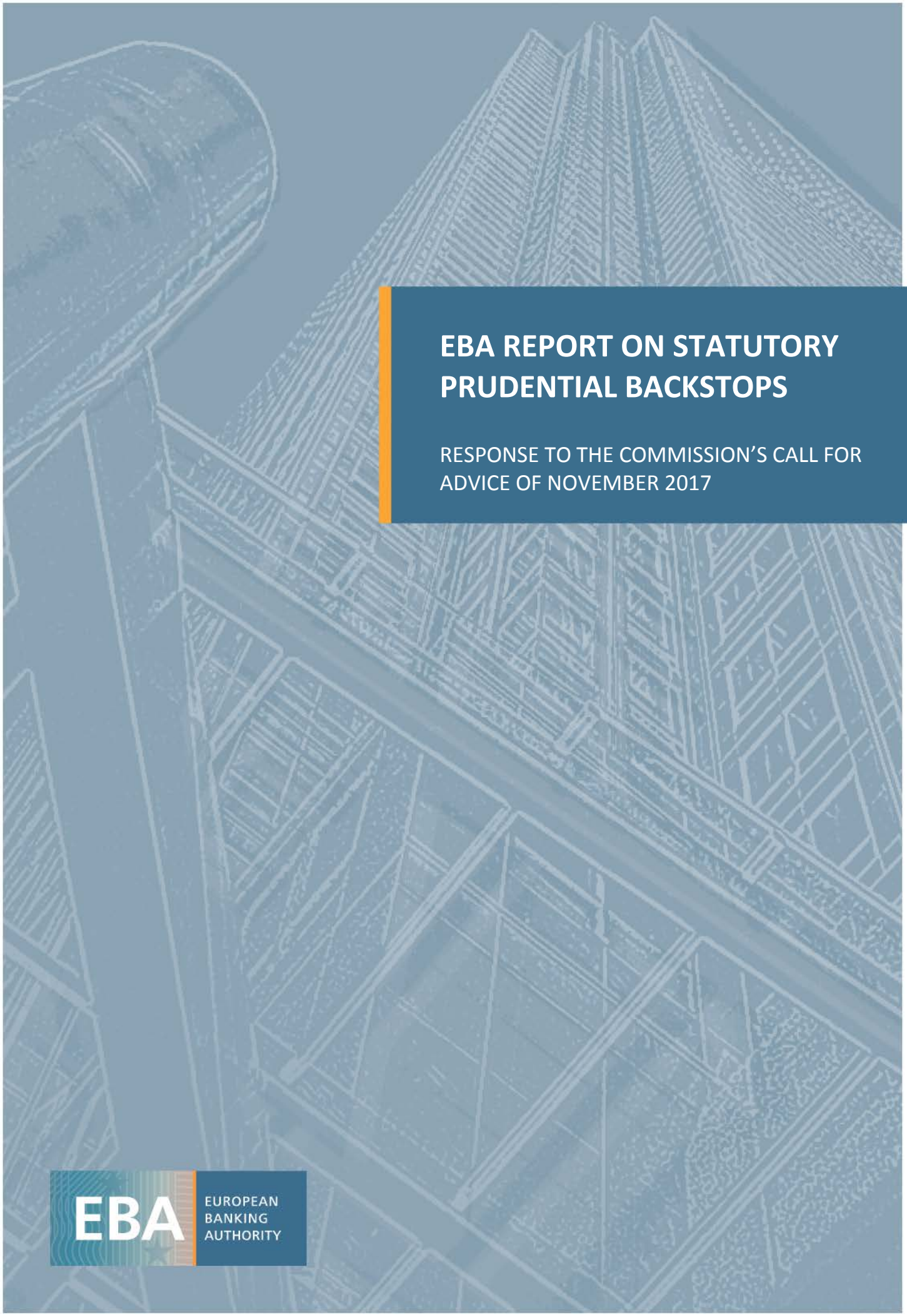

EBA REPORT ON STATUTORY PRUDENTIAL BACKSTOPS

RESPONSE TO THE COMMISSION'S CALL FOR ADVICE OF NOVEMBER 2017

EBA EUROPEAN BANKING AUTHORITY

Contents

List of figures

List of tables

Abbreviations

A-IRB	advanced internal ratings-based
BCBS	Basel Committee on Banking Supervision
CA	competent authority
CET1	Common Equity Tier 1
COREP	Common Reporting Standards (Commission Implementing Regulation (EU) No 680/2014 of 16 April 2014 laying down implementing technical standards with regard to supervisory reporting of institutions according to Regulation (EU) No 575/2013 of the European Parliament and of the Council (Text with EEA relevance)
CR	cure rate
CRD	Capital Requirements Directive
CRE	commercial real estate
CRR	Capital Requirements Regulation
EAD	exposure at default
ECB	European Central Bank
ECL	expected credit loss
EL_{BE}	expected loss best estimate
ESMA	European Securities and Markets Authority
FINREP	Financial Reporting Framework
F-IRB	foundation internal ratings-based
HDP	high default portfolio
IAS	International Accounting Standard

IFRS	International Financial Reporting Standards
IRB	internal ratings-based
ITS	implementing technical standards
LGD	loss given default
NPE	non-performing exposure
QIS	Quantitative Impact Study
RR	recovery rate
RRE	residential real estate
RTS	regulatory technical standards
RWA	risk-weighted asset
SA	standardised approach
SCRA	specific credit risk adjustment
SME	small and medium-sized enterprises
SREP	Supervisory Review and Evaluation Process
SSM	Single Supervisory Mechanism

1. Executive summary

The European Commission published on 10 November 2017 a consultation document proposing the introduction of statutory prudential backstops aimed at addressing insufficient provisioning for newly originated loans that turn non-performing. As part of this work, the EBA was mandated to provide advice on the introduction of such prudential backstops, focusing in particular on the expected impact of the different options proposed by the Commission. This report constitutes the EBA's response to the Commission's call for advice.

The EBA has, as part of the process of repairing the EU banking sector, pushed for speedy recognition, and resolution, of asset quality issues in the EU. The evidence suggests that if asset quality problems are not promptly addressed, banks experience a protracted drag on profitability and see their ability to lend into the real economy impaired.

Although recent efforts by banks and supervisors have led to significant progress in cleaning European banks' balance sheets, the overall pace of reduction of NPLs since the peak of the crisis has been excessively slow. In this context non-discretionary backstop requirements (i.e. compulsory deductions from regulatory capital) can help to incentivise banks to address NPLS proactively and prevent their future accumulation on balance sheets.

The qualitative part of the report considers the statutory prudential backstop from a supervisory perspective, focusing on the interaction of the backstop with the full set of available regulatory and supervisory measures, which are currently in place. It provides observations regarding the possible effects of the measure in combination with existing CRR provisions, Pillar 2 measures as well as the newly introduced accounting provision under IFRS9.

Assessing the impact of the statutory prudential backstop is a highly challenging exercise. It is expected that the backstop will affect banks' behaviour, for instance by providing incentives to changes in provisioning policies. A traditional impact assessment analysis, projecting the proposed regulatory changes upon past balance sheet structures, can only provide a very tentative estimate of the effects of measures that would apply only to future credit flows. Furthermore, the EBA has assessed the impact over a 20-year horizon in order to consider the fully phased-in effect, which increases the uncertainties surrounding the results.

The analysis builds up on a static balance sheet assumptions where no changes are assumed in the outstanding stock of (defaulted and non-defaulted) exposures and other balance sheet items such as CET1 and Tier 2 capital, which are all fixed at their last available reporting date level (i.e. 2017Q2). Moreover, institution and exposure class specific parameters such as default rate, cure rates, recovery rates and impairment loss ratios are fixed at their values in the period 2014 – 2017, when asset quality issues at the EU level reached their peak. These conditions are extrapolated to a 20-year horizon to estimate the impact, under the assumption of no improvement in the origination standards or change in provisioning policy. Hence, while the exercise is useful for understanding

the functioning of the backstop, the actual capital impact is likely to differ significantly and the estimated impact should not be read as a forecast of the likely impact on a 20-year horizon. The analysis can therefore be seen as an exercise in estimating what the impact of the prudential backstop on capital would have been if it had been introduced in 2014 and banks had taken no action in response to the regulatory change.

Overall, the quantitative analysis based on this very conservative methodology shows that the statutory prudential backstop leads to a decrease in the CET1 capital ratio of 205 basis points after 20 years for the average bank under the baseline specification requiring defaulted secured loans being fully deducted after 7 years. When considering a 7 years horizon, after which it is safe to assume that banks' and supervisors' corrective actions will kick in, the cumulative impact on CET1 capital ratio is around 56 basis point. Furthermore, when taking into account profitability, the impact is substantially lower: the median bank in the sample will be able to cover the impact of the prudential backstops with 10% of retained earnings after dividends over the same period. Banks which already apply conservative provisioning practices would not experience any impact as a result of the proposed measures.

The report in addition estimates the impact of the backstop under different specifications. Firstly, alternative horizons are considered for when the NPLs are constrained by the backstop, i.e. it is expected to be fully provisioned after respectively 6, 7 or 8 years for secured exposures. Secondly, alternative specifications of the backstop itself, applying for instance different deductions paths. Finally, an approach that relies on applying haircuts to the collateral for secured exposures is considered. For these variants, the impact tend to be slightly higher, i.e. around 15-45 basis points higher.

Finally, it should be stressed that given that the impact is measured on crisis data and with banks not taking any active measures to mitigate the impact, the chosen approach leads to a very conservative estimation as stated previously and the estimated impact should be considered as an upper bound, as the magnitude will represent a very low probability scenario. In fact, with a well-functioning prudential backstop, the impact of the measure should help prevent the building up of NPLs.

2. Introduction

1. The European Commission published on 10 November 2017 a consultation document [1] outlining considerations about the introduction of statutory prudential backstops aimed at addressing insufficient provisioning for newly originated loans that turn non-performing. As part of the Commission's considerations in this area, the EBA was mandated – in light of the extensive work currently being undertaken by the EBA in the area of NPLs[2] – to provide advice on the introduction of such prudential backstops. The advice of the EBA should in particular assess the potential impact on EU banks of introducing a statutory prudential backstop, as outlined in the Commission consultation document. This report constitutes the EBA's response to the Commission's call for advice[3].

2. The EBA has, as part of the process of repairing the EU banking sector, pushed for speedy recognition, and resolution of asset quality issues in the EU. The EBA's analysis [4] has demonstrated that NPLs are a problem in several areas: (i) at a microprudential level, heightened NPLs are associated with lower profitability and lower efficiency; (ii) at a macroprudential level, high levels of NPLs are associated with stagnant growth, as capital is tied up with NPLs and not available to fund new lending into the real economy; and (iii) for consumers, proactive engagement on NPLs by banks can help prevent the situation of paying interest and fees on an asset that, eventually, they may not own. The EBA has also led work on NPEs at a global level and has undertaken comparative analysis of experience in various jurisdictions[5]. The evidence suggests that jurisdictions where NPLs are dealt with see a faster resumption in the health of the banking sector and associated lending into the real economy.

3. In July 2017, the Council of the EU concluded on an action plan[6] to tackle NPLs in Europe. The Council stressed that a comprehensive approach combining a mix of complementing policy actions at the national level, and at the European level where appropriate, is the most effective way to address the existing stock of NPLs as well as the emergence and accumulation of new NPLs on banks' balance sheets, in particular in all of the following four policy areas: (i)

[1] The Commission consultation document can be found here: https://ec.europa.eu/info/consultations/finance-2017-non-performing-loans-backstops_en

[2] Note that here the reference is to NPLs (Non-Performing Loans) since NPLs were in the scope of this EBA work. However, the Commission consultation document, as well as the call for advice, is focused on NPEs (Non-Performing Exposures). Whenever the reference in this document is to NPLs this refers to NPLs, whereas NPEs are used to refer to NPEs, i.e. the scope of the call for advice and the Commission consultation document. In the EBA risk dashboard (https://www.eba.europa.eu/documents/10180/2085616/EBA+Dashboard+-+Q3+2017.pdf), the NPL ratio is defined as comprising only loans and advances (NPLs and advances (A)/total gross loans and advances (B)), whereas the NPE ratio also comprises debt securities (non-performing debt securities and loans and advances (A)/total gross debt securities and loans and advances (B).)).

[3] The call for advice given to the EBA can be found here: http://www.eba.europa.eu/about-us/missions-and-tasks/calls-for-advice

[4] https://www.eba.europa.eu/documents/10180/1360107/EBA+Report+on+NPLs.pdf

[5] https://www.bis.org/bcbs/publ/d403.htm

[6] http://www.consilium.europa.eu/en/press/press-releases/2017/07/11/banking-action-plan-non-performing-loans/#

supervision, (ii) structural reforms of insolvency and debt recovery frameworks, (iii) development of secondary markets for distressed assets, and (iv) fostering restructuring of the banking system. The EBA, along with other bodies and institutions, has been invited by the Council to contribute to this action plan with a number of initiatives and action points.

4. In this regard, the EBA has undertaken various actions mandated by the Council, which can be categorised into (i) supervisory guidance, (ii) enhancement of disclosure, and (iii) secondary market development.

5. In order to enhance supervisory guidance, the EBA has issued a consultative document for guidelines on NPE management[7] and will later on issue guidelines on banks' loan origination monitoring and internal governance. The development of these guidelines is part of the Council of the EU's action plan to tackle NPLs in Europe. The NPE management guidelines build on the SSM's guidance to significant institutions on NPLs, as published in March 2017, and they have an extended scope and apply to all banks in the entire EU. The guidelines on banks' loan origination monitoring and internal governance leverage on the existing work from national CAs as well as on work on consumer protection issues and the relevant guidelines published by the EBA.

6. The EBA will implement enhanced disclosure requirements on asset quality and NPLs to all banks. This work builds on previous EBA work and broadens the scope of application of the template on non-performing and forborne exposures currently included in the EBA Guidelines on disclosure requirements under Part Eight of Regulation (EU) No 575/2013 (the CRR)[8] to all banks. Furthermore, the guidelines have been expanded to include additional disclosure items on NPEs, forbearance and foreclosed assets.

7. On secondary market development, the EBA published in December 2017 uniform and standardised templates to facilitate the screening and transaction phase of NPL transactions. In particular, the 'EBA NPL transaction templates' will serve for the financial due diligence and valuation of portfolios, and the 'EBA NPL portfolio screening templates' will be particularly useful for the initial screening of portfolios. The templates also form part of ESMA's consultation on 'Draft technical standards on disclosure requirements, operational standards, and access conditions under the Securitisation Regulation'[9]. Furthermore, the templates are the basis for a private initiative of the European Data Warehouse, which is collecting test files for NPLs, based on the EBA's NPL transaction templates.

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7 EBA-CP-2018-01 (https://www.eba.europa.eu/documents/10180/2150622/Consultation+Paper+on+Guidelines+on+management+of+non-performing+and+forborne+exposures+%28EBA-CP-2018-01%29.pdf).

8 EBA/GL2016/11 (http://www.eba.europa.eu/documents/10180/1696202/Final+report+on+the+Guidelines+on+disclosure+requirements+under+Part+Eight+of+Regulation+575+2013+%28EBA-GL-2016-11%29.pdf/20370623-9400-4b5e-ae22-08e5baf4b841).

9 ESMA33-128-107 (https://www.esma.europa.eu/press-news/consultations/consultation-disclosure-and-operational-standards).

8. The EBA has also, through the ITS on supervisory reporting [10] (forbearance and NPEs), introduced dual definitions of NPEs and forbearance to facilitate the effective identification of problematic assets since 2014. Nevertheless, since 2011 the EU banking crisis has also been characterised by a reliance on forbearance to disguise rising NPLs. The pace of reduction of NPLs has been excessively slow, although recent efforts by banks and supervisors have led to reductions in the overall level of NPLs, as the discretion by banks' management and supervisors together with the absence of effective secondary markets for NPLs and challenging legal systems has incentivised keeping the loans on balance sheets.

9. In this context, to facilitate pressure on banks' NPL reduction strategies, non-discretionary backstop requirements (i.e. compulsory deductions from regulatory capital not left to the discretion of supervisors but set in legislation) can help to incentivise banks to address NPLs proactively and prevent their future accumulation on balance sheets. With improvements in the secondary market for NPLs and national legal systems expected in the coming years, a non-discretionary provisioning backstop will be an important policy tool to prevent NPEs from growing to the levels observed in the EU banking sector since 2011.

10. The qualitative part of the report has considered the statutory prudential backstop from a supervisory perspective, while considering the interaction of the backstop with the full set of available regulatory and supervisory measures which are currently in place. It provides observations regarding the possible interactions and consequences of the measure with existing CRR provisions, pillar 2 measures as well as the new accounting framework under IFRS9.

11. The quantitative analysis provided in this report relies on institution specific estimates in order to develop a robust framework that relies on actual loss experiences. While this approach generally is a strength of the analysis, as it captures the institution- and indirectly country-specific patterns, it also introduces substantial complexity in the analysis, especially as regards the data used.

12. As a general observation, it should be noted that this report has been written under a number of significant constraints. Most notably, the report and the quantitative analysis have been drafted in an unusually short time, considering the complexity of the analysis. The assessment has relied on existing data sources, instead of on ad hoc data collections, which in some cases has necessitated the introduction of a number of simplifying assumptions in the analysis.

13. One caveat in this regard is that the analysis is based on a static balance sheet assumption, which means that no changes are assumed in the outstanding stock of exposures (defaulted and non-defaulted) and in the newly originated non-defaulted exposures. As a result, a high impact will be estimated for institutions that currently have a high stock of NPEs, although they may have already taken several corrective actions and changed their lending behaviour, and a high impact will also be estimated for institutions that have historically underprovisioned, even

[10] https://www.eba.europa.eu/documents/10180/449824/EBA-ITS-2013-03+Final+draft+ITS+on+Forbearance+and+Non-performing+exposures.pdf/a55b9933-be43-4cae-b872-9184c90135b9

if they have already changed their provisioning policies. In this regard, it is important to consider the starting point of the analysis (2017Q2) as well as the period over which the parameters used in the analysis were collected (2014Q1-2017Q2). These data have been used in the projections for the next 20 years, such that institutions that experienced a high inflow of NPEs due to a downturn period in those years, underprovisioned and/or experienced low profitability are expected to have a high projected impact for the next 20-year period. As a result, the findings of the quantitative impact assessment should serve to indicate situations that the statutory prudential backstops help prevent, i.e. if the backstop had been in place before the EU banking crisis, the backstop would have provided incentives to implement more prudent loan granting policies and provision more, apply more effective work-out or recovery procedures and so forth. The quantitative analysis in Chapter 5 should therefore not be seen as a prediction of the likely capital impact, but rather as a stylised exercise in the capital impact of extrapolating the loss experience based on the 2014-2017 period, which, especially for crisis-hit economies, must be considered a conservative assumption.

14. Another caveat is that some of the data available are point-in-time estimates of parameters, which would not necessarily coincide with the value that this parameter would take in the next 5, 10 or even 20 years. Given that the Commission measures are intended to apply to newly originated loans, the EBA has been required to provide extrapolations of current trends to estimate future lending trends. Such types of analysis are by nature subject to significant uncertainty. Since the underlying data and parameters are based on historical data, potential changes in institutions' behaviour are not taken into account, although recent policy initiatives in several areas may incentivise more prudent loan origination standards and provisioning behaviours. The methodology is subject to several assumptions critically relying on underlying input parameters, such as default rate, cure rate, recovery rate, impairment loss rate and write-off rate. The methodology therefore incorporates some checks and balances to steer the accurateness of the figures within reasonable ranges. In particular, a scaling factor is applied, in order to re-scale the projected defaulted exposure amounts to historically observed values. This approach allows the granularity of defaulted exposures by vintage to be obtained, while maintaining the reliability of the overall amount of defaulted exposures across vintages. Furthermore, in order to minimise the impact of outliers in the input parameters, the EBA has replaced outlier values (defined as parameter values beyond the 10th and 90th percentiles) with the value of that parameter at the 10th or 90th percentile.

15. The results of the quantitative analysis should consequently be read as an upper bound to the expected impact. Indeed, the analysis is based to a large extent on historical data for the stock of defaulted exposures such that institutions that have a high number of defaulted exposures will be affected by a high projected number of defaulted exposures. In addition, the study relies on historical parameters that are subject to change because banks will likely take actions to change loan origination procedures or increase provisioning, which would lead to a lower impact.

16. This report is a response to a call for advice that the EBA received from the Commission; therefore, the scope of this report covers only newly originated loans turning non-performing,

as described in the Commission consultation document. While this report considers the request from the Commission, the ECB has also consulted on a draft addendum[11] to the ECB NPL guidance which expresses non-binding supervisory expectations as regards levels of prudential provisions expected for "new non-performing exposures". The results presented in this report should be interpreted with care and are related to the Commission proposal for a Pillar 1 backstop on 'newly originated loans' that become non-performing.

17. This report is structured into two parts. First, a general overview of the Commission proposal is given. This part of the report also highlights a number of technical aspects, which are of relevance to the considerations of the Commission, not least the interaction with the accounting framework – in particular the introduction of IFRS 9 – and the interaction with the existing prudential framework. In addition, it provides some considerations about the impact on EU banks' profitability. Second, the report provides a quantitative assessment of the Commission proposal, including an assessment of various specifications.

3. Statutory prudential backstops

18. The consideration behind the prudential backstop is to address potential underprovisioning, thus preventing a systemic and EU-wide build-up of new NPEs similar to the situation observed at some point during the recent financial crisis or the one that is still significantly present in some EU countries today. Whereas the accounting framework is the main determinant of a bank's provisioning needs, the loan loss provisions recognised by banks for NPEs in accordance with the applicable accounting framework might not always be adequate from a prudential perspective, which has a different scope, objective and purpose. As such, the intention of the statutory backstop proposal is to implement a lower bound to the amount of provisioning for prudential purposes, in order to prevent potential accounting underprovisioning from affecting the solvency of institutions.

19. This chapter goes more into detail about the approaches proposed by the Commission and discusses a number of technical considerations. Section 3.1 summarises the design options proposed in the Commission consultation document, specifically the so-called deduction approach and the haircut approach. Section 3.2 puts forward some considerations related to the level of application of the proposal. Section 3.3 highlights the interactions between the proposed statutory backstop legislation, the existing prudential framework and the accounting framework, with particular emphasis on the introduction of IFRS 9. Finally, Section 3.4 describes a few qualitative considerations on the impact of the prudential backstop on bank profitability.

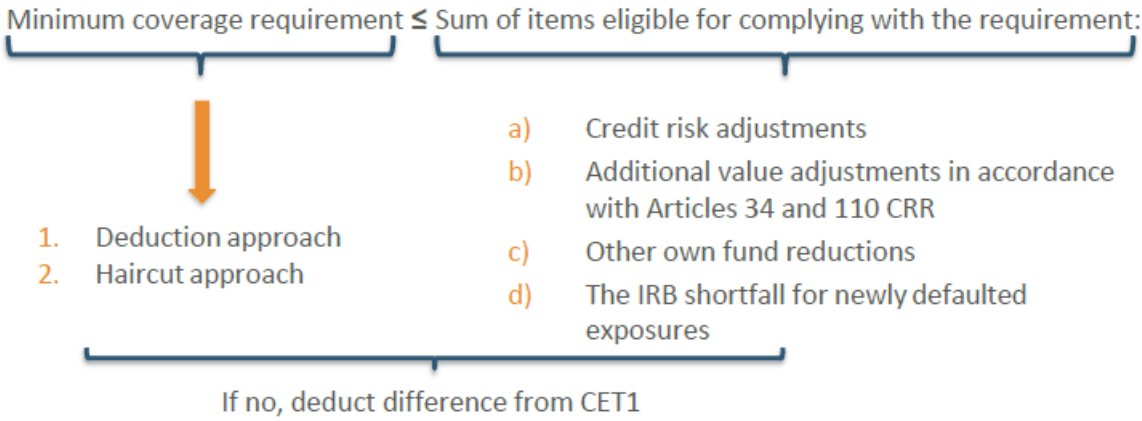
[11] Addendum to 'Guidance to banks on non-performing loans' published by the ECB (https://www.bankingsupervision.europa.eu/ecb/pub/pdf/guidance_on_npl.en.pdf).

3.1 Design of the statutory prudential backstop

20. The essence of the proposed backstop legislation entails the comparison of the items that are eligible for complying with the requirement (i.e. the 'supply') and the minimum coverage requirement (i.e. the 'demand'). On the 'demand' side, the Commission consultation document differentiates between the deduction and haircut approaches to calculate the requirement. Figure 1 provides a schematic overview of the statutory backstop proposal.

21. This section describes the statutory prudential backstop as proposed by the Commission in the consultation document, and not how the EBA has operated this proposal for the purpose of the quantitative analysis. In the quantitative analysis, the EBA made several simplifying assumptions or used different parameter values from those set out by the Commission in the consultation document. These aspects are flagged throughout the report where relevant.

Figure 1: Main components of the statutory backstop proposal



Source: Summary based on European Commission Consultation Paper on statutory prudential backstops.

22. The Commission lists the following components as eligible to meet the minimum coverage requirement, provided that they relate to the new loans that turn non-performing:

    a) provisions[12] recognised under the applicable accounting framework, i.e. credit risk adjustments as defined in Article 4(95) CRR;

    b) additional value adjustments in accordance with Articles 34 and 110 CRR;

[12] The terms 'impairments', 'provisions' and 'value adjustments' have effectively the same meaning. To be more accurate, 'impairments' refer to the losses for on balance sheet exposures under IFRS more commonly, 'provisions' refer to the losses for off-balance sheet exposures under Directive 86/635/EEC (Bank Accounting Directive) and 'value adjustments' refer to the impairment for loans and advances on balance sheet under the same Directive.

c) other own funds reductions; and

d) for institutions calculating RWAs using the IRB approach, negative amounts resulting from the calculation of expected loss laid down in Articles 158 and 159.

23. When the sum of the amounts listed under (a) to (d) does not suffice to meet the applicable minimum coverage requirement, the prudential backstops would apply. The determination and implementation of the minimum coverage requirement can, however, be done in different ways, i.e. using the deduction or the haircut approach, as summarised in Table 1.

