the euro to 50 years.

These scenario's were restricted to a preselection of life and composite undertakings from the euro area, from Bulgaria and from Denmark for which the sum of undiscounted liability cash-flows beyond 20 years exceeds 10% of the overall undiscounted liability cash-flows.

The preselected undertakings were asked to calculate the impact of the following two scenarios on the financial position of the undertaking:

- Scenario 1: Increase of the LLP for the euro from 20 to 30 years. For currencies other than the euro the risk-free interest rates are unchanged.
- Scenario 2: Increase of the LLP for the euro from 20 to 50 years. For currencies other than the euro the risk-free interest rates are unchanged.

The analysis performed on the extrapolation and outlined in the following is based on the information received by undertakings via the information request. The analysis includes only the information for the preselected undertakings who have provided valid information on the individual scenarios.

The data sample for the analysis on the extrapolation is thus different to the analysis performed for the other LTG measures, which cover the whole market.

Information on the data sample

The following table summarizes the composition of the data sample on the extrapolation by type of undertaking. It reflects the number of preselected undertakings which were included in the analysis and the corresponding technical provisions for those undertakings:

Table 2.14

Type of undertakings	Number of undertakings		
	Preselected	Total**	% of total
Life	186	555	33%
Composite	100	395	25%
Total	286	950	30%

Table 2.15

	Preselected	Total**	% of total
Technical provisions*	4.288	8.118	53%

*in billions euro

**life and composite from euro area, Denmark and Bulgaria

Table 2.16

Country	Preselected	Life	Composite
EUR*	286	65%	35%
AT	20	20%	80%
BE	22	27%	73%
BG	2	0%	100%
CY	4	25%	75%
DE	82	100%	0%
DK	7	43%	57%
EE	2	0%	100%
ES	23	30%	70%
FI	7	86%	14%
FR	33	64%	36%
GR	3	0%	100%
IE	6	100%	0%
IT	19	32%	68%
LT	3	67%	33%
LU	26	100%	0%
MT	2	100%	0%
NL	12	100%	0%
PT	2	50%	50%
SI	6	17%	83%
SK	5	0%	100%

EUR* = euro area, Denmark and Bulgaria

Impact of the extrapolation

Information on the impact of the specified scenarios on the financial position by country is outlined in section III.1. Results by country are only provided for those countries where the calculation included more than three undertakings.

The following table outlines the absolute impact of the two specified scenarios based on the sample of 286 undertakings. For the whole sample considered, the scenarios impact the amount of technical provisions by 36,9 and 62,4 billion euro. For scenario 1 the eligible own funds to cover the SCR decrease by 27,8 billion euro and the SCR increases by 14,2 billion euro. For scenario 2 the eligible own funds to cover the SCR decrease by 47,4 billion euro and the SCR increases by 27,2 billion euro. Scenario 2 is the scenario with the highest impact for the whole sample.

Table 2.17

	Amount* Base case	Impact Scenario 1	Impact Scenario 2
Technical provision	4288	36,9	62,4
Eligible own funds to cover the SCR	489	-27,8	-47,4
SCR	194	14,2	27,2
Eligible own funds to cover the MCR	457	-28,8	-48,7
MCR	78	5,3	10,7

*Amount with VA, MA and measures on equity risk and equity transitional (billion euro)

- *Scenario 1: Increase of the LLP for the euro from 20 to 30 years. For currencies other than the euro the risk-free interest rates are unchanged.*
- *Scenario 2: Increase of the LLP for the euro from 20 to 50 years. For currencies other than the euro the risk-free interest rates are unchanged.*

Note that the impact of scenario 1 was already assessed in the EIOPA LTG reports 2018 and 2017. Last year, i.e. for the year end 2017 reference date, this scenario impacted technical provisions by 35.9 billion Euro. Relative to the amount of technical provisions in the base case, this is an increase of 0.8%, compared to a relative increase in technical provisions of 0.9% as at year end 2018.

The increase in technical provisions in the different scenarios do not correspond to the change in eligible own funds to cover MCR and SCR. Reasons for that, among others, may be:

- Deferred taxes: increases in technical provisions may also increase DTA or decrease DTL corresponding to those technical provisions; decreasing DTL contribute positively to the eligible own funds, while DTA may also contribute to the eligible own funds as long as tier 3 eligibility allows for that.
- Eligibility criteria: the increases in MCR and SCR allow for a larger part of capital instruments to become eligible as own funds; an excess of own funds above the eligibility criteria for tier 1, tier 2 and tier 3 may become eligible when the MCR and SCR increases.

For each undertaking in the sample, the following graphs show the individual solvency ratios in the baseline (including all other LTG measures and measures on equity risk) against the solvency ratios in each of the two scenarios.

Each dot in the diagrams represents one undertaking. The type of each undertaking is indicated by the colour of the dot. The horizontal axis relates to the SCR ratio in the individual scenarios. The solvency ratios in the baseline are shown on the vertical axis.

The SCR ratio of 100% that undertakings are required to have under Solvency II is indicated by an additional vertical and horizontal line. The more an undertaking is located away from the diagonal line, the bigger the impact of the measures. The broken diagonal lines correspond to an absolute impact of 50, 100 and 200 percentage points on the SCR ratio.

The graphs show that the impact is very diverse across undertakings. Note that only those undertakings are displayed in the graphs that do not exceed 500% of solvency ratio in the baseline or the scenario considered.

Figure 2.16

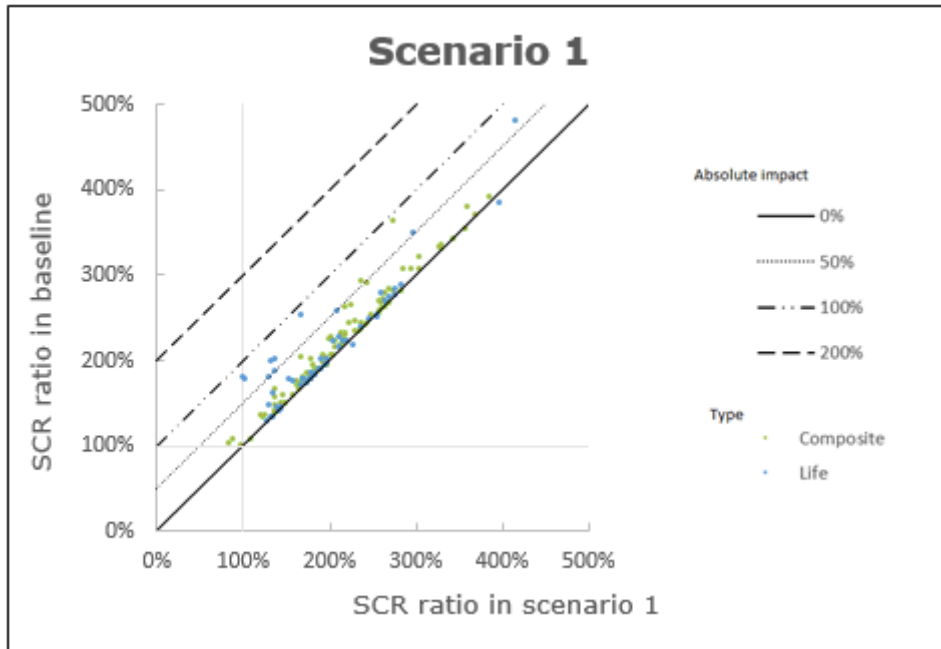
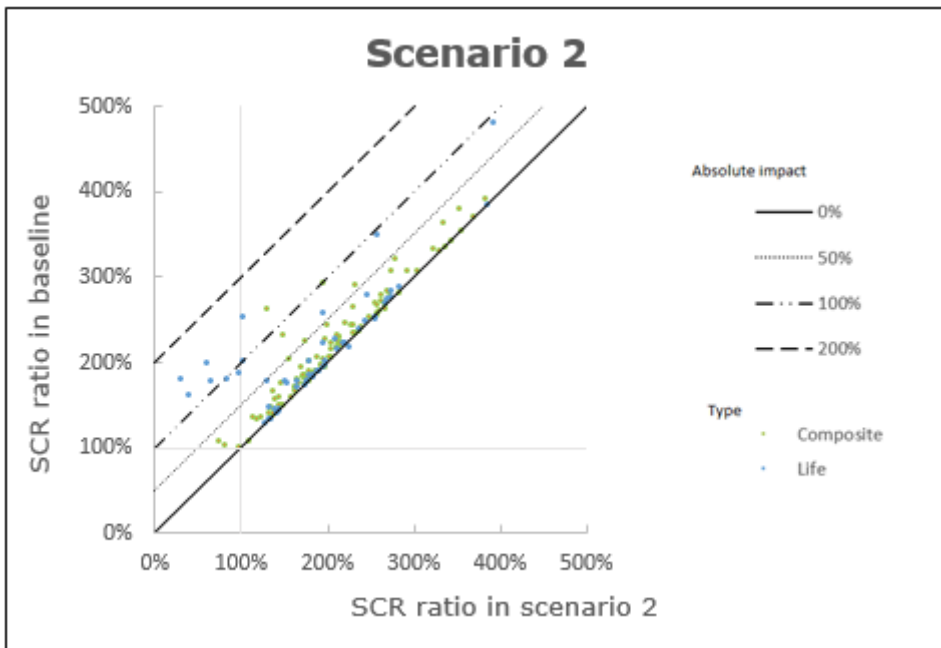


Figure 2.17



In terms of SCR ratio, 27 undertakings reported an absolute impact of more than 100 percentage points for scenario 1 (9,5% of the undertakings). For scenario 2 this was

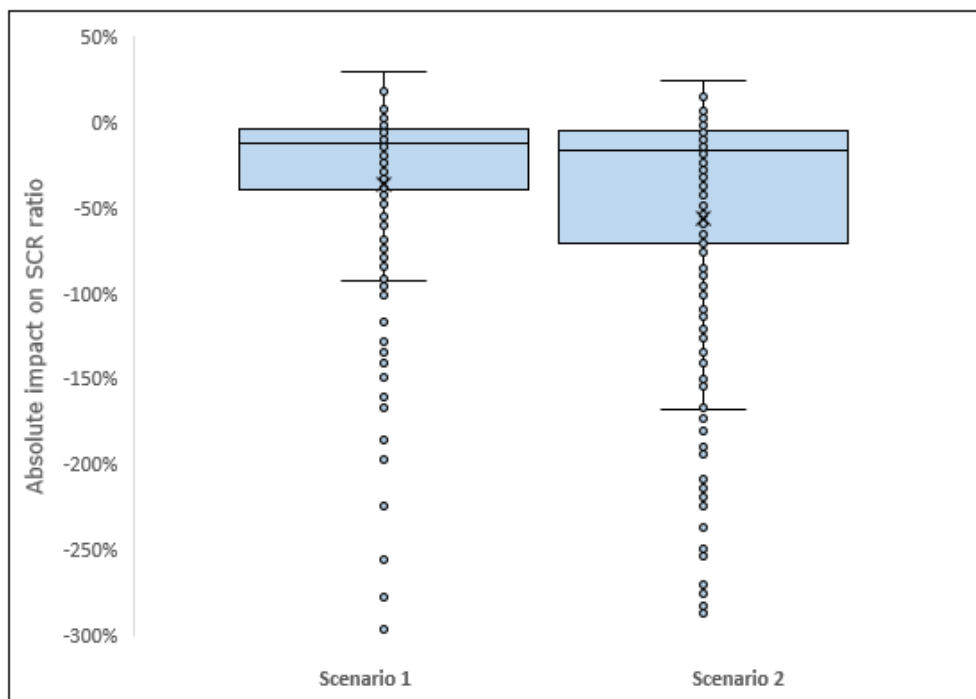
the case for 56 undertakings (19,8% of the undertakings). More than 80% of the undertakings thus reported an absolute impact lower than 100 percentage points for all scenarios.

5 undertakings in scenario 1 and 13 undertakings in scenario 2 reported an SCR ratio below 100% (respectively 1,7% and 4,5% of the undertakings). For scenario 1 these undertakings make up 1,2% of technical provisions, whereas for scenario 2 these undertakings contain 9% of technical provisions. To cover the SCR again, those undertakings reporting an SCR ratio below 100% need to increase their eligible own funds by 0,15 billion euro for scenario 1 and 6,06 billion euro for scenario 2. In terms of MCR ratio, 72 undertakings reported an absolute impact of more than 100 percentage points for scenario 1 (25.1% of the undertakings). For scenario 2 this was the case for 99 undertakings (34.6% of the undertakings).

Only one undertaking in scenario 2 reported an MCR ratio below 100%. This is not the case for any of the undertakings in scenarios 1.

The box-plots bellow illustrate how the impact of the scenarios compared to the baseline (including VA, MA and measures on equity risk and equity transitional) is distributed across undertakings, by showing the 1st and 3rd quartiles and the median of reported impacts in percentage points. In addition, the crosses represent the corresponding means. The widest distribution is observed for scenario 2. For both scenario's a number of outliers are observable with impacts even below -300%, which lead to the observed differences between the median impact and the mean impact.

Figure 2.18



Impact of the symmetric adjustment mechanism

For the EIOPA LTG report 2018, the financial impact of the symmetric adjustment on the SCR was determined using QRT data.

Since the SA at 31 Dec 2018 was -6.34%, setting the SA to zero would increase the stress on equity exposures applied to calculate the SCR. At EEA level removing the symmetric adjustment would result in an average increase of SCR by 4%.

II.3 Impact on policyholder protection

The review analyses the effect of the LTG measures and measures on equity risk on policyholder protection. For this purpose, EIOPA has asked NSAs to report observations on the impact of the measures on policyholder protection and in particular on cases of revocation of the approval to apply one of the measures and cases of undue capital relief by the LTG measures or measures on equity risk.

Some NSAs commented on general observations but most NSAs did not raise any concrete observations of positive or negative impacts of the LTG measures and equity risk measures on policyholder protection. However, one NSA identified two particular cases: The first case relates to a forced transfer of business where technical provisions did turn out not to be sufficient and the reason for that was identified to be the too optimistic interest rate assumptions used for the valuation of technical provisions (including both the impact of the extrapolation towards an ultimate forward rate (UFR) as well as the VA). The second finding relates to off-shore reinsurance initiatives which were deployed to take additional benefit from the application of the VA. The application of the VA can compensate losses in spread-based investments which are located outside the insurer, but within the holding. So the holding can take on more risks, where the upside is for the shareholder, and the downside is for the policyholder.

As in the previous LTG reports, it was assessed whether cases of undue capital relief have occurred due to the application of the MA, the VA, the DBER or the SA. An undue capital relief would be an unduly low amount of technical provisions or capital requirement negatively impacting policyholder protection.

NSAs typically monitor the impact of the application of the LTG measures and equity risk measures on the undertaking's solvency position.

With respect to the VA, NSAs typically assess the impact of setting the VA to zero. Several NSAs reported that they monitor undertaking's investment portfolio considering the actual investment return, changes to the portfolio's composition and credit quality and their investment strategy. This includes a comparison to the "reference portfolio" used for the determination of the VA and undertaking's ability to maintain its assets (do they face the risk of a forced sale of assets). One NSA outlined that they assess whether undertaking's capital planning depends on the application or design of the VA and that they require undertakings to assess the impact thereof. Some NSAs particularly outline that they focus on the question of whether undertakings are able to earn the VA in practice. For that purpose, a comparison of the rates actually earned by undertakings to the size of the VA or a retrospective check are suggested. These assessments are performed on a case by case basis, but no automatic checks are performed. The processes of NSAs thereby vary, depending on whether an approval process for the VA is foreseen.

With respect to the MA, one NSA assesses whether it is confident with the SCR calculation and own funds determination when assessing whether cases of undue capital relief occur. It is analyzed whether the SCR calculation is adequate considering the risks inherent in undertaking's asset portfolio (either because of non-adequacy of the standard formula or miss-calibration of the internal model) and whether own funds are overestimated due to an incorrect calibration of the fundamental spread (either because of an under-calibration of the floors or incorrect mapping of assets by undertakings).

The feedback from NSAs indicates that there is no specific case yet, where undue capital relief was observed for an undertaking due to the application of the LTG measures or measures on equity risk. According to Article 37(1)(d) of the Solvency II Directive a capital-add on can be applied to undertakings applying the MA, the VA or the transitional measures where the supervisory authority concludes that the risk profile of that undertaking deviates significantly from the assumptions underlying those adjustments and transitional measures. Considering the observations made, consequently no NSA imposed yet a capital add-on based on observed cases of undue capital relief. However, one NSA imposed a capital add-on in relation to the application of the TTP.

One NSA refused an application of TTP because the application of the transitional resulted in a reduction of the financial resource requirements in comparison to Solvency I requirements.

One NSA received an application for DBER, but the undertaking itself withdrew this application.

One NSA had to revoke an approval to use the MA because the undertaking failed to comply with the condition set out in Article 77b.1 letter a of the Directive. No refusal or revocation was observed that was motivated by NSAs concerns on undue capital relief.

For the purpose of last year's LTG report, it was discussed on how best to systematically assess whether an undue capital relief occurs for undertakings applying the VA. A number of indicators had been identified, for further background cf. page 42 ff. of the LTG report 2018¹³.

For last year's report, EIOPA specifically analysed on whether those undertakings applying the VA are actually exposed to fluctuation of credit spreads. As the VA intends to balance credit spread fluctuations on the asset side of insurers balance sheets, a low proportion of assets sensitive to credit spreads would be an indicator for an undue capital relief. For that purpose, the share of assets that are sensitive to a change in credit spreads on the total value of the asset for all undertakings applying the VA were calculated. The analysis was however based on some approximations and only allowed to give a broad overview of the shares of assets exposed to credit spread changes across the markets.

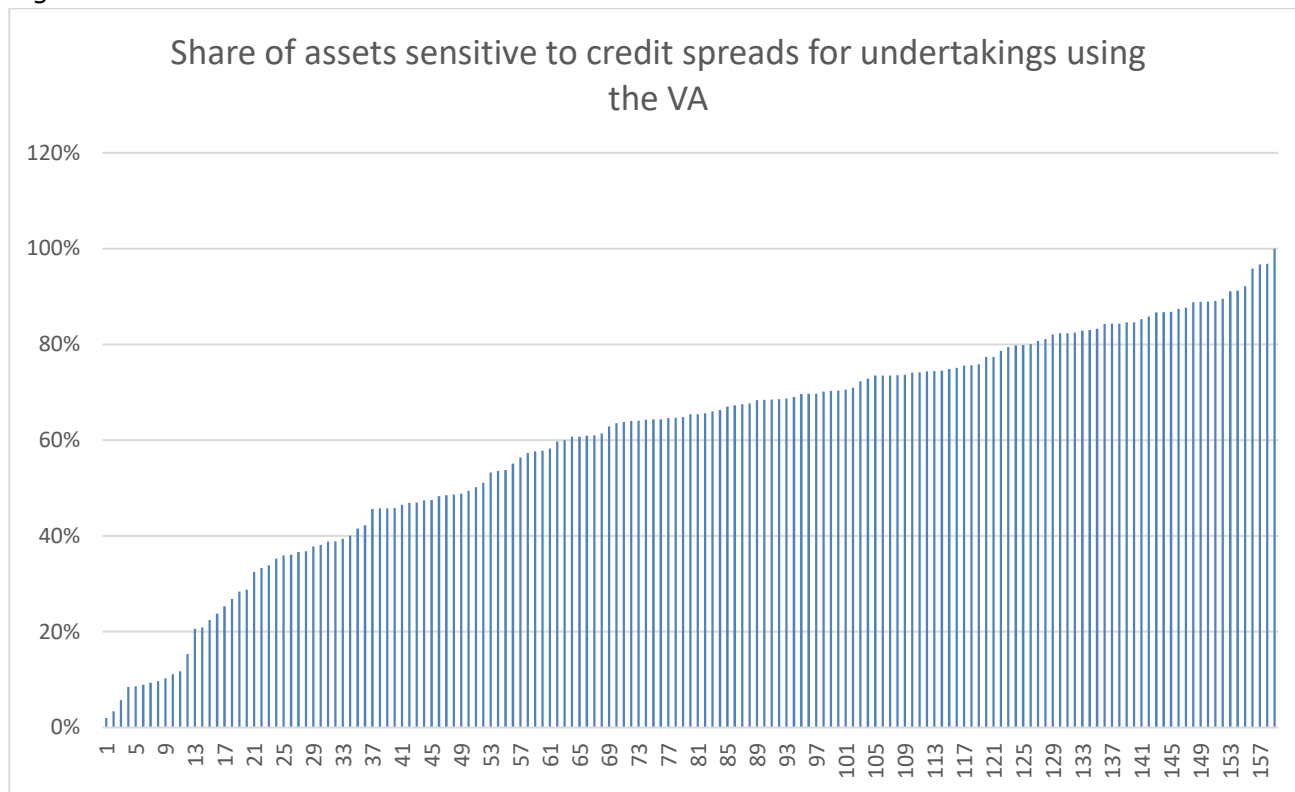
In spring 2019, EIOPA launched an information request to a representative sample of solo European insurance and reinsurance undertakings subject to Solvency II which apply the volatility adjustment as at year-end 2018. This asked for information helping to assess potential cases of overcompensation of the volatility adjustment and consists

¹³ https://eiopa.europa.eu/Publications/Reports/2018-12-18%20_LTG%20AnnualReport2018.pdf

of information on the impact of a particular spread scenario on the balance sheet of undertakings. The information also allows to assess the share of assets sensitive to credit spreads for those undertakings participating in the request.¹⁴ The following graph outlines the dispersion of the results for the sample.

The results are ordered by size. Each bar represents one undertaking.

Figure 2.19



This illustrates that there is a high diversity of results: On one end of the spectrum, there is a significant proportion of undertakings which are heavily invested in credit spread sensitive assets. On the other end of the spectrum, there are undertakings with very low amounts of assets sensitive to credit spreads. The total sample for this analysis includes 159 undertakings.

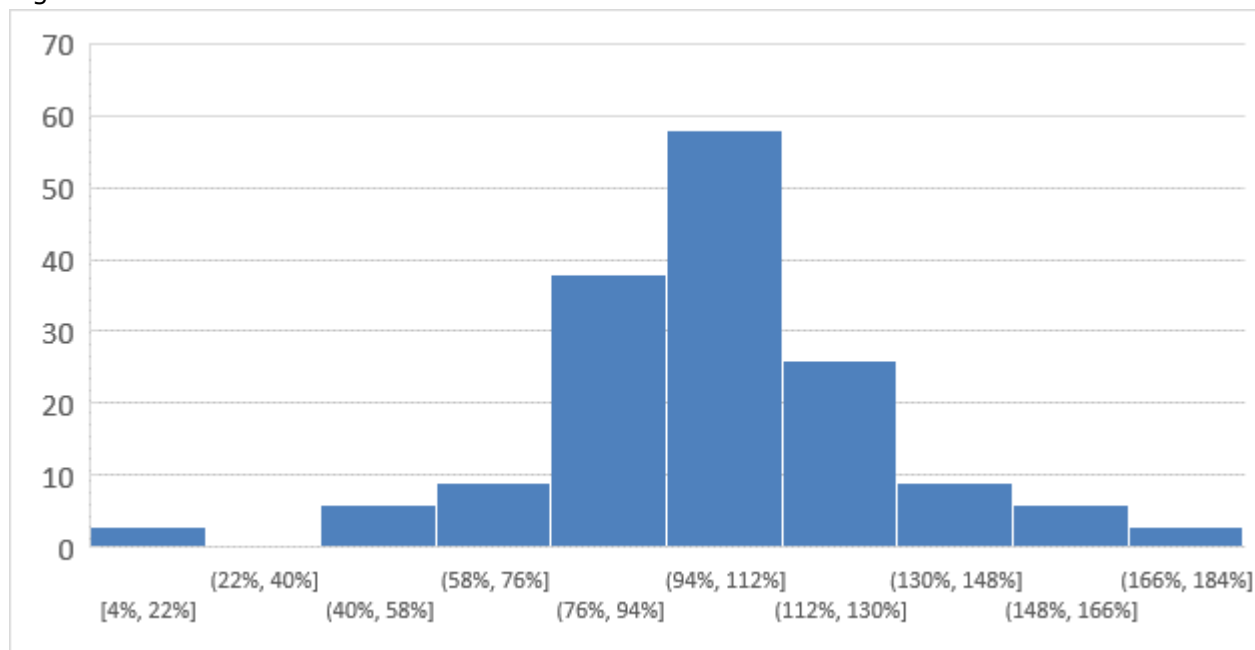
The average share of credit spread sensitive assets for all undertakings applying the VA in the sample amounts to 56%.

This information is not sufficient to decide on cases of undue capital relief as an undertaking having very low amounts of credit spread sensitive assets may also have very low best estimate to which the VA is applied. Whether the impact of the VA on the best estimate exceeds the impact a spread shock may have on the asset side of an insurer's balance sheet is also dependent on the actual volumes of credit spread sensitive assets compared to the volume of liabilities as well as depending on the duration of both assets and liabilities. For further illustration, the following graph outlines the differences in volume of assets sensitive to credit spreads and liabilities (measured in terms of technical provisions). The sample is similar to the above. The

¹⁴ This includes assets covering TP as a whole but also the assets that are included in an MA portfolio (for undertakings both using the MA and VA for different portfolios).

graph provides for a histogram of the share of credit spread assets over technical provisions.

Figure 2.20

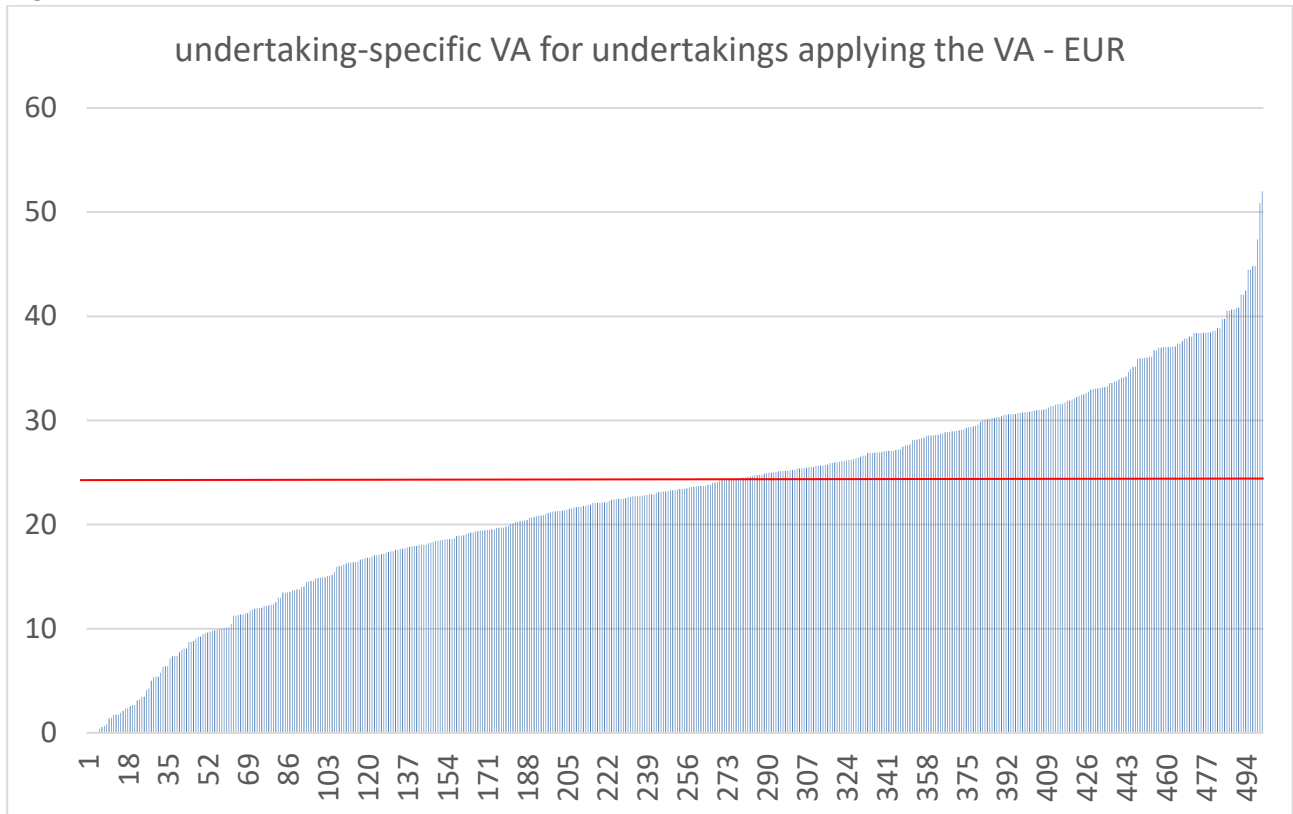


This shows that for most undertakings applying the VA, the volume of assets sensitive to credit spreads is comparable to the amount of technical provisions. However, for a number of undertakings there is only a low amount of credit spread sensitive assets compared to technical provisions.

To assess potential cases of undue capital relief, it is also relevant to analyse the insurers' potential to earn the VA. This can be assessed by comparing the insurer's individual asset mix with the representative portfolio or rather the undertaking specific VA with the currency VA. The following graph outlines the dispersion of undertaking specific VAs for undertakings applying the VA where the reference portfolio is set to the undertaking-specific portfolio.¹⁵ Each bar represents one undertaking. The graph only focusses on the Euro countries and the VA for the Euro.

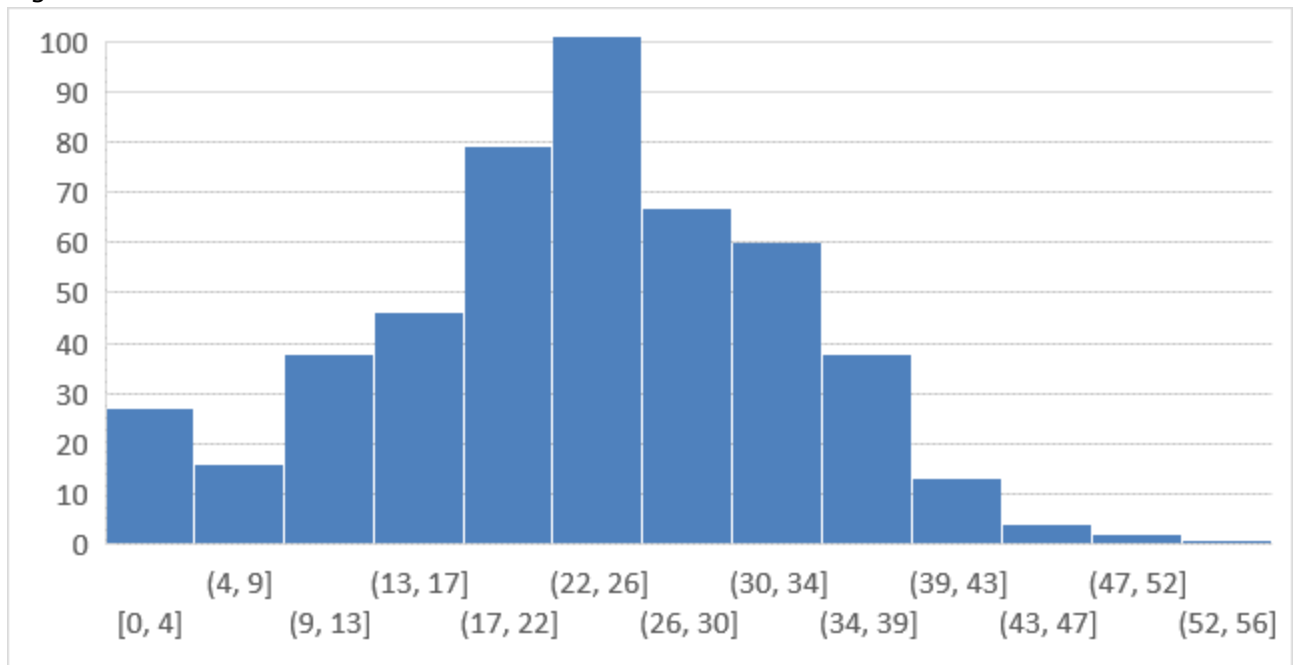
¹⁵ Calculations have been performed by EIOPA on the basis of the common methodology as outlined in the [Technical documentation of the methodology to derive EIOPA's risk-free interest rate term structures](#)

Figure 2.21



The following is a histogram of the results shown above to outline the distribution of the results:

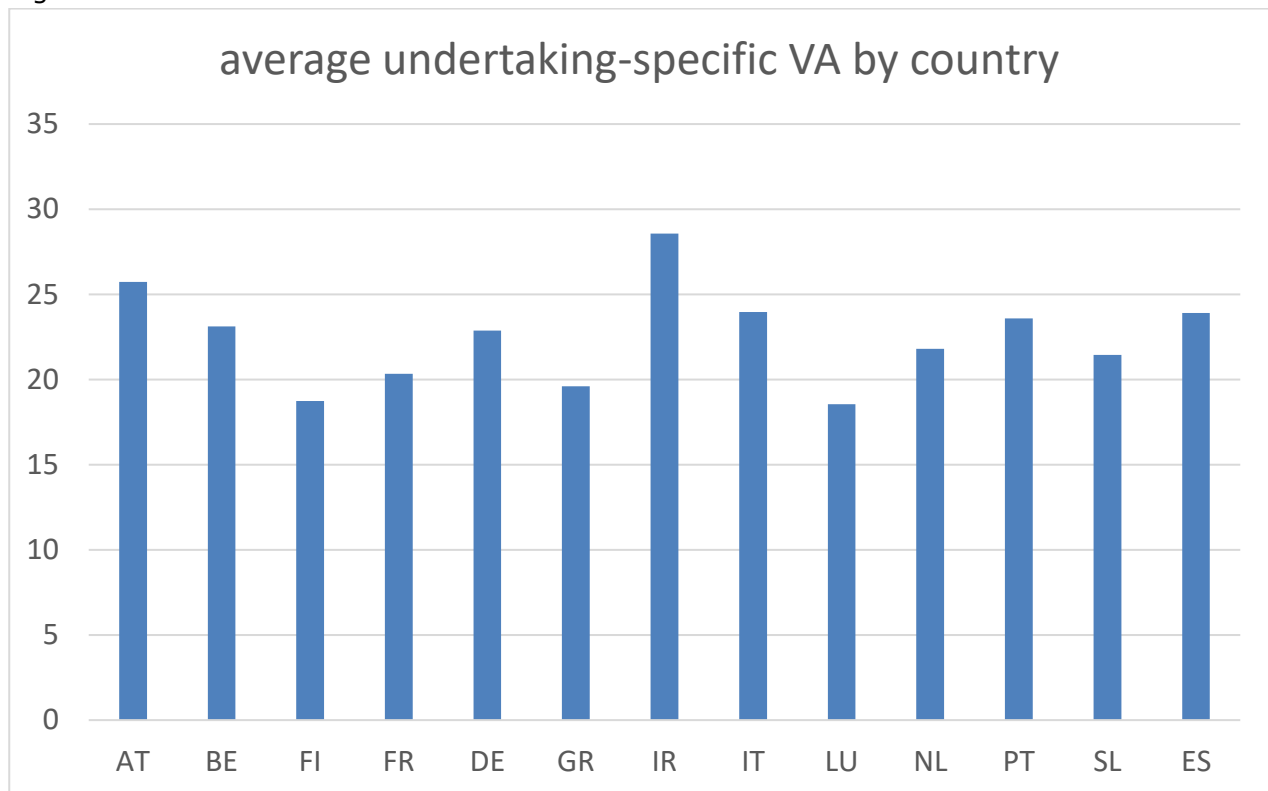
Figure 2.22



As can be spotted, there is a high diversity of results: There is a number of undertakings with undertaking-specific VAs exceeding the currency VA for the Euro of 24 bps as at year-end 2018. However, there are also undertakings with a very low size of undertaking-specific VAs. The mean of the undertaking-specific VAs of the sample considered is 22bps and as expected close to the VA for the Euro as at year end 2018.

The average however varies by country as outlined in the graph below:

Figure 2.23



The differences are due to the different allocation of undertaking's corporate bond portfolios in terms of credit quality, financial and non-financial and duration. Any differences in undertaking's portfolios with respect to the composition of the government bond portfolio (i.e. with respect to the exposure towards different Euro countries) is not reflected in these figures as the currency VA is determined based on ECB spread information providing for average spreads information and not differentiation between the Euro countries.

Undue capital relief from MA could arise from the use of MA where the liabilities are not sufficiently illiquid and/or where the calibration of the fundamental spread (FS) does not provide adequate buffer against the risk of adverse credit events.

This analysis will focus on whether more adverse credit events are occurring in MA portfolios than has been anticipated by the calibration of FS.

Undertakings with approval to use MA were asked to provide information about the losses due to default and/or downgrade that had been experienced during 2017, alongside the fundamental spread that had been assumed during 2017.

33 responses were received (15 from ES, 18 from UK).

Three undertakings reported a loss resulting from default within the matching adjustment portfolio. These losses were 4bps, 10bps and 1bp compared to a fundamental spread for the portfolios of 29bps, 47bps and 51bps, respectively. These losses were primarily due to a large UK company going into administration in the early part of 2018.

7 undertakings, comprising 7 MA portfolios, reported losses from downgrade – defined as being a loss incurred where the asset was removed from the portfolio in 2018, following any downgrade that had taken place prior to that removal. The reported losses were immaterial compared to the reserved allowance in the fundamental spread. 5 out of the 7 undertakings showed losses due to downgrade that were less than 3bps and these firms had fundamental spreads in a range of 30bps to 54bps. The other 2 undertakings had losses equal to 8bps and 7bps with fundamental spreads equal to 51bps and 34bps respectively.

We note that the wider market experienced upgrades and downgrades that were more widespread than might be inferred from the reported losses. One reason for the low level of reported losses might be that insurers retained downgraded assets within their portfolios. A further reason is that firms are incentivised by the MA cap on subinvestment grade assets to maintain a high quality portfolio of matching assets, and assets with deteriorating quality are replaced with higher quality assets from outside the MA portfolio.

The fundamental spread is designed to absorb the long-term average cost of default and downgrade (see Article 77c (2) of the Solvency II Directive). This is not expected to be directly comparable to a single time period. Continuing this comparison on an annual basis should help to identify periods where the fundamental spread is insufficient to absorb the costs of adverse credit events.

II.4 Impact on the investments of undertakings

Investment portfolios of undertakings using the measures MA, VA, TRFR or TTP

According to Article 77f(1)(a) and (3) of the Solvency II Directive, the review should analyse the effect of the long-term guarantees measures and measures on equity risk on long term investment strategies. To assess the impact of measures MA, VA, TRFR and TTP on the investments of insurance and reinsurance undertakings, EIOPA has analysed the investment allocation of undertakings as reported to NSAs under Solvency II.

The tables and graphs in this general section of the report consider the investments of undertakings from three perspectives:

- The investment allocation
- The credit quality of the bond portfolio, separately for government bonds and corporate bonds
- The duration of the bond portfolio, separately for government bonds and corporate bonds

These perspectives are considered both for the total EEA market and separately for undertakings using the measures MA, VA, TTP, TRFR or no measure, also distinguishing between types of undertaking. Further detail is provided in the separate sections per measure in chapter III.

The following graph describes the investment allocation of insurance and reinsurance undertakings on the end of 2018. The graph shows the allocation to the main asset classes at EEA level and for each country.

With regard to the following tables and graphs on investments, caution should be applied when analysing any correlation between the asset allocation or the characteristics of the bond portfolios and the use of the measures, as it is difficult to draw any conclusion from these graphs on any causal effect of the LTG measures on the investments of undertakings.¹⁶

Table 2.18

Investment allocation at EEA and country Level								
Country	Government bonds	Corporate bonds	Unit linked/index linked	Equity	Collective Investment Undertakings	Mortgages and loans	Cash and deposits	Other
EEA	23%	23%	25%	11%	6%	4%	4%	4%
AT	21%	26%	14%	18%	5%	4%	4%	7%
BE	43%	20%	12%	8%	1%	11%	3%	4%
BG	48%	15%	4%	12%	1%	5%	11%	4%
CY	12%	22%	40%	8%	4%	2%	9%	5%
CZ	40%	15%	17%	10%	5%	7%	5%	1%
DE	20%	30%	5%	18%	14%	5%	3%	4%
DK	10%	23%	41%	17%	4%	2%	1%	2%
EE	19%	30%	30%	1%	4%	0%	16%	0%
ES	54%	21%	6%	6%	1%	1%	7%	4%
FI	6%	18%	52%	6%	9%	2%	8%	-2%
FR	29%	33%	14%	12%	3%	2%	3%	5%
GR	52%	18%	15%	4%	1%	1%	6%	2%
HR	61%	4%	5%	8%	1%	7%	7%	7%
HU	45%	2%	44%	3%	2%	0%	3%	0%
IE	9%	10%	69%	2%	1%	1%	6%	2%
IS	26%	21%	5%	32%	6%	3%	7%	1%
IT	43%	18%	18%	11%	2%	1%	2%	5%
LI	4%	5%	84%	1%	1%	1%	4%	0%
LT	43%	11%	37%	2%	0%	1%	5%	2%
LU	9%	11%	68%	3%	0%	4%	5%	1%
LV	56%	17%	9%	2%	1%	1%	12%	2%
MT	30%	19%	6%	7%	5%	5%	19%	10%
NL	28%	14%	18%	5%	2%	22%	4%	7%
NO	10%	34%	19%	17%	9%	8%	2%	1%
PL	38%	3%	28%	18%	7%	2%	4%	0%
PT	34%	22%	24%	6%	4%	0%	8%	1%
RO	55%	6%	21%	5%	1%	1%	11%	2%
SE	9%	18%	42%	18%	6%	2%	2%	3%
SI	31%	28%	20%	15%	0%	1%	3%	2%
SK	41%	27%	20%	4%	1%	1%	5%	1%
UK	9%	15%	54%	5%	6%	4%	4%	2%

¹⁶ For more detail on the asset allocation please see Annex 3 "Assets classes". In particular, please note that a one level of look-through has been applied; consequently the figures in the column 'Collective Investments Undertakings' do not show the total investments in CIUs, but only those cases where the look-through could not be applied.

Table 2.19

Investment allocation at EEA and country Level (without assets held for IL & UL contracts)							
Country	Government bonds	Corporate bonds	Equity	Collective Investment Undertakings	Mortgages and loans	Cash and deposits	Other
EEA	30%	31%	15%	8%	6%	5%	5%
AT	25%	31%	21%	6%	5%	5%	9%
BE	48%	23%	9%	1%	12%	3%	4%
BG	50%	16%	13%	1%	5%	11%	4%
CY	21%	36%	13%	6%	3%	14%	8%
CZ	49%	18%	12%	6%	9%	6%	1%
DE	21%	31%	19%	15%	5%	3%	4%
DK	17%	38%	29%	6%	4%	2%	3%
EE	27%	43%	1%	6%	1%	22%	0%
ES	57%	22%	6%	1%	1%	8%	4%
FI	12%	38%	12%	19%	5%	18%	-3%
FR	33%	38%	14%	4%	2%	4%	6%
GR	62%	22%	5%	1%	1%	8%	2%
HR	64%	4%	9%	1%	7%	7%	7%
HU	80%	4%	6%	4%	0%	5%	1%
IE	28%	32%	7%	3%	4%	20%	5%
IS	27%	22%	33%	6%	3%	8%	1%
IT	52%	22%	14%	3%	1%	2%	6%
LI	23%	34%	6%	8%	6%	22%	2%
LT	69%	17%	2%	0%	1%	8%	3%
LU	26%	34%	9%	1%	11%	15%	2%
LV	61%	18%	2%	1%	1%	13%	3%
MT	31%	20%	8%	5%	5%	20%	11%
NL	34%	16%	6%	3%	26%	5%	9%
NO	13%	42%	20%	11%	10%	2%	1%
PL	53%	5%	24%	10%	2%	5%	0%
PT	45%	29%	8%	5%	0%	10%	2%
RO	69%	7%	7%	1%	1%	13%	2%
SE	15%	31%	31%	11%	4%	4%	5%
SI	39%	35%	19%	0%	2%	4%	2%
SK	52%	34%	5%	1%	1%	6%	1%
UK	20%	33%	11%	12%	9%	9%	5%

As was noted in the 2018 LTG-Report, a diversity of the allocations at country level can be observed. These country specificities should be taken into account when analysing the investments of undertakings that apply the LTG measures and equity risk measures, in particular where the use of a measure is not equally common in all countries¹⁷. Note that differences in the average asset allocation or in the characteristics of the bond portfolios between the different groups of undertakings as shown in tables and graphs below, are, to some extent, due to the high degree of variety of asset investments by insurers across different countries in the EEA, and the fact that the use of the measures is not evenly spread across different markets. This is in particular relevant for the MA, which is only used in two countries. As can be seen in the detailed analysis at country level the investments in those jurisdictions can be quite different even for firms that apply the MA. Therefore the overall observations relating to firms that apply this measure may simply reflect the specificities of insurance business in either or both of those countries rather than the use or not of MA. More detailed information on the investments of insurers using the MA, VA, TRFR or TTP at the level of individual countries is provided in the third section of this report.

The following tables illustrate the investment allocation at the end of 2018 of undertakings that apply the MA, VA, TRFR or TTP, or that do not apply one of these measures, in comparison with the investment allocation of all EEA undertakings. In these tables the unit-linked/index-linked investments have been excluded:

¹⁷ Please refer to the section on use of the measures.

Table 2.20

Total of undertakings							
	Government bonds	Corporate bonds	Equity	Collective Investment Undertakings	Mortgages and loans	Cash and deposits	Other
Total	30%	31%	15%	8%	6%	5%	5%
VA	33%	31%	12%	8%	6%	4%	5%
MA	26%	30%	9%	11%	10%	9%	5%
TTP & TRFR	25%	36%	9%	10%	7%	7%	5%
No measure	23%	31%	24%	6%	3%	8%	5%

Table 2.21

Life undertakings							
	Government bonds	Corporate bonds	Equity	Collective Investment Undertakings	Mortgages and loans	Cash and deposits	Other
Total	30%	33%	9%	11%	8%	2%	6%
VA	30%	34%	8%	12%	8%	2%	6%
MA	21%	31%	11%	17%	13%	2%	6%
TTP & TRFR	25%	36%	9%	12%	9%	2%	6%
No measure	35%	33%	12%	5%	5%	4%	6%

Table 2.22

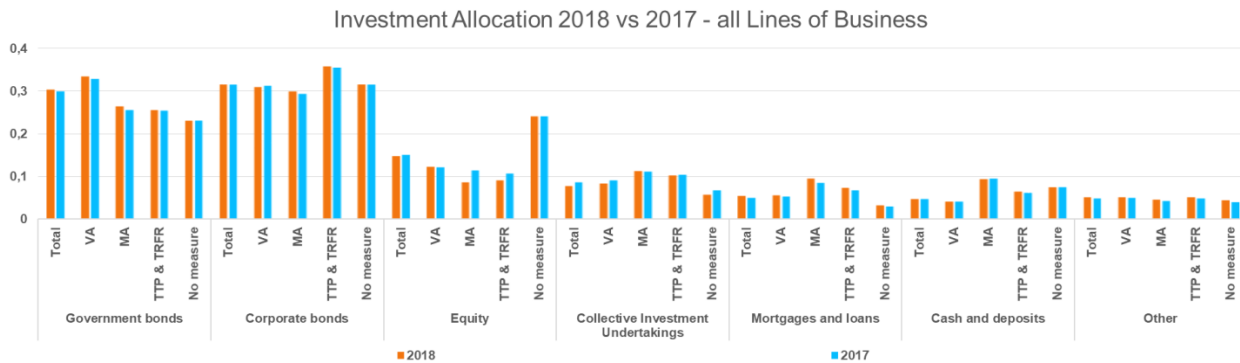
Undertakings pursuing both Life and non-Life							
	Government bonds	Corporate bonds	Equity	Collective Investment Undertakings	Mortgages and loans	Cash and deposits	Other
Total	39%	31%	13%	4%	3%	4%	5%
VA	43%	29%	12%	4%	3%	4%	5%
MA	48%	34%	6%	1%	2%	6%	3%
TTP & TRFR	30%	40%	10%	5%	4%	8%	4%
No measure	24%	32%	25%	5%	2%	6%	6%

As can be seen, differences between undertakings using at least one LTG measure and those that do not, are mostly found outside of pure life insurance. In life insurance, which accounts for a majority of technical provisions, the differences between VA users, with VA being the most widely applied measure and undertakings applying no measure, is small. A substantial difference can only be identified with MA users, but this is due to country specific asset allocations in the two jurisdictions where the MA is used (see section III.2).

The gap between LTG-users and non-LTG-users is more pronounced in undertakings pursuing both life and non-life insurance, with the largest difference again being attributed to MA users. Apart from the question of country-specific impacts it is hard however to resolve the question of causality in these numbers. Rather than LTG-measures being the cause for certain investment allocations, the undertakings that chose to apply certain measures might not be a fully representative sample of insurance companies to begin with.

The final graph of this section compares the investment allocations by LTG measure between 2018 and 2017:

Figure 2.24



As can be seen there is no area where significant deviations can be observed. The investment allocations of the insurance undertakings have on average stayed roughly the same from 2017 to 2018.

Bond portfolio of undertakings using the MA, VA, TRFR or TTP

The following graphs illustrate the credit quality of the bond portfolio of the undertakings applying the measures MA, VA, TRFR or TTP as at end 2018, separately for government bonds and corporate bonds. The credit quality is measured in credit quality steps (CQS), which vary from 0 to 6, with 0 denoting the highest credit quality and 6 denoting the lowest credit quality. Bonds considered as “investment grade” usually have a CQS between 0 and 3.

Table 2.23

Credit quality step of investments in government bonds (without assets held for IL & UL contracts)					
	CQS0	CQS1	CQS2	CQS3	CQS>3
All undertakings	18%	46%	12%	24%	1%
MA	6%	43%	38%	13%	0%
VA	15%	45%	12%	27%	1%
TTP&TRFR	18%	54%	13%	14%	1%
No measure	30%	46%	14%	9%	1%

Table 2.24

Credit quality step of investments in corporate bonds (without assets held for IL & UL contracts)					
	CQS0	CQS1	CQS2	CQS3	CQS>3
All undertakings	20%	17%	32%	28%	2%
MA	7%	12%	40%	39%	2%
VA	16%	17%	34%	31%	3%
TTP&TRFR	24%	17%	31%	26%	2%
No measure	35%	18%	27%	19%	1%

As can be seen there is a gap in credit quality ratings between undertakings using the LTG measures and undertakings not using any voluntary measures. This difference is especially pronounced in the subset of MA users, with the average MA undertaking

holding just 6% CQS0 government bonds and 7% CQS0 corporate bonds compared to 30% and 35% for undertakings not using any measures respectively. The gap is still sizeable in undertakings using the VA, with 15% CQS0 rated government and 16% CQS0 rated corporate bonds. Overall, the vast majority of assets held are rated between CQS0 and CQS3 and therefore investment grade, regardless of the use of LTG measures.

It can be noted, that whereas the distribution of credit quality stayed largely the same in corporate bonds, the average ratings of government bonds has increased from 2017 to 2018 and the gap between LTG users and non-LTG users has closed somewhat, especially through a noticeable shift from CQS3 to CQS2. As there are multiple cases of EU countries' government bonds being uprated in 2018, these shifts can be explained through improved ratings for some countries rather than changes in the investment policy of undertakings.

The following graphs illustrate the credit quality of the bond portfolio of the undertakings applying at least one of the measures MA, VA, TRFR or TTP and of undertakings not applying any of these measures, as at end 2018 at EEA and at national level. Separate graphs are provided for government bonds and corporate bonds. Please note that, due to confidentiality reasons, any cells that relate to less than three undertakings are denoted by (*).

