POLICY ADVICE ON THE BASEL III REFORMS: OPERATIONAL RISK

EBA
EUROPEAN BANKING AUTHORITY

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Executive summary

In accordance with the final Basel III package, the three approaches to operational risk — one of the areas most affected — that are currently allowed are being replaced with a new standardised approach.

In developing its response to the European Commission's Call for Advice (CfA), the European Banking Authority (EBA) considered the appropriateness of the Basel Committee on Banking Supervision Standardised Approach (BCBS SA) for the EU banking sector by analysing it from several angles and over the whole spectrum of credit institutions. Firstly, the impact analysis has provided insights into the allocation of capital requirements that would be imposed by the new framework in comparison with the current requirements in operational risk. This was considered not only in terms of the banks' size, but also on the basis of specific banks' characteristics, such as their business models. Secondly, the performance of the BCBS SA has been analysed through the use of several statistical methods, with particular attention paid to its ability to cover operational losses that could occur in the same year and at the volatility of the resulting capital requirements and the role of its drivers. These analyses have been complemented by an econometric study aimed at assessing the predictive power of historical losses of operational risk exposure. Thirdly, its articulation with various options under the BCBS SA (supervisory or jurisdiction-wide discretions) has been carefully reviewed from quantitative and qualitative points of view. This allowed an assessment of how these options could be used to adapt the BCBS SA to banks with different operational risk profiles. Finally, all the recommendations included in the EBA response on qualitative aspects, such as loss data, governance, reporting and control, have been developed by taking into account all the aforementioned results and assessing whether or not the operational burden related to the implementation of the new framework is proportional to the size and complexity of the banks, in particular the smaller banks.

It is the EBA's opinion that the introduction of the Basel III standardised approach to operational risk is appropriate for the EU banking sector, subject to a set of decisions and clarifications regarding its implementation. The EBA provides its view on all these aspects in the recommendations included in this document.

The CfA on the final Basel III package covers operational risk in Section 5, in which the EBA is requested to provide several analyses and assessments, including on the discretions allowed in the BCBS SA. Sections 5.1, 5.2 and 5.4 refer predominantly to quantitative aspects (e.g. an overview of the use of current approaches, source and drivers of operational risk, capital impacts, and application of national discretions and national permissions) and therefore the considerations regarding them are related to the analyses of quantitative impact study (QIS) data.

Section 5.3 (i.e. implementation, operational and administrative impacts of the BCBS SA) and Section 5.5 (additional assessment) cover topics that are of a more qualitative nature. To obtain the

information necessary to address Sections 5.3 and 5.5, the EBA launched a qualitative questionnaire and arranged an operational risk technical roundtable with banks and banking associations.

The information collected through these processes has permitted the EBA to perform analyses and assessments of all of the operational risk aspects indicated in the CfA and the corresponding discretions. The relevant recommendations are structured in this report in two main parts and a number of annexes.

The first part (Part 1: Policy recommendations on quantitative requirements) covers all the recommendations in response to the CfA that are of a **quantitative** nature. This part addresses the policy discretions allowed under the BCBS SA framework. The following table summarises the various sections.

Part 1: Policy recommendations on quantitative requirements		CfA reference
Section 1:	Discretion to set the ILM to 1 for all the institutions in bucket 2 and bucket 3 banks	Section 5.4 (ii)
Section 2:	Permission for bucket 1 banks to use the ILM	Section 5.4 (i)
Section 3:	Discretion to increase the loss data threshold to EUR 100 000 for bucket 2 and bucket 3 banks	Section 5.4 (iii)
Section 4:	Supervisors' discretion to request banks to use less than 5 years loss data when the ILM is greater than 1	Section 5.4 (iv)
Section 5:	Setting the materiality thresholds and minimum retention period for the exclusion of certain operational risk loss events	Section 5.4 (v)

This part should be read in conjunction with Annex 1, which reports the statistical analyses on the use of loss data within the regulatory capital for operational risk.

The second part (Part 2: Policy recommendations on qualitative requirements) covers the recommendations in response to the CfA that are of a **qualitative** nature. This part addresses Sections 5.3 and 5.5 of the CfA, which request that the EBA provide an assessment of the possibility of introducing new provisions, or keeping, modifying or supplementing existing provisions in the Capital Requirements Regulation (CRR) and the Capital Requirements Directive (CRD) regarding other aspects of the operational risk framework that are not directly covered by the BCBS SA. The following table summarises the various sections of Part 2.

Part 2: Policy recommendations on qualitative requirements		CfA reference
Section 1:	Definitional requirements	Section 5.5 (i)
Section 2	Governance and organisational requirements: loss data	Section 5.5 (ii)
Sub-section 2.1:	Criteria for building the loss dataset	
Sub-section 2.2:	Operational risk framework	
Sub-section 2.3:	Supervisory review of data quality and disclosure	

| Section 3: | ICAAP and Pillar 2 | Section 5.5 (iii and iv) |
| Section 4: | Business Indicator — FINREP mapping | Section 5.3 and final considerations |

For easy reading of the document, the proposed recommendations have been identified and highlighted in the text. In total, 13 recommendations are included in Part 1 and 23 recommendations in Part 2.

Introduction

1. In accordance with the final Basel III package, the current approaches to operational risk, the Basic Indicator Approach (BIA), the Standardised Approach (TSA), Alternative Standardised Approach (ASA) and the Advanced Measurement Approach (AMA) are being replaced with a new standardised approach (BCBS SA).

2. The foundation of the BCBS SA is a financial-statement-based proxy for operational risk, the Business Indicator (BI), which amends, in some components, the current proxy indicator for simpler approaches (the gross income, i.e. the relevant indicator under the CRR) and improves their use within the regulatory formula. The operational risk regulatory capital is calculated through the Business Indicator Component (BIC), obtained by applying fixed marginal coefficients (12%, 15% and 18%) to ranges of the BI (buckets 1, 2 and 3, determined according to the size of a bank's business), thus resulting in increasing effective coefficients by BI size, assumed to be a proxy of a bank's business and consequently a proxy of operational risk exposure. The BIC contrasts with the current simpler approaches in that it introduces the size of a bank's business as a risk driver.[1] The BIC is then adjusted for banks with a BI in the range of buckets 2 and 3 using their own loss experience within the Loss Component (LC) and inserting the LC into a multiplier of the BIC, the internal loss multiplier (ILM); this aims to include further risk sensitivity in the calculated capital charge for each institution, based on the observed loss data, by means of adjusting the BIC upwards or downwards.

3. As a result, the standardised approach can be summarised by the following formula: operational risk capital = BIC × ILM, where the BIC is a product of the marginal BI coefficients (α_i), set by buckets, as in the following table, and the relevant layer of the BI. The BI is the sum of three components: the interest, leases and dividends component, the services component and the financial component.

Table 1: BCBS SA marginal coefficients for BI buckets

BI bucket	BI range (billion EUR)	Marginal BI coefficients (α_i)
1	≤ 1	0.12
2	1 < BI ≤ 30	0.15
3	> 30	0.18

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[1] The results from the Basel Committee's empirical analyses determined that an increase in BI results in a more than proportional increase in operational risk; therefore, the BCBS SA has been developed to reflect this finding.

4. The ILM is a function of the BIC and the LC, where the latter is equal to 15 times a bank's average historical losses over the preceding 10 years. In its default formulation, the ILM 'bank specific' is calculated as: ILM = $ln[exp(1) - 1 + (LC/BIC)^{0.8}]$ and applies to bucket 2 and bucket 3 banks.

5. The BCBS SA also includes several discretions that can be exercised to adapt its calculation or the characteristics of the data to be used for the calculation to different situations; in some cases, this depends on which BI bucket an institution reaches. The whole of Part 1 of this document addresses the aspects related to the implementation of the BCBS SA, including the various discretions.

6. Part 2 of this document covers all the qualitative elements requested by the CfA. In this part, the EBA recommends clarifying a number of definitions that are currently spread across a number of regulatory texts (the CRR, the CRD, the SREP guidelines, the EBA internal taxonomy), as this review of the operational risk framework is an opportunity to establish a coherent and uniform set of definitions.

7. Furthermore, Part 2 includes all recommendations related to the criteria for building the loss dataset, all aspects related to the governance, reporting and control of operational risk, elements related to the supervisory review of data quality and disclosure, aspects related to the use of key elements in the internal capital adequacy assessment process (ICAAP) and Pillar 2 for operational risk, and further clarifications on the calculation of the BI, with references to the Financial Reporting Framework (FINREP).

8. The EBA paid particular attention to the impact that the proposed requirements would have— in terms of operational burden — on the different types of banks, compared with the current requirements. The BI buckets are used as a reference to set the requirements in a proportional manner. To this end, banks in bucket 1 are split further into those above and those below a BI threshold of EUR 750 million, when different requirements may apply.

1. Policy recommendations on quantitative requirements

9. The BCBS SA for operational risk includes several discretions that can be exercised and that affect, in different situations, its calculation or the characteristics of the data to be used in the calculation. Consequently, to provide a response to the quantitative issues regarding operational risk raised by the CfA, the EBA recommendations address:

   a) the discretion to set the ILM to 1 for the institutions of buckets 2 and 3,[2] in accordance with paragraph 12 of the BCBS SA ('supervisors may set the value of ILM equal to 1 for all banks in their jurisdiction');

   b) the permission to use the ILM for banks in bucket 1, still based on paragraph 12 of the BCBS SA ('supervisors may allow the inclusion of internal loss data into the framework for banks in bucket 1');

   c) the discretion to increase the loss data threshold[3] to EUR 100 000 for banks in buckets 2 and 3, based on paragraph 19(d) of the BCBS SA ('supervisors may increase the threshold to €100 000 for banks in buckets 2 and 3');

   d) the supervisory discretion to require banks to use less than 5 years of loss data when the ILM is greater than 1 and supervisors believe that the losses are representative of the bank's operational risk exposure, based on paragraph 10 of the BCBS SA ('supervisors may however require a bank to calculate capital requirements using fewer than five years of losses if the ILM is greater than 1 and supervisors believe the losses are representative of the bank's operational risk exposure');

   e) the materiality thresholds and minimum retention period for the exclusion of certain operational risk loss events, based on paragraphs 27 to 29 of the BCBS SA ('banking organisations may request supervisory approval to exclude certain operational loss events […] a request for loss exclusions is subject to a materiality threshold to be set by the supervisor'; 'losses can only be excluded after being included in a bank's operational risk loss database for a minimum period […] to be specified by the supervisor').

10. Before determining the recommendations for each option, the EBA recommends establishing a common understanding on the way in which the discretions should be implemented, in

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[2] The buckets are based on the BI thresholds. Bucket 1 consists of institutions with BI ≤ EUR 1 billion, bucket 2 consists of institutions with EUR 1 billion < BI ≤ EUR 30 billion and bucket 3 consists of institutions with BI > EUR 30 billion.

[3] The loss data threshold sets the level of losses that must be included in the calculation of the ILM parameter. Losses below the threshold do not need to be included in the LC.

case they are specified in regulation. Indeed, the several discretions are included differently in the text of the BCBS SA, but it appears preferable to implement them in a common manner, which is compliant with the standards, to ensure a level playing field across the Member States of the European Union (EU). Therefore, the EBA recommends that a situation in which each supervisor is fully independent when using these discretions should be avoided and that the EBA should be mandated to specify the criteria for their application.

11. As a consequence, the discretion regarding the treatment of the ILM for bucket 2 and bucket 3 banks, proposed by the EBA, should be implemented consistently in all jurisdictions, as the standard explicitly introduces it 'for all banks'. This means that EU legislators (and not the supervisors themselves) should define the relevant treatment of the ILM for all banks of the EU at level 1. This is necessary, because this discretion structurally changes the design of the BCBS SA.

12. The other discretions are understood by the EBA to be exercised on a 'case-by-case' basis, generally justified by the possibility of adapting the adjustment of the BCBS SA to the risk profile of the institutions and improving it.

> **Recommendation OR 1 on discretions under the BCBS SA**
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> The EBA recommends that the decision regarding the treatment of the ILM of bucket 2 and bucket 3 banks should be the same for all banks across the EU. It also recommends that the criteria for exercising the other discretions envisaged by the BCBS SA are defined by either level 1 or level 2 texts, to allow supervisors to employ them for the relevant institutions with the same assessment criteria and methodology.

13. The EBA makes proposals in the following recommendations regarding the criteria to be used for each of them.

1.1 Discretion to set ILM to 1 for all the institutions in buckets 2 and 3 — CfA Section 5.4 (ii)

14. Paragraph 12 of the BCBS SA allows supervisors to neutralise, for all banks in buckets 2 and 3, the ILM in the calculation of the operational risk regulatory capital, which would then be calculated only through the BIC. This discretion is one of the most important in the new standards, as it changes the way to compute the capital requirement. As a result, the EBA has performed a deep and extensive analysis, at both quantitative and qualitative levels, to assess whether or not this discretion should be exercised.

15. Therefore, this section, in addition to the capital impacts analysis included in Section 8.2.2 of the summary report (*ILM discretion: ILM = 1 for bucket 2 and bucket 3 institutions*), first presents an analysis on the drivers of the impact of the application of the discretion in terms of change in operational risk-weighted assets (RWAs) (Section 1.1.1), thus addressing part of

the CfA requests in Section 5.1 (ii). Then the section provides a summary of several statistical analyses (large losses capital coverage, volatility of the BCBS SA components and econometric analyses on past losses) performed to assess whether or not the use of the LC in the operational risk regulatory formula is justified (Section 1.1.2). After elaborating on additional policy considerations on the use of the losses in the capital calculation (Section 1.1.3), it provides the relevant conclusions and recommendations (Section 1.1.4).

1.1.1 Analysis of the drivers of setting the ILM equal to 1 for bucket 2 and bucket 3 banks

16. Section 8.2.2 of the summary report shows the capital impacts of the discretion to set the ILM equal to 1 for all bucket 2 and bucket 3 banks. Although the use of this discretion would mean that all banks would base their capital requirements calculation on the BIC, this would not exempt institutions from complying with loss data collection and loss disclosure requirements.

17. As a result, this sub-section presents an analysis of the drivers of the impact resulting from the application of this discretion. In particular, it looks at current operational risk regulatory capital (as the starting point) with respect to the contribution of the new elements of the revised framework.

18. The analysis has been conducted on the basis of a three-step approach:

   a) The first step, relevant only to AMA banks, is aimed at better understanding the impact of the new framework on these banks and envisages the calculation of a 'fictitious' BIA RWA. The change from the AMA RWAs to the 'fictitious' BIA RWAs is calculated with the aim of understanding whether or not, at the EU level, the AMA allows lower levels of capitalisation for operational risk than the simplest and least risk-sensitive approach envisaged in the current framework.[4] In substance, through this transition, the capital requirement determined for AMA banks is in a sense 'normalised' and made more comparable with the operational risk RWAs, calculated on the basis of the current framework by all the other non-AMA banks using the BIA, the TSA and the ASA.

   b) The second step involves all banks in the sample and is aimed at determining the change in operational risk RWAs implied through the transition from the approaches currently applied (for the AMA banks, the 'fictitious' BIA RWAs are used for the purpose of this transition) to the BIC RWAs. The goal is to analyse the impact of moving from the current non-AMA approaches (including the 'fictitious' BIA for AMA banks) to the BIC of the BCBS SA (i.e. the BCBS SA with ILM = 1, which would consequently not take into account the effect of the LC) on operational risk RWAs. This step would capture the aggregated effect

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[4] It is worth noting that this report does not intend to analyse the other features of the AMA that caused the BCBS to withdraw internal models for operational risk regulatory capital from the Basel framework, that is, the inherent complexity of the AMA, the possible lack of comparability of the outcome and the possible (undue) variability in RWA calculations.

of (i) replacing the current relevant indicator of the BIA and the TSA/ASA with the new BI, (ii) removing the business lines and pertinent coefficients as a risk driver in the current standardised approach and (iii) introducing the BI size as a risk driver by applying growing coefficients per BI range.

c) The third and final step, which formally still involves all the banks in the sample but, in substance, only refers to the bucket 2 and bucket 3 banks, is aimed at analysing the impact of the transition from an only BIC RWA (i.e. BCBS SA with ILM = 1) to the baseline BCBS SA RWA (i.e. with a bank's specific ILM). Through this transition, it is possible to analyse the effect of taking into account the impact of the LC on the RWAs for operational risk.