Table 1: The deduction approach versus the haircut approach

Deduction approach	Haircut approach
✓ For the unsecured part of the NPE: 100% coverage after 2 years ✓ For the secured part of the NPE: 100% coverage after 6, 7 or 8 years ✓ Linear and progressive scalar factors	✓ For the unsecured part of the NPE: 100% coverage after 2 years ✓ For the secured part of the NPE, the following apply on the collateral : • minimum initial haircut levels • additional haircut levels per year non-performing Haircut levels depend on type of collateral

3.1.1 Deduction approach: options 1 and 2

24. Under the deduction approach, the statutory backstop operates solely on the split between the secured and unsecured parts of the exposures, and increasing coverage requirements for new loans that turned non-performing after a pre-defined period. Which parts of these NPEs are to be considered secured and under which conditions would have to be determined in accordance with the rules on credit risk mitigation provided by the CRR.

a) Option 1: no scalar factor (baseline)

25. Under option 1, the coverage requirements are set at 100% for the unsecured part of newly originated loans that have been non-performing for more than 2 years, and at 100% for the secured part of newly originated loans that have been non-performing for more than 6, 7 or 8 years. This means that the minimum coverage requirement does not apply during the first 2 years for the unsecured part of these NPEs and during the first 6, 7 or 8 years for the secured part of these NPEs. After this period, the entire uncovered exposure amount would need to be deducted from CET1 (i.e. the minimum coverage requirement is not built over time).

b) Option 2: linear and progressive scalar factor

26. Under option 2, the Commission proposes the introduction of linear and progressive scalar factors, in order to prevent a too abrupt and potentially harmful impact and limit procyclical

effects while also leaving sufficient time for possible recoveries. As such, institutions would have to follow a linear or progressive path towards the required coverage level, which as in option 1 is set at 100% for the unsecured part of newly originated loans that turn non-performing after being non-performing for more than 2 years, and at 100% for the secured part of newly originated loans that turn non-performing after being non-performing for more than 6, 7 or 8 years. Table 2 shows the different levels of the coverage requirement under option 1 (where no scalar is applied) and option 2 (where either a linear or a progressive scalar factor is applied).

27. Note that in the remainder of the document, baseline (option 1) is referred to when no scalar factor is applied, option 2a is referred to when a linear scalar factor is applied and option 2b is referred to when a progressive scalar factor is applied.

Table 2: Possible minimum coverage levels for unsecured and secured (parts of) NPEs applying no, progressive or linear scalar factors

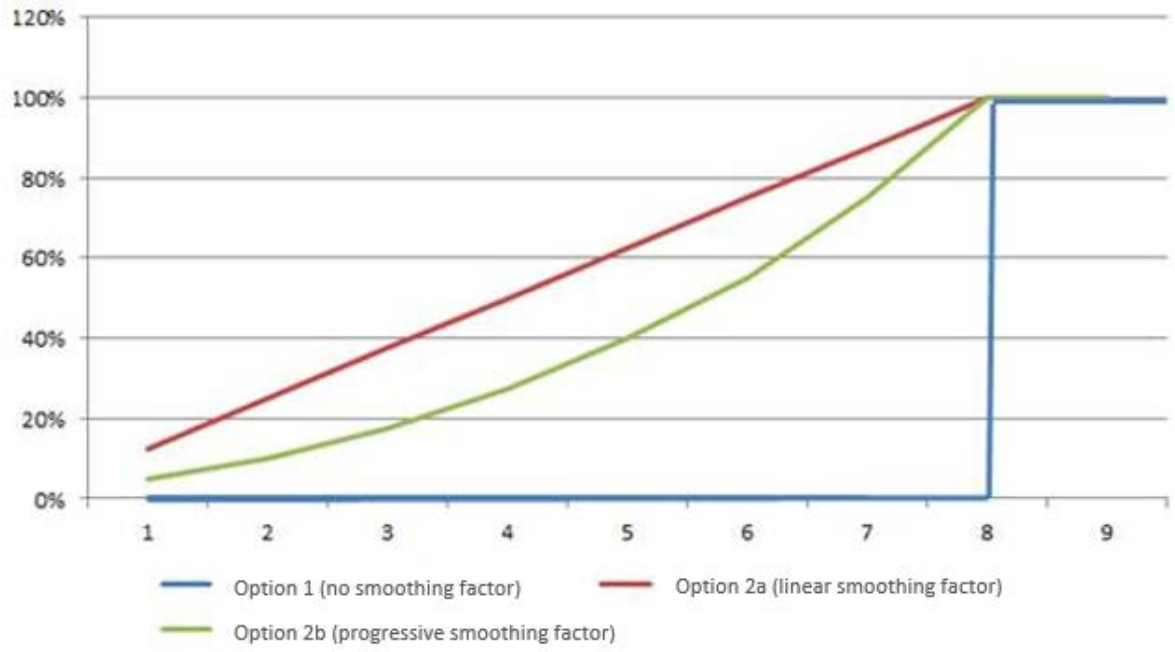
	Unsecured (parts of) NPEs			Secured (parts of) NPEs		
Vintage	**Option 1 (baseline), %**	**Option 2b (progressive), %**	**Option 2a (linear), %**	**Option 1 (baseline), %**	**Option 2b (progressive), %**	**Option 2a (linear), %**
Min coverage after 1 y	0.00	35.00	50.00	0.00	5.00	12.50
Min coverage after 2 y	100.00	100.00	100.00	0.00	10.00	25.00
Min coverage after 3 y				0.00	17.50	37.50
Min coverage after 4 y				0.00	27.50	50.00
Min coverage after 5 y				0.00	40.00	62.50
Min coverage after 6 y				0.00	55.00	75.00
Min coverage after 7 y				0.00/35.00*/ 50.00**	75.00	87.50
Min coverage after 8 y				100.00	100.00	100.00

Source: European Commission Consultation Paper on statutory prudential backstops.

Note: *If a progressive scalar factor for unsecured (parts of) an NPE was applied. **If a linear scalar factor for unsecured (parts of) an NPE was applied.

28. Figure 2 shows the different paths of the minimum coverage requirement under the deduction approach for secured exposures reaching 100% coverage after 8 years.

Figure 2: Different paths of the minimum coverage requirement in the deduction approach (secured part of the exposures) reaching 100% after 8 years



3.1.2 Haircut approach: option 3

29. Under the haircut approach, institutions would be required to fully cover their unsecured (parts of) NPEs with CET1 after 2 years, as in the deduction approach. To secured (parts of) NPEs, specific minimum levels of prudential haircuts apply to collateral values (as determined in accordance with the applicable accounting standards and prudential requirements) in order to address risks associated with the effectiveness of credit protection for NPEs in a more targeted way. The haircuts envisaged in the Commission Consultation Paper are summarised in Table 3 below. It can be noticed that the proposed haircut levels depend on the form of credit protection and the actual length of time to its realisation.

Table 3: Possible minimum haircut levels/ranges for selected forms of collateral over time (Commission proposal in its consultation document)

Forms of credit protection	Initial haircut level, %	Additional haircut per year to realisation, %	Applicable haircut after 6 years, %
Financial collateral	5-30	5	30-55
Immovable property	20-60	5-10	45-100
(e.g. CRE)	(30)	(7.5)	$(30 + 5 \times 7.5 = 67.5)$
Other collateral	20-50	5-10	45–100

Source: European Commission consultation document on statutory prudential backstops.

30. Because of limitations in the availability of sufficiently reliable data, the EBA did not differentiate the applicable haircut according to the type of credit protection.

31. Because the consultation document proposes ranges for the haircuts, this quantitative analysis proposes three options for haircut paths (Section 4.1). Note that these paths are partly outside the ranges that are proposed in the consultation document, i.e. all proposed haircut paths reach 100% after 6, 7 or 8 years, whereas the proposed haircut values in the consultation document of some collateral types are capped. Only if the haircut values reach 100% (after 6, 7 or 8 years), can a meaningful comparison between the deduction approach and the haircut approach be made. Section 4.1 outlines the paths for the haircut approach that have been used in the quantitative analysis.

3.2 Level of application

32. In the call for advice and consultation document, the list of items that would be eligible to comply with the minimum coverage requirement, provided that they relate to new loans that turn non-performing (see paragraph 22 of this document), is specified. From this list, it appears that the left-hand side of the equation (the minimum coverage requirement) is specified on a loan-level basis, whereas the right-hand side of the equation (items eligible for complying with the requirement) is specified at the level of the institution.

33. As such, it seems that all items are equally and fully eligible to comply with the minimum coverage requirement, irrespective of the number of years that these are non-performing (the 'vintages'). Whereas different minimum coverage requirements are specified depending on how many years the exposure is non-performing, the total minimum coverage requirement is specified as the sum of the minimum coverage requirements across the different vintages, i.e. at the institutional level.

34. It appears, however, that the proposal could be read differently, in the sense that eligible items only qualify to meet the requirement vintage per vintage, i.e. only items (a) to (d), of the list in paragraph 22, that stem from new loans that turn non-performing and are more than 2 years' and less than 3 years' non-performing are eligible to comply with the minimum coverage requirement for new loans that turn non-performing and are 3 years' non-performing, and similarly for all other vintages. Consider, for instance, only the minimum coverage requirements for unsecured exposures under option 1, where a 100% minimum coverage is required for exposures that are more than 2 years' non-performing. If all items (a) to (d) are fully eligible to comply with this requirement, items (a) to (d) stemming from new loans that turn non-performing and that are 1 to 2 years' non-performing are also eligible to cover the requirement of new loans that turn non-performing and are 3 years' non-performing. This requirement is therefore less strict than the requirement where only items (a) to (d) that stem from new loans that turn non-performing and that are more than 2 years' and less than 3 years' non-performing are eligible to comply with the minimum coverage requirement for new loans that turn non-performing and that are 3 years' non-performing.

35. At an even more granular level, if the proposal is understood to apply at the exposure level, i.e. only eligible items corresponding to one exposure are eligible to meet the coverage

requirement for that exposure, some further guidance would be warranted. Namely, this would imply that the IRB shortfall (i.e. item (d) listed in paragraph 22 of this report) should be computed at the exposure level, whereas usually the IRB shortfall or excess (as referred to in Articles 158 and 159 CRR) refers to the total for all the institution's exposures. In general, applying the statutory prudential backstop at the exposure level requires that institutions allocate each of the eligible items (a) to (d) to each individual exposure.

36. In the quantitative analysis, the results correspond to the extent possible to the latter approach, i.e. the approach whereby 'supply' should exceed 'demand' at the exposure level. While this does not constitute a policy recommendation, this approach is taken for the impact assessment because it is most closely aligned with the accounting point of view, where provisions are set aside at an exposure level. Furthermore, taking an institution point of view would delay the point in time where the statutory prudential backstop applies, because institutions could use provisions for exposures that are less than 2 years' non-performing to cover for the required coverage of exposures that are more than 2 years' non-performing.

37. It should, however, also be mentioned that the quantitative analysis makes use of data that are available at (COREP) exposure class level. As such, it is assumed that there is no difference between calculating the impact at the (COREP) exposure class and at the exposure level. In practice, however, there could be differences, to the extent that the institution applies a different provisioning and/or write-off policy to specific loans in the same (COREP) exposure class.

38. Furthermore, the list of items that would be eligible to comply with the minimum coverage requirement (see paragraph 22 of this document) comprises new loans that turn non-performing, i.e. both the secured and unsecured parts of the exposure. Similarly, as explained in the paragraphs above, it would be more strict to require that only the items (a) to (d) for the secured part of an exposure are eligible to comply with the minimum coverage requirement for the secured part, and that only the items (a) to (d) for the unsecured part of an exposure are eligible to comply with the minimum coverage requirement for the unsecured part.

39. Although the application of the statutory prudential backstop at the level of the secured and unsecured parts of each exposure would be the most granular and restrictive option, this would require clarification on the allocation of the eligible items for compliance with the minimum coverage requirement to the secured and unsecured parts of the exposure (see further explanations in paragraphs 103 and 104).

3.3 Interactions of the prudential backstop with the prudential and accounting framework

40. The design of the statutory prudential backstop must be carefully considered, such that the integration into the regulatory framework does not lead to unintended consequences.

41. There are different tools in the current accounting and prudential frameworks to ensure the appropriate valuation of NPEs. First, as the accounting treatment is the basis of the prudential framework, institutions should recognise adequate loan loss provisions in accordance with the applicable accounting framework. If provisions are not adequate, the prudential framework empowers CAs to require of institutions, within the limits of the applicable accounting framework, that they apply a specific provisioning policy. Moreover, if additional corrections to the value of the assets are deemed necessary (e.g. a prudent valuation of the assets), the prudential framework empowers CAs to require institutions to hold additional own funds and/or to apply the necessary adjustments to own funds calculations (deductions and similar treatments) where the accounting treatment applied by the bank is considered not prudent from a supervisory perspective. [13] These are supervisory measures and are applied by the CAs on a case-by-case basis, contrary to the prudential backstop, which would present a safeguard across all EU credit institutions on an equal basis.

42. The scope of the statutory prudential backstop covers newly originated loans that turn non-performing – to the EBA understanding with a view to implement the measure in a gradual manner and in line with the action plan of the Council of the EU However, the market expectation could also be to consider the impact of the statutory prudential backstop in the stock of NPEs as well as new NPEs stemming from loan originations before the application of the statutory backstop. A clear communication would help to prevent any misunderstanding and allow a smooth transition.

43. The application of the prudential backstop to NPEs stemming from new loan originations may result in differences between the accounting and prudential frameworks, which can be justified by the different perspectives and purposes of these frameworks and their complementarity. In particular, the different treatment of loans according to their date of origination is not required under accounting standards. Therefore, the introduction of the prudential statutory backstop could lead to a situation where different treatments are applied to different loans of an obligor, granted on dates prior to and post the application of the prudential backstop regulation. For loans secured by the same collateral, different portions of the same collateral could be treated differently, depending on the date of origination of the loan and the default status. Despite the difference in scope and purpose, the introduction of the prudential statutory backstop may therefore provide incentives for the early recognition of loan loss provisions (and write-offs) to all NPEs, i.e. not only newly originated loans.

[13] See Commison Report on the Single Supervisory Mechanism (2017), https://ec.europa.eu/info/sites/info/files/171011-ssm-review-report_en.pdf.

44. The EBA acknowledges that there may be concerns about the potential impact of this measure and therefore attention should also be paid to the direct and indirect implications of applying a statutory prudential backstop to NPEs stemming from new loan originations.

3.3.1 Interaction with the accounting and prudential reporting frameworks

a) Accounting

45. The Commission consultation document on the possible introduction of a prudential backstop may lead to an earlier recognition of provisions and write-offs for NPEs in the accounting framework. Therefore, if in line with the applicable accounting frameworks, banks may recognise additional loan loss provisions (or write-offs) instead of applying a prudential backstop, as this would ensure consistency between the accounting and the prudential frameworks (and taxation benefits [14]). The EBA considers that this would be a positive consequence of a prudential backstop, as it will help to prevent the accumulation of NPEs on institutions' balance sheets. The recognition of loan loss provisions and write-offs remains the most efficient tool for solving the NPE build-up, as it flows directly to the profit and loss and the own funds of institutions. However, as better described in the following paragraphs, the EBA recognises that the objectives of the accounting and the regulatory frameworks are different and that the accounting standards have a principle-based nature. The existence of different legal frameworks across the EU should also be taken into consideration, as these may have an impact on the estimation of loan loss provisions and write-off decisions.

46. The accounting and the prudential frameworks have complementary objectives. While the accounting framework is based on the principles of neutrality and faithful representation of losses, the prudential framework aims to achieve the financial stability and solvency of institutions to cover for unexpected losses that banks may face. Therefore, in addition to loan loss provisions recognised in accordance with the applicable accounting framework, an additional prudential measure may be considered appropriate.

47. It should also be borne in mind that IFRS (and national generally accepted accounting principles) are principle based, and that expert judgement is required for the determination of the appropriate amount of loan loss provisions (including the value of collateral). This naturally leads to a variable valuation of NPEs by institutions and, while legitimate and still permitted by the accounting framework, there may be different practices among institutions on the recognition of loan loss provisions (or the write-off criteria) for similar loans (i.e. some institutions may be relatively optimistic and others relatively pessimistic in the valuation of their loans).

48. There are some differences between the accounting framework and the Commission consultation document that should be underlined:

[14] In cases in which there is alignment between the accounting and tax treatments of provisions (and write-offs), which is not the case in every country.

- The scope of the statutory prudential backstop covers newly originated loans – to the EBA understanding with a view to implement the measure in a gradual manner and in line with the action plan of the European Council. The accounting standards do not differentiate the treatment of loans according to their date of origination. The application of the prudential backstop to NPEs stemming from new loan originations may promote the early recognition of loan loss provisions (and write-offs) for all loans (newly and not newly originated loans).

- A statutory prudential backstop will not differentiate between various assets (and their specific characteristics), while loan loss provisions and write-offs recognised for accounting purposes will require a case-by-case assessment. Therefore, it may be that institutions will not apply for accounting purposes the same pattern of recognition of loan loss provisions (or write-offs) as the pattern required by the statutory prudential backstop.

- Institutions may recognise loan loss provisions (and write-offs) earlier than required by the statutory prudential backstop. Therefore, the statutory prudential backstop should not disincentivise the earlier recognition of loan loss provisions and write-offs in the accounting framework. In this regard, CAs should ensure that institutions do not delay the recognition of loan loss provisions as a result of the introduction of a statutory prudential backstop.

49. Another major development that should be taken into account is the introduction of IFRS 9. IFRS 9 has been applicable since 1 January 2018 (replacing IAS 39) and will introduce an ECL model, which should lead to an earlier recognition of credit losses, affecting more financial assets and at a higher amount. IFRS 9 is an improvement over IAS 39 in that it should help on the earlier and higher recognition of loan loss provisions for NPEs. The main change of IFRS 9 that will lead to a higher recognition of loan loss provisions is expected for exposures classified in stage 1 and stage 2 (although there may also be some impact for exposures classified in stage 3). Continued efforts by auditors and supervisors to achieve a high-quality implementation of IFRS 9 will need to be taken on board as they are deployed. The EBA has developed guidelines on credit risk management practices and accounting for ECL (EBA Guidelines on ECL[15]), which provide supervisory expectations for credit institutions related to sound credit risk management practices associated with implementing and applying an ECL accounting model. The existence of such guidance emphasises the importance of a high-quality and consistent application of IFRS 9 and could help to promote consistent interpretation and practices.

50. It is worth recalling that when publishing its second impact assessment report on IFRS 9[16], the EBA announced the short-term and medium to long-term actions that it plans to undertake in terms of the implementation of IFRS 9 as well as in terms of interactions with prudential requirements.

[15] EBA Guidelines on credit institutions' credit risk management practices and accounting for expected credit losses (https://www.eba.europa.eu/documents/10180/1842525/Final+Guidelines+on+Accounting+for+Expected+Credit+Losses+%28EBA-GL-2017-06%29.pdf)).

[16] https://www.eba.europa.eu/documents/10180/1720738/EBA+Report+on+results+from+the+2nd+EBA+IFRS9+IA.pdf

51. In particular, with regard to the medium and longer term actions, the EBA will further investigate the inputs used for ECL measurement with the objective of understanding better the various practices and the effects of using different inputs and methodologies in ECL measurement. This will include a review of the various models, the number and types of scenarios, the assumptions used for the forward-looking information for the long term, the application of key judgemental elements of IFRS 9, and the effect of different governance arrangements within banks. As the implementation of IFRS 9 involves the use of models and is consistent with EBA work in the field of credit risk and market risk, the EBA will reflect on the work that can be carried out with regard to the implementation of IFRS 9.

52. In addition, the EBA is also closely monitoring and following up on the impact on regulatory own funds for IRB approach and SA banks in the context of the medium- and long-term work that is currently taking place at the international level (BCBS) to explore further whether or not any changes to the current regulatory framework on the treatment of accounting provisions are necessary to ensure the proper interaction of the capital framework with the new ECL model for accounting.

53. The potential volatility of own funds merits assessment in the longer term. While it is expected that IFRS 9 will lead to a higher level of provisions, it would be worth exploring the behaviour of ECL provisions over time with changes in the economic cycle. This is a long-term task, as sufficient observations would be necessary. However, such a monitoring exercise would also influence the introduction of potential backstops over time and perhaps require consideration with regard to its specification features.

54. The full effects of IFRS 9 are still not fully apprehended, in terms of both the final impact on the level of provisioning and the interaction with prudential requirements. The transition arrangements[17] provided by EU co-legislators, in line with the Basel agreement, would allow both regulators and institutions to work further on these aspects. The statutory prudential backstop that is envisaged should be an integral part of these reflections, as it may be the case that not all aspects of this backstop can be fully evidenced today.

[17] http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32017R2395&from=EN

b) Reporting

55. The Commission consultation document relies on the definition of NPEs[18] used for supervisory reporting purposes[19]. Therefore, the application of the prudential backstop depends on the proper classification of new loans as NPEs.

56. The definition of NPEs has been harmonised by the EBA ITS on supervisory reporting (forbearance and NPEs), and implements uniform definitions and reporting requirements for forbearance and NPEs[20]. The ITS define NPEs as those that satisfy any of the following criteria:

    a) material exposures that are more than 90 days past due;

    b) the debtor is assessed as unlikely to pay its credit obligation in full without realisation of collateral, regardless of the existence of any past due amount or of the numbers of days past due.

    In addition, the ITS clarify that exposures in respect of which a default is considered to have occurred in accordance with Article 178 CRR and exposures that have been found impaired in accordance with the applicable accounting framework shall always be considered NPEs.

57. Therefore, the definition of NPEs is based on two pillars, i.e. (i) days past due and (ii) unlikeliness to pay criteria. The definition of default, in accordance with Article 178 CRR, is also based on these two pillars and additional guidance on these concepts is provided in the EBA RTS on the materiality threshold[21] and the guidelines on the application of the definition of default[22], which will enter into force in 2021 at the latest. For accounting purposes, under IFRS 9 there is no precise definition of default, as in the prudential framework. The only requirement under IFRS 9 is that the entity must apply a definition of default that it is consistent with the definition that it is used for internal credit risk management (IFRS 9 B.5.5.37). In this regard, the EBA guidelines on ECL state that 'when adopting a definition of default for accounting purposes, credit institutions should be guided by the definition used for regulatory purposes provided in Article 178 of Regulation (EU) 575/2013'.

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[18] The Commission consultation document states that 'the Commission will also consider introducing a common definition of non-performing exposures (NPEs) in accordance with the one already used for supervisory reporting purposes with the view of providing a sound legal basis for the prudential treatment of such exposures and ensuring consistency'.

[19] Commission Implementing Regulation (EU) No 680/2014.

[20] https://www.eba.europa.eu/documents/10180/449824/EBA-ITS-2013-03+Final+draft+ITS+on+Forbearance+and+Non-performing+exposures.pdf/a55b9933-be43-4cae-b872-9184c90135b9

[21] Draft Regulatory Technical Standards on the materiality threshold for credit obligations past due under Article 178 of Regulation (EU) No 575/2013 (https://www.eba.europa.eu/documents/10180/1597002/Final+draft+RTS+on+the+materiality+threshold+for+credit+obligations+%28EBA-RTS-2016-06%29.pdf/fe1db887-c6dc-4777-89c1-4f243584cafd)

[22] https://www.eba.europa.eu/documents/10180/1597103/Final+Report+on+Guidelines+on+default+definition+%28EBA-GL-2016-07%29.pdf/004d3356-a9dc-49d1-aab1-3591f4d42cbb

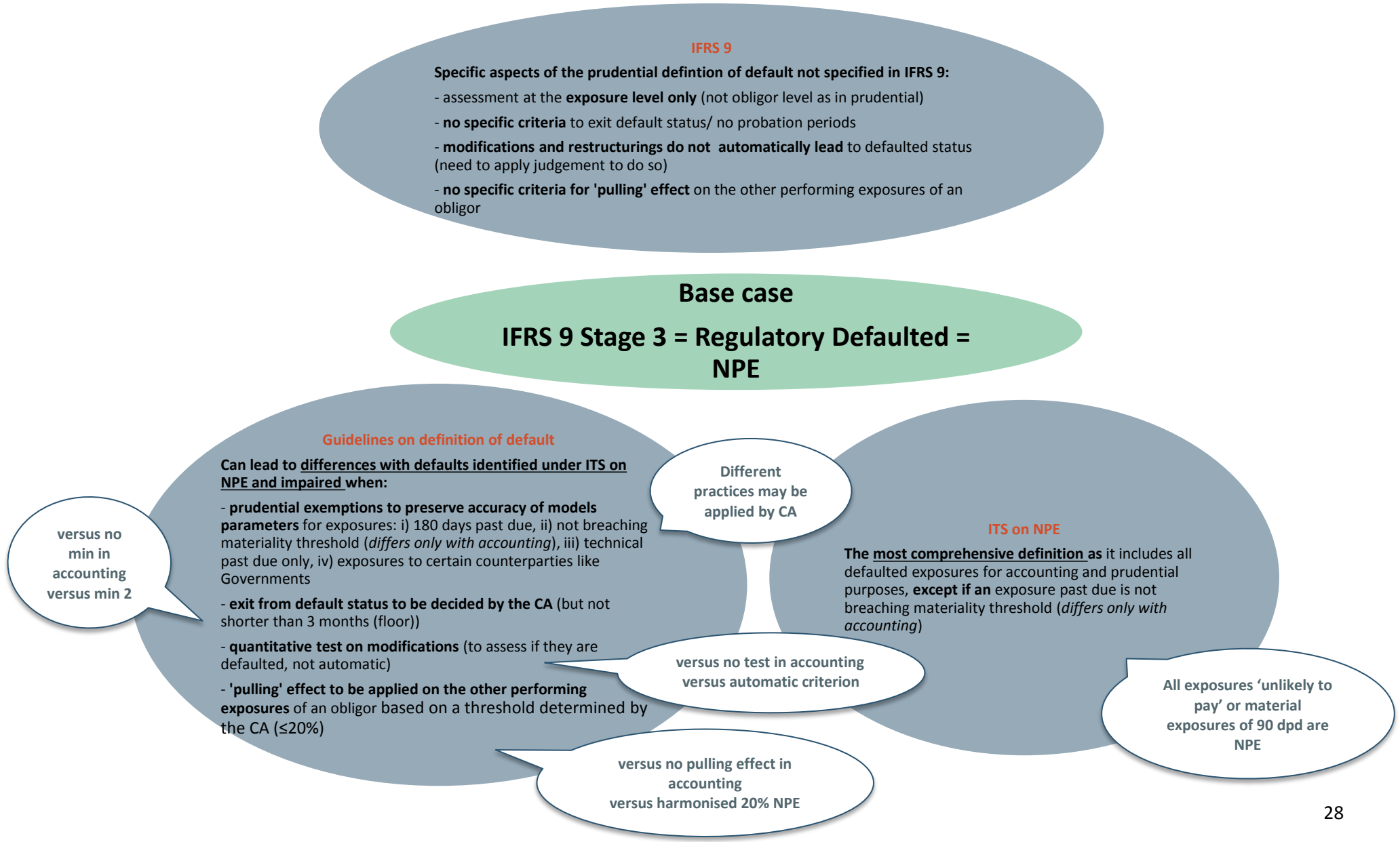
58. In this context, credit institutions should identify default, in accordance with the 'unlikeliness to pay' criterion of the debtor, before the exposure becomes delinquent with the 90-days-past-due criterion[23]. The 90-days-past-due criterion therefore acts as a backstop.

59. Since the criteria for unlikeliness to pay are generally more difficult to assess than the days-past-due criterion, the envisaged statutory prudential backstop could lead to a reduced application of the unlikeliness to pay criteria, as this will delay the recognition of NPEs and, consequently, the application of the prudential backstop regime. As a consequence, CAs should monitor the correct application of the NPEs definition to ensure a consistent classification of NPEs and accordingly the consistent usage of the prudential backstop regime.