Table 2.25

Credit quality of government bonds for undertakings not using any measure, at EEA level and per country (without assets held for IL & UL contracts)					
Country	CQS0	CQS1	CQS2	CQS3	CQS>3
EEA	30%	46%	14%	9%	1%
AT	9%	46%	25%	19%	1%
BE	16%	65%	12%	7%	0%
BG	1%	26%	24%	48%	1%
CY	13%	31%	16%	32%	8%
CZ	2%	90%	8%	0%	0%
DE	43%	39%	12%	6%	0%
DK	71%	23%	2%	2%	1%
EE	30%	20%	33%	15%	2%
ES	8%	12%	47%	31%	2%
FI	42%	47%	6%	5%	0%
FR	7%	80%	6%	7%	0%
GR	22%	37%	8%	8%	25%
HR	2%	1%	4%	4%	88%
HU	0%	0%	1%	96%	3%
IE	28%	51%	13%	9%	0%
IS	0%	0%	55%	31%	15%
IT	3%	11%	3%	82%	1%
LI	54%	35%	3%	6%	2%
LT	8%	14%	62%	10%	7%
LU	35%	51%	7%	5%	1%
LV	1%	8%	79%	3%	9%
MT	25%	32%	32%	11%	0%
NL	52%	30%	9%	9%	0%
NO	52%	46%	1%	0%	0%
PL	2%	0%	95%	2%	1%
PT	4%	10%	1%	84%	0%
RO	1%	0%	0%	99%	0%
SE	92%	6%	1%	0%	2%
SI	19%	12%	45%	20%	3%
SK	8%	1%	84%	6%	1%
UK	32%	62%	5%	1%	1%

Table 2.26

Credit quality of government bonds for undertakings using at least one of the measures, at EEA level and per country (without assets held for IL & UL contracts)					
Country	CQS0	CQS1	CQS2	CQS3	CQS>3
EEA	15%	46%	12%	27%	1%
AT	19%	47%	26%	8%	1%
BE	9%	73%	10%	8%	0%
BG	3%	1%	7%	89%	1%
CY	(*)	(*)	(*)	(*)	(*)
CZ	5%	63%	24%	7%	0%
DE	37%	45%	12%	6%	0%
DK	67%	18%	3%	8%	4%
EE	0%	0%	0%	0%	0%
ES	2%	2%	65%	31%	0%
FI	53%	40%	4%	2%	1%
FR	8%	76%	5%	10%	0%
GR	14%	16%	6%	15%	50%
HR	0%	0%	0%	0%	0%
HU	1%	1%	0%	98%	0%
IE	44%	40%	14%	2%	1%
IS	0%	0%	0%	0%	0%
IT	2%	5%	6%	86%	1%
LI	(*)	(*)	(*)	(*)	(*)
LT	0%	0%	0%	0%	0%
LU	21%	59%	6%	13%	1%
LV	0%	0%	0%	0%	0%
MT	(*)	(*)	(*)	(*)	(*)
NL	57%	33%	4%	5%	1%
NO	51%	37%	9%	2%	0%
PL	0%	0%	0%	0%	0%
PT	4%	9%	9%	77%	0%
RO	0%	0%	0%	0%	0%
SE	(*)	(*)	(*)	(*)	(*)
SI	0%	0%	0%	0%	0%
SK	8%	15%	76%	1%	0%
UK	10%	86%	2%	2%	0%

Table 2.27

Credit quality of government bonds for undertakings not using a measure or using at least one measure, at EEA level and per country (without assets held for IL & UL contracts)						
Country	Use of the measures	CQS0	CQS1	CQS2	CQS3	CQS>3
EEA	No use of measures	30%	46%	14%	9%	1%
	Use of at least one measure	15%	46%	12%	27%	1%
AT	No use of measures	9%	46%	25%	19%	1%
	Use of at least one measure	19%	47%	26%	8%	1%
BE	No use of measures	16%	65%	12%	7%	0%
	Use of at least one measure	9%	73%	10%	8%	0%
BG	No use of measures	1%	26%	24%	48%	1%
	Use of at least one measure	3%	1%	7%	89%	1%
CY	No use of measures	13%	31%	16%	32%	8%
	Use of at least one measure	(*)	(*)	(*)	(*)	(*)
CZ	No use of measures	2%	90%	8%	0%	0%
	Use of at least one measure	5%	63%	24%	7%	0%
DE	No use of measures	43%	39%	12%	6%	0%
	Use of at least one measure	37%	45%	12%	6%	0%
DK	No use of measures	71%	23%	2%	2%	1%
	Use of at least one measure	67%	18%	3%	8%	4%
EE	No use of measures	30%	20%	33%	15%	2%
	Use of at least one measure	0%	0%	0%	0%	0%
ES	No use of measures	8%	12%	47%	31%	2%
	Use of at least one measure	2%	2%	65%	31%	0%
FI	No use of measures	42%	47%	6%	5%	0%
	Use of at least one measure	53%	40%	4%	2%	1%
FR	No use of measures	7%	80%	6%	7%	0%
	Use of at least one measure	8%	76%	5%	10%	0%
GR	No use of measures	22%	37%	8%	8%	25%
	Use of at least one measure	14%	16%	6%	15%	50%
HR	No use of measures	2%	1%	4%	4%	88%
	Use of at least one measure	0%	0%	0%	0%	0%
HU	No use of measures	0%	0%	1%	96%	3%
	Use of at least one measure	1%	1%	0%	98%	0%
IE	No use of measures	28%	51%	13%	9%	0%
	Use of at least one measure	44%	40%	14%	2%	1%
IS	No use of measures	0%	0%	55%	31%	15%
	Use of at least one measure	0%	0%	0%	0%	0%
IT	No use of measures	3%	11%	3%	82%	1%
	Use of at least one measure	2%	5%	6%	86%	1%
LI	No use of measures	54%	35%	3%	6%	2%
	Use of at least one measure	(*)	(*)	(*)	(*)	(*)
LT	No use of measures	8%	14%	62%	10%	7%
	Use of at least one measure	0%	0%	0%	0%	0%
LU	No use of measures	35%	51%	7%	5%	1%
	Use of at least one measure	21%	59%	6%	13%	1%
LV	No use of measures	1%	8%	79%	3%	9%
	Use of at least one measure	0%	0%	0%	0%	0%
MT	No use of measures	25%	32%	32%	11%	0%
	Use of at least one measure	(*)	(*)	(*)	(*)	(*)
NL	No use of measures	52%	30%	9%	9%	0%
	Use of at least one measure	57%	33%	4%	5%	1%
NO	No use of measures	52%	46%	1%	0%	0%
	Use of at least one measure	51%	37%	9%	2%	0%
PL	No use of measures	2%	0%	95%	2%	1%
	Use of at least one measure	0%	0%	0%	0%	0%
PT	No use of measures	4%	10%	1%	84%	0%
	Use of at least one measure	4%	9%	9%	77%	0%
RO	No use of measures	1%	0%	0%	99%	0%
	Use of at least one measure	0%	0%	0%	0%	0%
SE	No use of measures	92%	6%	1%	0%	2%
	Use of at least one measure	(*)	(*)	(*)	(*)	(*)
SL	No use of measures	19%	12%	45%	20%	3%
	Use of at least one measure	0%	0%	0%	0%	0%
SK	No use of measures	8%	1%	84%	6%	1%
	Use of at least one measure	8%	15%	76%	1%	0%
UK	No use of measures	32%	62%	5%	1%	1%
	Use of at least one measure	10%	86%	2%	2%	0%

Table 2.28

Credit quality of corporate bonds for undertakings not using any measure, at EEA level and per country (without assets held for IL & UL contracts)					
Country	CQS0	CQS1	CQS2	CQS3	CQS>3
EEA	35%	18%	27%	19%	1%
AT	32%	14%	34%	19%	1%
BE	15%	17%	32%	31%	5%
BG	7%	4%	24%	57%	8%
CY	27%	9%	31%	27%	5%
CZ	2%	31%	36%	31%	0%
DE	40%	22%	24%	13%	1%
DK	90%	3%	3%	2%	2%
EE	14%	21%	30%	33%	2%
ES	4%	12%	40%	38%	5%
FI	9%	7%	28%	47%	9%
FR	10%	22%	37%	29%	2%
GR	32%	11%	33%	20%	5%
HR	3%	6%	37%	47%	8%
HU	0%	0%	18%	73%	9%
IE	7%	14%	43%	33%	2%
IS	0%	0%	0%	99%	1%
IT	16%	8%	34%	39%	3%
LI	9%	16%	39%	34%	2%
LT	22%	14%	22%	37%	6%
LU	12%	18%	37%	31%	2%
LV	19%	6%	36%	37%	2%
MT	6%	13%	38%	40%	3%
NL	7%	26%	33%	33%	1%
NO	52%	8%	25%	14%	1%
PL	2%	6%	49%	37%	7%
PT	3%	7%	30%	39%	21%
RO	0%	0%	53%	47%	0%
SE	79%	5%	7%	8%	2%
SI	10%	10%	29%	46%	6%
SK	1%	27%	27%	41%	4%
UK	8%	18%	43%	29%	2%

Table 2.29

Credit quality of corporate bonds for undertakings using at least one of the measures, at EEA level and per country (without assets held for IL & UL contracts)					
Country	CQS0	CQS1	CQS2	CQS3	CQS>3
EEA	16%	17%	34%	31%	3%
AT	22%	19%	34%	24%	1%
BE	10%	18%	34%	36%	2%
BG	5%	2%	36%	56%	2%
CY	(*)	(*)	(*)	(*)	(*)
CZ	0%	1%	44%	49%	5%
DE	37%	22%	23%	17%	1%
DK	71%	13%	6%	7%	3%
EE	0%	0%	0%	0%	0%
ES	2%	15%	30%	50%	3%
FI	12%	13%	32%	37%	6%
FR	9%	19%	41%	30%	2%
GR	1%	14%	34%	39%	11%
HR	0%	0%	0%	0%	0%
HU	0%	7%	50%	43%	0%
IE	24%	15%	35%	26%	0%
IS	0%	0%	0%	0%	0%
IT	2%	8%	23%	57%	10%
LI	(*)	(*)	(*)	(*)	(*)
LT	0%	0%	0%	0%	0%
LU	6%	12%	46%	34%	2%
LV	0%	0%	0%	0%	0%
MT	(*)	(*)	(*)	(*)	(*)
NL	5%	12%	36%	41%	5%
NO	34%	11%	39%	16%	0%
PL	0%	0%	0%	0%	0%
PT	3%	9%	34%	43%	10%
RO	0%	0%	0%	0%	0%
SE	(*)	(*)	(*)	(*)	(*)
SI	0%	0%	0%	0%	0%
SK	8%	19%	33%	40%	0%
UK	8%	11%	41%	38%	2%

Table 2.30

Credit quality of corporate bonds for undertakings not using a measure or using at least one measure, at EEA level and per country (without assets held for IL & UL contracts)						
Country	Use of the measures	CQS0	CQS1	CQS2	CQS3	CQS>3
EEA	No use of measures	35%	18%	27%	19%	1%
	Use of at least one measure	16%	17%	34%	31%	3%
AT	No use of measures	32%	14%	34%	19%	1%
	Use of at least one measure	22%	19%	34%	24%	1%
BE	No use of measures	15%	17%	32%	31%	5%
	Use of at least one measure	10%	18%	34%	36%	2%
BG	No use of measures	7%	4%	24%	57%	8%
	Use of at least one measure	5%	2%	36%	56%	2%
CY	No use of measures	27%	9%	31%	27%	5%
	Use of at least one measure	(*)	(*)	(*)	(*)	(*)
CZ	No use of measures	2%	31%	36%	31%	0%
	Use of at least one measure	0%	1%	44%	49%	5%
DE	No use of measures	40%	22%	24%	13%	1%
	Use of at least one measure	37%	22%	23%	17%	1%
DK	No use of measures	90%	3%	3%	2%	2%
	Use of at least one measure	71%	13%	6%	7%	3%
EE	No use of measures	14%	21%	30%	33%	2%
	Use of at least one measure	0%	0%	0%	0%	0%
ES	No use of measures	4%	12%	40%	38%	5%
	Use of at least one measure	2%	15%	30%	50%	3%
FI	No use of measures	9%	7%	28%	47%	9%
	Use of at least one measure	12%	13%	32%	37%	6%
FR	No use of measures	10%	22%	37%	29%	2%
	Use of at least one measure	9%	19%	41%	30%	2%
GR	No use of measures	32%	11%	33%	20%	5%
	Use of at least one measure	1%	14%	34%	39%	11%
HR	No use of measures	3%	6%	37%	47%	8%
	Use of at least one measure	0%	0%	0%	0%	0%
HU	No use of measures	0%	0%	18%	73%	9%
	Use of at least one measure	0%	7%	50%	43%	0%
IE	No use of measures	7%	14%	43%	33%	2%
	Use of at least one measure	24%	15%	35%	26%	0%
IS	No use of measures	0%	0%	0%	99%	1%
	Use of at least one measure	0%	0%	0%	0%	0%
IT	No use of measures	16%	8%	34%	39%	3%
	Use of at least one measure	2%	8%	23%	57%	10%
LI	No use of measures	9%	16%	39%	34%	2%
	Use of at least one measure	(*)	(*)	(*)	(*)	(*)
LT	No use of measures	22%	14%	22%	37%	6%
	Use of at least one measure	0%	0%	0%	0%	0%
LU	No use of measures	12%	18%	37%	31%	2%
	Use of at least one measure	6%	12%	46%	34%	2%
LV	No use of measures	19%	6%	36%	37%	2%
	Use of at least one measure	0%	0%	0%	0%	0%
MT	No use of measures	6%	13%	38%	40%	3%
	Use of at least one measure	(*)	(*)	(*)	(*)	(*)
NL	No use of measures	7%	26%	33%	33%	1%
	Use of at least one measure	5%	12%	36%	41%	5%
NO	No use of measures	52%	8%	25%	14%	1%
	Use of at least one measure	34%	11%	39%	16%	0%
PL	No use of measures	2%	6%	49%	37%	7%
	Use of at least one measure	0%	0%	0%	0%	0%
PT	No use of measures	3%	7%	30%	39%	21%
	Use of at least one measure	3%	9%	34%	43%	10%
RO	No use of measures	0%	0%	53%	47%	0%
	Use of at least one measure	0%	0%	0%	0%	0%
SE	No use of measures	79%	5%	7%	8%	2%
	Use of at least one measure	(*)	(*)	(*)	(*)	(*)
SL	No use of measures	10%	10%	29%	46%	6%
	Use of at least one measure	0%	0%	0%	0%	0%
SK	No use of measures	1%	27%	27%	41%	4%
	Use of at least one measure	8%	19%	33%	40%	0%
UK	No use of measures	8%	18%	43%	29%	2%
	Use of at least one measure	8%	11%	41%	38%	2%

Duration of bonds

The following graphs show, for each of the countries, the average duration of the bond portfolios, separately for government bonds and corporate bonds. A distinction has been made between undertakings using at least one measure and undertakings using no measure. Please note that the graphs on duration do not include unit-linked/index-linked-investments.

Figure 2.25

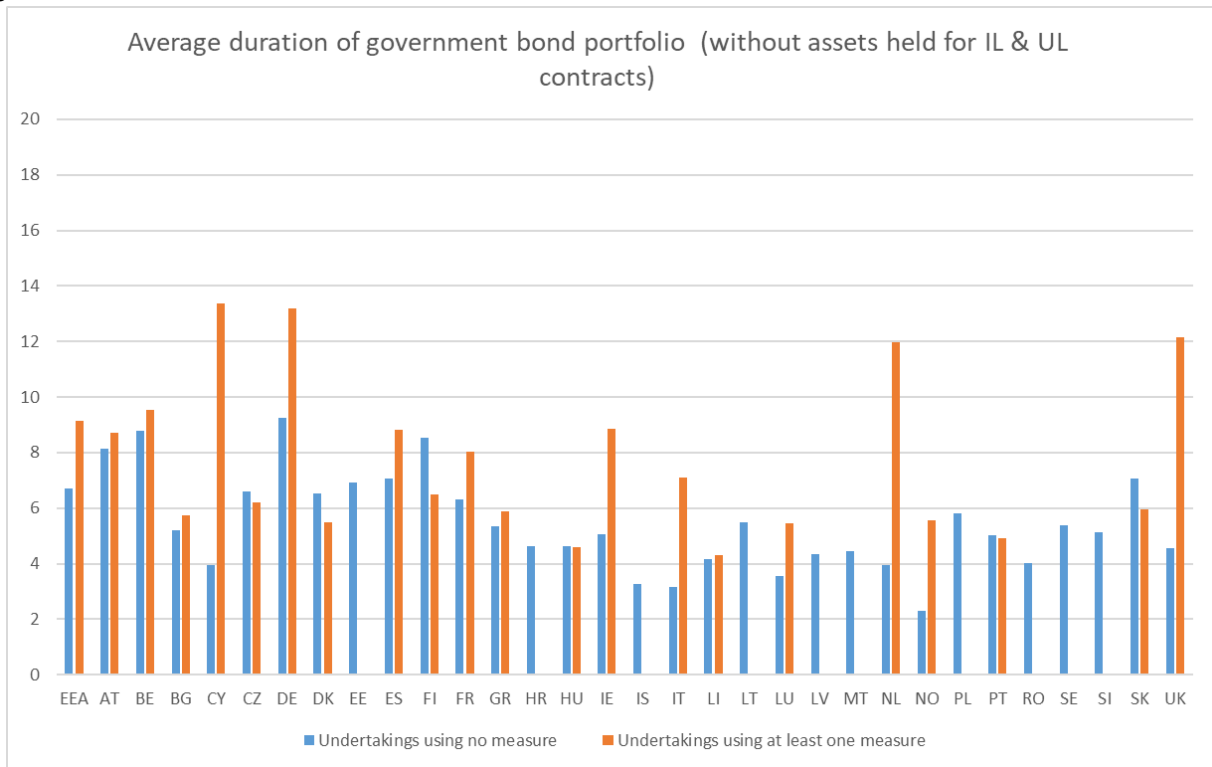
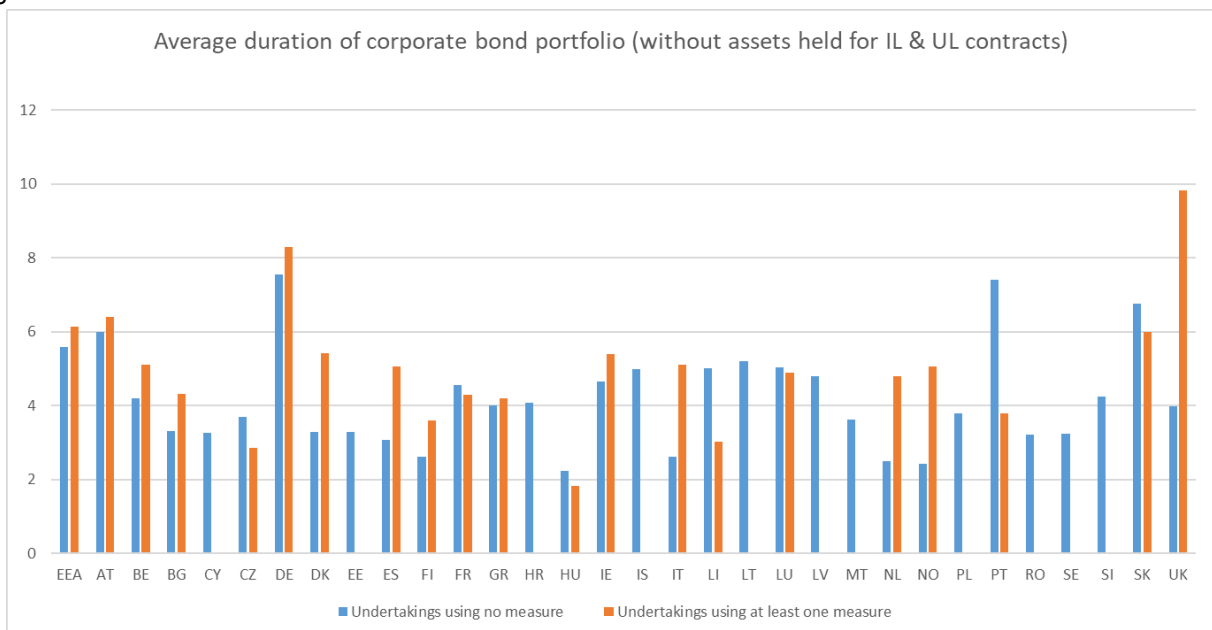


Figure 2.26





































































































These graphs show that on average the duration of bonds is higher in undertakings using at least one LTG measure. In some countries the difference is quite significant, such as for example in NL, NO and the UK, whereas in other countries it is rather small.

The tables below provide further detail, on a national level, on the duration of bond portfolios of undertakings, distinguishing between the use or omission of any of the LTG measures:

Table 2.31

Duration of government bonds per country and per measure (without assets held for IL & UL contracts)					
	Total	VA	MA	TRFR/TTP	No measure
EEA	9	9	11	11	7
AT	9	8		9	8
BE	10	10		(*)	9
BG	5	6			5
CY	4	(*)			4
CZ	6	6			7
DE	12	13		14	9
DK	6	5			7
EE	7				7
ES	9	9	9	9	7
FI	7	6		6	9
FR	8	8		8	6
GR	6	6		7	5
HR	5				5
HU	5	5			5
IE	6	9		(*)	5
IS	3				3
IT	7	7			3
LI	4	4		(*)	4
LT	5				5
LU	5	5			4
LV	4				4
MT	4				4
NL	12	12			4
NO	5	6		6	2
PL	6				6
PT	5	6		5	5
RO	4	(*)			4
SE	5	(*)			5
SI	5				5
SK	7	6			7
UK	10	13	12	12	5

Table 2.32

Duration of corporate bonds per country and per measure (without assets held for IL & UL contracts)										
	Total		VA		MA	TRFR/TTP	No measure			
EEA		6		6		9		8		6
AT		6		6				5		6
BE		5		5			(*)			4
BG		3		4						3
CY		3		(*)						3
CZ		3		3						4
DE		8		8				9		8
DK		5		5						3
EE		3								3
ES		5		5		5		5		3
FI		3		4				4		3
FR		4		4				5		5
GR		4		4				4		4
HR		4								4
HU		2		2						2
IE		5		5			(*)			5
IS		5								5
IT		5		5						3
LI		4		3			(*)			5
LT		5								5
LU		5		5						5
LV		5								5
MT		4								4
NL		5		5						2
NO		5		5				5		2
PL		4								4
PT		4		3				4		7
RO		3		(*)						3
SE		3		(*)						3
SI		4								4
SK		7		6						7
UK		9		9		10		10		4

Again, some noticeable differences between the different countries become apparent. Like most of the other analysed factors in this chapter, the overall situation has hardly changed between 2017 and 2018, with slight variances in the average durations in some countries and the gap between LTG users and non-LTG users staying practically constant.

Supervisory observations on the investment behaviour

To collect information about the impact of the LTG measures and measures on equity risk on the investment behaviour of undertakings, as for the precious LTG reports EIOPA asked NSAs about their observations regarding trends in the behaviour of undertakings as long-term investors, the drivers associated with those trends and their view on any connections between the measures and the trends observed. Specific questions were

asked on any noticeable trends in the holding of equities as well as the duration of bond portfolios.

Overall, the responses from NSAs were similar compared to the observations for the previous year. Most of the NSAs have identified no relevant and significant trends in the investment behaviour of the insurance undertakings they supervise. Most of the trends that were identified relate to search-for-yield behaviour in the ongoing context of low interest rates. None of the observations could be clearly linked to the use of LTG-measures on the basis of factual evidence, which would however be hard to achieve in any case.

A search-for-yield through increased investment in bonds was identified by seven NSAs, with two explicitly mentioning a move from government bonds to corporate bonds and mortgage loans. Three NSAs mentioned a general trend towards more illiquid investment, with infrastructure assets, bonds of local, unrated undertakings and property market investment vehicles being explicitly mentioned by several NSAs. One NSA mentioned a switch between equities and corporate and covered bonds as a consequence of the volatile equity market in 2018.

Five NSAs mentioned specific trends regarding the holding of equities. Three of those identified a slight increase of equities, one a slight decrease and one a move to aforementioned investment vehicles. If one also takes the graphs provided in the 'allocation of assets'-section into account, it can be concluded that apart from some slight movements the overall holding behaviour of equities has not changed from 2017 to 2018.

Three NSAs identified a trend of increasing bond duration. One of those NSAs that witnessed an upward trend in durations directly linked this to search-for-yield behaviour.

Two NSAs linked trends in investments to the use of LTG measures. The first of these mentioned a general trend towards more long-term-illiquid assets. The second NSA reported observations of more risky investment behaviour in VA users that try to align with the VA reference portfolio as well as generally reduced hedging and cash flow matching beyond the LLP of 20 years.

II.5 Impact on consumers and products

Trend regarding availability of products with long-term guarantees

The 2018 LTG report contained an extensive analysis of the product environment. This analysis will not be repeated in the 2019 report, as it was intended as a one off exercise that gave an overall snapshot of the European insurance market and the availability of products with long-term guarantees. For the report this year, NSAs have been asked to comment on any new trends they have observed in their market since the previous report.

In the 2018 report, approximately half of the jurisdictions observed a reduction in the availability of traditional life insurance products with long-term guarantees and an

increase in the availability of unit-linked business. All jurisdictions that observed this trend last year, have responded that the trend has continued this year.

The only new trends observed are relation to the availability of certain specific types of products. One NSA (IT) observed a recovery in the volumes of individual payment protection insurance (PPI). A second NSA observed that undertakings are moving towards less sophisticated products by separating investment and insurance related parts into two different products (LT).

Trend in size of guarantee

In relation to the size of guarantees, the trend appears to have continued from last year, where the majority of jurisdictions observed a reduction in the size and duration of guarantees. The main drivers observed for this are the low interest rate environment, and the increase in the cost of guarantees driven by the cost of these guarantees in a low interest rate environment under Solvency II, particularly in the calculation of the technical provisions and the SCR.

Customer Detriment

Similar to last year, the majority of NSAs observed that the current trends in the availability of products with long-term guarantees had not raised consumer protection issues. However, two specific cases of consumer detriment have been observed by NSAs, both of these in relation to undertakings encouraging policyholders to transfer away from traditional products with high guaranteed interest rates.

In one example, an undertaking was observed to present over-optimistic future yields on unit-linked products to policyholders, to encourage them to switch away from products with high guarantees. The same NSA also observed undertakings offering riskier products with higher expense structures to policyholders (FI). A different NSA observed that policyholders were given disadvantageous surrender values, or forced to transfer away from products with high guarantees to products with lower guarantees (CZ).

A number of NSAs, including the two NSAs that identified specific cases of consumer detriment, indicated that they are undertaking activities and measures over the year, this includes:

- Thematic reviews of certain products, with a focus on consumer aspects.
- Focus on conduct of insurance brokers, intermediaries and financial advisors.
- Market surveys, so that trends can be identified faster.
- Implementation of a consumer protection risk based system of early warning.

II.6 Impact on competition and level playing field in the EU insurance market

The topic on competition and level playing field is included in the list of relevant items for the review of the LTG measures and measures on equity risk in Article 77f(3)(c) of the Solvency II Directive. It has been covered since the report 2017 (it was not included in the first report because of the scarcity of data and limited experience on the topic at that time).

In response to the question of whether they had observed any impact of the LTG measures and measures on equity risk on competition, the vast majority of NSAs did not report any such observations. However:

- one NSA observed that the overshooting effects created by the VA applied to Eurozone countries have an impact in terms of competition. This because they create advantages in terms of TP, OF and SCR ratio, in particular to those undertakings that use a VA which expresses a level of spread volatility much higher than the one experienced by their portfolios. Conversely, undershooting effects of the VA formula have a negative impact on competition, which can be significant because of the difficulties on the activation of the national component of VA, as those experienced in 2018;
- another NSA commented that LTG measures distorts the comparability of solvency ratios, because, in some contexts and publications, the differentiation between SCR with or without LTG measures is not sufficiently transparent¹⁸, and undertakings using the measures are not interested to stress their importance or impact.

With regard to the internal models to calculate the SCR, **two different treatments of the VA** can be observed, the modelling of a constant VA and the modelling of a dynamic VA. The approaches are further explained in section III.3. The modelling of a dynamic VA results in a significantly lower SCR for spread risk, if those undertakings would use a constant VA.

17 NSAs commented that they would allow undertakings using internal models to apply the dynamic VA. The table below shows the number of undertakings and groups using dynamic VA as at year-end 2018:

Table 2.33

Member State	Solo	Groups
AT	4	
BE	2	
CZ	1	
FR	15	1
DE	24	2
IE	2	
IT	2	1
NL	12	3
UK	0	1
Total	62	8

¹⁸ A similar issue was also addressed by IMF - see LTG report 2018 p.81

With respect to VA, the questionnaire investigated if NSAs require undertakings in their market to perform (regular) specific additional analysis as a consequence of applying the VA in addition to what is already foreseen by the regulation. Only three NSAs provided comments of additional analyses requested.

In one case the NSA provided a detailed description of the approach applied that requests to undertakings experiencing material effects due to the use of VA (scenario with VA equal to zero) to evaluate also the impact of a forced sale of assets under specific conditions. If any of the two previous scenarios would result in non-compliance SCR/MCR undertakings are requested to consider effects of the investment policy, consistency of the average duration of assets vs liabilities vs the duration of the representative portfolios considered by EIOPA to calculate VA. The entity should establish criteria to evaluate the results and, where appropriate, the measures to be adopted. Undertakings are also recommended to consider possible substantial differences with the representative portfolios and the concrete possibility to earn the VA 'without assuming credit risk'.

The majority of NSAs did not identify undertakings where the risk profile of the undertaking deviates significantly from the assumptions underlying the VA, below the actions referred to the limited, individual cases in which elements were observed: in one country undertakings were requested to analyze the risks related to that separately as part of their ORSA process, 1 NSA referred to deviations which led to change in DVA models, another NSA commented that, as the SCR without the measure was higher than 100%, no capital add on was requested.

No capital add on was considered by NSAs so far.

The MA is a measure applied in two countries only: Spain and UK. Both countries set governance rules to ensure that the assigned portfolio of assets cannot be used to cover losses arising from other activities of the undertaking. In one country, undertakings are requested to identify in the investments book the assets assigned to the MA. Undertakings are then required to appoint someone responsible for the Asset and Liability management policy of the MA portfolio. Every change in the assets of the MA portfolio must be approved by the responsible persons (Actuarial function and Risk Management function) and be documented in a report which is raised to the Board. In the other country, undertakings' applications are required to include the framework for the extraction of assets from the MA Portfolio, covering timings, reasons and governance for allowing this. Additionally, undertakings are required to include details of collateral management processes which ensure that MA assets are not posted as collateral for non-MA business.

In both countries, investments are assessed asset by asset. These assets have to be fixed income assets and nominated in the currency of liabilities. These features can be intrinsic to the assets or be obtained through other assets (for instance, a suitable derivative which transforms the cashflows of the asset into fixed cash flows). In both countries, undertakings are expected to determine, for each asset, whether the issuer or a third party are permitted to change the cash flows. Where cash flows may be changed at the unfettered discretion by the issuer, there should be sufficient compensation paid such that reinvestment is possible to replicate the cashflows.

The assessment to identify any mismatch in one jurisdiction refers to cash flows and is requested to be run monthly. In the other jurisdiction, undertakings are required to adopt matching tests, and to report to their Supervisor any breaches of the adopted matching tests. This must come with a plan of action to remedy the breach of test thresholds.

None of the NSAs reported cases of where the risk profile of the undertaking deviates significantly from the assumptions underlying the MA.

With respect to the TTP

Recalculation of the deduction referred to as the Transitional on TP measure, in 2018, occurred to 18 undertakings¹⁹ in 4 of the countries where the TTP is applied.

The criteria for applying recalculation are not homogeneous:

- in 5 markets the recalculation derives from the undertaking's decision. However practices appears different as, in some cases, the recalculation occurs only in case of a change in risk profile , in one market undertakings applied quarterly recalculation of the TTP and other NSAs did not provided any specification.
- in 16 markets the recalculation derives from a request of the NSA, but, also in these cases, practices are different: most of NSAs mentioned that the request occurs in case of significant change of the undertaking risk profile, and in a few cases it could also derive by undertaking decision. 5 NSAs referred that in their market a term for compulsory recalculation is also defined: this term is 2 years in 5 countries and 4 years in another one.

Most of NSAs have not defined formal processes on how to define the cases of significant changes of risk profile. However, two NSAs referred that they consider this possibility in case of transfer of portfolio or transition to run-off, other NSAs request undertaking to monitor the deduction on quarterly or annual basis. Only one NSA provided guidance to firms on what events may constitute a change in risk profile. 6 NSAs referred that significant change of market conditions are considered relevant for approaching undertakings using TTP with the request of an analysis of the eventual change of the undertaking risk profile, one of them set out guidelines on what level of market movements may trigger a change in risk profile.

As for last year, different supervisory practices were observed concerning the possibility to apply a lower amount of transitional deduction to technical provisions than the maximum amount that has been approved by the NSA.

Again, responses show a mixed picture:

- 16 NSAs indicated that undertakings in their jurisdiction always have to apply the maximum amount.
- 9 NSAs allow the application of a lower amount, but reductions were actually applied only by 4 undertakings in one country . In two countries the reduction is

¹⁹ There was an additional application which was rejected

subject to the NSA's approval. In general no specific limits are set for the reduction but no cases of cancellation of reductions occurred. One NSA explicitly stated that undertakings are not allowed to cancel the reduction at a later stage, another one specified that if the reduction is up to 100% of the deduction the authorization to the use of TTP is revoked.

- 13 NSAs allow undertakings to exit the measure early, and actually 1 case occurred . In most cases, NSAs require be informed on the reasons of the exit and on the undertaking's solvency position without the measure.

Another aspect that was assessed was if NSAs considered in their approval of the transitionals whether these were necessary to ensure a smooth transition to SII.

Varying approaches were observed. 6 NSAs stated that during the approval process they explicitly considered whether the transitional was necessary for the undertaking applying.

Other NSAs also assessed how necessary the use of the transitionals was for undertakings. Two NSA mentioned an increased resilience against potentially adverse future situations as a motivation to apply the transitionals. Another NSA considers the measure to be a relevant and necessary tool to ensure a successful transition to Solvency II. Prior to the introduction of Solvency II, during the approval process, this jurisdiction did not focus on the solvency position of undertakings under the Solvency II regime. The NSA also observed a high number of undertakings who did not meet the solvency capital requirement without the transitional measures.

With regard to the start of the use of the transitional measures after 1 January 2016, the majority (16) of NSAs provided a positive answer to the question on the possibility for approval of the measures also after 1 January 2016. Most of the NSAs, however, specified that no cases of late application of the TTP occurred in their country yet. 14 NSAs do not allow the possibility of a late use of the transitional measures..

At the end of 2018 the use of the transitional measures was granted to 4 more undertakings from two countries.

The following reasons were mentioned by NSAs as potential reasons for motivating a late application:

- the extension to all the undertakings within a group. The application of a measure was initially requested only by few undertakings and moving to a homogeneous approach among the group to calculate the solvency ratio;
- the intent of having additional capital reserves, e.g. in case of higher interest rate volatility;
- the transfer of portfolios .

None of the NSAs reported new cases of capital add ons applied during 2018²⁰.

²⁰ The capital add-on set in 2016, to a firm depending on the TTP to cover its SCR was still valid in 2018.

An unlevel playing field can stem from different application of the LTG measures and measures of equity risk as observed above.

An unlevel playing field can also result where the measures themselves differentiate between national markets. That is naturally the case for transitionals from a minimum harmonisation system like Solvency I to a maximum harmonisation system like Solvency II. The transitional adjustments for the TTP and the TRFR are calculated with reference to the valuation rules of Solvency I. These rules were not harmonised and hence they may be different across Member States and result in different amounts of technical provisions and different discount rates across national markets. Two undertakings with the same liabilities and risks but located in different Member States may therefore have different technical provisions when they both apply the TTP or the TRFR.

One NSA outlined that LTG measures, may have an impact on portfolio transfers, mergers and acquisitions.. In negotiations between buyers and sellers, buyers are willing to pay more for the shares of an insurance undertaking, i.e. require less funds for the transfer of the liabilities, if the undertaking can apply a measure that allows for a reduction of the liabilities. When applying the VA, there could also be a rise of the risk profile of the assets to increase alignment with the reference portfolio; increasing alignment with the reference portfolio reduces own fund volatility and this is also considered to create value from a shareholder perspective, while the increased asset risks are not beneficial from a policyholder perspective.

II.7 Impact on financial stability

EIOPA has asked NSAs about their experience with the LTG measures in relation to financial stability. 10 of the 32 NSAs that responded to the questionnaire considered the question on financial stability not applicable; for example, because the impact of the LTG and other measures is negligible or zero. 13 NSAs responded that they observed no impact at all of the LTG measures to financial stability.

VA and MA

4 NSAs stated that there was no impact of the MA and VA on financial stability in 2018, as expected, because of the still stable market circumstances in which credit spreads did not significantly change with relatively low overall credit spreads. As such the MA and VA also did not change a lot in 2018 and had not a lot of impact.

Overshooting VA

One NSA commented that applying the VA has an overshooting impact on own funds for undertakings with relatively long-term liabilities and relatively little and relatively less risky fixed income investments. In case spreads increase, the application of the VA by those undertakings implies a larger decrease in the valuation of the technical provisions than the decrease of value in their investments; as such the own funds of those undertakings increase when credit spreads increase.

Behaviour of euro VA in case of a spread widening affecting a single Eurozone country

With regard to the VA of the Eurozone another NSA commented that, in case of a spread widening affecting a single country of the area, some undesirable effects could be observed in terms of volatility of technical provisions, own funds and solvency ratio²¹ affecting all Eurozone countries.

In particular, in the country affected by the spread widening, the measure does not provide the stabilization expected by the national supervisor because the country-specific increase will not be activated. When the spread values are around the trigger point, the country component in the monthly VA calculation shows a cliff effect due to the binary mechanism of activation. This makes the total VA a non-linear function with a high (local) volatility because of switching between currency and country VA. Since that movement of the VA happened within a quarter, it was not reflected in the series of quarterly VA that became binding for the calculation of technical provisions.

In the other Eurozone countries, the increase of the spreads of one single Member State implies an increase in the euro VA that is not necessarily correlated to a worsening of the financial conditions of all the Eurozone (overshooting effect).

In this case, in the other Eurozone countries a reduction of TP will occur, not necessarily counterbalanced by a reduction of asset values or by an increase in the undertakings' return on assets. This situation could then lead to cases of unexpected undue capital relief.

TTP

2 NSAs replied to the questionnaire regarding the impact of the TTP on financial stability that it has helped a smooth transition to Solvency II and strengthened the perceived resilience of the insurance market.

Symmetric Adjustment for equity risk

One NSA responded that the symmetric adjustment for equity risk appropriately reduced capital requirements for equity when equity prices declined at the end of 2018; this reduced the SCR by approximately 9 percent.

Extrapolation

One NSA replied that the current parametrization of the extrapolation for the euro currency stabilizes the value of the technical provisions. Another NSA commented that whereas the valuation of technical provisions may be stabilized, the amount of own funds may become less stable because of the current parametrization. Whether or not the amounts of own funds are stabilized depends on the extent of interest rate hedging and cash flow matching.²²

²¹ The effects described were observed in 2018 due to the widening of the spreads of Italian government bonds.

²² Undertakings that match their cash flows beyond the LLP to a large extent experience more volatility in own funds than undertakings that match the cash flows of their liabilities beyond the LLP to a lesser extent. This can be explained by the fact that current parametrization decreases the volatility of the rates beyond the LLP only for the purpose of the valuation of the technical provisions, while the value of the assets for which the market values are available remains fully sensitive to the volatility of market rates beyond the LLP. The amount of cash flow matching that would minimize the own fund volatility depends, among other aspects, on the relative amount of cash flows beyond the LLP and the level

No build up of resilience

One NSA replied that the LTG measures are not symmetrical; they do dampen the impact of market deteriorations, but do not incentivize the undertakings to build up resilience in good times.

Underreserving

One NSA stated that an insufficient realistic valuation of the technical provisions because of an insufficient realistic term structure, e.g. extrapolation, is not only a risk in itself for financial stability, but also enables undertakings to increase risks due to higher regulatory own funds. All-in-all higher risks are generally detrimental for financial stability.

and shape of the risk-free interest rate term structure. Those undertaking that match to a large extent would have a lower volatility of own funds with a different parametrization, for example a 'later' LLP. Undertakings that match relatively less would experience more volatility in own funds in case of a 'later' LLP.

III. Specific analysis for each of the measures

III.1 Extrapolation of the risk-free interest rates

For maturities where the markets for the relevant financial instruments or for bonds are no longer deep, liquid and transparent, the relevant risk-free interest rate term structure shall be extrapolated. The extrapolated part of the relevant risk-free interest rate term structure shall be based on forward rates converging smoothly from one or a set of forward rates in relation to the longest maturities for which the relevant financial instrument and the bonds can be observed in a deep, liquid and transparent market to an ultimate forward rate (UFR).

The extrapolation of the risk-free interest rate term structure cannot simply be switched off to quantify its impact on the size of technical provisions, own funds and SCR for undertakings. It is however possible to assess the impact of variations in the assumptions underlying the applied extrapolation methodology, which are the starting point of the extrapolation (the so called last liquid point, LLP), the level of the ultimate forward rate (UFR) to which the interest rates are extrapolated to and the convergence speed.

As described in subsection II.2, the preselected undertakings were asked to calculate the impact of the following two scenarios on their financial position:

- Scenario 1: Increase of the LLP for the euro from 20 to 30 years. For currencies other than the euro the risk-free interest rates are unchanged.
- Scenario 2: Increase of the LLP for the euro from 20 to 50 years. For currencies other than the euro the risk-free interest rates are unchanged.

Impact on the financial position of undertakings

As for section II.2, the analysis performed on the extrapolation and outlined in the following is based on the information received by undertakings via the information request including scenario calculations focussing on the LLP. The analysis includes only the information for those preselected undertakings who have provided valid information on the individual scenarios.

The data sample for the analysis on the extrapolation is thus different to the analysis performed for the other LTG measures, which cover the whole market.

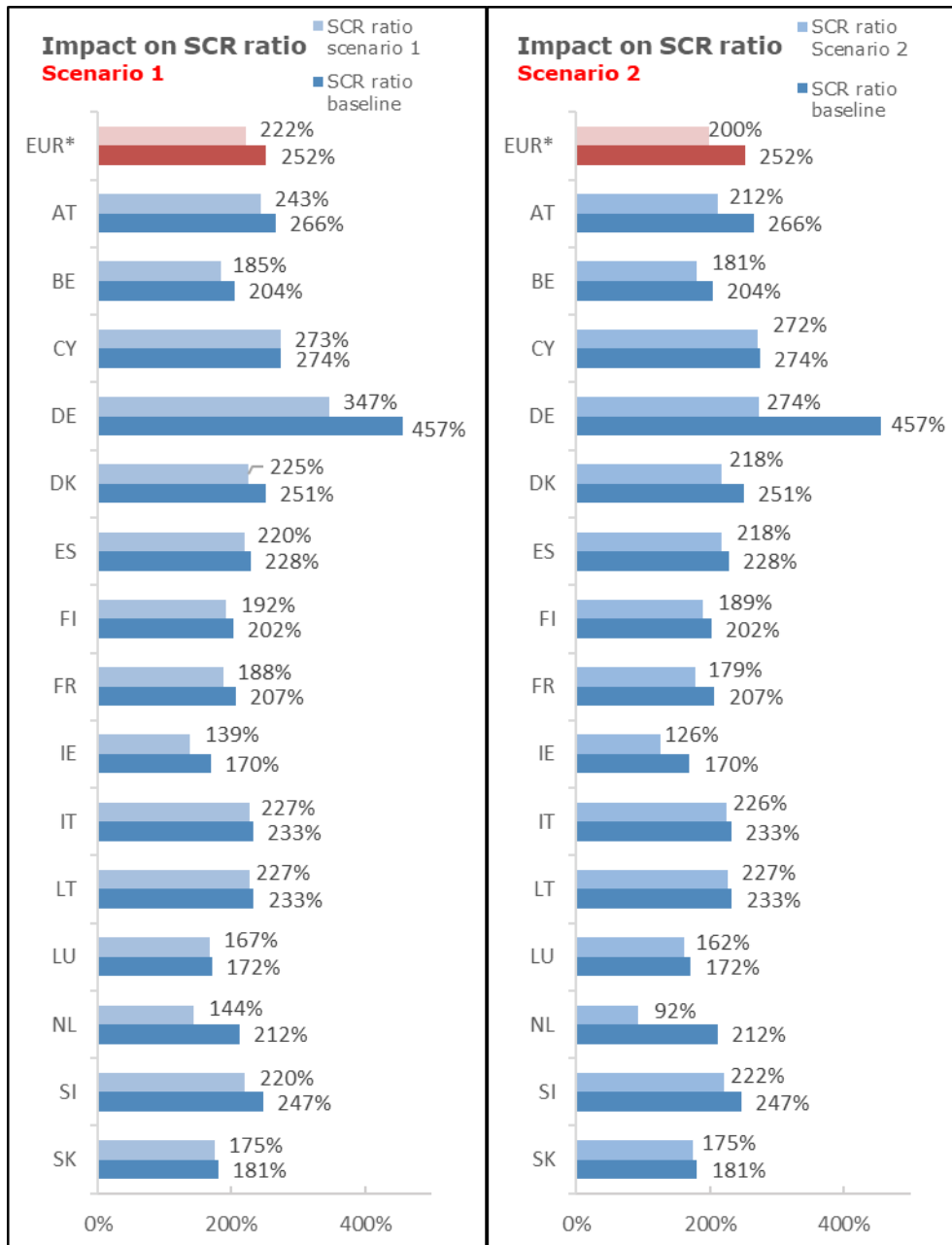
Results by country are only provided for those countries where the calculation included more than three undertakings.

The following graphs show the average impact at EUR*level (i.e. euro area, Denmark and Bulgaria) and per country of each of the two specified scenarios on the SCR ratio, the SCR and the eligible own funds to cover the SCR. To be noted is that the results of scenario 1 and 2 are also described in EIOPA's Consultation Paper on the Opinion on the 2020 review of Solvency II. The results in this report slightly differ from those of the consultation paper, as this report only focusses on life and composite insurance undertakings from the euro area, Denmark and Bulgaria, that exceeded the threshold described in section II.1. and that reported in euro. Countries with three or less

undertakings are not included in the graphs. The sample considered in the consultation paper is broader, as it may also include some non-life insurance and reinsurance undertakings, undertakings that reported in another currency than the euro and a wider set of countries.

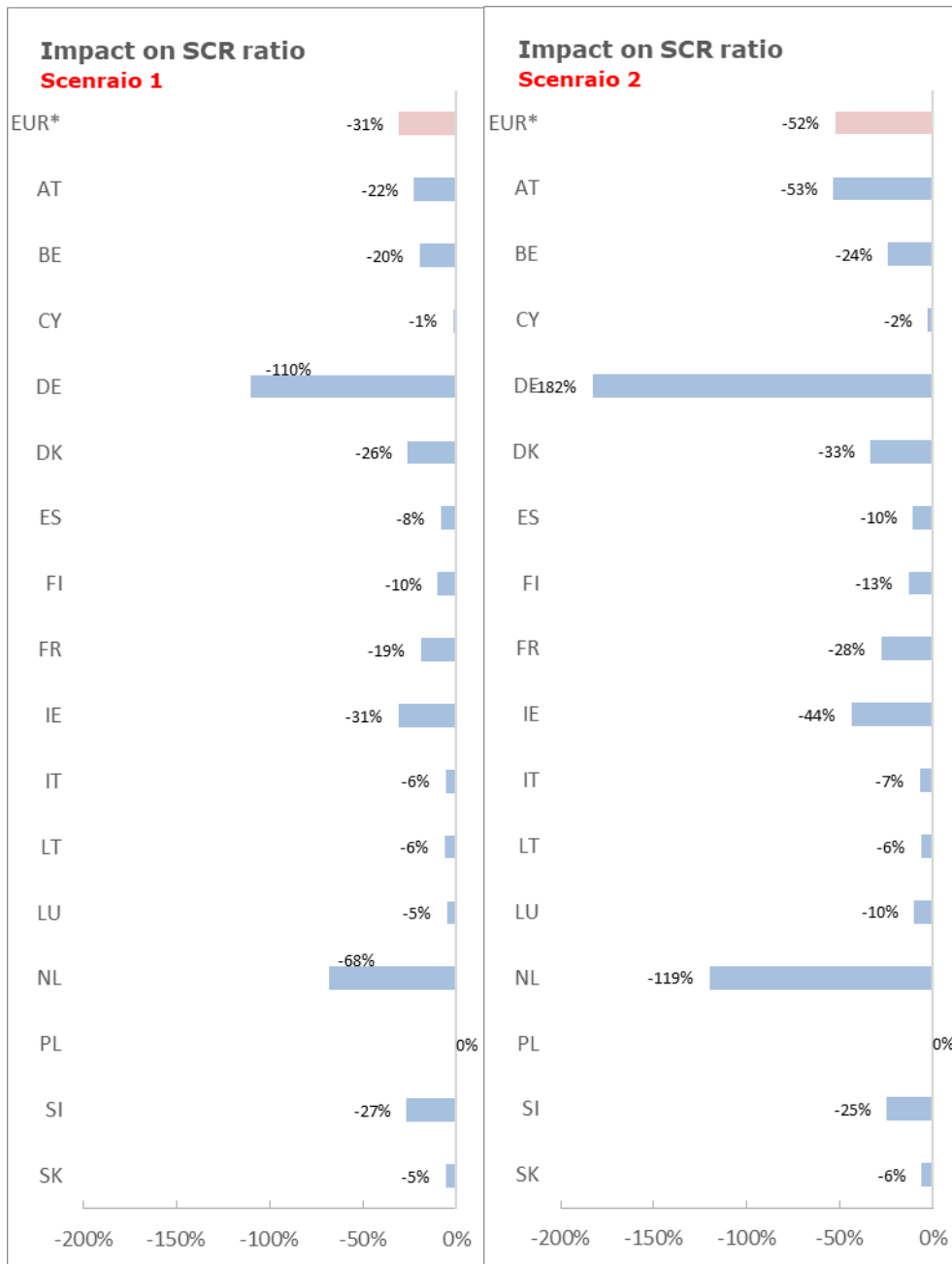
At EUR* level, scenario 1 would result in a reduction of the SCR ratio by 31 percentage points and scenario 2 would result in a reduction of the SCR ratio by 52 percentage points. The average change in SCR ratios is the highest for undertakings in Germany, and Netherlands.

Figure 3.1



EUR* = euro area, Denmark and Bulgaria

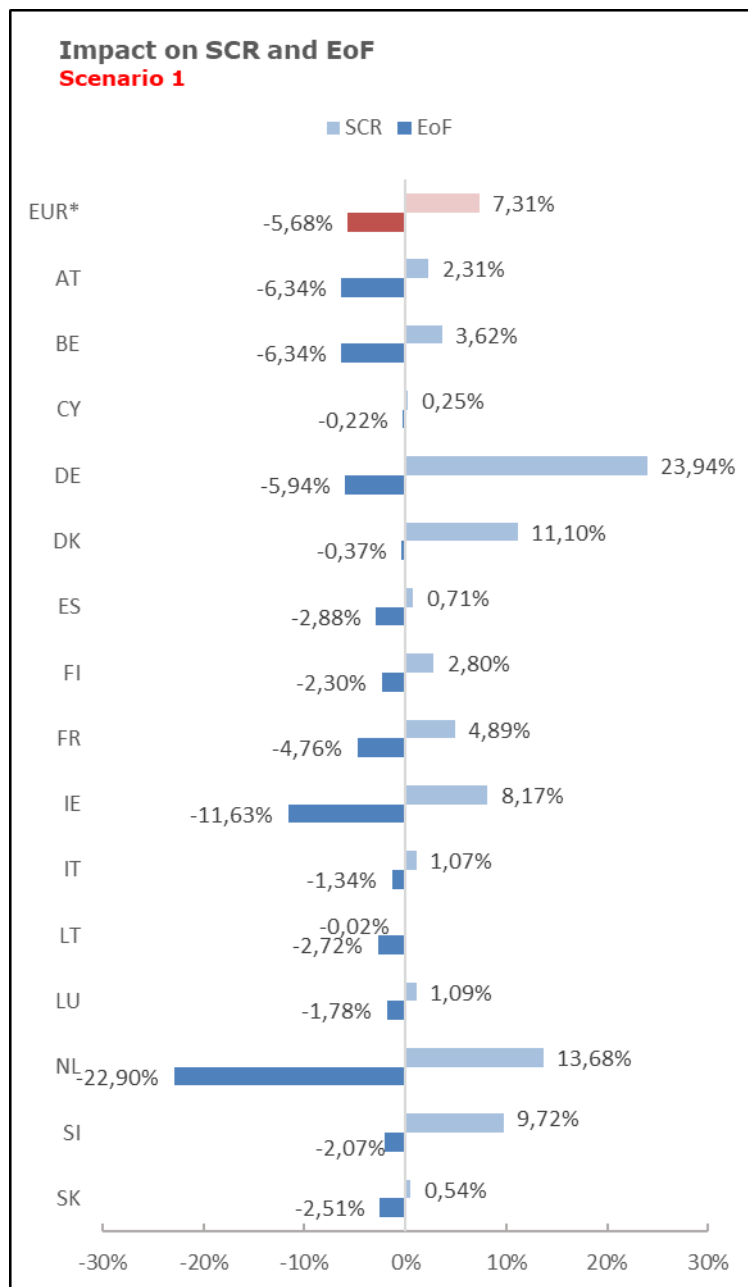
Figure 3.2



EUR* = euro area, Denmark and Bulgaria

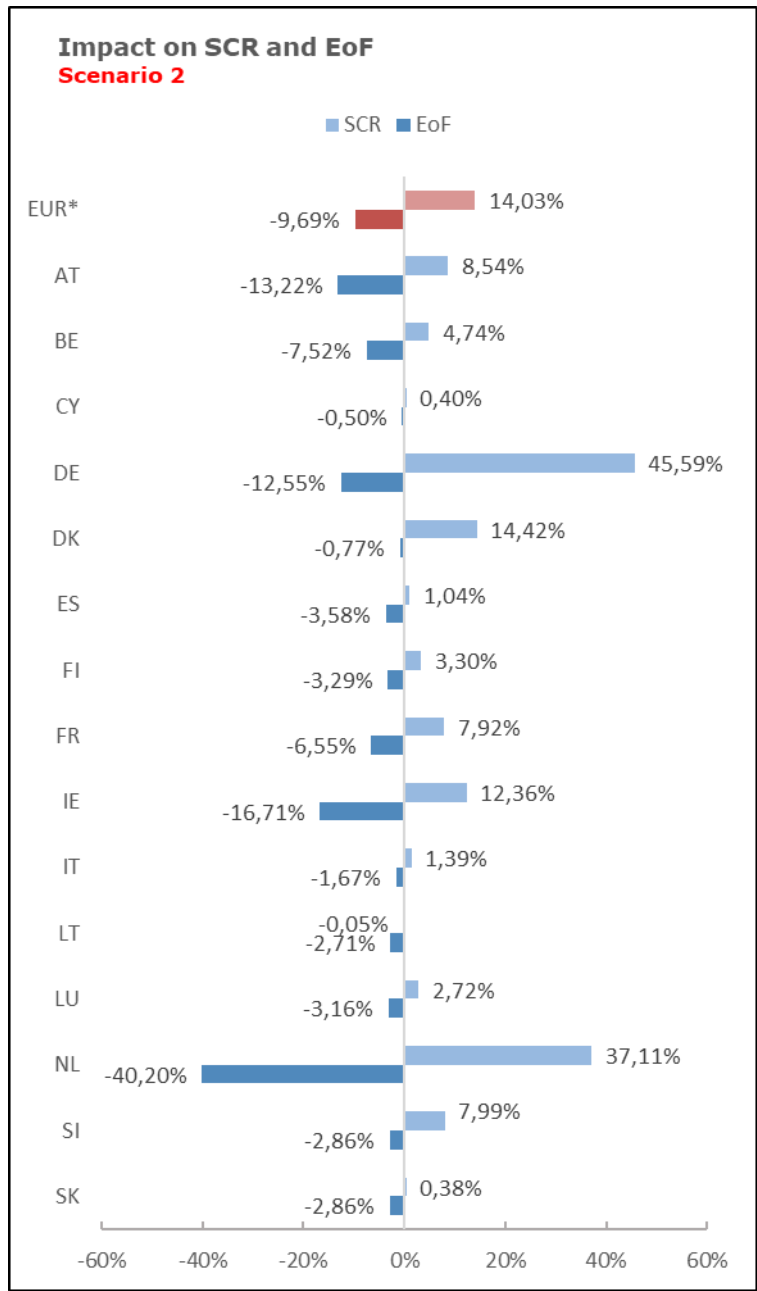
The following graphs outline the impact at EEA level and by country of the two specified scenarios on EoF and SCR.