Figure 1: Percentage change in operational risk RWA (relative to total current operational risk RWA), by three steps of the reform and bucket.
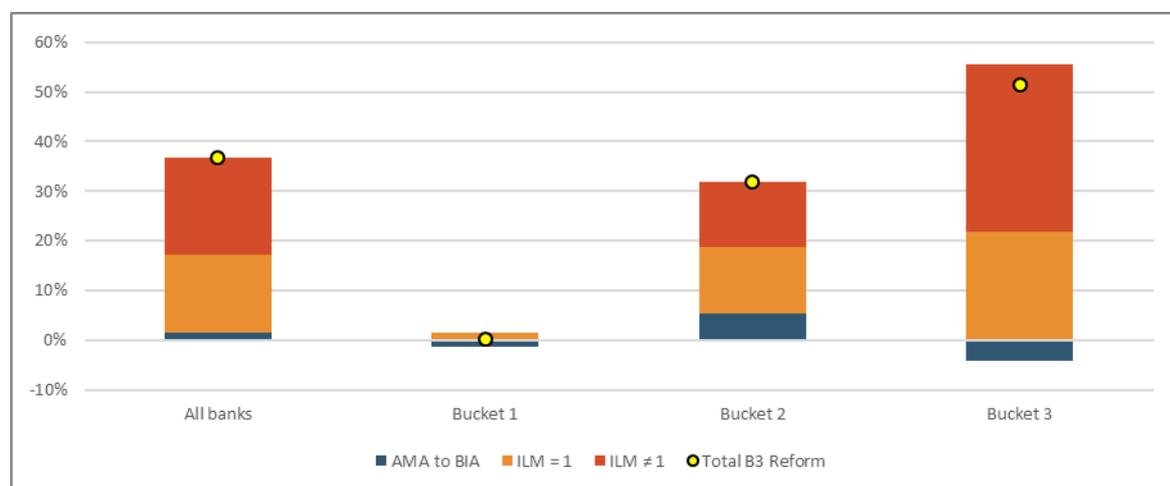
19. The marginal impact of removing the AMA from the regulatory framework consists of:

a) an increase in operational risk RWAs of 0.2% for the composite EU institution, out of the total 37% increase in operational risk RWAs associated with the implementation of the new BCBS SA (all banks);

b) an average fall in operational risk RWAs for BI bucket 1 institutions (driven by the only AMA institution of the BI bucket 1 group in the sample);

c) a non-negligible average increase in RWAs for BI bucket 2 institutions (the bucket in which most AMA institutions are represented);

d) a non-negligible fall in RWAs for BI bucket 3 institutions (all institutions of the bucket 3 type are global systemically important institutions (G-SIIs), the majority of which currently adopts the AMA).

20.   From these analyses, it cannot be concluded that the use of AMA would result in an undercapitalisation, on an aggregate level, compared with the BIA. Similar results are observed in buckets 1 and 3, for which the AMA is more conservative than the BIA. This outcome supports the results of the analysis performed in Section 1.1.2, in which — under the BCBS SA baseline — banks migrating from AMA appear to have a higher level of capital protection against large losses than banks migrating from the BIA and the TSA/ASA.

21.   The BIC and ILM components show a significant — and to some extent similar — contribution to the overall increase in operational risk RWAs. Out of the 37% increase, around 16% is due to the removal of the current approaches and the introduction of the BIC, while around 20% is due to the ILM. However, it can be observed that there is a significant difference between institutions in bucket 1 and institutions in buckets 2 and 3. While each of these components actually has no impact on bucket 1 banks (as already noted in Section 8.2.2 of the summary report — overall the new BCBS SA is operational-RWA neutral for bucket 1 banks), they become progressively more important as the size of a bank's BI increases. For bucket 2 banks, their weight is similar and close to 15% each, while for bucket 3 banks the BIC goes up to around 20% and the ILM even more, to around 30%.

22.   From Figure 1, one can therefore assume that, within the EU, the application of the new BCBS SA to bucket 1 banks has no cumulative effect on the current operational risk RWAs. However, when the BCBS SA is applied to buckets 2 and 3 banks, the quantitative analysis shows an increase in these operational risk RWAs, resulting in material cliff effects compared with the current levels of regulatory capital.

1.1.2   Statistical analyses on the use of losses in the capital calculation (summary)

23.   As observed in Section 8.2.2 of the summary report, the use of ILM within the BCBS SA has capital impacts — which are materially significant in some Member States — when looking at the change in operational risk RWAs. However, the EBA assessment on the discretion to set the ILM equal to 1 should not be limited to capital impacts and should instead consider whether or not the use of losses within the capital framework — which is already important from a qualitative perspective (see Part 2) — is also justified from a technical and prudential perspective.

24.   Leveraging on the QIS data, the EBA has therefore investigated the statistical behaviour of banks' operational risk losses — the key component of the ILM — with the main objective of assessing (i) whether or not their introduction into the regulatory capital offers a stronger protection against large loss events (large losses capital coverage) and (ii) whether or not the use of a bank-specific ILM introduces additional unwanted variability to the capital figures over time (volatility analysis). An additional analysis aims to assess whether or not past losses are predictive of future losses (econometric analysis).

25.   The analyses on volatility and capital coverage also address the request of the CfA on points 5.1 (ii), variability of the BCBS SA due to its drivers; and 5.1 (iii), comparison between

losses and own funds. The econometric analysis is not explicitly requested in the CfA, and therefore its outcome, although important, is complementary to those on capital protection and volatility.

26. The analyses show that the current approaches and the BCBS SA with ILM set to 1 perform in a similar way; they also show that these approaches are less effective than the BCBS SA baseline in ensuring an adequate coverage of capital against large losses. In particular, one analysis looks at the number of overshoots (number of times that the total losses are greater than the operational risk regulatory capital) for the whole sample of banks in the years pooled for the analysis. The analysis resulted in 10 overshoots under the current approaches and the BCBS SA with ILM equal to 1, and 3 overshoots under the BCBS SA baseline. Furthermore, the size of the overshoots under the BCBS SA with ILM equal to 1 and the current approaches are respectively three and four times the regulatory capital, while it is less than twice the regulatory capital under the BCBS SA baseline. More details on this and the rest of the analyses are reported in Annex 1.

27. It should be further noted that, under the BCBS SA baseline, banks migrating from the AMA are more effective in covering large losses than those migrating from the BIA/TSA. Finally, the level of loss protection offered by the current approaches and the BCBS SA with ILM set to 1 is less effective than that offered by the BCBS SA baseline, in terms of both stability and amount. In terms of amount, about 2% of the banks had a level of operational risk capital that was fully exhausted by a year's total annual loss against 0.5% that would have been exhausted under the BCBS SA baseline. In terms of stability, the results show that the yearly variability of the whole BCBS SA baseline is limited, since it is less than 5% for about half of the banks, less than 10% for about 80% of the banks and less than 15% for about 90% of the banks.

28. Furthermore, the BIC plays a more prominent role than the ILM in explaining the variability of the BCBS SA baseline, as shown by the volatility analysis. This outcome is likely because (i) the BI comprises several accounting items, which, by definition, are also subject to variability over time in the course of a bank's business, and (ii) the ILM formula envisages more smoothing factors than the BIC (such as the average of its items over 10 years against 3 years, inclusion of a dampening factor (0.8) and the use of the logarithmic formula).

29. In the econometric analysis, a regression of current losses versus past losses has first been implemented under three different model specifications, similar to that which was carried out in a United States (US) Federal Reserve System[5] research paper for a sample of US institutions. The results are in line with this research paper, although it was not possible to fully replicate the analysis because of the different data availability in the European sample.

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[5] Curti, F., and Migueis, M. (2016). *Predicting operational loss exposure using past losses*. Finance and Economics Discussion Series 2016-002. Washington: Board of Governors of the Federal Reserve System, http://dx.doi.org/10.17016/FEDS.2016.002

In particular, previous period loss amounts explain current loss amounts in a statistically significant manner; this is true even when controlling other bank-specific variables that affect a bank's operational risk profile, such as capitalisation and profitability.

30. To support the results of the regression analysis, a 'transition matrix' analysis has been performed to understand whether or not it is reasonable to assume that the operational risk profile of a bank (i.e. the bank's relative loss position within the sample) remains the same from one year to another. This analysis confirms a certain persistency of a bank's risk profile over time.

31. Both these analyses confirm that a bank's past operational losses are an effective indicator of a bank's current operational losses and consequently its future operational risk exposure.

1.1.3 Additional policy considerations regarding the use of past losses in the capital calculation

32. In addition to the previous statistical analyses that show that the use of losses within the BCBS SA introduces stronger capital protection from large losses and more predictability while not causing unwanted volatility, other qualitative considerations can be underlined on the relevance of using losses in the capital calculation:

   a) Firstly, using the institution-specific ILM can be seen as beneficial from a competitiveness standpoint for the EU banking sector:

      i) The neutralisation of the ILM also represents an increase in available capital for some medium-sized banks, owing to a more benign loss history relative to their BI size.

      ii) It is assumed that exposure to operational risks is increasing;[6] therefore, any gains in competitiveness that may result from setting the ILM equal to 1 in the short run for some banks could eventually be offset by insolvency issues or capital shortfalls in the long run.

   b) Secondly, the inclusion of losses in the capital requirements calculation is a twofold incentive for banks to:

      i) improve the data quality of the loss data collection to better implement the requirements recommended in Part 2 of this document, which is also useful for the disclosure requirements; and

      ii) ensure an immediate link between operational losses and the risk profile of a bank so that the institution is able to take action to prevent further losses in the future.

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[6] See Part 2, Section 1 of this document, which reports the relevant findings of the December 2018 EBA report on the risk assessment of the EU Banking System.

c) Thirdly, the inclusion of losses in the capital requirements would facilitate the ICAAP process, as it would create synergies between Pillar 1 and Pillar 2 operational risk processes (since loss data would be used in both cases). This would also contribute to better supporting the compliance costs to comply with the ICAAP requirements proposed in Part 2, Section 2.3 of this document; this would be true for non-AMA banks in particular, which may not have this kind of practices at present.

1.1.4 Conclusions and recommendations

Recommendation OR 2 on the discretion on bank-specific ILM or ILM = 1

In the light of the analysis of the drivers of setting ILM equal to 1 presented in Section 1.1.1, the statistical analyses on the use of losses in capital calculation shown in Section 1.1.2 and the additional policy considerations included in Section 1.1.3, the EBA recommends that, in the adoption of the BCBS SA in the EU, the discretion to set ILM equal to 1 be not applied.

33. While the impact due to operational risk has to be assessed on a bank's overall RWA that considers the impact caused by other parts of the Basel reform, it may be desirable to smooth the cliff effects caused by the introduction of the BCBS SA baseline, in particular the ILM or the BICs, as noted in Section 1.1.1.

34. A possible solution in this regard is permitting buckets 2 and 3 banks to benefit from a more gradual introduction of the LC of the BCBS SA baseline and making use of a phase-in method for the introduction of the ILM requirements aligned to that envisaged for the output floor.

35. Phasing in the new BCBS SA requirements would also contribute to improving the quality and completeness of the loss data collection for buckets 2 and 3 banks, most of which are not currently AMA banks and therefore do not use internal loss data in their Pillar 1 operational risk capital calculation. Giving more time to these banks to build a high-quality loss dataset should, in turn, contribute to the improved quality and sensitivity of the ILM and consequently the BCBS SA baseline. It would also help for the purposes of pricing the risk and the subsequent allocation of capital in the ICAAP.

Recommendation OR 3 on a transitional arrangement for the introduction of the BCBS SA baseline

Bucket 2 and bucket 3 banks could benefit from a more gradual introduction of the BCBS SA baseline and make use of a phase-in solution aligned to that envisaged by the output floor to smooth potential cliff effects compared with current operational risk capital levels and to improve quality and completeness of the loss data to be used in the BCBS SA.

In line with Recommendation OR 1, any transitional solution should include specific conditions, to prevent regulatory arbitrage and permit a consistent adoption across Member States, in addition to ensuring that the EU is fully aligned to the BCBS SA at the end of the phase-in period.

1.2 Permission to bucket 1 banks to use the ILM — CfA Section 5.4 (i)

36. This section analyses the supervisory discretion envisaged in BCBS SA paragraph 12[7] to allow banks in bucket 1 to use the loss data in the calculation of the regulatory capital, subject to the loss data requirements.

1.2.1 Background and rationale

37. Section 8.2.3 of the summary report (*ILM discretion: allowing the use of the ILM to Bucket 1 institutions*) shows the capital impacts of the discretion to allow banks in bucket 1 to use the loss data in the calculation of the BCBS SA regulatory capital. As mentioned above, all the discretions, other than the decision to set the ILM to 1, are understood to be exercised on a case-by-case basis. Applying the bank-specific ILM to all institutions of bucket 1 marginally changes the impact of the reform on these banks (from a negligible increase in OR RWAs to a reduction of almost 1%); however, it does not perceptibly change the average EU impact because of the low weight of bucket 1 banks in the QIS sample.

38. Despite these findings, other qualitative considerations argue in favour of avoiding this option in the adoption of the BCBS SA.

39. One of these findings is that allowing bucket 1 banks the option of using the bank-specific ILM would create a considerable supervisory burden in the event of a high volume of requests.

40. Furthermore, it would make a comparison between the framework for bucket 1 banks and that for bucket 2 and bucket 3 banks more difficult, since only some bucket 1 banks would apply for this option. It could also be exposed to regulatory arbitrage, because mainly banks with an ILM smaller than 1 would have a capital incentive to request its use. This practice would, in turn, reduce the overall level of own funds for operational risk in that part of the banking sector, which was not intended by the standard setter.

41. This conclusion is also supported by experience gained from previous operational risk data collection exercises (at Basel Committee level and EU level), which showed that the quality of the loss data collection from small institutions is inferior to the quality of the loss data collection from medium-sized and large institutions. The lack of quality would automatically,

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[7] Basel III: finalising post-crisis reforms (henceforth BCBS, d424), issued by the BCBS on December 2017, p. 130.

and also inadvertently, lead to a lack of quantity (i.e. loss data not recorded) and a subsequent reduction in ILM values and the BCBS SA capital requirements.

42. Unlike what is observed for bucket 2 and bucket 3 banks, even when the quality of loss data for bucket 1 banks were adequate, their proportions of losses below the threshold of EUR 20 000 of total amount of losses typically tended to be significant. On the one hand, bucket 2 and bucket 3 banks have often experienced losses above EUR 10 million and EUR 100 million (and even above EUR 1 billion in some cases), which makes the role of the losses below EUR 20 000 in the capital calculation marginal, even when aggregated. On the other hand, bucket 1 banks often have no loss events beyond EUR 1 million or even above EUR 100 000.

43. Therefore, for these banks, losses below EUR 20 000 (which would be excluded by definition from the calculation of the ILM) would represent a significantly large proportion of their losses and should not be overlooked. Dismissing them would lead to an approach that is much less effective in capturing the actual bank's operational risk exposure and ILM value, and through it, the SA capital requirement would be inappropriately lowered.

44. A further point in support of this view is that, when this permission is granted, the qualitative recommendations presented in Part 2 of this document (in particular the thresholds and requirements envisaged for bucket 1 banks for the collection of the loss data) would need to be revisited.

45. Against these considerations, it can be argued that the power of allowing bucket 1 banks to use ILM should instead be retained. The main reason for this would be that the bucket 2 threshold (EUR 1 billion) for the mandatory adoption of the losses in the BCBS SA can be very high for banks with solid loss data collection and operational risk management processes and would exclude banks that meet the eligibility criteria for using the bank-specific ILM, which in some cases are also significant institutions or important at Member State level.

46. Furthermore, permitting some bucket 1 banks to include their operational risk losses in the calculation of operational risk regulatory capital would create a stronger link between capital incentives and the management of operational risk, and subsequent benefits in terms of prevention and mitigation of operational risk. The use of bank-specific ILMs for these banks is more risk sensitive and thus would result in a more realistic picture of their actual operational risks. Moreover, it would allow these banks to use their own loss data, which is naturally targeted to their own business model.

1.2.2 Conclusions and recommendations

Recommendation OR 4 on the discretion for competent authorities to allow the use of bank-specific ILM for bucket 1 banks

In order to address with sufficient flexibility certain situations that could occur, competent authorities should retain the discretion to grant permission to the relevant bucket 1 institutions under their supervision to use a bank-specific ILM in the BCBS SA calculation. If this permission is granted, that bank should fulfil — as is the case for bucket 2 and 3 institutions — the quantitative and qualitative requirement envisaged by the BCBS SA baseline and the qualitative requirements indicated in Part 2 of this document.

Recommendation OR 5 on the criteria for allowing the use of bank-specific ILM for bucket 1 banks

The regulation should mandate the EBA to develop draft regulatory technical standards (RTS) specifying the criteria according to which the competent authorities can use this discretion. Once the permission is granted, only under extraordinary circumstances should it be revoked within 5 years. Equally, after the permission is revoked, a second permission should not be re-granted before another 5 years have passed.

47.   Should the level 1 text allow such discretion, there is a limited and temporary risk of an uneven playing field, because the discretion can be exercised by competent authorities before the development of the RTS and the applicability of the relevant level 2 delegated act.

1.3   Decision to increase the loss data threshold to EUR 100 000 for bucket 2 and bucket 3 banks for the purpose of the calculation of average annual losses — CfA Section 5.4 (iii)

48.   This section analyses the discretion allowing supervisors to increase the loss data threshold from EUR 20 000 to EUR 100 000 for bucket 2 and bucket 3 banks in the calculation of average annual losses, which is the base of the calculation of the LC in the BCBS SA. This discretion was included by the Basel Committee in the final version of the revised operational risk framework so that supervisors may adjust, when warranted, the additional risk sensitivity introduced by the BCBS SA through the new LC. One reason behind this was that the removal of the three current approaches (BIA, ASA/TSA and AMA) for the benefit of the new BCBS SA implies, by default, less possibility of tailoring the operational risk prudential rules to the heterogeneous risk profiles of the banks.