60. Because the concepts of days past due and unlikeliness to pay each contribute to a consistent identification of default, it is necessary to maintain the single definition of default in all regulations. CAs should monitor the consistent application of the default definition in all steps of the risk underwriting to the classification of exposures in order to ensure a consistent application of the proposed prudential backstop.

61. The definition of NPEs for reporting purposes, the definition of default under Article 178 of the CRR and the definition of default used for accounting purposes may have many similarities. The following figure describes the possible differences between these three definitions used in accounting, for prudential and for reporting purposes. Whether or not the differences arise in practice will depend on the specific implementation by each institution (e.g. it may be that the probation period used for reporting purposes to transfer non-performing forborne exposures to performing forborne exposures may also be applied for accounting purposes).

[23] EBA Guidelines on ECL (paragraph 90)).


IFRS 9
Specific aspects of the prudential defintion of default not specified in IFRS 9:
- assessment at the exposure level only (not obligor level as in prudential)
- no specific criteria to exit default status/ no probation periods
- modifications and restructurings do not automatically lead to defaulted status (need to apply judgement to do so)
- no specific criteria for 'pulling' effect on the other performing exposures of an obligor
Base case
IFRS 9 Stage 3 = Regulatory Defaulted = NPE
Guidelines on definition of default
Can lead to differences with defaults identified under ITS on NPE and impaired when:
- prudential exemptions to preserve accuracy of models parameters for exposures: i) 180 days past due, ii) not breaching materiality threshold (differs only with accounting), iii) technical past due only, iv) exposures to certain counterparties like Governments
- exit from default status to be decided by the CA (but not shorter than 3 months (floor))
- quantitative test on modifications (to assess if they are defaulted, not automatic)
- 'pulling' effect to be applied on the other performing exposures of an obligor based on a threshold determined by the CA (≤20%)
versus no min in accounting versus min 2
Different practices may be applied by CA
ITS on NPE
The most comprehensive definition as it includes all defaulted exposures for accounting and prudential purposes, except if an exposure past due is not breaching materiality threshold (differs only with accounting)
versus no test in accounting versus automatic criterion
All exposures 'unlikely to pay' or material exposures of 90 dpd are NPE
versus no pulling effect in accounting versus harmonised 20% NPE

62. Sufficient consideration should be given to how existing supervisory reporting (i.e. COREP and FINREP) should be changed or complemented by additional reporting requirements, in order to allow supervisors to assess compliance with the statutory prudential backstop and be reflected in subsequent updates of the supervisory reporting ITS or to introduce additional reporting requirements.

c) Newly originated loans

63. As the proposed statutory prudential backstop intends to apply to new loans, some considerations regarding the potential perimeter of 'newly originated loans' may arise. In banking practice, new lending entails the notion of a new credit relationship. From this perspective, the definition of a loan as 'new' is conceptually straightforward in distinct cases such as granting a new loan to a new client. However, there are probably cases where classifying a loan as 'new' is less clear, on account of characteristics resulting from the interplay between 'new' loans and existing loans, such as:

- forbearance of an existing loan and treatment under different conditions, i.e. closure of an existing account and creation of a new account or new contract;
- loan restructuring with cases of multiple loans consolidation and/or refinancing;
- unsecured retail credit transformed into a secured mortgage loan;
- loan rollovers (i.e. replacement of bond loans on maturity);
- working capital limit renewals (e.g. annually or bi-annually);
- consumer credit/credit cards/open credit.

64. In respect of the above examples, the introduction of the statutory prudential backstop should be accompanied by an RTS mandate to further specify which loans should be considered newly originated loans.

3.3.2 Interaction with capital requirements

a) Capital and deductions

65. It is worth recalling that CAs are empowered regarding the provisioning policy in Article 104 of the CRD (Pillar 2) and as further detailed under the SREP guidelines[24]. The SREP guidelines leverage on the supervisory powers under Article 104(1)(d) and refer to the possibility for CAs to require an increase in provisions (if permitted by the accounting standards). In addition, CAs can require institutions to hold additional own funds to compensate for the difference between the accounting value of provisions and a prudent valuation of assets (outcome of the assets

[24] https://www.eba.europa.eu/documents/10180/935249/EBA-GL-2014-13+(Guidelines+on+SREP+methodologies+and+processes).pdf

quality review). Therefore, the CRD already provides several possibilities to ask for additional own funds if the CA is not satisfied with the level of provisions via Pillar 2, not Pillar 1.

66. The introduction of a prudential backstop should consider the following aspects on the mechanics of Pillar 1 and Pillar 2 :

- A systematic regime (via a potential deduction from CET1) would require some amendments to the CRR: the list of regulatory adjustments in Article 36 of the CRR and the deduction items. Such amendments should be targeted specifically at NPEs so that they cannot be used for purposes other than the treatment of NPEs and under very specific and detailed circumstances. This is necessary to keep as much consistency as possible in the proposed deduction, in line with the principles underlying the Single Rulebook, while striving to keep as much simplicity as possible.

- A question arises with regard to how the statutory prudential backstop would interact with and fit in the order of Pillar 1 versus Pillar 2 requirements:

  - ✓ It should be clear that the intention of the statutory prudential backstop is to be included in the Pillar 1 requirements, since the intention of the statutory prudential backstop is to serve as an automatic EU-wide brake on the build-up of future loans that turn non-performing with insufficient loan loss coverage.

  - ✓ This would have implications for how the supervisory powers to require institutions to hold additional own funds in accordance with Article 104(1)(d) CRD[25] would fit in the sequence of Pillar 1 and Pillar 2. Supervisory powers to require institutions to hold additional own funds according to Article 104(1)(d) CRD should not be applied to newly originated loans that turn non-performing if the statutory prudential backstop is applied (covering the entire uncovered exposure amount), as there would already be a deduction from CET1.

  - ✓ There could still be specific circumstances in which supervisors could apply Pillar 2 (to address insufficient provisioning), although the prudential backstop is already in place. One example would, for instance, be the case where the supervisor would (under Article 104(1)(d) CRD and SREP paragraph 479(a)) request a specific provisioning policy (where permitted by accounting rules) to increase provisions for secured exposures that are less than 6 years' non-performing (note that the statutory prudential backstop would only require a 100% coverage for NPEs after 6 years at the earliest). In any case, even if the power provided by Article 104(1)(d) CRD were exercised, notwithstanding the backstop, the resulting increase in accounting provisions would feed into the list of items eligible for complying with the minimum coverage requirement. An RTS mandate

[25] Note that the supervisor may also use the powers for the situations covered in letters (b) and (c) of paragraph 479 of SREP, meaning that the supervisor may apply floors (or caps) to internal risk parameters and/or risk weights used to calculate risk exposure amounts and/or apply higher haircuts to the value of collateral. Since this would have an impact on the minimum coverage requirements, this would be considered before the prudential backstop applies.

will be necessary to specify the calculation mechanism stemming from the sequence of the supervisory actions and rolling consequence.

b) Risk weights for defaulted exposures

67. In this section, it is discussed that the interaction of the statutory prudential backstop with other areas of the regulation should not lead to a double counting of requirements. When the prudential backstop would apply and a 100% coverage would be required after the exposure is 6, 7 or 8 years' non-performing, the institution would deduct the difference between the required and available coverage from CET1. In this case, the institution would be fully covered for any potential losses on these exposures. This means that, in that case, no additional prudential requirements should be imposed on these defaulted exposures, i.e. the risk weight should be 0%.

68. In the F-IRB approach, a 0% risk weight applies for defaulted exposures, in accordance with Article 161(1) CRR; hence, there would not be any overlap in requirements. However, when the institution applies the A-IRB approach and uses its own estimates of LGD, the risk weight is given by $RW^D = \max(0{,}12.5 \cdot (LGD - EL_{BE}))$, where EL_{BE} refers to the expected loss best estimate, which is calculated as specified in Article 181(1)(h) CRR. Hence, in the A-IRB approach, there could be a risk weight above 0%, which would represent an overlap in requirements in cases where the institution has already deducted the difference between the required and available coverage from CET1 but applies the risk weight on the deducted part of the exposure.

69. In this respect Article 151(1) CRR clarifies that no own fund requirements should be imposed on parts of exposures that have already been deducted from CET1 while parts of exposures that have not yet been deducted from capital should still be risk-weighted to address any unexpected losses. For that purpose deductions via the prudential backstop should be treated as any other deduction from CET1 (e.g. via credit risk adjustments, additional value adjustments, other own fund reductions or IRB shortfall).

70. In the SA, as specified in Article 127 CRR, a 100% or 150% risk weight is required for the unsecured part of any item where the obligor has defaulted, in accordance with Article 178 CRR. In particular, whether the 100% or the 150% risk weight applies depends on whether the SCRA associated with the exposure are more or less than 20% of the unsecured part of the exposure value if the specific credit risk adjustments were not to be applied.

71. The Commission consultation document refers to a possible solution for this issue in the section 'Safeguards and review', where it is mentioned that 'a cap could ensure that the application of the statutory prudential backstops does not result in covering more than 100% of the exposure in combination with Pillar 1 capital requirements for unexpected losses on credit risk'.

72. Furthermore, it is mentioned in the Commission consultation document that the necessary amendments to related provisions on the credit risk framework (e.g. the provisions on the

'Exposure value' in Articles 111 and 166 CRR, 'Exposures in default' in Article 127 CRR and the 'Treatment of expected loss amounts' in Article 159 CRR) would need to be made in order to ensure the consistency and coherence of the prudential framework. In the SA, it would be possible to change Article 111 CRR, in order to reflect that the exposure value is the accounting value remaining after credit risk adjustments, additional value adjustments, other own fund reductions and the prudential backstop deduction have been applied[26].

73. Another area where the statutory prudential backstop would represent an overlay with the existing regulation concerns the conditions for the level of the risk weight in the SA:

- A 150% risk weight should apply where specific credit risk adjustments are less than 20% of the unsecured part of the exposure value if these specific credit risk adjustments were not to be applied.

- A 100% risk weight should apply where specific credit risk adjustments are no less than 20% of the unsecured part of the exposure value if these specific credit risk adjustments were not to be applied.

74. As such, the requirements in Article 127 CRR imply that a higher prudential risk weight is required if the coverage from an accounting perspective (by means of specific credit risk adjustments) is below the 20% threshold. This mechanism has similarities with the proposed statutory backstop legislation, which implicitly sets stricter prudential requirements if the coverage from an accounting perspective is insufficient (i.e. when the available NPE coverage does not meet the required NPE coverage for newly originated NPEs). To prevent an overlap, deductions required by the prudential backstop would need to be recognised as coverage for the purposes of the 20% threshold. It should, however, be mentioned that changing any of the above aspects in the credit risk framework could lead to inconsistencies with the Basel standards.

c) Scalar versus no scalar approach

75. In the deduction approach, the Commission consultation document differentiates between option 1 (no scalar) and option 2 (linear or progressive scalar). There are advantages and disadvantages of each approach. In particular, option 2 (linear or progressive scalar) would provide incentives to address NPEs at an early stage and prevent or reduce cliff effects, which are associated with option 1 (no scalar approach). On the other hand, under option 1 the backstop measure would not apply until a certain pre-defined period had elapsed (e.g. 2 years for unsecured exposures), thereby providing more time to address the underprovisioning as much as possible through the recognition of loan loss provisions (or write-offs). On the

[26] One could argue that the 'other own fund reductions related to the asset' in Article 111 CRR should include the prudential backstop deduction, but such interpretation would not make sense because 'other own fund reductions related to the asset' are also used in the calculation of the IRB shortfall and excess in Article 159 CRR, where such interpretation would lead to a circular reference (the IRB shortfall is needed to calculate the deduction from CET1 due to the backstop).

contrary, option 1 would allow delay loss recognition and NPE resolution, while option 2 would not.

76. Given the objective of the statutory prudential backstop, i.e. to act as an EU-wide brake on the build-up of future loans that turn non-performing with insufficient loan loss coverage, option 1 (no scalar) could have more advantages than option 2 (linear or progressive scalar). However, a binary backstop (i.e. no scalar or option 1) that were to demand a sudden deduction might have unwanted effects, by requiring sudden and highly significant increases in capital.

d) Deduction versus haircut approach

77. In the design of the minimum coverage requirement, several elements must be considered and the advantages and disadvantages of the deduction and haircut approaches should be carefully balanced.

78. First, it should be noted that the introduction of haircuts prescribed in the NPE backstop legislation would be different from the haircut levels that are explicitly or implicitly envisaged in the CRR framework. In particular, in Article 224 CRR specific haircuts are prescribed for financial collateral, while minimum collateralisation levels and corresponding minimum LGD values are prescribed for the F-IRB approach (Article 230(2) CRR; table 5). In particular, a minimum collateralisation rate of 125% for receivables and 140% for RRE/CRE and other collateral is specified. As such, the implicit haircuts in the CRR can be derived as 20% and 28.6%, respectively[27]. Likewise, under the SA exposures fully and completely secured by residential immovable property and commercial immovable property are assigned a 35% or a 50% risk weight for the part of the loan that does not exceed, respectively, 80% or 50% of the market value of the property (these imply haircuts of 20% for RRE and 50% for CRE). These haircuts apply equally to non-defaulted and defaulted exposures.

79. As such, any haircut as introduced in the NPE backstop proposal would differ from those already explicitly or implicitly included in the CRR. Furthermore, the haircuts in the CRR are of a static nature, whereas the prudential backstop envisages a dynamic haircut that evolves over time in default (non-performing). In principle, it would be difficult to justify the inclusion of haircuts in the NPE backstop proposal that are different from the haircuts in the CRR, which have already been calibrated for prudential purposes.

80. As a consequence, should the haircut approach option be chosen, the EBA recommends further considerations of the calibration of the haircut levels for the different types of collateral and, in particular, recommends that the haircuts be consistent with the haircuts set out in the CRR.

[27] $\frac{C}{E} = 125\%$ where C refers to the collateral and E refers to the exposure value. This can be written as $C \cdot \frac{1}{125\%} = E$ or $C \cdot 0.8 = E$. Assuming that $C \cdot (1 - H) = E$ (where H refers to the relative haircut) this means that $1 - H = 0.8$ or $H = 20\%$. The same reasoning applies when $\frac{C}{E} = 140\%$.

81. In addition, the treatment of guaranteed exposures under the haircut approach should be clarified, in particular whether or not the use of specific minimum levels of prudential haircuts would apply to collateral/guarantee values. Conceptually, the purpose of a haircut is to cover for any valuation uncertainties and possible falls in value up to the realisation of the collateral as well as maintenance costs and costs to exercise/sell/liquidate the collateral. As such, it is not clear why a prudential haircut should be applied in the context of addressing underprovisioning of new NPEs that are guaranteed. In addition, the consultation document did not propose any values or ranges for the haircuts applied to guarantees. Nevertheless, the paths for the haircuts that have been used in the quantitative analysis have been applied to both the collateralised and guaranteed exposures, i.e. the results reflect the impact if the haircuts apply equally to both collateral and guarantees, since this is the only way to achieve a meaningful comparison between the haircut and the deduction approaches.

82. It should also be pointed out that the haircut levels proposed in the Commission consultation document are not consistent with the required coverage levels in the deduction approach. Moreover, either of the approaches may be more or less conservative than the other depending on their final methodological design and their calibration.

83. In particular, initial haircut levels ranging between 5% and 60% are proposed depending on the form of credit protection, whereas maximum haircut levels (i.e. applicable after 6 years) are required for financial collateral (30-55%) and commercial real estate (67.5%). In the first 2 years after an exposure turns non-performing, 0% coverage would be required, since 0% coverage is required for the unsecured part of the exposure, even though an initial haircut is already required in these first 2 years. After the exposure is more than 6, 7 or 8 years' non-performing, the haircut approach is not as conservative as the deduction approach, since no full coverage is required for the secured part of the exposure. Hence, for the proposed calibrations of the deduction and haircut approaches, the deduction approach is more conservative than the haircut approach once the required coverage in the deduction approach reaches 100% for secured exposures.

84. The haircut levels that would make the haircut approach consistent with the deduction approach can be calculated, but this would depend on the proportion of the secured part versus the unsecured part of the exposure and on the proportion of collateral versus guarantees[28]. If

[28] In a simple case, where the haircuts on guarantees for currency do not match, or where more than one haircut for collateral for currency mismatch would be discarded, and where the proportion of the collateralised part of the exposure would be assumed, as well as the proportion of the guaranteed part of the exposure, and the remaining part of the exposure would be unsecured, the required haircut (H_T for a time in default T) to make the haircut approach consistent with the deduction approach can be calculated as follows:

$$\text{Required NPE coverage}^{\text{Total,ded.appr.}} = \text{Secured Share}^{\text{D}} \cdot \text{Required NPE coverage}^{\text{sec}} + (1 - \text{Secured Share}^{\text{D}}) \cdot \text{Required NPE coverage}^{\text{unsec}}$$

$$\text{Required NPE coverage}^{\text{Total,haircut appr.}} = \text{Secured Share}^{\text{D}} \cdot 0\% + (1 - \text{Secured Share}^{\text{D}}) \cdot \text{Required NPE coverage}^{\text{unsec}}$$

$$= (1 - \text{Coll. Share}^{\text{D}} \cdot (1 - H_T) - \text{Guar. Share}^{\text{D}}) \cdot \text{Required NPE coverage}^{\text{unsec}}$$

Hence, in order to obtain that

$$\text{Required NPE coverage}^{\text{Total,ded.appr.}} = \text{Required NPE coverage}^{\text{Total,haircut appr.}}$$

the haircuts apply only to collateral and not to guarantees, haircut values above 100% would be necessary in order to make the haircut approach as conservative as the deduction approach, but this would be conceptually strange. That said, it would be preferable to consider calculating the appropriate specification of the deduction approach, in order to achieve consistency with the haircuts that are already included in the CRR framework.

85. The haircut approach is a more complex solution, as it introduces a differentiation between different types of collateral. Whether or not this complexity is warranted because of its advantages in terms or risk sensitivity, this is a policy choice that entails a trade-off between the risk sensitivity of the approach and having a simple framework that is not consistent with the existing CRR framework.

86. In contrast to the haircut approach, the deduction approach is not prone to the mentioned inconsistencies as a result different haircut values, and its implementation appears to be less complex than for the haircut approach, although it would require either adaptations of the existing prudential framework or a revision of the proposed statutory prudential backstop. Nonetheless, the haircut approach clearly has a higher degree of risk sensitivity, as it allows the consideration of different types of collateral.

87. In the quantitative analysis and the results that are presented in Chapter 5, the paths taken for the haircuts deviate from those proposed in the consultation document; whereas the paths proposed by the Commission do not always lead to a 100% haircut for all forms of credit protection (see Table 3), the haircut paths in this quantitative analysis all lead up to 100% (see Table 8), after 6, 7 or 8 years in default, in order to achieve consistency with the required coverage levels in the deduction approach.

e) IRB shortfall and excess

88. The objective of the statutory prudential backstop is to recognise in own funds the difference between the sum of amounts eligible for compliance with the minimum coverage requirements and the applicable minimum coverage requirement (i.e. the uncovered exposure amount or the 'coverage gap') during a certain period. Therefore, new loans turning non-performing after this period should be fully deducted from CET1 (this could be done, for example, through loan loss provisions and the remaining amount through the statutory prudential backstop). To achieve this result, the Commission consultative document includes as part of the items eligible for compliance with the minimum coverage requirements the 'regulatory expected loss shortfall'. However, the consultative document does not directly take into consideration the

we have found that the haircut value H_T can be obtained as

$$H_T = 1 + \frac{\frac{\text{Required NPE coverage}^{\text{Total,ded.appr.}}}{\text{Required NPE coverage}^{\text{unsec}}} + \text{Guar.Share}^{D} - 1}{\text{Coll.Share}^{D}}.$$

possibility of a 'regulatory expected loss excess' for new loans that turn non-performing, which would be included in Tier 2 capital.

89. This raises the risk of inconsistencies between (i) the addition of any IRB excess to Tier 2 capital (up to the regulatory maximum) for the IRB shortfall/excess stemming from all non-defaulted and defaulted exposures (Article 62(d) CRR), and (ii) the absence of the reversal of addition of any excess of Tier 2 (up to the regulatory maximum which limited to 0.6% of the institution's RWAs for credit risk) stemming from newly originated loans defaulted exposures from the backstop calculation. The latter, i.e. the fact that the statutory prudential backstop calculation refers to only the IRB shortfall (and not to the excess), is not a prudent choice, as it leads to the inclusion of any excess stemming from newly originated defaulted exposures in an institution's capital, whereas it is not included in the backstop calculation. An institution could, for instance, be in a situation where it has an IRB excess stemming from non-defaulted and defaulted exposures, which should be added to Tier 2 capital, and have an IRB excess stemming from newly originated defaulted exposures. In this case, the IRB excess (from non-defaulted and defaulted exposures) will be added to Tier 2 capital (up to the regulatory limit), but is not taken into account in the prudential backstop calculation.

90. It should, however, also be noted that the backstop proposal entails a deduction from CET1 capital in cases of under-provisioning. It would hence not be possible to include the IRB excess in the list of eligible items for compliance with the minimum coverage requirement. Furthermore, it should be flagged that the inclusion of the excess in Tier 2 in the CRR concerns the excess (if any) stemming from both non-defaulted and defaulted exposures, whereas the prudential backstop only concerns only newly originated defaulted exposures. As such, the two above mentioned alternatives for addressing the inconsistency, would not have the same effect.

91. Furthermore, the call for advice and the consultation document do not take into consideration the possibility that an IRB shortfall of a newly defaulted loan is compensated by an excess stemming from non-defaulted exposures. This is because the excess of provisions for non-defaulted exposures can be used to cover the shortfall of provisions for defaulted exposures[29]. The potential inconsistency is that the IRB shortfall stemming from newly originated defaulted exposures is considered within the items eligible to meet the coverage requirement, even if no deduction has been made because of the compensation with the IRB excess from non-defaulted exposures. An institution could, for instance, be in a situation where the IRB shortfall stemming from newly originated defaulted exposures will be considered as an eligible item under point (d) (in paragraph 22 of this document) to fulfil the minimum coverage requirement,

[29] Note, however, that the excess of provisions for defaulted exposures cannot be used to cover the shortfall of provisions for non-defaulted exposures as explained in the EBA Q&A 2016_2702 (http://www.eba.europa.eu/single-rule-book-qa/-/qna/view/publicId/2016_2702).

while it has not been deducted from CET1 for prudential purposes because it has been compensated by an IRB excess stemming from non-defaulted exposures.

92. Finally, it may also be useful to clarify the wording in point (d) of the list of eligible items for compliance with the minimum coverage requirement, as referred to in paragraph 22 of this document. In particular, the consultation document refers to the 'negative amounts resulting from the calculation of expected loss laid down in Articles 158 and 159 CRR', whereas it would be clearer to refer to 'absolute values[30] of the negative amounts resulting from the calculation of expected loss laid down in Articles 158 and 159 CRR'.

f) Additional value adjustments

93. The EBA is concerned with the inclusion of 'Additional value adjustments in accordance with Article 34 and 110 CRR', as listed under point (b) (see paragraph 22 of this document) of the items eligible for compliance with the minimum coverage requirement provided they relate to new NPEs. In particular, two items can be differentiated:

- additional value adjustments in accordance with Article 34 CRR, which itself refers to Article 105 CRR, and correspond to the adjustments made to fair-valued positions (banking book or trading book) under the prudent valuation framework;

- credit risk adjustments in accordance with Article 110 CRR, which refer to general and specific credit risk adjustments in the credit risk framework.

94. The reference to Article 110 CRR in point (b) of the items eligible for compliance with the minimum coverage requirement is confusing, as it reads 'Additional value adjustments in accordance with Article 34 and 110 CRR'. Provisions recognised under the applicable accounting framework ('credit risk adjustments') are already included in the eligible items under point (a) in the consultation document. There would hence be a partial overlap between points (a) and (b). Therefore, we understand that the reference to Article 110 CRR should be removed from point (b) and included in point (a).

95. If, however, the consultation document were to refer to additional value adjustments in accordance with Article 105 CRR (i.e. the reference to Article 110 CRR is a misprint), then this item would correspond to the adjustments made to fair-valued positions (banking book or trading book) under the prudent valuation framework. In the CRR, these additional value adjustments are required to be deducted from CET1 capital as mentioned in Article 34 CRR, and in the new backstop proposal they would be eligible items for compliance with the minimum coverage requirements. As such, the inclusion of this item as an item that is eligible for compliance with the minimum coverage requirements would be consistent with the CRR, since

[30] The absolute value or modulus $|x|$ of a real number x is the non-negative value of x without regard to its sign. Namely, $|x| = x$ for a positive x, $|x| = -x$ for a negative x.

it takes into consideration the amount already deducted from CET1 under Article 34 CRR for new NPEs.

96. In this regard, it is noted that additional value adjustments are adjustments made to address risks that in most cases are not associated with credit risk (e.g. model risk, operational risk). As a consequence, should the coverage requirement be calibrated to allow for insufficient provisioning related to credit risk events only, the possibility of using additional value adjustment as items eligible for complying with such a requirement may not be prudent when those considered adjustments refer to risks other than credit risk.

97. In the quantitative analysis in Chapter 4, the additional value adjustments as listed under point (b) (see paragraph 22) have been discarded because the current reporting templates are not sufficiently granular to isolate the additional value adjustments associated with credit risk only.

g) Other own funds reductions

98. The Commission consultation document proposes the inclusion of other own funds reductions in the eligible items for compliance with the minimum coverage requirements (see also paragraph 22 of this document). These other own funds reductions are also referred to in Article 111 CRR (where the exposure value in the SA is defined; see paragraph 100) and in Article 159 CRR (where the computation of the IRB shortfall or excess is specified).

99. It is, however, not clear which other own funds reductions there could be, i.e. other than additional value adjustments (stemming from Article 34 CRR) and credit risk adjustments (stemming from Article 110 CRR)[31]. Given that it is also unclear where this item is to be reported under the COREP reporting framework, this aspect has been omitted for the purpose of the quantitative analysis.

h) Exposure values in the SA and the IRB approach

100. In the SA, the exposure values are net exposure values, which are defined in the CRR under Article 111(1), i.e. 'the exposure value of an asset item shall be its accounting value remaining after specific credit risk adjustments, additional value adjustments in accordance with Articles 34 and 110 and other own fund reductions related to the asset item have been applied'. As such, the accounting provisions have been deducted from the gross exposure values. In this sense, the exposure values are the net of provisions.

101. On the contrary, under the IRB approach, exposure values are gross exposure values, which are defined in the CRR under Article 166(1), i.e. 'the accounting value measured without taking

[31] See also footnote 26 on this topic.

into account any credit risk adjustments made'. As such, the exposure values in the IRB approach also cover the accounting provisions.