Figure 3.3



EUR* = euro area, Denmark and Bulgaria

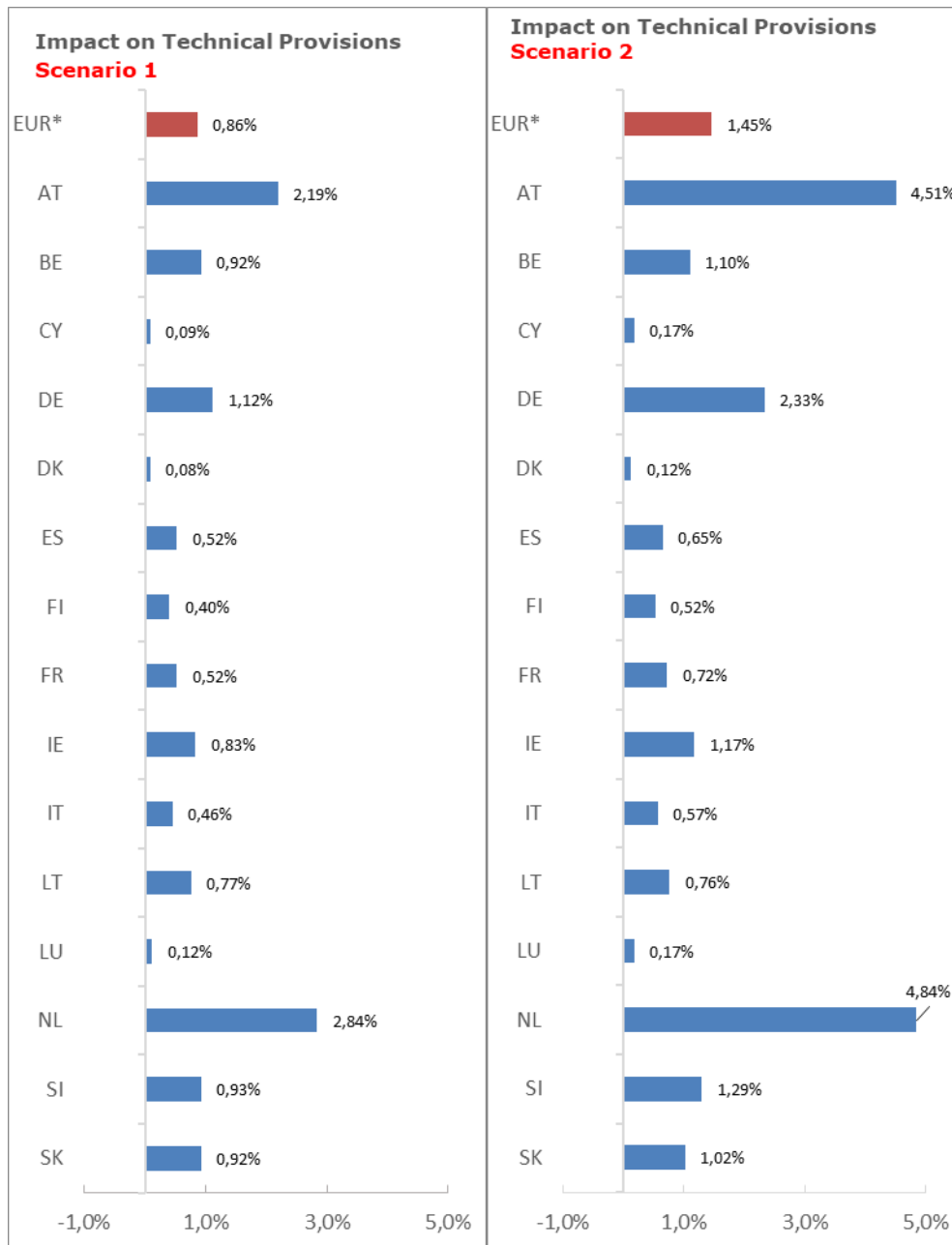
Figure 3.4



EUR* = euro area, Denmark and Bulgaria

The following graph outlines the impact at EUR* level and by country of the two specified scenarios on technical provisions. At the EUR* level, scenario 2 would result in an increase of technical provisions by 1.45% and scenario 1 would result in an increase of technical provisions by 0.86%.

Figure 3.5

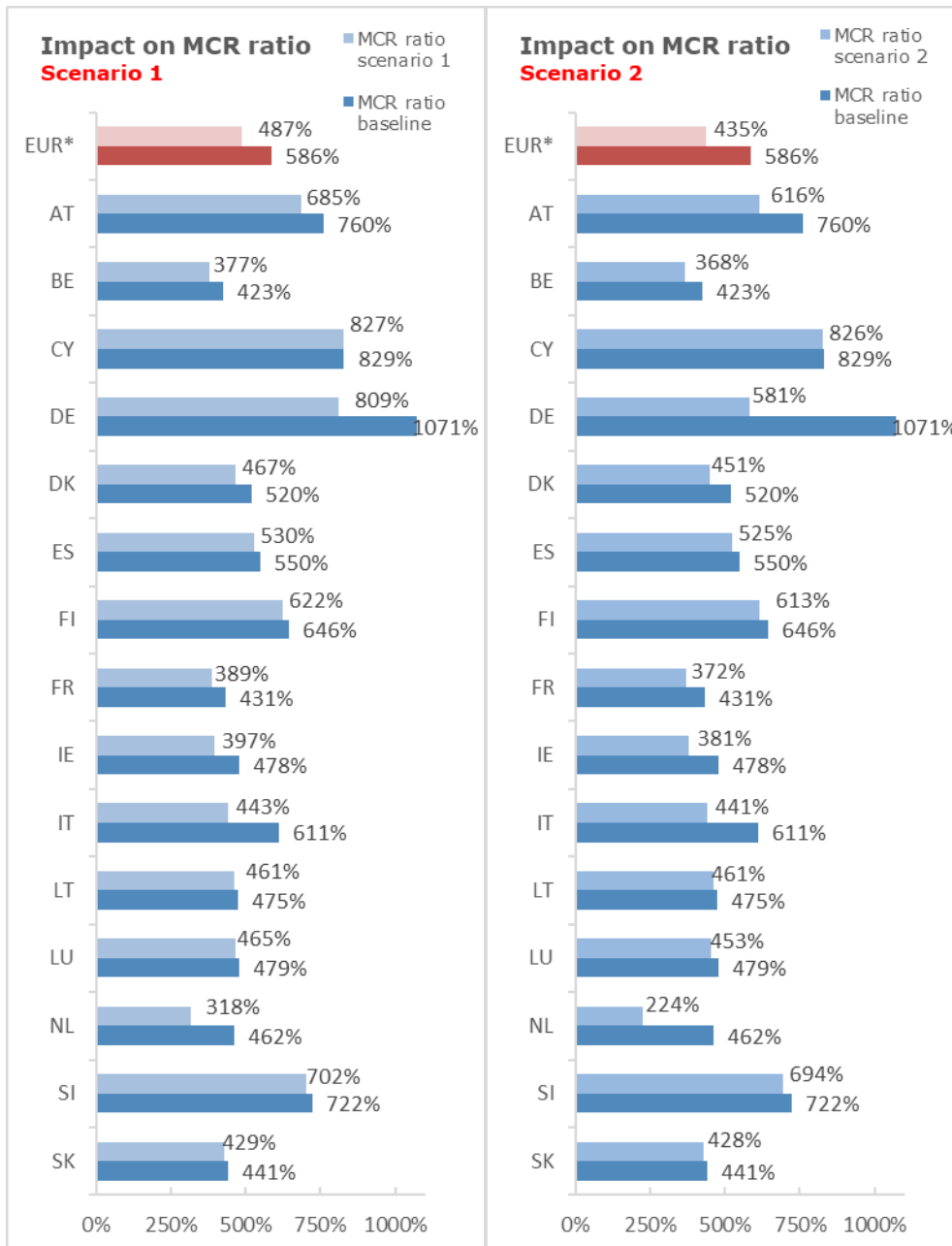


EUR* = euro area, Denmark and Bulgaria

The following graphs show the average impact of the two specified scenarios on the MCR ratio, the MCR and the eligible own funds to cover the MCR, at country and at EUR* level for undertakings in the data sample.

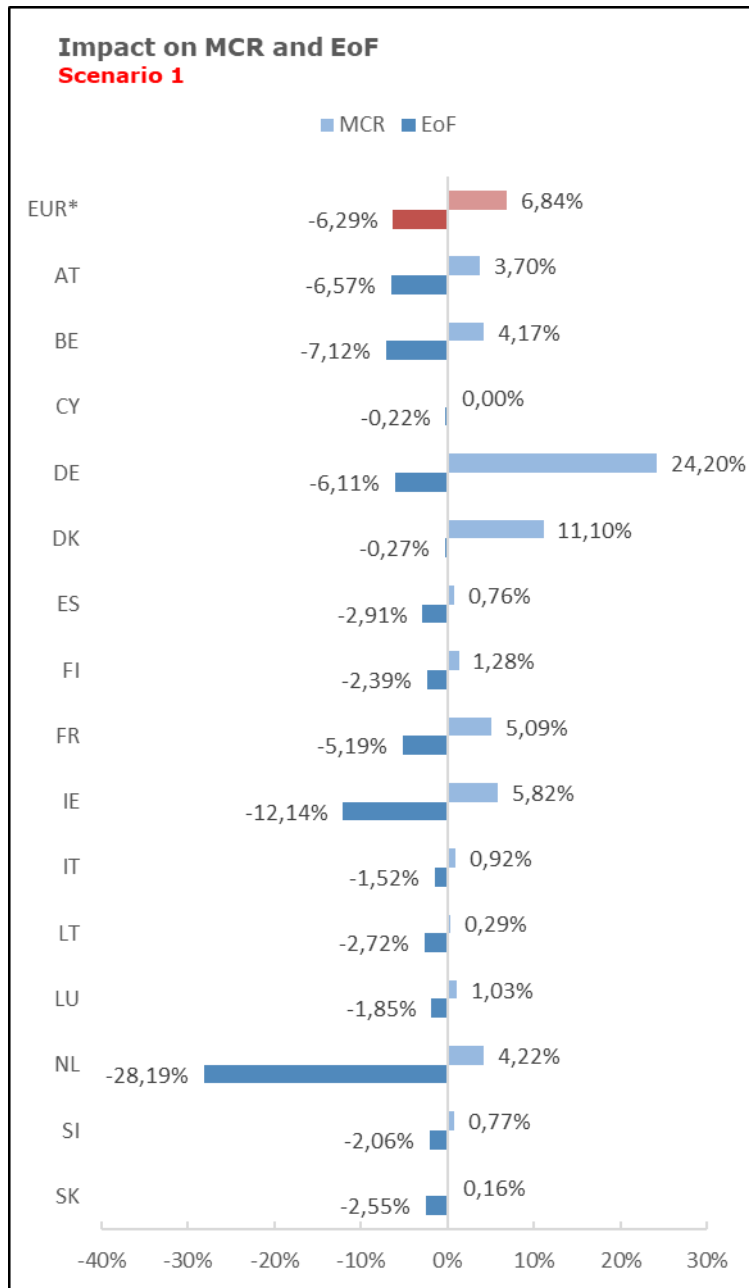
At the EUR* level, scenario 2 would result in a reduction of the MCR ratio by 151 percentage points and scenario 1 would result in a reduction of the SCR ratio by 99 percentage points.

Figure 3.6



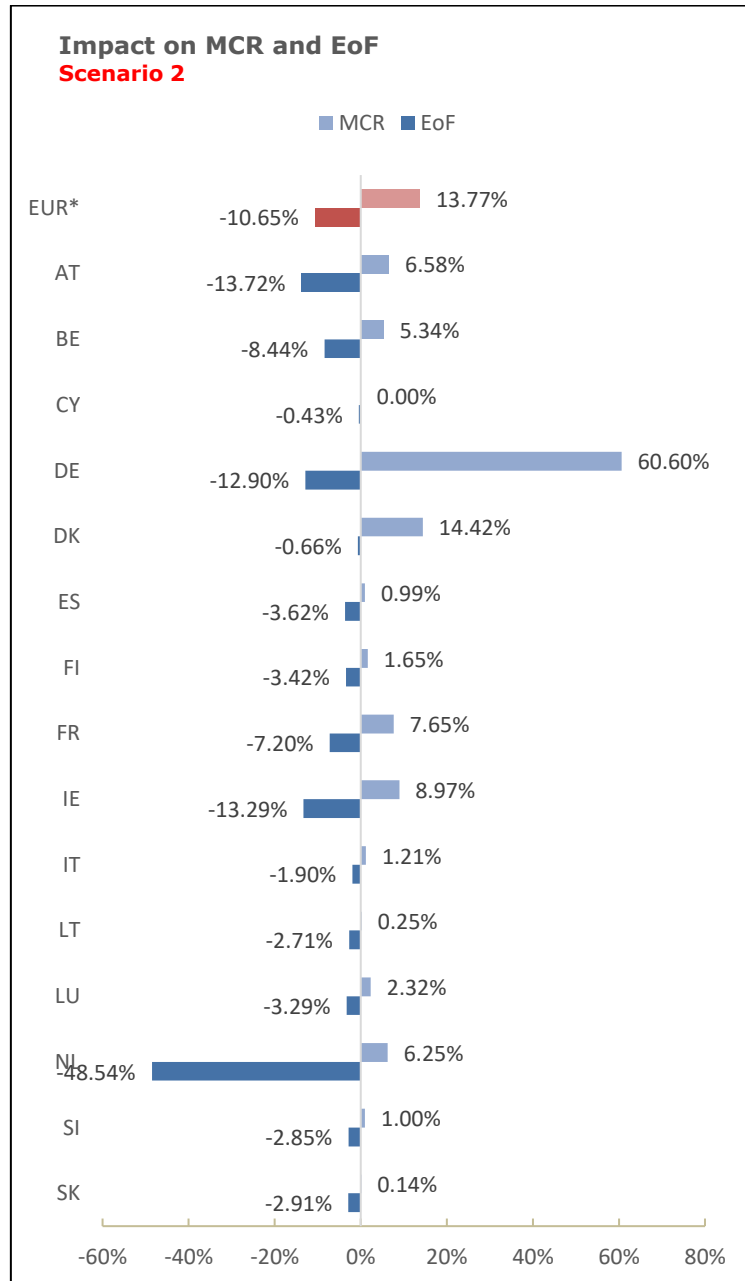
EUR* = euro area, Denmark and Bulgaria

Figure 3.7



EUR* = euro area, Denmark and Bulgaria

Figure 3.8



EUR = euro area, Denmark and Bulgaria*

III.2 Matching adjustment

According to Recital 31 of the Omnibus Directive, where insurance and reinsurance undertakings hold bonds or other assets with similar cash-flow characteristics to maturity, they are not exposed to the risk of changing spreads on those assets. In order to avoid changes of asset spreads from impacting on the amount of own funds of those undertakings, they should be allowed to adjust the relevant risk-free interest rate term structure in line with the spread movements of their assets.

Insurance and reinsurance undertakings may therefore apply a matching adjustment (MA) to the relevant risk-free interest rate term structure when they value their life insurance or reinsurance obligations, including annuities stemming from non-life insurance.

The MA can only be applied where specific requirements on the insurance and reinsurance obligations, the assets covering the obligations and the management of these obligations and assets are met (Article 77c of the Solvency II Directive). In particular, the expected asset cash flows must replicate each of the expected cash flows of the insurance or reinsurance obligations (cash-flow matching, Article 77c(1)(c) of that Directive).

The use of the matching adjustment under the Solvency II regime is subject to prior supervisory approval.

The matching adjustment is derived from the spreads between the interest rate that could be earned from the undertaking's assets and the basic risk-free interest rates. The matching adjustment is reduced by a fundamental spread that allows for expected loss from default and downgrade of the undertaking's assets.

Undertakings calculate the MA themselves, based on their own portfolios of assets. The fundamental spreads are specified in implementing acts.

The MA is applied in the same two European countries as at the implementation date of Solvency II. The 2016 EIOPA LTG report investigated the reasons why this was the case, at the time e.g. the majority of NSAs reported that no products matched the legal requirements for MA set out in Article 77b of the Solvency II Directive.

Use of the matching adjustment

34 insurance undertakings from Spain (15 undertakings) and the UK (19 undertakings) apply the MA. Undertakings are permitted to have more than one matching adjustment portfolio and each portfolio needs separate approval. The number of undertakings using the MA remained constant compared to the data as at 31 December 2017.

Figure 3.9

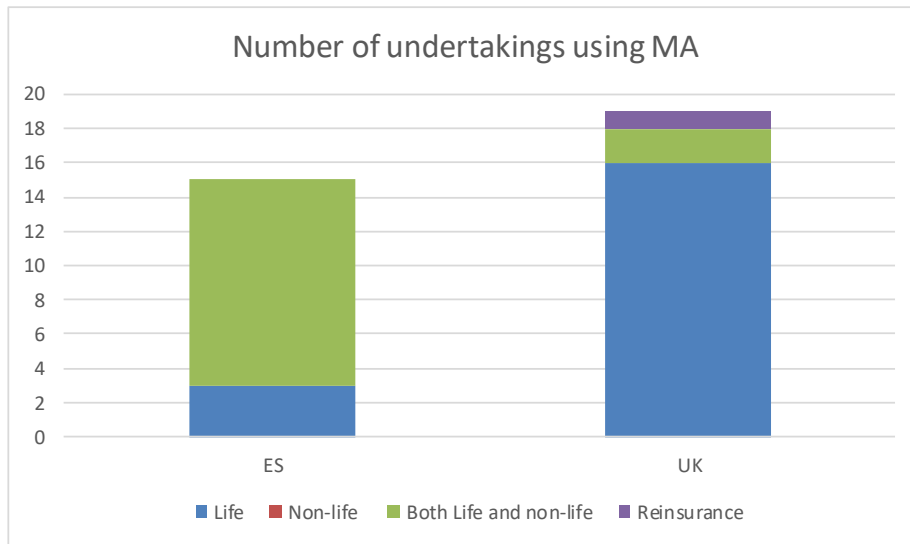
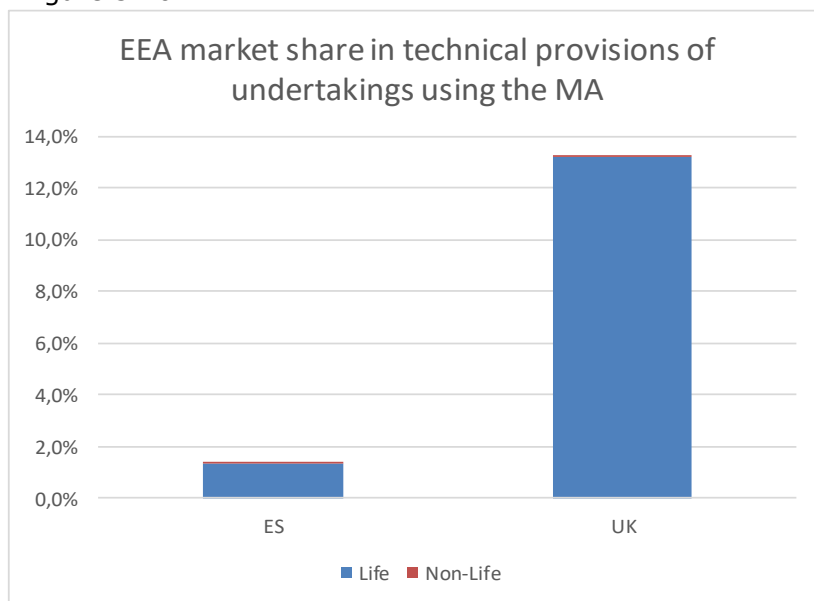


Table 3.1

Number of undertakings using MA					
Country	Life	Non-life	Both Life and non-life	Reinsurance	Total
ES	3	0	12	0	15
UK	16	0	2	1	19
EEA	19	0	14	1	34

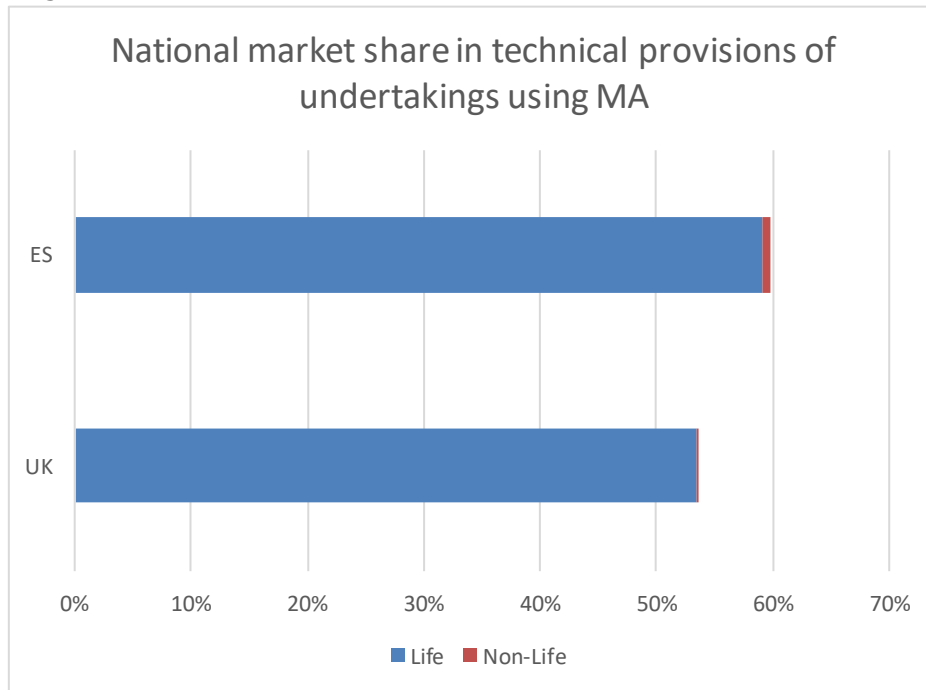
The technical provisions of undertakings applying the MA represent 15% of the total amount of technical provisions in the EEA. The technical provisions of undertakings applying the MA in Spain represent 1% and in the United Kingdom 13% of the overall technical provisions in the EEA.

Figure 3.10



The following graph displays the market share in terms of technical provisions at national level for undertakings using the MA. In the UK, undertakings representing 53% of the national market are using the MA. In Spain, undertakings representing 59% of the national market are using the MA.

Figure 3.11



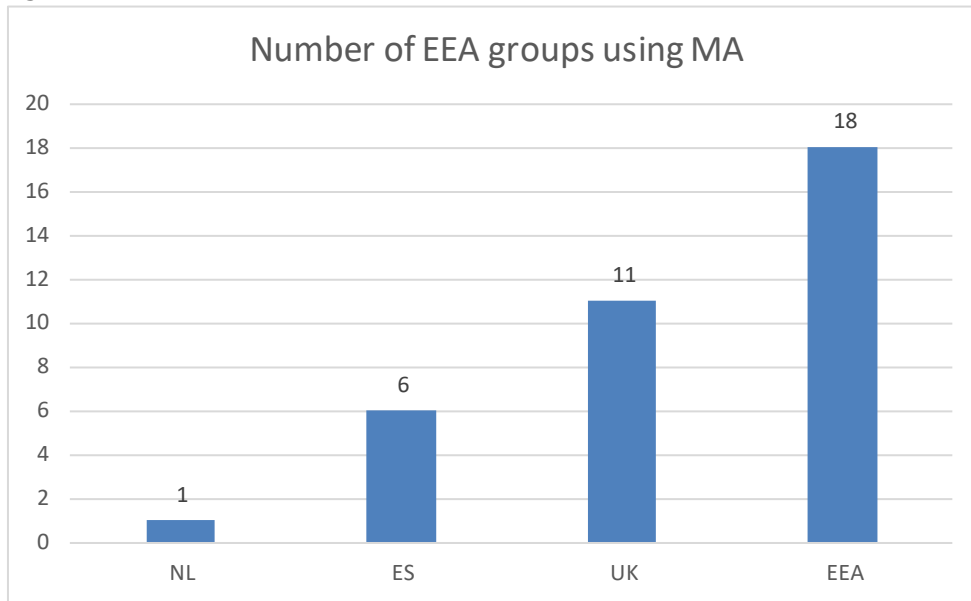
According to the Solvency II Directive it is possible to apply the TTP and the MA to the same liabilities simultaneously. 9 of the 15 undertakings in Spain are applying the TTP and the MA to the same liabilities simultaneously, which is 1 less undertaking than in the previous year. In UK, 18 of the 19 undertakings are applying both the TTP and the MA to the same liabilities, i.e. 3 more undertakings than in the end of 2017.

Table 3.2

Undertakings applying the TTP and MA to the same liabilities simultaneously			
Country	Number of undertakings	% EEA market share in TP	% National market share in TP
ES	9	1%	27%
UK	18	13%	50%
EEA	27	15%	-

The following diagram provides a summary of the number of EEA groups using the matching adjustment.

Figure 3.12

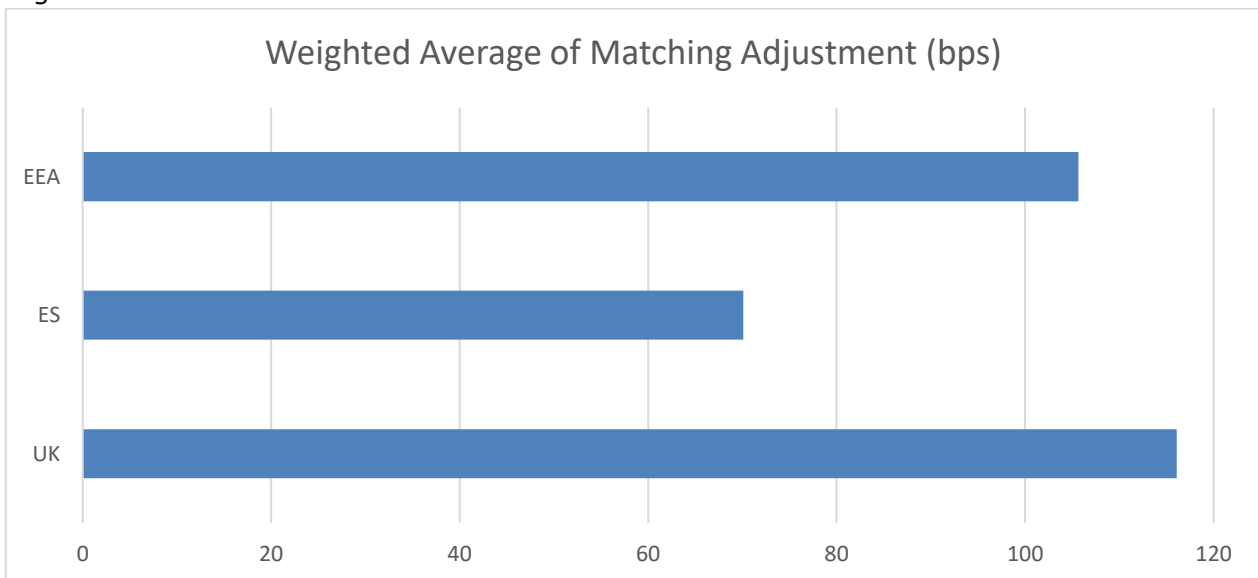


Impact on the financial position of undertakings

The results presented in this section are based on data from 2018 Quantitative Reporting Templates.

The following graph displays the average size of the MA for undertakings in countries where the MA is applied, as well as at EEA level.

Figure 3.13

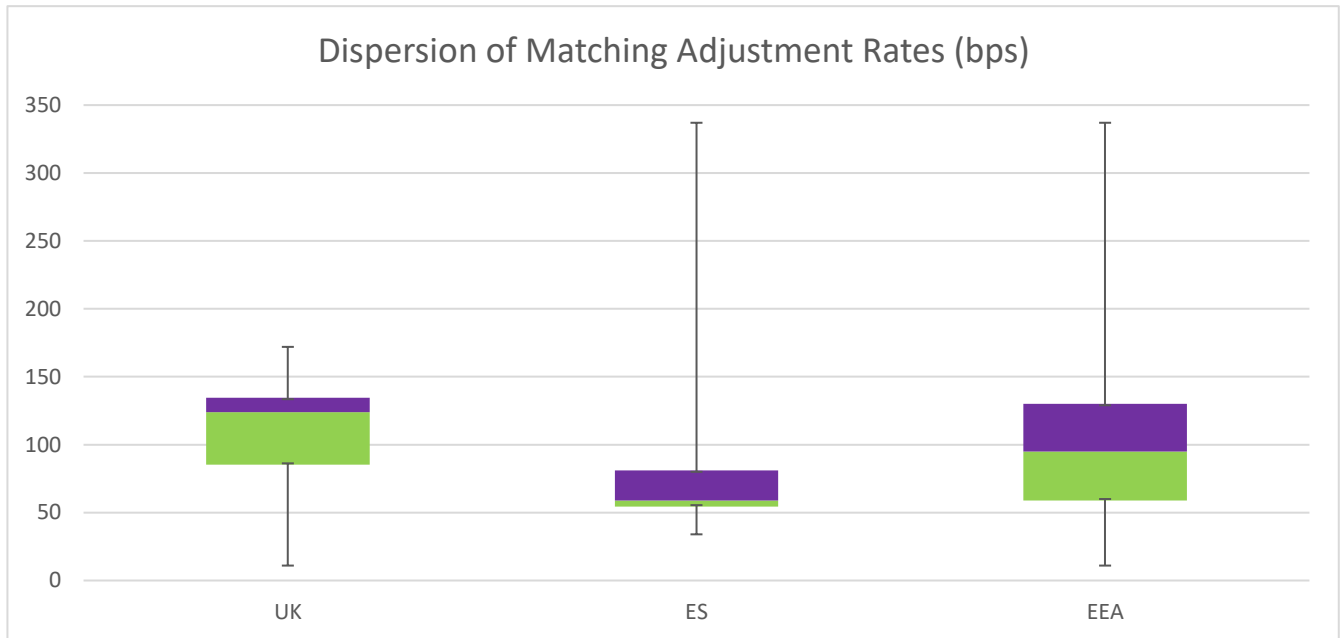


This shows that on a weighted average basis, the MA amounted to 70bps in Spain, 116bps in the UK and 106bps across the EEA. This compared to values in last year's report of 70bps for Spain, 92bps for the UK and 88bps across the EEA. The increase in the MA for UK undertakings was consistent with movements in credit spreads over the period.

The following graph illustrates the dispersion of individual values for the MA in the different markets, and at EEA level. The box and whisker plots show the dispersion for

MA in Spain, the UK and the EEA. The whiskers show the lowest and highest values recorded although one data point collected (from the UK) showed an MA of 0 so this point was omitted from the calculations. The box shows the 25th to 75th percentile with the change in colour representing the 50th percentile (or the median).

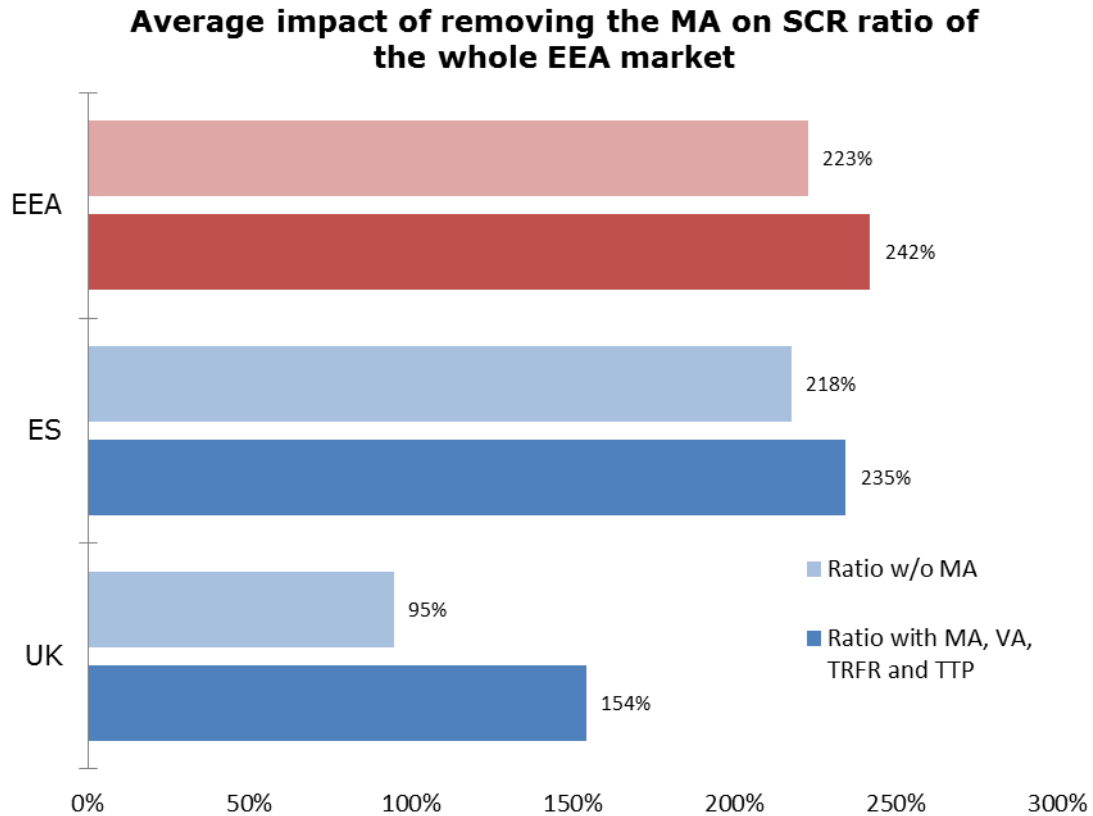
Figure 3.14



As the MA is used in two countries, Spain and United Kingdom, the impact at the EEA level is being driven by the impact in these two countries.

The following graph shows the overall impact of the use of the MA on the SCR ratio for the whole market of the countries where the MA is used. For those countries, it includes both undertakings using and not using the MA. For this sample, the MA results on average in an increase of the SCR ratio by 19 percentage points.

Figure 3.15



The following graphs display the overall impact of the use of the MA on the SCR ratio for undertakings that apply this measure. The impact is shown at EEA and at country level. The first graphs shows the SCR ratio with (dark blue) and without (light blue) the MA. The red bars are for the EEA level. The second graph shows the impact in percentage points.

At the EEA level, removing the MA result on average in a decrease of the SCR ratio by 98 percentage points. In comparison with last year, the average impacts have increased but this is due to the increase of the average impact in one of the two jurisdictions concerned. In this jurisdiction, the increase of the MA benefit can be explained by the increase of corporate bond spreads. It is also noted that undertakings using the MA are still on average very dependant of the measure in this jurisdiction. In the other jurisdiction, on the contrary, the average impact has slightly decreased, explained by the decrease of the government bond spreads.

Figure 3.16

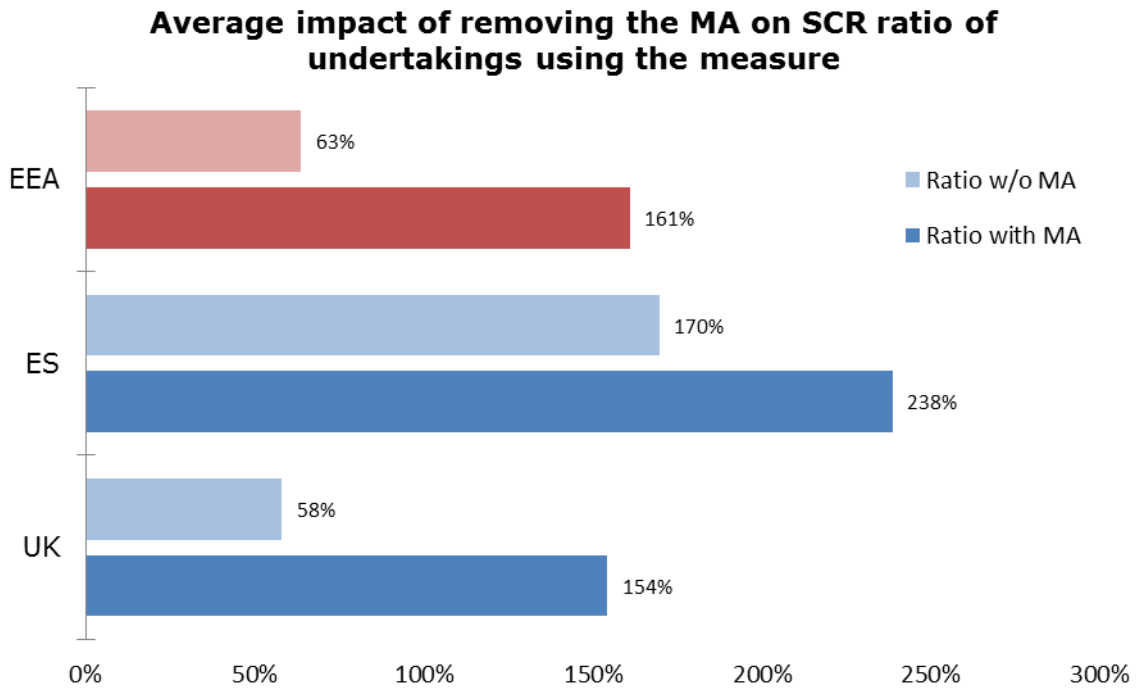
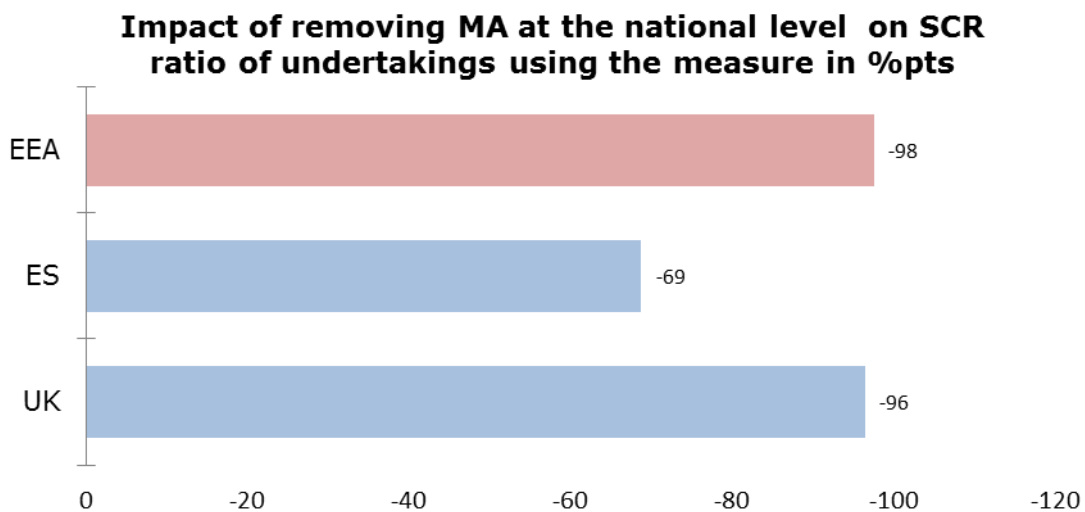


Figure 3.17

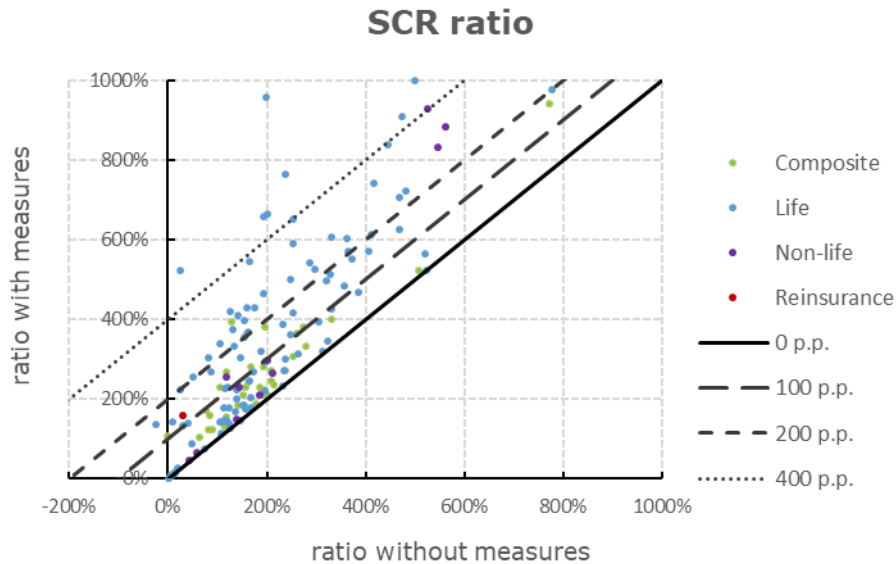


The following graph displays the impact of removing the MA on the SCR ratio of every undertaking using this measures. Each dot in the diagram represents one undertaking, comparing the individual SCR ratio against the estimated SCR ratio without the MA. The type of each undertaking is indicated by the colour of the dot.

In terms of SCR ratio, 77% reported an absolute impact of less than 100 percentage points.

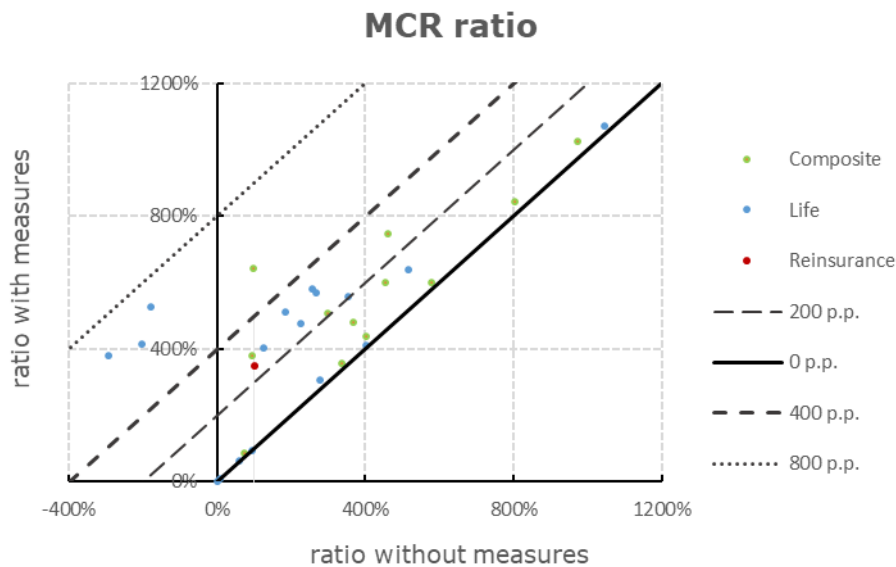
56% of undertakings using the measure reported an SCR ratio without MA below 100%. 9% of the undertakings using the MA reported negative eligible own funds to cover the SCR without MA.

Figure 3.18



The following graph displays the impact of removing the MA on the MCR ratio of every undertaking using the MA, comparing the individual MCR ratio against the estimated MCR ratio without the MA.

Figure 3.19



In terms of MCR ratio, 53% reported an absolute impact of less than 100 percentage points.

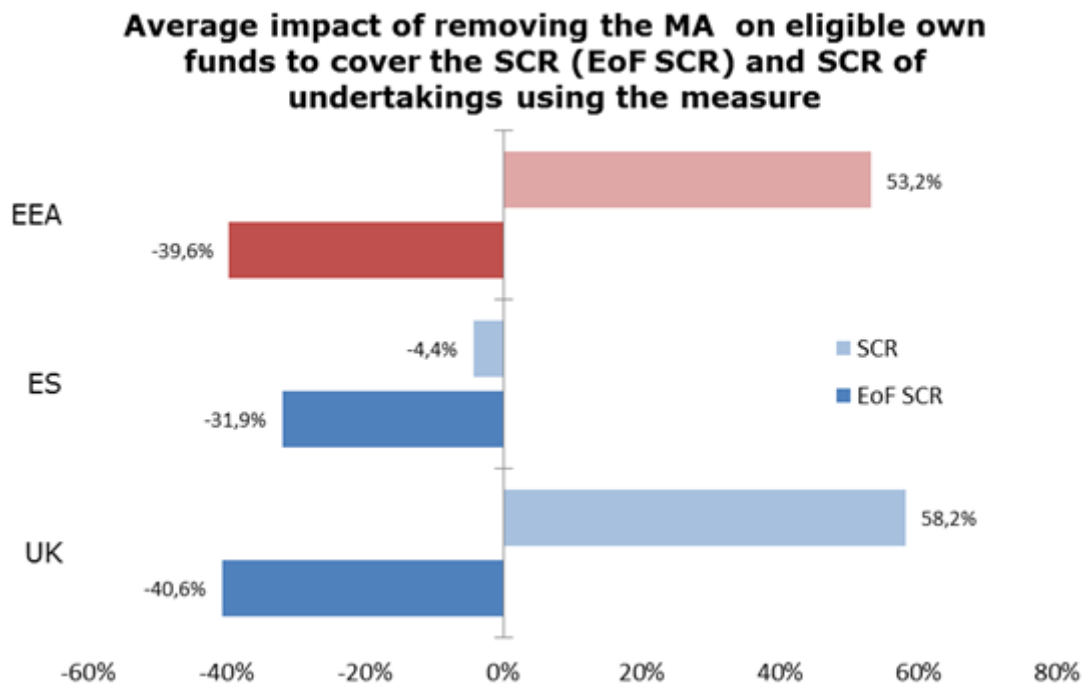
33% of undertakings using the measure reported an MCR ratio without MA below 100%. 8% of undertakings using the MA reported negative eligible own funds to cover the MCR without MA.

The following graph shows the impact of removing the MA on the SCR (light blue) and on the eligible own funds to cover the SCR (dark blue). The red bars are for the EEA level. On average, eligible own funds to cover the SCR would decrease by 40%, while the SCR would increase by 53% if the MA were removed. When compared to last year's results, we notice that there is a increased impact of MA on the EoF available to cover

the SCR. At EEA level, this is because of an increase in one of the two MA jurisdictions . This has already been illustrated in the 'Weighted Average of MA' graph above.

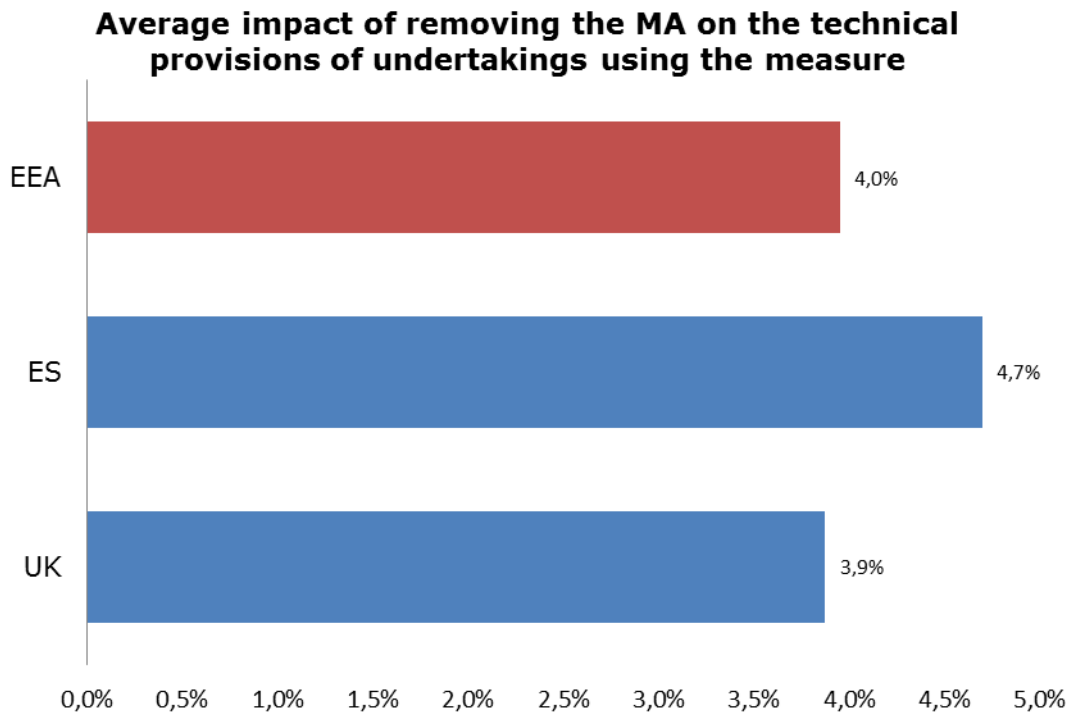
Regarding the impact of the MA on the SCR shown in the graph below, note that removing the MA typically increases the capital requirement for spread risk which leads to an increase in the SCR. At the same time, where the MA is applied, no diversification between the MA portfolio and the remaining part of the portfolio can be recognized according to articles 216 and 217 of the Solvency II Delegated Regulation. With the removal of the MA, such diversification effect can be taken into account which leads to a decrease in the SCR. For the Spanish undertakings the latter effect overweighs and thus the effect observed when removing this measure is a reduction of the SCR due to the recognition of diversification between the matching adjustment portfolio and the remaining part of the undertaking.

Figure 3.20



The following graph displays the impact of removing the MA on the value of technical provisions (TP) at EEA and national level. The average increase in technical provisions without the MA for those undertakings applying the measure would be around 4% at EEA level.

Figure 3.21



The following graph shows the impact of the MA on the MCR ratio at country and at EEA level for undertakings using that measure. Without the MA the MCR ratio would decrease on average by 320 percentage points.