1.3.1   Background and rationale

49.   Section 8.2.4 of the summary report shows the capital impacts of the discretion to allow supervisors to increase the loss data threshold from EUR 20 000 to EUR 100 000 for bucket 2 and bucket 3 banks in the calculation of average annual losses. As mentioned in previous

sections, all discretions, other than the decision to set the ILM to 1, are understood by the EBA to be exercised on a case-by-case basis. As noted, increasing the threshold for all banks in buckets 2 and 3 has a limited impact on the operational risk regulatory capital of the composited EU institution (from +37% in the baseline BCBS SA to +32% under this scenario), with a couple of exceptions in a few Member States, which observe more marked reductions.

50. It is worth observing that, to avoid the double counting of losses by banks in the database, an interpretative aspect needs to be clarified (whatever the selected threshold): how should a loss event that has multiple accounting impacts across multiple years (e.g. a lawsuit with direct payments and provisions/reversal of provisions accounted for in subsequent years) and that, when all the impacts are combined, crosses a given threshold, e.g. EUR 20 000, but shows some years with accounting impacts of less than EUR 20 000 be treated? A pertinent recommendation is included in the following sub-section to clarify this aspect.

51. Having said that, it can be observed that the design of the LC, based on a simple average of losses multiplied by a fixed factor (set to 15), might produce in some cases a less risk-sensitive measure. Indeed, the LC multiplier does not discriminate between frequencies (infrequent versus recurrent losses), severities (large versus small losses) or types of losses (event type), and does not consider these key risk features. It might also be less favourable for banks in which the LC is mainly driven by medium-sized losses. The previous twofold statement allows the assumption that there are two elements supporting the increase of the threshold to EUR 100 000:

   a) Increasing the threshold to EUR 100 000 could be a way to improve the risk sensitivity of the BCBS SA, even if its effectiveness depends, case by case, on the characteristics of the bank's losses. Indeed, the LC is used within the ILM, which is ultimately applied to the BIC, because the LC aims to adjust the BIC (upwards or downwards) by introducing further risk sensitivity. The increase in the threshold would thus help institutions to focus on material high unexpected losses/tail events.[8]

   b) The LC might be significantly driven by low-severity and recurrent losses for bucket 2 and bucket 3 banks (i.e. between EUR 20 000 and EUR 100 000), which in general are more predictable and better managed, and in some cases included in the pricing decisions of the institutions as a 'cost of doing business'; these banks might be 'penalised' by the BCBS SA baseline with a threshold of EUR 20 000. On the contrary, low-frequency high-severity losses are more difficult to predict and closer to the concept of truly 'unexpected'. As a result, the EUR 100 000 threshold might contribute towards mitigating this situation.

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[8] This focus might not be completely new for some banks; for instance, current AMA models mandatorily need to use external loss data information and scenario analysis to supplement information on low-frequency events, to capture tail loss events as the central piece of high unexpected losses.

52. However, additional considerations should be taken into account in the assessment of this discretion, as an increase of the threshold to EUR 100 000 might have some drawbacks that would suggest keeping the baseline threshold of EUR 20 000:

    a) Operational risk loss management largely relies on the management of small to medium-sized losses, so focusing only on losses above EUR 100 000 for capital calculation could reduce the quality of the loss data management for losses below the threshold, even if their collection is mandatory for governance purposes.

    b) A focus on losses above EUR 100 000 for capital calculation could disconnect the operational risk capital requirement from the 'daily' operational risk profile of the banks. As a consequence, in addition to the issue of the data quality, the lack of an immediate link between medium-sized losses and capital calculation may no longer encourage banks to implement provisions to avoid these operational losses.

    c) The current loss data collection framework, based on Basel II, implies that the 'standard' threshold is, in general, EUR 10 000,[9] so a EUR 20 000 threshold would already be an increase.

    d) A focus on losses above EUR 100 000 might increase the volatility of the ILM for these banks, as it would focus the LC on the types of losses that are less recurrent.

1.3.2 Conclusions and recommendations

Recommendation OR 6 on the net aggregated value of a loss event

In order for a loss event to be included in the loss dataset, the net aggregated value of this event should be larger than the set threshold. The net aggregated value of an event is obtained by adding together its accounting impacts from the relevant years within the observation period, including the negative ones, namely release of provisions and recoveries. When this net aggregated value of an event is larger than the set threshold, all the impacts that are smaller than the threshold from particular years within the observation period (including negative figures stemming from releases/recoveries of losses) should still be included in the total amount of this event and reported consistently.

Recommendation OR 7 on the level of the loss data threshold

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[9] See in Basel II standard, p. 158: 'bank must have an appropriate de minimis gross loss threshold for internal loss data collection, for example €10,000'.

In the adoption of the BCBS SA, the loss data threshold for bucket 2 and bucket 3 banks as well as bucket 1 banks that obtain permission to include loss data (i.e. a bank-specific ILM) in the BCBS SA calculation should be set to EUR 20 000.

Recommendation OR 8 on the permission to use a higher loss data threshold

There may be banks in which the loss data threshold at EUR 100 000 better reflects their risk profile; in such cases, supervisors should retain the discretion to increase the threshold to EUR 100 000 if they deem it better suited to the risk profile of the institution. Objective conditions and criteria should be identified in order to ensure a level playing in its application by supervisors. In particular, a solid statistical historical assessment of the bank's losses in previous years should be established to confirm that the focus on losses above EUR 100 000 reliably represents the risk profile of this entity.

The regulation should mandate the EBA to develop draft RTS that specify the criteria in accordance with which the competent authorities can use this discretion.

53. Should the level 1 text allow for such discretion, there is a limited and temporary risk of an uneven playing field, as the discretion can be exercised by competent authorities before the development of the RTS and the applicability of the relevant level 2 delegated act.

1.4 Supervisors' discretion to request banks to use less than 5 years when ILM is greater than 1 — CfA Section 5.4 (iv)

54. This section analyses the supervisors' discretion to require banks to use less than 5 years when ILM is greater than 1 and when supervisors believe that the losses are representative of a bank's operational risk exposure. In doing this, it also provides clarification on the possible different number of years of high-quality data envisaged by the BCBS SA (i.e. 10, at least 5, less than 5) for the calculation of the operational risk regulatory capital.

1.4.1 Background and rationale

55. The BCBS SA requests that banks have 10 years of high-quality annual loss data to calculate the average annual losses that are to be inserted into the LC (paragraph 10).[10]

56. Nevertheless, the BCBS SA also considers that banks might not have 10 years of high-quality loss data; in this case, the Basel regulation requires them to use a minimum of 5 years' data

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[10] BCBS, d424, p.127.

to calculate the LC, as they transition to the standardised approach (paragraphs 10 and 19(a)).[11]

57.   For banks that do not fulfil even this condition, the BCBS SA gives the supervisors the right to apply an ILM equal to 1 (standard treatment) or impose an ILM greater than 1. However, it also gives supervisors the possibility of requiring banks to use less than 5 years of losses, but only if ILM is greater than 1 and supervisors believe that the losses are representative of a bank's operational risk exposure (paragraph 10).

58.   The analysis on QIS data shows that there is no difference in terms of regulatory capital when this discretion is granted. It is therefore assumed that there are no banks fulfilling this condition, which is indeed very unlikely to occur.

59.   A loss record of 10 years is deemed adequate, because it makes it possible to represent a bank's loss profile through different stages of the economy. In addition, the 10-year period gives the average annual loss a sufficient stability and protects it against unwanted volatility (see Section 1.1.1 on statistical analyses on the use of losses in the capital calculation).

60.   However, although a 10-year (or at least longer than 5 years) loss data record typically improves the performance of the LC in certain circumstances, only a track record of losses of less than 5 years is available. In these cases, a track record shorter than 5 years, as long as it is of good quality, may be more representative of a bank's loss experience. For example, this can happen at the time of the new SA implementation or after the authorisation of the institution. It can also be valid if there are structural breaks in the time series or following a merger or acquisition more recent than 5 years ago.

61.   For prudential reasons, a track record shorter than 5 years combined with an average level of losses that implies an ILM greater than 1 may be considered as an indicator of a relevant operational risk exposure, while a shorter track record with an average level of losses that implies an ILM less than 1 cannot be taken as sufficient proof of a limited operational risk exposure. Therefore, as clearly indicated in the BCBS SA text, supervisors should have the power to require a bank to use less than 5 years of data, but only if it results in an ILM greater than 1.

62.   A cross-reading of the BCBS SA relevant paragraphs on the possible number of years of loss data for the calculation of the LC leads to the decision tree indicated in recommendation OR 10. Furthermore, the transition indicated in paragraphs 10 and 19(a) of the BCBS SA should be interpreted as a possible option that is given to all banks that start using losses in their ILM calculation for the first time (e.g. when they start to use the bank-specific ILM when crossing the bucket 2 threshold) and not only when the BCBS SA is initially incorporated into regulations.

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[11] BCBS, d424, p.127 ff.

63. Finally, in line with footnote 4 of the BCBS SA,[12] this discretion is not expected to be applied to banks that currently use the AMA for regulatory capital when the new regulation replaces the current CRR.

1.4.2 Conclusions and recommendations

Recommendation OR 9 on the discretion to require banks to use less than 5 years of data
Competent authorities should retain the discretion to require banks to use less than 5 years of data when (i) the ILM is greater than 1 and (ii) the supervisor believes that the losses are representative of the bank's operational risk exposure.

Recommendation OR 10 on the number of years of loss data to be used in the calculation of the ILM

The possibility of banks using a minimum of 5 years of loss data should be interpreted as applicable to banks that start using losses in their ILM calculation for the first time and not only at the first application of the BCBS SA.
 	
 The following decision tree should be introduced into the level 1 text:
 	
 Decision tree for the number of years of loss data in the calculation of ILM
 	
     i)   Does the institution have 10 years of high-quality loss data?
 	
             (1) Yes: the institution uses the data in the calculation of the LC.
 	
             (2) No: go to the next step.
 	
     ii)   Does the institution have at least 5 years of high-quality loss data and has it moved only recently towards using the ILM?
 	
             (1) Yes: the institution uses the data from the available number of years in the calculation of the LC. The institution must add each new year to the existing stock of data until the 10-year standard is complete.
 	
             (2) No: go to the next step.
 	
     iii)   Does the institution have less than 5 years of loss data, and does the supervisor consider these data representative of the bank's operational risk profile?
 	
             (1) Yes: go to the next step.
 	
             (2) No: the institution uses an ILM = 1 until it has reached the 5-year minimum.

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[12] BCBS SA, d424, p. 129.

iv)   Does the institution have an ILM > 1 based on (less than 5 years of) available loss data?

(1) Yes: the supervisor requests that the institution use the loss data to compute the LC.

(2) No: the institution uses an ILM = 1 when calculating the regulatory capital requirement.

1.5   Materiality thresholds and minimum retention period for the exclusion of certain operational risk loss events — CfA Section 5.4 (v)

64.   This section analyses the materiality thresholds and minimum retention period for the exclusion of certain operational risk loss events.

1.5.1   Background and rationale

65.   The BCBS SA in paragraphs 27 to 29[13] permits banks to request that supervisors exclude certain operational loss events from the LC, under certain qualitative conditions. The BCBS SA text also envisages materiality thresholds and a minimum retention period for exclusions, examples of which are provided (for example a materiality threshold of 5% of the bank's average loss and a minimum retention period of 3 years).

66.   As to the materiality threshold, the CfA requested that information be provided on the share and individual size of the loss events that could be potentially subject to exclusion (such as the percentage of an institution's average losses), among other aspects.

67.   The QIS analysis revealed that only 7 banks out of the 182 in the sample provided information on loss events for exclusion, assuming that the exclusion of these events would be eligible for supervisory approval. The reduction of the impact on the ILM for these banks was on average about 30% of operational risk RWAs; however, this was mainly driven by one bank (after removing this bank the reduction of the impact on the ILM was about 15%).

68.   The overall impact on the operational risk RWAs of the whole sample of 182 banks is marginal (-0.13%). However, it is possible that this option has yet to be deeply investigated by the banks, since it requires a case-by-case analysis of loss events, and therefore it is likely that in the future there might be more requests for exclusion.

69.   As the BCBS SA text states, this exclusion of internal loss events should be a rare occurrence, and supervisors should therefore set the materiality threshold for exclusion at a high enough level that requests for exclusion will cover only the most relevant events, which ultimately have the biggest potential impact on the ILM. Similarly, the materiality threshold should be

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[13] BCBS, d424, pp. 133 ff.

applied to each operational risk loss event, rather than to groups of events, to prevent requests to exclude many small events at the same time.[14] The net aggregated amount of the event (considering the sum of all its economic impacts within the relevant years of the observation period) should be compared with the threshold level before the exclusion.

70. The example of materiality threshold in the BCBS SA text is 5%, in terms of average losses, which the EBA interprets as referred to average annual losses. Considering the relationship between the average annual losses, the LC and the ILM, it is possible to predict the reduction in the ILM, stemming from an exclusion (see Figure 2). When the exclusion matches a 5% threshold in terms of average annual losses, the size of the reduction in the ILM due to loss exclusion grows, together with the starting ILM — that is, the ILM before the loss exclusion — and reaches -0.16% when the starting ILM is around 1.40; afterwards the size of the reduction slowly decreases.

Figure 2: Impact on the ILM from the exclusion of a loss event
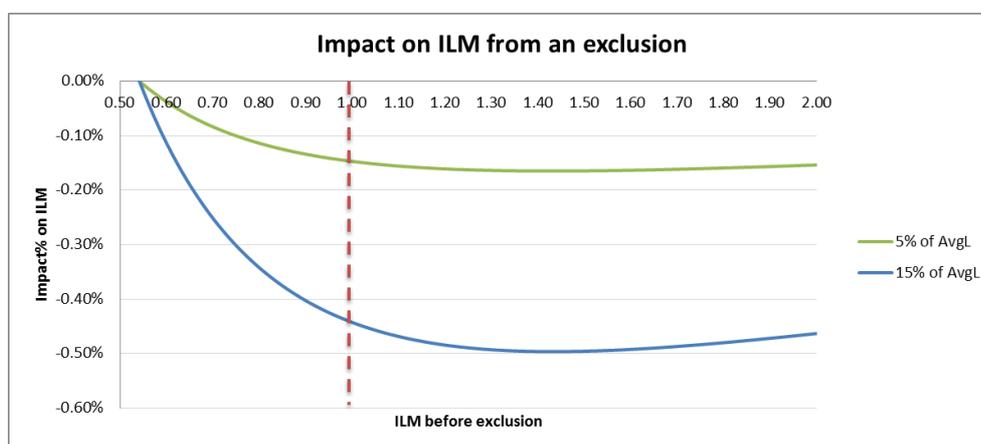
71. In the light of this, the 5% level appears too small, since it does not filter out loss events with a non-material impact on the ILM. In this respect, it is recommended that the threshold should be raised to at least 15% of the average annual losses, as this would ensure that, when the starting ILM is above 1, the reduction in the ILM stemming from exclusions becomes significant, namely, around -0.50%.

72. As the reduction in the ILM translates into the same reduction in the minimum operational risk capital under the baseline implementation of the BCBS SA, the threshold provides indications on the expected impact.

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[14] The amount of loss eligible for exclusion should be calculated in line with the qualitative requirements for the treatment of loss data. If several losses are caused by a root event in the form of a common operational risk event or by multiple events linked to an initial operational risk event generating events, the losses should be grouped and entered into the dataset as a single loss: in this case, the grouped loss event should be compared with the materiality threshold.

73. Without prejudice to the above, the materiality threshold should be set to 0% when the exclusion request refers to losses related to divested activities (last sentence of paragraph 29 of the BCBS SA). Indeed, these losses are not already subject to a minimum retention period, and there are no reasons to treat them inconsistently with what is envisaged in paragraph 30 (i.e. full exclusion of divested activities from the BI subject to supervisory approval).

74. On the retention topic, paragraph 29 of the BCBS SA states that losses can be excluded after being subject to a minimum retention period in the loss dataset. The text suggests 3 years as an example.

75. A minimum retention period is seen as beneficial from a prudential perspective, since it allows both banks and supervisors to monitor the loss experience for some time so that they can be reassured that the loss events to be excluded are definitely not relevant any more and that events with the same cause did not occur. At the same time, if the bank believes that a certain loss event is no longer representative of its operational risk profile, a retention period that is too long would affect the ability of the LC to capture such an operational risk profile during this period, especially when the loss events are large and disproportionate with respect to the bank's average loss.

1.5.2 Conclusions and recommendations

Recommendation OR 11 on the requests for the exclusion of loss events and relative documentation

Possible requests for the exclusion of loss events from the BCBS SA calculation (i) should concern only operational loss events that are no longer relevant to the banking organisation's risk profile and (ii) should be supported by strong justifications to be approved by the supervisors. Banks should document these justifications and submit them to the supervisors, together with all other relevant information that may allow supervisors to swiftly and thoroughly assess the requests for exclusions. In particular, banks should provide supervisors with:

a) a description of the loss event that is submitted for exclusion;

b) proof that this event is above the materiality threshold for loss exclusion, including the date on which this event became greater than the materiality threshold;

c) the date when this would be excluded, in the light of the minimum retention period and conditional to supervisory approval;

d) the reason why this event is deemed no longer relevant to the banking organisation's risk profile (the institution also needs to demonstrate that there is no similar or residual legal exposure and that the excluded loss experience has no relevance to other continuing activities or products);

e) reports of the institutions' independent review or validation confirming that the event is no longer relevant and there is no similar or residual legal exposure;

f)   the confirmation that the request for exclusion has been approved through the institution's approval processes by the competent bodies and the date of approval;

g)   the impact of the loss exclusion on the ILM and operational risk RWAs, when applicable.