102. The call for advice mentions taking into account the counter-balancing effects on bank capital, such as the relief on capital requirements for institutions applying the SA for credit risk as a result of reduced exposure values[32]. In the consultation document, it is also mentioned that the necessary amendments to related provisions on credit risk framework (such as the exposure value in Articles 111 and 166 CRR) would need to be made in order to ensure consistency and coherence of the prudential framework.

103. Under the current CRR text, it is, however, not clear why the prudential backstop proposal would affect these exposure values, as the proposal requires a deduction from CET1 capital in cases in which the backstop applies, i.e. the proposed backstop does not require higher provisioning. As mentioned in footnote 26, any broader interpretation of the term 'other own fund reductions related to the asset' would also not work, because this would create a circular reference in the functioning of the CRR and the backstop proposal. As such, it is not clear why exposure values in the SA would be affected under the current CRR text, unless the prudential backstop incentivises institutions to increase provisions on (newly originated) NPEs. In other words, it is only to the extent that institutions increase provisions because of the NPE backstop legislation that exposure values in the SA would be reduced. It should be noted that this effect is not taken into account in the quantitative analysis. However, not considering any deductions stemming from the application of the prudential backstop in the calculation of the exposure value would be conservative. A similar effect is at play in the IRB approach.

i) Minimum coverage requirements

104. The Commission consultation document includes a list of items that would be eligible for compliance with the minimum coverage requirements, provided they relate to new loans that turn non-performing. The Commission proposal also requires that unsecured and secured exposures are differentiated between and that within the same exposure amount the part that it is unsecured is differentiated from the part that is secured.

105. It follows that the items eligible for compliance with the minimum coverage requirements would need to be allocated to the unsecured and the secured exposures. In addition, within the same exposure, the eligible items for compliance with the minimum coverage requirement would need to be allocated separately for the secured and the unsecured parts of the exposure. This can be done in different ways, since an institution's provisioning policy would not specify which provisions are made for the secured part (i.e. covered by eligible credit protection according to the CRR) and the unsecured part of the exposure. Some criteria for this allocation would have to be defined in order to make the proposal operational in practice and equally applied.

[32] Second paragraph on page 3 of the Commission call for advice.

j) Valuation of collateral

106. Prudentially sound collateral valuation is an important element for addressing NPE-related risks. In particular, the lack of standardised valuation approaches was found to be detrimental to the quality of impairment calculations and an obstacle to timely NPE resolution[33].

107. Whereas common prudent valuation requirements already apply for assets valued at fair value in the trading book[34], no such standards exist currently for assets valued at amortised cost. For immovable property, the CRR provides common definitions of 'market value' and 'mortgage lending value' (Article 4(74) and 4(76) CCR), but no common criteria or conditions for the assessment of the market or mortgage lending value[35].

108. To ensure that the valuation of collaterals and guarantees follows a prudent approach, in particular regarding assumptions pertaining to recoverability and enforceability, and leads to consistent outcomes across banks, a common methodology, including possible minimum requirements for re-valuation in terms of timing and ad hoc methods, would have to be developed[36].

3.4 Impact on the banks' profitability

109. The statutory prudential backstop is intrinsically a prudential measure, i.e. it is separated from accounting requirements. As such, the EBA has not conducted a quantitative assessment of the impact of the statutory prudential backstop on the profitability of EU banks. In cases where the backstop does lead to increased prudential provisioning, the impact on the profitability will depend on a wide range of factors, most notably the requirements of the accounting framework, tax regimes and mitigating effects deriving from any proceeds from sales (which depend on the sale price), as well as other firm-specific circumstances. Consequently, it will be difficult to assess this impact on a systematic basis.

110. On the other hand, the introduction of the backstop aims to limit the build-up of NPLs in the EU banking sector. As stated previously, the EBA report on NPLs, published in 2016, observes a high correlation between low profitability and banks with relatively high NPL levels. This may support the conclusion that a decrease in the overall level of NPLs, as a result of this

[33] Report of the FSC Subgroup on Non-Performing Loans, 2017 (http://data.consilium.europa.eu/doc/document/ST-9854-2017-INIT/en/pdf).

[34] Commission Delegated Regulation (EU) 2016/101 of 26 October 2015 supplementing Regulation (EU) No 575/2013 of the European Parliament and of the Council with regard to regulatory technical standards for prudent valuation under Article 105(14).

[35] Note that the EBA mandate to develop the RTS to specify the rigorous criteria for the assessment of mortgage lending value, as specified in Article 124(4)(a) CRR, could not be delivered, for reasons explained in the EBA Opinion published in October 2015 (https://www.eba.europa.eu/documents/10180/983359/EBA-Op-2015-17+Opinion+on+mortgage+lending+value.pdf).

[36] Note that the Report of the FSC Subgroup on Non-Performing Loans (http://data.consilium.europa.eu/doc/document/ST-9854-2017-INIT/en/pdf) (paragraph 204) refers to the possibility of requiring an independent external valuation.

policy decision and other actions taken in parallel as a result of the Council's action plan on NPLs, will in general contribute to the profitability of banks.

4. Methodology

4.1 Overview

111. First, it should be noted that the impact of the proposed legislation is only analysed for the retail and corporate exposure classes, i.e. including the sub-classes of these in COREP. In particular, retail, corporate and exposures secured by immovable property are included in the SA, whereas in the IRB approach the retail and corporate exposures are in the scope of the assessment[37]. Chapter 5 provides an assessment limiting the scope of the analysis to these (COREP) exposure classes.

Table 4: Exposure classes considered in the quantitative analysis

In the SA		**In the IRB approach**	
Corporate	SME	Corporate	SME
	non-SME		Specialised lending
Retail	SME		Other
	non-SME	Retail	Secured by immovable property SME
Exposures secured by immovable property	SME		Secured by immovable property non-SME
			Qualifying revolving
	non-SME		Other SME
			Other non-SME

[37] This is a subset of all NPEs which are under the scope of the Commission consultation document, but it is a simplifying assumption, justified by the fact that the majority of the NPEs are concentrated in these exposure classes.

112. The sample consists of the institutions that are available in the EBA COREP sample for 2017Q2[38,39]. For these, we make use of data and variables from COREP or FINREP where available and supplement with data from other databases (the 2016 stress test database, the QIS on the definition of default, the 2016 HDP benchmarking exercise). Chapter 5 contains a description of the size and composition of the sample.

113. The future projection horizon spans 20 years and starts immediately after the last observed data point (2017Q2). As such, the starting point of the analysis (the start of the application of the proposed legislation) is immediately after the last observed data point, or at any further point in time, where it is assumed that no changes take place between the last observed data point and the starting point.

114. A projection horizon of 20 years is foreseen, meaning that the impact of the proposed backstop legislation has been calculated for the period 2018-2037. These results also serve to assess the impact for a later implementation date, if no changes are assumed to take place between the last observed data point (2017Q2) and the implementation date. Although a calculation of the impact over a future period of 20 years is naturally subject to large confidence intervals, it should further be highlighted that the application of the statutory prudential backstop is meant to start in a period characterised by significant changes in the regulatory framework, which further add to the uncertainty associated with these projections.

115. Because of the short timeline for conducting this quantitative analysis, it was necessary to make some simplifying assumptions. In particular, this analysis is based on the static balance sheet assumption. Section 4.2 further elaborates on these assumptions and explains which remedies the EBA has applied in order to address these uncertainties. Under the static balance sheet assumption, the only change considered in the analysis is the future inflow of newly originated defaulted exposures. As such, no changes are assumed in the outstanding stock of exposures (defaulted and non-defaulted) and in the newly originated non-defaulted exposures. The same holds for other balance sheet items, such as the CET1 and Tier 2 capital.

116. In addition, it is assumed that there will be no changes in some key ratios observed at the institutional level. It is assumed that the proportion of secured versus unsecured exposures that is observed historically remains constant in the future, that there is no improvement in CRs in spite of the recent introduction of the qualitative NPL guidance[40], that there is no change

[38] The EBA COREP sample is determined by the criteria set out in Decision 2015/130 (http://www.eba.europa.eu/documents/10180/16082/EBA+DC+090+%28Decision+on+Reporting+by+Competent+Authorities+to+the+EBA%29.pdf/9beaf5be-2624-4e36-a75b-b77aa3164f3f) and consists of the institutions in the list as published on the EBA website (https://www.eba.europa.eu/documents/10180/1766251/EBA+List+of+Institutions+for+Supervisory+Reporting+-+2017+update.pdf/575e4249-043a-4d59-a0c5-e7be47487aec). Because the starting point of the analysis is the assessment of the default rate of new defaulted exposures over the period from template C.09, which includes only non-domestic exposures where the non-domestic original exposures in all 'non-domestic' countries in all exposures classes are equal or higher than 10% of total domestic and non-domestic original exposures, the actual sample used in this impact assessment is smaller than the total EBA COREP sample.

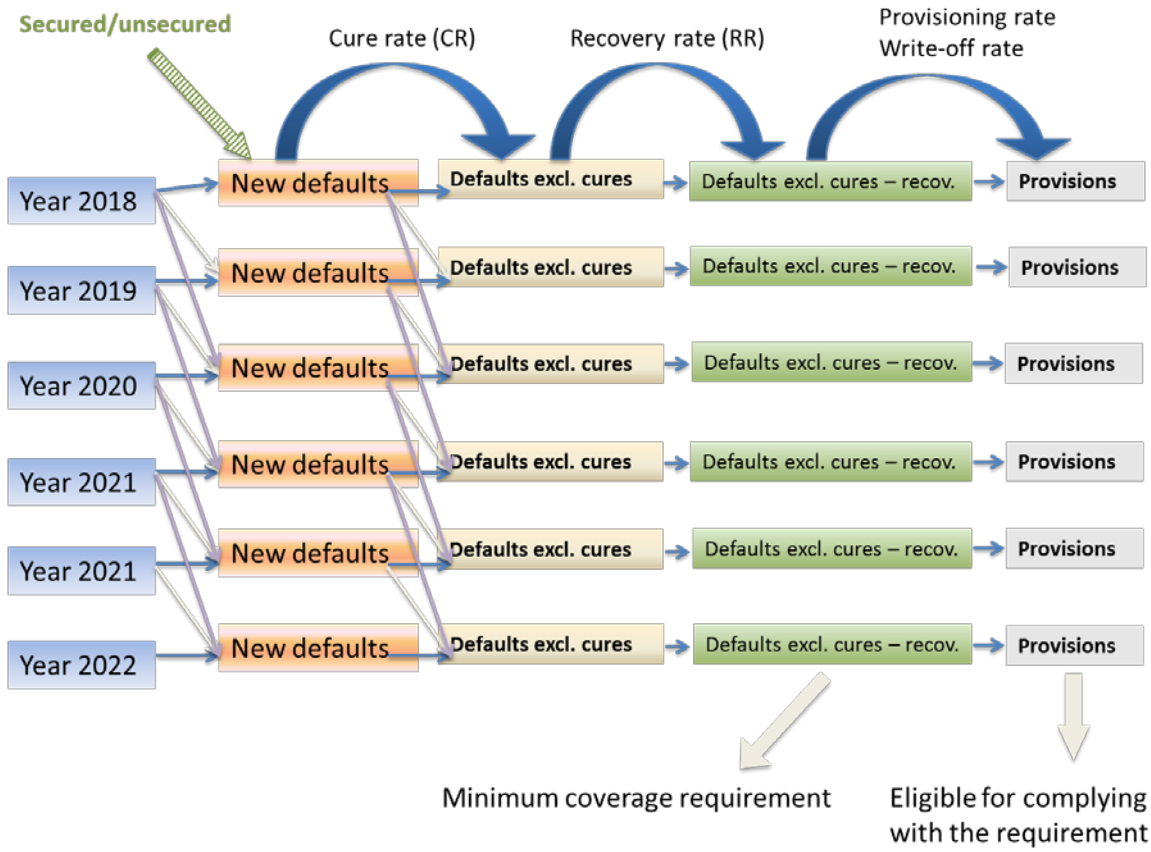
[39] Whenever no data are available in 2017Q2, the dataset is supplemented with data from 2017Q1.

[40] https://www.bankingsupervision.europa.eu/ecb/pub/pdf/guidance_on_npl.en.pdf

in the provision and write-off coverage, and that default rates remain constant, i.e. it is assumed that there is no improvement in the origination standards.

117. Figure 3 below provides a schematic overview of the main steps in the quantitative analysis.

Figure 3: Schematic overview of the methodology



118. As a first step in the quantitative analysis, the historical default rate is obtained for each institution and each exposure class at a quarterly frequency from COREP. This default rate is not a default rate in the technical sense (where a default is considered a '1' and non-default is considered '0'), but rather as the proportion of defaulted exposures over the quarter divided by the total exposure amount. This default rate captures the inflow of newly defaulted exposures in each quarter, irrespective of when they originated (i.e. in the previous year or, for instance, 15 years ago). These default rates are available from 2014Q1 (when COREP reporting started to apply) to 2017Q2[41], and the average default rate over this period is used as a proxy for the future default rate[42].

[41] The last available quarter of data (2017Q3) is not included in the analysis because of changes occurring shortly after the data submissions, significantly affecting data quality.

[42] The possibility of modelling the default rate on the basis of a macroeconomic model based on variables such as GDP growth has been considered. This option was, however, not implemented on account of time constraints and limits in the availability of long-term growth rate forecasts (the Commission's autumn 2017 forecast only forecasts until April 2019; https://ec.europa.eu/info/sites/info/files/economy-finance/autumn_2017_economic_forecast_-

119. The exposures at the last available reporting date (2017Q2) in each exposure class for each institution are used as the starting point of the analysis. In order to obtain the inflow of defaulted exposures stemming from newly originated loans over the projection horizon, we assume that 16.67% of the portfolio is originated in every year after the application of the new legislation. This implies that it takes 6 years to fully build up the portfolio. When the full portfolio is reached, the size is assumed to remain constant, i.e. new loan originations offset the natural outflow of loans. The historical average default rate of each institution is applied to the size of the portfolio at each future point in time.

120. In a next step, the future inflow of defaulted exposures is split into a secured portion and an unsecured portion by making use of the values of collaterals and guarantees for each institution and exposure class. The values of collateral and guarantees are assessed over the total exposure values. These ratios of the secured versus the unsecured portions are applied to the future inflow of defaulted exposures in order to assess the secured and unsecured portions of the future inflow of defaulted exposures separately. It is assumed that these ratios will remain constant in the future.

121. When modelling the inflow of defaulted exposures over the projection horizon, it is further assumed that a fraction of the defaulted exposures cures and returns to non-defaulted status, i.e. a cure rate is applied. These cure rates are obtained from a mix of databases available at the EBA, i.e. the 2016 stress test database[43], the QIS conducted in 2015[44] for the purpose of assessing the impact of the guidelines on the definition of default and the RTS on materiality threshold and the 2016 benchmarking exercise on HDPs[45].

122. Furthermore, the historically observed recovery patterns are reflected in the quantitative analysis. To this end, we make use of the recovery rates and the recovery periods reported by institutions for each exposure class. A vintage curve for the recovery rate is constructed and applied to the future inflow of defaulted exposures. In principle, the methodology takes into account the potential recovery after applying the backstop measure, although this depends on the values of the average recovery period reported by the institution. The summary statistics

_statistical_annex.pdf). In particular, setsetting up a regression with the default rate over the quarter (left-hand side variable) on the quarterly GDP growth rate of the country by country of origin of the obligor (right-hand side variable).) has been considered. This would mean performing a regression of the rate of newly defaulted exposures by country over the quarter ($\text{Def rate}^{\text{flow}}_{\text{t,j,z}}$) to a constant, GDP growth rate of the country $\text{GDP growth}_{\text{t,j}}$, potential lags of GDP growth, the total exposure amount in the previous quarter $\text{EAD}^{\text{stock}}_{\text{t-1q,j,z}}$ and fixed effects FE^{z} . In a simple model, this would look as follows: $\text{Def rate}^{\text{flow}}_{\text{t,j,z}} = \widehat{\alpha_0} + \widehat{\alpha_1} \cdot \text{GDP growth}_{\text{t,j}} + \widehat{\alpha_2} \cdot \text{GDP growth}_{\text{t-1q,j}} \widehat{\alpha_3} \cdot \text{EAD}^{\text{stock}}_{\text{t-1q,j,z}} + \text{FE}^{\text{z}}$. Note that EAD refers to exposure at default, t to the point in time, j to the country and z to the exposure class. Such a model could be set up based on quarterly COREP data for 2014Q1-2017Q3 (i.e. country aggregates of bank-specific data and a time series of 15 data points) for 28 EU countries (or fewer if countries with only one or a few banks are excluded) and time series of GDP growth per country on a quarterly basis.

[43] More details on the EBA stress testing can be found here: http://www.eba.europa.eu/risk-analysis-and-data/eu-wide-stress-testing

[44] Details of the EBA QIS assessing the default definition can be found here: https://www.eba.europa.eu/regulation-and-policy/credit-risk/guidelines-on-the-application-of-the-definition-of-default.

[45] The results of previous EBA benchmarking exercises and templates used in the exercise can be found here: https://www.eba.europa.eu/risk-analysis-and-data/review-of-consistency-of-risk-weighted-assets.

(see Chapter 5) of the recovery period indicate, however, that the recovery period is shorter than the time after default where full coverage is required for the secured part of the exposure (6, 7 or 8 years).

123. In order to assess the institution's provisioning and write-off practices, we make use of the 2016 stress test data and the FINREP templates, and compute the proportion of provisions and write-offs for defaulted exposures. The write-off ratio is assumed to remain constant in the future, but for the provisions a small increase in the provisioning ratio is taken into account because of the introduction of the IFRS 9 rules. From the second EBA QIS on the IFRS 9 rules[46], the average increase in provisions has been assessed for stages 1, 2 and 3. Given that the NPEs will be mainly concentrated in stage 3, and given that the main increase in provisions will stem from exposures in steps 1 and 2, a smaller increase in provisions, of 5%, is applied to reflect the introduction of IFRS 9 rules.

124. The methodology incorporates some checks and balances to steer the accurateness of the input parameters within reasonable ranges. In particular, a scaling factor is applied, in order to re-scale the defaulted exposure amounts (non-cured and non-recovered) minus write-offs to the values that are observed in COREP, at the exposure class level. The projected defaulted exposure amounts minus write-offs at the end of the projection horizon is compared with the corresponding figure from COREP, i.e. the net stock of defaulted exposures observed historically. The projected defaulted exposure amounts by vintage of default are re-scaled in order to align them with this benchmark. This approach allows the granularity of defaulted exposures by vintage to be obtained, while maintaining the reliability of the overall defaulted exposure amounts across vintages. Furthermore, the EBA has, in order to minimise the impact of outliers in the input parameters (e.g. the default rate, the cure rate and the recovery rate), replaced outlier values (defined as parameter values beyond the 10th and 90th percentiles) with the value of that parameter at the 10th or 90th percentile.

125. Finally, it should be noted that it is the flow of defaulted exposures that is modelled in the steps described previously. In order to obtain the NPE amounts (instead of the defaulted exposure amounts), the net inflow of defaulted exposures is transformed into the inflow of NPEs by making use of historical FINREP data, which detail the proportion of defaulted exposures in NPEs at the institutional level.

126. When all components have been calculated, the total NPE coverage is calculated by summing up all the items that are eligible for compliance with the minimum coverage requirements. These items, as listed in the Commission consultation document and the call for advice, are:

    a) the stock of provisions recognised under the applicable accounting framework ('credit risk adjustments') on the future flow of NPEs;

[46] The results of the IFRS QIS exercise can be found here: https://www.eba.europa.eu/-/eba-updates-on-the-impact-of-ifrs-9-on-banks-across-the-eu-and-highlights-current-implementation-issues.

b) the additional value adjustments in accordance with Articles 34 and 110 CRR[47];

c) the other own funds reductions;

d) for institutions calculating RWAs using the IRB approach, the negative amounts resulting from the calculation of expected loss laid down in Articles 158 and 159 CRR.

127. However, items (b) and (c) are not considered in the quantitative analysis. When additional value adjustments are understood as those in accordance with Article 105 CRR, this item would correspond to the adjustments made to fair-valued positions (banking book or trading book) under the prudent valuation framework. Since it is not possible to isolate those additional value adjustments stemming from the banking book, it is preferred that these items are not taken into account (see also Section 3.3.2f) for further considerations). The items under point c) are assumed to be zero since it is not clear what should be understood by these (see also Section 3.3.2g)). The sum of (a) and (d) constitutes the 'supply' of items that are eligible to comply with the requirement, i.e. the 'demand'.

128. The provision requirement (i.e. 'demand') is assessed under three options:

Option 1, baseline deduction approach: first, an assessment is made of the required amount of provisions when 100% coverage is required after 2 years for unsecured exposures and 100% coverage is required for secured exposures after 6, 7 or 8 years.

Option 2: second, a gradually increasing function is constructed for the introduction of the minimum coverage requirement, in order to reduce cliff effects that would arise from the first option. This function is either modelled linearly (**option 2a, linear deduction approach**) or progressively (**option 2b, progressive deduction approach**).

Option 3, haircut approach: under the third option, the coverage requirement is phrased as a haircut approach, i.e. instead of imposing gradually increasing coverage requirements, a haircut that increases with the time in default is applied. As such, the secured portion of the exposure decreases over time in default and the unsecured portion increases. The haircuts are applied to the value of the collateral and/or guarantee obtained from COREP reporting. This haircut approach is combined with a minimum coverage requirement of 100% for unsecured exposures after 2 years.

[47] Note that item (b) is replaced by 'the additional value adjustments in accordance with Articles 34 and 105 CRR' as explained in Section 3.3.2(f).

Table 5: Minimum coverage levels for unsecured and secured parts of the exposure for a 6-year horizon

	Unsecured part of the exposure			Secured part of the exposure		
	Baseline (%)	Linear (%)	Progressive (%)	Baseline (%)	Linear (%)	Progressive (%)
Min. coverage after 1 year	0.00	50.00	35.00	0.00	16.67	2.50
Min. coverage after 2 years	100.00	100.00	100.00	0.00	33.33	11.00
Min. coverage after 3 years	100.00	100.00	100.00	0.00	50.00	23.75
Min. coverage after 4 years	100.00	100.00	100.00	0.00	66.67	40.75
Min. coverage after 5 years	100.00	100.00	100.00	0.00	83.33	66.25
Min. coverage after 6 years	100.00	100.00	100.00	100.00	100.00	100.00
Min. coverage after 7 years	100.00	100.00	100.00	100.00	100.00	100.00
Min. coverage after 8 years	100.00	100.00	100.00	100.00	100.00	100.00

Table 6: Minimum coverage levels for unsecured and secured parts of the exposure for a 7-year horizon

	Unsecured part of the exposure			Secured part of the exposure		
	Baseline (%)	Linear (%)	Progressive (%)	Baseline (%)	Linear (%)	Progressive (%)
Min. coverage after 1 year	0.00	50.00	35.00	0.00	14.29	3.50
Min. coverage after 2 years	100.00	100.00	100.00	0.00	28.57	10.00
Min. coverage after 3 years	100.00	100.00	100.00	0.00	42.86	19.75
Min. coverage after 4 years	100.00	100.00	100.00	0.00	57.14	32.75
Min. coverage after 5 years	100.00	100.00	100.00	0.00	71.43	49.00
Min. coverage after 6 years	100.00	100.00	100.00	0.00	85.71	71.75
Min. coverage after 7 years	100.00	100.00	100.00	100.00	100.00	100.00
Min. coverage after 8 years	100.00	100.00	100.00	100.00	100.00	100.00

Table 7: Minimum coverage levels for unsecured and secured parts of the exposure for an 8-year horizon

	Unsecured part of the exposure			Secured part of the exposure		
	Baseline (%)	Linear (%)	Progressive (%)	Baseline (%)	Linear (%)	Progressive (%)
Min. coverage after 1 year	0.00	50.00	35.00	0.00	12.50	50.00
Min. coverage after 2 years	100.00	100.00	100.00	0.00	25.00	10.00
Min. coverage after 3 years	100.00	100.00	100.00	0.00	37.50	17.50
Min. coverage after 4 years	100.00	100.00	100.00	0.00	50.00	28.00
Min. coverage after 5 years	100.00	100.00	100.00	0.00	62.50	40.00
Min. coverage after 6 years	100.00	100.00	100.00	0.00	75.00	55.00
Min. coverage after 7 years	100.00	100.00	100.00	0.00	87.50	75.00
Min. coverage after 8 years	100.00	100.00	100.00	100.00	100.00	100.00

129. Note that that three different specifications are considered for the haircut approach (option 3):

Option 3a – 6 years: an initial haircut of 40% is applied. For each year the exposure remains non-performing, an additional haircut of 10 percentage points applies until a maximum haircut of 100% applies (when the exposure is more than 6 years' non-performing).

Option 3b – 7 years: an initial haircut of 30% is applied. For each additional year the exposure remains non-performing, an additional haircut of 10 percentage points applies until a maximum haircut of 100% applies (when the exposure is more than 7 years' non-performing).

Option 3c – 8 years: an initial haircut of 20% is applied. For each additional year the exposure remains non-performing, an additional haircut of 10 percentage points applies until a maximum haircut of 100% applies (when the exposure is more than 8 years' non-performing).

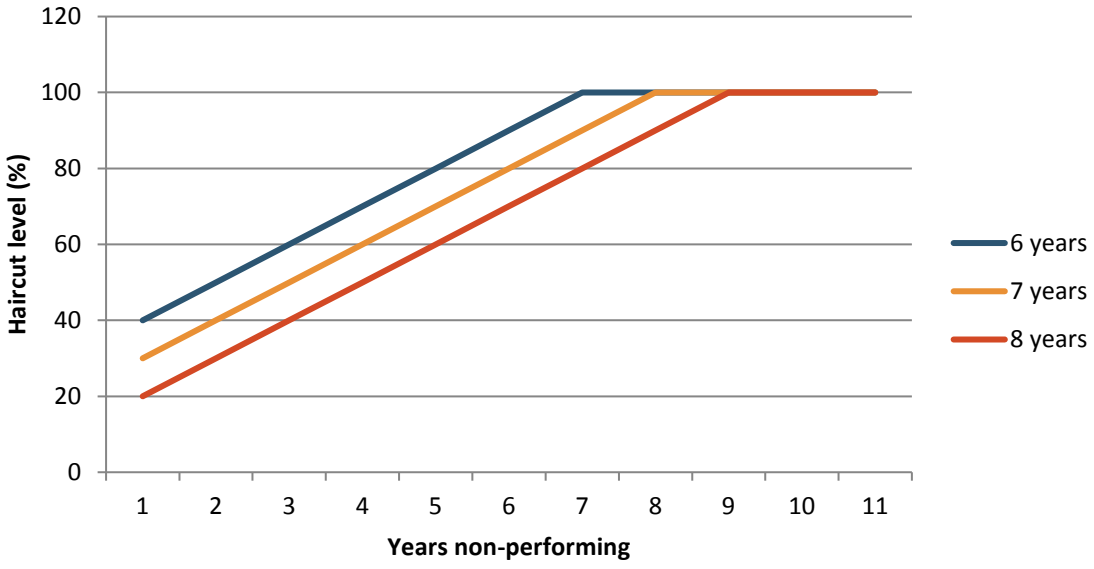
130. Figure 4 visualises these three different paths for the haircut levels.