Figure 3.22

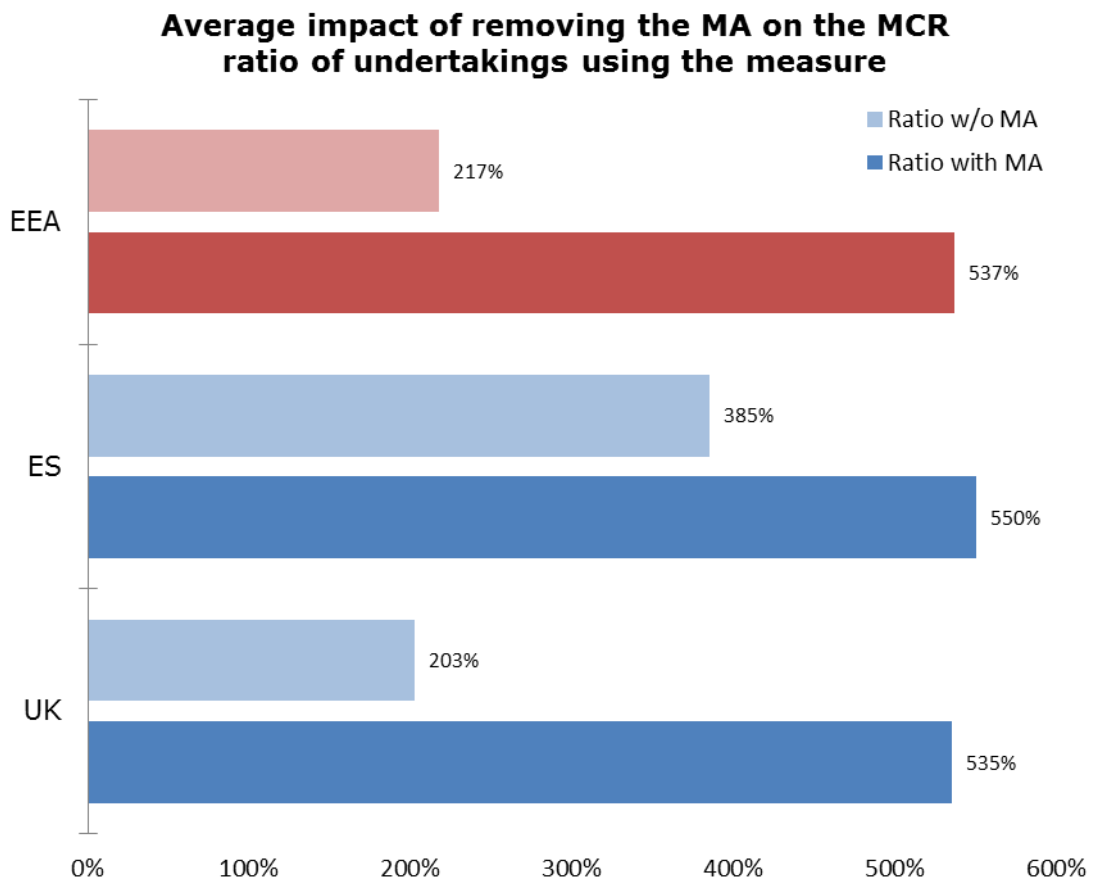
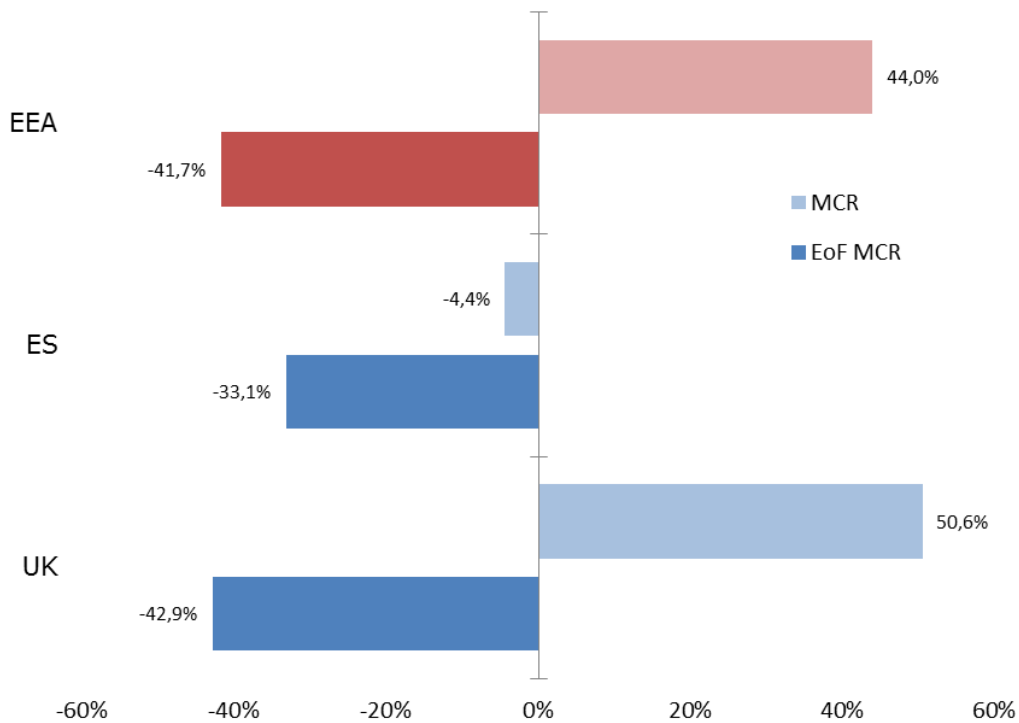


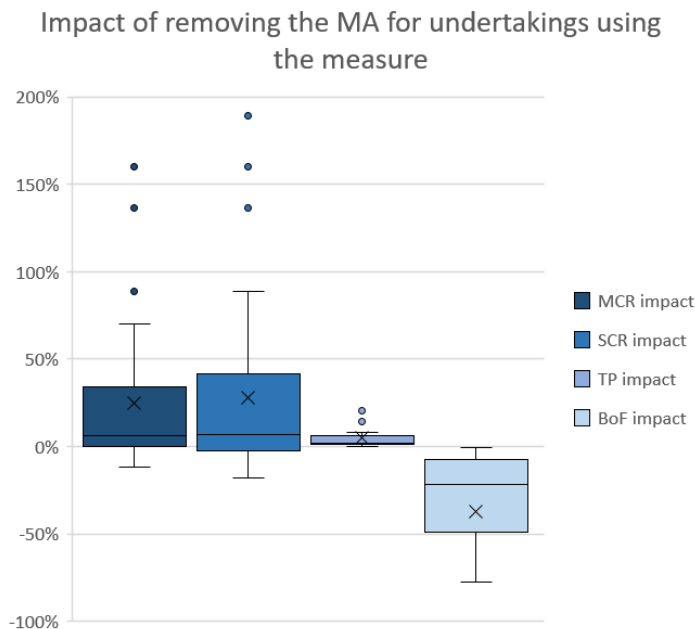
Figure 3.23

Average impact of removing the MA on eligible own funds to cover the MCR (EoF MCR) and MCR of undertakings using the measure



The box-plots below illustrate how the impact of removing the MA is distributed across undertakings.²³

Figure 3.24



Impact on the investments of undertakings

²³ The bottom (respectively, top) of the blue box represents the lower quartile (respectively, higher quartile) of the data set. The black band inside the box is always the middle quartile (50th percentile or median). The end of the lines extending from the boxes (called whiskers) represent the upper and lower boundaries of 1,5 interquartile-ranges. Outliers are plotted as individual points.

The following graphs compare the average asset portfolio of undertakings applying the MA. Please note that the information in this section does not address specific consequences for the investments resulting from the matching requirements when applying the MA.

The tables below show the average investment allocation of undertakings using the MA in the two countries using the MA, ES and UK.

Table 3.3

Investment allocation at EEA and country level of undertakings applying the MA								
Country	Government bonds	Corporate bonds	Unit linked/index linked	Equity	Collective Investment Undertakings	Mortgages and loans	Cash and deposits	Other
ES	67%	15%	7%	2%	0%	0%	7%	1%
UK	11%	20%	37%	6%	8%	7%	6%	3%

Table 3.4

Investment allocation at EEA and country level (without assets held for IL & UL contracts) of undertakings applying the MA							
Country	Government bonds	Corporate bonds	Equity	Collective Investment Undertakings	Mortgages and loans	Cash and deposits	Other
ES	72%	16%	2%	0%	0%	8%	2%
UK	18%	32%	10%	13%	11%	10%	5%

The tables below show the credit quality of the portfolio of government and corporate bonds. This is shown separately for undertakings applying the MA and the undertakings not applying the MA respectively, for each of the countries ES and UK separately. These tables indicate that for each of these two countries there are some differences in credit quality of bonds, between undertakings applying the MA or not applying the MA. However, when comparing these data with the differences in the credit quality of bonds between countries, as presented in section II.4 of the report, the differences within both countries ES and UK between undertakings applying the MA or not applying the MA are relatively limited. In other words, the "country effect" is considerably larger than the effect of using the MA or not using the MA. Furthermore it is not possible to prove a causality in this difference, as the subset of undertakings applying the MA in ES and UK might allocate assets differently from the other insurers independent of the MA. A final note is, that the allocation and quality of assets of MA undertakings has not changed materially from 2017 to 2018. The only exception is that ES government bonds were rated up in the meantime, leading to an increase in the government bond quality of ES undertakings.

Table 3.5

Credit quality of government bonds for undertakings not using the MA or using the MA, for ES and UK (without assets held for IL & UL contracts)						
Country	Use of the measures	CQS0	CQS1	CQS2	CQS3	CQS>3
ES	No use of MA	4%	8%	41%	46%	1%
	Use of the MA	1%	0%	74%	25%	0%
UK	No use of MA	25%	70%	3%	1%	0%
	Use of the MA	10%	85%	2%	2%	0%

Table 3.6

Credit quality of corporate bonds for undertakings not using the MA or using the MA, for ES and UK (without assets held for IL & UL contracts)						
Country	Use of the measures	CQS0	CQS1	CQS2	CQS3	CQS>3
ES	No use of MA	3%	13%	29%	51%	4%
	Use of the MA	1%	16%	34%	46%	3%
UK	No use of MA	8%	17%	42%	31%	2%
	Use of the MA	8%	11%	41%	38%	1%

The graphs below show the duration of investments in government bonds and corporate bonds for undertakings using the MA and undertakings not using the MA in ES and UK.

Figure 3.25

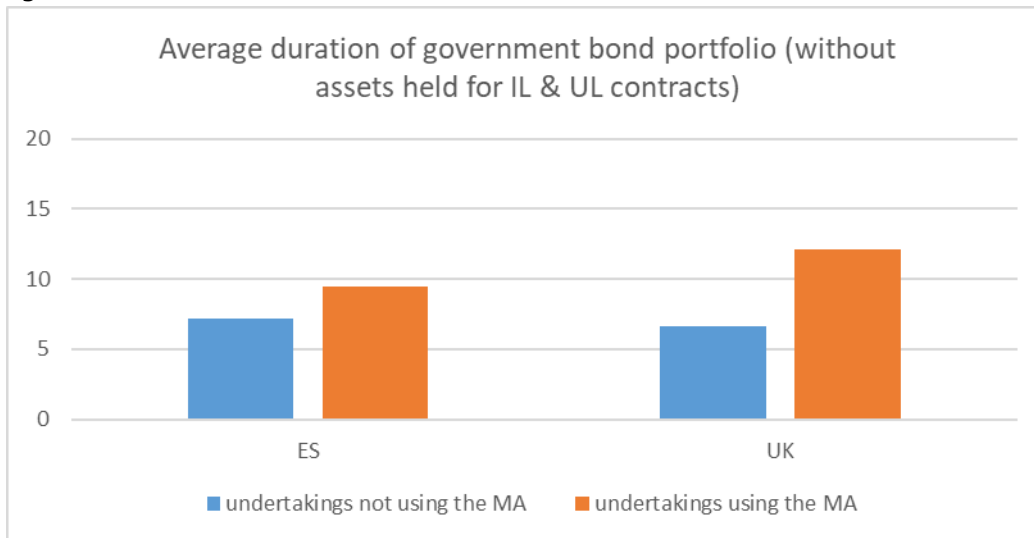
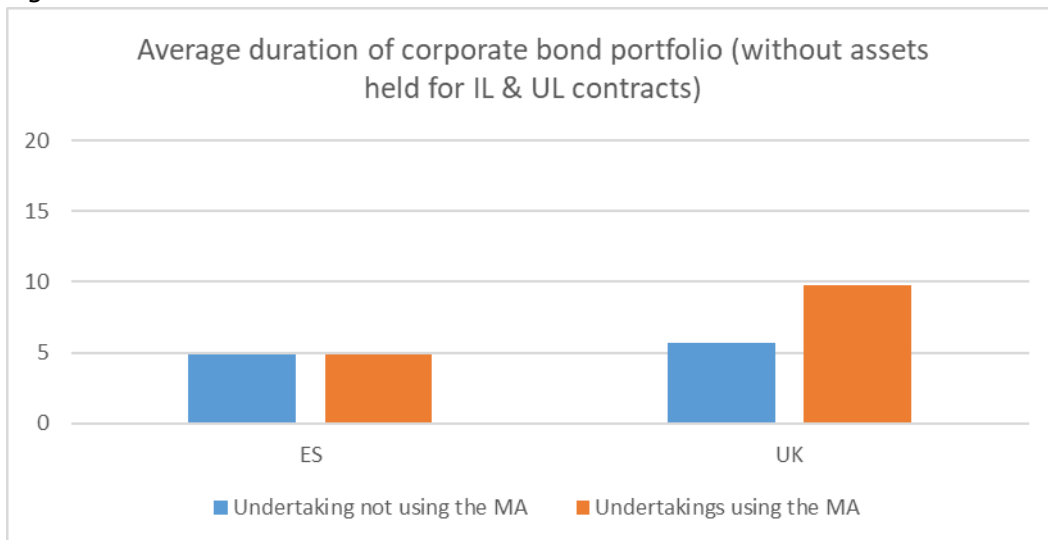


Figure 3.26



Impact on consumers and products

The following table sets out the share of gross written premiums of undertakings using the MA compared to the total gross premiums written by all undertakings, for each line of business (columns 1 to 6) the total life insurance and life reinsurance business (column 7), and the total for non-life insurance and reinsurance business (column 8). The table is based on data reported by undertakings in the annual QRTs for 2018.

Table 3.7

Country	1. Health insurance	2. Insurance with profit participation	3. Index-linked and unit-linked insurance	4. Other life insurance	5. Health reinsurance	6. Life reinsurance	7. Total life insurance and reinsurance	8. Total non-life insurance and reinsurance
ES	0.0%	26.5%	63.7%	69.4%	0.0%	1.8%	56.0%	6.5%
UK	47.1%	93.6%	28.9%	93.3%	19.1%	39.4%	44.3%	1.7%
EEA	1.6%	5.8%	14.5%	51.5%	0.0%	0.0%	0.7%	0.7%

With respect to the insurance products offered by insurance undertakings applying the MA in Spain, the following characteristics have been reported by the NSA:

- the purpose of the products is saving for retirement,
- the insurance obligations for the products fall in the Solvency II line of business "other life insurance",
- the products guarantee life annuities or a lump sum payment,
- the products offer a guaranteed interest rate.

In the United Kingdom, MA-eligible liabilities primarily consist of 'individual' annuities and 'bulk-purchase' annuities. At a basic level an annuity is a contract that pays an income to the policyholder in return for an upfront premium, although as with any contract there are variants on this core theme (for example, in some cases the income stream increases in line with an inflation index). An 'individual' annuity is sold to individual policyholders, usually at retirement. 'Bulk-purchase' annuities are products that are generally sold to pension funds, which purchase an annuity-style asset to cover some or all of the liabilities of the pension fund. These products fall under the Solvency II line of business "other life insurance".

III.3 Volatility adjustment

Recital 32 of the Omnibus II Directive states that in order to prevent pro-cyclical investment behaviour, insurance and reinsurance undertakings should be allowed to adjust the relevant risk-free interest rate term structure to mitigate the effect of exaggerations of bond spreads.

For that purpose insurance and reinsurance undertakings can apply a volatility adjustment (VA) to the risk-free interest rate term structure. The VA is based on 65% of the risk-corrected spread between the interest rate that could be earned from a reference portfolio of assets and the risk-free interest rates without any adjustment. The reference portfolio is representative for the assets which insurance and reinsurance undertakings are invested in to cover their insurance and reinsurance obligations.

Member States may require prior approval by supervisory authorities for insurance and reinsurance undertakings to apply a VA.

The VA is derived per currency. It is the same for all insurance and reinsurance obligations of a currency unless a country specific increase applies.

Undertakings that apply a VA to a portfolio of insurance or reinsurance obligations shall not apply a MA to those obligations.

Article 77d(6) of the Solvency Directive states that by way of derogation from Article 101, the SCR shall not cover the risk of loss of basic own funds resulting from changes of the VA.

Use of the volatility adjustment

The VA is used by 660 undertakings in 22 countries.

Figure 3.27

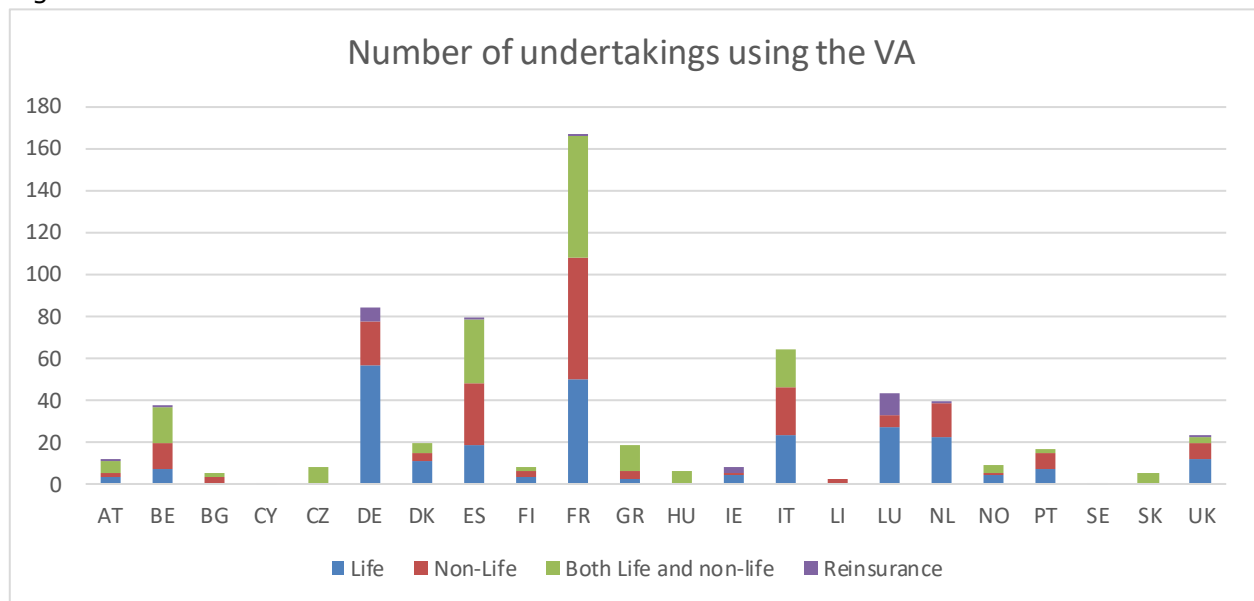
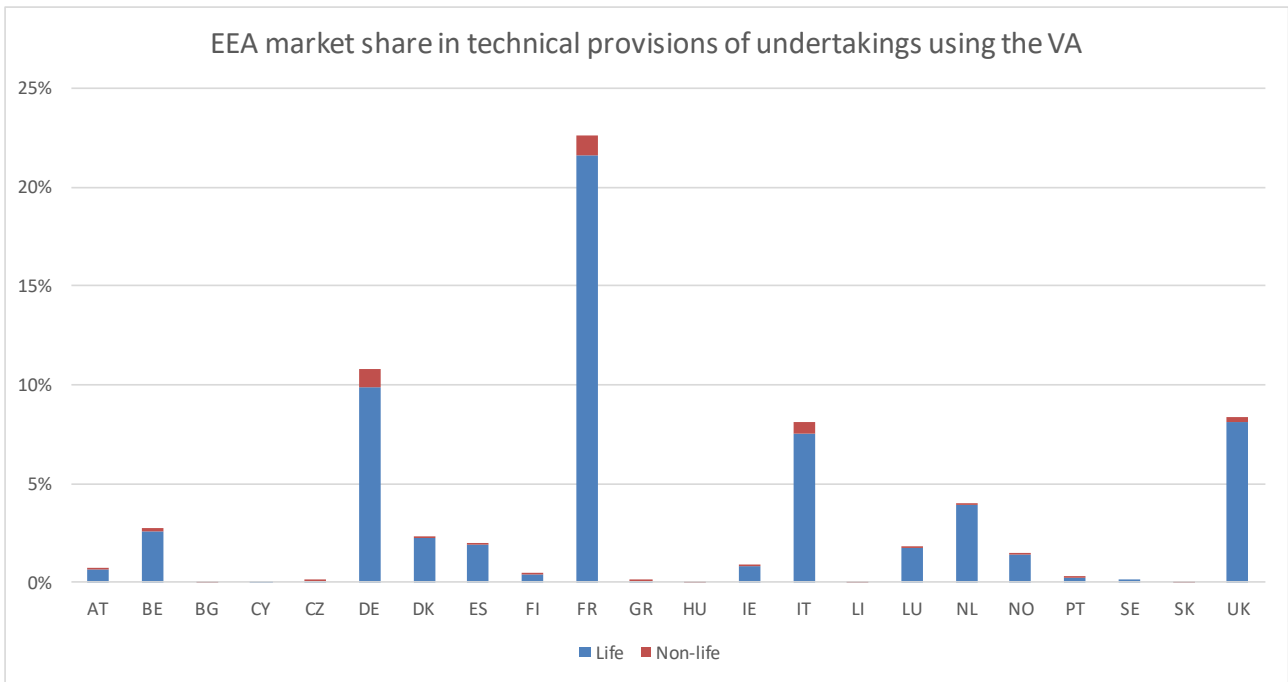


Table 3.8

Number of undertakings using the VA							
Country	Life	Non-Life	Both Life and non-life	Reinsurance	Total	Last year	Variation from last year
AT	3	2	6	1	12	14	-2
BE	7	13	17	1	38	39	-1
BG	1	2	2	0	5	7	-2
CY	1	0	0	0	1	1	0
CZ	0	1	7	0	8	8	0
DE	57	21	0	6	84	80	4
DK	11	4	5	0	20	25	-5
ES	19	29	31	1	80	86	-6
FI	3	3	2	0	8	10	-2
FR	50	58	58	1	167	175	-8
GR	2	4	13	0	19	21	-2
HU	0	1	5	0	6	7	-1
IE	4	1	0	3	8	6	2
IT	23	23	18	0	64	66	-2
LI	1	1	0	0	2	3	-1
LU	27	6	0	10	43	48	-5
NL	22	17	0	1	40	44	-4
NO	4	1	4	0	9	9	0
PT	7	8	2	0	17	17	0
RO	0	0	0	0	0	1	-1
SE	1	0	0	0	1	1	0
SK	0	0	5	0	5	5	0
UK	12	8	2	1	23	23	0
EEA	255	203	177	25	660	696	-36

The total number of undertakings using the VA in the EEA decreased by 36 in comparison to last year's report.

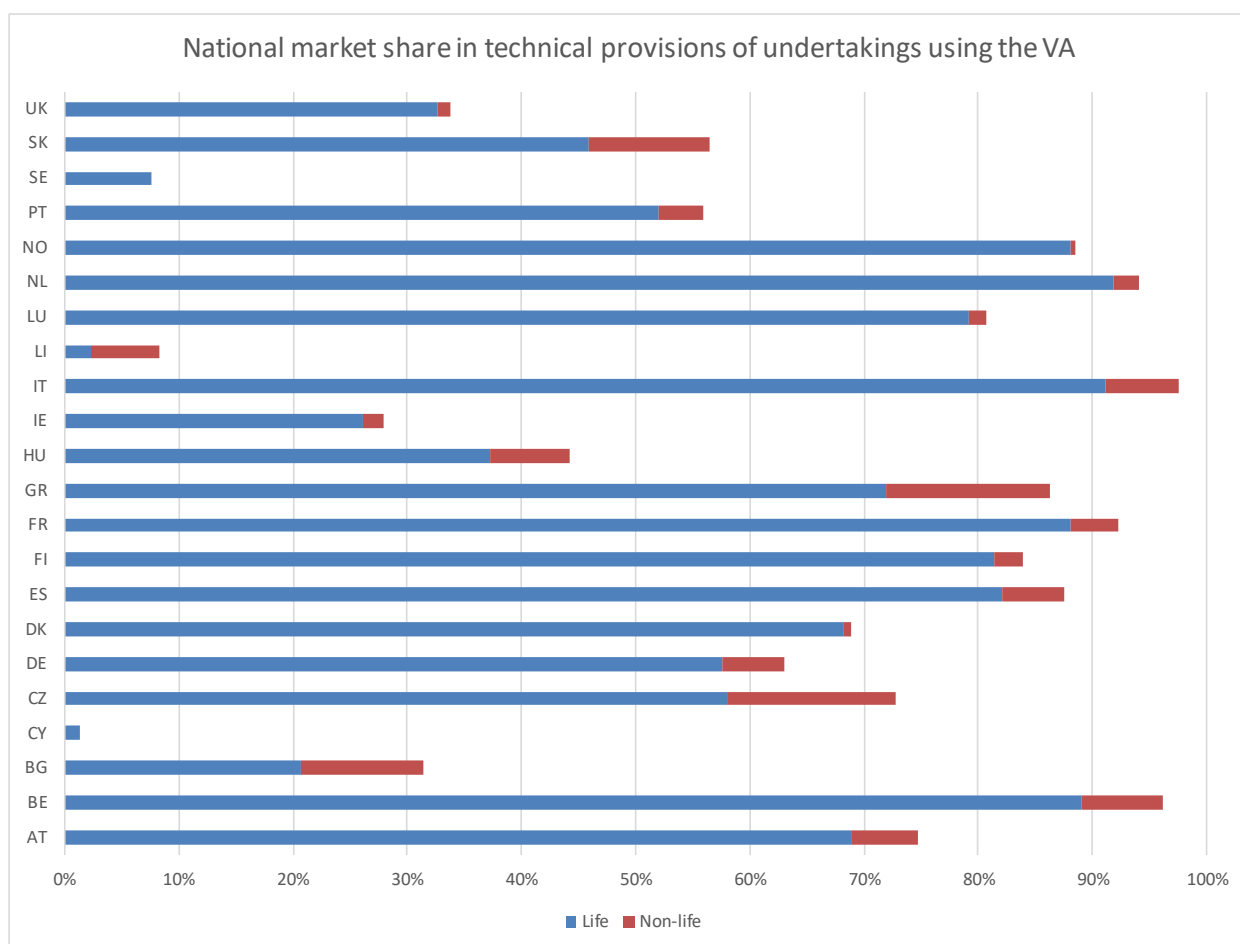
Figure 3.28



Insurance and reinsurance undertakings using the VA represent 67% of the overall amount of technical provisions at EEA level.

The following graph shows how widespread the use of the VA is for each country. It gives the technical provisions of undertakings that use the VA as a percentage of their market share. The graph clearly shows the importance of the VA in many countries, where undertakings using the VA together hold more than 75% of the national amount of technical provisions. Most of the technical provisions for life insurance liabilities are held by undertakings using the VA.

Figure 3.29



According to the Solvency II Directive it is possible to apply simultaneously the TTP or the TRFR and the VA to the same liabilities. At EEA level, undertakings with 18% of the overall amount of technical provisions are applying the VA and the TTP to the same liabilities.

Table 3.9

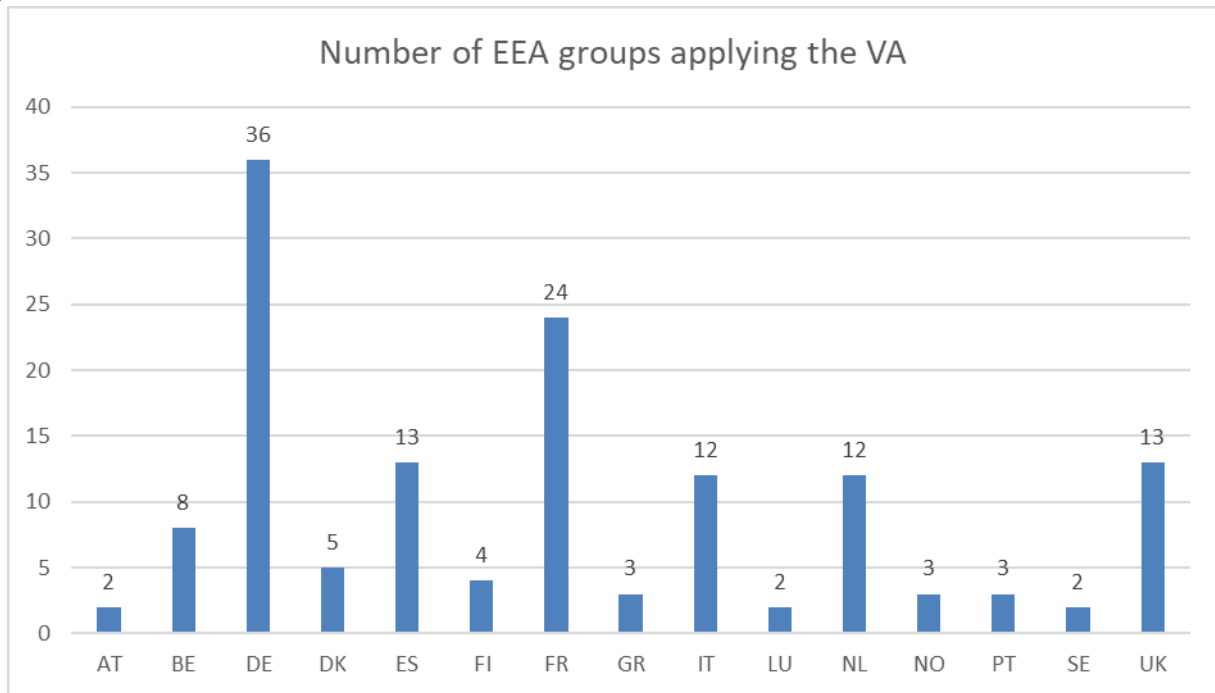
Undertakings applying simultaneously TTP and VA to the same liabilities			
Country	Number of undertakings	% EEA market share in TP	% National market share in TP
AT	2	(*)	(*)
BE	1	(*)	(*)
DE	47	4%	24%
ES	20	1%	36%
FI	6	0%	74%
FR	19	3%	12%
GR	1	(*)	(*)
IT	1	(*)	(*)
NO	5	1%	82%
PT	9	0%	41%
UK	12	7%	30%
EEA	123	18%	-

(*) Data from these countries are not disclosed for confidentiality reasons because the number of undertakings concerned is lower than 3.

It may be insightful to compare the table above with the tables on undertakings and the market share of their technical provisions with the tables on the use of only the VA or only the TTP. A comparison shows that for some jurisdictions, e.g. NO and FI, there is a large overlap between the use of the TTP and the use of the VA.

The following diagram shows the number of EEA groups using VA.

Figure 3.30



Impact on the financial position of undertakings

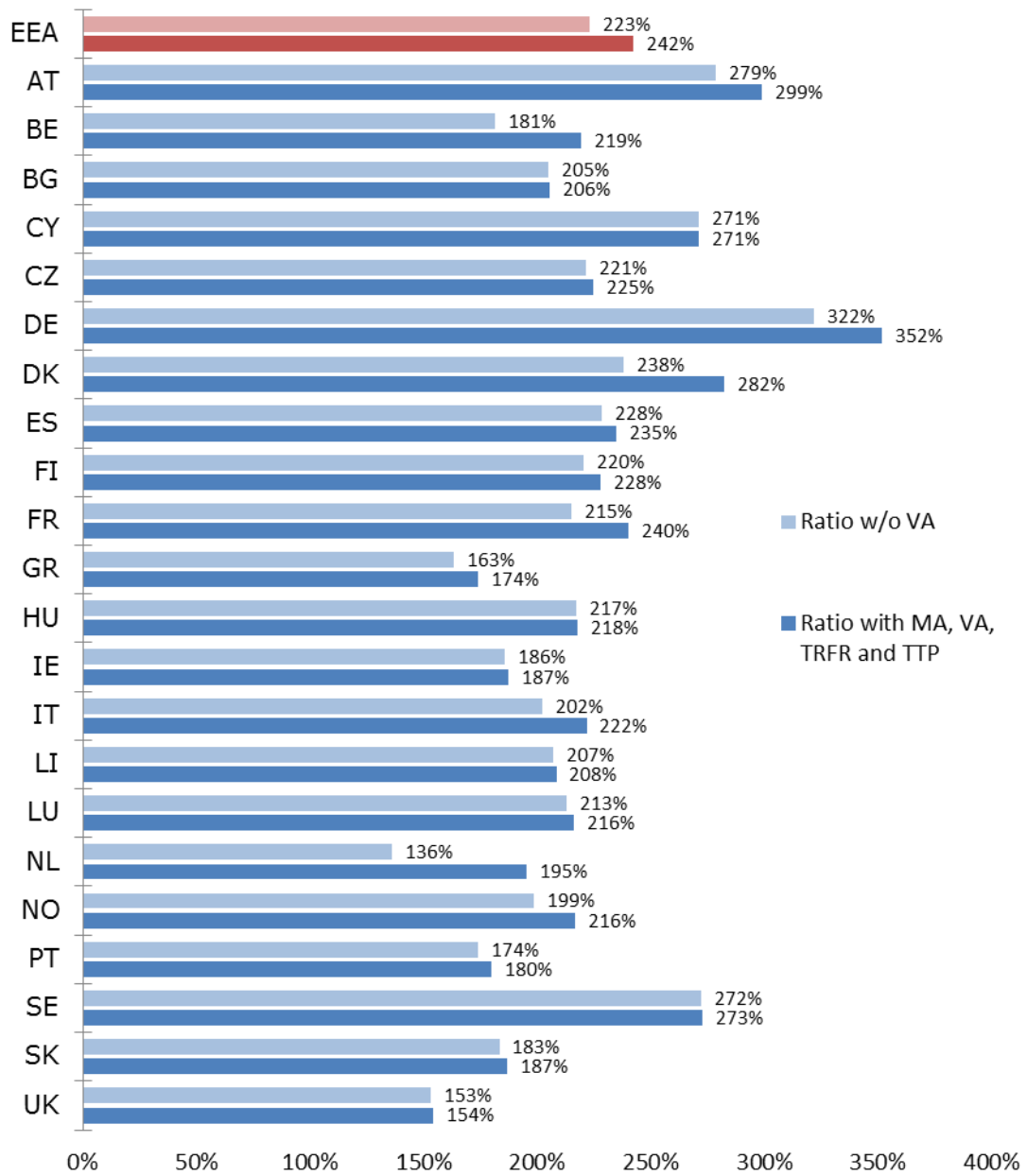
The impact results presented in this section are based on data from 2018 Quantitative Reporting Templates.

The impact of the VA should be interpreted in the light of the level of the observed spreads in the financial markets.

The following graph display the overall impact of the use of the VA on the SCR ratio for the whole EEA market (including both undertakings using or not using the measure). At the EEA level, the removal of the VA would result on average in a reduction of the SCR ratio by 19 percentage points.

Figure 3.31

Average impact of removing the VA on the SCR ratio of the whole EEA market



The following graphs show the average impact at EEA level and per country of the VA on the SCR ratio. The graphs are based on impact of the VA for the undertakings that apply the VA.

At EEA level removing the VA results in an average reduction of the SCR ratio of 34 percentage points. The average change in SCR ratios is the highest for undertakings in Germany, Denmark, and Netherlands. This comes from the fact that the impacts on SCR are significantly higher for those countries.

In comparison with last year, the average impact of removing the VA has overall increased.

Figure 3.32

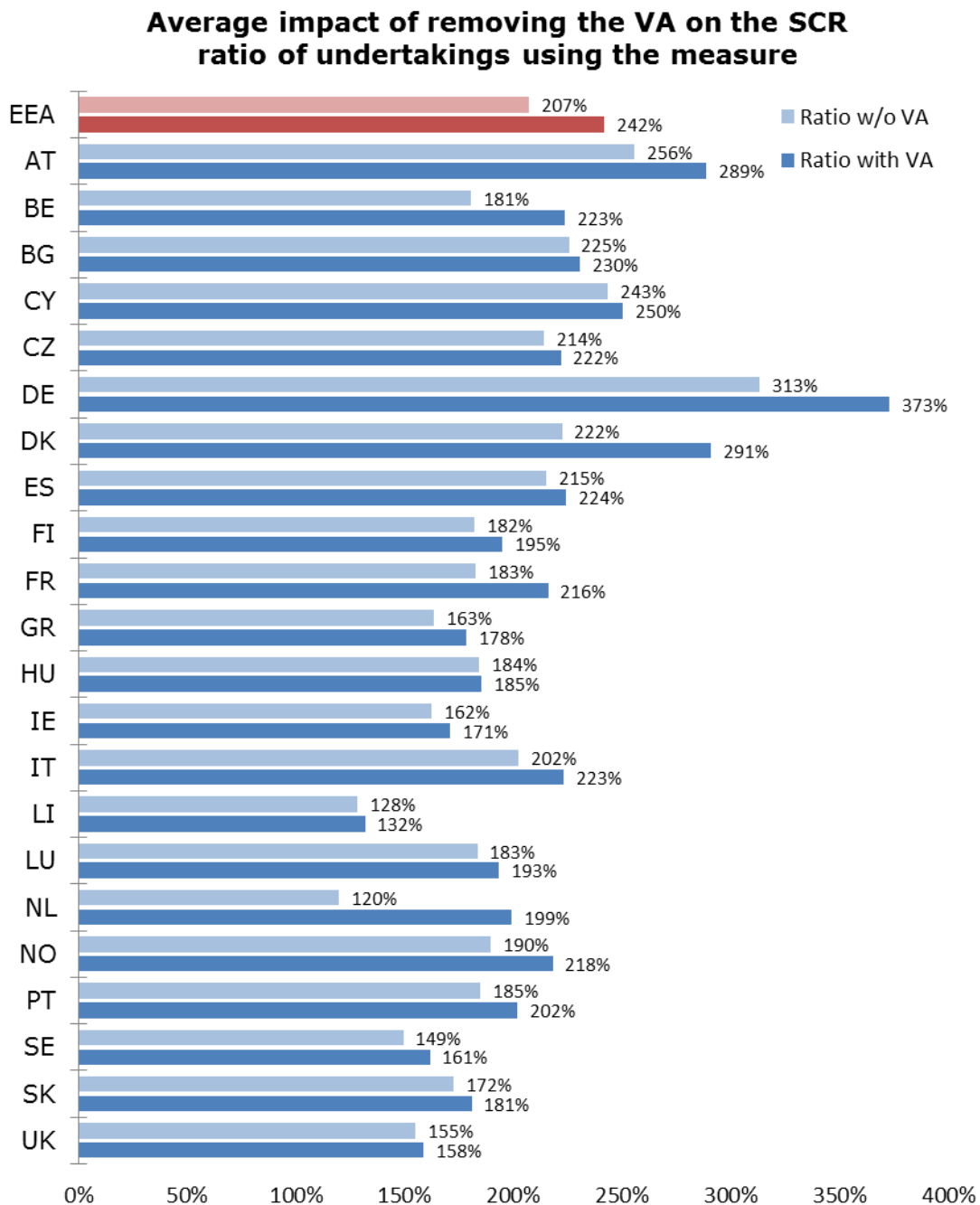
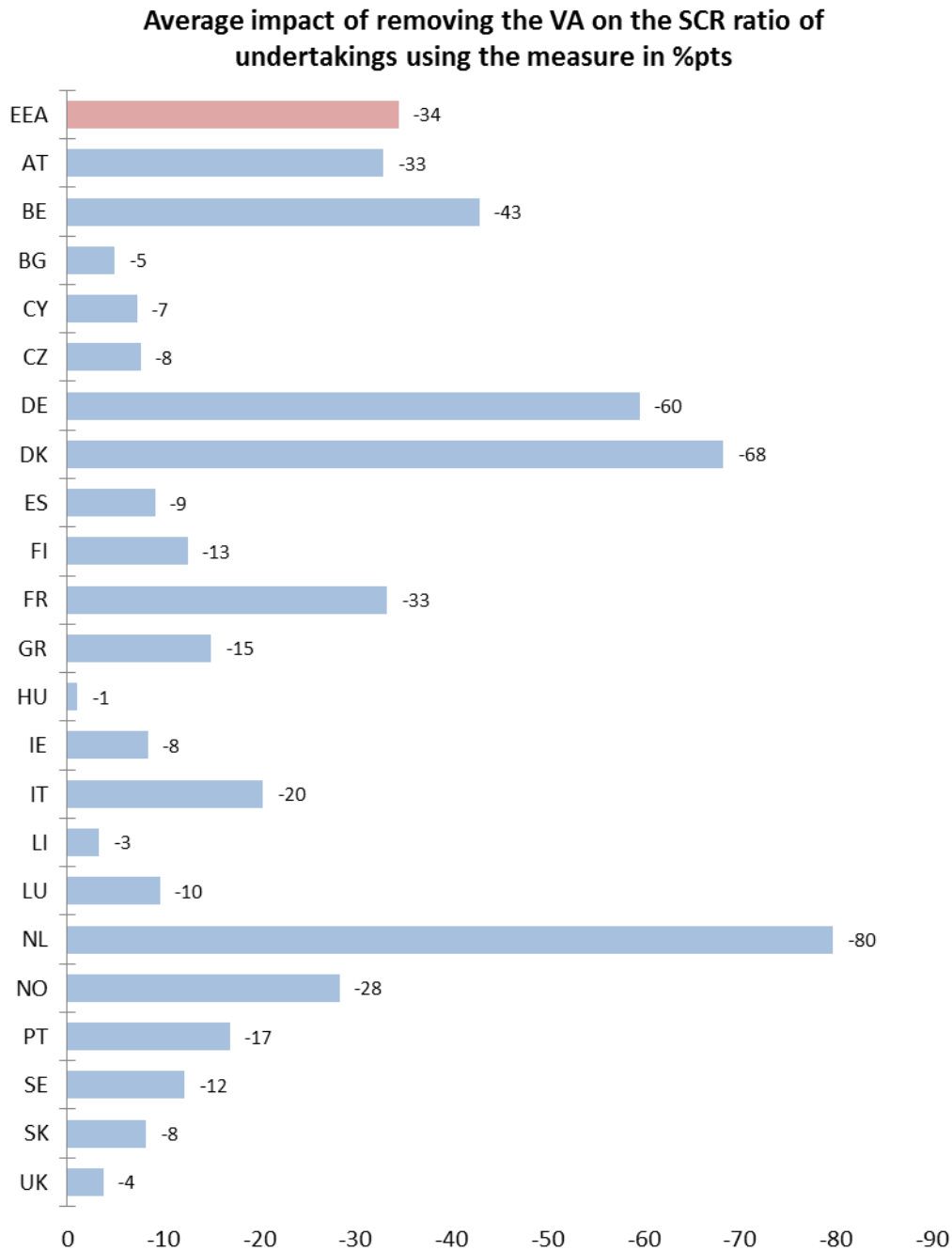


Figure 3.33



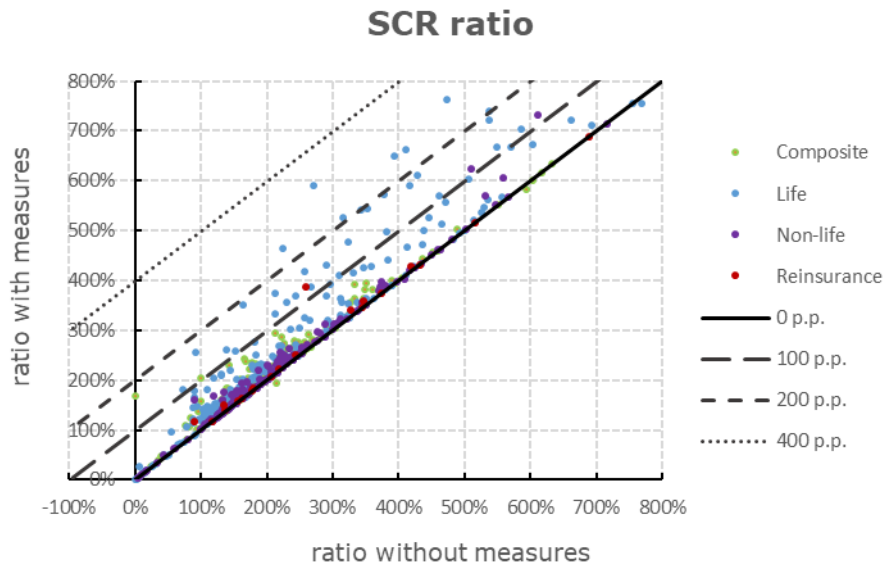
The following graph displays the impact of removing the VA on the SCR ratio of every undertaking using this measures. Each dot in the diagram represents one undertaking, comparing the individual SCR ratio against the estimated SCR ratio without the VA. The type of each undertaking is indicated by the colour of the dot.

In terms of SCR ratio, 91% of undertakings that use the VA reported an absolute impact of less than 100 percentage points.

11% of undertakings using the measure reported an SCR ratio without VA below 100%. No undertaking using the measure reported negative eligible own funds to cover the SCR without VA.

Also note that the Life and Composite undertakings show, in general, slightly higher impacts on this level than Non-life undertakings.

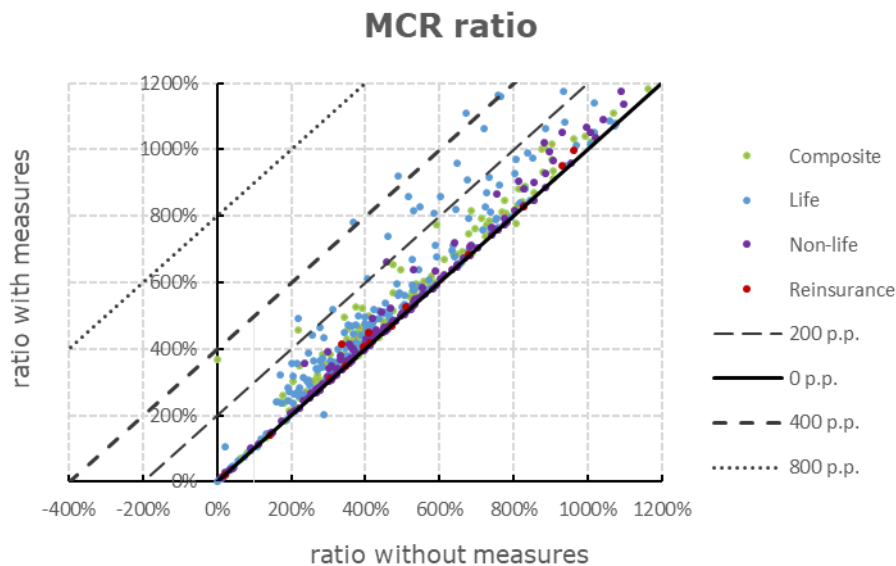
Figure 3.34



The following graph displays the impact of removing the MA on the MCR ratio of every undertaking using the MA, comparing the individual MCR ratio against the estimated MCR ratio without the MA. In terms of MCR ratio, 82% of undertakings that use the VA reported an absolute of less than 100 percentage points.

5% of undertakings using the measure reported an MCR ratio without VA below 100%. No undertaking reported negative eligible own funds to cover the MCR without VA.

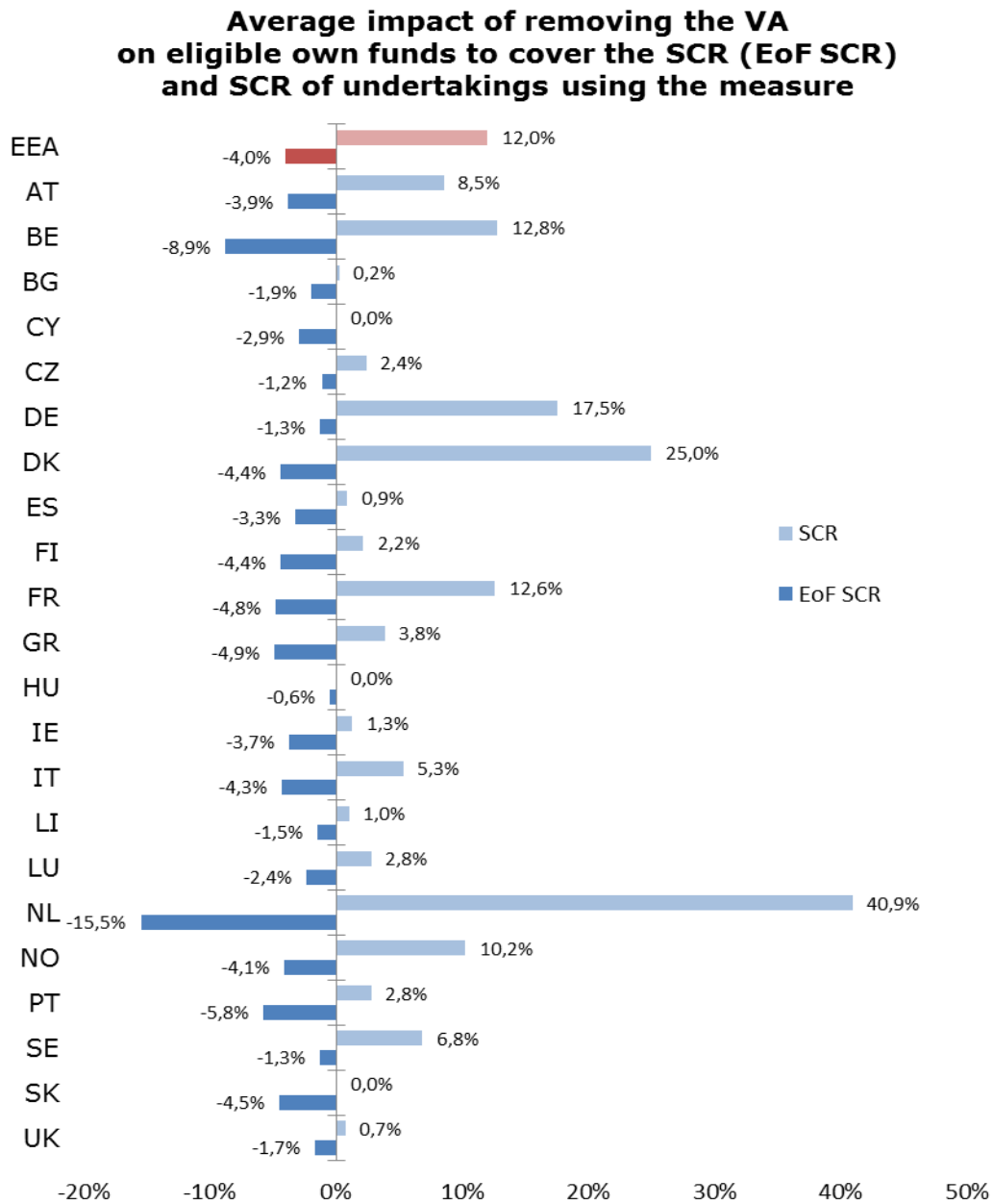
Figure 3.35



The following graph shows the impact of removing the VA on the SCR (light blue) and on the eligible own funds to cover the SCR (dark blue). The red bars are for the EEA level. On average, eligible own funds to cover the SCR would decrease by 4%, while

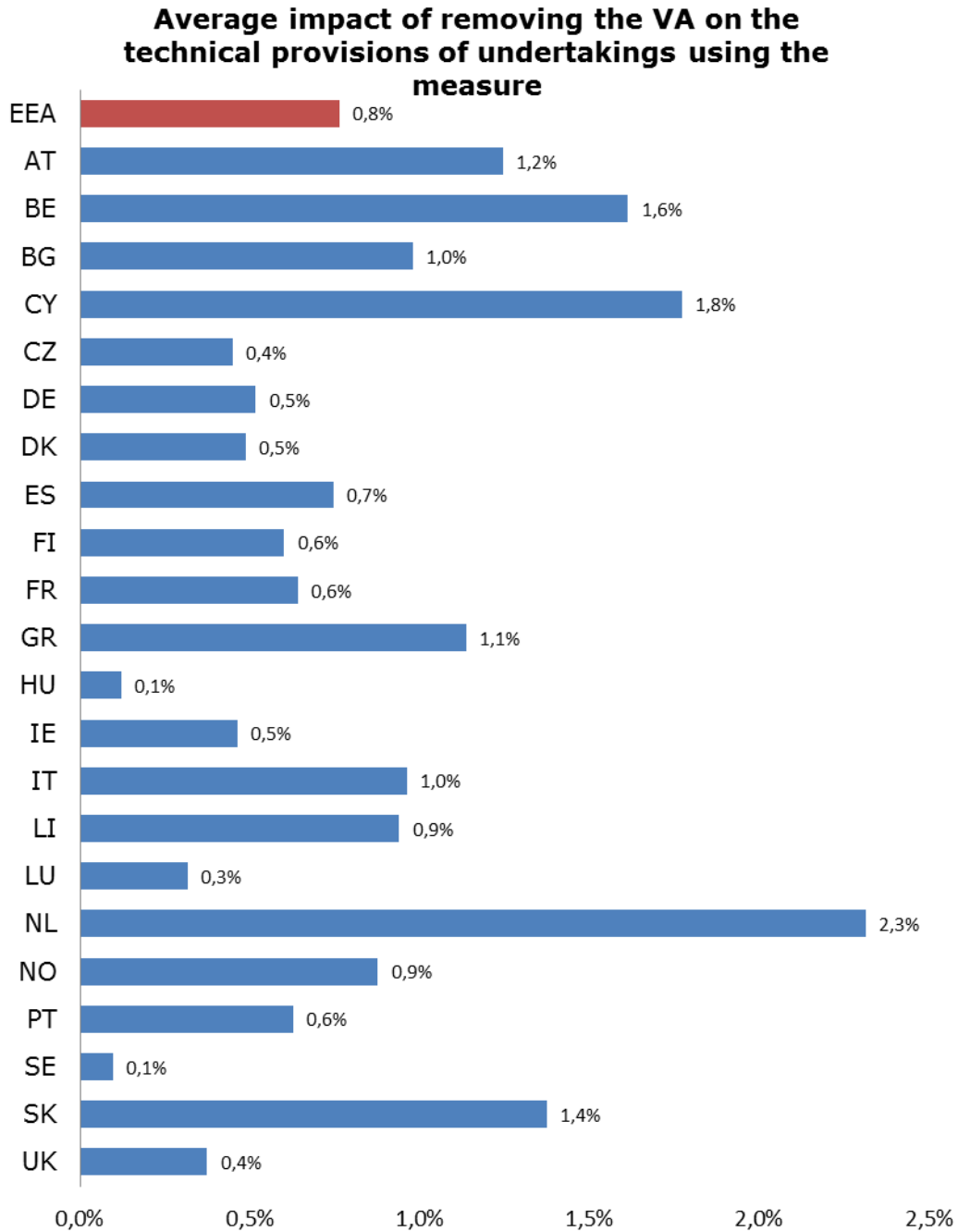
the SCR would increase by 12% if the VA were removed. In comparison with last year, impacts have overall increased for both SCR and eligible own funds to cover the SCR.