Recommendation OR 12 on the threshold for the exclusion of loss events

For the requests for the exclusion of loss events, a threshold in terms of the average annual loss should be applied to the net aggregated amount of each operational risk loss event. This threshold should be set to a level of:

a)   15%, when the loss event eligible for exclusion refers to activities still part of the BI;

b)   0%, when the loss event eligible for exclusion refers to activities divested from the BI.

Recommendation OR 13 on the minimum retention period for the exclusion of loss events

For the exclusion of a loss event that refers to activities still part of the BI, a minimum retention period of 1 year should be applied, starting from the date on which the loss event, included in the loss dataset, first became greater than the materiality threshold. After this year of retention, if the exclusion request is approved by the supervisors, the event, and consequently its economic impacts within the relevant years of the observation period, can be removed from the loss dataset and the calculation of the LC.

No retention period should be applied for the exclusion of a loss event that refers to activities divested from the BI.

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76.   Finally, it is important to highlight that the justification for proposing that the loss is no longer relevant to the banking organisation's risk profile and the fact that the bank does not have any similar or residual legal exposure represent the main components of the assessment of a request for loss exclusion; the materiality threshold should be seen as an additional component, mainly aimed at focusing attention on only the most material events.

2. Policy recommendations on qualitative requirements

77. In Section 5.5 of the CfA 'Additional assessment', the EBA is requested to provide a qualitative assessment of the possibility of introducing new provisions, or keeping, modifying or supplementing existing provisions in the CRR and the CRD regarding other aspects of the operational risk framework that are not directly covered by the BCBS SA.

78. Four directions of works are identified directly in the CfA and concern:

    a) the requirements for coping with information and communication technology (ICT)/cyber and other risks;

    b) governance and organisational qualitative requirements (mainly driven by the loss data part of the BCBS SA);

    c) the current AMA requirements for a more granular measurement and a forward-looking assessment of operational risk;

    d) the AMA requirements and the role of ICAAP in strategic decisions on the allocation of operational risk own funds within a group and on Pillar 2 regulatory add-on for operational risk.

79. Moreover, in its final considerations, the CfA requests that the EBA express its opinion, with reference to the operational risk prudential framework as well, on how to rectify potential issues/inconsistencies or clarify terminology in the current EU rules and in the future implementation of the BCBS standards.

80. To address the requests in Section 5.5 and in the section 'final considerations' of the CfA, the EBA has identified policy recommendations on operational risk that refer to the qualitative parts of the BCBS SA or to parts of the operational risk framework not covered by the BCBS SA. The objective of these recommendations is to fill the gap in all those situations in which the Basel standards provide the skeleton of the discipline and are silent on how these standards should be implemented, in particular Sections 1 ('Introduction'), 5 and 6 ('General' and 'Specific' … 'criteria on loss data identification, collection and treatment') of the BCBS SA. Enriching the Basel text with these recommendations permits the achievement of a higher consistency and ensures a level playing field in the adoption of the revised operational risk framework in Europe.

81. These recommendations also take into account (i) the outcome of the EBA qualitative questionnaire that was addressed to the banks participating in the QIS and finalised to get qualitative information that is not possible to collect via the quantitative study, and (ii) the

output from the EBA technical roundtable with the industry on the revised operational risk framework.[15]

82.   The policy recommendations, including their background, rationale and, when relevant, the related outcome of the qualitative questionnaire, are presented in the following sections.

Part 2: Policy recommendations on qualitative requirements	CfA reference
Section 1: Definitional requirements	Section 5.5 (i)
Section 2: Governance and organisational requirements: loss data	
Sub-section 2.1: Criteria for building the loss dataset	Section 5.5 (ii)
Sub-section 2.2: Operational risk framework	
Sub-section 2.3: Supervisory review of data quality and disclosure	
Section 3: ICAAP and Pillar 2	Section 5.5 (iii and iv)
Section 4: Business Indicator — FINREP mapping	Section 5.3 and final considerations

2.1   Definitional requirements — CfA Section 5.5 (i)

2.1.1   Background and rationale

83.   The BCBS SA only restates the Basel II definition of operational risk and does not provide any further clarification on the operational risk subcategories (except for the mention of legal risk in the introduction).

84.   In the implementation of the Basel II and CRR definition of operational risk, supervisors have often observed that there is no common understanding on the scope and content of these subcategories. A clear message stemming from the technical roundtable with the industry is that there are inconsistencies, or at best little clarity, on both type and content of the several subcategories belonging to operational risk and related losses. This may threaten the level playing field or incentivise regulatory arbitrage. Therefore, the introduction of the BCBS SA — which significantly modifies the current operational risk framework — in the EU represents an opportunity to address this issue and harmonise the manner by which banks and supervisors classify operational risk subcategories and related losses.

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[15] The roundtable, attended by around 40 banks and banking associations, was arranged at the EBA premises on 20 November 2018. It allowed preliminary feedback on the qualitative questionnaire (Operational Risk Section) to be collected and important inputs to be provided on implementation aspects of the BCBS SA that were not explicitly treated in the questionnaire.

85. This is important considering the attention currently devoted to specific operational risk subcategories. For example, cyber risks and data security are key operational risks, and cases regarding conduct and legal risk (such as money laundering, terrorist financing and sanctions non-compliance) have increased in recent years and will probably continue to do so. This is a key finding of the December 2018 EBA 'Risk Assessment of the EU Banking System' report, which maintains that, in 2018, the sum of the five largest losses in operational risk is estimated to have accounted for 2.1% of common equity tier 1 (CET1) for EU banks, on average, compared with 1.2% in 2017, and that operational risks are also expected to increase in the near future (due to the uncertainty around Brexit, among other factors).[16]

86. From an EU viewpoint, this work does not need to start from scratch and can leverage off several regulatory and supervisory tools that deal with this issue, albeit with some inconsistencies and some missing elements.

87. Such tools refer in particular to the following regulations and guidelines:

a) Article 85 of the CRD and Article 4(52) of the CRR include, respectively, model risk and legal risk within the scope of operational risk. While model risk is defined (Article 3(11) of the CRD), there is no definition of legal risk. Moreover, it is not clear why the definition of model risk is included in the CRD, while almost all other terms of the prudential regulation specific to risks are defined in the CRR.

b) CDR 959/2018 (Assessment methodology on AMA for operational risk), built on the CRR mandate in Article 312(4) and addressed to AMA banks, among other institutions, sets out more precisely the scope of legal risk (Article 3) and model risk (Article 4), defining misconduct events and including them within the legal risk definition.

c) The EBA SREP guidelines, recently revised, set out three subcategories of operational risk (conduct risk, ICT risk and model risk) and provide a definition of ICT risk and conduct risk. However, the definition of conduct risk is not consistent with that of misconduct events in CDR 959/2018.[17]

d) The loss event types classification (Table 3) is envisaged by Article 324 of the CRR, which already covers a wide scope of events, even if it should be updated.

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[16] The report is available at: https://eba.europa.eu/documents/10180/2518651/Risk_Assessment_Report_December_2018.pdf

[17] CDR 959/2018: (Article 2.7): '"Misconduct event" means the operational risk event arising from wilful or negligent misconduct, including inappropriate supply of financial services.'

EBA SREP Guidelines (3): '"Conduct risk" means the current or prospective risk of losses to an institution arising from inappropriate supply of financial services including cases of wilful or negligent misconduct.'

The definition in CDR 959/2018 makes the scope of conduct risk clearer and broader, since it includes all cases of wilful or negligent misconduct, while the SREP guidelines limit misconduct to those cases committed in the supply of financial services.

2.1.2   Conclusions and recommendations

88. With the adoption of the BCBS SA, the segmented and in some parts inconsistent regulatory framework on the definition of operational risk subcategories should be improved by introducing clear and harmonised rules for their implementation.

Recommendation OR 14 on the definitional framework on operational risk

As a first step towards harmonising and enhancing the definitional framework on operational risk, the CRR and CRD should be updated to highlight legal risk, model risk and ICT risk consistently, in a unique place, giving each one the same importance; these would then be introduced and referred to as the main, but not exhaustive, subcategories of operational risk.

This should be done by the following actions:

a) Acting at CRR level, by including a reference to model risk and ICT risk, in addition to the already existing reference to legal risk, in the definition of operational risk in Article 4(52). In this case, the reference to model risk in Article 85 of the CRD should be deleted. This solution would introduce the main subcategories of operational risk in the provision that sets out the definition of operational risk and would thus permit a higher level of harmonisation, given the directly applicable nature of the CRR with respect to the CRD.

b) A complementary but important amendment to be considered is the full alignment of the definition of operational risk with that envisaged in the BCBS SA, in which it is explicitly stated that operational risk 'excludes strategic and reputational risk'. This point was not considered in the incorporation of Basel II into EU legislation and should be addressed now, to clarify that these are two separate categories and should not be included in Pillar 1 minimum capital requirements for operational risk.

c) The consequence would be that Article 4(52) of the CRR should be amended as follows: 'Operational risk means the risk of loss resulting from inadequate or failed internal processes, people and systems or from external events. This definition includes, but is not limited to, legal risk, model risk and ICT risk and excludes strategic and reputational risk'.

d) As the last part of this step, the CRR should be supplemented with articles or points that define model risk, legal risk and ICT risk. The definition of 'model risk' can be borrowed from Article 3(11) of the CRD. The definitions of 'legal risk' and 'ICT risk' can leverage on the definitions and standards envisaged in other regulatory documents: the definition of ICT risk could be based on the existing one in the revised SREP Guidelines (EBA/GL/2014/13), specifying that it includes cyber risk (and the definition of cyber risk is the same for all supervisors, thanks to the FSB Cyber Lexicon published in 2018). The definition of legal risk could be elaborated, starting from Article 3 of CDR 959/2018, and should specify that it includes misconduct events (knowing that the definition of misconduct events — or conduct risk — can be based on Article 2.7 of the same CDR). Article 85 of the CRD and Article 4 of the CRR should be amended accordingly.

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89. The approved amendments of CRD V, as part of the banking package, explicitly include outsourcing in Article 85, that is, banks should also be able to manage 'risks resulting from

outsourcing'. However, outsourcing should not be considered a subcategory of operational risk, rather a risk context that crosses different operational risk subcategories so that any issues in certain parts or businesses of a bank that have been outsourced can result in operational risk losses being classified in other operational risk subcategories, such as legal or ICT. In the light of this, any solution that can be pursued to address the definitional issues of operational risk should not affect the wording of Article 85, which refers to outsourcing.

90.   It is also worth observing that in Article 85 the term 'third-party' might be more appropriate than 'outsourcing' when outlining the several operational risks that can materialise from certain parts or businesses of a bank that are not internally owned or managed. This consideration stems not only from that which is underlined by the Group of Seven (G7) as the 'fundamental element on third party cyber risk', but also from the 'Final report on the EBA Draft Guidelines on outsourcing arrangements' (EBA/GL/2019/02).[18] Nevertheless, the issue of 'third-party' versus 'outsourcing' is not only related to operational risks; therefore, this topic needs to be firstly addressed in a more general fashion. In a second step, this may supplement the proposals presented in this note.

> **Recommendation OR 15 on the scope of legal and model risks**
>
> The second step towards harmonising the definitional framework on operational risk should be the introduction in the CRR of Articles 3 and 4 of CDR 959/2018, which specify the scope of legal risk and model risk.

91.   Indeed, in the period from their publication as a draft by the EBA up until they have been incorporated into EU regulation, the articles targeted by Recommendation OR 15 have already proven to be very useful for reducing inconsistencies[19] and preventing arbitrage in these subcategories of operational risk, which have a significant capacity to generate severe losses, as well as in supervisory activities.

92.   The last step towards harmonising the definitional framework on operational risk should be pursued by updating the current Table 3 of Article 324 of the CRR, as paragraph 19(c) of the Basel III standards establishes the power for supervisors to request the mapping of the Basel II standards to level 1. This has already been implemented via Article 324 of the CRR. The update would necessitate adjustments to better cover the operational risk subcategories

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[18] https://eba.europa.eu/documents/10180/2551996/EBA+revised+Guidelines+on+outsourcing+arrangements

'Third party' is a more general term and includes non-outsourced arrangements for critical/important functions. As explained in the background of the EBA Guidelines on outsourcing, institutions need to consider that receiving services from third parties creates risks, even when those arrangements are not considered outsourcing arrangements (and these non-outsourced arrangements should be treated similarly to outsourced arrangements from an operational risk management point of view).

[19] For example, Article 4(b) of the CDR 959/2018 clarifies that model risk under the scope of operational risk should include events related to models used for decision-making and should exclude the underestimation of own funds requirements by internal models authorised by competent authorities.

that have developed during the last few years, and in particular ICT risk. For this purpose, the EBA internal risk taxonomy for operational risk, reported in Annex 2, should be used as a reference.

Recommendation OR 16 on the EBA internal risk taxonomy on operational risk

Table 3 of Article 324 of the current CRR should be updated using the EBA internal risk taxonomy on operational risk as a reference, which in turn might also need further adjustments. These adjustments may be needed to better cover the operational risk subcategories, in particular ICT risk, and to assess whether or not a matrix representation of event types and subcategories of operational risk is more effective (i.e. when the three subcategories are included as a distinct dimension, that is, by columns, rather than as a specification of the event types).

Recommendation OR 17 on the harmonisation of the definitional framework

Recommendation OR 14, Recommendation OR 15 and Recommendation OR 16 for the harmonisation of the definitional framework on operational risk should be applicable to all banks as level 1 regulation.

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93. These recommendations are also important for the proper implementation of specific items of the BI and, in particular, for the 'other operating expenses', which need to be fed with direct losses and provisions related to operational risk, among other things.

94. No additional regulatory burden is expected from the implementation of these steps, as they clarify the operational risk scope without adding particular requirements.

2.2 Governance and organisational requirements (CfA Section 5.5 (ii)): loss data

2.2.1 Introduction

95. The BCBS SA identifies, in paragraphs 19 to 31, general and specific qualitative requirements that institutions should fulfil to build a high-quality loss dataset. However, important requirements to ensure that a level playing field is maintained and to prevent arbitrage in the construction of the loss dataset, such as those established by CDR 959/2018 in the EU regulation, are missing from the general and specific criteria of the BCBS SA.

96. Moreover, standards for governance, reporting and control of operational risk are crucial for building and maintaining a sound operational risk framework. A sound operational risk framework is in turn crucial not only for robust loss data collection — a direct input of the

BCBS SA calculation — but also for the proper assessment, prevention and mitigation of operational risk.

97.   Finally, an appropriate supervisory review of a bank's loss data and proper disclosure of loss data are also paramount for ensuring the quality of bank's loss dataset.

98.   In the light of this and in line with point (ii) of Section 5.5 of the CfA, this section introduces requirements on (or related to) the building, maintenance and review of banks' internal loss data that supplement those envisaged by paragraphs 19 to 31 of the BCBS SA. The topic is split into three sub-sections: criteria for building the loss dataset (2.1), operational risk framework (2.2.) and supervisory review and disclosure (2.3).

99.   As better detailed in the relevant sub-sections below, these requirements should be applied to bucket 2 and bucket 3 banks as well as bucket 1 banks that obtain permission to include loss data (i.e. a bank-specific ILM) in the BCBS SA calculation. When it is assumed that these requirements are introduced as level 2 regulation, it is suggested that a specific mandate to the EBA be given for drafting the relevant RTS. Moreover, to ensure continuity with the current framework, the EBA could issue a discussion paper at or before the adoption of the BCBS SA in the EU, to clarify the regulatory expectations in line with some of the recommendations proposed in Part 2 of the document.

100.   The analysis of the answers to the qualitative questionnaire has permitted, in accordance with the proportionality principle, an assessment of the feasibility of applying these requirements to banks, even those in bucket 1, where they do not use the loss data for BCBS SA. Indeed, most of these requirements represent the basis for a sound operational risk framework, while operational risk subcategories such as ICT risk and legal risk can affect any type of bank, whatever its size. The following sections include concrete proposals for the application of (all or some of) these recommendations, even for banks in bucket 1.

2.2.2   Criteria for building the loss dataset

Background and rationale

101.   The BCBS SA general criteria on loss data (paragraph 19) refer to key aspects of building the loss dataset (e.g. threshold, observation period), to the related bank's procedures and processes, and to the role of the control functions (i.e. validation and audit functions). These requirements mirror, with a few adjustments, the current BCBS AMA requirements on internal data (i.e. paragraphs 670 to 673) or, equivalently, the corresponding CRR requirements in Article 322 (3).

102.   The BCBS SA specific criteria (paragraphs 20 to 26)[20] set out the key attributes for qualifying operational risk losses as eligible for their use in capital calculation, namely for building an

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[20] BCBS, d424, pp. 132 ff.

appropriate loss dataset. In particular, these criteria identify fundamental elements of the scope of gross loss, the use of recoveries, the reference date and the grouped losses. In most cases, they mirror or are equivalent to some requirements introduced by CDR 959/2018 on internal data, in particular Articles 22, 23 and 29.

103. However, important requirements for ensuring a level playing field and preventing arbitrage in the implementation, construction and control of the loss dataset, such as those established by CDR 959/2018 in the EU regulation, are missing from the general and specific criteria of the BCBS SA and should therefore be integrated when the BCBS SA is incorporated into EU regulation.