131. Furthermore, it should be noted that these haircuts are applied to both collateralised and guaranteed exposures, for the same reason as mentioned above, i.e. because only then will it be possible to make a meaningful comparison between the deduction approach (where coverage requirements are proposed for both collateralised and guaranteed exposures) and the haircut approach.

Table 8: Haircut levels for collateral and guarantees

		Option 3a (6 years) (%)	Option 3b (7 years) (%)	Option 3c (8 years) (%)
	Initial haircut level	40.00	30.00	20.00
	Additional haircut per year to realisation	10.00	10.00	10.00
	Maximum haircut level	100.00	100.00	100.00
Years in default	**Haircut level**			
1	**Year 1**	40.00	30.00	20.00
2	**Year 2**	50.00	40.00	30.00
3	**Year 3**	60.00	50.00	40.00
4	**Year 4**	70.00	60.00	50.00
5	**Year 5**	80.00	70.00	60.00
6	**Year 6**	90.00	80.00	70.00
7	**Year 7**	100.00	90.00	80.00
8	**Year 8**	100.00	100.00	90.00
9	**Year 9**	100.00	100.00	100.00

Figure 4: Paths for collateral haircut levels



132. Now that the 'supply' and 'demand' factors have been calculated, the additional required coverage is assessed as the difference between these values. Whenever the required NPE coverage (i.e. 'demand') exceeds the actual NPE coverage (i.e. 'supply'), the difference is deducted from actual observed CET1 capital. The institutions' CET1 capital is obtained from COREP. Since a static balance assumption applies, the CET1 is assumed to remain constant except for the additional required coverage (if any) stemming from the proposed statutory backstop.

133. It should be noted that the profit-generating capacity of institutions over time, i.e. pre-provisioning profits, for instance by means of retained earnings, is not taken into account in all steps of the quantitative analysis. However, to what extent taking into account the after-tax and after-dividend profits of a given year, which would accrue to CET1 capital, would absorb the provisioning needs falling due in that year before any capital deductions are applied is assessed separately.

4.2 Caveats

134. As a result of the short timeline for conducting this quantitative analysis, it was necessary to make some simplifying assumptions. The purpose of this section is to give an overview of the assumptions made in the quantitative analysis and to clarify which steps have been taken in order to address these caveats.

135. Because of the short timeline, it was impossible for the EBA to conduct a new data collection among institutions that would be appropriate for assessing the proposed statutory backstop legislation. This is a serious caveat, in particular because of the specificities of the proposal related to the time in default (the time the exposure is non-performing). As a consequence, the quantitative analysis is based on data for individual banks that were already at the EBA's disposal when the call for advice was received (10 November 2017). As such, the sample of institutions in the quantitative analysis corresponds to the EBA COREP sample for 2017Q2, which reported specific data on defaulted exposures. Section 5.1 provides details about the representativeness of this sample.

136. The quantitative analysis is based on the static balance sheet assumption. The only change considered in the analysis is the future inflow of newly originated exposures that turn non-performing. No changes are assumed in the outstanding stock of exposures (defaulted and non-defaulted) or in the newly originated non-defaulted exposures. The same holds for other balance sheet items, such as CET1. The underlying data and parameters are based on historical data that, for several parameters, have been collected at a single point in time, instead of relying on a time series. As a result, these underlying data can be considered as point-in-time values. This aspect may lead to unrealistic results, since these point-in-time values are assumed to apply throughout the projection horizon (i.e. the next 20 years), and therefore explain why certain outliers are observed. Based on these considerations, it should be noted that the results presented in this report can be seen as an upper bound of the true impact. In particular, a high impact will be estimated for institutions that currently have a high stock of NPEs, although they may have already taken several corrective actions and changed their lending behaviour, and a high impact will also be estimated for institutions that have historically underprovisioned, even if they have already changed their provisioning policies. In this regard, it is important to consider the starting point of the analysis (2017Q2) as well as the period over which the parameters used in the analysis were collected (2014Q1–2017Q2). These data have been used in the projections over the next 20 years, such that institutions that experienced a high inflow

of NPEs due to a downturn period in those years, which underprovisioned and/or experienced low profitability, are expected to have a high projected impact over the next 20-year period. As a result, the results of the quantitative impact assessment should serve to indicate situations that the statutory prudential backstop should avoid, i.e. if the backstop had been in place before the EU banking crisis, the backstop would have given incentives to implement sounder loan granting policies, provision more, apply more effective recovery procedures, etc.

137. Since the underlying data and parameters are based on historical data, potential changes in institutions' behaviour are not taken into account, although recent policy initiatives in several areas may incentivise more prudent loan origination standards and provisioning behaviour. The backstop proposal applies to only newly originated loans. In order to accurately assess the inflow of new NPEs stemming from newly originated loans, data on historical loan originations and the corresponding default behaviour would be needed, which are not available to the EBA. The methodology is therefore based on the assumption that 16.67% of the portfolio is originated every year, i.e. that it would take 6 years to reach the full size of the portfolio that is observed in the data. It should be noted that this assumption will not affect the steady state of the results, but that it naturally affects the path of the CET1 impact towards reaching this steady state. If a lower rate of loan originations is assumed, it would take longer to achieve the full portfolio size and it would take longer to achieve the steady state.

138. In addition, it is assumed that there will be no changes in some key ratios observed at the institutional level. It is assumed that (i) the historically observed proportions of secured versus unsecured exposures remain constant in the future[48], (ii) there is no improvement in CRs in spite of the recent introduction of the qualitative NPL guidance[49], (iii) there is a constant proportion of provisions and write-offs in the time after default, (iv) default rates remain constant (i.e. it is assumed that there is no improvement in the origination standards), and (v) recovery rates and recovery periods remain as observed in the past. These assumptions have two implications. First, there may be changes in bank behaviour because an observed parameter at one point in time may not necessarily be a good reflection of the average value of that parameter over a longer time horizon, because most parameter values would exhibit some mean-reversion pattern over time, in the sense that a high (or low) value at one point in time would be followed by a lower (or higher) value at the next point in time. This may, for instance, hold for the cure rate: if, for instance, a high cure rate is observed at one point in time, it is likely that the institution applies changes in its identification of default, such that a lower cure rate would be observed subsequently. Based on the submitted data, it is, however, not possible to assess which cure rates would be incorrect because of a data quality issue and which ones would be correct but likely to change in the future. The second implication is that the analysis assumes a status quo in bank behaviour, despite certain changes in the macroeconomic, regulatory or supervisory environment.

[48] In addition, in the SA, it is assumed that the observed ratio of secured versus unsecured exposures is identical for non-defaulted and defaulted exposures.

[49] https://www.bankingsupervision.europa.eu/ecb/pub/pdf/guidance_on_npl.en.pdf

139. In addition to the assumption that CRs would remain constant in the projection horizon, data on CRs at the EBA stem from multiple sources and do not all have the same definition. CRs from the 2016 stress test are defined as the proportion of newly defaulted exposures that cure (through repayments) with zero loss in all years following year t, whereas CRs in the benchmarking exercise are defined as the proportion of defaulted exposures that return to non-defaulted status over a 12-month period. In the QIS on definition of default[50], only hard collections should be taken into account in the calculation of the cure rate (i.e. the obligor or facility was not treated in the workout or recoveries) and additional criteria are imposed, related to the recovery of the collateral. It is inevitable that these differences in definition may affect the results.

140. A similar caveat applies to the recovery rate, for which values are obtained from both the benchmarking exercise and the QIS on the definition of default. In the benchmarking exercise, these recovery rates relate to only the foreclosed assets for not-cured defaulted exposures, whereas the recovery rates obtained from the QIS on the definition of default cover the total recovered proportion of the defaulted exposures for non-cured facilities. In order to align the recovery rate from the benchmarking exercise to the recovery rates from the QIS on the definition of default, a scaling factor is applied by exposure class. The total recovery period can only be obtained from the benchmarking exercise, where this is defined as the recovery period of the foreclosed assets for not-cured defaulted exposures[51]. Since no alternative data source is available for the recovery period, it was not possible to reflect the recovery period corresponding to all assets.

141. Given that the new IFRS 9 accounting rules will apply from 2018, a small percentage increase of 5% in provisions is assumed for the provisions on the flow of newly defaulted exposures. This assumption is based on the results of the EBA's second impact assessment on IFRS 9[52], which found that the weighted average increase in provisions would equal 15%. Since this increase would be mainly attributed to stage 1 and stage 2 assets, whereas NPEs are mainly in stage 3, a lower percentage increase of 5% is assumed.

[50] In the QIS on definition of default (https://www.eba.europa.eu/regulation-and-policy/credit-risk/guidelines-on-the-application-of-the-definition-of-default), a default counts as cure if:

a. The respective obligor or facility shows no default trigger anymore at one point in time between the date of default and 30 June 2015.

b. None of the collaterals has been realised.

c. The obligor or facility was not treated in the workout or recoveries (only hard collections should be taken into account).

Please note that, in this definition 'cure' does not refer to the currently existing exposure, but to the event of a regulatory default. Cured cases may include closed-out engagements, if there was no loss assigned to this case. However, not all zero-loss cases should be classified as cured; in particular where full recovery was a result of collection rather than voluntary repayment by the client should such cases not be treated as cured.

[51] The exact definition is "'case-weighted average length of the recovery period (from the start of the default status to the completion date of the recovery procedures) for the non- cured defaults included in the time series used by the institution for the calibration of the LGD models on non-defaulted assets shall be reported. It shall be expressed in number of days."'

[52] https://www.eba.europa.eu/documents/10180/1720738/EBA+Report+on+results+from+the+2nd+EBA+IFRS9+IA.pdf

142. The proposal specifies higher coverage requirements, as the NPEs are non-performing for longer. In order to assess these higher coverage requirements with the ageing of the NPE, we would need data about the historical provisioning and write-off policies for different times in default (non-performing), i.e. we would need details of the institution's provisioning and write-off policies during the ageing of the NPEs. Since such data are not available to the EBA, the quantitative analysis approximates the provisioning and write-off policies of the institution on the basis of (i) the provisioning and write-off behaviour observed in the 2016 stress test for both the flow of newly defaulted exposures as well as the stock of defaulted exposures, and (ii) FINREP data on the coverage ratios.

143. In addition, it is assumed that a full coverage of the NPEs is reached after 12 years, i.e. any NPE is either fully provisioned or fully written off after 12 years for both secured and unsecured exposures. Although one could argue that the choice of 12 years would be too long for some institutions or jurisdictions or for unsecured exposures and too short for others, such a choice is necessary in order to achieve a meaningful stabilisation in the data. It should be acknowledged that this is an approximation, which may have implications for the final result, in particular with regard to the timeliness of the impact of the proposed backstop. In particular, it would take longer to see a steady state in the impact on CET1 if NPEs were only fully covered after 13 years or beyond. In addition to the abovementioned assumptions, additional assumptions have been made in the quantitative analysis, related to the availability of data. Because the sample for the quantitative analysis is based on COREP and is larger than the 2016 stress test sample, the benchmarking sample and the QIS on the definition of default, it was necessary to make assumptions for institutions for which no corresponding ratio could be found in these datasets. In this case, the value of the parameter for these institutions has been replaced by the median parameter value by exposure class looking either at the country or European distribution depending on the availability of data. Similarly, some databases (the HDP benchmarking and the QIS on the definition of default), only contain the necessary parameter values for exposures in the IRB approach (e.g. for the recovery rate and the recovery period). In these cases, the quantitative analysis relied on a mapping of exposure classes between the SA and the IRB approach, in order to also quantify the effect for institutions applying the SA. Finally, the quantitative analysis relied on certain ratios that were obtained from FINREP reporting, which does not share the reporting by exposure class, which is available in COREP. Therefore, whenever a ratio from FINREP was needed, it is calculated at the level of the institution and applied equally to all exposure classes. The EBA acknowledges these caveats, but it was not possible to circumvent this because of the short timeframe.

144. Although a calculation of the impact over a future period of 20 years is naturally subject to large confidence intervals it should further be highlighted that the application of the statutory prudential backstop is meant to start in a period characterised by significant changes in the regulatory framework, which further add to the uncertainty associated with these projections.

5. Results from the quantitative analysis

145. This chapter provides an overview of the results of the quantitative analysis. Section 5.1 contains a description of the sample of institutions and its representativeness. Sections 5.2 to 5.6 present detailed results on each of the options 1, 2 and 3, whereas Section 5.7 presents a comparison of the impact of the different options considered.

146. As stated in the introduction, the results of the quantitative analysis should be read as an indication of the upper bound of the expected impact for several reasons. First, the analysis relies to a large extent on historical data (for the stock of defaulted exposures), such that institutions that have a high defaulted exposure amount will be affected by a high projected amount of defaulted exposures. Second, the study relies on historical parameters that are subject to change, i.e. it is likely that banks will take actions to change loan origination standards, or increase provisioning, such that the true impact will be lower than projected.

147. In general, significant caution should be exercised when interpreting the quantitative analysis, having in mind the caveats that are recognized in the methodology. The results indicate that the prudential backstop would have heterogeneous effects across institutions as highlighted in section 5.8. Most importantly, the estimated impact should not be read as a forecast of the likely impact on a 20-year horizon. Instead, the estimation of the impact is a stylised exercise, in which the conditions during the 2014-2017 period are extrapolated to a 20-year horizon and thus can be seen more as a measure of the overall impact for this period. For crisis-hit countries the estimated impact is very severe, as it entails extrapolating 2014-2017 conditions to a 20-year horizon. On the contrary for countries that have been affected less by the last financial crisis the estimated impact is limited.

148. Furthermore, the analysis excludes any kind of dynamic effects. In practice, banks will be aware of capital needs for their defaulted assets well in advance, noting that there will be no impact from the prudential backstop for the first 2 years, and can take this into account when assessing their capital needs. They may also take action to shed the assets, improve recovery processes and so forth. Such possible behavioral changes are, however, not taken into account.

149. The analysis presented can therefore, to a larger degree be seen as an exercise in estimating what the impact of the prudential backstop on capital would have been if it had been introduced in 2014 and banks chose not to make any actions to resolve the situation. Hence, while the exercise is useful for understanding the functioning of the backstop, the actual capital impact is likely to differ significantly.

5.1 Sample and representativeness

150. The sample of institutions included in this quantitative analysis consists of 129 EU banks from 26 EU countries and Norway. Of these, 98 institutions are from Eurozone countries and 31 are from non-Eurozone countries.

151. The credit RWA of these institutions account for around 83% of EU credit RWAs[53]. On a country-by-country basis, the proportion of these institutions to the total amount of credit risk RWA is shown in Table 9 for those countries[54].

Table 9: Representativeness by country

Country	Number of institutions per country	Share of credit risk RWA[55] per country (%)
Austria	9	63.29
Belgium	6	88.71
Bulgaria	3	Not available
Cyprus	4	82.60
Czech republic	2	38.85
Germany	17	41.14
Denmark	3	71.35
Estonia	4	90.52
Spain	3	Not available
Finland	2	67.84
France	10	97.74
UK	10	Not available
Greece	4	96.57
Croatia	3	66.33
Hungary	3	Not available
Ireland	5	Not available
Italy	6	62.48
Lithuania	3	84.56
Luxembourg	5	40.35
Latvia	3	44.85
Malta	3	65.97
Netherlands	5	86.76
Norway	1	Not available
Portugal	5	73.61
Sweden	5	83.75

[53] Domestic banking groups and stand-alone banks, foreign (EU and non-EU) controlled subsidiaries and foreign (EU and non-EU) controlled branches, all institutions, risk weighted exposure amounts for credit risk (link to the general SDW, consolidate banking data: http://sdw.ecb.europa.eu/browse.do?node=9689685)

[54] Note that this number is not available for all countries since the credit risk RWA is not reported by the ECB SDW on a country-specific basis for all EU countries.

[55] Risk weighted exposure amounts for credit, counterparty credit and dilution risks and free deliveries, obtained from COREP C.02.00 row-040 and column-010.

Country	Number of institutions per country	Share of credit risk RWA[55] per country (%)
Slovenia	4	58.10
Slovakia	1	26.18

152. The scope of the quantitative analysis focuses on credit risk exposures, from the main COREP exposure classes in the Standardized approach (SA) and Internal Ratings Based (IRB) approach. In particular, the exposure classes considered in the analysis are retail and corporate exposures, as well as exposures secured by immovable property, including the sub-classes of these exposure classes as reported in COREP (see Table 11 for a full list of the COREP exposure classes considered in this analysis). The share of credit risk exposures of bank balance sheets that is excluded from the analysis by focusing on retail and exposures is therefore very limited, as shown in Table 10.

Table 10: Share of defaulted exposures (credit risk) covered and not covered by the scope of the analysis (retail, corporate and immovable property exposure classes)

Variable	Number of institutions	Average share (%)
Credit risk exposures covered	129	96.35
Credit risk exposures uncovered	109	4.32

153. Table 11 shows the defaulted exposures as a proportion of the total credit risk defaulted exposures. It can be seen that the COREP exposure classes that account for the largest shares are corporate SME, Corporate other and Retail secured by immovable property non-SME in the IRB approach, as well as Corporate and retail non-SME in the SA approach.

154. Table 12 and Table 13 show the median value of the main underlying input parameters.

155. The quarterly default rate is at a low 0.3% for IRB exposures such as retail non-SME (secured by immovable property and other) exposure classes as well as corporate other. The quarterly default rate for IRB SME exposures (both corporate and retail) is higher, in the region of 0.5-0.6%. We observed higher default rates for the SA exposures, with the highest default rate for retail secured by immovable properties.

156. Recovery rates are just above 20% for all almost exposure classes and 60% for the corporate SME class. Similarly, the cure rates are quite stable across exposures at around 20%, with lower percentages observed for corporate specialised lending and SA retail SME and non-SME exposures.

157. It should be noted that the median recovery period is equal to 1 year across all exposure classes except for IRB exposures Corporate others and Corporates specialised lending (and for

Corporate non SME for SA) for which it is equal to 2 years. This median period is shorter than the time after default where full coverage is required, i.e. respectively 6, 7 or 8 years depending on the specification of the backstop, for the secured part of the exposure. It should also be stressed that data availability was quite limited for recovery period.

Table 11: Share of defaulted exposures in each exposure class in the total credit risk defaulted exposures[56]

class	N Obs	Minimum (%)	Mean (%)	Maximum (%)	10th Pctl (%)	25th Pctl (%)	Median (%)	75th Pctl (%)	90th Pctl (%)
IRB, corporate, SME	71	0.00	19.56	67.81	5.15	7.94	16.60	27.70	40.39
IRB, corporate, other	53	0.00	23.11	76.85	3.96	9.75	17.45	30.00	47.57
IRB, corporate, specialized lending	59	0.00	12.00	85.88	0.15	2.06	5.54	14.97	32.38
IRB, retail, other SME	59	0.00	4.85	27.45	0.59	1.33	3.29	6.76	11.98
IRB, retail, other non-SME	67	0.00	7.21	45.21	0.71	2.07	5.35	9.64	14.91
IRB, retail, qualifying revolving	39	0.00	1.83	14.79	0.00	0.14	0.72	1.63	4.98
IRB, retail, secured by immovable property SME	58	0.00	3.07	22.32	0.02	0.65	1.68	4.30	8.06
IRB, retail, secured by immovable property non-SME	73	0.05	23.51	98.14	4.30	8.89	14.86	26.82	57.75
SA, corporate SME	93	0.00	10.90	79.65	0.09	0.71	3.43	12.17	35.56
SA, corporate non-SME	93	0.00	13.96	99.06	0.49	3.52	7.92	17.85	39.68
SA, mortgages secured by immovable property, SME	65	0.00	3.02	35.71	0.00	0.07	0.96	2.58	5.16
SA, mortgages secured by immovable property, non-SME	65	0.00	7.32	34.78	0.00	0.52	2.31	10.46	22.69
SA, retail SME	95	0.00	4.99	44.31	0.02	0.40	1.18	5.65	15.70
SA, retail non-SME	95	0.00	12.17	63.48	0.40	1.60	6.74	15.50	36.28

[56] Note that the number of observations is different from the number of institutions. It gives instead the number of institution x exposure classes.

Table 12: Median main underlying input parameters used in the analysis (IRB)

	Default rate	Secured share	ILR flow	ILR stock	RR	CR	ELBE %	Provisions / IL (%)
CORPORATES-OTHER	0.27	19.66	21.12	3.45	22.00	21.60	41.90	70.92
CORPORATES-SME	0.54	24.55	20.65	1.58	60.00	22.00	41.50	73.16
CORPORATES-SPECIALISED-LENDING	0.52	25.25	16.95	4.44	23.08	16.40	41.88	71.40
QUALIFYING REVOLVING	0.18	0.08	36.85	1.17	27.71	17.41	56.30	71.61
RETAIL-OTHER-NON-SME	0.33	5.69	31.49	3.14	22.85	17.83	56.20	67.54
RETAIL-OTHER-SME	0.58	12.82	28.28	2.26	22.75	19.17	55.94	71.11
RETAIL-SECURED-IP-NON-SME	0.25	76.39	10.07	2.76	22.85	27.50	25.29	71.65
RETAIL-SECURED-IP-SME	0.55	76.01	12.84	4.38	21.86	23.79	26.55	73.28

Table 13: Median main underlying parameters used in the analysis (SA)

	Default rate	Secured share	ILR flow	ILR stock	RR	CR	Provisions / IL (%)
CORPORATES-NON-SME	0.44	10.28	21.12	3.45	22.00	21.60	70.92
CORPORATES-SME	0.87	6.78	20.65	1.58	60.00	22.00	73.16
RETAIL-NON-SME	0.75	3.38	31.09	2.48	22.85	13.12	69.57
RETAIL-SECURED-IP-NON-SME	0.48	2.46	10.07	2.76	22.85	27.50	71.65
RETAIL-SECURED-IP-SME	1.18	2.11	12.84	4.38	21.86	23.79	73.28
RETAIL-SME	0.83	3.36	21.10	2.71	22.85	16.63	72.94

5.2 Impact under option 1: deduction approach baseline

158. Figure 5 (and Table 14) shows the cumulative impact on the CET1 capital ratio in basis points (y-axis) over the years after the implementation of the backstop measure (x-axis) [57] in the baseline deduction approach, as described in section 3.1.1. The cumulative impact is computed as a weighted average where the weights are the institution's credit risk RWAs. More details on the distribution of the impact across institutions for both the deduction and the haircut approaches are provided in section 5.8.

159. As expected, there is no effect on the capital ratio before year 2 (t_2), since the backstop is not binding. In year 3, the backstop starts biting the new non-performing unsecured exposures that have been originated in year 0. Also, the non-performing secured exposures that have been originated in year 0 become subject to the new measure from year 6, 7 or 8, depending on the specification of the backstops.

[57] Note that the subscripts t_1, t_2, t_3 in the x axis of Figure 5 refer to a future point in time, respectively 1 year, 2 years and 3 years after implementation of the new backstop legislation.

160. Under the 7-year baseline backstop specification, i.e. using the minimum coverage requirements in Table 6, the cumulative impact in steady state, shows a cumulative reduction in CET1 capital ratio of around 205 basis points in year 17 (i.e. the annual impact on capital ratio is zero from year 18 onwards) which we can be interpreted as the time when:

a) the portfolio of non-performing exposures has been completely renewed (in year 6),

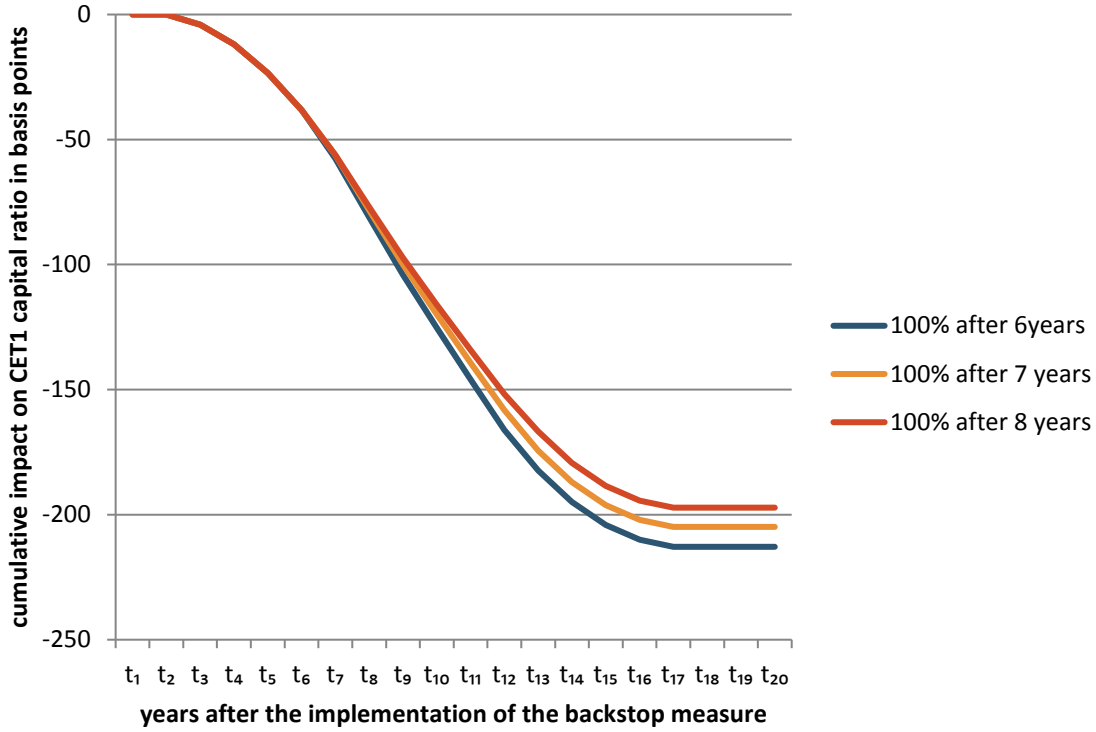
b) all the newly originated non-performing loans have reached the 6, 7 or 8 years vintage, so the backstop is biting on both the secured and unsecured exposures, i.e. the required coverage is stable;

c) Provisioning calendar and write offs are stabilising for the last newly originated loans in year 6, i.e. the actual coverage is stable.

Table 14: Deduction approach (weighted average cumulative impact on CET1 capital ratio, baseline)

Years after implementation	100% after 6 years	100% after 7 years	100% after 8 years
Year 1	0	0	0
Year 2	0	0	0
Year 3	-4	-4	-4
Year 4	-12	-12	-12
Year 5	-23	-23	-23
Year 6	-38	-38	-38
Year 7	-58	-56	-56
Year 8	-81	-78	-77
Year 9	-104	-100	-97
Year 10	-125	-120	-116
Year 11	-146	-139	-134
Year 12	-166	-158	-152
Year 13	-182	-174	-167
Year 14	-195	-187	-179
Year 15	-204	-196	-188
Year 16	-210	-202	-194
Year 17	-213	-205	-197
Year 18	-213	-205	-197
Year 19	-213	-205	-197
Year 20	-213	-205	-197

Figure 5: Deduction approach (weighted average cumulative impact on CET1 capital ratio, baseline)



161. Figure 5 also shows the difference between the three specifications for the measure relative to the secured exposures at respectively the 6, 7, 8 years specification of the backstop. As expected, the cumulative impact decreases with the years by which the backstop bites the secured exposures, i.e. the overall cumulative impact is lowest for the 8-year specification. The difference between the three specifications is, however, small and around 15 basis points.