Figure 3.36



The following graph displays the impact of removing the VA on the value of technical provisions (TP) at EEA and national level. Removing the VA for those undertakings applying the measure would result in an average increase of technical provisions by 0.8% at EEA level.

Figure 3.37



The following graphs show the average impact of the VA on the MCR ratio, the MCR and the eligible own funds to cover the MCR, at country and at EEA level for undertakings using that measure. At the EEA level, the removal of the VA would result on average in a reduction of the MCR ratio by 79 percentage points.

Figure 3.38

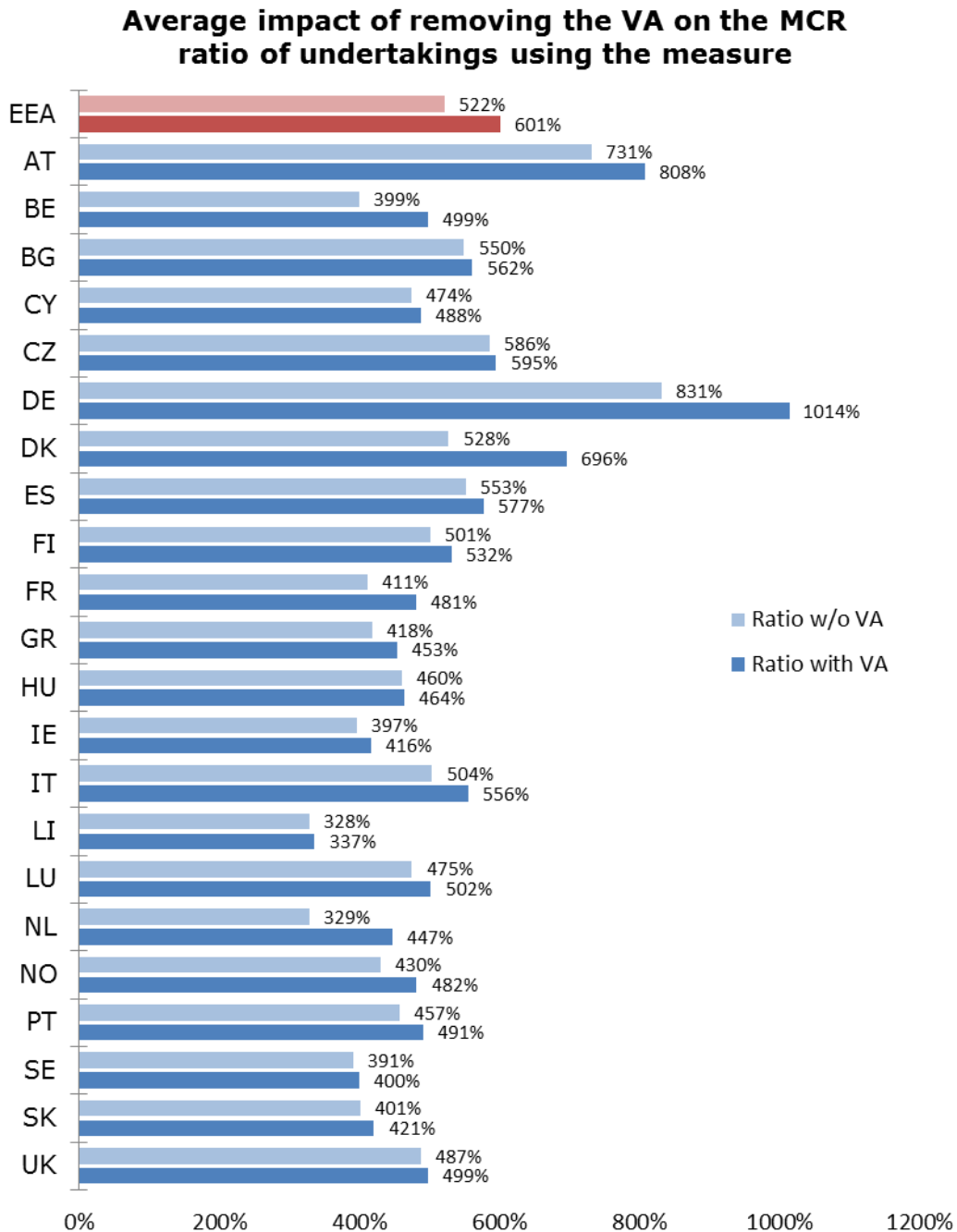
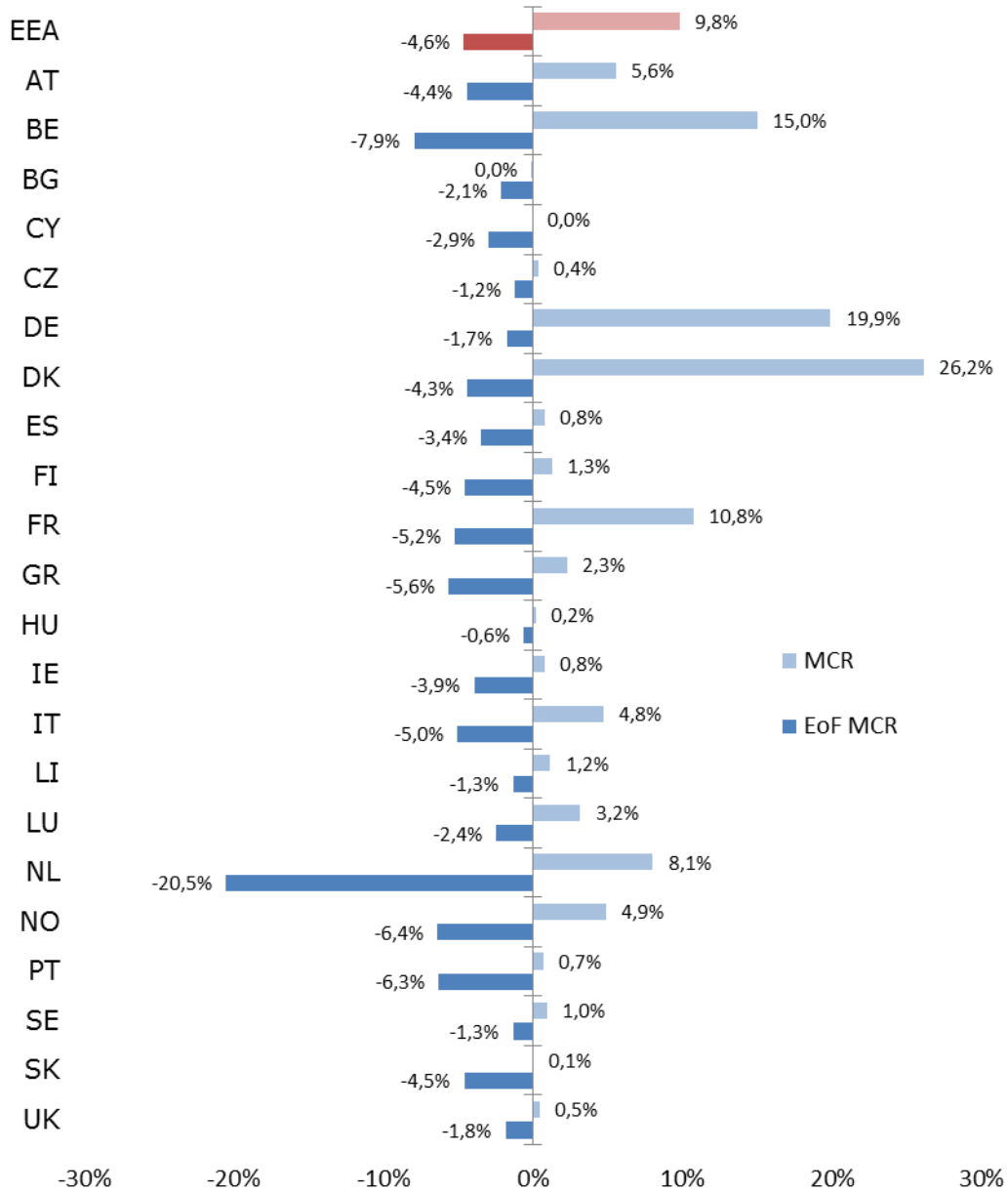


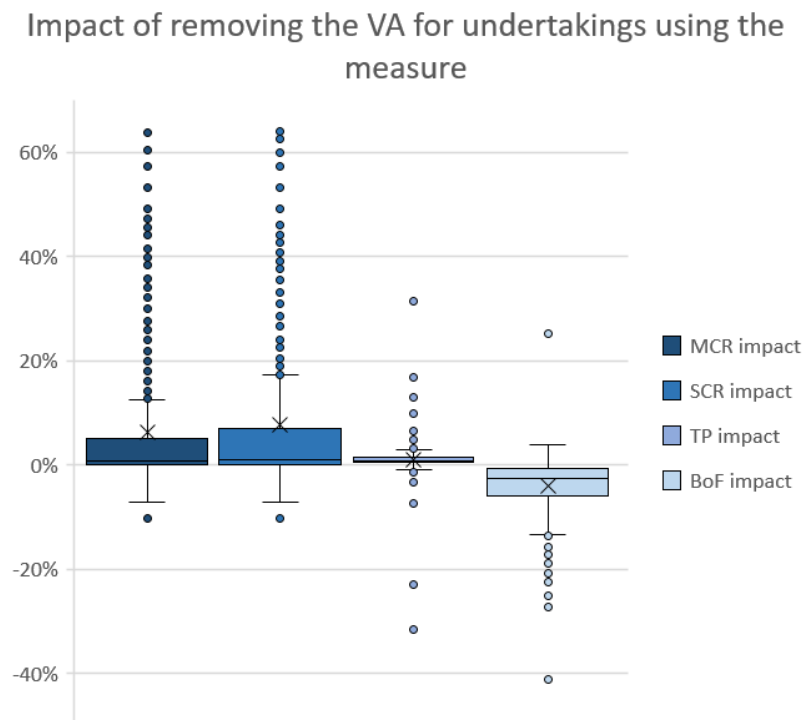
Figure 3.39

Average impact of removing the VA on eligible own funds to cover the MCR (EoF MCR) and MCR of undertakings using the measure



The box-plots below illustrate how the impact of removing the VA is distributed across undertakings.²⁴

Figure 3.40



The size of the VA as at year end 2018 for the Euro is 24 bps and has thus increased from year end 2017 where it was 4bps. The graphs presented in this section show that the impact of a removal of the VA on the solvency position is considerable for a number of countries. This was already observed in the previous LTG reports. With the increase in the size of the VA, the financial impact of the VA on the solvency positions of undertakings has increased as well. Nevertheless, the magnitude of the impact differs from one country to another. One should keep in mind that the comparisons of the figures are affected by the dynamic modelling of the VA of some internal model users that are embedded in the analysis.

Treatment of the VA in internal models

Two different treatments of the VA can be observed where internal models are used to calculate the SCR. In some internal models the VA is considered to remain unchanged during the 1-year forecast (constant VA). This approach is the same as the treatment of the VA in the standard formula for the calculation of the SCR. Other internal models take account of the possible change of the VA during the 1-year forecast (dynamic VA). The VA can change over time because the spreads of the market indices that the VA calculation is based on change or because the risk correction to the VA changes. Another reason for change to the VA can be changes in the investment behaviour of insurance

²⁴ The bottom (respectively, top) of the blue box represents the lower quartile (respectively, higher quartile) of the data set. The black band inside the box is always the middle quartile (50th percentile or median). The end of the lines extending from the boxes (called whiskers) represent the upper and lower boundaries of 1,5 interquartile-ranges. Outliers are plotted as individual points.

and reinsurance undertakings as reflected in the annual updates of the representative portfolio of assets that are applied in the VA calculation.

Where the VA moves in line with the spreads on the assets of the undertaking, the modelling of a dynamic VA reduces the effect of spread widening and spread narrowing on the own funds of the insurer: decreases in asset value caused by the spread widening are partially or fully compensated by decreases of technical provisions caused by the change of the VA. In the same way increases in asset values caused by narrower spreads are compensated. As a result the capital requirements for the risk of spread widening are usually lower if a dynamic VA is modelled than if a constant VA is being used by those undertakings.

The table below displays the number of undertakings using a dynamic modelling of the VA per country and type of undertakings.

Table 3.10

Number of undertakings using the Dynamic VA					
Country	Life	Non-Life	Both Life and non-life	Reinsurance	Total
AT	2	1	1	0	4
BE	0	1	1	0	2
CZ	0	0	1	0	1
DE	11	11	0	2	24
FR	6	7	1	1	15
IE	0	1	0	1	2
IT	1	0	1	0	2
NL	6	5	0	1	12
EEA	26	25	6	5	62

The following graphs display the impacts of removing the VA on SCR ratio and the SCR of undertakings using the measure. They are broken down between undertakings using the standard formula; undertakings using an internal model with a constant VA; and undertakings using an internal model and using a dynamic VA. These impacts are displayed at EEA level and country level for countries where there are internal model users. Impacts on SCR ratio are shown in percentage points whereas impacts on SCR are shown in percentages. Impacts of the dynamic VA is based on QRT data of 61 of 62 undertakings using it, as one non-life undertaking from France was not included in the analysis²⁵.

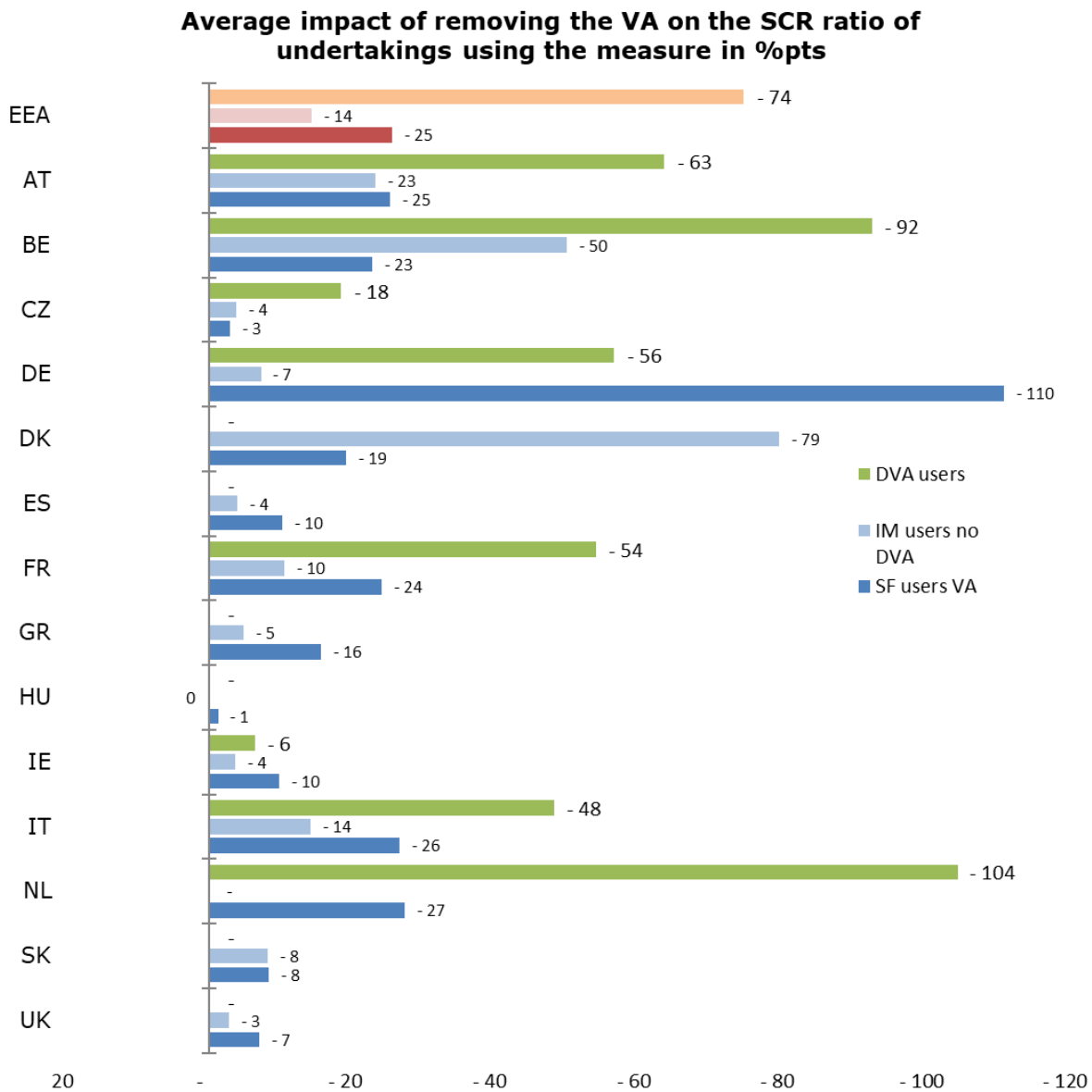
The graph shows that the use of dynamic VA has a considerable effect on the SCR ratio of undertakings using it. It should be noted that the size of the three samples (standard formula users, undertakings using an internal model using a constant VA and

²⁵ This undertaking will be merged at year-end 2019.

undertakings using an Internal model and using a dynamic VA) varies from one country to another. For example, undertakings using an internal model and using a dynamic VA represents 3% to 68% of the technical provisions in the concerned jurisdictions.

Please note that a more detailed analysis of the dynamic VA are presented in section 2.5 of the consultation paper on the EIOPA opinion on the 2020 review of Solvency II, EIOPA-BoS-19/465²⁶ and in section 3.4 of EIOPA’s ‘Report on insurers asset and liability management’, EIOPA-BoS-19/593²⁷.

Figure 3.41



²⁶ https://eiopa.europa.eu/Publications/Consultations/EIOPA-BoS-19-465_CP_Opinion_2020_review.pdf

²⁷ https://eiopa.europa.eu/Publications/Reports/EIOPA_Report_on_insurers_asset_and_liability_management_Dec2019.pdf

The graph provides for the weighted average results per market for the standard formula users compared to IM users that apply the VA. These results are reflective of the composition of these samples in the different markets. E.g. for Germany, the sample of standard formula VA users is dominated by life insurance undertaking whereas the sample of the IM users that apply the DVA is differently set up and consists of both life and non-life undertakings. This leads to the effect displayed above that the impact of removing the VA for standard formula users is higher than that of IM users that have a DVA whereas the opposite would have been expected.

The following graphs therefore provide for a more detailed split differentiating by life and composite undertakings compared to non-life and reinsurance undertakings.

Figure 3.42

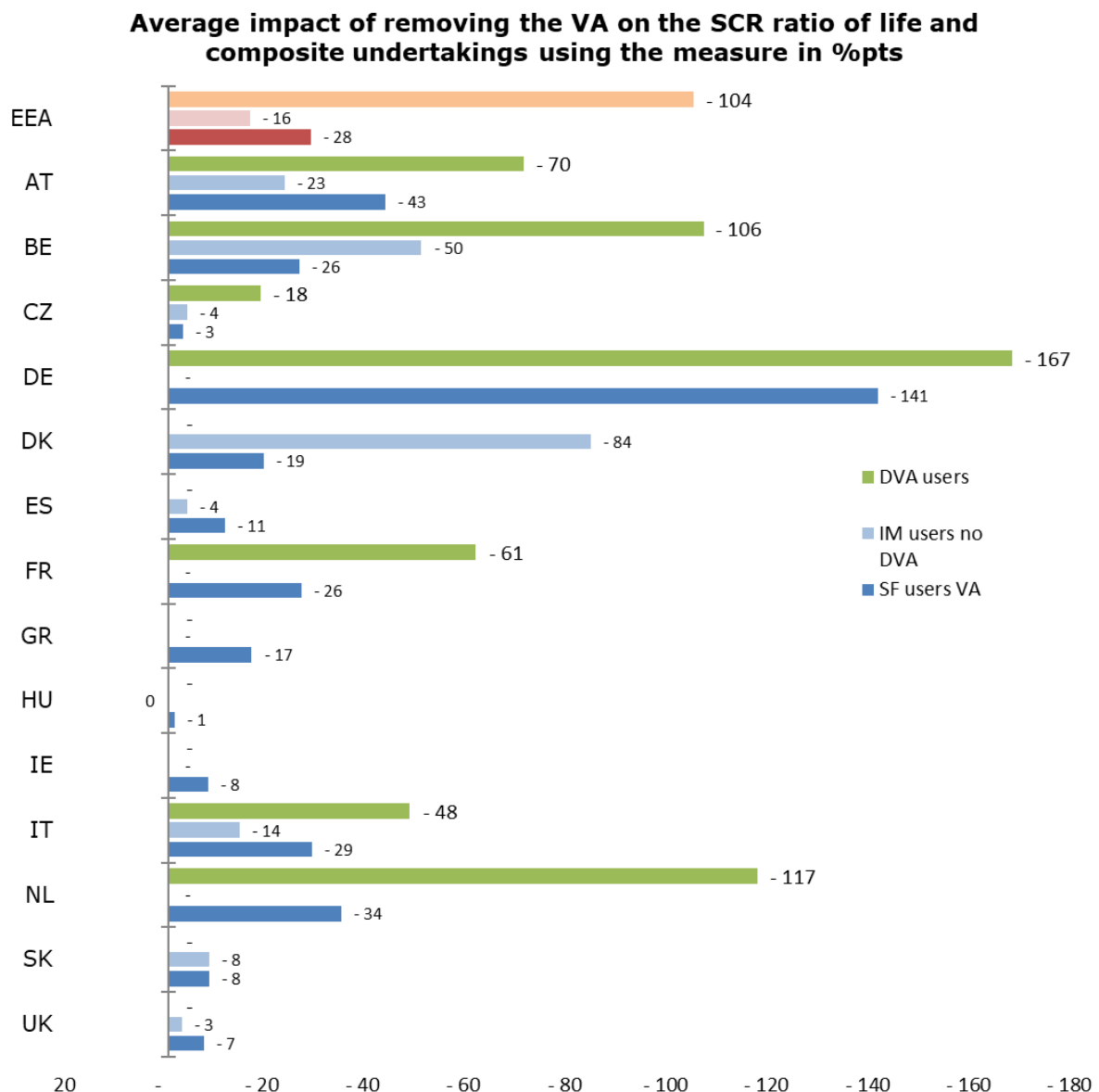
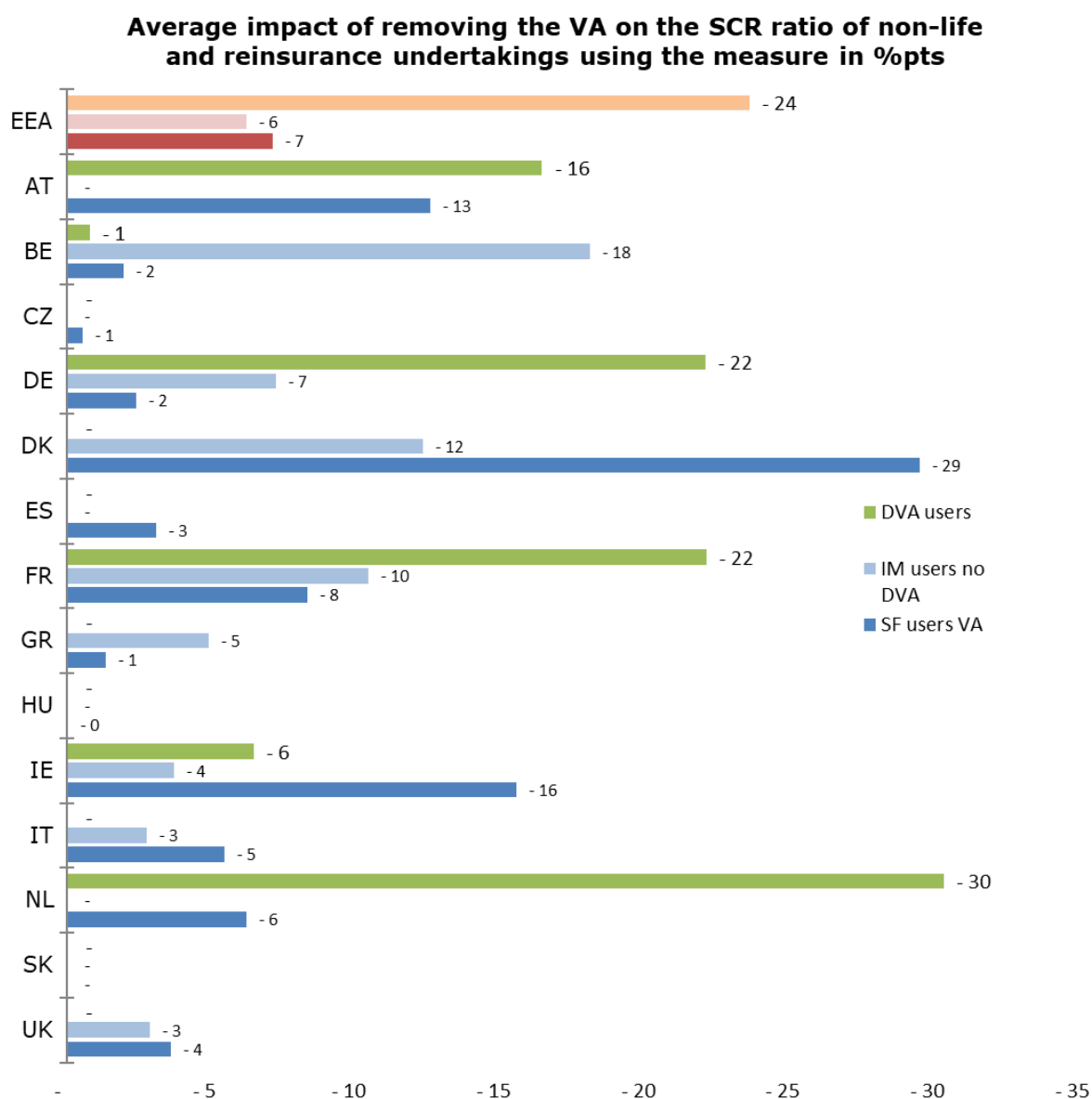


Figure 3.43



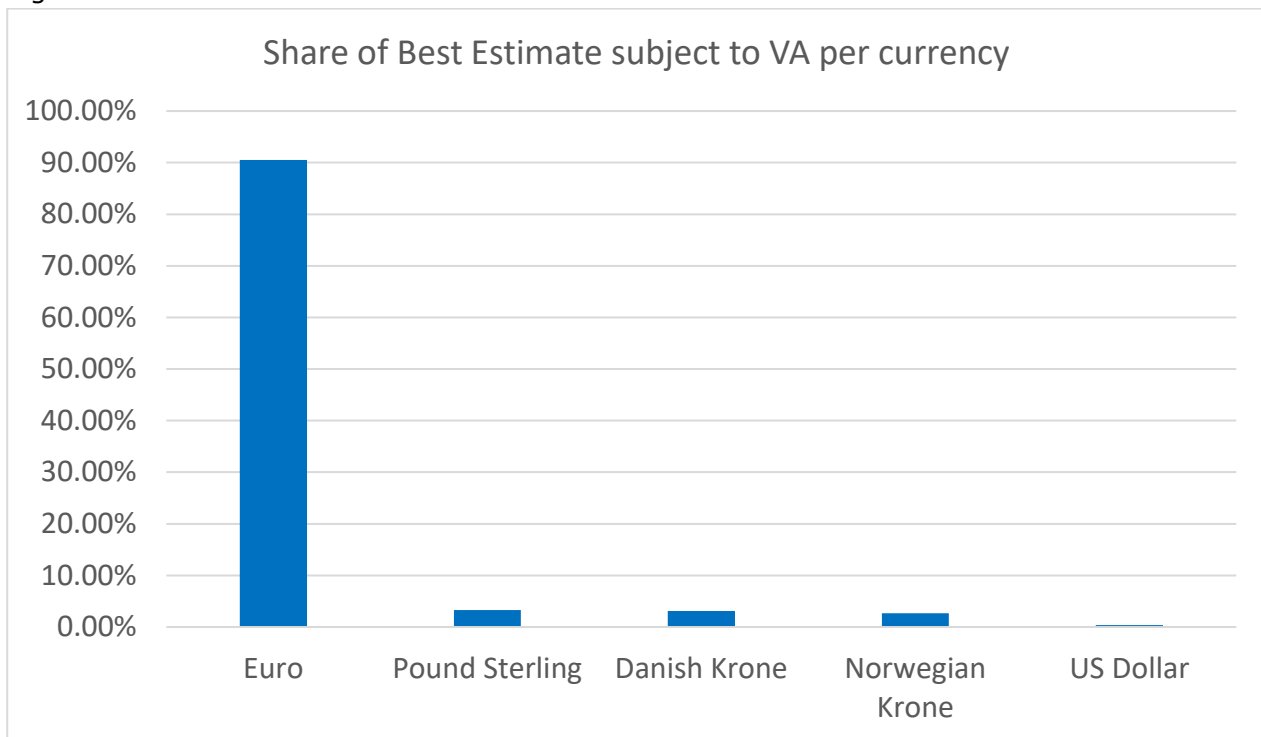
Additional information on the VA based on the QRT information

Based on the quantitative information that undertakings regularly provide to supervisory authorities further analysis was performed.

The following graph outlines the split of Best Estimate subject to VA that is written in different currencies as at year end 2018. Only the most material currencies are considered in this graph.²⁸

²⁸ Due to changes in the reporting format as at year end 2018 which resulted in improvement of data quality, results have changed compared to previous year.

Figure 3.44



Application of a country-specific increase to the VA

Background information on the calculation of the VA

For each currency the VA is calculated as 65% of a risk-corrected spread ($S_{RC_{currency}}$). The relevant spread is the difference between the interest rate that could be earned from assets included in a reference portfolio for assets in that currency and the basic risk-free interest rates for that currency.

*A country-specific increase to the VA may apply, depending on the spread on the assets of a country-specific reference portfolio. That increase is calculated as 65% of the difference between the risk-corrected spread of that country reference portfolio ($S_{RC_{country}}$) and twice the risk-corrected currency spread $S_{RC_{currency}}$. The country-specific increase applies whenever that difference is positive (i.e. when $S_{RC_{country}} > 2 * S_{RC_{currency}}$) and the risk-corrected country spread is higher than 100 basis points. This implies that the country-specific increase cannot be negative while the VA before increase can assume both positive and negative values.*

The VA with country-specific increase is given by the following equation:

$$VA = 65\% * [S_{RC_{currency}} + \max(S_{RC_{country}} - 2 * S_{RC_{currency}}, 0)] ,$$

where $S_{RC_{country}} > 100$ bps²⁹.

²⁹ A proposal to amend the Solvency II Directive in order to lower this trigger to 85 bps as a quick fix of current VA has been discussed by the European co-legislators and it is expected to be formally adopted and officially published. See the

$S_{RC_{currency}}$ and $S_{RC_{country}}$ are calculated as the difference between the spread at portfolio level ($S_{currency}$ and $S_{country}$) and the related risk correction ($RC_{currency}$ and $RC_{country}$):

$$S_{RC_{currency}} = S_{currency} - RC_{currency} \quad \text{and} \quad S_{RC_{country}} = S_{country} - RC_{country}$$

The reference portfolio comprises two asset classes that contribute to the spread: government bonds and corporate bonds. For each class the average spreads (S_{gov} and S_{corp}) and the risk corrections (RC_{gov} and RC_{corp}) are derived.

The portfolio spreads ($S_{currency}$ and $S_{country}$) and portfolio risk corrections ($RC_{currency}$ and $RC_{country}$) are calculated by applying portfolio weights (w_{gov} , w_{corp}) to the government and corporate components:

$$S_{currency} = w_{gov} * \max(S_{gov}; 0) + w_{corp} * \max(S_{corp}; 0)$$

$$RC_{currency} = w_{gov} * \max(RC_{gov}; 0) + w_{corp} * \max(0; RC_{corp})$$

$S_{country}$ and $RC_{currency}$ are calculated in the same way, but based on the reference portfolio per country.

The **reference portfolios** are representative of assets held by European insurance and reinsurance undertakings to cover:

- the best estimate for (re)insurance obligations denominated in that currency (reference portfolio per currency)
- the best estimate for (re)insurance obligations of products sold in the insurance market of that country and denominated in the currency of that country (reference portfolio per country).

In particular the reference portfolios considers:

a. Data from the relevant government bonds yield market indices, required to determine the interest rates of government bonds including in the representative portfolio, by duration and country of issuance (those interest rates are then used to compute the spread S and the risk correction RC for those government bonds).

For countries of the euro area not having a government yield curve, there is no country-specific increase and the spread of government bond is approximated considering a peer country³⁰.

b. Data from the relevant corporate bonds yield market indices, required to determine the interest rates of corporate bonds including in the representative portfolio, by

European Parliament legislative resolution of 16 April 2019 on the proposal in the following link: https://www.europarl.europa.eu/doceo/document/TA-8-2019-0376_EN.html

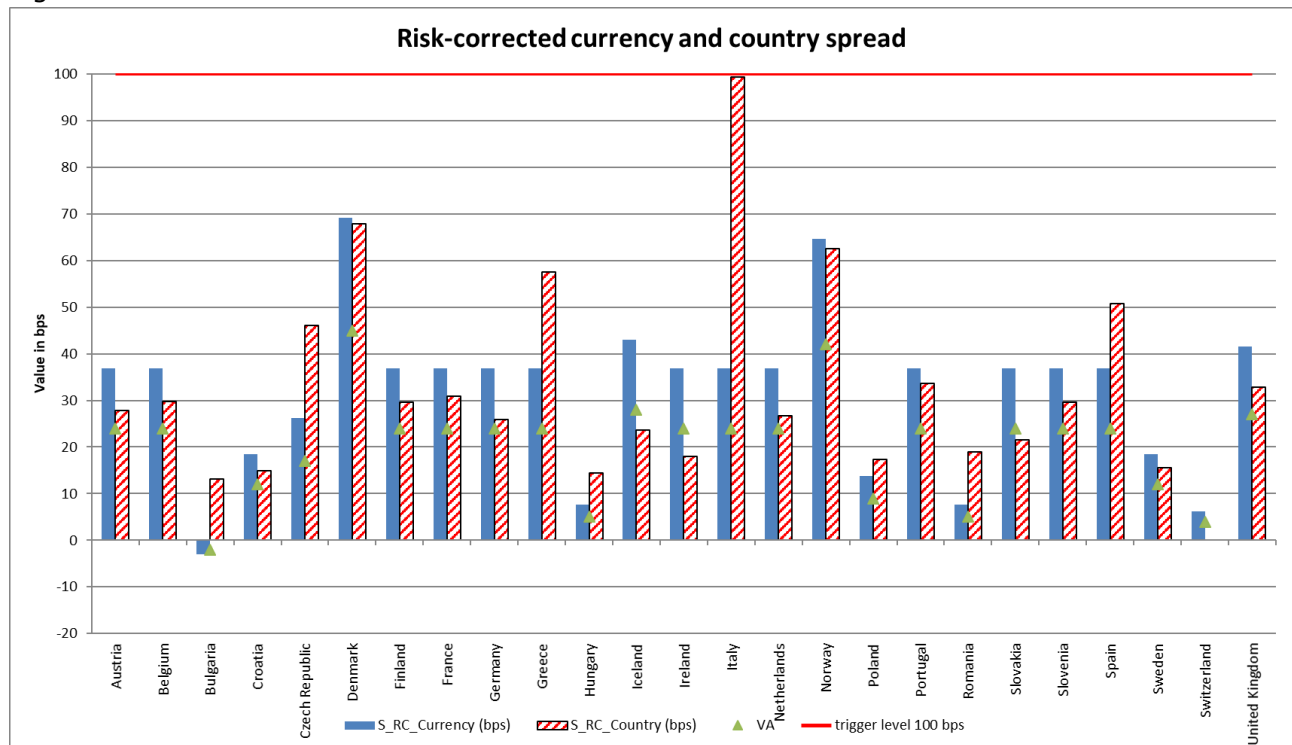
³⁰ Countries without government yield curves are Cyprus, Estonia, Latvia, Liechtenstein, Lithuania and Malta.

duration, sector and credit quality step (those interest rates are then used to compute the spread S and the risk correction RC for corporate bonds).

The reference portfolios are updated on an annual basis.

1) Analysis of the amount of the currency and country risk-corrected spread for the calculation of the VA ($S_{RC_{country}}$ and $S_{RC_{currency}}$)

Figure 3.45



The graph shows the *risk-corrected currency spread* (blue bar), the *risk-corrected country spread* (red bar) and the final value of the VA (green triangle), for each country relevant in reference portfolios. It also shows the trigger level of the country-specific increase of 100 bps (red line). When applying 65% to the blue bar, the final value of the VA (represented by the green triangle) results. The reference date for the data is the 31 December 2018.

It can be observed that the *risk-corrected currency spread* is considerably higher than at 2017 year-end. The level of the *risk-corrected currency spread* is highest for Denmark and Norway. For Eurozone this increase is driven by the widening of spreads of corporate bonds and of Italian government bonds.

A considerable heterogeneity among countries with regard to the *risk-corrected country spread* persists, also among the countries of the euro area that apply the same amount of VA: for some countries the country spread is much higher than the currency one (i.e. Italy, Greece and Spain), whilst for other countries it is much lower (i.e. Ireland, Slovakia, Germany, Netherlands, Austria). This means that, at country level, the spread deriving from assets held by the national undertakings can be significantly different (higher or lower) than the level of spread of the assets included in the representative

portfolio defined at currency level. An interesting element to note is that in Italy the level of risk corrected country spread was much higher than twice the risk corrected currency spread but just below the threshold of 100 bps. The lack of activation of the country component prevented the VA to achieve its intended objective of mitigating the impact of significant widenings of spreads for Italian undertakings, which experienced in the asset side of their balance sheet a large volatility due to the steep increase of Italian government bond spreads.

2) Analysis of the amount of the government and corporate risk-corrected spread for the calculation of the country VA (S RC gov country, S RC corp country and S RC country)

Background information on the calculation of the risk correction

The **risk correction** is intended to account for expected losses, unexpected credit risk, and any other relevant risks of the assets. It is calculated as follows:

For the spread on government bonds:

$RC = 30\% \text{ LTAS}$ for exposures to governments of EEA countries

$RC = 35\% \text{ LTAS}$ for exposures to other governments

where LTAS is the long-term average of the spread over the risk-free interest rate of assets of the same duration, credit quality and asset class. The average relates to the last 30 years.

For the spread on corporate bonds:

$RC = \text{MAX} (PD + CoD, 35\% \text{ LTAS})$, where

PD = the credit spread corresponding to the probability of default on the assets;

CoD = the credit spread corresponding to the expected loss resulting from downgrading of the assets;

$LTAS$ = as above

Where no reliable credit spreads can be derived from long-term default statistics, the risk correction can be expressed as:

$RC = 35\% \text{ LTAS}$.

Figure 3.46

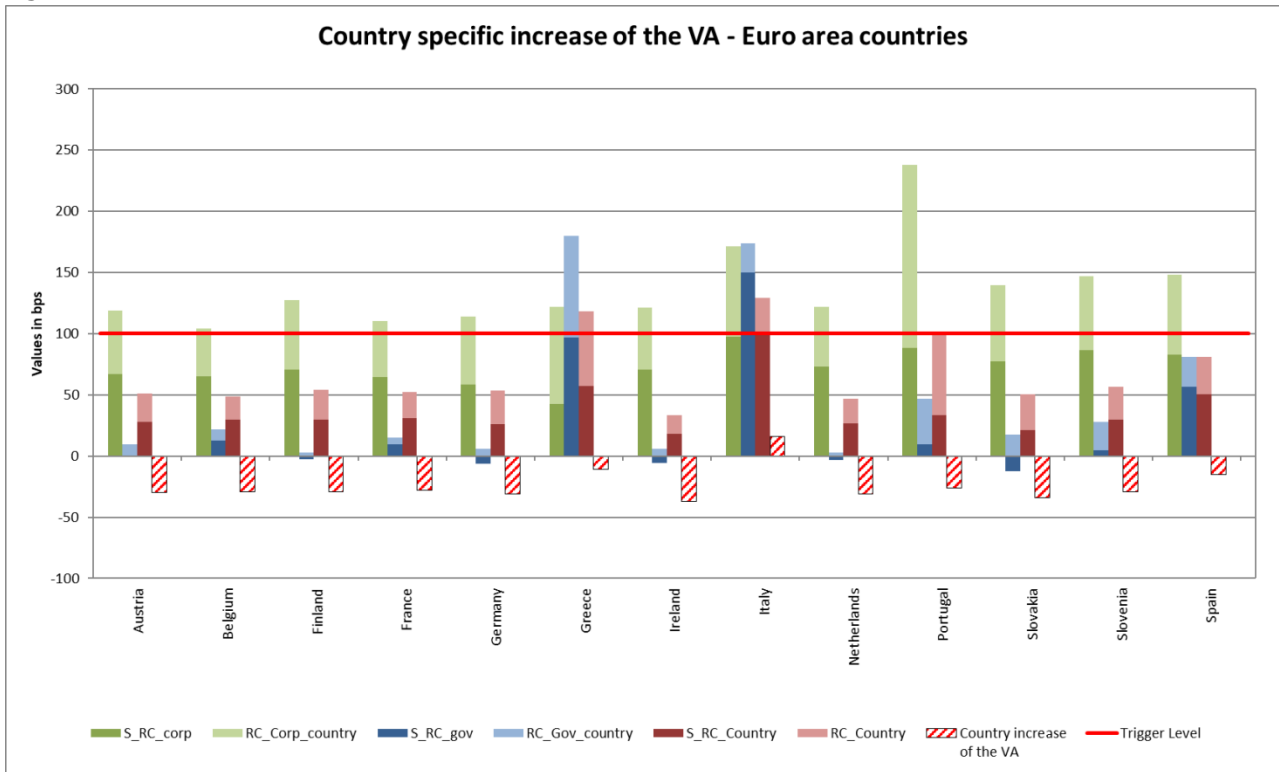
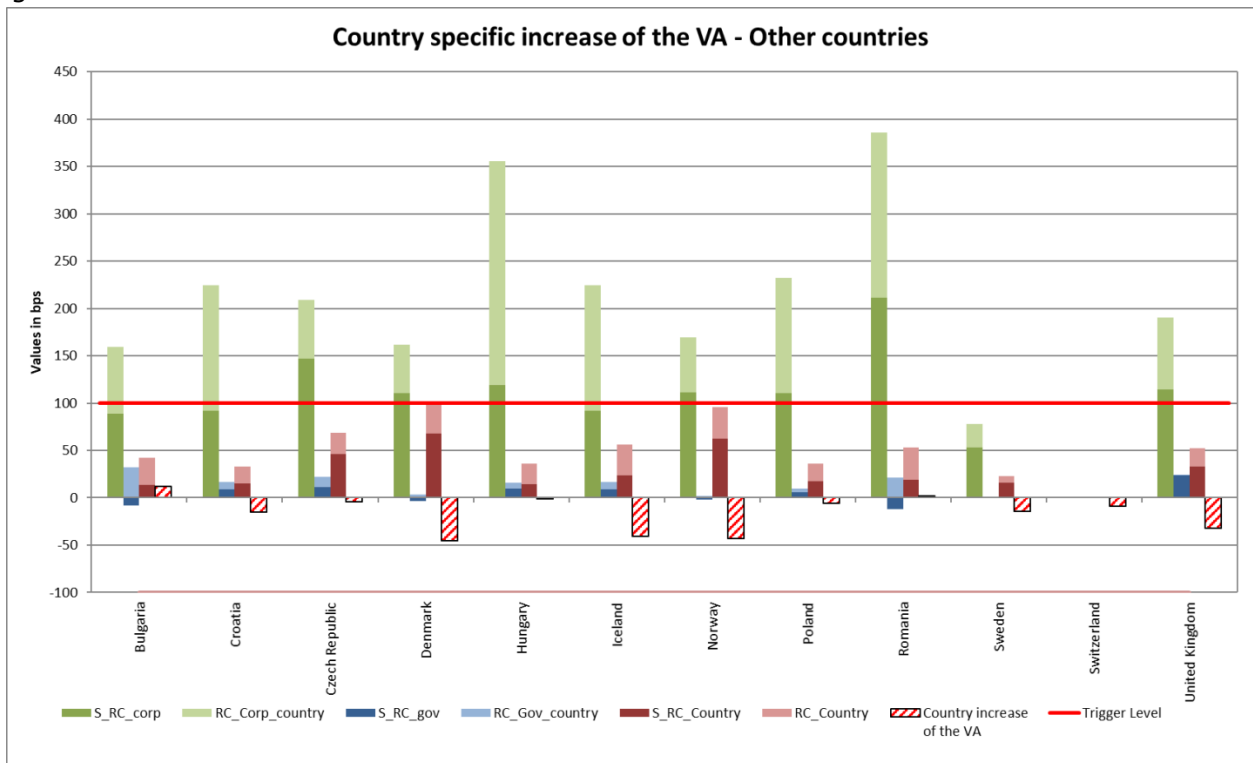


Figure 3.47



These graphs look at the national component of the VA only (the first graph relates to the countries of the euro area, and the second graph relates to the countries with other currencies). The reference date for the data is the 31 December 2018.

With respect to the national representative portfolio, the graphs show a comparison between the level of the market spreads for corporate bonds (S_{corp} – green bar), for government bonds (S_{gov} – blue bar) and the corresponding level of the spread at country portfolio level ($S_{country}$ - burgundy bar): for each category of spread, the total value is decomposed into the amount attributed to the risk-correction (in lighter colour) and the risk-corrected spread (in darker colour).

Also the level of the potential country-specific increase of the VA is shown (red bar), irrespectively of whether it is triggered or not. This level represents 65% of the difference between the risk-corrected country spread and twice the risk-corrected currency spread. Graphs show that in a few countries (i.e. Italy and Bulgaria) this difference is positive.

The triggering of the national component of the VA requires that two conditions occur: the above mentioned difference is positive and the risk-corrected country spread (dark burgundy bar) is higher than 100 basis points. Given that such two conditions are not simultaneously met for any of the countries in the graphs (in particular no cases of risk-corrected country spread higher of 100 bps occurred), no country-specific increase of the VA is applied.

For most countries, corporate spreads are largely higher than government ones (at year-end 2018 exceptions refer to Greece and Italy). The spread at portfolio level, due to the weighting, is, for most of the countries, significantly lower than the one related to the two components. In Italy and Greece the total spread at portfolio level is higher than the threshold of 100 bps (red line), but the risk corrected spread is not.

At the end of 2018 the risk correction represents a lower part of the total spread if compared to 2017 and 2016 figures (47% on average for the corporate bonds, 49,5% for government, 45% at country-portfolio level, in 2017 corresponding figures were nearly 84% , 85% and 81% in 2016 were 61%, 50% and 58% respectively). However it persists the observation made last years that, for government bonds, the size of the weight of the risk correction, defined as the 35% of the long-term average spread (over the last 30 years), is due to the higher level of spreads observed in the past years (that contributes to the LTAS), compared to the current level of the spreads.

More generally, in 2018 a decrease of the weight of the overall risk correction (to less than 50%) was observed, which is consistent with the increase of more than 50% of the spread of the overall country portfolios.

Impact on investments of undertakings

The following tables and graphs illustrate some characteristics of the investments held by undertakings using the VA.

Similar to the tables and graphs in the general section II.4 of the report, the tables and graphs below consider the investments of undertakings from three perspectives:

- The investment allocation
- The credit quality of the bond portfolio, separately for government bonds and corporate bonds

- The duration of the bond portfolio, separately for government bonds and corporate bonds

The following tables show the investment allocation of undertakings applying the VA. Please note that, due to confidentiality reasons, any cells that relate to less than three undertakings are denoted by (*).

Table 3.11

Investment allocation at EEA and country level of undertakings applying the VA								
Country	Government bonds	Corporate bonds	Unit linked/index linked	Equity	Collective Investment Undertakings	Mortgages and loans	Cash and deposits	Other
EEA	27%	25%	20%	10%	7%	5%	3%	4%
AT	23%	28%	16%	14%	7%	4%	3%	6%
BE	43%	20%	11%	8%	1%	11%	3%	4%
BG	53%	11%	12%	9%	0%	1%	11%	3%
CY	(*)	(*)	(*)	(*)	(*)	(*)	(*)	(*)
CZ	35%	19%	22%	6%	4%	11%	3%	1%
DE	19%	27%	6%	16%	20%	6%	2%	4%
DK	13%	26%	29%	22%	4%	3%	2%	1%
ES	57%	20%	7%	5%	1%	1%	6%	3%
FI	6%	17%	58%	4%	6%	2%	5%	1%
FR	29%	34%	15%	10%	3%	2%	3%	5%
GR	54%	16%	18%	4%	1%	1%	5%	2%
HU	43%	0%	50%	1%	3%	0%	3%	0%
IE	9%	9%	73%	0%	0%	0%	8%	0%
IT	43%	18%	17%	11%	2%	1%	2%	5%
LI	20%	37%	22%	4%	1%	4%	12%	0%
LU	7%	9%	79%	2%	0%	0%	2%	1%
NL	29%	12%	19%	4%	2%	23%	3%	8%
NO	10%	34%	21%	16%	8%	9%	1%	0%
PT	36%	21%	32%	1%	6%	0%	3%	1%
RO	(*)	(*)	(*)	(*)	(*)	(*)	(*)	(*)
SE	(*)	(*)	(*)	(*)	(*)	(*)	(*)	(*)
SK	48%	24%	19%	3%	0%	1%	4%	0%
UK	10%	15%	46%	4%	9%	5%	9%	2%

Table 3.12

Investment allocation at EEA and country level (without assets held for IL & UL contracts) of undertakings applying the VA							
Country	Government bonds	Corporate bonds	Equity	Collective Investment Undertakings	Mortgages and loans	Cash and deposits	Other
EEA	33%	31%	12%	8%	6%	4%	5%
AT	27%	33%	16%	8%	5%	4%	7%
BE	49%	22%	9%	1%	12%	3%	4%
BG	60%	13%	10%	0%	1%	12%	4%
CY	(*)	(*)	(*)	(*)	(*)	(*)	(*)
CZ	45%	24%	7%	5%	14%	4%	1%
DE	20%	29%	17%	21%	6%	2%	4%
DK	18%	37%	31%	6%	4%	2%	2%
ES	61%	22%	5%	1%	1%	7%	4%
FI	14%	42%	9%	15%	6%	12%	3%
FR	34%	40%	11%	4%	2%	3%	6%
GR	65%	20%	5%	1%	2%	6%	2%
HU	86%	1%	2%	5%	1%	6%	0%
IE	33%	31%	1%	1%	1%	30%	2%
IT	52%	22%	14%	3%	1%	2%	6%
LI	26%	48%	5%	1%	6%	15%	0%
LU	34%	45%	7%	1%	1%	8%	3%
NL	36%	15%	4%	3%	28%	4%	10%
NO	12%	43%	20%	10%	11%	2%	0%
PT	53%	31%	1%	8%	1%	5%	1%
RO	(*)	(*)	(*)	(*)	(*)	(*)	(*)
SE	(*)	(*)	(*)	(*)	(*)	(*)	(*)
SK	60%	29%	4%	0%	1%	5%	0%
UK	19%	27%	7%	17%	10%	16%	3%

The following table shows the credit quality of government bonds. Please note that the data at EEA level for undertakings not using the VA includes data from countries where the VA is not used at all.