Conclusions and recommendations

104. CDR 959/2018 envisages additional requirements beyond the general criteria, set out by paragraph 19 of the BCBS SA, on the processes and procedures for loss data collection. The relevant articles are Article 18 (data quality) and Article 19 (supervisory assessment of ICT infrastructure). Note that the current wording of these articles also refers to other inputs of an AMA — such as external data, scenario analysis, and business environment and internal control factors (BEICFs) — and to aspects related to the AMA measurement system. Under the BCBS SA, their scope will be limited to internal loss data only.

Recommendation OR 18 on the use of loss data in the calculation of the ILM

Articles 18 and 19 of CDR 959/2018 should be introduced in the EU's adoption of the BCBS SA and applied to bucket 2 and bucket 3 banks as well as bucket 1 banks that obtain permission to use bank-specific ILM in the BCBS SA calculation. The regulation should mandate the EBA to develop draft RTS to specify the technical elements related to these articles.

105. To avoid inconsistencies and arbitrage in interpreting the key attributes of loss data and to increase banks' awareness of the drivers of operational risk, further requirements on the qualification of loss data should be introduced when adopting the BCBS SA. All of them are crucial both for enhancing the prevention and mitigation of operational risk, and for ensuring the correct building of the loss dataset and subsequently the proper calculation of the SA regulatory capital.

Recommendation OR 19 on additional requirements qualifying the loss dataset

CDR 959/2018 envisages additional requirements that qualify the loss dataset. These requirements should be introduced when adopting the BCBS SA, as proposed below:

a)   In paragraph 23 (c) of the BCBS SA, at the end of the sentence, the wording 'including those from misconduct events' should be added, to align this sentence with Article 22 (1) (c) of CDR 959/2018.

b)   A new article mirroring Article 23 and point (a) of Article 29 of CDR 959/2018 should be introduced, since this would enable clarification of how to build the loss amount in special cases (e.g. for market risk-related events, tax events, timing losses, rapidly recovered loss events). To provide more clarity on this standard, point (d) of Article 23 should be amended as follows: 'where there are timing losses and the operational risk event directly affects third parties, including customers, providers and employees of the institution, the institution should also include the official restatement of previously issued financial reports in the recorded loss amount of the operational risk item. Losses in a financial year (x) due to the correction of booking errors that occurred in a previous financial year (x-*n*), such those stemming from model risk, are included in the recorded loss amount of the operational risk item, even when they do not directly affect third parties'.

106.   Moreover, like the current regulation, the BCBS SA states that operational risk losses related to credit risk should not be included in the operational risk loss dataset, as long as they are accounted for in the credit risk RWAs (paragraph 19(f)) and that operational risk losses related to market risk should instead be included in the loss dataset (paragraph 19(g)). However, it does not say anything about the need to label these losses, and this makes it more difficult for a bank to identify and retrieve such cases and for supervisors to review compliance with these standards. Furthermore, it does not provide any information about the content of operational risk losses related to market risk.

Recommendation OR 20 on the identification of losses to be included in the operational risk regulatory capital

A requirement should be introduced requesting that banks identify and flag both operational risk losses related to credit risk and operational risk losses related to market risk in their internal databases. While this requirement is necessary for enhancing the management of operational risk, it is also important for the BCBS SA calculation, since it permits the clear identification and isolation of losses that are to be included in the operational risk regulatory capital (i.e. boundary with market risk and boundary with credit risk that are not accounted for in credit risk RWAs) from those to be excluded (boundary with credit risk that are accounted for in credit risk RWAs).

107.   Article 5 of CDR 959/2018 is entitled, 'Events related to financial transactions, including those related to market risk'. An inconsistency with respect to the BCBS SA is that its scope seems to be broader than indicated by the BCBS SA, which instead refers to 'operational risk losses related to market risk'. Note that the wording of that article can remain as currently written, as it is drafted in a neutral manner, and the title and scope should be aligned with those of the BCBS SA.

Recommendation OR 21 on operational risk losses related to market risk

A further requirement should be introduced permitting clarification of the content of operational risk losses related to market risk. The wording should be borrowed by Article 5 of CDR 959/2018. To avoid competitive disadvantages with non-EU banks, the title and scope of Article 5 of CDR 959/2018 should be changed and aligned with the BCBS SA text.

108. Currently, Article 22(2) of CDR 959/2018 gives supervisors the possibility of requesting that banks identify, collect and treat further items for the purposes of the management of operational risk. These include near miss, operational risk gain, opportunity costs and internal costs. However, this requirement should also be considered a clarification of which operational risk items banks do not have to use to build the loss dataset. For example, operational risk gains should not feed the loss amount, and thus reduce it. Nonetheless, banks should be requested to identify, collect and maintain, at least, near misses and operational risk gains in their database. This requirement is important not only for avoiding their improper use within the loss dataset, but also because these items are useful for a more effective prevention and mitigation of operational risk.

Recommendation OR 22 on the requirements regarding further operational risk items to be collected and maintained

Article 22(2) of CDR 959/2018 gives supervisors the possibility of requesting that banks, for the purposes of management of operational risk, identify, collect and treat further operational risk items, such as near miss, operational risk gain, opportunity costs and internal costs. This requirement should also be considered a clarification of which operational risk items banks do not have to use to build the loss dataset. Banks should be requested to identify, collect and maintain, at least, near misses and operational risk gains in their database.

Recommendation OR 23 on the application of the requirements for bucket 1 banks using bank-specific ILM

In the adoption of the BCBS SA, Recommendation OR 19, Recommendation OR 20, Recommendation OR 21 and Recommendation OR 22 for the qualification of operational risk losses within the BCBS SA calculation should be applied to bucket 2 and bucket 3 banks as well as bucket 1 banks that obtain permission to include loss data (i.e. a bank-specific ILM) in the BCBS SA calculation. These recommendations should be included in the CRR as level 1 regulation.

Recommendation OR 24 on a list of practical cases for the implementation of the loss dataset

It would be extremely useful if the regulation requested that the EBA publish, according to the most appropriate tool (e.g. guidelines or monitoring reports), a list of practical cases for the correct and consistent implementation of the loss dataset.

Results of the qualitative questionnaire on loss data and related recommendations

109. The analysis of the qualitative questionnaire data shows that, regardless of size, EU institutions systematically collect loss data on operational risk (98.8% of the sample), and in most cases (80%) consider that this collection is of good quality, so much so that it would be eligible for use in the BCBS SA calculation.[21]

110. Aspects of the loss data collection that are very widespread and used across the sample of banks with good-quality data are (i) the use of a collection threshold equal to or lower than EUR 20 000 (99% of the sample) and with an observation period already equal to or larger than 10 years (71%); (ii) the collection of losses related to legal risk, ICT risk, market risk (about 85%) and credit risk (78%); (iii) the inclusion, in the scope of operational risk loss, of direct charges to profit and loss (P&L), write-downs and costs incurred as a consequence of the event (about 83%), and provisions (68%); and (iv) the existence of a data quality framework and an ICT infrastructure for the loss dataset (respectively 85% and 78% of the sample). Furthermore, the data show that the collection of near misses and operational risk gains is also common practice (from 65% to 70% of the sample).

111. This outcome confirms that the fulfilment of all the recommendations on loss data proposed in the previous sub-section, including those on near misses and operational risk gains, should not be burdensome for most banks. This is valid not only for bucket 2 and bucket 3 banks, but also for bucket 1 banks, given that this type of bank contributed the most from the whole sample of the qualitative questionnaire.[22] Nonetheless, it might be worth recalling the particular sample selected for the CfA, which was most likely biased towards larger rather than smaller banks, especially in bucket 1.

Recommendation OR 25 on the requirements for large bucket 1 banks and their identification for Pillar 2 purposes

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[21] Looking at this number in a more granular way, the systematic collection of loss data is 100% for bucket 2 and bucket 3 banks and for large bucket 1 banks (i.e. banks with a BI above EUR 750 million, see Recommendation OR 25), and 97% for bucket 1 banks with a BI smaller than EUR 750 million. Moreover, 98% of bucket 2 and bucket 3 banks, 73% of large bucket 1 banks and 68% of the rest of the banks believe their data collection is of good quality.

[22] Although the number of banks that responded differs depending on the question, on average the percentages of bucket 1, bucket 2 and bucket 3 banks that responded were about 63%, 34% and 3%, respectively. At most, 178 banks answered the questions, of which 116 were in bucket 1, 57 were in bucket 2 and 5 were in bucket 3.

Recommendation OR 18 on the processes and procedures for loss data collection, Recommendation OR 19, Recommendation OR 20, Recommendation OR 21 and Recommendation OR 22 for the qualification of operational risk losses within the BCBS SA calculation should be mandatorily applied, for Pillar 2 purposes, to large banks in bucket 1. It is recommended that these banks are identified as those banks with a BI equal to or larger than EUR 750 million for the last 2 consecutive years (and, conversely, to be no longer treated as a 'large' bucket 1 bank if the BI was smaller than EUR 750 million for the last 2 consecutive years).

112. The definition of 'large bucket 1 banks' introduced in Recommendation OR 25 is the same in the whole document for each recommendation in which the concept is needed. It represents a minimum layer, based on the proportionality principle, for the extension to a wider set of banks that some of the recommendations envisaged for bucket 2 and bucket 3 banks.

113. It is worth observing that, on average, across several answers to the questionnaire, large bucket 1 banks represent about the 15% of bucket 1 banks. The rationale for Recommendation OR 25 concerns not only the relevance of loss data for risk management purposes, but also the fact that large bucket 1 banks are the most likely candidates to prospectively approach the bucket 2 threshold of EUR 1 billion and therefore need to start the loss data collection well before crossing it. Furthermore, this recommendation would also help banks to become more resilient by trying to anticipate disruptions due to operational risk losses.

114. Finally, it is worth observing that within the remaining set of bucket 1 banks with a BI smaller than EUR 750 million, there are several TSA/ASA and/or BIA institutions that are already tracking or collecting loss data, since this is requested by the CRR and/or by the ITS on supervisory reporting. It would be important, with the new discipline, for these banks to continue to collect loss data, although with a simplified framework with respect to the one envisaged for bucket 2, bucket 3 and large bucket 1 banks. Moreover, given the relevance of the loss data for the prevention and mitigation of operational risk, it would also be important for all the bucket 1 banks not qualified as 'large' to collect (at least) material loss data. As noted in footnote 21, 97% of these banks already collect loss data, so this requirement should not be a new practice or burdensome for most of them.

115. This objective could be achieved by requesting that all bucket 1 banks not qualified as large collect (at least) material operational risk losses (excerpt of the current TSA provision) and by also encouraging them to fulfil key requirements on the loss data. Key requirements on the loss data are the general and specific criteria of the BCBS SA and the additional recommendations to be introduced directly in the CRR, with the exclusion of those related to near misses and operational risk gains.

Recommendation OR 26 on material operational risk losses under Pillar 2 for bucket 1 banks

Bucket 1 banks with a BI amount smaller than EUR 750 million should be requested to collect material operational risk losses for Pillar 2 purposes. These banks should also be encouraged to adhere to the general and specific criteria of the BCBS SA and to Recommendation OR 19, Recommendation OR 20 and Recommendation OR 21 for the qualification of operational risk losses.

2.2.3 Operational risk framework

Background and rationale

116. In this section, recommendations are made to keep some current provisions of the current CRR, CRD and CDR 959/2018 on governance, reporting and control of operational risk, as they are crucial for properly building the loss dataset and for the effective prevention, mitigation and assessment of operational risk.

117. These qualitative requirements represent the incorporation of several BCBS Principles for the Sound Management of Operational Risk (PSMOR) into EU regulation.[23] Since some of these requirements represent the basis for a sound operational risk framework, their fulfilment is also important for bucket 1 banks that, although not requested to use loss data for the BCBS SA calculation, could still be significantly exposed to operational risk owing to their size or complexity.

Conclusions and recommendations

Recommendation OR 27 on requirements on governance, reporting and control of operational risk

The main requirements on governance, reporting and control of operational risk included in the CRR for banks currently adopting the TSA or the AMA should be kept in the CRR as level 1 regulation. More specifically, Articles 320 and 321 of the CRR should be merged to require institutions:

a)   to have in place a well-documented assessment and management system for operational risk with clear responsibilities assigned for this system, which is closely integrated into the day-to-day risk management processes;

b)   to have an operational risk management function independent from the bank's business and operational units;

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[23] These requirements can be respectively mapped to the following principles and related criteria of the PSMOR: (1) operational risk culture; (2) operational risk management framework; (3) board of directors; (4) operational risk appetite and tolerance; (5) three lines of defence and senior management; (6) risk identification and assessment; (7) monitoring and reporting; (8) control and mitigation.

c)   to have in place regular monitoring and reporting of operational risk exposures and loss experience, and procedures for taking appropriate corrective actions;

d)   to have in place routines for ensuring compliance and policies for the treatment of non-compliance;

e)   to subject their operational risk assessment and management processes and systems to regular reviews performed by internal or external auditors, possessing the necessary knowledge to carry out such reviews;

f)   to have in place internal validation processes that operate in a sound and effective manner;

g)   to have in place transparent and accessible data flows and processes associated with the operational risk assessment system.

118.   Further standards on the governance, reporting and control of operational risk that detail the abovementioned CRR requirements are currently provided by Articles 6 to 9 (governance), 10 (reporting), 16 and 17 (control) of CDR 959/2018 (i.e. quality and auditability of documentation; operational risk management process; independent operational risk management function; senior management involvement, reporting, audit and internal validation functioning, audit and internal validation governance). Keeping these additional requirements in level 2 regulation when adopting the BCBS SA is also crucial, since it would permit implementing the governance, reporting and control of operational risk in a comparable and consistent manner across different institutions and Member States.

Recommendation OR 28 on governance, reporting and control of operational risk

Articles 6 to 9 (on governance), 10 (on reporting) and 16 and 17 (on control) of CDR 959/2018 should be introduced in the adoption of the BCBS SA in the EU. The regulation should mandate the EBA to develop drafts RTS for the introduction of these articles, with appropriate wording adjustments, to (i) avoid references to the AMA itself or parts of the AMA that will no longer be relevant under the BCBS SA and (ii) ensure that these articles are fully aligned with the proposed definitional framework for operational risk in Part 2, Section 2.1 of this document. In particular:

a)   In general, the words 'AMA' or 'AMA framework' should be replaced by the term 'operational risk framework'.

b)   Instead of the wording 'operational risk measurement processes (or systems)', the term 'operational risk assessment processes (or systems)' should be used, since it is more generally linked to the evaluation, including measurement, of the operational risk exposure and profile, without a strict link to internal models and sophisticated quantification.

c)   It should be clarified that Recommendation OR 27 and the standards referred to by the abovementioned articles of CDR 959/2018 should be applied to manage all the subcategories of operational risk, including ICT risk.

119. Regarding the specific issue of the subcategories of ICT risk, and in particular its governance and security aspects, the EBA, EIOPA and ESMA have made complementary proposals to the Commission through the answer to the FinTech action plan published on 10 April 2019.[24]

Recommendation OR 29 on the scope of application of the requirements on governance, reporting and control

Recommendation OR 27 and Recommendation OR 28 on governance, reporting and control of operational risk should be applied to bucket 2 and bucket 3 banks as well as bucket 1 banks that obtain permission to include loss data in the BCBS SA calculation (i.e. a bank-specific ILM).

Results of the qualitative questionnaire on governance, reporting, and audit and internal validation, and related recommendations

120. The analysis of the qualitative questionnaire data indicated that most participating institutions are already fulfilling the aforementioned qualitative requirements on governance, reporting and control of operational risk.

121. In particular, aspects of governance and reporting that are already frequently applied across the sample of banks are (i) the involvement of the management body and senior management in governance; (ii) management and/or measurement of operational risk (with a fulfilment of the tasks attributed to these bodies by CDR 959/2018, in a minimum 68% and a maximum 96% of the sample); (iii) the existence of an independent operational risk management function, which is separated from the institution's business units and audit function (about 95% of the sample); (iv) the implementation of a comprehensive and structured system of timely reporting on operational risk (about 98% of the sample), submitted at least on quarterly basis (90% of the sample) to the highest management levels of the bank (management body, senior management, relevant risk committees, indicated in more than 90% of the sample).

122. Regarding the content, the reporting of 'operational risk events and losses', 'breaches of the operational risk tolerance' and 'mitigation actions' is really common (from 88% to 98% of the sample), while the reporting of the 'risk bearing capacity and/or major operational risk drivers', 'institution's operational risk profile' and 'operational key risk indicators' is less common, but its use is still widespread (about 75% of the sample).

123. An aspect of controlling operational risk that is also very widespread across the sample of banks is the existence of an independent audit function (third line of defence) within the institution, which reviews on a regular basis both the operational risk management

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[24] The proposals can be downloaded at: https://eba.europa.eu/-/esas-publish-joint-advice-on-information-and-communication-technology-risk-management-and-cybersecurity.

processes, procedures and policies (98% of the sample) and the quality of the data itself (93%), and whose output is sent to the highest levels of the bank (management body, senior management, relevant risk committees, including the audit committee, and the operational risk management function, indicated in 88% to 96% of the sample). While a 3-year review is very common (98% of the sample), a yearly review or a review every 2 years is less common but still widespread (respectively 58% and 78% of the sample). In addition, the implementation of a validation function for the regular review of operational risk management and measurement processes, procedures and policies is less common (57% of the sample, of which more than 80% is conducted on a yearly basis) and mostly addressed by bucket 2 and bucket 3 banks.