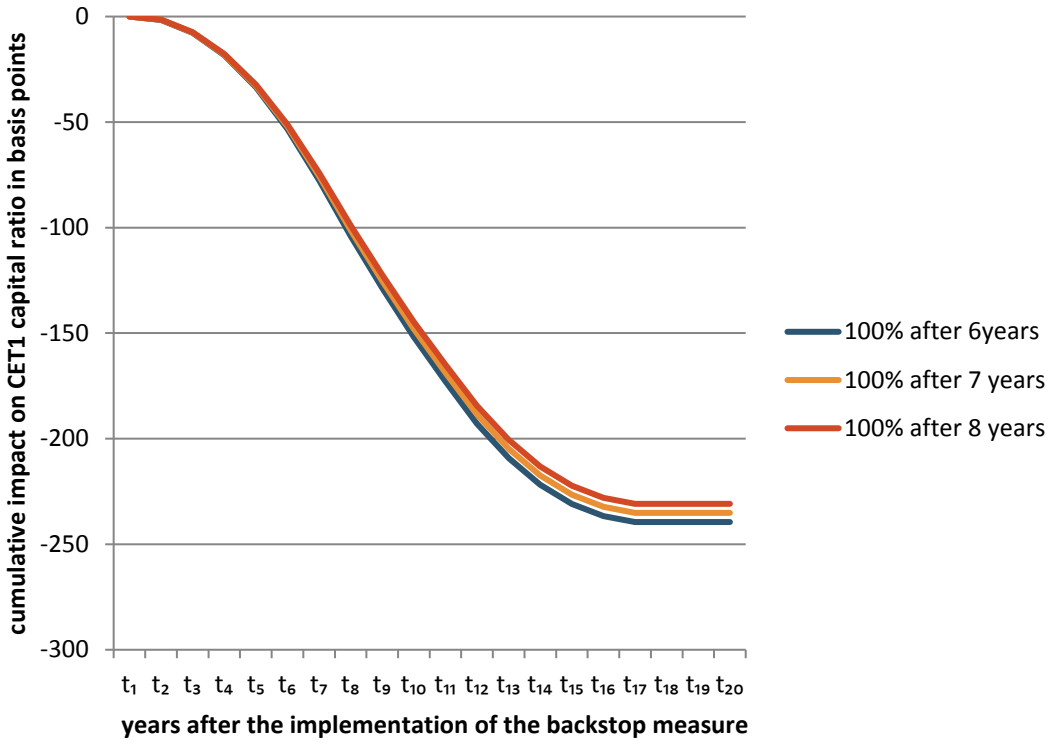
5.3 Impact under option 2a: deduction approach linear path

162. Also for deduction approach, following a linear path, the cumulative impact reaches a steady state in year 17. The main difference here is in the level of the impact, see Figure 6, which is higher under the deduction linear approach compared to the baseline approach presented above in Table 14. The cumulative impact on the CET1 ratio is in the region of 235 basis points, see Table 15, for the linear approach versus an impact of 205 basis points for the baseline path.

Table 15: Deduction approach (weighted average cumulative impact on CET1 capital ratio, linear path)

Years after implementation	100% after 6 years	100% after 7 years	100% after 8 years
Year 1	0	0	0
Year 2	-2	-2	-2
Year 3	-8	-8	-7
Year 4	-18	-18	-18
Year 5	-34	-33	-32
Year 6	-53	-52	-51
Year 7	-78	-75	-74
Year 8	-104	-101	-99
Year 9	-129	-125	-122
Year 10	-152	-148	-145
Year 11	-173	-169	-165
Year 12	-193	-189	-184
Year 13	-209	-205	-201
Year 14	-222	-217	-213
Year 15	-231	-227	-222
Year 16	-237	-232	-228
Year 17	-239	-235	-231
Year 18	-239	-235	-231
Year 19	-239	-235	-231
Year 20	-239	-235	-231

Figure 6: Deduction approach (weighted average cumulative impact on CET1 capital ratio, linear path)



163. The higher impact can be explained by the fact that the minimum coverage requirements in the linear approach are higher than in the baseline deduction approach earlier in the life of the loan (i.e. earlier than when the 100% coverage requirement is reached). In particular, as shown in Figure 2 in Section 3.1.1, the curve of the minimum coverage requirement of the linear approach is higher than the curve of the minimum coverage requirement of the baseline deduction approach. As such, it holds that the baseline deduction approach and the linear approach require a 100% coverage requirement at the same vintage of the non-performing loan (after 8 years). However for the earlier vintages (before the 8th year after default), the coverage available to meet the requirements may be insufficient, which may therefore lead to a higher impact. It should be kept in mind that the results presented refer to the cumulative impact after the application of the statutory prudential backstop, i.e. the cumulative impact in the future projection horizon (20 years). In each future year, the overall impact results from the combined impact across all the vintages, i.e. any difference between the required and available coverage in the 1st, 2nd, 3rd, etc. year after being non-performing.

164. The difference between the cumulative CET1 impact of the three specifications at respectively 6, 7 and 8 years is smaller for the deduction approach with a linear path than for the baseline deduction approach. In fact, while in the baseline approach the backstop will be biting from 0 to 100% either in year 6, 7 and 8, in the linear approach instead the difference between the three specifications is smoother. This is due to the smoother path of the minimum coverage requirements for the linear approach as shown in Table 5, Table 6 and Table 7 for all the 3 different specifications.

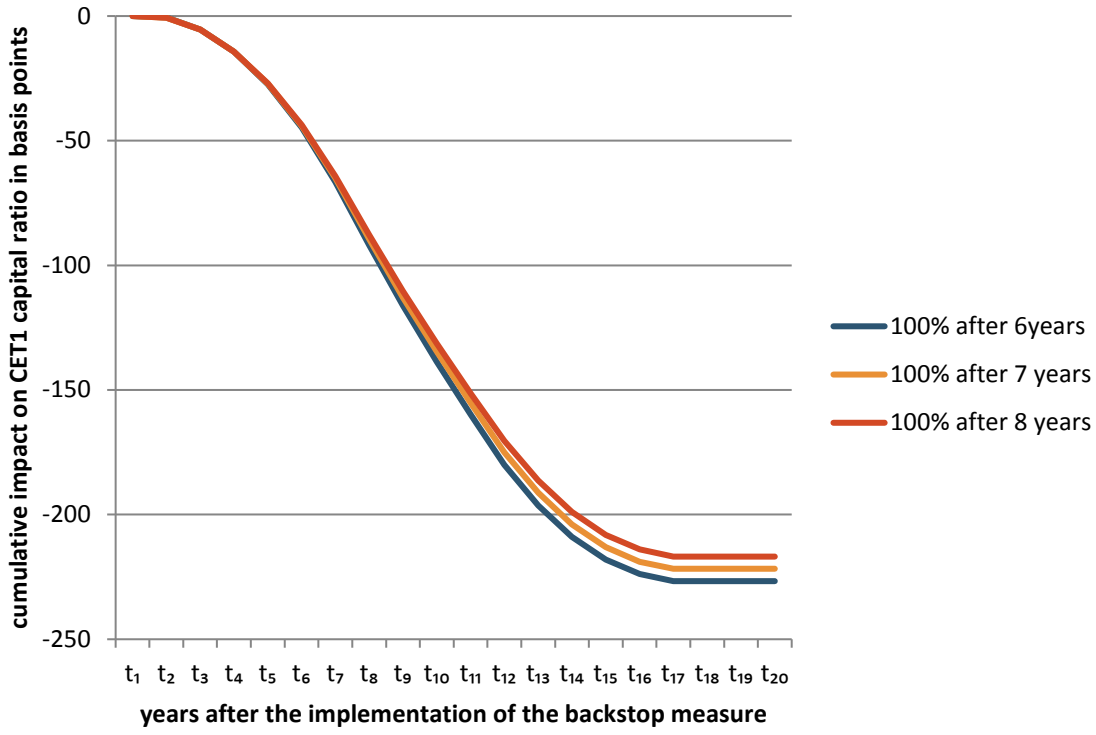
5.4 Impact under option 2b: deduction approach progressive path

165. Under deduction approach with a progressive path, refer to Table 5, Table 6 and Table 7 for the exact specification of the progressive path applied, the steady state cumulative impact applying a 7-year specification is in the region of 220 basis points as displayed in Figure 7 and Table 16. The dynamics are similar to the baseline and linear deduction approaches and also here only minimal difference between the three specifications, at 6, 7, 8-years, is observed.

Table 16: Deduction approach (weighted average cumulative impact on CET1 capital ratio, progressive path)

Years after implementation	100% after 6 years	100% after 7 years	100% after 8 years
Year 1	0	0	0
Year 2	-1	-1	-1
Year 3	-5	-5	-5
Year 4	-14	-14	-14
Year 5	-27	-27	-27
Year 6	-45	-44	-44
Year 7	-67	-65	-64
Year 8	-92	-89	-88
Year 9	-116	-113	-110
Year 10	-139	-135	-131
Year 11	-160	-155	-151
Year 12	-180	-175	-170
Year 13	-196	-191	-186
Year 14	-209	-204	-199
Year 15	-218	-213	-208
Year 16	-224	-219	-214
Year 17	-227	-222	-217
Year 18	-227	-222	-217
Year 19	-227	-222	-217
Year 20	-227	-222	-217

Figure 7: Deduction approach (weighted average cumulative impact on CET1 capital ratio, progressive path)



5.5 Capital impact under different options of the deduction approach: a comparison of options 1, 2a and 2b

166. In order to understand the differences in more detail between the different specifications of the deduction approach, the baseline deduction approach (option 1), the linear deduction approach (option 2a) and the progressive deduction approach (option 2b), all under the 7-years specification, is compared.

167. Figure 8 shows that the steady state cumulative impact on capital ratio is highest for the deduction approach with a linear path and lowest for the baseline deduction approach, i.e. a cumulative impact on the CET1 ratio in the region of 235 basis points for the linear approach and 205 basis points for the baseline path (under the 7-year specification) as displayed in Table 17. This is explained, as also noted earlier, by the fact that the path of the minimum coverage requirement of the linear approach is always above the requirement of the baseline approach. Similarly the path of the minimum coverage requirement of the linear path, which is always above the path of the progressive path (see Figure 2). Consequently, under the linear approach, there is therefore a requirement to take the deductions slightly earlier in time.

168. The steady state median cumulative impact on CET1 capital ratio, as Figure 9 (accompanied by Table 18) shows, is around 132 basis points for the baseline deduction approach, 152 basis points for the deduction approach with linear path and 138 basis points for the deduction approach with progressive path. These figures are significantly lower than the average capital impact displayed in Figure 9 signaling the presence of outliers.

169. Figure 10 and Table 19 display the annual impact on the CET1 capital ratios for the different options for the deduction approach. Consistently the deduction approach with linear path is the one that shows the highest impact, and the baseline deduction approach shows the lowest impact, in particular during the first 8 years after the implementation of the backstop measure.

Table 17: Deduction approach (100% coverage after 7 years, weighted average cumulative impact on CET1 capital ratio)

Years after implementation	Baseline	Linear	Progressive
Year 1	0	0	0
Year 2	0	-2	-1
Year 3	-4	-8	-5
Year 4	-12	-18	-14
Year 5	-23	-33	-27
Year 6	-38	-52	-44
Year 7	-56	-75	-65
Year 8	-78	-101	-89
Year 9	-100	-125	-113
Year 10	-120	-148	-135
Year 11	-139	-169	-155
Year 12	-158	-189	-175
Year 13	-174	-205	-191
Year 14	-187	-217	-204
Year 15	-196	-227	-213
Year 16	-202	-232	-219
Year 17	-205	-235	-222
Year 18	-205	-235	-222
Year 19	-205	-235	-222
Year 20	-205	-235	-222

Figure 8: Deduction approach (100% coverage after 7 years, weighted average cumulative impact on CET1 capital ratio)

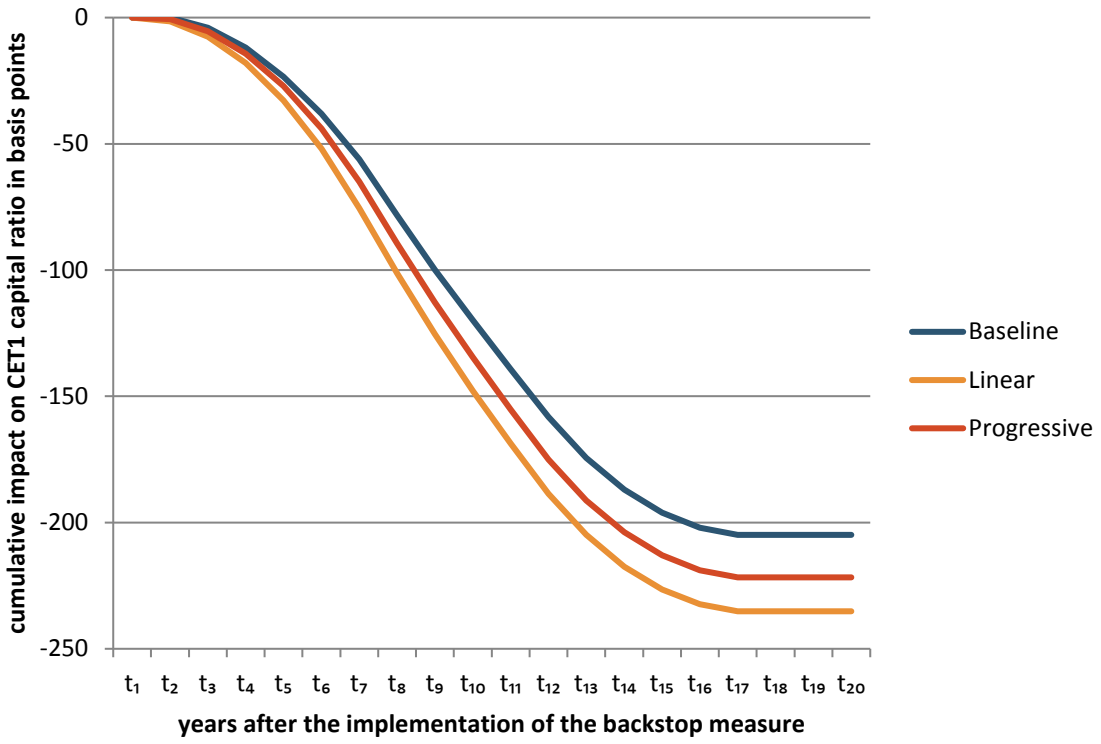


Table 18: Deduction approach (100% coverage after 7 years, median cumulative impact on CET1 capital ratio)

Years after implementation	Baseline	Linear	Progressive
Year 1	0	0	0
Year 2	0	-1	0
Year 3	-2	-4	-3
Year 4	-7	-11	-8
Year 5	-13	-19	-15
Year 6	-20	-31	-25
Year 7	-30	-45	-37
Year 8	-43	-61	-52
Year 9	-58	-76	-67
Year 10	-71	-89	-82
Year 11	-85	-102	-97
Year 12	-99	-117	-109
Year 13	-111	-132	-119
Year 14	-121	-141	-126
Year 15	-126	-146	-132
Year 16	-130	-150	-137
Year 17	-132	-152	-139
Year 18	-132	-152	-139
Year 19	-132	-152	-139
Year 20	-132	-152	-139

Figure 9: Deduction approach (100% coverage after 7 years, median cumulative impact on CET1 capital ratio)

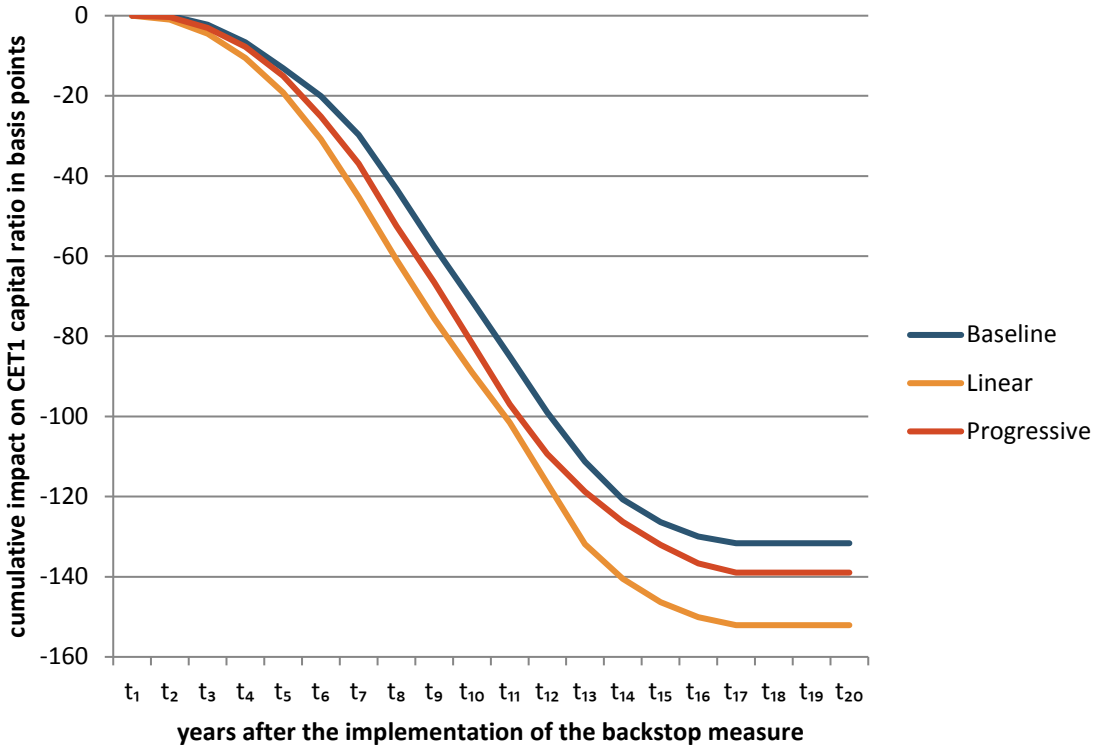
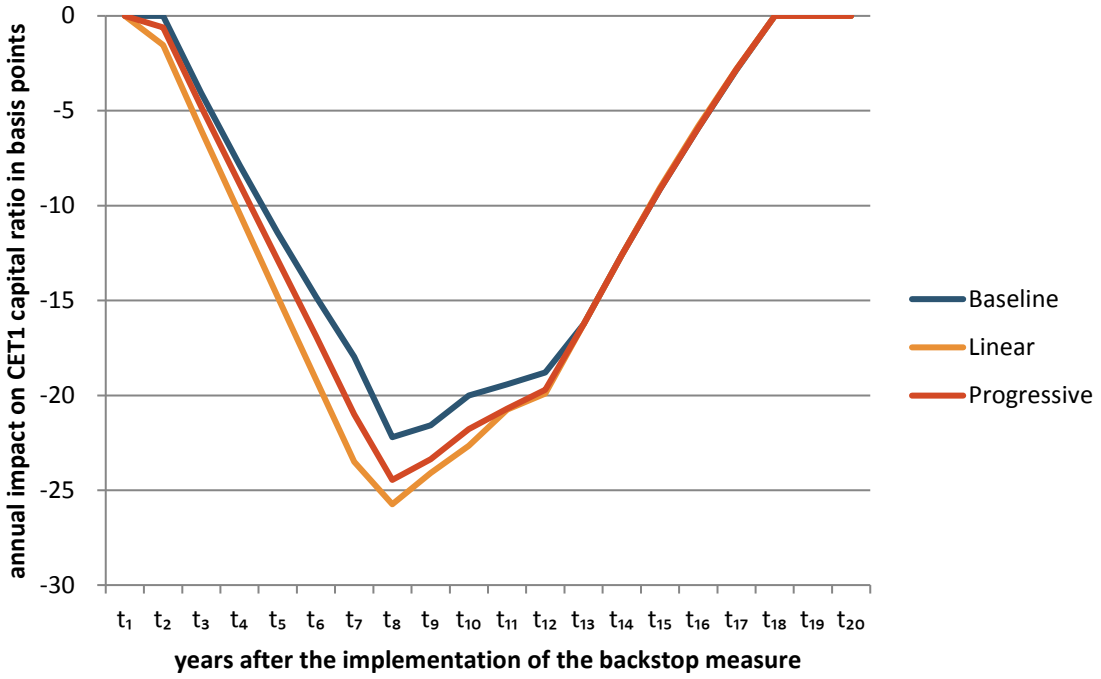


Table 19: Deduction approach (100% coverage after 7 years, weighted average annual impact on CET1 capital ratio)

Years after implementation	Baseline	Linear	Progressive
Year 1	0	0	0
Year 2	0	-2	-1
Year 3	-4	-6	-5
Year 4	-8	-10	-9
Year 5	-11	-15	-13
Year 6	-15	-19	-17
Year 7	-18	-24	-21
Year 8	-22	-26	-24
Year 9	-22	-24	-23
Year 10	-20	-23	-22
Year 11	-19	-21	-21
Year 12	-19	-20	-20
Year 13	-16	-16	-16
Year 14	-13	-13	-13
Year 15	-9	-9	-9
Year 16	-6	-6	-6
Year 17	-3	-3	-3
Year 18	0	0	0
Year 19	0	0	0
Year 20	0	0	0

Figure 10: Deduction approach (100% coverage after 7 years, weighted average annual impact on CET1 capital ratio)



5.6 Impact under option 3: haircut approach

170. The last approach in the Commission consultation paper is the haircut approach. Here institutions are required to fully cover, with CET1, their unsecured (parts of) NPEs after 2 years, as in the deduction approach. To secured (parts of) NPEs, specific minimum levels of prudential haircuts apply to collateral values in order to address risks associated with the effectiveness of credit protection for NPEs in a more targeted way. The haircuts envisaged in this quantitative analysis can be found in Table 8 and Figure 4 in the report. Consequently, the haircut approach, like the deduction approach, is subject to the specification of 6, 7 and 8 years – applying different levels of the initial haircut.

171. Figure 11 and Table 20 display the average cumulative impact on CET1 capital ratios in the haircut approach applying respectively a 100% haircut after 6, 7 and 8 years. The cumulative impact on the capital ratio in the baseline haircut approach, i.e. applying the 7-year baseline path for the required coverage on the unsecured part of the exposure and similarly the 7 years specification for the haircuts on the secured part of the exposures is 252 basis points and the difference with the other two specifications is minimal. Overall, the patterns are similar to those observed for the linear and progressive path as displayed in Figure 12 (Table 21) and Figure 13 (Table 22).