Table 3.13

Credit quality of government bonds for undertakings not using the VA or using the VA, per country (without assets held for IL & UL contracts)						
Country	Use of the measures	CQS0	CQS1	CQS2	CQS3	CQS>3
EEA	No use of VA	28%	49%	12%	10%	1%
	Use of the VA	15%	45%	12%	27%	1%
AT	No use of VA	14%	49%	25%	11%	1%
	Use of the VA	0%	57%	32%	10%	1%
BE	No use of VA	16%	65%	12%	7%	0%
	Use of the VA	9%	73%	10%	8%	0%
BG	No use of VA	1%	26%	24%	48%	1%
	Use of the VA	3%	1%	7%	89%	1%
CY	No use of VA	13%	31%	16%	32%	8%
	Use of the VA	(*)	(*)	(*)	(*)	(*)
CZ	No use of VA	2%	90%	8%	0%	0%
	Use of the VA	5%	63%	24%	7%	0%
DE	No use of VA	43%	39%	11%	6%	1%
	Use of the VA	36%	46%	12%	5%	0%
DK	No use of VA	71%	23%	2%	2%	1%
	Use of the VA	67%	18%	3%	8%	4%
ES	No use of VA	5%	8%	34%	52%	1%
	Use of the VA	2%	2%	67%	29%	0%
FI	No use of VA	42%	47%	6%	5%	0%
	Use of the VA	53%	40%	4%	2%	1%
FR	No use of VA	7%	80%	6%	7%	0%
	Use of the VA	8%	76%	5%	10%	0%
GR	No use of VA	22%	37%	8%	8%	25%
	Use of the VA	14%	16%	6%	15%	50%
HU	No use of VA	0%	0%	1%	96%	3%
	Use of the VA	1%	1%	0%	98%	0%
IE	No use of VA	28%	51%	13%	9%	0%
	Use of the VA	44%	40%	14%	2%	1%
IT	No use of VA	3%	11%	3%	82%	1%
	Use of the VA	2%	5%	6%	86%	1%
LI	No use of VA	54%	35%	3%	6%	2%
	Use of the VA	53%	28%	13%	6%	0%
LU	No use of VA	35%	51%	7%	5%	1%
	Use of the VA	21%	59%	6%	13%	1%
NL	No use of VA	52%	30%	9%	9%	0%
	Use of the VA	57%	33%	4%	5%	1%
NO	No use of VA	57%	39%	3%	2%	0%
	Use of the VA	50%	38%	9%	2%	0%
PT	No use of VA	2%	3%	1%	94%	0%
	Use of the VA	6%	14%	14%	66%	0%
SE	No use of VA	92%	6%	1%	0%	2%
	Use of the VA	(*)	(*)	(*)	(*)	(*)
SK	No use of VA	8%	1%	84%	6%	1%
	Use of the VA	8%	15%	76%	1%	0%
UK	No use of VA	20%	76%	3%	2%	0%
	Use of the VA	9%	86%	3%	1%	0%

The following table shows the credit quality of corporate bonds. Please note that the data at EEA level for undertakings not using the VA includes data from countries where the VA is not used at all.

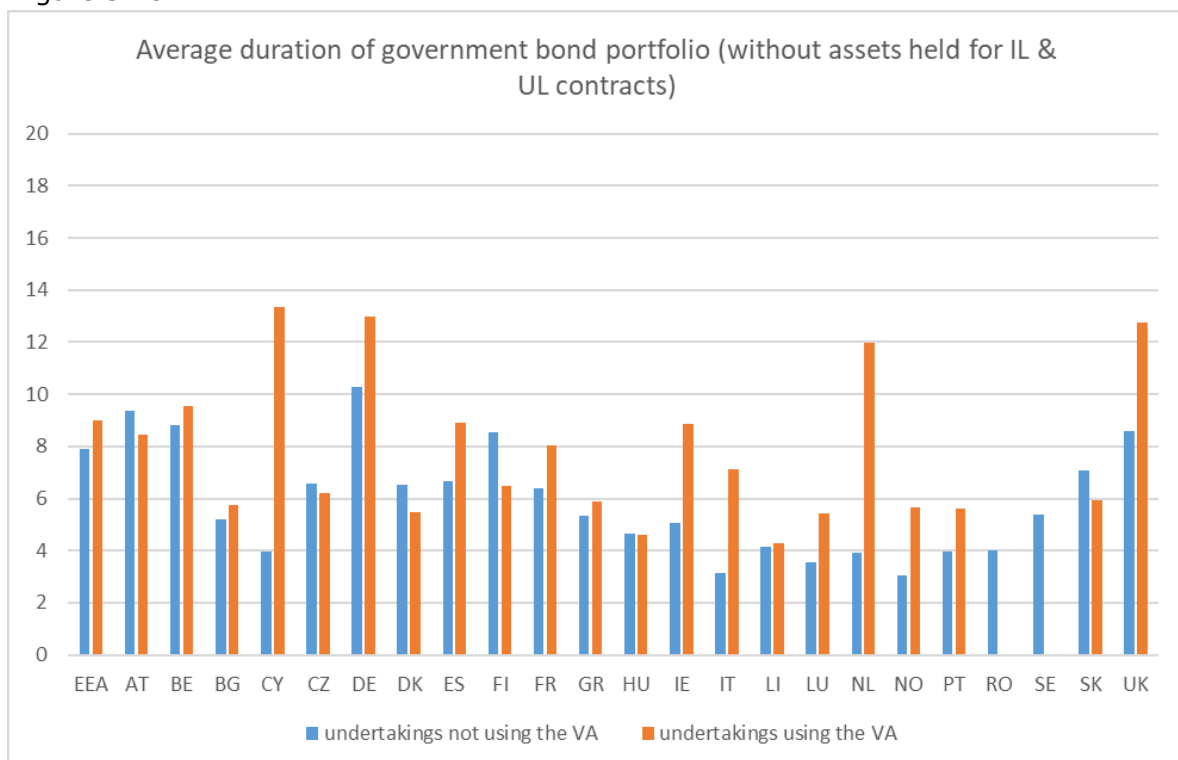
Table 3.14

Credit quality of corporate bonds for undertakings not using the VA or using the VA per country (without assets held for IL & UL contracts)						
Country	Use of the measures	CQS0	CQS1	CQS2	CQS3	CQS>3
EEA	No use of VA	31%	18%	29%	21%	2%
	Use of the VA	16%	17%	34%	31%	3%
AT	No use of VA	31%	16%	29%	23%	1%
	Use of the VA	21%	19%	35%	23%	1%
BE	No use of VA	15%	17%	32%	31%	5%
	Use of the VA	10%	18%	34%	36%	2%
BG	No use of VA	7%	4%	24%	57%	8%
	Use of the VA	5%	2%	36%	56%	2%
CY	No use of VA	27%	9%	31%	27%	5%
	Use of the VA	(*)	(*)	(*)	(*)	(*)
CZ	No use of VA	2%	31%	36%	31%	0%
	Use of the VA	0%	1%	44%	49%	5%
DE	No use of VA	42%	23%	22%	12%	1%
	Use of the VA	35%	21%	24%	18%	1%
DK	No use of VA	90%	3%	3%	2%	2%
	Use of the VA	71%	13%	6%	7%	3%
ES	No use of VA	3%	10%	38%	44%	4%
	Use of the VA	2%	15%	30%	50%	3%
FI	No use of VA	9%	7%	28%	47%	9%
	Use of the VA	12%	13%	32%	37%	6%
FR	No use of VA	10%	22%	38%	29%	2%
	Use of the VA	9%	19%	41%	30%	2%
GR	No use of VA	32%	11%	33%	20%	5%
	Use of the VA	1%	14%	34%	39%	11%
HU	No use of VA	0%	0%	18%	73%	9%
	Use of the VA	0%	7%	50%	43%	0%
IE	No use of VA	7%	14%	43%	33%	2%
	Use of the VA	24%	15%	35%	26%	0%
IT	No use of VA	16%	8%	34%	39%	3%
	Use of the VA	2%	8%	23%	57%	10%
LI	No use of VA	9%	16%	39%	34%	2%
	Use of the VA	35%	18%	24%	23%	0%
LU	No use of VA	12%	18%	37%	31%	2%
	Use of the VA	6%	12%	46%	34%	2%
NL	No use of VA	7%	26%	33%	33%	1%
	Use of the VA	5%	12%	36%	41%	5%
NO	No use of VA	44%	8%	29%	18%	0%
	Use of the VA	34%	11%	39%	16%	0%
PT	No use of VA	0%	4%	40%	37%	19%
	Use of the VA	5%	14%	30%	47%	4%
SE	No use of VA	79%	5%	7%	8%	2%
	Use of the VA	(*)	(*)	(*)	(*)	(*)
SK	No use of VA	1%	27%	27%	41%	4%
	Use of the VA	8%	19%	33%	40%	0%
UK	No use of VA	6%	14%	44%	34%	2%
	Use of the VA	10%	12%	38%	38%	2%

The following graph shows the average duration of government bonds and corporate bonds for undertakings using the VA and not using the VA. Please note that the data at EEA level for undertakings not using the VA includes data from countries where the VA is not used at all. When considering these graphs, it may be worthwhile also referring to the earlier section on the use of the VA at the beginning of this chapter. The VA is used relatively more often by life undertakings than by non-life undertakings.

The differences between undertakings using the VA and those that do not use it are less pronounced than with the MA and comparatively small overall. There have been no significant changes between 2017 and 2018, with the exception of some countries' government bonds receiving better ratings, which improved the average quality of some insurer's respective portfolios.

Figure 3.48



Impact on consumers and products

The following table sets out the share of gross written premiums of undertakings using the VA compared to the total gross written premiums by all undertakings in that country, for each line of business (columns 1 to 6) the total life insurance and life reinsurance business (column 7), and the total for non-life insurance and reinsurance business (column 8). The table is based on data reported by undertakings in the annual QRTs for 2018.

For instance, in Austria 77% of the total life insurance and life reinsurance premiums and 81.6% of health insurance premiums are written by undertakings applying the VA.

Table 3.15

Country	1. Health insurance	2. Insurance with profit participation	3. Index-linked and unit-linked insurance	4. Other life insurance	5. Health reinsurance	6. Life reinsurance	7. Total life insurance and reinsurance	8. Total non-life insurance and reinsurance
AT	81.6%	75.4%	73.0%	84.6%	0.5%	85.7%	77.0%	68.3%
BE	37.9%	97.2%	88.6%	92.2%	0.0%	100.0%	92.5%	84.9%
BG	79.7%	66.9%	78.1%	17.5%	0.0%	5.9%	53.0%	26.5%
CY	(*)	(*)	(*)	(*)	(*)	(*)	(*)	0.0%
DE	32.4%	78.5%	80.7%	88.9%	33.9%	47.2%	60.1%	32.8%
DK	58.5%	81.4%	81.8%	73.3%	100.0%	100.0%	80.8%	23.3%
ES	93.8%	96.8%	99.0%	87.2%	100.0%	8.4%	89.6%	46.0%
FI	100.0%	93.3%	86.3%	74.9%	0.0%	0.0%	86.8%	42.7%
FR	97.1%	94.5%	98.0%	89.3%	43.0%	81.5%	92.5%	54.6%
GR	99.8%	93.8%	98.9%	98.8%	0.0%	100.0%	97.7%	63.6%
HU	77.9%	25.7%	45.3%	39.3%	0.0%	0.0%	38.7%	40.8%
IE	18.8%	0.4%	27.5%	31.1%	8.2%	5.2%	22.8%	3.8%
IT	100.0%	98.7%	92.4%	93.9%	100.0%	100.0%	96.7%	88.3%
LE	0.0%	1.2%	2.8%	0.0%	0.0%	0.0%	2.0%	9.9%
LU	0.0%	97.9%	88.4%	34.7%	0.0%	-0.1%	78.8%	19.3%
MT	(*)	(*)	(*)	(*)	(*)	(*)	(*)	1.6%
NL	93.2%	99.9%	97.1%	98.2%	89.6%	85.3%	96.7%	16.1%
NO	54.3%	90.9%	95.9%	98.9%	0.0%	0.0%	91.0%	13.9%
PT	0.0%	70.3%	50.2%	14.0%	0.0%	43.5%	36.8%	58.2%
RO	(*)	(*)	(*)	(*)	(*)	(*)	(*)	0.0%
SE	(*)	(*)	(*)	(*)	(*)	(*)	(*)	0.0%
SK	26.1%	25.0%	49.3%	44.3%	0.0%	0.0%	34.4%	53.2%
UK	55.8%	16.3%	25.1%	44.8%	79.3%	10.7%	25.2%	18.3%
EEA	44.9%	84.7%	50.5%	61.9%	60.7%	28.1%	59.7%	37.0%

III.4 Transitional measure on the risk-free interest rates

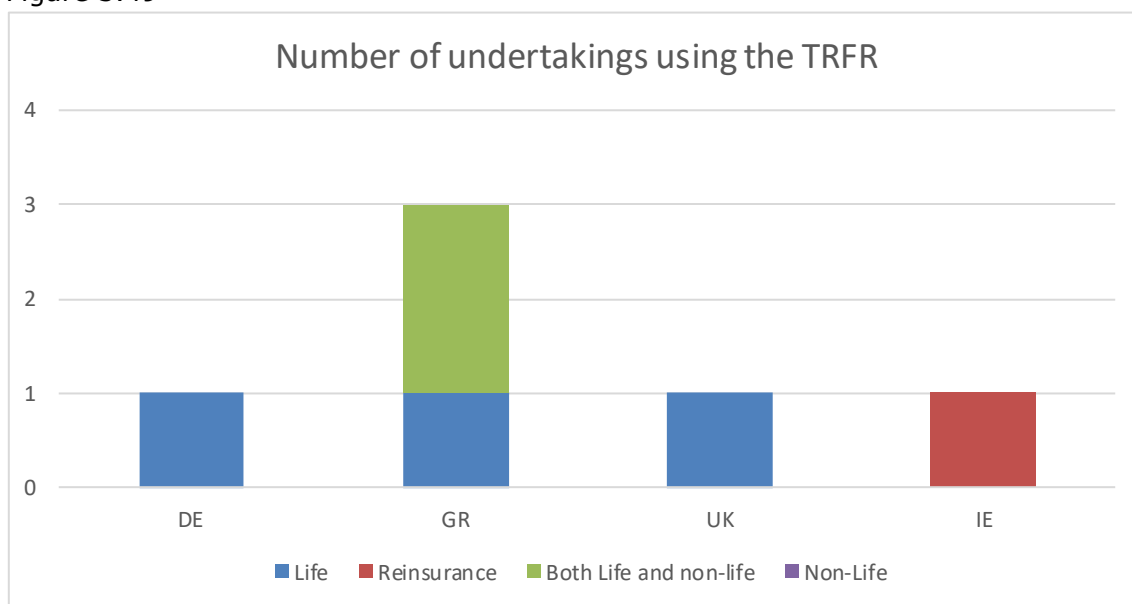
For a period of 16 years after the start of Solvency II, insurance and reinsurance undertakings may apply the transitional measure on the risk-free interest rate. Under the transitional measure undertakings apply a transitional adjustment to the risk-free interest rate for the valuation of insurance and reinsurance obligations. The transitional adjustment is based on the difference between the discount rates of Solvency I and the risk-free interest rates. At the beginning of Solvency II, the transitional adjustment is 100% of that difference. Over the transition period of 16 years, the transitional adjustment is linearly reduced to zero. The transitional measure applies only to insurance and reinsurance obligations from contracts in force before the start of Solvency II.

The use of the transitional measure is subject to supervisory approval.

Use of the transitional measure on the risk-free interest rates

Only 6 undertakings, in 4 countries, are using the TRFR.

Figure 3.49

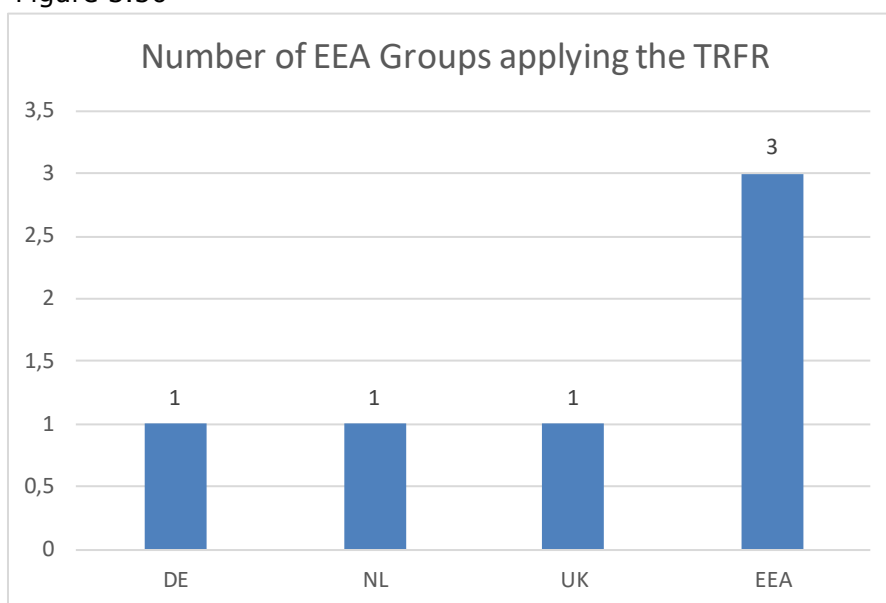


The market share in technical provisions of undertakings using the TRFR is negligible at both EEA and national level, except in Greece where the aggregated market share of the three undertakings using the TRFR is 23% of the national market.

According to the Solvency II Directive, it is possible to apply simultaneously the TRFR and the VA to the same liabilities. Among the 6 European undertakings applying TRFR, 5 also apply the VA.

Three EEA groups are using the TRFR.

Figure 3.50



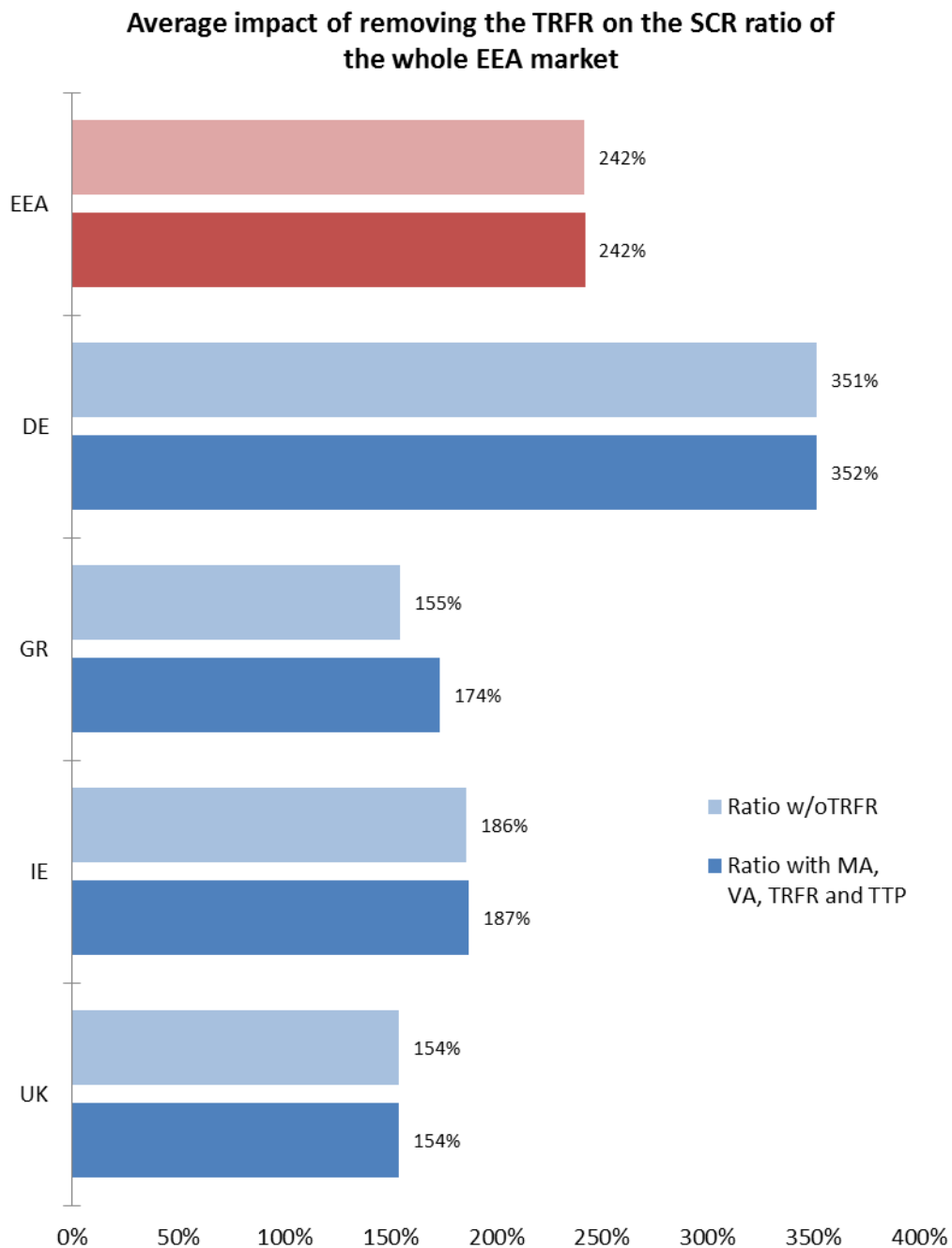
Impact on the financial position of undertakings

The impact results presented in this section are based on data from 2018 Quantitative Reporting Templates.

The number of TRFR users is limited (only 6 undertakings). In each country, the average impact of the TRFR mirrors, to a large extent, the specifics of the individual undertakings in that market, rather than the countries' specificities.

The following graph shows the overall impact of the use of the TRFR on the SCR ratio for the whole market of the countries where the TRFR is used. For those countries, it includes both undertakings using and not using the TRFR. This shows that removing the TRFR has merely no impact on the average SCR ratio for the whole market, except for Greece.

Figure 3.51



The following graphs display the overall impact of the use of the TRFR on the SCR ratio for undertakings that apply this measure. The impact is shown at EEA and at country level. The first graphs shows the SCR ratio with (dark blue) and without (light blue) the

TRFR. The red bars are for the EEA level. The second graph shows the impact in percentage points.

The impact of the TRFR on the SCR ratio for undertakings applying the measure is 48percentage points. The average SCR ratio with the TRFR is 188% and 140% without the measure. This effect on the SCR ratio is due to an average increase of 11% in the SCR and an average decrease of 18% in the eligible own funds when the measure is not used.

Figure 3.52

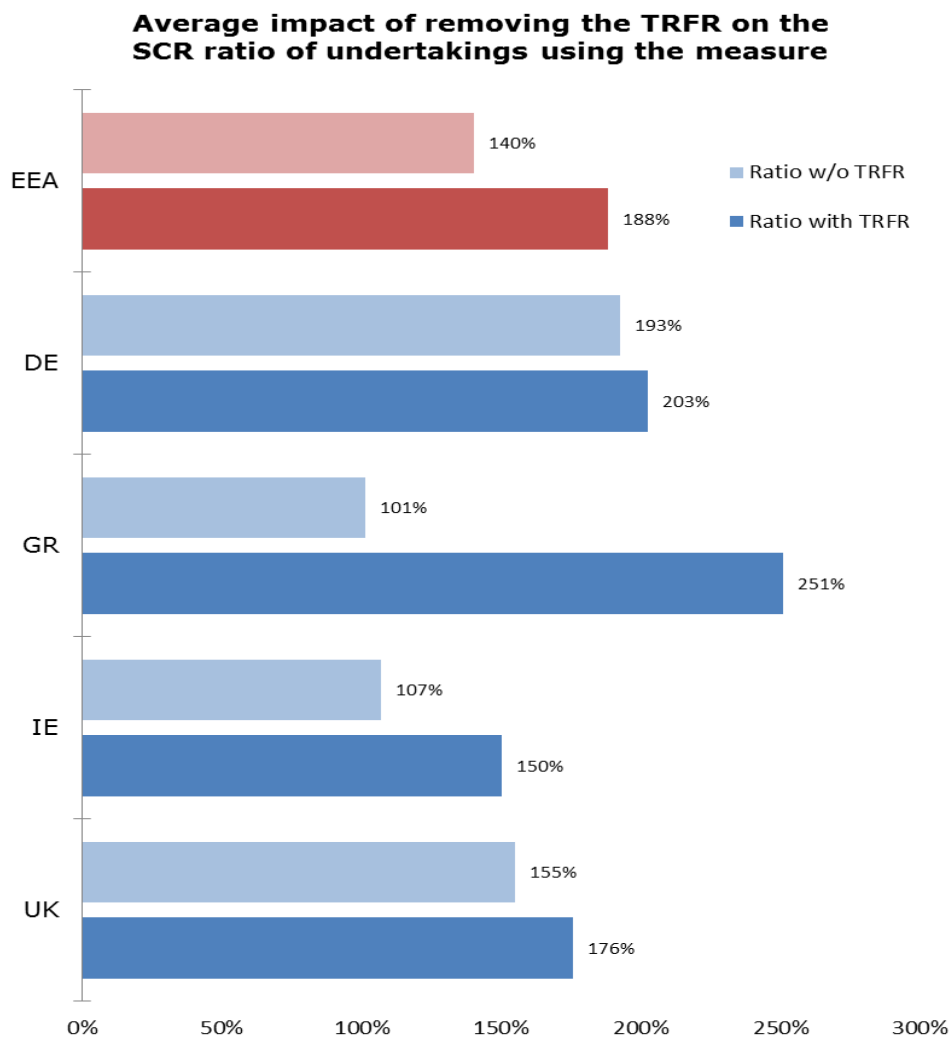
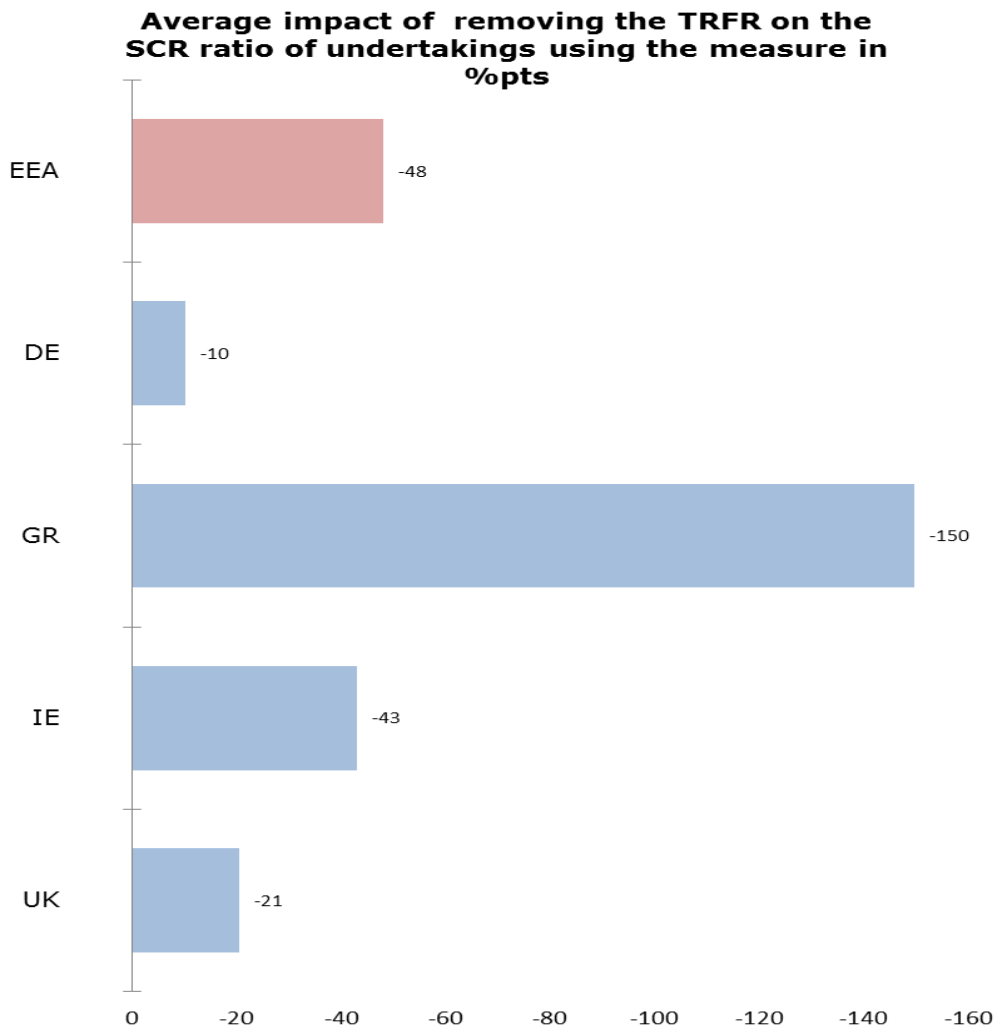
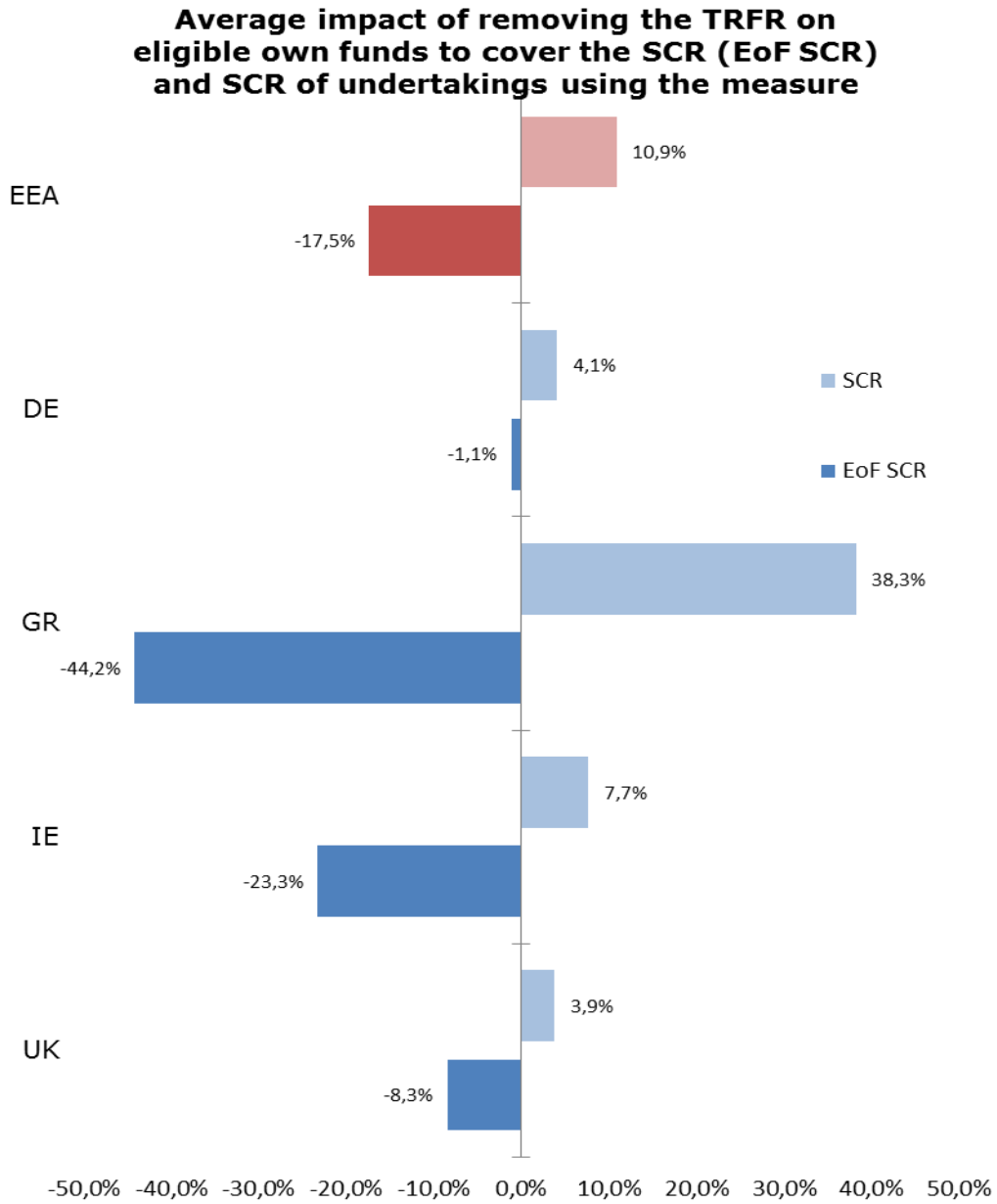


Figure 3.53



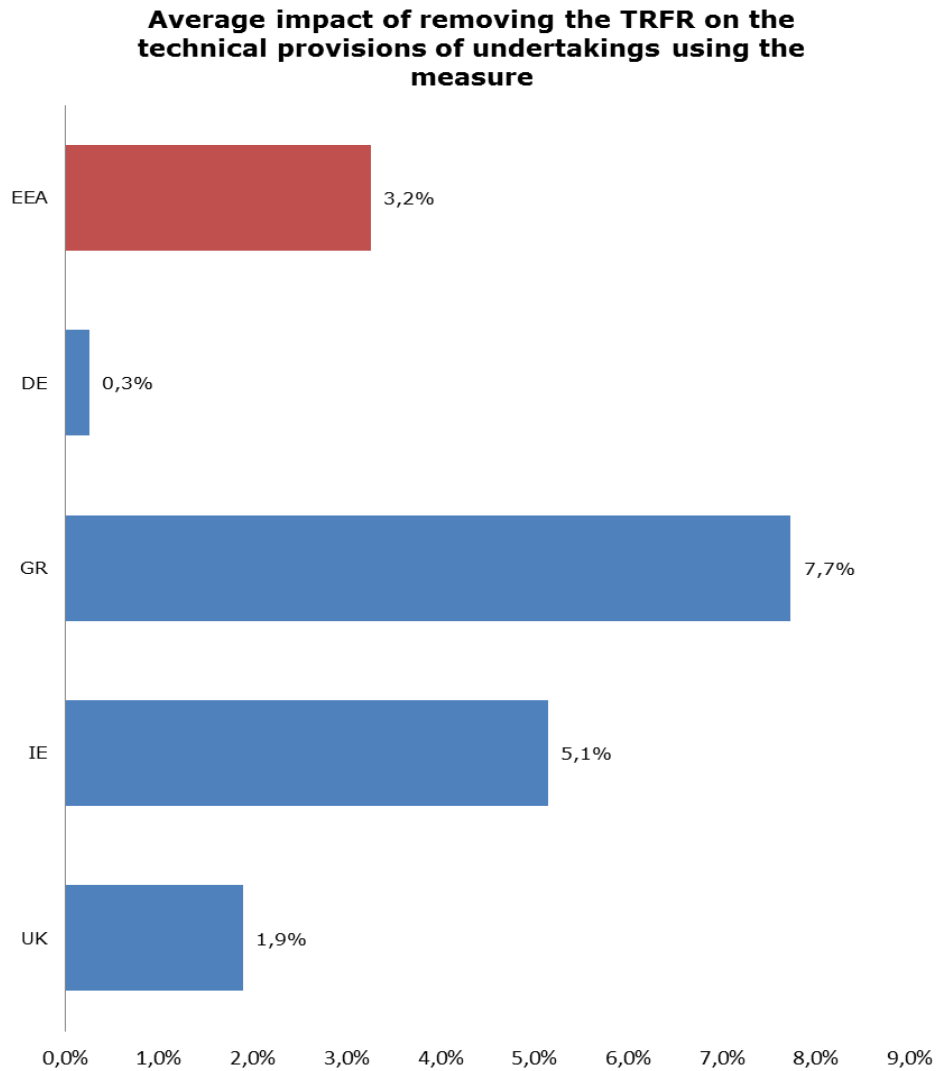
The following graph shows the impact of removing the TRFR on the SCR (light blue) and on the eligible own funds to cover the SCR (dark blue). The red bars are for the EEA level. On average, eligible own funds to cover the SCR would decrease by 17.5%, while the SCR would increase by 10.9% if the TRFR were removed.

Figure 3.54



The following graph displays the impact of removing the TRFR on the value of technical provisions (TPs) at EEA and national level. The average impact of the TRFR on the technical provisions for undertakings applying the measure is an increase of 3% when the measure is removed.

Figure 3.55



The impact of removing the TRFR on the MCR ratio for undertakings applying the measure is 139 percentage points. The average MCR ratio with the TRFR is 612% and 473% without the measure.

Figure 3.56

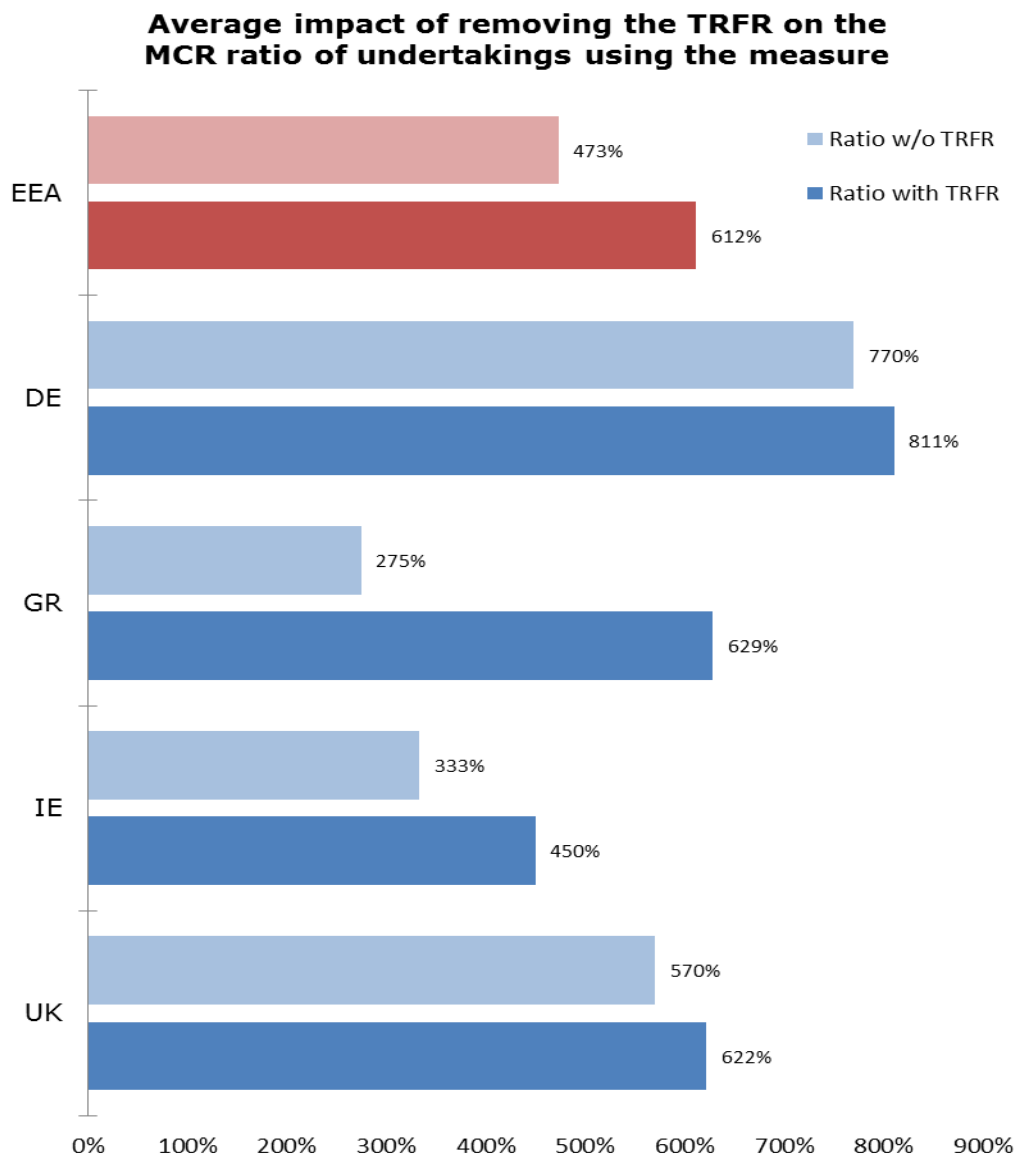
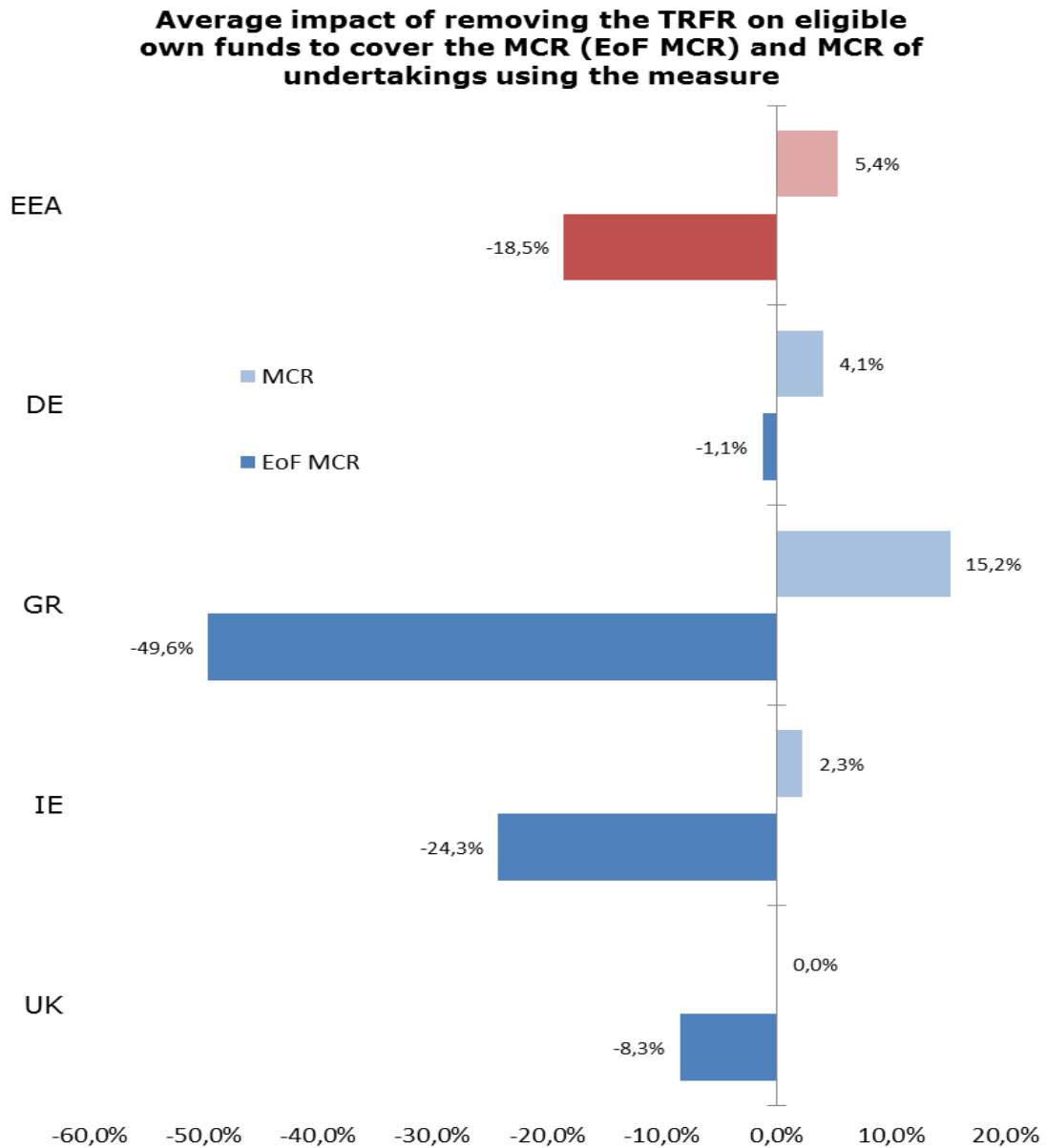


Figure 3.57



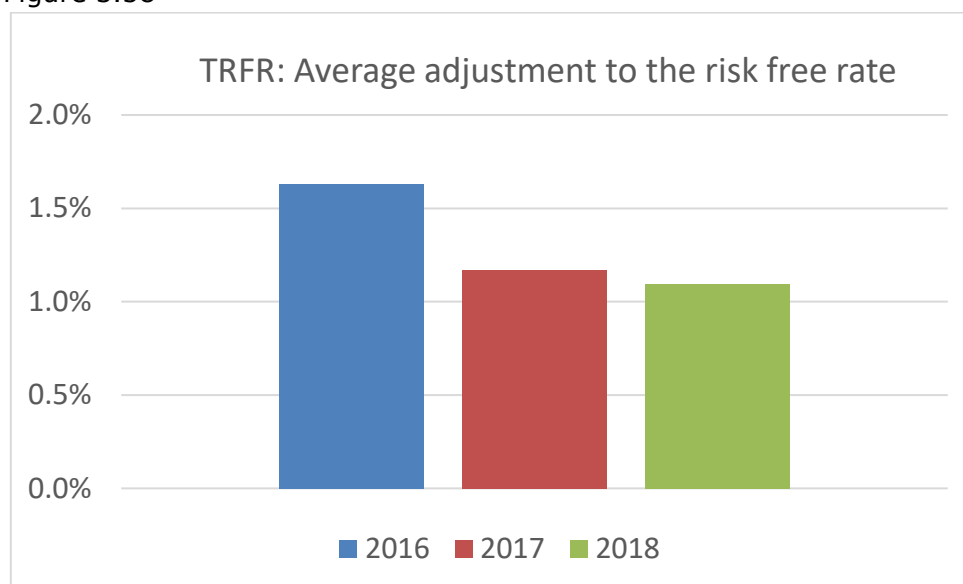
Information on the phasing-in plans for the TRFR and the prospects for a reduced dependency on the measures can be found in Section III.5.

Additional information on the TRFR based on the QRT information

Based on the quantitative information that undertaking regularly provide to supervisory authorities further analysis could be performed for this year’s report.

The following graph outlines the average adjustment to the risk free rate for year-end for year end 2016 to 2018:

Figure 3.58



The information provided in the regular quantitative reporting also allows NSAs to assess the share of best estimate in bands of guarantee level. The following graph provides an overview based on all undertakings applying the TRFR:³¹

Figure 3.59

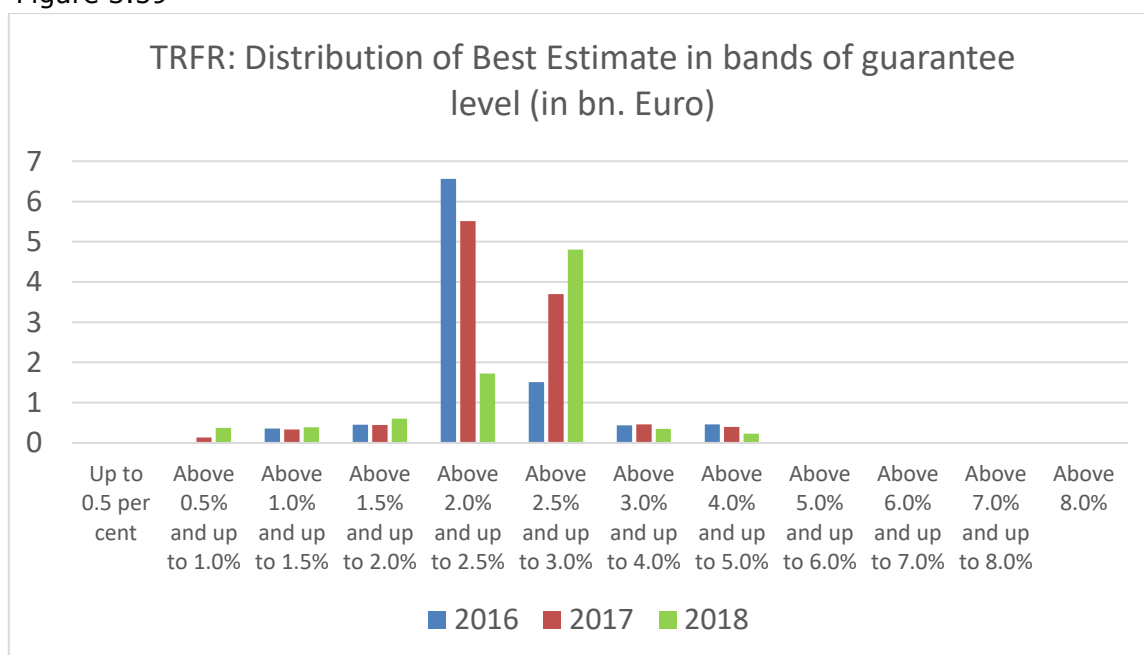
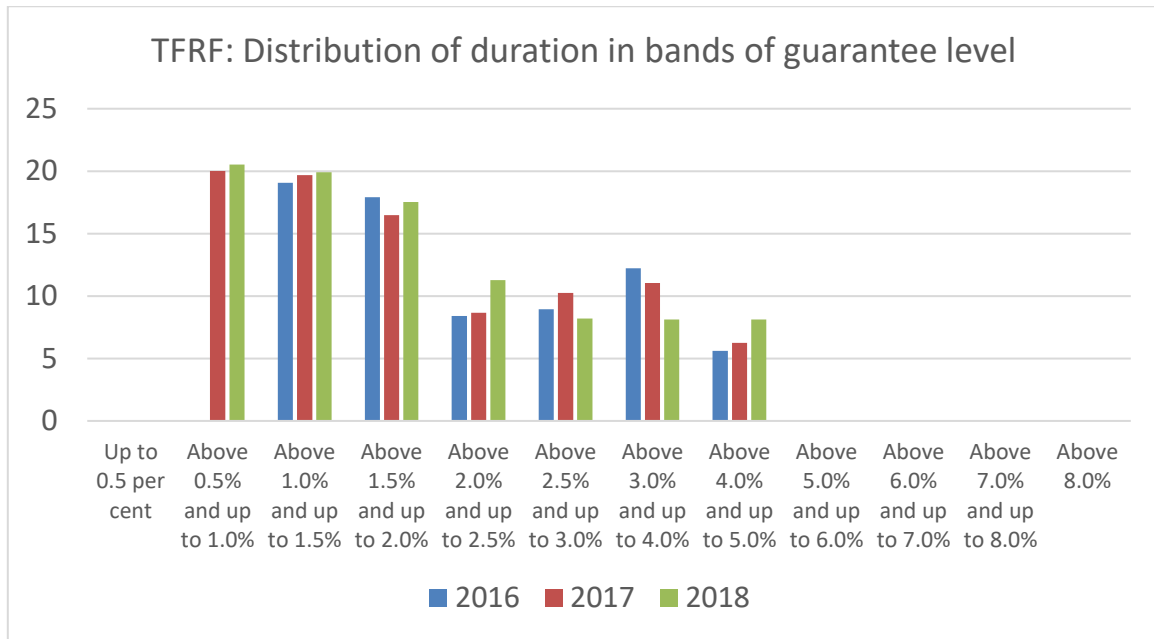


Figure 3.60

³¹ Note that changes between 2016 and 2017 are mainly due to changes in the set of undertakings using the TRFR, which can have a material effect on the average since the overall number of undertakings using the TRFR is small.



Impact on investments of undertakings, consumers and products

As only 6 insurers are applying the TRFR, it is not possible to disclose more detailed data on the impact of this measure on investments of undertakings, consumers and products per country. This data has been combined with the data for the TTPs and is presented in subsection III.5.

The following table sets out the share of gross written premiums for undertakings using the TRFR compared to the total gross premiums written by all undertakings. It also shows each line of business (columns 1 to 6), the total life insurance and life reinsurance business (column 7) and the total for non-life insurance and reinsurance business (column 8). The table is based on data reported by undertakings in the annual QRTs for 2018. Please note that due to the small number of undertakings in individual markets using this transitional measure, results have been presented at EEA level, and not been split by individual country.

Table 3.16

Country	1. Health insurance	2. Insurance with profit participation	3. Index-linked and unit-linked insurance	4. Other life insurance	5. Health reinsurance	6. Life reinsurance	7. Total life insurance and reinsurance	8. Total non-life insurance and reinsurance
EEA	0.5%	0.2%	0.2%	0.1%	0.0%	0.0%	0.0%	0.0%

III.5 Transitional measure on technical provisions

For a period of 16 years after the start of Solvency II, insurance and reinsurance undertakings may apply the transitional measure on technical provisions (TTP). Under the transitional measure, undertakings apply a transitional deduction to the technical provisions for their insurance and reinsurance obligations.

The transitional deduction is based on the difference between the technical provisions under Solvency I and the technical provisions under Solvency II. At the beginning of Solvency II the transitional adjustment is 100% of that difference, i.e. the technical provisions are equal to the technical provisions under Solvency I. Over the transitional period of 16 years the transitional deduction is reduced to zero. The transitional measure applies only to insurance and reinsurance obligations from contracts concluded before the start of Solvency II.