124. With regard to ICT risk, its management and audit review are performed as part of the operational risk management and control framework in 58% and 68% of the banks, respectively, while about one third of banks consider it an independent task. However, ICT risk is subject to validation reviews as part of the operational risk processes in only 32% of the cases. These results confirm the need to clarify that the qualitative recommendations on operational risk should refer to the subcategory of ICT risk, among other things, as proposed in point (c) of Recommendation OR 28.

125. The results of the qualitative questionnaire show that, like the loss data, the fulfilment of the proposed recommendations on governance, reporting and control of operational risk, stemming from the introduction, as level 2 regulation, of Articles 6 to 10, 16 and 17 of CDR 959/2018, should not be burdensome for bucket 2 and bucket 3 banks and for many bucket 1 banks.

Recommendation OR 30 on governance, reporting and control for large bucket 1 banks for Pillar 2 purposes

Recommendation OR 27 and Recommendation OR 28 on governance, reporting and control of operational risk should be introduced for Pillar 2 purposes as well as large bucket 1 banks (i.e. those with BI equal or larger than EUR 750 million) with the specifications indicated below:

a) governance (Articles 6 to 9) — no difference between the recommendations that are to be applied to these banks and those that are to be applied to bucket 2 and bucket 3 banks;

b) reporting (Article 10)— in adopting point (d) of this article, the minimum content of the reporting could be made more explicit and include, for large bucket 1 banks, 'operational risk events and losses', 'breaches of the operational risk tolerance' and 'mitigation actions'. For bucket 2 and bucket 3 banks, the minimum content of the reporting could also include 'risk bearing capacity and/or major operational risk drivers', 'institution's operational risk profile' and 'operational key risk indicators';

c) control (Articles 16 and 17):

> i) The yearly frequency of the audit reviews indicated in points 1(a), 1(b), 1(g) and 1(h) of Article 16 should also be requested for the large bucket 1 banks.
>
> ii) Large bucket 1 banks would be encouraged, but not requested, to establish a validation function with the roles and tasks as outlined by these articles.

126. Finally, the results of the qualitative questionnaire confirmed that a large majority of bucket 1 banks (even with a BI smaller than EUR 750 million) had already fulfilled several important requirements on the governance, reporting and control of operational risk. Complying with these requirements on operational risk is crucial for all the banks in the effective prevention, mitigation and assessment of operational risk.

Recommendation OR 31 on proportionality for smaller bucket 1 banks

Bucket 1 banks with a BI smaller than EUR 750 million should comply with the requirements introduced in Recommendation OR 27 on governance, reporting and control of operational risk, with the following differences that are recommended for proportionality:

a) Smaller Bucket 1 banks should be required to have an independent, but not necessarily specific, operational risk management function.

b) No internal validation processes should be required on a mandatory basis for smaller bucket 1 banks.

2.2.4 Supervisory review of data quality and disclosure

Background and rationale

127. The bank's internal loss data are at the basis of a sound operational risk framework and, as such, their quality is considered a crucial aspect in the new BCBS SA framework on operational risk. Indeed, according to paragraph 17 of the BCBS SA, an institution must collect high-quality internal loss data for its use in capital calculation.[25] This is also confirmed by additional provisions, stating that:

a) when this quality is not ensured, banks are required to hold capital that is, at a minimum, equal to 100% of the BIC (i.e. ILM = 1), but supervisors may also require the bank to apply an ILM that is greater than 1 (paragraphs 18 and 16, the latter for a subsidiary of a bank belonging to bucket 2 or higher);

b) all banks with a BI greater than EUR 1 billion, or banks in bucket 1 that use internal loss data in the calculation of the BCBS SA, are required to disclose their annual loss data for each of the 10 years in the ILM calculation window (paragraphs 12 and 32);

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[25] Paragraph 17 states that 'the calculation of average losses in the Loss Component must be based on 10 years of high-quality annual loss data'.

c) supervisors should review the quality of banks' loss data periodically (paragraph 17).

128. In the light of these provisions, even when the ILM is set to 1, the high quality of loss data should still be ensured and the periodical review by supervisors should still be maintained.

129. The rationale of this interpretation can be found in the requirement for banks to regularly disclose annual loss data, even when ILM = 1 (paragraph 12), and in the need for supervisors to assess, as part of their ongoing supervision and SREP, the actual operational risk exposure of the bank and the appropriateness of the Pillar 1 capital against it.

130. However, when the ILM is set to 1, the BCBS SA calculation is limited to its BIC, and the supervisory assessment of the appropriateness of the operational risk regulatory capital requires, in particular, the disclosed bank's annual operational risk losses during the 10 years envisaged by the ILM calculation window to be considered. When the high quality of this loss data is ensured, supervisors can perform a deeper assessment and decide, on a case-by-case basis, whether or not Pillar 2 operational risk supervisory measures are needed to complement the BCBS SA requirement. However, when the quality of loss data is not ensured, this assessment might not be reliable.

131. The poor quality of the data should therefore be considered the main driver of the power assigned to supervisors by the SA (paragraph 18, and, for a subsidiary of a bank, paragraph 16) to apply an ILM greater than 1. This power should be ensured, even when discretion on the ILM is applied, with the possibility that supervisors can decide, on a case-by-case basis, if this measure is better than alternative solutions, to ensure an adequate coverage of a bank's capital against operational risk. According to the same paragraph, if the supervisor exercises this option, banks should also disclose the exclusion of losses due to non-compliance and the application of resulting additional multipliers.

Conclusions and recommendations

Recommendation OR 32 on the periodic review of the loss dataset

In adopting the BCBS SA on operational risk, the following aspects should be included in the level 1 text:

a)   A provision requesting that supervisors periodically review the quality of banks' loss data, even when the discretion to set ILM equal to 1 is applied.

b)   The concept of 'periodic review' should be further regulated. Leaving too much time between supervisory reviews does not appear prudent, as it might permit the inappropriate collection and treatment of a few operational risk losses of large amounts in one year, which would significantly affect either the BCBS SA figure (in the case of a bank-specific ILM) or the supervisory assessment (in the case of an ILM = 1). A solution that balances this requirement, and yet limits the supervisory burden, could be to require a review every 2 years or at a maximum 3 years.

132. With regard to disclosure requirements, a question was included in the qualitative questionnaire to ascertain current practices of information related to operational risk losses. According to the responses, almost 43% of institutions do not disclose any kind of information on their losses, of which 70% are bucket 1 banks. This is probably because these banks currently have no obligation to disclose their losses. It is worth noting that the new BCBS standard does not require disclosure from banks with a BI smaller than EUR 1 billion (see paragraph 32).

133. However, it is important that banks that are likely to use losses for the BCBS SA calculation start to prepare themselves to disclose relevant information to the market.

Recommendation OR 33 on disclosure requirements

Large bucket 1 banks should be encouraged to respect the disclosure standards on operational risk losses envisaged by Pillar 3 for bucket 2 and bucket 3 banks, as well as bucket 1 banks that obtain the permission to include loss data (i.e. a bank-specific ILM) in the BCBS SA calculation.

2.3 ICAAP and Pillar 2

2.3.1 Background and rationale

134. The CfA (Section 5.5, points (iii) and (iv)) aims to fill the gap that is left by the BCBS SA on Pillar 2 on operational risk. The CfA requests that the EBA assess whether or not typical elements of banks' internal models on operational risk should be kept or introduced in EU regulation, to ensure a more granular measurement/forward-looking assessment of operational risk, better allocation of operational risk capital within the group and, not least, informative decisions on Pillar 2 add-on for operational risk.

135. To properly address these aspects, a dedicated section on ICAAP on operational risk was introduced in the qualitative questionnaire. The main objectives were to understand (i) what type of approach/model is currently used (and what type is expected to be used after the introduction of the BCBS SA) for the determination of operational risk economic capital and (ii) which elements or components of operational risk internal models are currently used (and which of these items are expected to be used after the introduction of the BCBS SA), for management and/or assessment of operational risk, including its measurement.

136. The analysis of the responses to the qualitative questionnaire shows that about 60% of the banks are currently using a quantitative approach to operational risk economic capital (80% of which are represented by the AMA used in Pillar 1 or similarly sophisticated methodologies) and that, after the introduction of the new BCBS SA, this percentage is expected to grow further (by approximately 13%, calculated as the difference between the number of banks that are going to implement more complex and less complex approaches than the current one). The survey also shows that fewer than half of the banks (46%) plan to

use the BCBS SA for ICAAP purposes. This number decreases further (20%) if the ILM is set to 1. Since more banks plan to introduce an own quantification in the future, it seems to be a common understanding that this is beneficial for bank-internal monitoring and steering purposes.

137. The element that is most used by EU banking institutions in employing quantitative approaches to ICAAP is, as expected, internal loss data (91%), followed by scenarios (78%), external loss data (60%) and estimated expected loss (51%). Those elements that are less common for quantification purposes are business environment, internal control factors and key risk indicators (34-41%); even less common are correlations, insurance, heat maps and other risk transfer mechanisms (below 30% of the sample). Internal loss data and scenarios, followed by external loss data and expected loss, are also the elements deemed highly important for quantification or a forward-looking assessment of operational risk, and banks wish to maintain these after the BCBS SA is introduced. No predominant instrument can be identified for the allocation of operational risk capital across the organisation, which is not performed by about 50% of the sample; this is a clear sign of how little developed the allocation of economic capital for operational risk is across organisations.

138. In terms of management and control of operational risk, internal loss data are still the most important component of ICAAP, as reflected in the percentage of banks using them (98%) and the percentage of banks that indicated their relative importance as 'high' or 'moderate' (82%). Scenario analysis and key risk indicators are the other elements mainly used in this regard (76% and 72% of the sample, respectively) and deemed 'highly' or 'moderately' important by the majority of banks (62% and 56% of the sample, respectively).

139. A cross-reading of the results of the qualitative questionnaire on the ICAAP section clearly shows that, even after the introduction of the BCBS SA, a large majority of banks foresee using or continuing to use a quantitative approach to determine the operational risk economic capital. Internal loss data and scenario are deemed crucial for every qualitative and quantitative part of the ICAAP, while key risk indicators play an important role in the management and control of operational risk and external data for its quantification and forward-looking assessment.

140. Moreover, the EBA is aware that — independent of the Pillar 1 approach adopted for operational risk — using elements such as scenario analysis and external data for quantitative purposes in their ICAAP, as a means of identifying the level of remaining risk beyond the expected losses and/or the risk appetite, helps banks to enhance the forward-looking component of their economic capital calculation. This improves the sensitivity of the framework for the current and future levels of operational risk, recognising both improvements and deteriorations in operational risk profiles more expeditiously. These elements also improve the alignment of minimum operational risk capital requirements with risk management objectives while providing incentives to improve the management of operational risk, as well as its coverage or transfer when needed. At the same time, the EBA

is aware that internal loss data, scenario analysis and key risk indicators are also important for the management and control of operational risk.

141. In the light of this, the EBA is of the opinion that a requirement should be introduced that requests that banks use these elements for ICAAP purposes, to ensure, on the one hand, a more effective management and control of operational risk and, on the other hand, a more granular measurement and forward-looking assessment of operational risk, with additional benefits in terms of both allocation of own funds across the organisation and supervisory decisions on Pillar 2 add-ons for operational risk.

142. Some specific elements and components of the current AMA regulation (i.e. business environment, internal control factors, correlations, insurance and other risk transfer mechanisms) are not so widely used or are deemed less important within the banking system, according to the questionnaire. Therefore, it is recommended that no requirements should be mandated for these instruments; however, because they can contribute to a more refined ICAAP, all banks should have the maximum flexibility to use them on the basis of their size, business model and operational risk profile.

2.3.2 Conclusions and recommendations

Recommendation OR 34 on the use of internal data, scenario analysis, external data and key risk indicators

In adopting the BCBS SA on operational risk, a provision should be introduced requiring institutions to use internal data, scenario analysis, external data and key risk indicators in their ICAAP, to ensure (i) greater effectiveness in the management and control of operational risk; (ii) a more granular measurement of operational risk exposure, including its forward-looking perspective; and (iii) better allocation of operational risk own funds across the organisation and more informative supervisory decisions on Pillar 2 add-ons on operational risk.

143. The rationale for Recommendation OR 34 also lies in the need to align, as much as possible, the legislative proposal on ICAAP on operational risk with that currently set out by the CRD for other risk types, which envisages more detailed requirements (see, for instance, Article 79 on credit and counterparty credit risk and Article 83 on market risk). The way this is done is by solely pointing to the relevant elements of an operational risk framework, to, on the one hand, give banks high flexibility in their use, and, on the other hand, not refer to the typical quantitative features of the current AMA regulation, which would not be reintroduced — through ICAAP standards — in the future operational risk regulatory framework as a consequence.

Recommendation OR 35 on the scope of the requirements related to the use of internal data, scenario analysis, external data and key risk indicators

Recommendation OR 34 on the use of specific elements for ICAAP purposes should be mandatory for bucket 2 and bucket 3 banks, as well as bucket 1 banks that obtain permission to use a bank-specific ILM in the BCBS SA calculation. Large bucket 1 banks should be encouraged to fulfil this requirement on a non-mandatory basis, in accordance with the principle of proportionality.

2.4 Business Indicator — FINREP mapping

2.4.1 Background and rationale

144. The BI — the new proxy indicator of the BCBS SA — is based on income statement and balance sheet data, similar to the current relevant indicator under the CRR. However, one of the main issues observed in the current regime is the lack of sufficient instructions for building the relevant indicator, an aspect that may have caused differences in its implementation and hence in the operational risk regulatory capital. As a result, a proper definition and implementation of the BI is crucial for avoiding inconsistencies and preventing a distortion of outcomes across banks and Member States. This requirement has been raised by several banks during the course of the consultation process and during interaction with the European Commission after the publication of the BCBS SA text, and has been reiterated at the aforementioned operational risk technical roundtable with the industry.

145. The annex of the BCBS SA lists, for each component (e.g. services, financial) and item (e.g. interest income, net P&L on the trading book, other operating expenses) of the BI, the typical sub-items. Moreover, this annex states, at the end, the P&L items that should not contribute to the building of the BI (e.g. income or expenses from insurance business, administrative expense and corporate income tax).

146. While the annex is a useful reference document for the definition of the BI, it is not sufficient to ensure its proper implementation, which also depends on the applicable accounting regime in every country or region. Ensuring the same accounting standards for the implementation of the BI is therefore crucial for avoiding inconsistencies and maintaining a level playing field across jurisdictions in the calculation of the operational risk regulatory capital.

147. In the EU, several institutions are subject to the ITS in Supervisory Reporting, which, among other things, provide detailed instructions and templates for the reporting of financial information (FINREP) and also provides references with FINREP, in case of the use of national generally accepted accounting principles (GAAP). Therefore, when it is possible to map the BI items to the FINREP, this not only ensures the proper implementation of the BI, but also limits the implementation/administrative/operational costs for banks, in line with what is indicated in Section 5.3 of the CfA.

148. In the light of this, starting from the work already conducted on the topic by some national competent authorities and banking associations, the EBA has assessed the feasibility of mapping the BI items to the FINREP items and found that such mapping is possible.

149. In particular, the mapping permits the association of the BI items to the FINREP rows and/or columns of the relevant tables,[26] thus allowing the development of a simple homogeneous process that enables European banks to calculate the BI accurately, consistently and with minimal effort. The mapping table is shown in Annex 3.

2.4.2 Conclusions and recommendations

Recommendation OR 36 on the mapping of the BI to FINREP

The mapping of the BI to FINREP should complement the table envisaged in the BCBS SA text (i.e. the first part of the BCBS annex). The mapping should be applied by all the banks. Since FINREP standards change over time and the mapping table might need to be amended accordingly, this requirement should be introduced through level 2 regulation, following a specific mandate to the EBA.

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[26] Table 1.1 'Balance sheet statements. Assets', Table 2 'Statement of profit and loss', Table 43 'Provisions', Table 45.3 'Other operating income and expenses'.

Annexes: Operational risk

Annex 1: Statistical analyses on the use of the losses in the regulatory capital for operational risk

150. This annex reports the EBA's detailed analyses on the statistical behaviour of a bank's operational risk losses mentioned in sub-section 1.2, in support of the EBA assessment on the discretion for setting the ILM equal to 1. The analyses are aimed at assessing whether or not the introduction of the operational risk losses in the regulatory capital offers a stronger protection against large loss events (1.1 Large losses capital coverage), whether or not the use of a bank-specific ILM introduces additional unwanted variability to the capital figures over time (1.2 Volatility analysis) and whether or not past losses are predictive of future losses (1.3 Econometric analysis).

1.1 Large losses capital coverage

151. The objective of the minimum capital requirement for operational risk should be to protect the bank from the effects of unexpected losses, creating a buffer, in terms of capital, that would be enough to absorb those losses with a reasonable degree of certainty, which, for prudential purposes, is assumed to be the 99.9% value at risk level of confidence in the annual total loss distribution.