Table 20: Haircut approach (weighted average cumulative impact on CET1 capital ratio, baseline)

Years after implementation	Haircut – 6 years	Haircut -7 years	Haircut - 8 years
Year 1	0	0	0
Year 2	0	0	0
Year 3	-5	-5	-5
Year 4	-15	-14	-14
Year 5	-30	-29	-28
Year 6	-49	-48	-46
Year 7	-74	-71	-69
Year 8	-103	-99	-96
Year 9	-131	-127	-122
Year 10	-156	-152	-147
Year 11	-180	-175	-170
Year 12	-202	-198	-193
Year 13	-220	-217	-212
Year 14	-235	-232	-227
Year 15	-244	-242	-238
Year 16	-251	-248	-245
Year 17	-254	-252	-248
Year 18	-254	-252	-248
Year 19	-254	-252	-248
Year 20	-254	-252	-248

Figure 11: Haircut approach (weighted average cumulative impact on CET1 capital ratio, baseline)

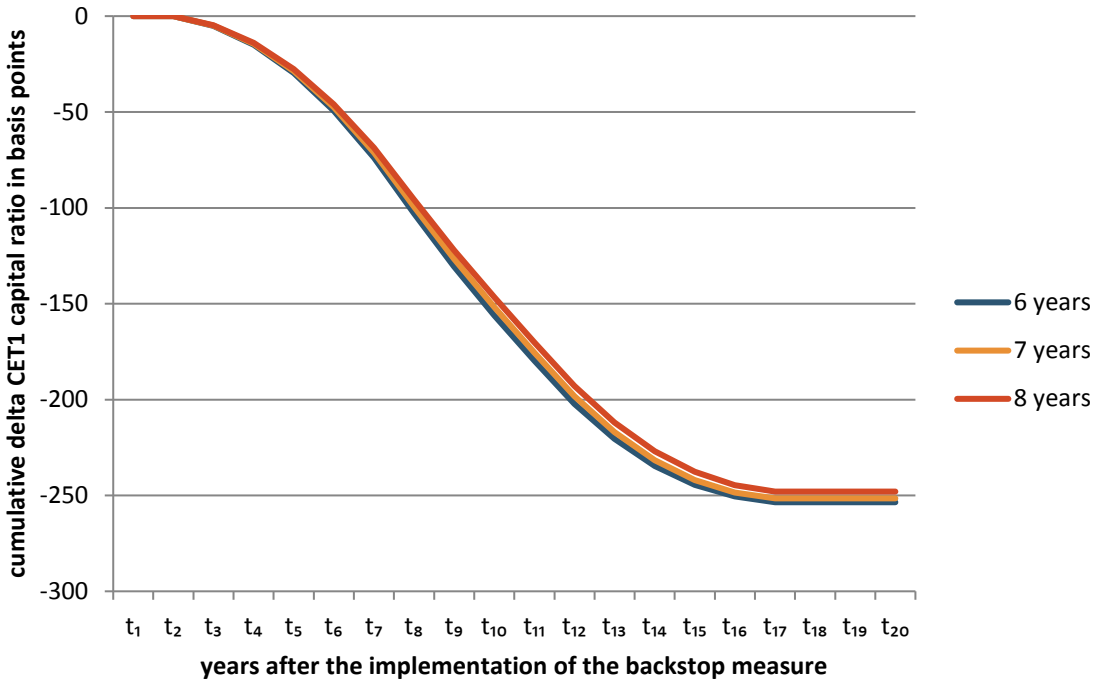


Table 21: Haircut approach (weighted average cumulative impact on CET1 capital ratio, linear path)

Years after implementation	Haircut – 6 years	Haircut -7 years	Haircut - 8 years
Year 1	0	0	0
Year 2	-2	-2	-2
Year 3	-8	-8	-8
Year 4	-20	-19	-19
Year 5	-36	-35	-34
Year 6	-58	-56	-54
Year 7	-84	-81	-78
Year 8	-113	-109	-105
Year 9	-140	-135	-130
Year 10	-165	-160	-155
Year 11	-188	-184	-178
Year 12	-211	-206	-201
Year 13	-229	-225	-220
Year 14	-243	-240	-234
Year 15	-252	-250	-245
Year 16	-259	-256	-252
Year 17	-262	-259	-255
Year 18	-262	-259	-255
Year 19	-262	-259	-255
Year 20	-262	-259	-255

Figure 12: Haircut approach (weighted average cumulative impact on CET1 capital ratio, linear path)

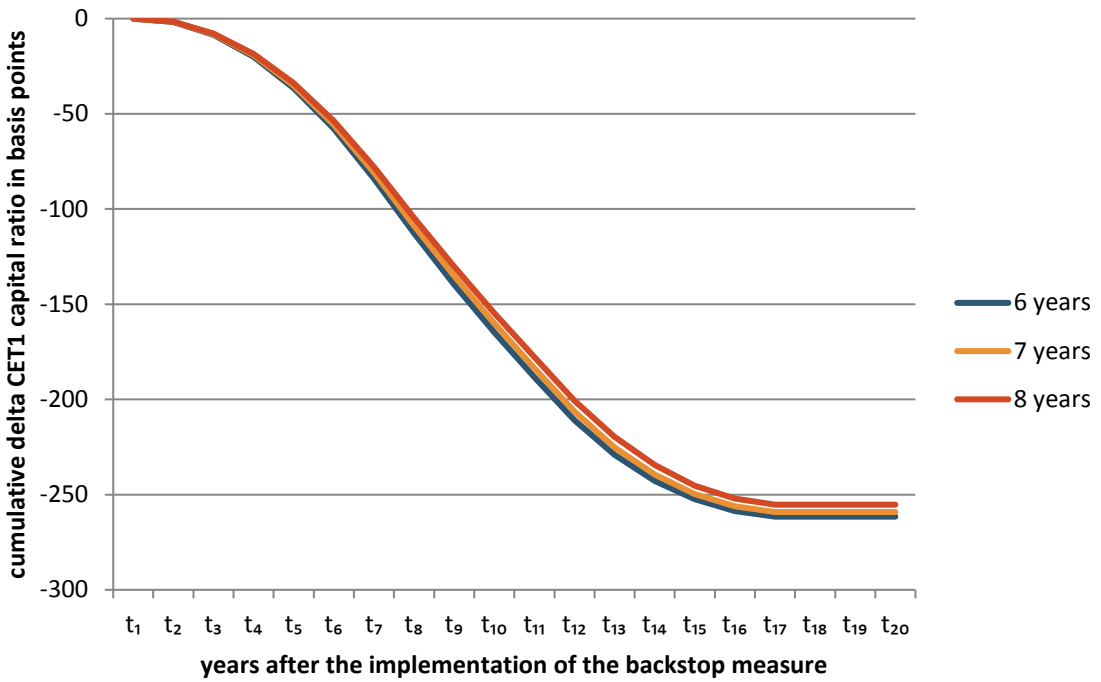
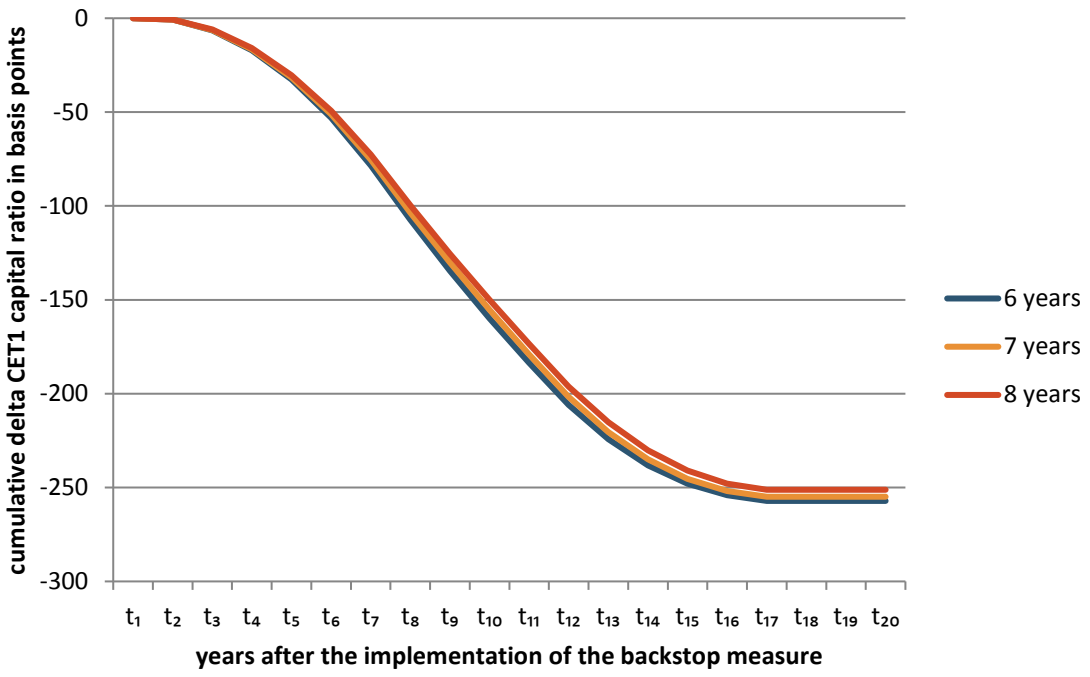


Table 22: Haircut approach (weighted average cumulative impact on CET1 capital ratio, progressive path)

Years after implementation	Haircut – 6 years	Haircut -7 years	Haircut - 8 years
Year 1	0	0	0
Year 2	-1	-1	-1
Year 3	-6	-6	-6
Year 4	-17	-17	-16
Year 5	-33	-31	-30
Year 6	-53	-51	-49
Year 7	-78	-75	-73
Year 8	-107	-103	-100
Year 9	-134	-130	-125
Year 10	-160	-155	-150
Year 11	-184	-179	-173
Year 12	-206	-202	-196
Year 13	-224	-221	-215
Year 14	-238	-235	-230
Year 15	-248	-245	-241
Year 16	-254	-252	-248
Year 17	-257	-255	-251
Year 18	-257	-255	-251
Year 19	-257	-255	-251
Year 20	-257	-255	-251

Figure 13: Haircut approach (weighted average cumulative impact on CET1 capital ratio, progressive path)



172. As noted earlier, the haircut approach is in essence a hybrid approach, that applies the haircuts to the secured parts of the exposures, while using the deduction approach for the unsecured exposures. This implies that for the unsecured exposures, the same choices analysed for the deduction approach, i.e. applying respectively the baseline, linear and progressive paths is possible. Figure 14 (accompanied by Table 23) and Figure 15 (accompanied by Table 24) show, as can be expected since the baseline, linear and progressive paths in this case only apply to the unsecured exposures, minimal differences in the cumulative and annual capital impacts; the cumulative impact after year 17 is around 255 basis points for each of the specifications. As can be seen from Table 5, Table 6 and Table 7, the three paths differ in terms of only the minimum coverage requirements for the unsecured part of the exposures in the first year after default: the minimum coverage requirement is 0% for the baseline path, 50% under the linear path and 35% under the progressive path. For all other years after default, the same (100%) minimum coverage requirement applies.

Table 23: Haircut approach – 7 years (weighted average cumulative impact on CET1 capital ratio)

Years after implementation	Baseline	Linear	Progressive
Year 1	0	0	0
Year 2	0	-2	-1
Year 3	-5	-8	-6
Year 4	-14	-19	-17
Year 5	-29	-35	-31
Year 6	-48	-56	-51
Year 7	-71	-81	-75
Year 8	-99	-109	-103
Year 9	-127	-135	-130
Year 10	-152	-160	-155
Year 11	-175	-184	-179
Year 12	-198	-206	-202
Year 13	-217	-225	-221
Year 14	-232	-240	-235
Year 15	-242	-250	-245
Year 16	-248	-256	-252
Year 17	-252	-259	-255
Year 18	-252	-259	-255
Year 19	-252	-259	-255
Year 20	-252	-259	-255

Figure 14: Haircut approach – 7 years (weighted average cumulative impact on CET1capital ratio)

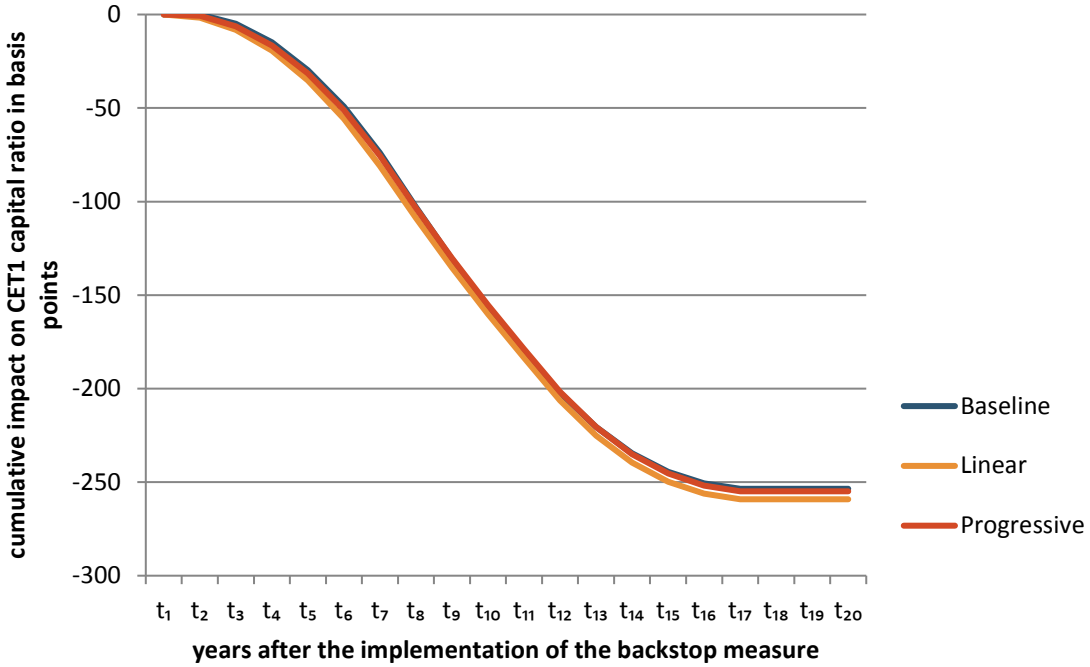
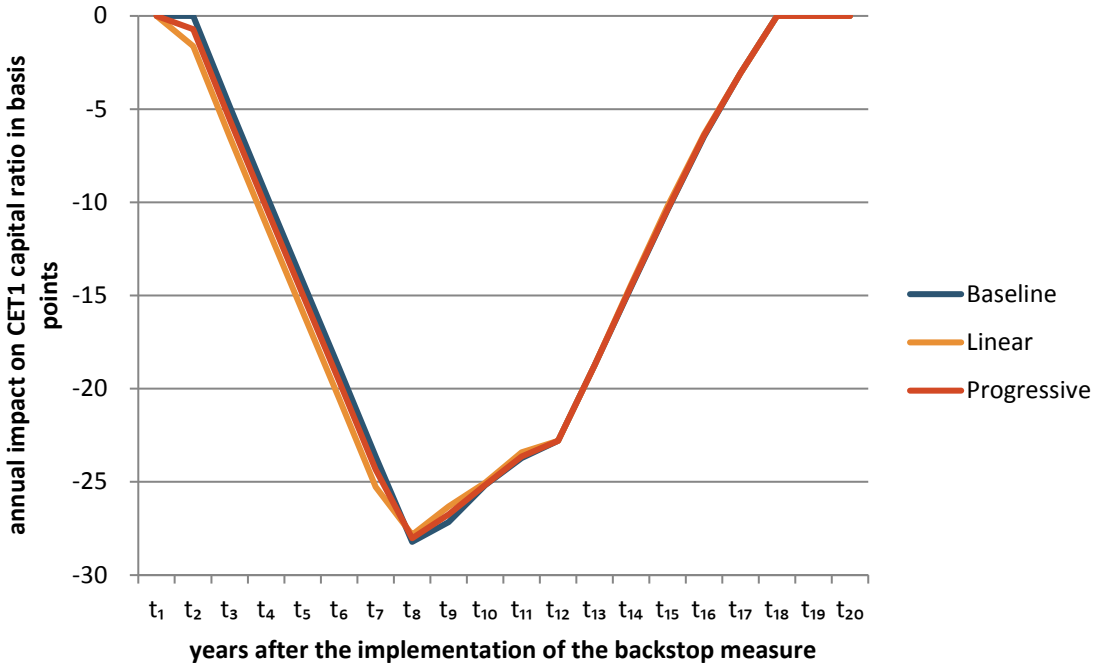


Table 24: Haircut approach – 7 years (weighted average annual impact on CET1 capital ratio)

Years after implementation	Baseline	Linear	Progressive
Year 1	0	0	0
Year 2	0	-2	-1
Year 3	-5	-6	-6
Year 4	-10	-11	-10
Year 5	-14	-16	-15
Year 6	-19	-21	-20
Year 7	-24	-25	-24
Year 8	-28	-28	-28
Year 9	-27	-26	-27
Year 10	-25	-25	-25
Year 11	-24	-23	-24
Year 12	-23	-23	-23
Year 13	-19	-19	-19
Year 14	-15	-14	-15
Year 15	-10	-10	-10
Year 16	-6	-6	-6
Year 17	-3	-3	-3
Year 18	0	0	0
Year 19	0	0	0
Year 20	0	0	0

Figure 15: Haircut approach – 7 years (weighted average annual impact on CET1 capital ratio)



5.7 Comparing the different options: deduction approach versus haircut approach

173. Figure 16 to Figure 18 (accompanied by Table 25 to Table 27) show the comparison between the haircut and deduction approaches, respectively, for the baseline, linear and progressive paths. The comparison is made using the 7 years specification for both the deduction approach and the haircut approach. Interestingly, the haircut approach is stricter than the deduction approach under all three paths and, in particular, the difference between the haircut and the deduction approaches is largest for the less strict baseline path (0% coverage requirement in year 1) and smallest for the stricter linear path (50% coverage requirement in year 1). Anyway, despite the slightly more complex specification, requiring institutions to apply a haircut on each asset instead of an overall portfolio approach, the results are very similar in terms of dynamics.

Table 25: Deduction approach versus haircut approach with 7-year specification (weighted average cumulative impact on CET1 capital ratio, baseline)

Years after implementation	Deduction approach	Haircut approach
Year 1	0	0
Year 2	0	0
Year 3	-4	-5
Year 4	-12	-14
Year 5	-23	-29
Year 6	-38	-48
Year 7	-56	-71
Year 8	-78	-99
Year 9	-100	-127
Year 10	-120	-152
Year 11	-139	-175
Year 12	-158	-198
Year 13	-174	-217
Year 14	-187	-232
Year 15	-196	-242
Year 16	-202	-248
Year 17	-205	-252
Year 18	-205	-252
Year 19	-205	-252
Year 20	-205	-252

Figure 16: Deduction approach versus haircut approach with 7-year specification (weighted average cumulative impact on CET1 capital ratio, baseline)

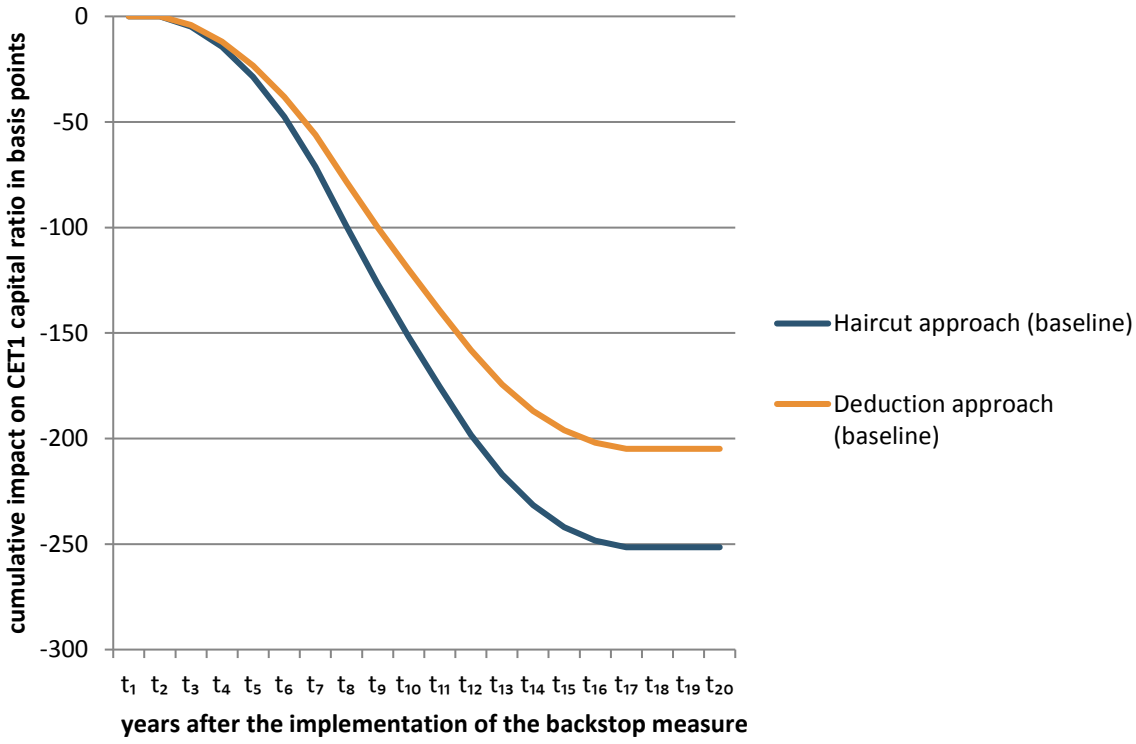


Table 26: Deduction approach versus haircut approach with 7-year specification (weighted average cumulative impact on CET1 capital ratio, linear)

Years after implementation	Deduction approach	Haircut approach
Year 1	0	0
Year 2	-2	-2
Year 3	-8	-8
Year 4	-18	-19
Year 5	-33	-35
Year 6	-52	-56
Year 7	-75	-81
Year 8	-101	-109
Year 9	-125	-135
Year 10	-148	-160
Year 11	-169	-184
Year 12	-189	-206
Year 13	-205	-225
Year 14	-217	-240
Year 15	-227	-250
Year 16	-232	-256
Year 17	-235	-259
Year 18	-235	-259
Year 19	-235	-259
Year 20	-235	-259

Figure 17: Deduction approach versus haircut approach with 7-year specification (weighted average cumulative impact on CET1capital ratio, linear)

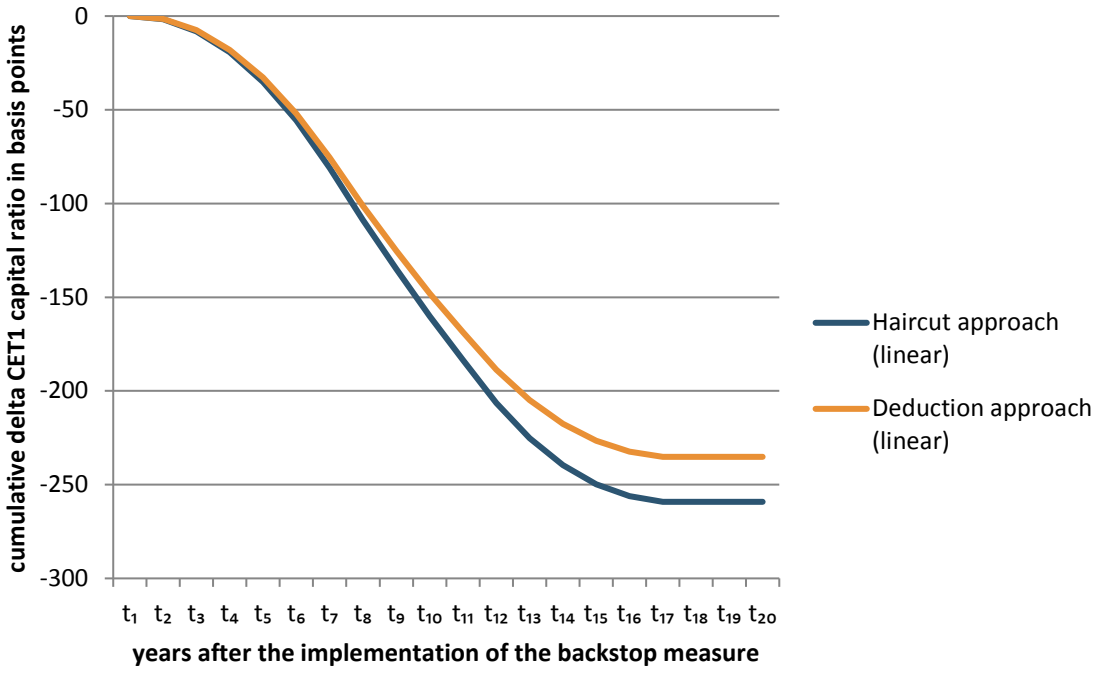
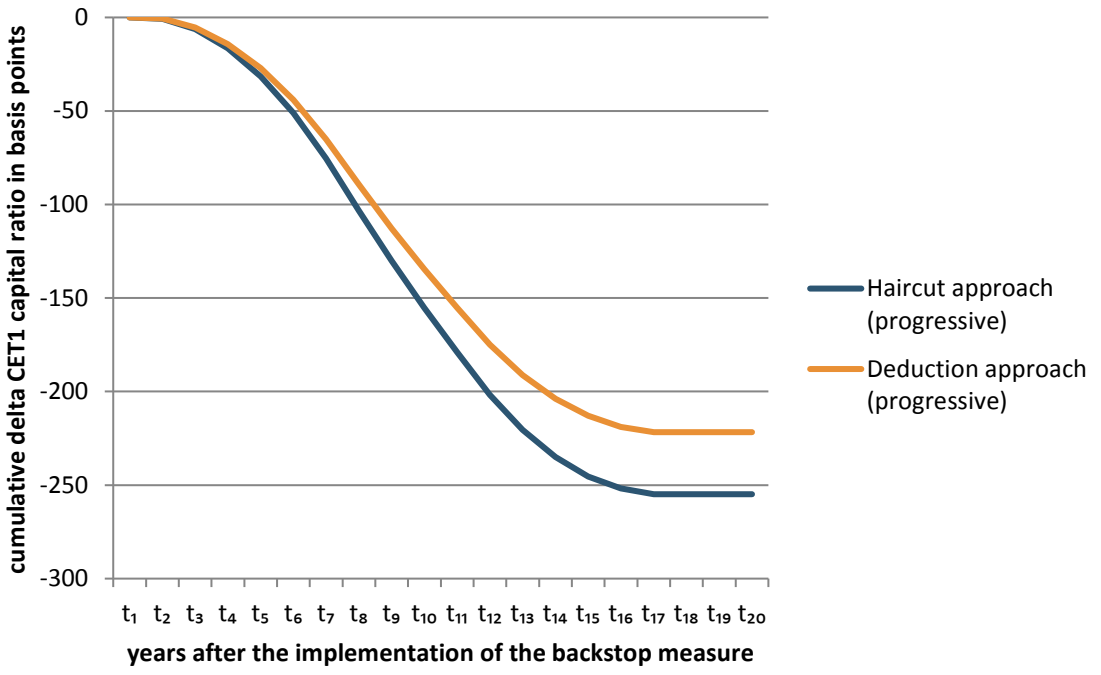


Table 27: Deduction approach vs haircut approach with 7-year specification (weighted average cumulative impact on CET1 capital ratio, progressive)

Years after implementation	Deduction approach	Haircut approach
Year 1	0	0
Year 2	-1	-1
Year 3	-5	-6
Year 4	-14	-17
Year 5	-27	-31
Year 6	-44	-51
Year 7	-65	-75
Year 8	-89	-103
Year 9	-113	-130
Year 10	-135	-155
Year 11	-155	-179
Year 12	-175	-202
Year 13	-191	-221
Year 14	-204	-235
Year 15	-213	-245
Year 16	-219	-252
Year 17	-222	-255
Year 18	-222	-255
Year 19	-222	-255
Year 20	-222	-255

Figure 18: Deduction approach vs haircut approach with 7-year specification (weighted average cumulative impact on CET1 capital ratio, progressive)



174. In order to explain these patterns, it is useful to look at how the required coverage evolves over the life of loan under the haircut and the deduction approaches and under the baseline, linear and progressive paths. Figure 19 displays the required coverage in the baseline coverage ratio path for the deduction and haircut approaches over the life of a hypothetical NPL with a face value of 100 and secured share of 30%. Until the loan is 7 years in default (x-axis), the required coverage for the haircut approach is higher than the one for the deduction approach and only in the 8th year in default is this trend reversed. In any case, the higher required coverage from years 1 to 7 under the haircut approach more than compensates for the lower required coverage in year 8, explaining why we find a higher cumulative capital impact for the haircut approach. Figure 20 displays the same comparison for the same hypothetical loan under the linear path. Similar considerations apply but the difference between the required coverage under the haircut approach and the deduction approach is smaller. The comparison between Figure 19 and Figure 20, therefore, explains why we find a larger difference in the impact between the haircut and the deduction approaches under the baseline path than under the linear path.