The use of the transitional measure is subject to supervisory approval.

Use of the transitional measure on technical provisions

The TTP is applied by 159 undertakings from 11 countries.

The technical provisions of undertakings applying the TTP represent 25% of the total amount of technical provisions in the EEA.

Figure 3.61

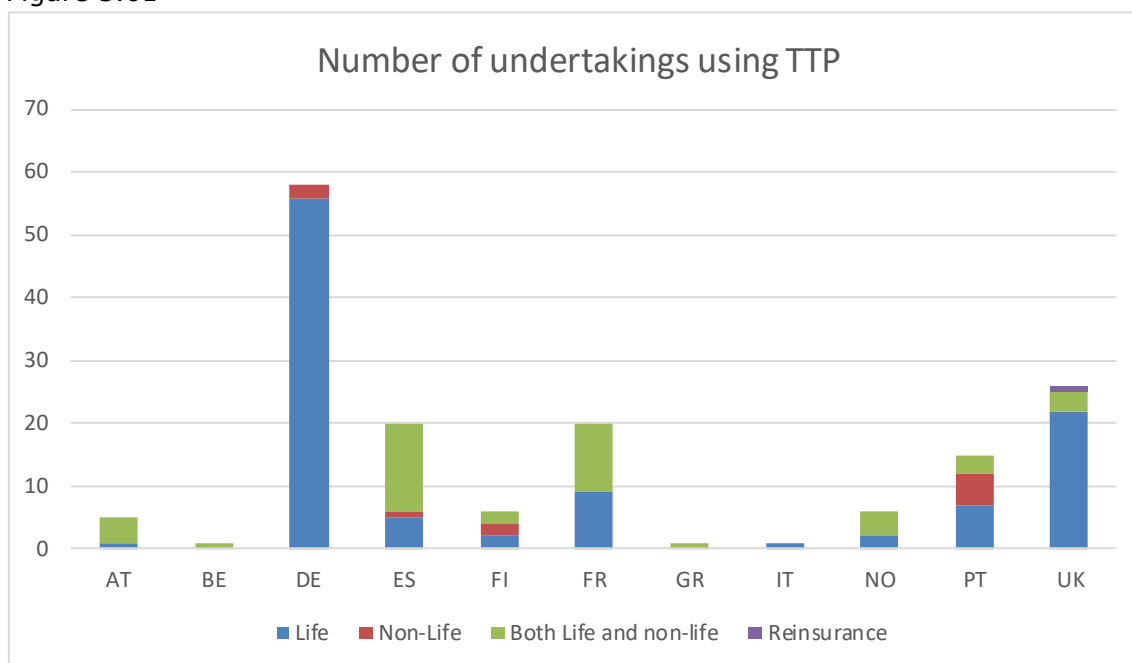


Table 3.17

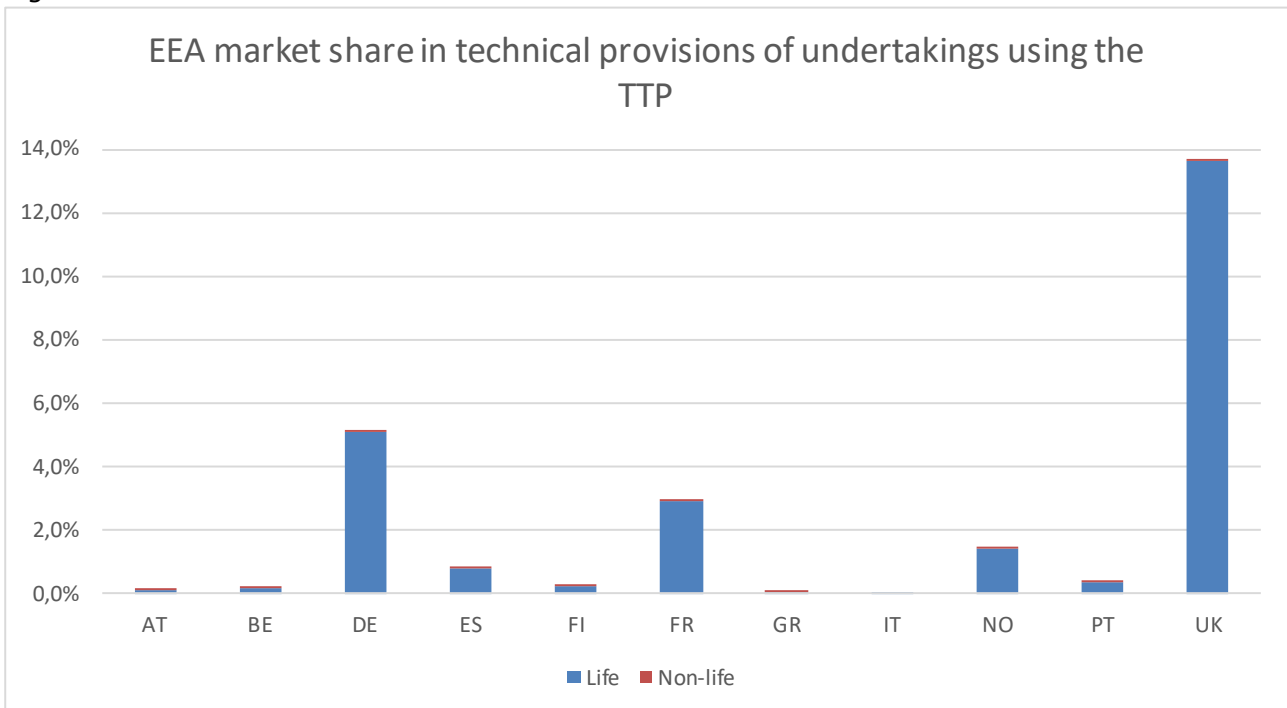
Number of undertakings using TTP							
Country	Life	Non-Life	Both Life and non-life	Reinsurance	Total	Last year	Variation from last year
AT	1	0	4	0	5	5	0
BE	0	0	1	0	1	1	0
DE	56	2	0	0	58	58	0
ES	5	1	14	0	20	23	-3
FI	2	2	2	0	6	7	-1

FR	9	0	11	0	20	17	3
GR	0	0	1	0	1	1	0
IT	1	0	0	0	1	0	1
LI	0	0	0	0	0	1	-1
NO	2	0	4	0	6	6	0
PT	7	5	3	0	15	16	-1
UK	22	0	3	1	26	27	-1
EEA	105	10	43	1	159	162	-3

The total number of undertakings using the TTP in the EEA decreased by 3 since last year's report.

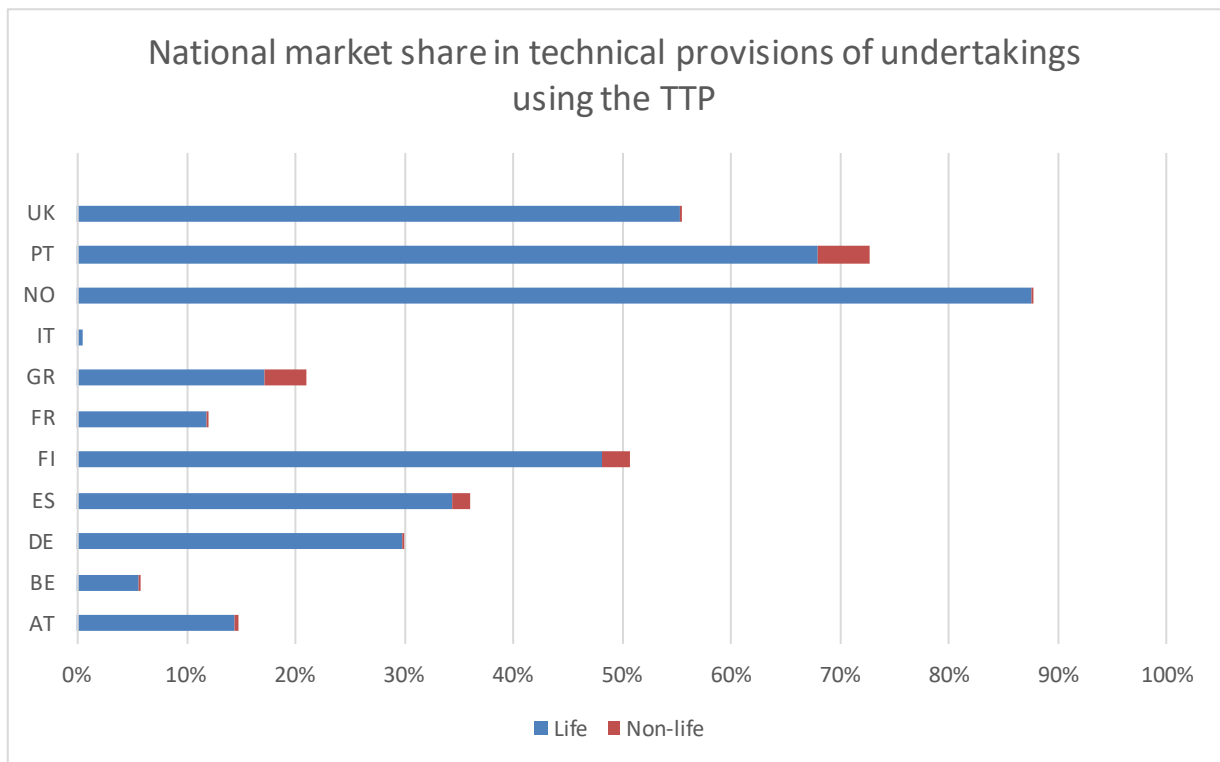
The market share in technical provisions of undertakings using the TTP is shown in the graph below. This illustrates that among undertakings using the TTP, undertakings in the UK have the highest EEA market share, followed by undertakings in DE and FR.

Figure 3.62



The following graph displays the market share in terms of technical provisions at national level for undertakings using the TTP. In Norway, undertakings representing 88% of the national market share use the TTP. In Portugal, United Kingdom and Finland, undertakings representing more than 50% of the national market are using TTP.

Figure 3.63



According to the Solvency II Directive it is possible to apply simultaneously the TTP and the MA or the VA to the same liabilities.

Table 3.18

Undertakings applying simultaneously TTP and VA to the same liabilities			
Country	Number of undertakings	% EEA market share in TP	% National market share in TP
AT	2	(*)	(*)
BE	1	(*)	(*)
DE	47	4%	24%
ES	20	1%	36%
FI	6	0%	74%
FR	19	3%	12%
GR	1	(*)	(*)
IT	1	(*)	(*)
NO	5	1%	82%
PT	9	0%	41%
UK	12	7%	30%
EEA	123	18%	-

(*)Data from these countries are not disclosed for confidentiality reasons because the number of undertakings concerned is lower than 3.

It may be insightful to compare the table above with the table on undertakings and the market share of their technical provisions and the tables on the use of only the VA or only the TTP. A comparison shows that for some jurisdictions, e.g. NO and FI, there is a large overlap between the use of the TTP and the use of the VA.

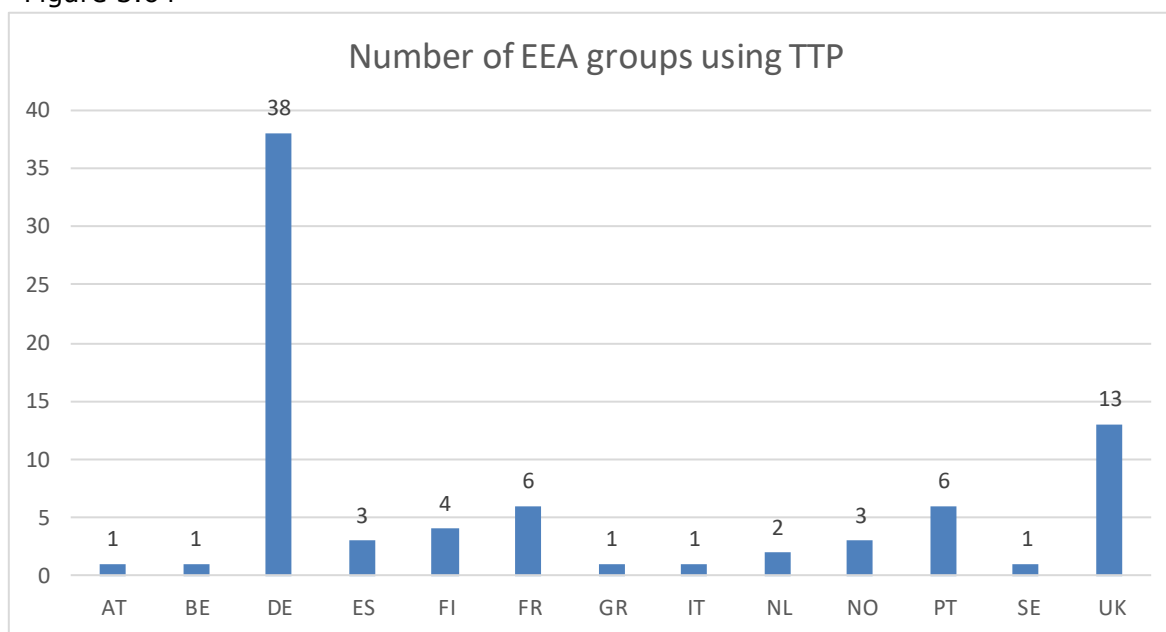
Table 3.19

Undertakings applying the TTP and MA to the same liabilities simultaneously			
	Number of undertakings	% EEA market share in TP	% National market share in TP
ES	9	1%	27%
UK	18	13%	50%
EEA	27	15%	-

Similarly, it may be insightful to compare the table above with the table on undertakings and the market share of their technical provisions and the tables on the use of only the MA or only the TTP. A comparison shows that there is a fairly large overlap between the use of the MA and the use of the TTP.

The following diagram shows the number of EEA groups using the TTP.

Figure 3.64



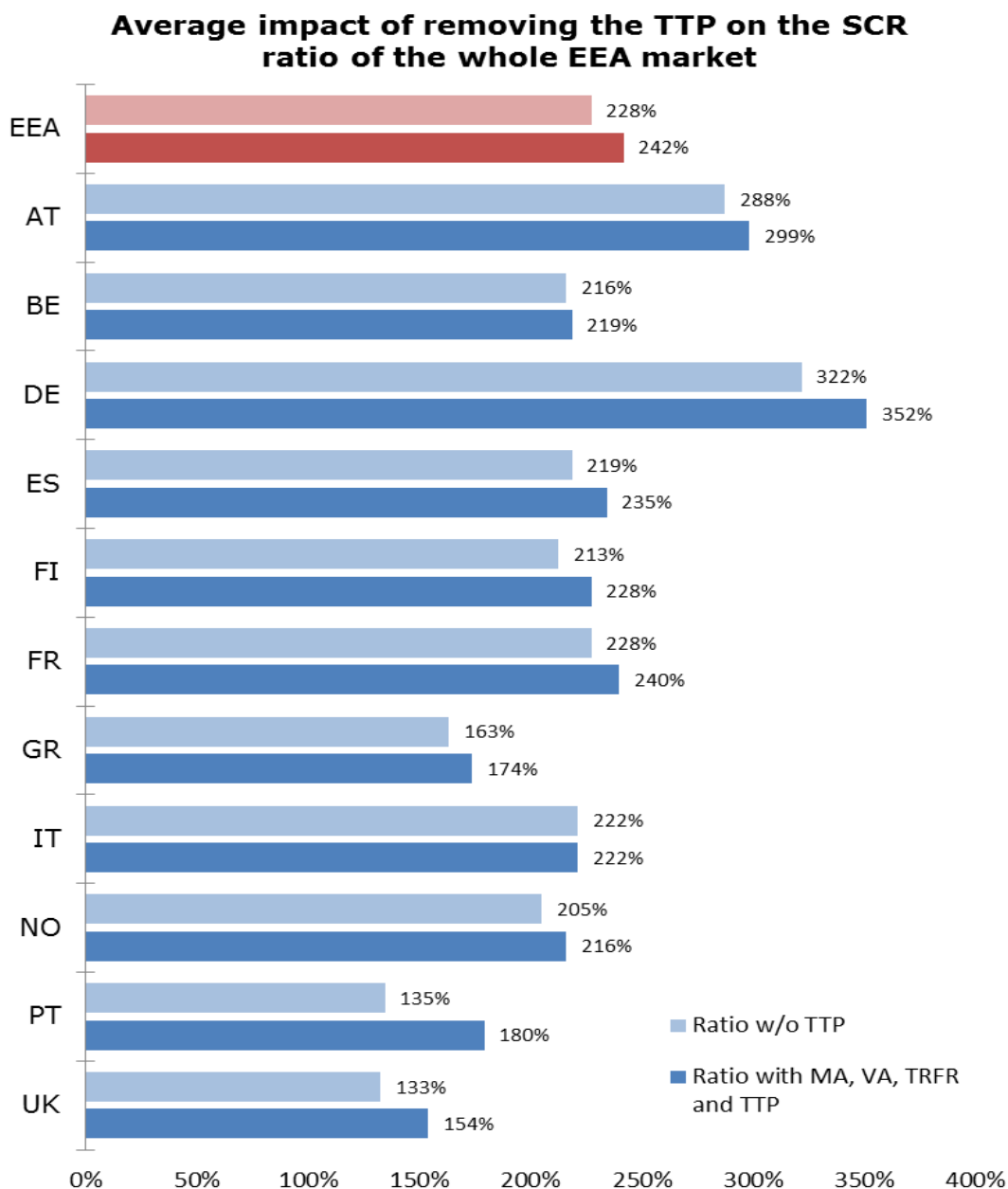
Impact on the financial position of undertakings

The impact results presented in this section are based on data from 2018 Quantitative Reporting Templates.

The following graph displays the overall impact of the TTP on the SCR ratio for the whole EEA sample (including both undertakings using or not using the measure). At the EEA

level, removing the TTP would result, on average, in a decrease of the SCR ratio by 14 percentage points.

Figure 3.65



The following graphs show the overall impact of TTP on the SCR ratio for undertakings that apply the measure. At EEA level, by removing the TTP the financial position of the insurance and reinsurance undertakings using that measure would decrease the SCR ratio from 227% to 146%. Without TTP, the eligible amount of own funds to cover the SCR would decrease by 32% while SCR would increase by 5.5% upon recalculation of the SCR.

The average change in SCR ratios is the highest for undertakings in Germany, Austria, and France. Usually both components of the SCR ratio (SCR and eligible own funds) are affected by the use of the TTP, but in opposite direction. Typically eligible own funds decrease when the TTP is removed whereas the SCR increases. Germany has the largest decrease of eligible own funds and Austria has the largest increase in the SCR.

Figure 3.66

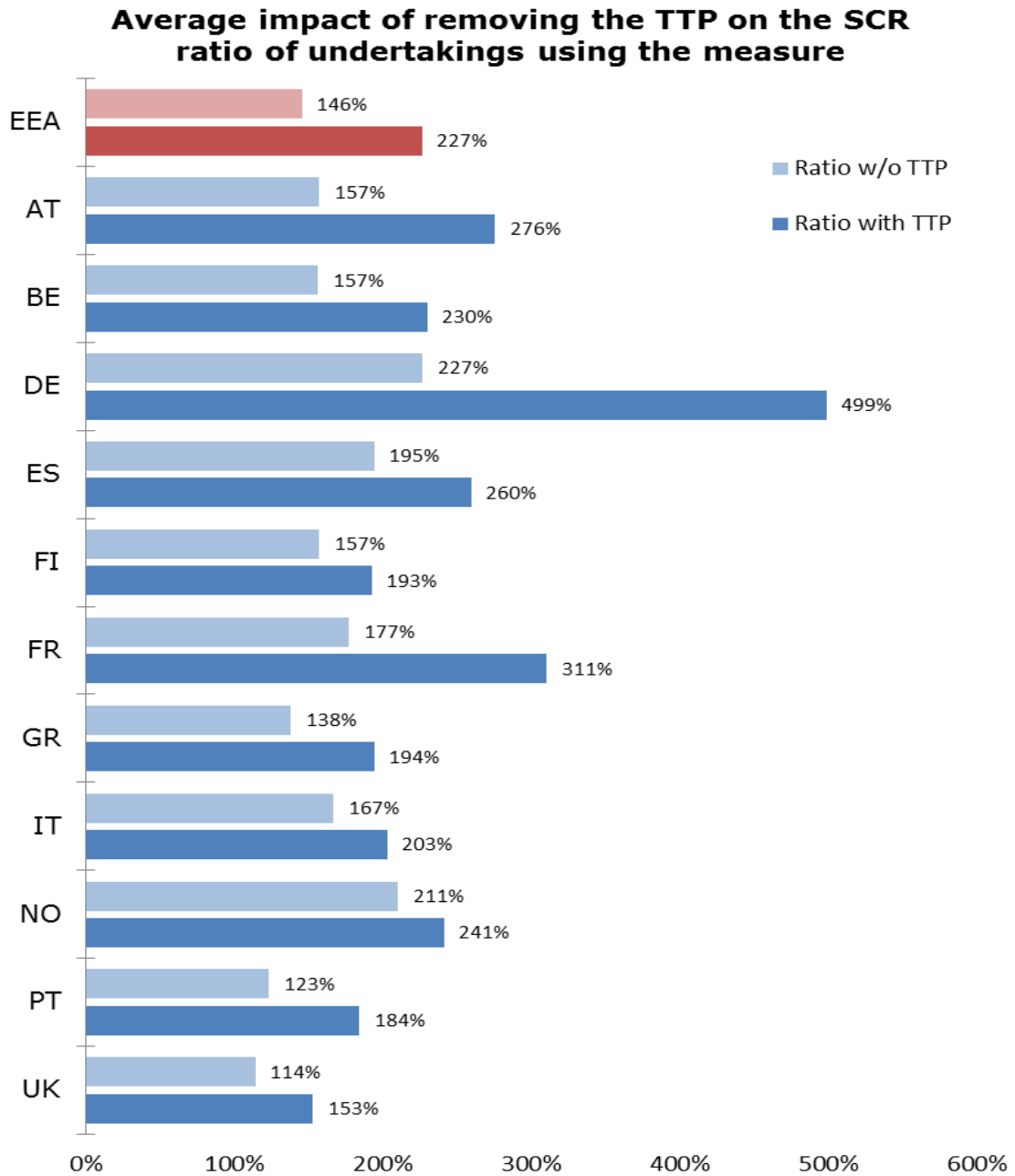
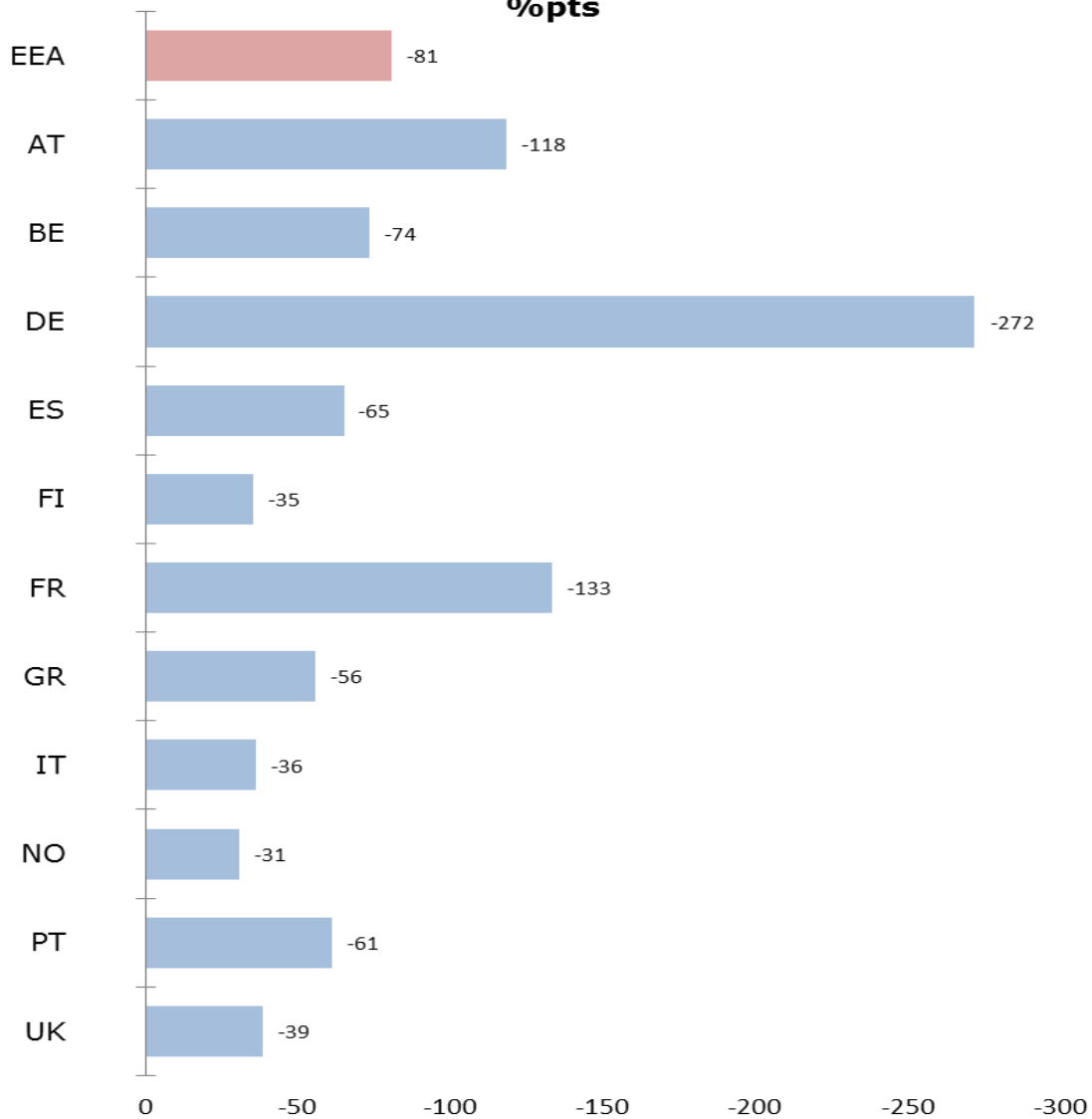


Figure 3.67

Average impact of removing the TTP on the SCR ratio of undertakings using the measure in %pts

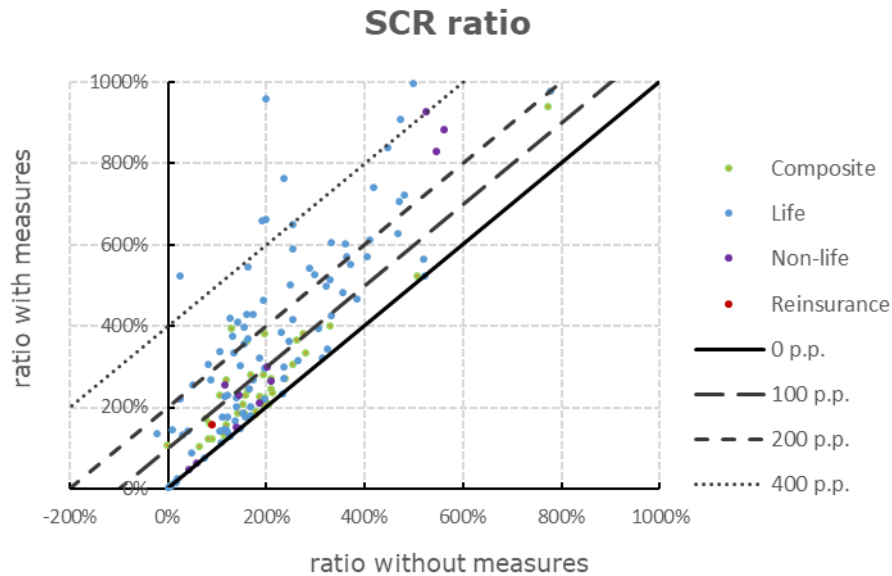


The following graph displays the impact of removing the TTP on the SCR ratio of every undertaking using the measure. Each dot in the diagram represents one undertaking, comparing the individual SCR ratio against the estimated SCR ratio without the TTP. The type of each undertaking is indicated by the colour of the dot.

In terms of SCR ratio, 52% reported an absolute impact of less than 100 percentage points.

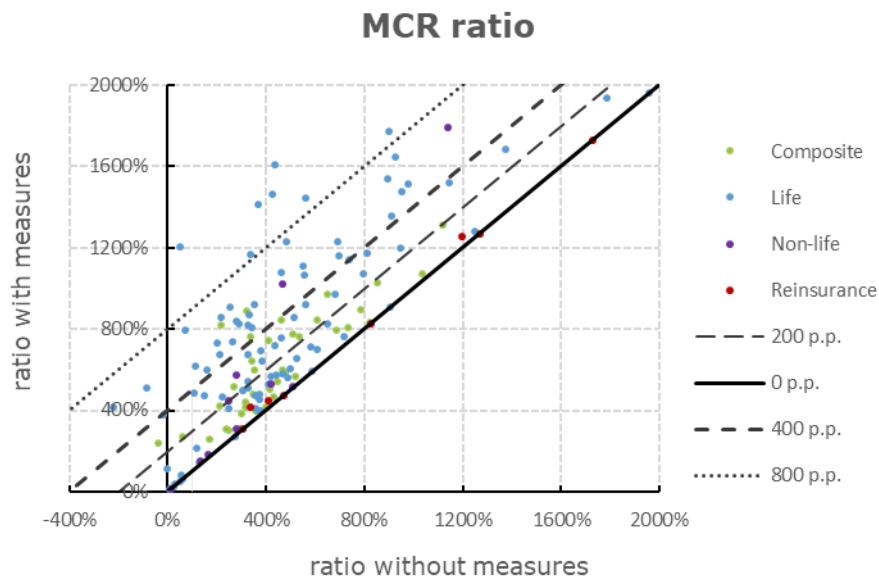
19% of undertakings using the TTP reported an SCR ratio without the measure below 100%. 1% of the undertakings using the measure reported negative eligible own funds to cover the SCR without TTP.

Figure 3.68



The following graph displays the impact of removing the TTP on the MCR ratio of every undertaking using TTP, comparing the individual MCR ratio against the estimated MCR ratio without TTP.

Figure 3.69



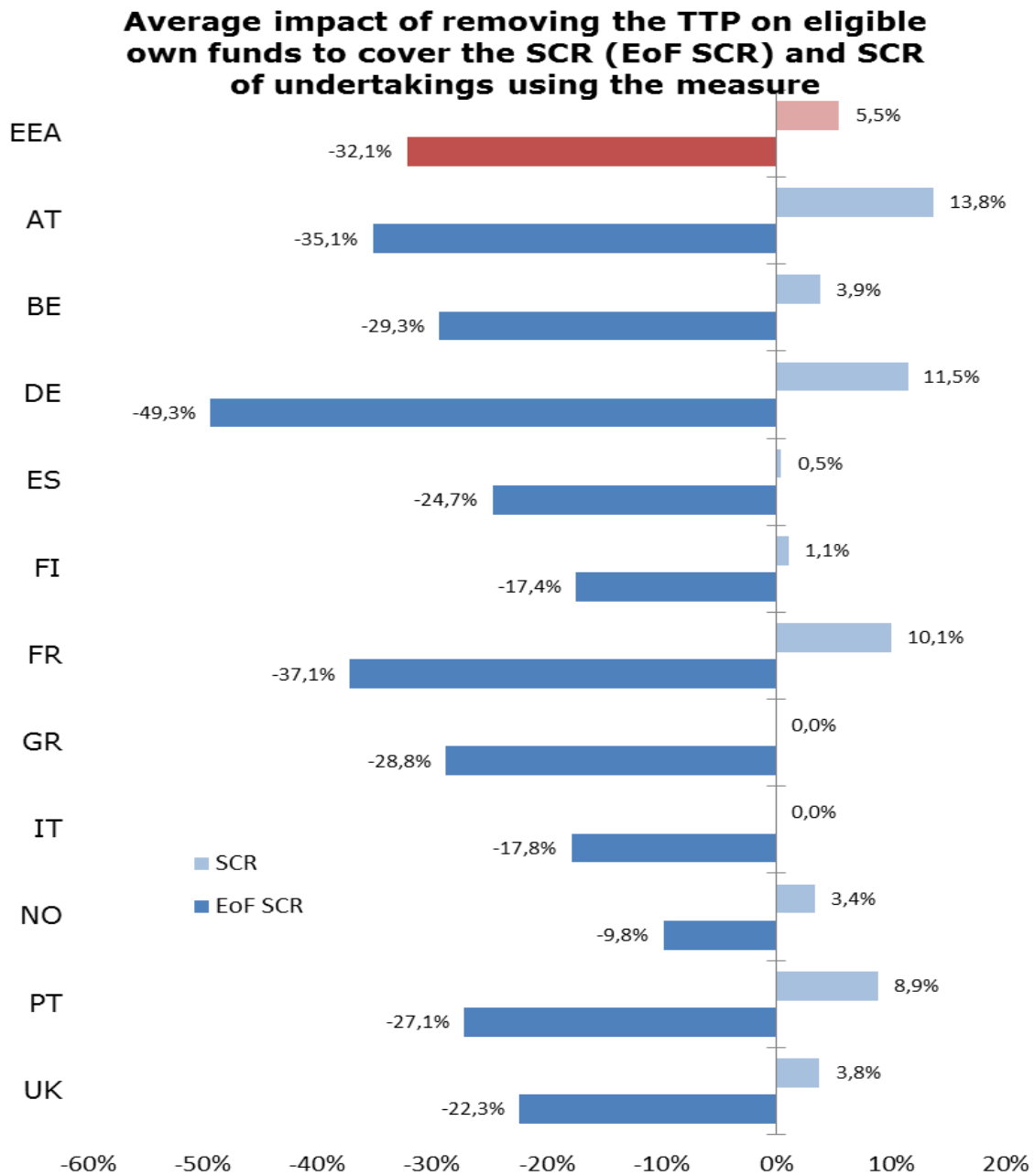
In terms of the MCR ratio, 36% reported an absolute impact of less than 100 percentage points.

11% of undertakings using the TTP reported an MCR ratio without the measure below 100%. 2% of the undertakings using the measure reported negative eligible own funds to cover the MCR without TTP.

The following graph shows the impact of removing the TTP on the SCR (light blue) and on the eligible own funds to cover the SCR (dark blue). The red bars are for the EEA

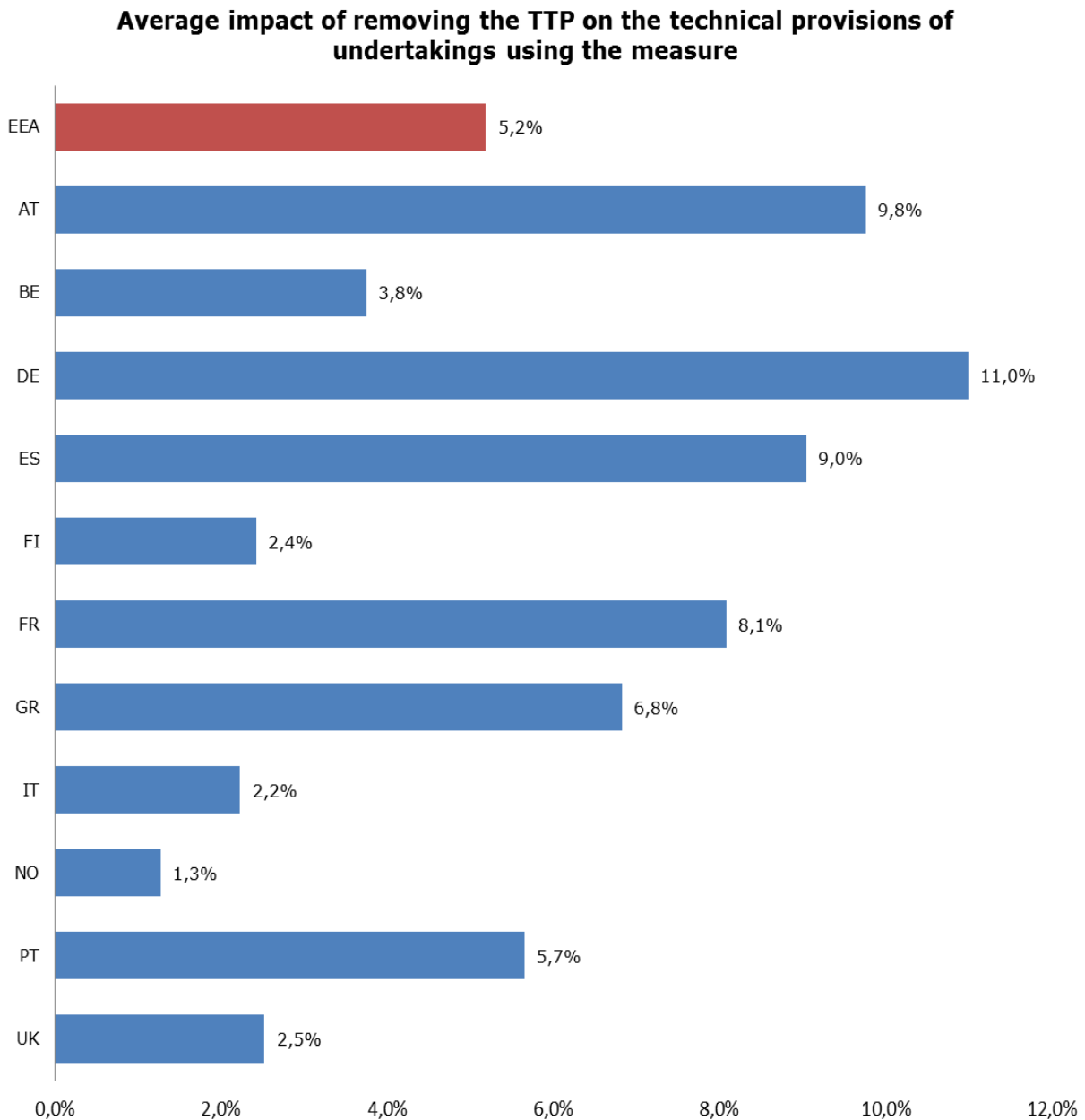
level. On average, eligible own funds to cover the SCR would decrease by 32%, while the SCR would increase by 5.5% if the TTP were removed.

Figure 3.70



The following graph displays the impact of removing the TTP on the value of the technical provisions (TPs) at EEA and national level. The average increase in technical provisions without the TTP would be around 5.5% at EEA level. At country level, undertakings from Germany would have the highest average increase due of the application of the TTP.

Figure 3.71



The following graph shows the impact of the TTP on the MCR ratio at country and EEA level for undertakings using that measure. Without TTP, the MCR ratio decreases on average by 255 percentage points.

At country level, average MCR solvency ratios are not below 100% without applying the TTP. The effects noted on the SCR are similar to the MCR and the analysis shows that undertakings from Germany, Austria and France have the highest average impact.

Figure 3.72

Average impact of removing the TTP on the MCR ratio of undertakings using the measure

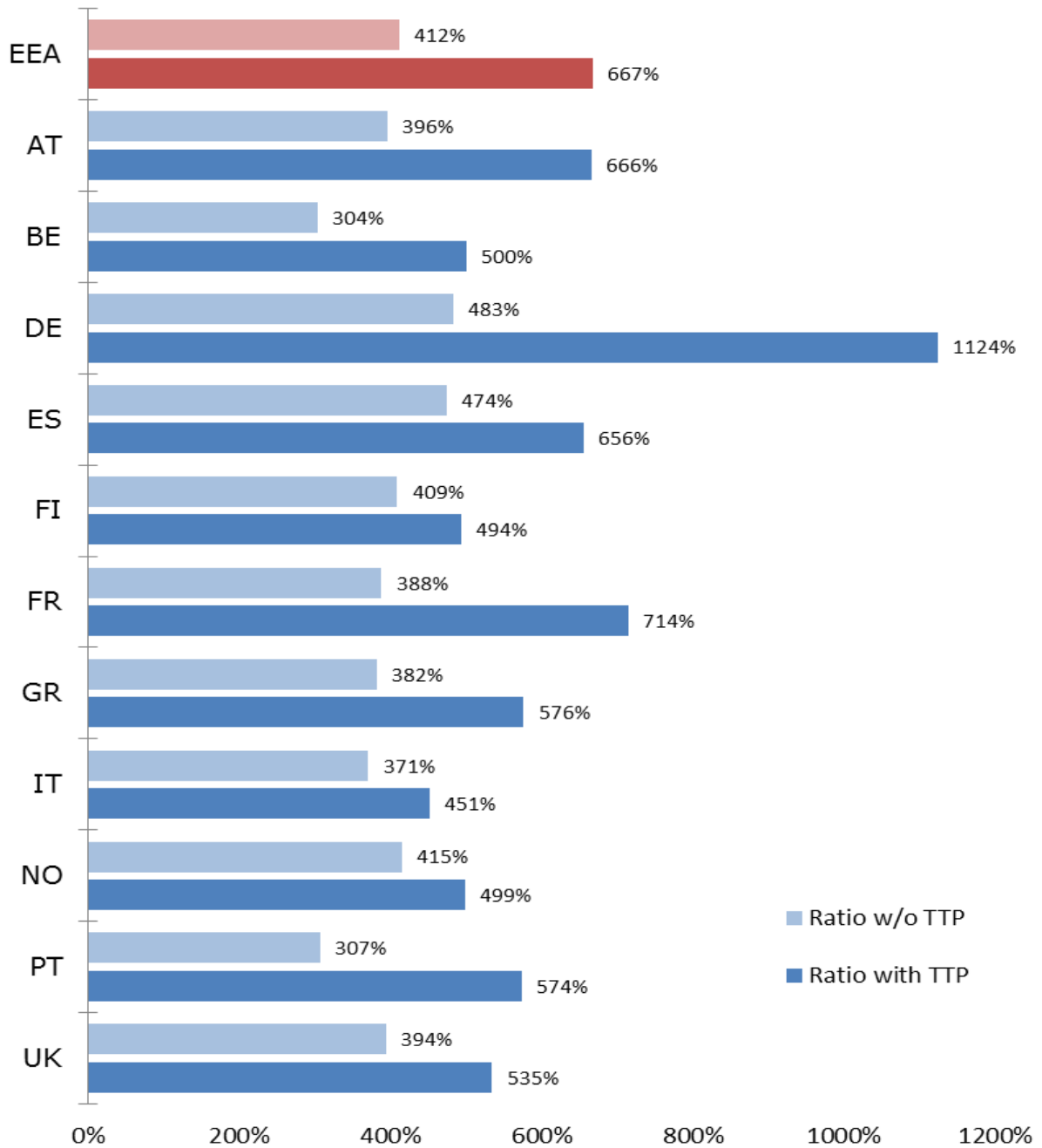
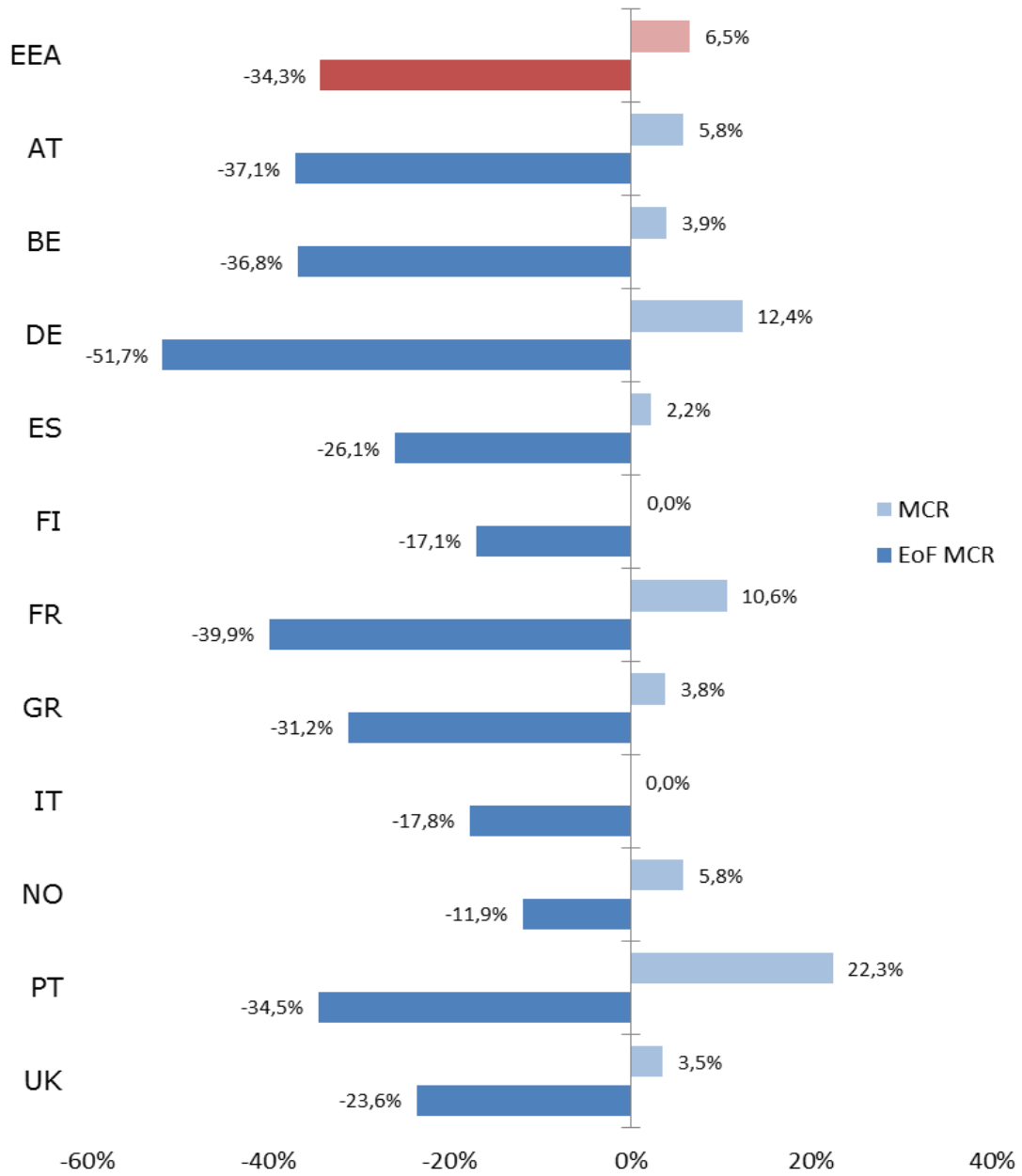


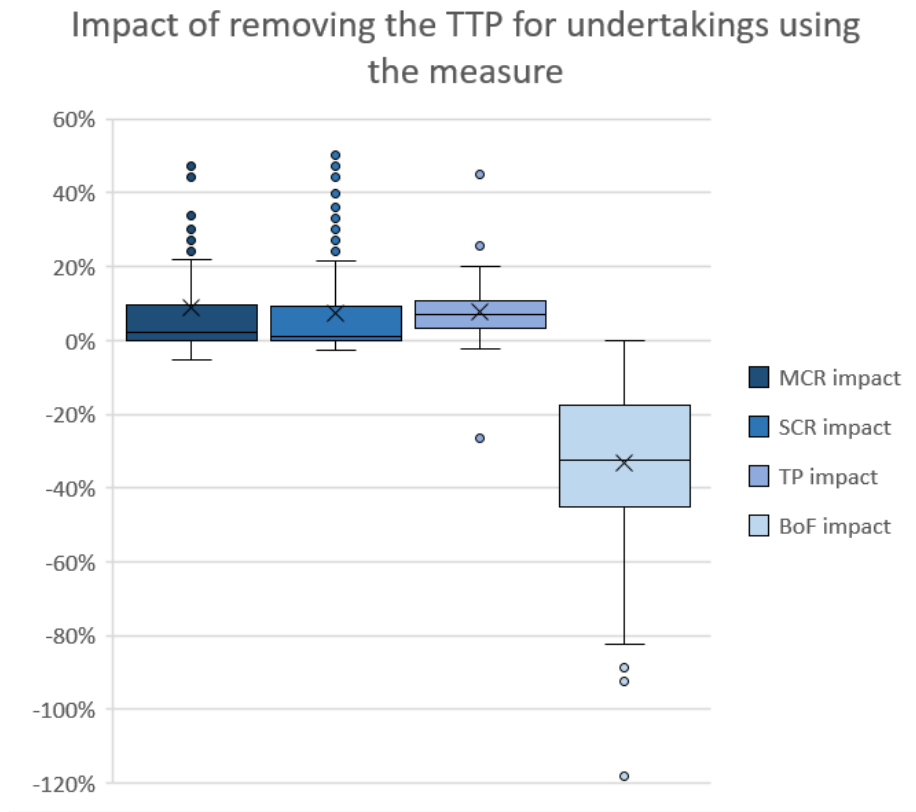
Figure 3.73

Average impact of removing the TTP on eligible own funds to cover the MCR (EoF MCR) and MCR of undertakings using the measure



The box-plots below illustrate how the impact of removing the TTP is distributed across undertakings.³²

Figure 3.74



Additional information on the TTP based on the QRT information

Based on the quantitative information that undertakings regularly provide to supervisory authorities, further analysis could be performed for this year's report.

The quantitative information identifies the number of limitations applied by NSAs. The following table outlines the number of limitations applied:

Table 3.20

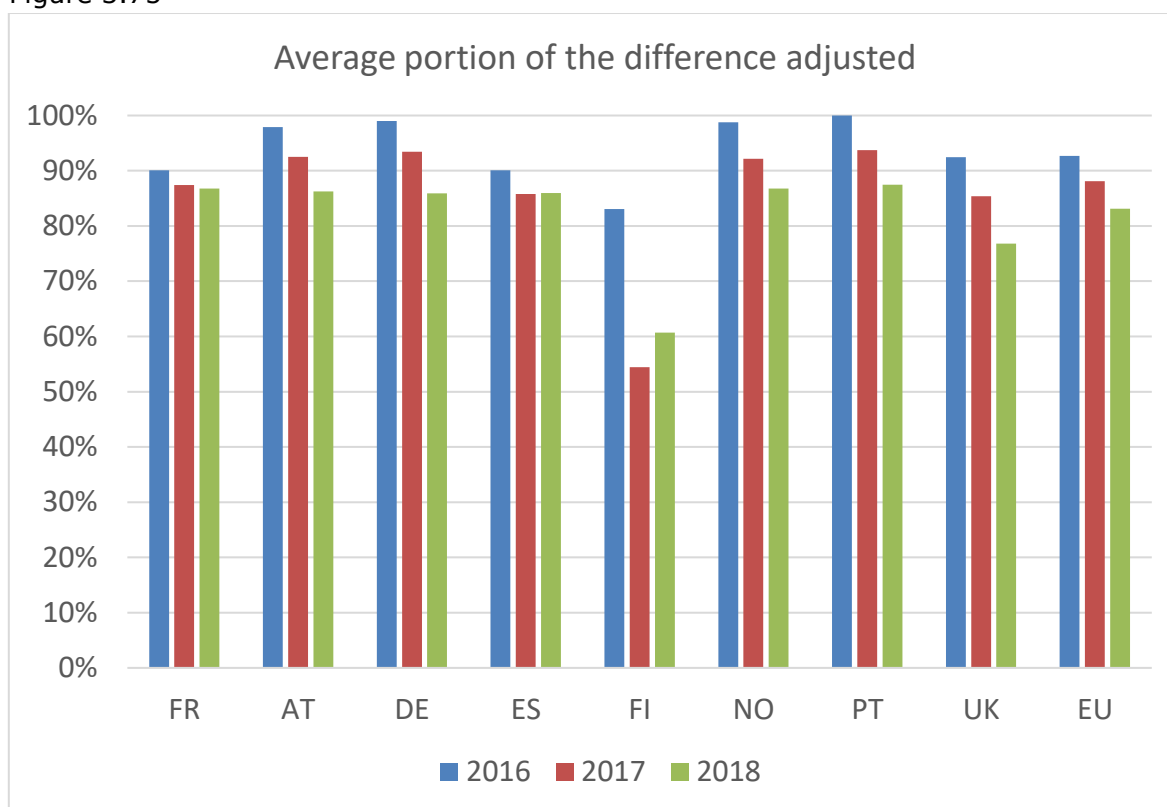
Country	2018
AT	5
DE	54
ES	13
FI	3
FR	18
NO	5
PT	13
UK	25
Others	3
Total EEA	139

³² The bottom (respectively, top) of the blue box represents the lower quartile (respectively, higher quartile) of the data set. The black band inside the box is always the middle quartile (50th percentile or median). The end of the lines extending from the boxes (called whiskers) represent the upper and lower boundaries of 1,5 interquartile-ranges. Outliers are plotted as individual points.

The maximum portion of the adjustment that can be applied is decreasing linearly during the 16 years of the transitional period. At year end 2017 the maximum portion that could be applied was 93.75% whereas at year end 2018 the maximum portion amounts to 87.50%. At year end 2018, the average portion applied (across all undertakings applying the TTP) amounted to 83%. 56 undertakings applied a lower portion than the maximum portion compared to 43 undertakings in 2017.