152. Strictly speaking, this means that the operational risk regulatory capital is expected to be at such a level that it is overcome by the total annual losses (overshoots) only once every 1 000 years. From a prudent side, this rule also implies that, in the years when no overshoots occur, a sufficient buffer of operational risk capital remains after covering the annual losses. Indeed, a bank with amounts of annual losses that, in a number of cases, exhaust or are close to the levels of operational risk regulatory capital may be potentially undercapitalised against the materialisation of future unexpected operational risk. Banks' yearly ratios of total annual losses to their operational risk regulatory capital are therefore a proxy of the strength required to cover and absorb scenarios with large losses and operational risk tail events.

153. To assess these aspects of the QIS sample, for each bank, the analysis compares the total net annual losses in 2015, 2016 and 2017 with the operational risk regulatory capital, calculated through the current CRR criteria and the BCBS SA (both according to the baseline approach — i.e. with a bank-specific ILM — and with the ILM set to 1). In each comparison, the number of overshoots (number of times the total annual loss is larger than the regulatory capital) and

several percentiles of the ratio between the annual losses and the regulatory capital are determined. The analysis is performed on 146 banks, of which 90 have a BI in bucket 1 and 56 have a BI in buckets 2 and 3; a bank-specific ILM is also used for bucket 1 banks, when the relevant approach (labelled as BCBS SA baseline) is calculated.

154. Since the analysis is performed on 146 banks for 3 years each, it may be assumed that, from a cross-sectional perspective, it covers almost 500 years (146y × 3) in terms of expected number of overshoots. Therefore, to be relatively confident that a certain approach (CRR, BCBS SA baseline or BCBS SA with ILM = 1) provides sufficient levels of operational risk capital, it should be observed that no overshoots — or at the most one overshoot — occur in the 3 years and that the regulatory capital is exhausted by the total annual losses in a negligible portion of the sample (e.g. at a confidence level of 99.5% or higher).

155. For 2015, 2016 and 2017, Table 1, Table 2 and Table 3 report the result of the comparison of total annual losses against the operational risk regulatory capital (RC), calculated through the current CRR approach, the BCBS SA (with ILM = 1) and the BCBS SA baseline (i.e. with a bank-specific ILM), separately and for all the years pooled together.

Table 1: Comparison of total annual losses and current operational risk regulatory capital (BIA, TSA/ASA, AMA), separately and pooled for 2015-2017

N. Over-shoots	4 (of which: - 2 in Buckets 2 and 3; - 1 in AMA banks)	4 (of which: - 3 in Buckets 2 and 3; - 0 in AMA banks)	2 (of which: - 1 in Buckets 2 and 3; - 0 in AMA banks)	10 (of which: - 6 in Buckets 2 and 3; - 1 in AMA banks)
Percentile	Total net losses/Current OR RC 2015	Total net losses/Current OR RC 2016	Total net losses/Current OR RC 2017	Total net losses/Current OR RC (Pooled years 2015-16-17)
5	0%	0%	0%	0%
10	0%	0%	0%	0%
15	0%	0%	0%	0%
20	0%	0%	0%	0%
25	1%	1%	0%	1%
30	1%	1%	1%	1%
35	1%	1%	1%	1%
40	2%	2%	1%	1%
45	2%	3%	1%	2%
50	2%	4%	2%	3%
55	3%	4%	3%	4%
60	4%	5%	4%	5%
65	6%	7%	6%	6%
70	7%	9%	7%	7%
75	8%	10%	9%	10%
80	13%	13%	11%	13%
85	17%	20%	16%	17%
90	24%	29%	21%	26%
95	35%	34%	34%	34%
96	51%	35%	35%	38%
97	87%	41%	44%	49%
97.5	97%	81%	49%	81%
98	110%	147%	51%	113%
99	175%	166%	136%	186%
99.5	226%	184%	251%	210%
99.9	254%	194%	380%	346%
100	261%	197%	412%	412%

Table 2: Comparison of total annual losses and new BCBS SA (ILM = 1) regulatory capital, separately and pooled for 2015-2017

N. Over-shoots	4 (of which: - 2 in Buckets 2 and 3; - 1 in AMA banks)	4 (of which: - 3 in Buckets 2 and 3; - 0 in AMA banks)	2 (of which: - 1 in Buckets 2 and 3; - 0 in AMA banks)	10 (of which: - 6 in Buckets 2 and 3; - 1 in AMA banks)
Percentile	Total net losses/BCBS SA (ILM=1) RC 2015	Total net losses/BCBS SA (ILM=1) RC 2016	Total net losses/BCBS SA (ILM=1) RC 2017	Total net losses/BCBS SA (ILM=1) RC (Pooled years 2015-16-17)
5	0%	0%	0%	0%
10	0%	0%	0%	0%
15	0%	0%	0%	0%
20	0%	0%	0%	0%
25	1%	1%	0%	0%
30	1%	1%	1%	1%
35	1%	1%	1%	1%
40	2%	2%	1%	1%
45	2%	2%	1%	2%
50	3%	3%	2%	2%
55	3%	4%	2%	3%
60	4%	5%	3%	4%
65	5%	6%	5%	5%
70	5%	8%	6%	7%
75	10%	10%	8%	9%
80	12%	12%	10%	12%
85	15%	16%	13%	15%
90	19%	21%	17%	19%
95	34%	29%	32%	32%
96	51%	30%	36%	37%
97	85%	50%	40%	49%
97.5	97%	79%	43%	69%
98	102%	113%	48%	103%
99	140%	128%	87%	128%
99.5	199%	134%	167%	161%
99.9	273%	144%	271%	295%
100	292%	147%	297%	297%

Table 3: Comparison of total annual losses and new BCBS SA baseline regulatory capital, separately and pooled for 2015-2017

N. Over-shoots	1 (of which: - 0 in Buckets 2 and 3; - 0 in AMA banks)	1 (of which: - 1 in Buckets 2 and 3; - 0 in AMA banks)	1 (of which: - 0 in Buckets 2 and 3; - 0 in AMA banks)	3 (of which: - 1 in Buckets 2 and 3; - 0 in AMA banks)
Percentile	Total net losses/BCBS SA baseline RC 2015	Total net losses/BCBS SA baseline RC 2016	Total net losses/BCBS SA baseline RC 2017	Total net losses/BCBS SA baseline RC (Pooled years 2015-16-17)
5	0%	0%	0%	0%
10	0%	0%	0%	0%
15	0%	0%	0%	0%
20	0%	1%	0%	0%
25	1%	1%	0%	1%
30	1%	1%	1%	1%
35	1%	2%	1%	1%
40	2%	2%	1%	2%
45	3%	3%	2%	2%
50	3%	4%	2%	3%
55	3%	5%	3%	4%
60	4%	6%	4%	5%
65	5%	7%	5%	6%
70	7%	8%	6%	7%
75	8%	10%	8%	9%
80	10%	11%	9%	10%
85	13%	15%	12%	13%
90	16%	17%	18%	16%
95	28%	24%	27%	27%
96	39%	26%	29%	29%
97	54%	31%	30%	34%
97.5	61%	38%	31%	45%
98	64%	50%	33%	61%
99	72%	76%	53%	72%
99.5	86%	89%	99%	103%
99.9	116%	104%	164%	155%
100	123%	108%	180%	180%

156. The analysis shows that the current CRR approaches and the BCBS SA (with ILM = 1) have similar performances, even though the BCBS SA with ILM = 1 increases by 17% of operational risk requirements in aggregated terms,[27] and that these approaches are less effective than the BCBS SA baseline in ensuring an adequate coverage of capital against large losses.

157. In particular, the number of overshoots under the current CRR approaches and the BCBS SA (with ILM = 1) amounts to 10 in the 3 years of analysis (4, 4 and 2) compared with 3 (1 per year) under the BCBS SA baseline. Also relevant is the size of the overshoots under the BCBS SA (with ILM = 1) and the current CRR approaches — three and four times the regulatory capital, respectively — in contrast with less than twice the regulatory capital under the BCBS SA baseline. It has to be further noted that (i) the percentage of overshoots in bucket 2 and bucket 3 banks is 60% under the current CRR approaches and BCBS SA (with ILM = 1) and 33% under the BCBS SA baseline, and (ii) under the BCBS SA baseline, banks migrating from the AMA are more protected against large losses than those migrating from the BIA/TSA, (migrating from the AMA: 0 overshoots out of 23 banks; migrating from the BIA/TSA: 3 overshoots out of 123 banks). Even in terms of loss protection, the current CRR approaches and the BCBS SA (with ILM = 1) are less effective than the BCBS SA baseline, since about 2%

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[27] See Section 8.2.2 of the summary report.

of the banks have a level of operational risk capital that is fully exhausted by total annual losses under the former, against 0.5% under the latter. The level of protection provided by the current CRR approaches and the BCBS SA (ILM = 1) across years is also less stable than that offered by BCBS SA baseline (see, in particular, the jumps in the loss-to-capital ratios observed at high percentiles for the first two approaches with respect to the BCBS baseline).

2   Volatility analysis of the BCBS SA

158.   One of the concerns highlighted with regard to the use of operational risk losses within the BCBS SA, through a bank-specific ILM, is that it might introduce additional unwanted variability to the operational risk regulatory capital over time. The ILM is indeed often deemed the most volatile component of the BCBS SA, given that a number of medium-sized losses or a few large losses (not eligible for exclusion) sustained by a bank in a given year directly affect the LC, and, through it, the ILM and the overall operational risk regulatory capital. Since this has appeared from the inception as the obvious situation, no analyses have been done so far to measure the actual level of variability inherent in the BCBS SA or assess the source of such variability, and in particular to ascertain if this variability is totally or mainly due to the ILM (when the BCBS baseline text is adopted) or if, instead, the BIC and more specifically the BI, fixed and not subject to any national discretion, play a relevant role in this regard.

159.   It should be borne in mind that the BI consists of several accounting items, which by definition are also subject to variability over time during the course of a bank's business. The BI is indeed a financial-statement risk proxy and, as its name indicates, an indicator of the volume of business activities, which is used as a bank's operational risk exposure. When, in particular, some operational risk losses hit the LC in a given year, they also hit the BI, since the reference date adopted by the BCBS SA for building the loss dataset, and hence the LC, is the date when the operational risk losses are accounted for in a bank's P&L (accounting date). These losses, irrespective of whether they are direct payments or provisions, need to be accounted for under the item 'other operating expenses', which contributes to the 'service' component of the BI.

160.   It is also important to observe that 'other operating expenses', like any other item, contributes its full value to the BI, and its amount is averaged over (only) 3 years. Vice versa, the contribution of the LC to the ILM, although amplified by the multiplier of 15 times a bank's average annual losses, is smoothed by three important elements, which are not included, or are included with less relevance, in the building of the BI: the average figure, which is calculated over 10 years (instead of 3 years), the dampening factor (0.8) and, above all, the use of the logarithmic formula. Therefore, it cannot be assumed a priori that a significant increase in operational risk losses in a year has a larger impact on the ILM than on the BIC, since this depends firstly on the role of the aforementioned smoothing elements and

secondly on the contribution of the other components of the BI, primarily the 'other operating income'.[28]

161. In the light of this, this analysis aims to measure the level of variability of the BCBS SA regulatory capital over time and assess its main drivers, in particular how much of this variability is due to the BIC and how much to the ILM components. To gain the additional years of capital figures necessary to compute a variability measure, an 8-year average of the LC is used in place of the 10-year average envisaged by the BCBS SA. The variability of the operational risk capital charge is then observed by computing the following quantities:

a) the operational risk capital charge for 2015-2017, using the ILM based on an 8-year average and a 3-year rolling average of the BI;

b) the operational risk capital charge for 2015-2017, using the ILM based on an 8-year average but with the BI fixed at the one reported in 2017;

c) the operational risk capital charge for 2015-2017, using ILM = 1 and a 3-year rolling average of the BI.

162. For each approach, the regulatory capital in 2016 and 2017 is compared with that in 2015 and 2016, respectively. Quantity a) is a proxy of the variability of the BCBS SA baseline (since it is based on an 8-year average of the losses), and therefore permits an assessment of whether or not this aspect is a matter of concern; quantities b) and c), respectively, keep the BI fixed (at 2017) or do not use the LC; therefore, any difference in the outcome with respect to quantity a) is due to the ILM (under quantity b)) or the BIC (under quantity c)).

163. To assess which of the two quantities b) and c) contributes more to the variability of the baseline situation, a regression was performed on the vector of changes of the regulatory capital in 2016 versus 2015 and in 2017 versus 2016. The dependent variable was the vector of changes of the BCBS SA regulatory capital due to quantity a), which was regressed twice, first against the changes observed in quantity b) and then against the changes observed in quantity c). The R^2 of the regressions is an indicator of the relevance of quantities b) and c) in explaining quantity a). In particular, if the R^2 of the regression against quantity c) is significantly higher than that against quantity b), this implies that the BIC contributes more than the ILM in explaining the variability observed in the whole BCBS SA baseline.

164. The analysis is limited to the banks with at least 10 years of reported losses and no relevant gaps during the period (84 banks were selected).

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[28] The BI envisages that a bank uses, in the construction of the services component, the 3-year average of the maximum of 'other operating income' and 'other operating expense'. A relevant increase in the latter in a year (due to the accounting of operational risk losses, for example) can affect the services component only when its average is already larger (or becomes larger) than that of 'other operating income'.

165. Table 4 reports the percentiles of changes under quantity a) in 2016 (versus 2015) and 2017 (versus 2016).

Table 4: Percentiles of the changes in the BCBS SA baseline in 2016 (versus 2015) and 2017 (versus 2016) according to approach (a)

	Changes in BCBS SA baseline	
Percentile	2016 vs 2015	2017 vs 2016
0	-23%	-14%
2	-17%	-11%
5	-8%	-7%
10	-5%	-5%
15	-4%	-4%
20	-3%	-3%
25	-1%	-2%
30	-1%	0%
35	0%	1%
40	2%	2%
45	3%	2%
50	3%	3%
55	4%	3%
60	5%	4%
65	6%	5%
70	6%	6%
75	7%	7%
80	8%	8%
85	11%	9%
90	14%	11%
95	24%	15%
100	94%	49%

166. The results show that the yearly variability of the whole BCBS SA is limited, since it is less than 5% for about half of the banks, less than 10% for about 80% of the banks and less than 15% for about 90% of the banks. At the very extreme, it goes up to 94% in 2016, but this is determined by one bank, which shows a significant increase in the BIC in 2016.

167. Table 5 shows the results of the regression analyses of the vector of changes of quantity a) versus quantity b) and versus quantity c) in 2016 (versus 2015) and 2017 (versus 2016).

Table 5: Main statistics of the regression analyses

Regression Results		
2016 vs 2015	**Quantity a) vs Quantity b)**	**Quantity a) vs Quantity c)**
Regression Statistics:		
R Square	0.369	0.541
Adjusted R Square	**0.361**	**0.535**
Standard Error	0.122	0.104
Observations	84	84
Coefficients:		
Intercept	0.027	0.026
P-value (Intercept)	0.050	0.025
X variable	0.879	0.736
P-value (X variable)	< 0.0001	< 0.0001
2017 vs 2016	**Quantity a) vs Quantity b)**	**Quantity a) vs Quantity c)**
Regression Statistics		
R Square	0.206	0.506
Adjusted R Square	**0.197**	**0.500**
Standard Error	0.073	0.058
Observations	84	84
Coefficients:		
Intercept	0.021	0.021
P-value (Intercept)	0.014	0.002
X variable	0.613	0.641
P-value (X variable)	< 0.0001	< 0.0001

Quantity a) = baseline proxy in 2016 (versus 2015) and 2017 (versus 2016) / Quantity b) = ILM driven / Quantity c) = BIC driven.

168. As shown by the reported figures, the chosen independent variables are statistically significant in all the regressions, meaning that the variation of the capital charge calculated according to quantities b) and c) explains the variation of the baseline capital charge (quantity a)).

169. Furthermore, the adjusted R^2 calculated in the regression considering quantity c) is always higher than the adjusted R^2 of quantity b): 0.53 versus 0.36 in 2016 (versus 2015) and 0.50 versus 0.20 in 2017 (versus 2016). This implies that the BIC contributes more than the ILM in explaining the variability observed in the whole BCBS SA baseline. Therefore, the variability related to the use of the losses in the BCBS SA is not as high as often argued, and, in any case, it is less relevant than that inherent in the BI itself, because of changes to a bank's business volume from one year to another.

3 Econometric analysis on the predictive power of past losses

3.1 The role of past losses for predicting operational risk exposure

170. The ILM differentiates banks' operational risk capital requirements on the basis of past losses, building on the principle that the bank's past operational losses are an effective

indicator of the bank's operational loss exposure and consequently its future operational losses.

171. As part of the impact analysis carried out in this report, two complementary analyses were implemented that confirmed that historical operational losses are indicative of future operational losses for the European institutions included in the QIS analysis. These analyses were as follows:

   a) Regression analysis: current monetary loss amounts are explained in a statistically significant manner by previous period monetary loss amounts, even when controlling for other bank-specific variables that affect the bank's operational risk profile, such as capitalisation and profitability.

   b) Transition matrix analysis: the probability of a given bank moving along the distribution of operational losses across two periods, given that its 5-year average loss as a starting position is markedly lower than the probability of that bank remaining in that position (quartile) for the next period.

3.2 Regression analysis

172. The regression analysis is inspired by the academic literature on the determinants of operational risk. With several data limitations and data constraints, and the adoption of only the simplest model specification available, the analysis follows the approach taken by Curti and Migueis (2016).[29]

173. Data stems from a QIS sub-sample of 114 institutions reporting monetary loss amounts for the period 2008-2017 (10 yearly observations). However, the number of banks considered for each model specification differs, owing to the availability of variables across the different time periods considered. The statistical estimator belongs to a class of fixed-effect robust estimators; in particular it is a GMM Blundell-Bond 1 step estimator (in this context, this is the most efficient of the estimators).