Figure 19: Required coverage, deduction vs haircut approach with 7-year specification (baseline)

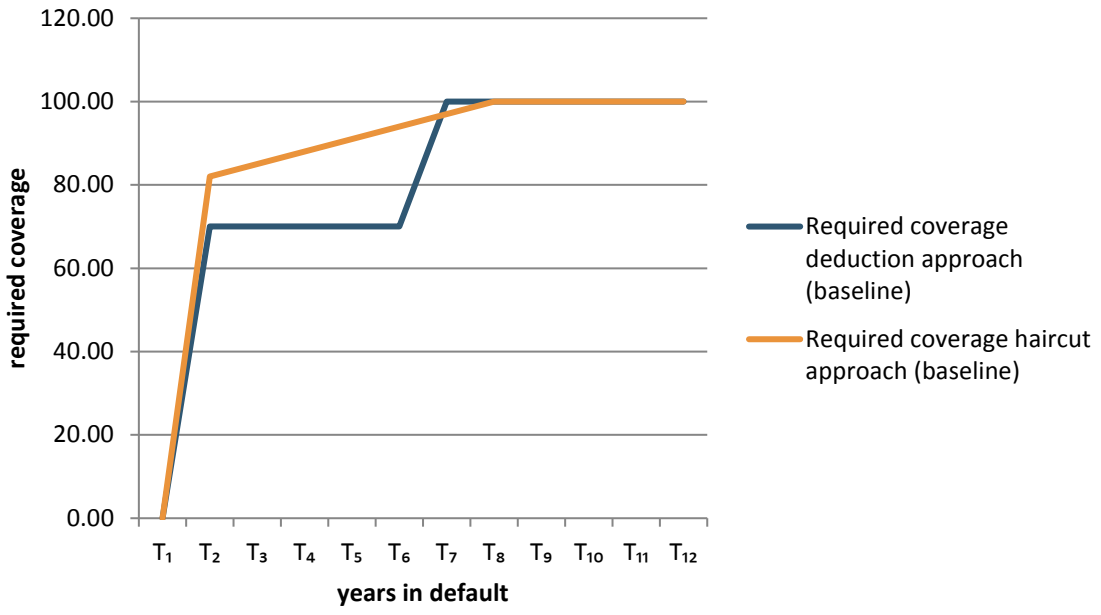


Figure 20: Required coverage, deduction vs haircut approach with 7-year specification (linear)

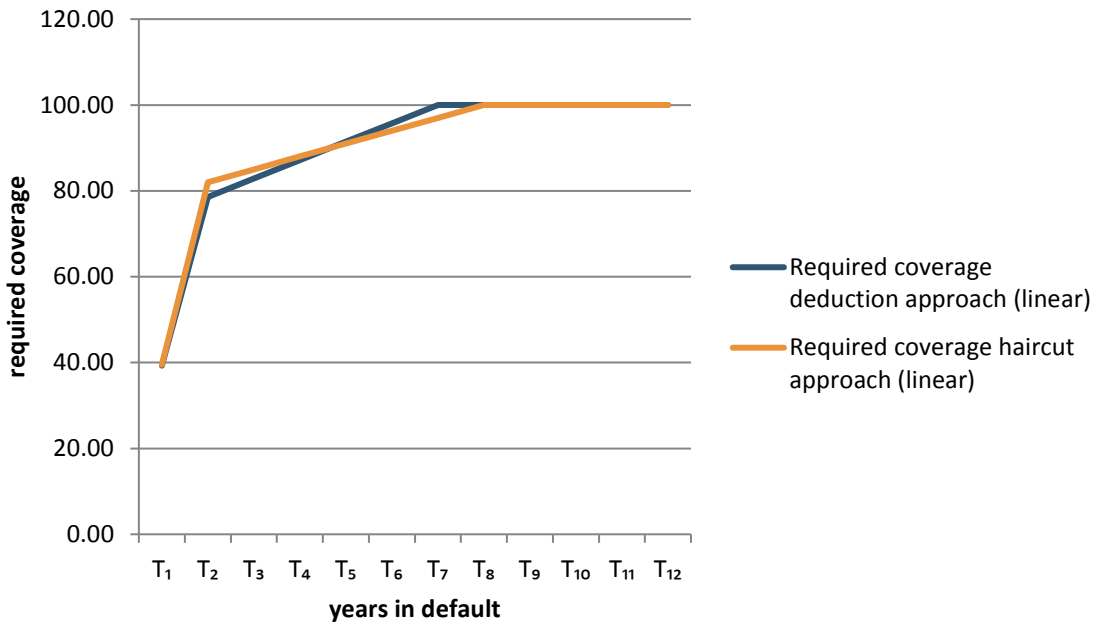
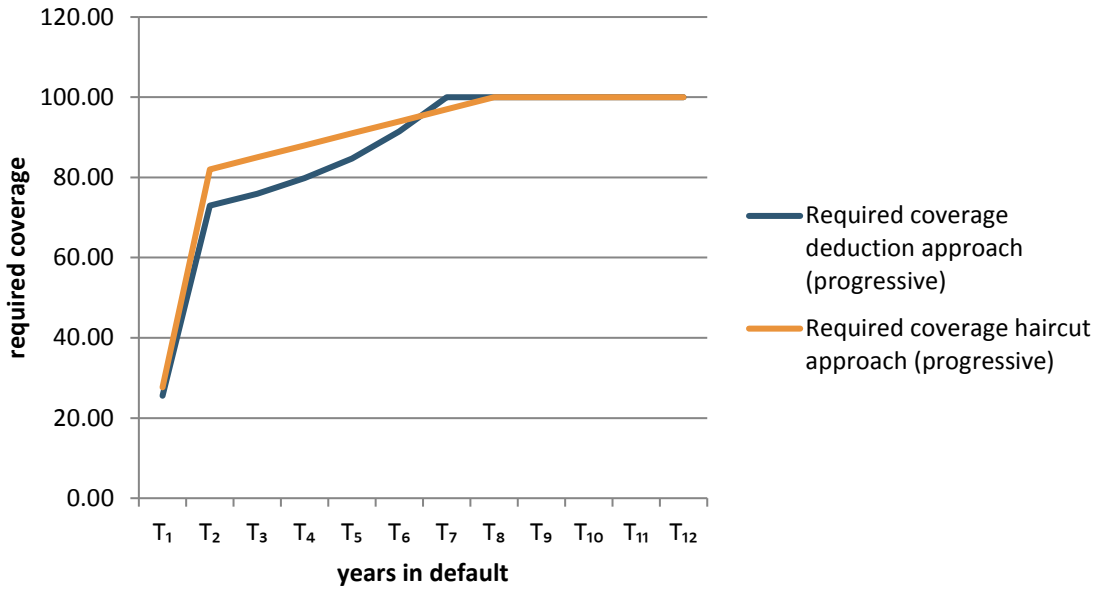


Figure 21: Required coverage, deduction versus haircut approach with 7-year specification (progressive)



5.8 Distribution of the impact for deduction and haircut approaches

175. The weighted average impacts displayed in the previous sections underlines a wide variability across different institutions. High NPLs banks are the most hit whereas low NPL banks or banks with an already strict internal NPL policy are less at risk of being impacted. Where the accounting provisions are already taken, no impact will be recorded.

176. The following series of boxplots in Figure 22 and Figure 23 display the 25th, the 50th (median) and the 75th percentiles as well as the mean observation. The whiskers in addition give an indication of the maximum and minimum non-outlier observation within the sample.[58]

177. The boxplots in Figure 22 represent the distribution of the decrease on the CET1 capital ratio across individual institutions within the EU following the implementation of the backstop policy based on the baseline deduction approach (option 1) with 7-years specification. Similarly, Figure 23 represents the distribution of the impact in CET1 capital ratio when the backstop measure is based on the haircut approach (option3).

178. The IQR (inter-quartile range representing the population between the 25th and the 75th percentile) increases constantly over the years. It then stabilises in year 17 when the steady state is reached as it was also shown in the previous analysis.

179. The skewed distributions are a result of the applied methodology since it is based on institution specific parameters being extrapolated over a 20-year horizon, the impact is significant for some institutions, especially for institutions and in countries that have undergone a NPL crisis. The extrapolation approach will therefore naturally result in such a high impact and these institutions will clearly bias upward the overall average impact.

[58] Outliers are determined by relying on the interquartile range (IQR) between the 25th and 75th percentile. Outliers are determined as those observations exceeding respectively the 25th percentile + 1.5 times the IQR or the 75th percentile + 1.5 times the IQR.

Figure 22: Distribution of the impact on CET1 capital ratio across institutions (baseline deduction approach)

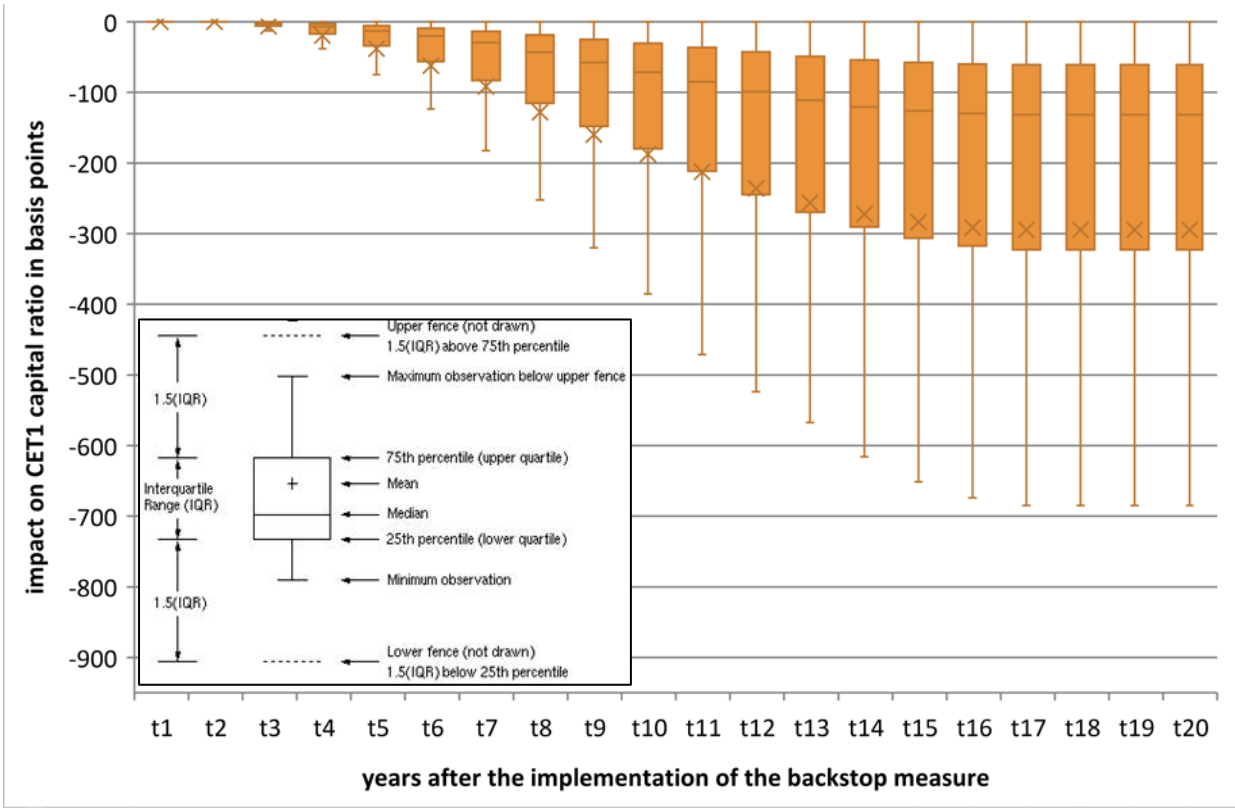
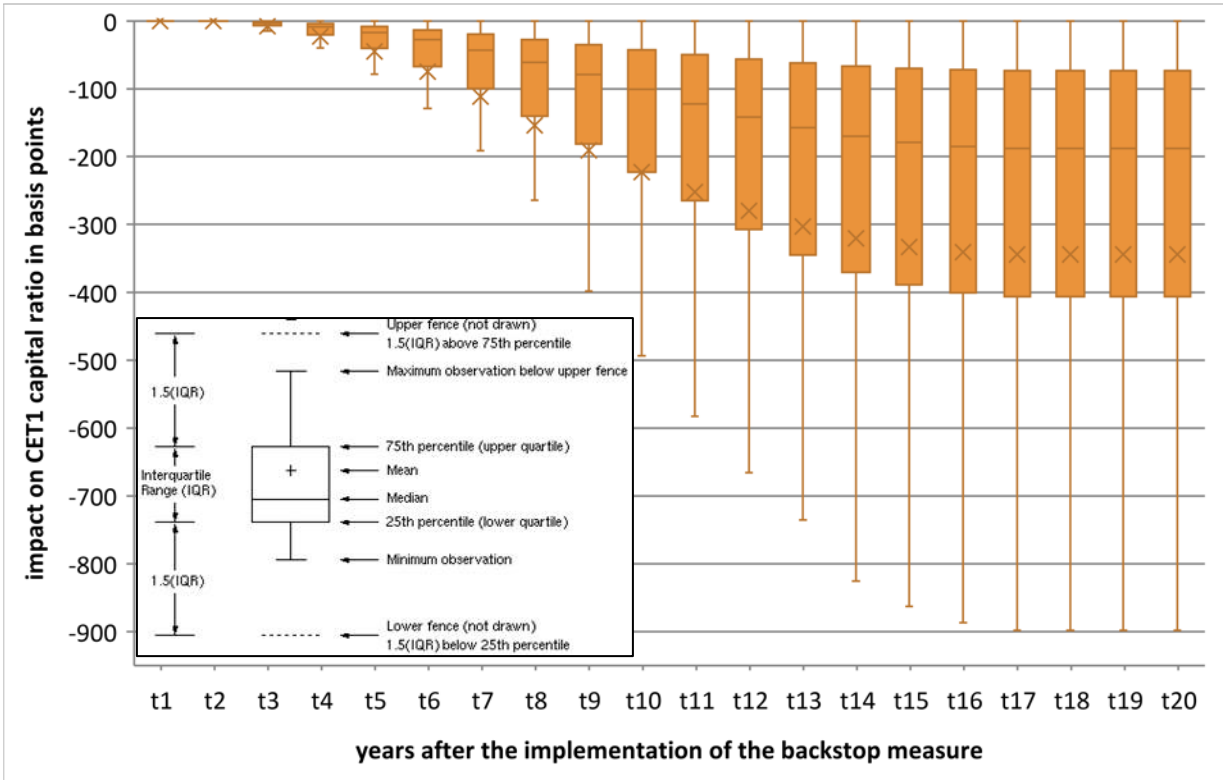


Figure 23: Distribution of the impact on CET1 capital ratio across banks (Baseline haircut approach)



5.9 Taking into account profitability

180. In order to gauge the impact of the proposed policy on CET1 ratio, banks' profits are compared with the additional required coverage under the baseline deduction approach with 7 years specification. In particular, the following analysis assesses whether or not banks generate sufficient profits to absorb the additional provisions over the 20-year projection horizon under two scenarios[59]:

a. Scenario 1: banks use after-tax and pre-dividend profits to absorb the additional provisions, without distributing any dividends over the projection horizon.

b. Scenario 2: banks use after-tax and after-dividend profits to cover for the additional provisions.

181. Profits and dividends are collected from FINREP for the period of December 2014 - December 2016. The dividend amount is capped to the amount of profits in each year for banks distributing dividends in excess of their profits. Projected profits are calculated based on the average profits over the above-mentioned period and are assumed to remain constant over the projection horizon. Banks with negative average profits are assumed to have zero profit over the projection horizon. In any case, it should be noted that this analysis is taking the very conservative assumption that profits observed during the period of December 2014 - December 2016, when asset quality issues at the EU level reached their peak, will remain constant over the next 20 years. In particular, for those institutions that experienced very low profitability as a result of a downturn period, the profitability absorption capacity may be underestimated.

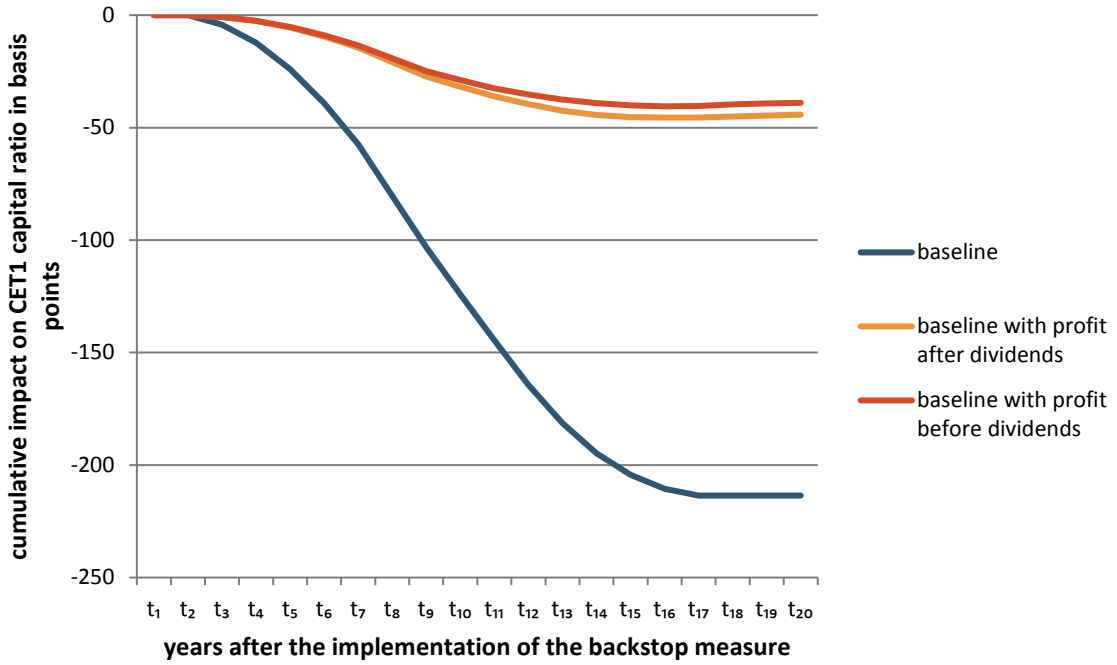
182. Figure 24 (accompanied by Table 28) presents the results of this analysis. On average across institutions, the negative impact of the additional coverage on CET1 can partly be offset by the profits generated by the institutions and after the dividends are paid out. Assuming that the institutions use the profits remaining after paying out dividends for additional coverage, the cumulative impact on CET1 over the 20 year projection horizon is reduced by more than two thirds, from 214 basis points to 45 basis points, - under the baseline deduction approach with a 100% coverage after 7 years. Note that the baseline impact presented in this section differs slightly from the impact in the main analysis, because 10 institutions that did not have FINREP data were dropped from the sample, reducing the sample to 117 institutions. To ensure comparability, the impact is presented for this sub-sample.

[59] Any profits in excess of the additional provisions for a given year have been used to offset additional provisions falling due in subsequent years through retained earnings.

Table 28: Weighted average impact of the additional coverage on the CET1 capital ratio with profits before and after dividends

Years after implementation	Baseline	Baseline with profit after dividends	Baseline with profit before dividends
Year 1	0	0	0
Year 2	0	0	0
Year 3	-4	-1	-1
Year 4	-12	-3	-3
Year 5	-24	-5	-5
Year 6	-39	-10	-9
Year 7	-58	-15	-13
Year 8	-80	-21	-19
Year 9	-103	-27	-25
Year 10	-124	-32	-29
Year 11	-145	-36	-33
Year 12	-164	-40	-35
Year 13	-181	-42	-38
Year 14	-195	-44	-39
Year 15	-204	-45	-40
Year 16	-211	-46	-41
Year 17	-214	-45	-40
Year 18	-214	-45	-40
Year 19	-214	-45	-39
Year 20	-214	-44	-39

Figure 24: Weighted average impact of additional coverage on the CET1 ratio with profits before and after dividends (baseline deduction approach)



183. The (weighted) average impact on the CET1 capital ratio is naturally lower after then before deduction of profits. However, this hides the fact that the results are driven by a few institutions that have substantial capital impact along with zero or negative profits. The profits after dividends would be enough to cover the required coverage for 90% of the institutions in the sample, i.e. the residual impact of the prudential backstop capital would be zero for these institutions. In such scenario, the median residual capital impact is indeed zero. For the remaining 10% of the institutions the distribution of the residual capital impact shows substantial variability that is reflective of the correlation between high NPLs level and low profitability..

184. Figure 25 shows the additional coverage for NPEs as a proportion of bank profits. On average across institutions, the additional coverage ranges from 0% in the first years to a maximum of around 70% of profits in years 13-14. That is presented in Figure 26 for the median institution with respect to that ratio. The additional coverage ranges from 0% to 13% of profits after dividends, i.e. a coverage ratio up to 10 times smaller for the median bank compare to the average impact of the sample. This implies that the median bank, in the steady state, will be able to cover the impact of the prudential backstops with 10% of retained earnings after dividends.

Figure 25: Additional required coverage as a share of profits before and after dividends (weighted average)

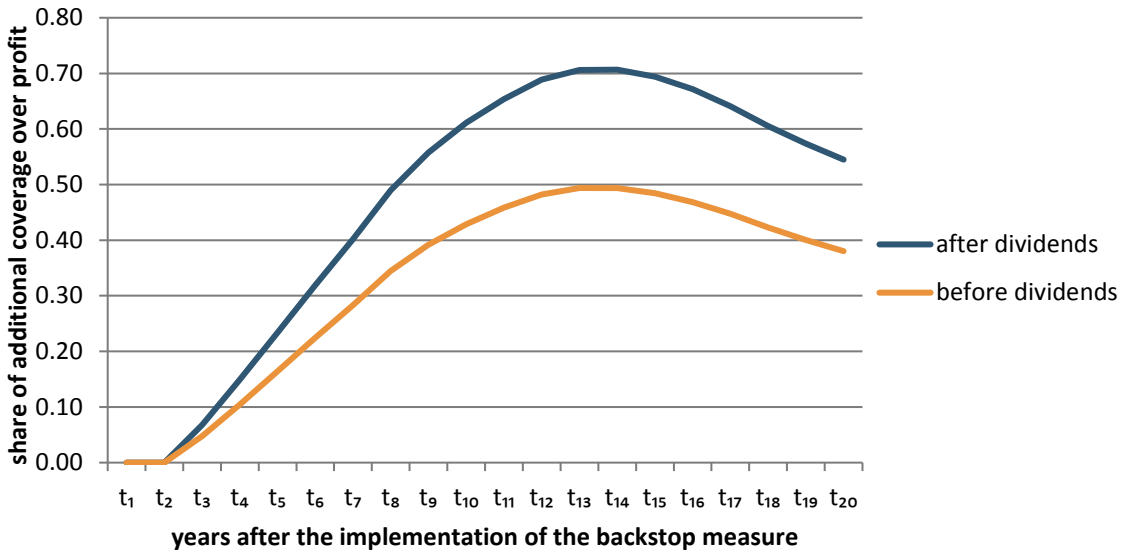
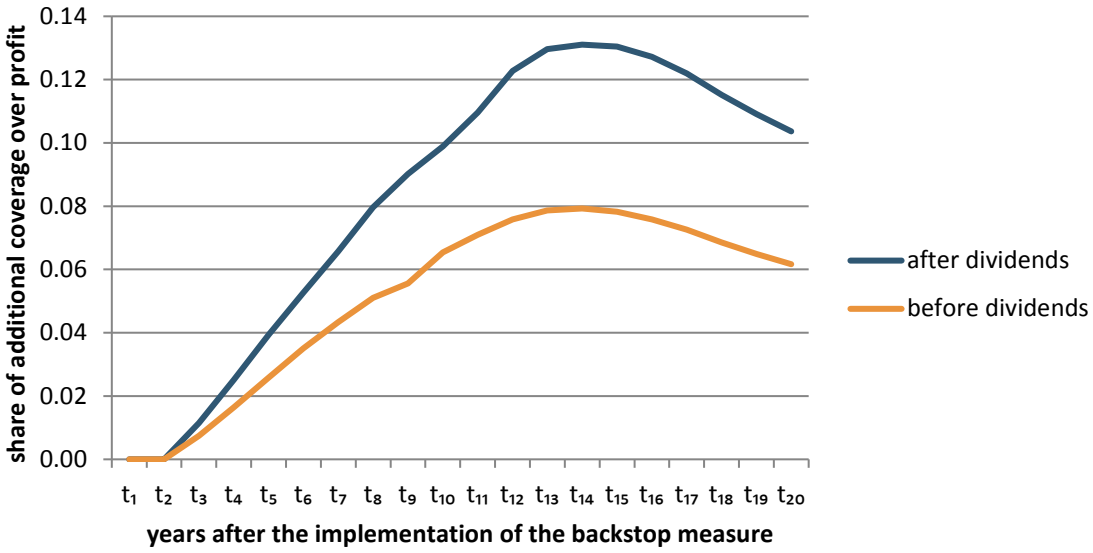
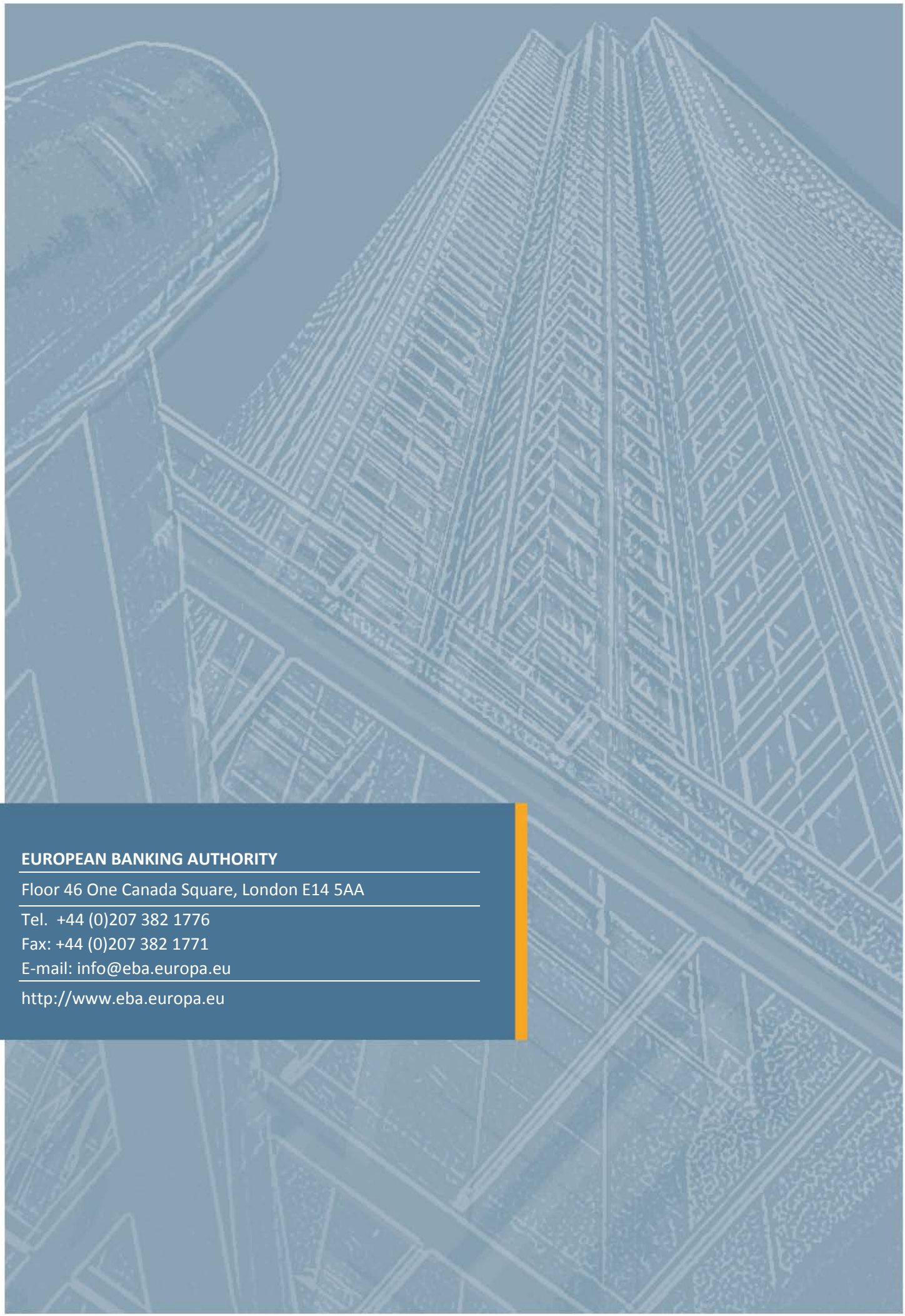


Figure 26: Additional required coverage as a share of profits before and after dividends (median)





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