The following graph outlines the differences across countries in the portion of the adjustment that is applied to SII technical provisions:³³

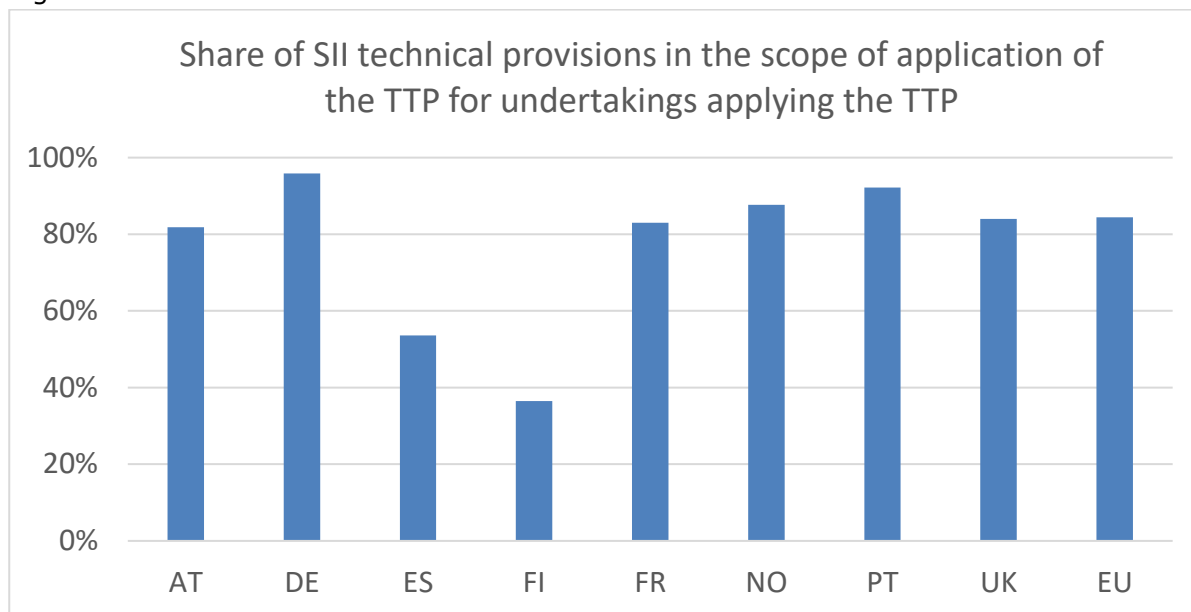
Figure 3.75



The figures provided by undertakings also allow assessment of the portion of SII technical provisions that is in the scope of the TTP. For that purpose, the SII technical provisions to which the adjustment is applied to can be compared to the total technical provisions for each undertaking. For 2018 in the EU, 84% of the technical provisions of undertakings applying the TTP are in scope for application of the transitional. However, the results vary by country:

³³ Data for 2016 and 2017 has been updated since data quality has improved. Therefore figures are not identical to those presented in last year's report.

Figure 3.76



Reliance on transitional measures (TTP and TRFR)

The table below shows the overall number of undertakings using either the TTP or TRFR and for these undertakings the table also show the number required to submit a phasing-in plan ("PIP") in 2018 and 2017.

Table 3.21

Country	Number of undertakings using TTP/TRFR	Number of undertakings for which a PIP was requested (2018)	Number of undertakings for which a PIP was requested (2017)
AT	5	0	0
BE	1	0	0
DE	59	26	26
ES	20	7	8
FI	6	0	0
FR	20	1	1
GR	4	1	1
IT	1	0	0
NO	6	0	0
PT	15	5	5
UK	27	8	10
IE	1	0	0
EEA	165	48	51

There are 165 undertakings that use the TTP or TRFR and of these, 48 were required to submit a phasing-in plan in 2018. This is because they were reliant on the TTP or the TRFR to have full SCR coverage at some point. In 2017, 51 undertakings were required to submit a phasing-in plan. The reason for the difference in comparison with 2018 is restoration of compliance with SCR (for 3 undertakings).

Review of phasing-in plans

No undertaking was required to submit a phasing-in plan for the first time in 2018.

3 undertakings in 2 jurisdictions, that were under a phasing-in plan in 2017, met 100% SCR coverage in 2018 and were no longer required to submit a phasing-in plan in 2018. Among these 3 undertakings, one has stopped applying the measure with the restoration of compliance with SCR.

Update of phasing-in plans

Firms have revised existing plans in 4 jurisdictions, either upon supervisor's request or at the undertaking's own initiative. Amendments are mostly the result of updates in phasing-in or business projections.

One undertaking introduced a "retaining profit" measure in its phasing-in plan at the supervisory request. One other undertaking also adjusted the hypothesis used in the original plan in order for them to be more realistic, in particular about expenses.

Review of progress reports

Undertakings that are reliant on transitional measures to fully cover the SCR are expected to submit progress reports on an annual basis. NSAs generally reported that the progress reports are considered sufficient and illustrate the progress of undertakings in complying with the SCR without the transitional measures.

It was noted in most cases that undertakings showed continuous progress in complying with the solvency capital requirement without transitional measures. One NSA has however noticed a decrease in the solvency ratio without the measures, not due to lack of progress in management actions but mainly due to unfavourable changes in the investment markets and worse than expected development of the in-force portfolio. It was also mentioned that the review of the progress report led to the update of the phasing-in plan.

Views of NSAs

As in 2017, NSAs are generally confident that undertakings will be able to reduce the dependency on transitional measures, to the point of no dependency by 1 January 2032. This confidence has been strengthened this year with progress made. It was reported that the measures planned by undertakings in their PIP have already provided an effective contribution to strengthening undertaking's solvency position under the low-rate environment. However, it was also noted that the situation is still very early in the transitional period.

The following table provides an overview of the number of undertakings who do not comply with the SCR without the transitional measures at year end 2018. It also shows the missing amount of eligible own funds to comply with the SCR without the transitional measures on 31st December 2016, on 31st December 2017 and on 31st December 2018.

Table 3.22

Country	Undertakings not complying with the SCR without the transitional measures			Missing amount of eligible own funds to comply with the SCR without the transitional measures (billion euro)		
	Year end 2016	Year end 2017	Year end 2018	Year end 2016	Year end 2017	Year end 2018
FR	1	1	0	0.13	0.06	0
DE	13	8	6	1.59	0.53	0.39
ES	3	2	2	0.23	0.14	0.13
GR	2	1	1	0.06	0.04	0.06
NO	1	0	0	0.01	0	0
PT	10	6	4	0.76	0.25	0.03
UK	13	9	8	6.12	5.71	3.71
Total	43	27	21	8.9	6.82	4.32

In comparison with last year, the total number of undertakings who do not comply with the SCR without the transitional measures at EEA level decreased by 6. This went from 27 undertakings at year end 2017, to 21 undertakings at the end of 2018. The missing amount of eligible own funds to comply with the SCR without the transitional measures decreased by 2.5 billion euro, from 6.82 billion euro at year end 2017 to 4.32 billion euro at the end of year³⁴, with one jurisdiction accounting for 86% of this amount.

Supervisory measures taken or expected to be taken by NSAs

NSAs were asked to report about the measures that they have taken or that they expect to take with respect to undertakings depending on these transitional measures to comply with the SCR. NSAs reported a variety of approaches.

One NSA noted that they consider the solvency position of undertakings both with TTP and without TTP when assessing the riskiness of undertakings.

Two NSAs measure the riskiness of undertakings without the effect of transitional measures when constructing a work plan, and will prioritise reviews of undertakings using TTP or TRFR – particularly if they are reliant on transitional measures to fully cover the SCR. The NSAs expect companies to use appropriate metrics to measure their risks, define their risk appetite (i.e. without transitional measures), take into account

³⁴ It should be noted that during the observed time period (i.e. between 1st January 2017 and year end 2018), the set of undertakings not complying with the SCR without the transitionals might have changed

in their strategies the fact that they comply with their SCR only through the use of transitional measures, present clear and relevant information to their AMSB regarding solvency issues and provide the relevant information in their SFCR.

One NSA noted that they would disagree to dividend payments if those payments were considered likely to endanger the future solvency situation.

One NSA explicitly informs the market on a regular basis about the number of undertakings depending on transitional measures and the extent to which transitional measures are necessary to comply with the SCR.

Two NSAs have communicated supervisory statements setting expectations regarding the use of transitional measures. One includes the expectation that undertakings should be able to demonstrate that their capital position is sustainable under a range of operating conditions after allowing for any capital distributions and the TTP run-off.

One NSA reported that on-site inspections have been made with respect to undertakings depending on transitional measures on technical provisions to comply with their SCR.

One NSA has requested the recalculation of the TTP deduction for all undertakings using the measure³⁵.

NSAs generally reported that they expect companies to implement the measures they have committed to in phasing-in plans, and intend to monitor the progress made during the transitional period by reviewing the progress reports. Where necessary, a regulatory meeting for an in-depth discussion with the undertaking's representatives is arranged. NSAs reported that in the event that the phasing-in plans or progress reports are inadequate and this inadequacy is not remediated by an amended plan, revocation of the transitional measure will be considered.

Impact on the investments of undertakings

The following tables and graphs illustrate some characteristics of the investments held by undertakings using the TTP or the TRFR. In total this relates to 12 countries³⁶.

Similar to the tables and graphs in the general section II.4 of the report, the tables and graphs below consider the investments of undertakings from three perspectives:

- The investment allocation
- The credit quality of the bond portfolio, separately for government bonds and corporate bonds
- The duration of the bond portfolio, separately for government bonds and corporate bonds

³⁵ This recalculation has impact on 01.01.2019

³⁶ The TTP is used by undertakings in 11 countries; the TRFR is used in 4 countries. In IE the TRFR is used, but not TTP. In the other 3 countries where TRFR is used, the TTP is also used. Due to lack of data, LI is not included in the tables on investments in this section.

The following tables show the investment allocation of undertakings applying the TTP or the TRFR. Please note that, due to confidentiality reasons, any cells that relate to less than three undertakings are denoted by (*).

Table 3.23

Investment allocation at EEA and country Level of undertakings applying the TTP or the TRFR								
Country	Government bonds	Corporate bonds	Unit linked/index linked	Equity	Collective Investment Undertakings	Mortgages and loans	Cash and deposits	Other
EEA	19%	27%	25%	7%	8%	6%	5%	4%
AT	28%	30%	17%	6%	1%	5%	2%	11%
BE	(*)	(*)	(*)	(*)	(*)	(*)	(*)	(*)
DE	26%	39%	8%	5%	9%	6%	2%	7%
ES	52%	20%	8%	6%	0%	0%	10%	3%
FI	7%	23%	50%	4%	6%	3%	7%	1%
FR	29%	32%	15%	8%	3%	1%	7%	5%
GR	47%	19%	27%	2%	0%	1%	4%	2%
IE	(*)	(*)	(*)	(*)	(*)	(*)	(*)	(*)
NO	10%	35%	17%	18%	9%	10%	2%	1%
PT	34%	25%	18%	8%	5%	0%	9%	1%
UK	12%	20%	36%	6%	9%	7%	6%	3%

Table 3.24

Investment allocation at EEA and country Level (without assets held for IL & UL contracts) of undertakings applying the TTP or the TRFR							
Country	Government bonds	Corporate bonds	Equity	Collective Investment Undertakings	Mortgages and loans	Cash and deposits	Other
EEA	25%	36%	9%	10%	7%	7%	5%
AT	34%	36%	7%	1%	5%	3%	13%
BE	(*)	(*)	(*)	(*)	(*)	(*)	(*)
DE	28%	42%	5%	10%	6%	2%	7%
ES	57%	22%	6%	0%	0%	11%	3%
FI	13%	45%	9%	13%	6%	13%	1%
FR	34%	38%	9%	4%	1%	8%	6%
GR	63%	26%	3%	0%	1%	5%	2%
IE	(*)	(*)	(*)	(*)	(*)	(*)	(*)
NO	12%	42%	21%	11%	11%	2%	1%
PT	41%	30%	10%	6%	0%	10%	1%
UK	19%	32%	10%	14%	11%	9%	5%

The following table shows the credit quality of government bonds. Please note that the data at EEA level for undertakings not using the TTP or TRFR includes data from countries where the TTP or TRFR is not used at all.

Table 3.25

Credit quality of government bonds for undertakings not using the TTP or TRFR or using the TTP or TRFR, per country (without assets held for IL & UL contracts)						
Country	Use of the measures	CQS0	CQS1	CQS2	CQS3	CQS>3
EEA	No use of TTP and TRFR	18%	44%	12%	26%	1%
	Use of the TTP or TRFR	18%	54%	13%	14%	1%
AT	No use of TTP and TRFR	19%	45%	26%	9%	1%
	Use of the TTP or TRFR	0%	60%	30%	10%	1%
BE	No use of TTP and TRFR	9%	74%	10%	8%	0%
	Use of the TTP or TRFR	(*)	(*)	(*)	(*)	(*)
DE	No use of TTP and TRFR	40%	41%	13%	6%	0%
	Use of the TTP or TRFR	37%	46%	10%	6%	1%
ES	No use of TTP and TRFR	2%	3%	67%	27%	0%
	Use of the TTP or TRFR	2%	2%	59%	37%	0%
FI	No use of TTP and TRFR	43%	53%	2%	1%	0%
	Use of the TTP or TRFR	56%	35%	5%	2%	2%
FR	No use of TTP and TRFR	8%	79%	5%	8%	0%
	Use of the TTP or TRFR	5%	65%	7%	24%	0%
GR	No use of TTP and TRFR	19%	16%	6%	9%	50%
	Use of the TTP or TRFR	7%	23%	7%	23%	40%
IE	No use of TTP and TRFR	34%	45%	14%	7%	0%
	Use of the TTP or TRFR	(*)	(*)	(*)	(*)	(*)
NO	No use of TTP and TRFR	53%	44%	2%	1%	0%
	Use of the TTP or TRFR	51%	37%	9%	2%	0%
PT	No use of TTP and TRFR	4%	12%	19%	65%	0%
	Use of the TTP or TRFR	4%	8%	4%	83%	0%
UK	No use of TTP and TRFR	31%	63%	5%	1%	1%
	Use of the TTP or TRFR	10%	86%	2%	2%	0%

The following table shows the credit quality of corporate bonds. Please note that the data at EEA level for undertakings not using the TTP or TRFR includes data from countries where the TTP or TRFR is not used at all.

Table 3.26

Credit quality of corporate bonds for undertakings not using the TTP or TRFR or using the TTP or TRFR, per country (without assets held for IL & UL contracts)						
Country	Use of the measures	CQS0	CQS1	CQS2	CQS3	CQS>3
EEA	No use of TTP and TRFR	19%	17%	33%	29%	3%
	Use of the TTP or TRFR	24%	17%	31%	26%	2%
AT	No use of TTP and TRFR	23%	18%	35%	23%	1%
	Use of the TTP or TRFR	28%	18%	26%	27%	1%
BE	No use of TTP and TRFR	11%	18%	34%	35%	2%
	Use of the TTP or TRFR	(*)	(*)	(*)	(*)	(*)
DE	No use of TTP and TRFR	35%	21%	26%	18%	1%
	Use of the TTP or TRFR	45%	25%	18%	11%	1%
ES	No use of TTP and TRFR	3%	13%	28%	52%	4%
	Use of the TTP or TRFR	2%	16%	35%	44%	3%
FI	No use of TTP and TRFR	13%	11%	29%	40%	7%
	Use of the TTP or TRFR	11%	13%	32%	37%	6%
FR	No use of TTP and TRFR	9%	20%	41%	29%	2%
	Use of the TTP or TRFR	8%	13%	39%	38%	2%
GR	No use of TTP and TRFR	15%	14%	35%	29%	6%
	Use of the TTP or TRFR	1%	12%	33%	40%	14%
IE	No use of TTP and TRFR	12%	14%	40%	32%	2%
	Use of the TTP or TRFR	(*)	(*)	(*)	(*)	(*)
NO	No use of TTP and TRFR	46%	9%	29%	15%	1%
	Use of the TTP or TRFR	34%	11%	39%	16%	0%
PT	No use of TTP and TRFR	5%	13%	23%	53%	6%
	Use of the TTP or TRFR	3%	9%	37%	40%	12%
UK	No use of TTP and TRFR	8%	18%	43%	29%	2%
	Use of the TTP or TRFR	8%	11%	41%	39%	1%

The following graph shows the average duration of investments in government bonds and corporate bonds of undertakings using the TTP or TRFR and of undertakings not using the TTP and TRFR.

Figure 3.77

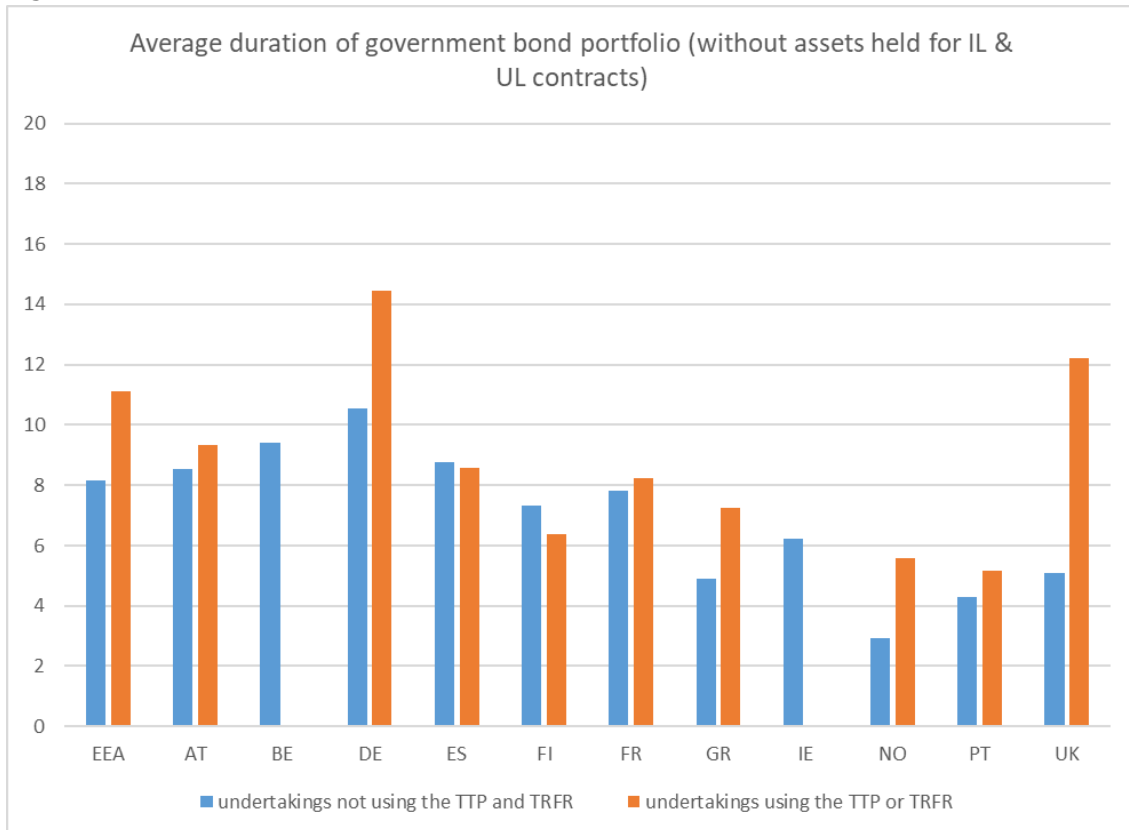
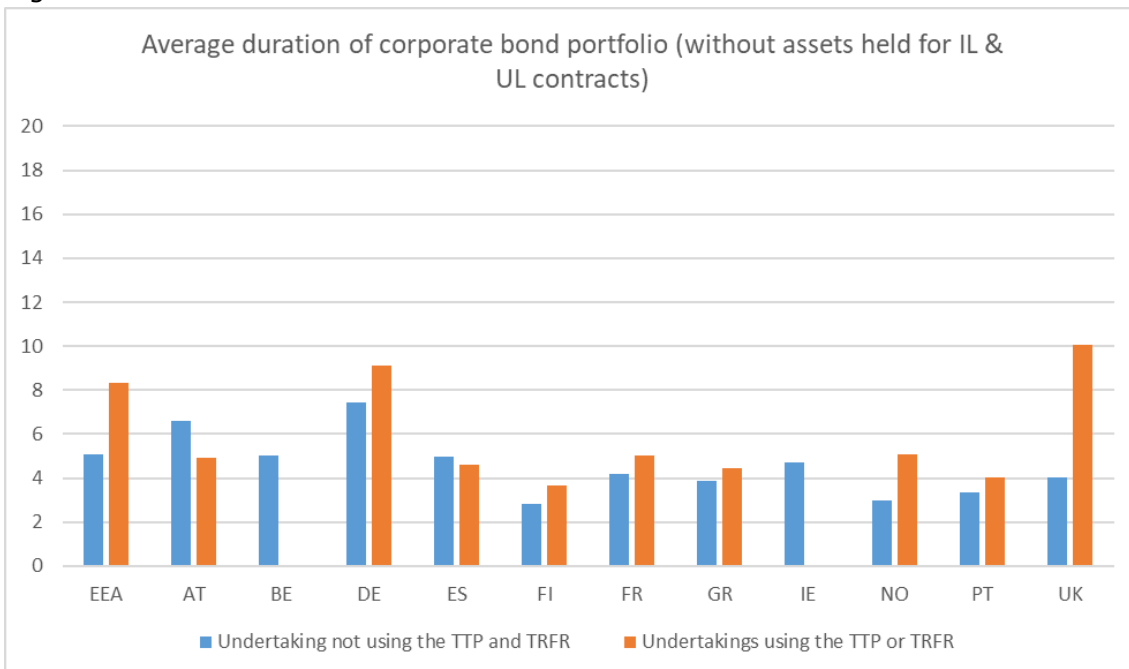


Figure 3.78



Impact on consumers and products

The following table sets out the share of gross written premiums of undertakings using the TPP compared to the total gross premiums written by all undertakings in that country. It also shows each line of business (columns 1 to 6), the total life insurance and life reinsurance business (column 7) and the total for non-life insurance and reinsurance business (column 8). The table is based on data reported by undertakings in the annual QRTs for 2017.

For instance in Austria, 12.8% of the total life insurance and life reinsurance premiums and 13.6% of premiums for index-linked and unit-linked business are written by undertakings applying the TPP.

Table 3.27

Country	1. Health insurance	2. Insurance with profit participation	3. Index-linked and unit-linked insurance	4. Other life insurance	5. Health reinsurance	6. Life reinsurance	7. Total life insurance and reinsurance	8. Total non-life insurance and reinsurance
AT	0.2%	19.3%	13.6%	20.0%	0.0%	3.3%	12.8%	4.5%
BE	(*)	(*)	(*)	(*)	(*)	(*)	(*)	(*)
DE	11.0%	41.3%	38.6%	14.5%	0.2%	0.8%	25.8%	0.0%
ES	0.0%	34.0%	42.7%	29.0%	0.0%	1.6%	31.9%	13.0%
FI	100.0%	86.9%	48.3%	34.8%	0.0%	0.0%	52.6%	40.7%
FR	3.8%	12.3%	13.5%	11.4%	1.9%	26.3%	13.1%	4.5%
GR	(*)	(*)	(*)	(*)	(*)	(*)	(*)	(*)
IT	0.3%	0.6%	0.3%	0.7%	0.0%	0.0%	0.5%	0.0%
NO	33.7%	97.5%	70.9%	56.3%	0.0%	0.0%	81.2%	3.1%
PT	100.0%	73.9%	28.5%	88.7%	0.0%	100.0%	71.7%	66.4%
UK	66.7%	96.2%	30.8%	95.4%	79.3%	41.0%	46.4%	1.7%
EEA	11.1%	21.5%	19.8%	51.9%	1.2%	28.6%	23.8%	3.1%

(*) Data from this country is not disclosed for confidentiality reasons because the number of undertakings applying the measure is lower than 3.

III.6 Duration-based equity risk sub-module

The standard formula for the SCR includes an equity risk sub-module that captures the risk stemming from changes in the level of equity market prices. The equity risk sub-module is based on risk scenarios that envisage a fall in equity market prices of 39% or 49%, depending on the type of equity.

Instead of that equity risk sub-module, undertakings can use a duration-based equity risk sub-module that is, with regard to certain equity investments, based on a risk scenario that envisages a fall in equity market prices of 22%. The duration-based equity risk sub-module can only be applied by life insurance undertakings that provide certain occupational retirement provisions, or retirement benefits, and meet further requirements – in particular that the average duration of the undertaking's liabilities

exceeds an average of 12 years and that the undertaking is able to hold equity investments at least for 12 years.

The possibility to apply the DBER is a Member State option of the Solvency II Directive (Article 304(1)). The application of the DBER by an insurance undertaking is subject to supervisory approval.

Only one undertaking in France is using the DBER as at 31 December 2018.

According to the information disclosed by the undertaking in its Solvency and Financial Condition Report, removing the DBER would reduce the SCR ratio by 20 points from a ratio of 170% with the DBER (but without TTP and VA) to a ratio of 150% without the DBER. Removing the measure would reduce the MCR ratio by 39 points from a ratio of 342% with the DBER (but without TTP and VA) to a ratio of 303% without the measure.

As only one undertaking in France was using the DBER as at 31 December 2018, no impact on investments and consumers and products is shown for the DBER due to confidentiality reasons.

III.7 Symmetric adjustment to the equity risk charge

Recital 61 of the Solvency II Directive states that in order to mitigate undue potential pro-cyclical effects of the financial system and to avoid a situation in which insurance and reinsurance undertakings are unduly forced to raise additional capital or sell their investments as a result of unsustainable adverse movements in financial markets, the market risk module of the standard formula for the SCR should include a symmetric adjustment mechanism with respect to changes in the level of equity prices.

The symmetric adjustment is expected to be positive (i.e. the capital requirement is higher) when markets have risen recently, and negative (i.e. the capital requirement is lower) when equity markets have dropped in the previous months.

Impact on the financial position of undertaking

For the 2019 report, there were no information requests to undertakings concerning the impact of the symmetric adjustment on their financial position.

Instead, the financial impact of the symmetric adjustment on the SCR was determined using QRT data³⁷. Specifically, the impact on the equity risk charge has been produced using the exposures per equity class (type 1 equity, type 2 equity...) and the overall SCR has then been aggregated based on underlying assumptions³⁸. For instance, the impact of risk mitigation techniques has not been considered when removing the symmetric adjustment.

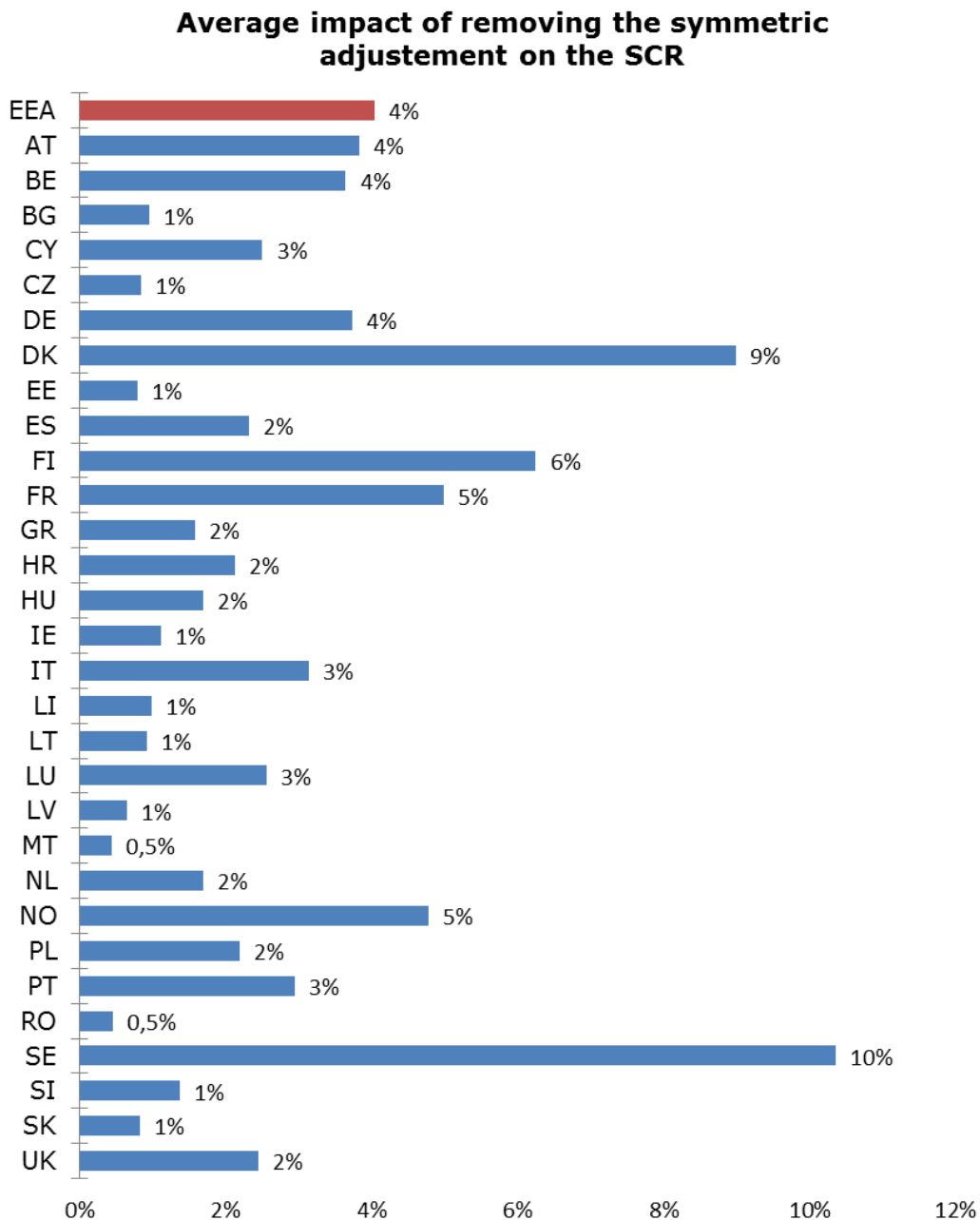
³⁷ Note that the QRT data does not allow for a distinction between undertakings which apply the transitional measure on equity risk according to Article 308b (13) of the Solvency II Directive and undertakings which do not apply that measure.

³⁸ In particular, the operational risk charge has been kept constant. Similarly, the LAC DT has been kept as a percentage of the BSCR, and the LAC TP as a percentage of the sum of BSCR, operational risk and LAC DT.

Since the SA at 31 Dec 2018 was -6.34%, setting the SA to zero would increase the stress on equity exposures applied to calculate the SCR.

The following graph displays the impact of removing the measures on the SCR at EEA and national level. Removing the symmetric adjustment would result in an average increase of SCR by 4% at EEA level.

Figure 3.79



III.8 Extension of the recovery period

Under Solvency II, insurance and reinsurance undertakings are required to hold eligible own funds that cover their SCR. When an undertaking is not covering its SCR, the national supervisory authority shall require it to take the necessary measures to achieve, within six months from the observation of non-compliance with the SCR, the re-establishment of the level of eligible own funds covering the SCR or the reduction of

its risk profile to ensure compliance with the SCR. The supervisor may, if appropriate, extend that period by three months.

Article 138(4) of the Solvency II Directive states that supervisory authorities may, under certain circumstances, further extend the recovery period for the re-establishment of compliance with the SCR as set out in Article 138(2) of that Directive by a maximum period of 7 years.

This power applies in the event of exceptional adverse situations affecting insurance and reinsurance undertakings that represent a significant share of the market or of the affected lines of business. The condition for an exceptional adverse situation are one or more of the following:

- A sharp, steep and unforeseen fall in financial markets ,;
- A persistent low interest rate environment;
- A high-impact catastrophic event.

This extension of the recovery period can only be granted after EIOPA has declared the existence of an exceptional adverse situation. A necessary condition for the declaration is a request by a national supervisory authority. Article 288 of the Solvency II Delegated Regulation further states several factors and criteria that EIOPA shall take into account when assessing the existence of an exceptional adverse situation. Where appropriate, EIOPA could consult the European Systemic Risk Board (ESRB) before deciding on the existence of an exceptional adverse situation.

Once EIOPA has declared the existence of an exceptional adverse situation, the national supervisory authorities can decide on an extension of the period and determine its length for individual insurance and reinsurance undertakings. For that purpose, the supervisors shall take into account the factors and criteria set out in Article 289 of the Solvency II Delegated Regulation. To ensure a consistent approach in the extension of the recovery period, on 14 September 2015 EIOPA issued Guidelines on the extension of the recovery period in exceptional adverse situations. In particular the guidelines relate to the decision to grant an extension, the duration of the extension and the withdrawal and revocation of the extension.

During the extended recovery period, the undertakings affected are required to submit a progress report every three months to their NSA setting out the measures taken and the progress made to meet the SCR. In case of no significant progress, the extension of the recovery period will be withdrawn.

To date EIOPA has not received a request to declare an exceptional adverse situation.

The following table shows the number of undertakings breaching the SCR (taking into account all LTG measures and equity measures applied) on 31 December 2018 and their market share (national market share for undertakings in each country and EEA market share for all undertakings). For countries not listed in the table all undertakings meet the SCR.

Table 3.28

Country	Undertakings breaching the SCR	Market share in non-life gross written premiums	Market share in life technical provisions
CY	2	9.99%	2.54%
DK	1	3.68%	0.00%
ES	1	0.03%	0.00%
IE	1	0.00%	0.12%
LI	1	0.00%	0.00%
LU	2	0.00%	0.00%
NL	1	0.00%	0.34%
UK	8	0.09%	0.00%
Total EEA	17	0.10%	0.02%

The total number of undertakings breaching the SCR has decreased by 8 during the last year – from 25 on 31 December 2017 to 17 on 31 December 2018. The total number of undertakings breaching the SCR can be split according to their type as follows: 11 non-life insurance undertakings, 2 life insurance undertakings, 1 undertaking pursuing both life and non-life insurance activity and 3 reinsurance undertakings.

Annexes

Annex 1: Overview of the European insurance market

The following charts show for each EEA country the number of insurance and reinsurance undertakings and their share of the EEA insurance market expressed as percentage of technical provisions and of gross written premiums.

Figure 4.1

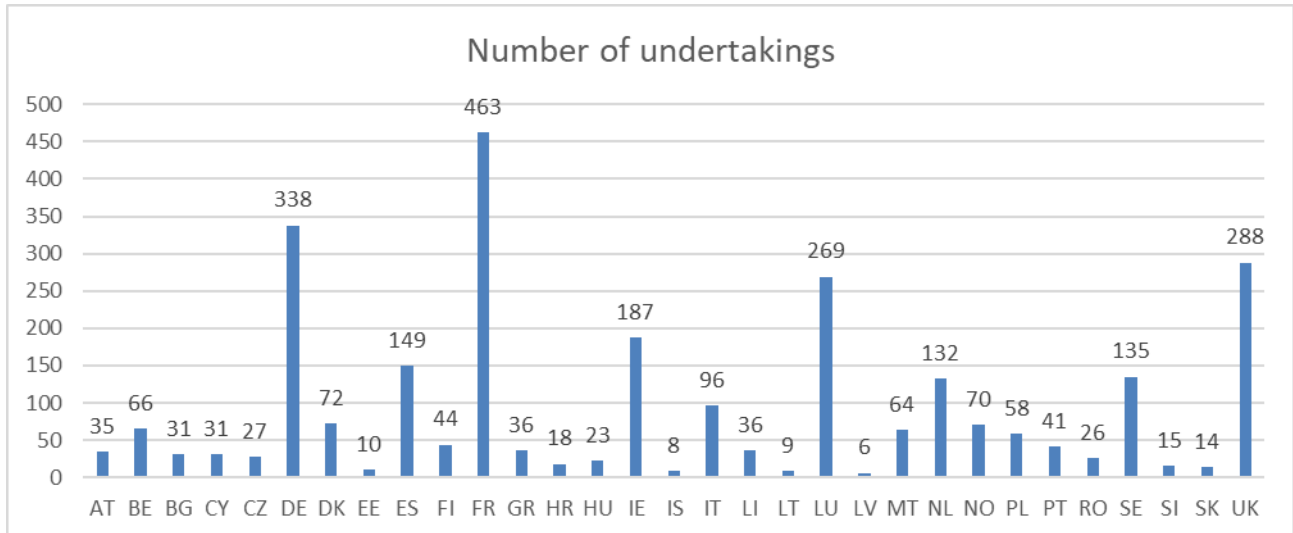
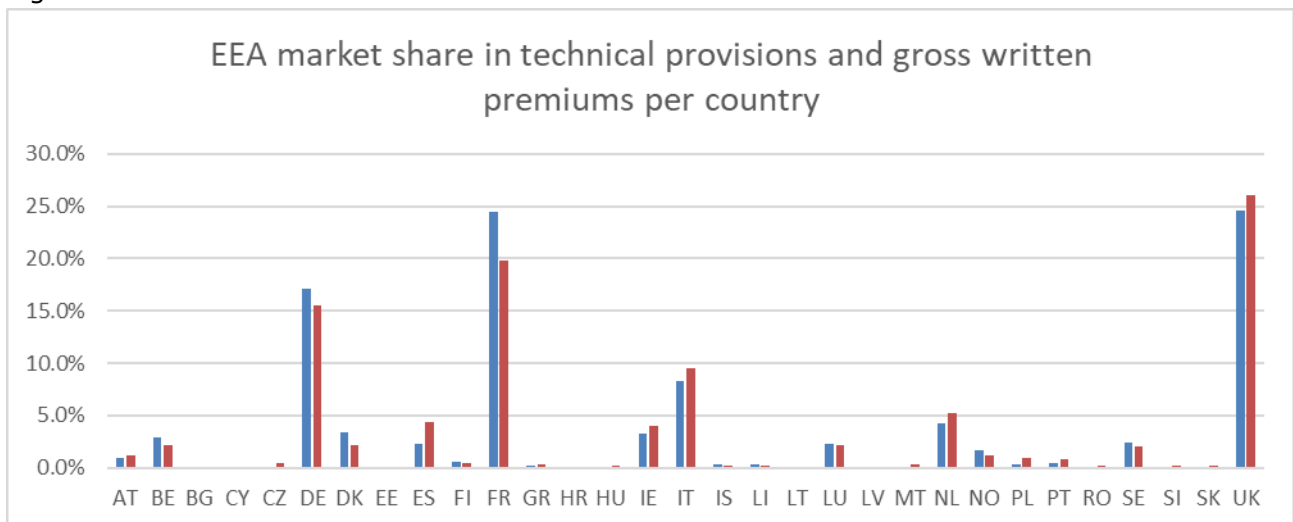


Figure 4.2



Annex 2: Impact of the measures on the financial position of undertakings

The following graphs show the impact of removing the measures MA, VA and TTP on technical provisions, eligible own funds to cover the SCR and the SCR per undertaking. The impact is measured relative to the amount with the measures. Each bar corresponds to one undertaking. The bars are ordered by size in each graph. The graphs demonstrate that there is a wide disparity of the impact.

Figure 4.3

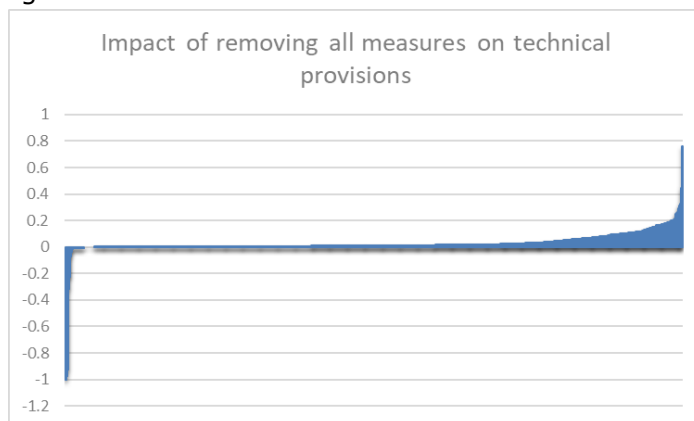


Figure 4.4

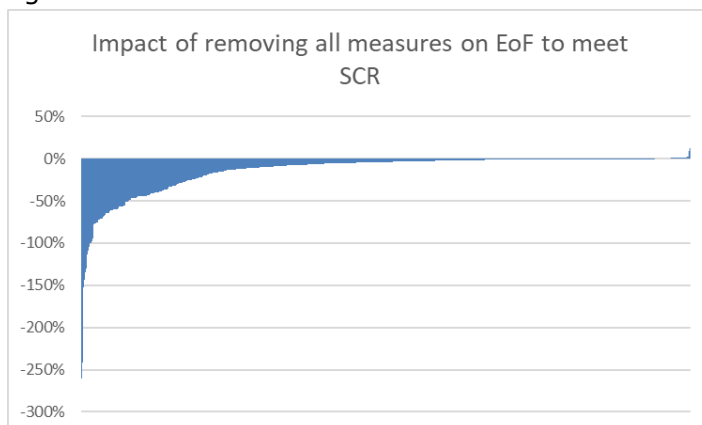


Figure 4.5

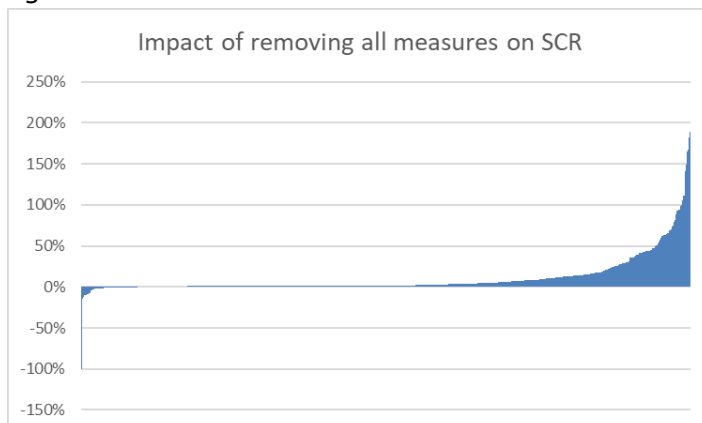


Figure 4.6

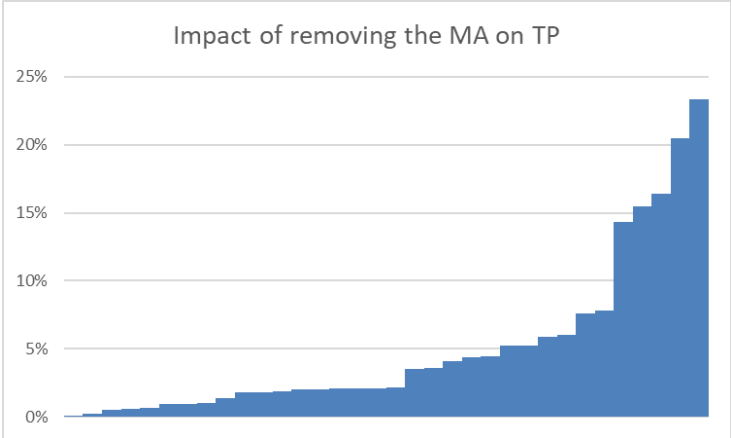


Figure 4.7

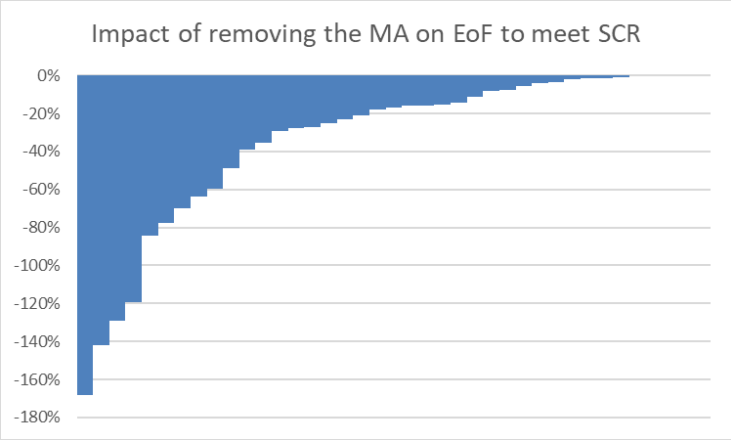


Figure 4.8

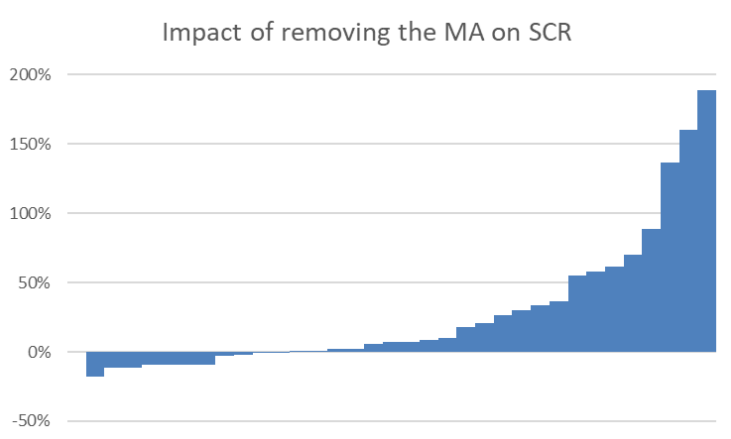


Figure 4.9

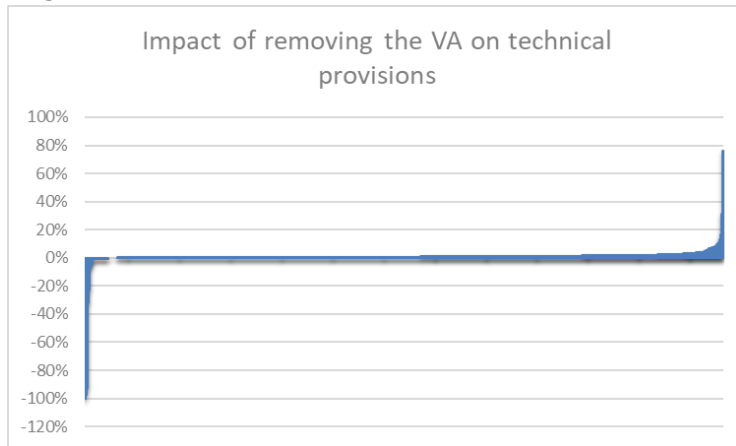


Figure 4.10

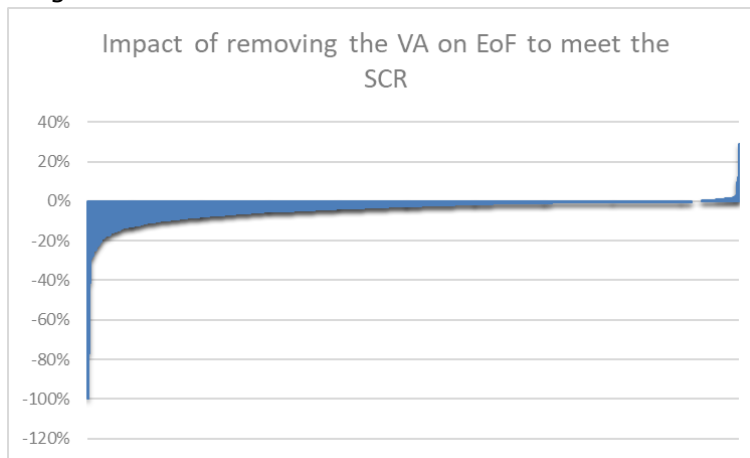


Figure 4.11

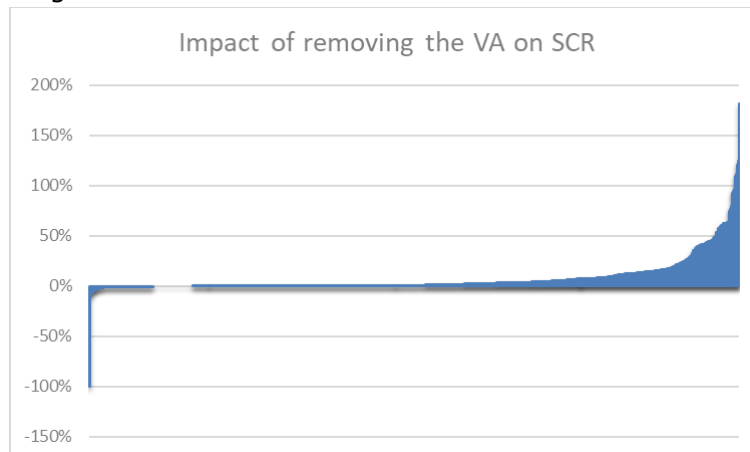


Figure 4.12

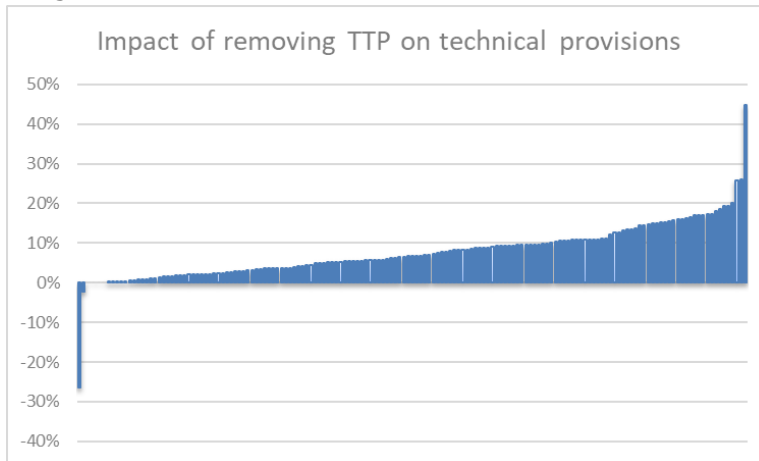


Figure 4.13

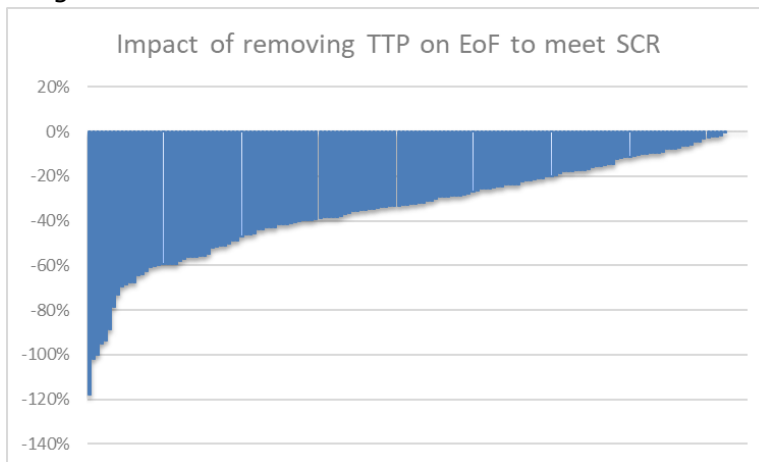
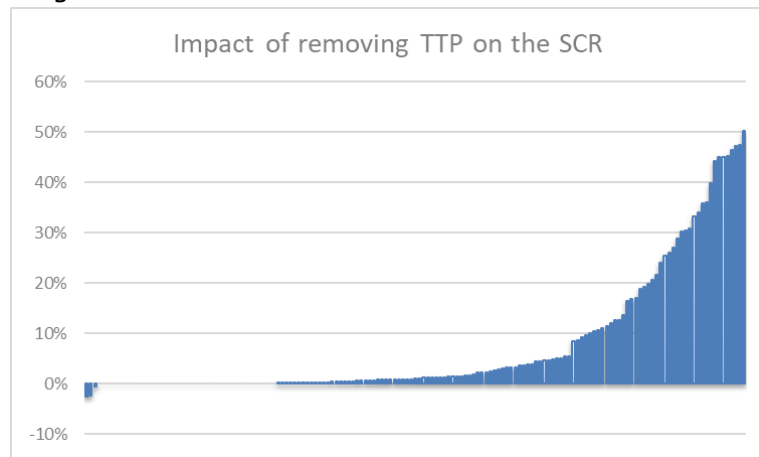


Figure 4.14



Annex 3: Asset classes

The statistics on investments of insurance and reinsurance undertakings presented in this report are based on the following asset classification. Please also note that for this year's report, a look-through has been applied to the data on collective investment undertaking, albeit limited to one level of look-through (i.e. if the collective investment undertaking itself holds another collective investment undertaking no further look-through has been applied).

Table 4.1

Asset category	Grouping
Government bonds	Government bonds
Corporate bonds	Corporate bonds
Unlisted equity	Equity
Listed equity	Equity
Collective Investment Undertakings	Collective Investment Undertakings
Mortgages and loans	Mortgages and loans
Cash and deposits	Cash and deposits
Blank	Other
Call Options	Other
Collateralised securities	Other
Credit derivatives	Other
Forwards	Other
Futures	Other
Liabilities	Other
Other investments	Other
Property	Other
Put Options	Other
Structured notes	Other
Swaps	Other