174. The monetary loss amounts at period t are explained by a measure of past monetary loss amounts.[30] Three model specifications are tested based on the difference between the values of the dependent and explicative variables:

Model 1: losses at period (t) explained by losses at (t - 1);

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[29] Curti, F. and Migueis, M. (2016). *Predicting operational loss exposure using past losses*. Finance and Economics Discussion Series 2016-002. Washington: Board of Governors of the Federal Reserve System. It also has to be observed that this property was investigated by the Basel Working Group on Operational Risk (WGOR) during the building of the BCBS SA. The predictive power of past losses for future exposure was one element that supported the inclusion of the ILM in the BCBS SA regulatory formula envisaged for large banks (i.e. buckets 2 and 3).

[30] Monetary loss amounts are normalised by the bank's average total assets, to control for a measure of the bank's size.

Model 2: losses at period (*t*) explained by the average losses over the last 2, 3 and up to 5 years;

Model 3: losses at period (*t*) explained by the average losses over the last 2, 3 and up to 5 years as well as the (*t* - 1) value of a set of variables affecting the bank's risk profile (CET1 ratio, profits,[31]RWAs[32]).

175. Sample:

a) The December 2017 QIS template included specific templates aimed at gathering information related to the operational risk (such as the amount of losses) for the last 10 years (2008-2017). These data constitute a panel sample: 234 banks observed for 10 years.

b) The initial sample has been reduced by excluding banks that did not report figures (missing values or repeated zeros, or the same value repeated for more years) for all the 10 years. After additional exclusions due to anomalous data, the sample comprised 114 banks.

c) For the third model regression, presented in Table 6, Table 7 and Table 8, the sample was further reduced by including only banks for which it was possible to retrieve additional information (such as the capital ratio).

Table 6: Model 1 (114 banks, 9 years)

		Estimated β_1	Standard error	*t*-value	*p*-value
Loss (*t* - 1)		0.2825	0.0195	14.5	< 0.0001

Model 1: $y_{i,t} = \beta_i + \beta_1 y_{i,t-1} + e_{i,t}$

Table 7: Model 2 (114 banks, over (9-h) years)

	Average over *h* years	Estimated β_1	Standard error	*t*-value	*p*-value
avg_loss	*h* = 2	0.2331	0.0301	7.75	< 0.0001

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[31] Profits are normalised by the bank's CET1 own funds amount.

[32] RWAs are normalised by the bank's average total assets.

avg_loss	$h = 3$	0.15334	0.0603	2.54	0.011
avg_loss	$h = 5$	0.1532	0.0852	1.80	0.073

Model 2: $y_{i,t} = \beta_i + \beta_1 avg(y_{i,t-1}, y_{i,t-2}, \ldots y_{i,t-h}) + e_{i,t}$

Table 8: Model 3 (59 banks, over 4 years)

Variable	Estimated $\boldsymbol{\beta_1}$	Standard error	t-value	p-value
avg3_loss	0.992631	0.0385	25.8	< 0.0001
lag_cet1_ratio	-0.00096	0.0001	-8.85	< 0.0001
lag_profits	0.000504	0.0001	7.5	< 0.0001
lag_rwa	0.000329	0.0000	19.4	< 0.0001

Model 3: $y_{i,t} = \beta_i + \beta_1 avg(y_{i,t-1}, y_{i,t-2}, \ldots y_{i,t-h}) + \boldsymbol{\gamma' x_{i,t-1}} + e_{i,t}$

176. Past operational loss amounts are found to be statistically indicative of current operational losses across model specifications.

177. Curti and Migueis (2016) test both the explanatory power of a more extensive list of potential drivers of operational risk and the different specifications of the loss measurement (e.g. loss frequency versus loss severity), and investigate the sensitivity of the results within different quantiles of the loss distribution.[33]

178. The analysis carried out in this report focuses on the (normalised) monetary loss amount, as this is the loss measure that is adopted by the revised Basel III framework for operational risk. Additional explanatory variables and a quantile analysis could not be tested because of data availability.

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[33] Curti, F. and Migueis, M. (2016). *Predicting operational loss exposure using past losses*. Finance and Economics Discussion Series 2016-002. Washington: Board of Governors of the Federal Reserve System.

3.3   Transition matrix analysis

179. Owing to the limitations and data constraints of the regression analysis presented above and to complement the evidence obtained on that basis, a statistical analysis was performed on institutions' performance in terms of operational losses[34] between periods. In particular, institutions' probability of transitioning from one quartile to another of the average loss distribution between subsequent periods was explored as a potential indicator of the informative value of past losses on future operational risk exposure.

180. The analysis considers a QIS sub-sample of 114 institutions reporting monetary loss amounts for the period 2008-2017 (10 yearly observations).

181. The distribution of the yearly loss monetary amount (normalised by the bank's average total assets) can be described as follows in Table 9.

Table 9: Quartiles of the (normalised) average yearly operational loss (2010-2017)

Q1	Median (Q2)	Q3	90th percentile
0.0031%	0.010%	0.037%	0.076%

182. Average transition probabilities across quartiles of the (normalised) loss distribution, computed through the period 2009-2017, show that the bank's position on the loss distribution in period t is the most likely position the bank will take in period t + 1. This lends support to the idea that operational losses occurring in any given period can inform future operational losses.

Table 10: Average transition probabilities from t to t + 1 (2009-2017)

$t\backslash t + 1$	< Q1	Q1-Q2	Q2-Q3	Q3-P90	> P90
< Q1	52.3%	31.3%	11.7%	3.5%	1.2%
Q1-Q2	28.0%	40.6%	21.5%	6.5%	3.4%
Q2-Q3	10.5%	22.7%	40.2%	16.4%	10.2%

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[34] The annual monetary loss amount is normalised by the bank's average total assets, which is consistent with the regression analysis presented above.

Q3-P90	5.3%	5.3%	29.6%	37.5%	22.4%
> P90	7.9%	6.9%	20.8%	29.7%	34.7%

183. The revised Basel III framework differentiates between the operational risk capital requirement that is not based on the previous period operational losses and the operational risk capital requirement that is based on a measure of average operational losses computed over the 10 years preceding the current period. Using the average rather than the point-in-time measure of past losses helps mitigate the time volatility of the capital requirement.

184. In terms of transition matrix analysis, it would be useful to see what the average transition probabilities are when the starting position of any given institution is not simply given by the (normalised) loss in period t but is instead the 10-year average loss over the period t - 9 to t. Owing to data availability, such an analysis could be implemented only by looking at the 5-year — rather than 10-year — average loss as a starting position of a bank in t. When average transition probabilities are computed taking the 5-year average loss as a starting position, consistent results are obtained. The informative power of the average loss performance in any given period regarding the next period performance reduces slightly for banks performing better (up to Q3) but improves in cases in which banks are performing worse, that is, banks whose 5-year average loss in t falls above Q3.

185. This result lends support to the idea that an average measure of past operational losses generally indicates the bank's exposure to operational risk.

Table 11: Average transition probabilities from t to t + 1, given a 5-year average loss in t (2013-2017)

$t \backslash t + 1$	< Q1	Q1-Q2	Q2-Q3	Q3-P90	> P90
< Q1	46.3%	30.5%	18.3%	3.7%	1.2%
Q1-Q2	33.3%	37.8%	19.9%	7.1%	1.9%
Q2-Q3	14.1%	21.2%	37.6%	17.6%	9.4%
Q3-P90	6.3%	9.8%	19.6%	42.0%	22.3%
> P90	12.0%	2.0%	24.0%	16.0%	46.0%

Annex 2: EBA internal risk taxonomy on operational risk

Table 12: EBA internal risk taxonomy on operational risk

Operational risk	Internal fraud	Losses due to acts of a type intended to defraud, misappropriate property or circumvent regulations, the law or company policy, excluding diversity/ discrimination events, which involves at least one internal party	(Intentional) Conduct Risk (CR_I)	The current or prospective risk of losses to an institution arising from (intentionally) inappropriate supply of financial services and cases of wilful misconduct
			ICT Internal Security Risk (ICT_IS)	The risk of unauthorized access to ICT systems from within the institution
Operational risk	External fraud (ET2)	Losses due to acts of a type intended to defraud, misappropriate property or circumvent the law, by a third party	ICT External Security Risk (ICT_ES)	The risk of unauthorized access to ICT systems from outside the institution (e.g. cyber-attacks)
Operational risk	Employment Practices and Workplace Safety (ET3)	Losses arising from acts inconsistent with employment, health or safety laws or agreements, from payment of personal injury claims, or from diversity /		
Operational risk	Clients, Products & Business Practices (ET4)	Losses arising from an unintentional or negligent failure to meet a professional obligation to specific clients (including fiduciary and suitability requirements), or from the nature or design of a product.	(Negligent) Conduct Risk	The current or prospective risk of losses to an institution arising from inappropriate supply of financial services and cases of negligent misconduct
			(Development) Model Risk (MR_D)	The risk of losses relating to the development of any model for decision-making
Operational risk	Damage to Physical Assets (ET5)	Losses arising from loss or damage to physical assets from natural disaster or other events.		
Operational risk	Business disruption and Technology system failures (ET6)	Losses arising from disruption of business or system failures	ICT availability and continuity Risk (ICT_A)	The risk that performance and availability of ICT systems and data are adversely impacted, including the inability to timely recover the institution's services, due to a failure of ICT hardware or software components; weaknesses in ICT system management
			ICT data integrity risk (ICT_D)	The risk that data stored and processed by ICT systems are incomplete, inaccurate or inconsistent across different ICT systems, for example as a result of weak or absent ICT controls during the different phases of the ICT data life cycle, impairing the ability of an institution to provide services and produce (risk) management and financial information in a correct and timely manner.
Operational risk	Execution, Delivery & Process Management (ET7)	Losses from failed transaction processing or process management, from relations with trade counterparties and vendors	(Implementation or use) Model Risk (MR_I)	The risk of losses relating to the implementation or use of any model for decision-making
			ICT change risk (ICT_C)	The risk arising from the inability of the institution to manage ICT system changes in a timely and controlled manner, in particular for large and complex change programmes.
			ICT outsourcing risk (ICT_O)	The risk that engaging a third party, or another Group entity (intra-group outsourcing), to provide ICT systems or related services adversely impacts the institution's performance and risk management.

Annex 3: Mapping of the Business Indicator to FINREP (v2.8)

186. Table 13 provides a mapping of the BI items to the row and/or columns of the relevant FINREP tables (an additional column could be included for the reporting of adjustments of the BI items to the FINREP items in those few cases in which these are needed).

187. For ease and accuracy of data aggregation, and for the reporting of the analysis, the following naming convention has been used:

FINREP_Table number_Column_Row, i.e. the data item 'Loans and advances held for trading' is identified as FINREP_1.1_010_090.

Table 13: Mapping of the BI to FINREP

Mapping of BI to FINREP v2.8						
BCBS SA → Annex. Definition of BI components				FINREP v2.8		
BI component	Income statement or balance sheet items	Description	Typical sub-items	FINREP definition	Template reference (items to be added unless otherwise indicated)	Explanatory notes
Interest, lease and dividend	1.Interest income	Interest income from all financial assets and other interest income (includes interest income from financial and operating leases and profits from leased assets)	• Interest income from loans and advances, assets available for sale, assets held to maturity, trading assets, financial leases and operational leases • Interest income from hedge accounting derivatives • Other interest income	Interest income	FINREP_2_010_010	
			• Profits from leased assets	Operating leases other than investment property	FINREP_45.3_010_030	
	2. Interest expenses	Interest expenses from all financial liabilities and other interest expenses (includes interest expense from	• Interest expenses from deposits, debt securities issued, financial leases, and operating leases • Interest expenses from hedge accounting derivatives • Other interest expenses	Interest expenses	FINREP_2_010_090	

		financial and operating leases, losses, depreciation and impairment of operating leased assets)	• Losses from leased assets • Depreciation and impairment of operating leased assets	Operating leases other than investment property	FINREP _45.3_020_030	
	3. Interest-earning assets (balance sheet item)	Total gross outstanding loans, advances, interest-bearing securities (including government bonds) and lease assets measured at the end of the financial year.	Cash, cash balances at central banks and other demand deposits	FINREP_1.1_010_010	
			Financial assets held for trading	FINREP_1.1_010_050	
			Non-trading financial assets mandatorily at fair value through profit or loss	FINREP_1.1_010_096	
			Financial assets designated at fair value through profit or loss	FINREP_1.1_010_100	
			Financial assets at fair value through other comprehensive income	FINREP_1.1_010_141	
			Financial assets at amortised cost	FINREP_1.1_010_181	

				Derivatives — hedge accounting	FINREP_1.1_010_240	
				Tangible and intangible assets: assets subject to operating lease	FINREP_21_010_010 FINREP_21_010_040 FINREP_21_010_070	
	4. Dividend income	Dividend income from investments in stocks and funds not consolidated in the bank's financial statements, including dividend income from non-consolidated subsidiaries, associates and joint ventures.		Dividend income	FINREP_2_010_160	
Services	**5. Fee and commission income**	Income received from providing advice and services. Includes income received by the bank as an outsourcer of financial services	Fee and commission income from: • securities (issuance, origination, reception, transmission, execution of orders on behalf of customers) • clearing and settlement; asset management; custody; fiduciary transactions; payment services; structured finance; servicing of securitisations; loan commitments and guarantees given; and foreign transactions	Fee and commission income	FINREP_2_010_200	
	6. Fee and commission expenses	Expenses paid for receiving advice and services. Includes outsourcing fees paid by the bank for the supply of financial services but	Fee and commission expenses from: • clearing and settlement; custody; servicing of securitisations; loan commitments and guarantees received; and foreign transactions	Fee and commission expenses	FINREP_2_010_210	

	not outsourcing fees paid for the supply of non-financial services (e.g. logistics, ICT, human resources)				
			Other operating income	FINREP_2_010_340	
7. Other operating income	Income from ordinary banking operations not included in other BI items but of a similar nature (income from operating leases should be excluded)	• Rental income from investment properties	Operating leases other than investment property	**MINUS:** FINREP_45.3_010_030	
		• Gains from non-current assets and disposal groups classified as held for sale not qualifying as discontinued operations (IFRS 5.37)	Profit from non-current assets and disposal groups classified as held for sale not qualifying as discontinued operations	FINREP_2_010_600	If this figure is positive, treat it as profit; if it is negative, treat it as zero.
8. Other operating expenses	Expenses and losses from ordinary banking operations not included in other BI items but of a similar nature and from operational loss events (expenses from	• Losses incurred as a consequence of operational loss events (e.g. fines, penalties, settlements, replacement cost of damaged assets) for which provisions/reserves had not been established in previous years	Other operating expenses	FINREP_2_010_350	This figure needs to be adjusted so that it does not include direct losses related to tax litigation if referring to the tax amount originally due. This ensures consistency with

		operating leases should be excluded)				CDR 2018/959 Article 23(1)(c).
			Operating leases other than investment property	**MINUS** FINREP_45.3_020_030	
		• Expenses related to establishing provisions/reserves for operational loss events	New additions including increases in existing provisions	FINREP_43_040_020	These figures need to be adjusted so that they do not include provisions related to tax litigation if referring to the tax amount originally due. This ensures consistency with CDR 2018/959 Article 23(1)(c).
			Unused amounts reversed during the period	**MINUS** FINREP_43_040_040	
		• Losses from non-current assets and disposal groups classified as held for sale not qualifying as discontinued operations (IFRS 5.37)	Losses from non-current assets and disposal groups classified as held for sale not qualifying as discontinued operations	FINREP_2_010_600	If this figure is negative, treat it as loss and include it in Other Operating Expenses (OOE) without operand; if it is positive, treat it as zero.

Financial	9. Net profit (loss) on the trading book	• Net profit/loss on trading assets and trading liabilities (derivatives, debt securities, equity securities, loans and advances, short positions, other assets and liabilities) • Net profit/loss from hedge accounting • Net profit/loss from exchange differences	Gains or (-) losses on financial assets and liabilities held for trading, net	FINREP_2_010_280	For the sake of simplicity, accounting is adopted. Therefore, for the purposes of building the BI, all the relevant financial items other than 'gains or (-) losses on financial assets and liabilities held for trading, net' should be conventionally included in the banking book.
	10. Net profit (loss) on the banking book	Realised gains/losses on financial assets and liabilities not measured at fair value through profit and loss (loans and advances, assets available for sale, assets held to maturity, financial liabilities measured at amortised cost)	Gains or (-) losses on derecognition of financial assets and liabilities not measured at fair value through profit or loss, net	FINREP_2_010_220	
		Net profit/loss on financial assets and liabilities measured at fair value through profit and loss	Gains or (-) losses on non-trading financial assets mandatorily at fair value through profit or loss, net	FINREP_2_010_287	
			Gains or (-) losses on financial assets and liabilities designated at fair value through profit or loss, net	FINREP_2_010_290	
		Net profit/loss from hedge accounting	Gains or (-) losses from hedge accounting, net	FINREP_2_010_300	
		Net profit/loss from exchange differences	Exchange differences [gain or (-) loss], net	FINREP_2_010_310	