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COMMISSION STAFF WORKING DOCUMENT

IMPACT ASSESSMENT REPORT

Accompanying the documents

Proposal for a REGULATION OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL amending Regulation (EU) No 575/2013 on prudential requirements for credit institutions as regards requirements for credit risk, credit valuation adjustment risk, operational risk, market risk and the output floor

Proposal for a DIRECTIVE OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL amending Directive 2013/36/EU as regards supervisory powers, sanctions, third-country branches, environmental, social and governance risks, and amending Directive 2014/59/EU

{COM(2021) 663 final} - {SEC(2021) 380 final} - {SWD(2021) 321 final}

ANNEX 5: ADDITIONAL INFORMATION ABOUT POLICY OPTIONS

1. IMPROVE THE CURRENT FRAMEWORK FOR CALCULATING RISK-BASED CAPITAL REQUIREMENTS

1.1. Credit risk framework – Standardised approach

General background

Credit risk is the risk of loss resulting from a borrower's failure to repay a loan or meet contractual obligations on a debt ("default"). It accounts for the bulk of most banks' risk-taking activities and hence the bulk of their capital requirements.

The standardised approach for credit risk (SA-CR) is used by the majority of banks across the EU to calculate the capital requirements for the majority of their credit risk exposures, even though the majority of total EU banks' credit risk exposures – which are held by a relatively low number of large institutions – are treated under internal model approaches. The SA-CR is thus highly important in its own right. In addition, the SA-CR must serve as a credible alternative to internal model approaches and as effective backstop to them. The SA-CR's importance is further increased under the final elements of Basel III reform, due to (i) the reduction of the scope of application of internal models approaches and (ii) the introduction of the OF.

During its review of the functioning of standardised approaches, the BCBS found the current SA-CR to be insufficiently risk-sensitive in a number of areas, leading sometimes to inaccurate or inappropriate measurement of credit risk (either too high or too low) and hence of capital requirements.[159] These problems put into question the SA-CR's role as approach for measuring credit risk, including as an alternative for and a backstop to internal model approaches. Existing supervisory or macro-prudential tools could be used to partly address these problems, but neither are well-suited for the purpose.

One of the final elements of the Basel III reform therefore aimed to increase the risk sensitivity of this approach. To achieve this, the Basel Committee agreed to change the SA-CR in relation to several key aspects. These changes, if implemented in the EU, could be particularly impactful in the following key areas (due to e.g. the amount of exposures potentially affected, the nature of the changes or EU specificities):

- exposures to unrated corporates, including SMEs;
- exposures to project finance, object finance and commodities finance (specialised lending);
- equity exposures; and
- exposures secured by real estate (both residential and commercial).

[159] See BCBS, Revisions to the Standardised Approach for credit risk – Consultation Paper, December 2014, https://www.bis.org/bcbs/publ/d307.pdf.

As outlined in Section 6.1., the preferred option is a revision of the SA-CR in line with the Basel III standard, subject to some adjustments. The subsections below discuss each of the aforementioned key areas and assess which adjustments are necessary in each case.

1.1.1. Unrated Corporates

Problem definition

Given the aforementioned shortcomings of the existing SA-CR, the new Basel III standard sets out a modified treatment of corporate exposures under the SA-CR. These modifications make the framework more risk-sensitive and take better account of the specificities of exposures to SMEs and investment grade corporates.

The Basel III standards contain two different approaches to calculate RWs of corporate exposures under the SA-CR. The first can be used in jurisdictions that allow the use of external ratings (the external credit risk assessment approach, or "ECRA"), while the alternative one can be used in jurisdictions that do not allow the use of external ratings (the standardised credit risk assessment approach, or "SCRA"). The ECRA reflects credit risk in banks' capital requirements better than the SCRA as it allows for a more granular set of RWs.

Under the ECRA, corporate exposures are assigned a RW between 20% and 150% depending on their external rating[160]. However, exposures to corporates that do not have such external ratings ("unrated corporates") receive a RW of 100%, with the exception of corporate SMEs (RW of 85%) and retail SMEs (RW of 75%).[161] The ECRA is consistent with the way in which standardised RWs are currently assigned in the EU; its improved risk-sensitivity would lead to a slight decrease in RWAs for highly-rated corporates whilst the impact on the majority of SA banks' exposures would be marginal.

However, an unintended indirect consequence of the application of the ECRA may arise in the EU as a result of the introduction of the OF combined with the fact that the vast majority of EU corporates is not externally rated. Those corporates are currently being predominantly financed by IRBA banks, and the internal models of those banks produce significantly lower RWs for exposures to many of those corporates compared to the 100% RW applicable under ECRA (and the current version of the SA-CR). Once those banks would be required to apply the ECRA for the purposes of calculating the OF, there would be a material increase in capital requirements for those exposures.

In this context, it should be noted that the CRR provides for a preferential treatment for exposures to SMEs: the RW of an exposure to a SME is multiplied by the so-called "SME supporting factor" of 0.7619 for exposures up to EUR 2.5 million. For the remaining part of

[160] The higher the credit rating, the lower the likelihood that the obligor will default, and hence the lower the risk weight assigned to an exposure to that obligor. There is also a separate risk weight for exposures that do not have an external rating.

[161] By contrast, under the SCRA banks have to assign a 100% RW to all corporate exposures, except if the corporate is identified as "investment grade" (RW of 65%), SME (RW of 85%) or retail SME (RW of 75%). In order to qualify as investment grade, amongst others, corporate counterparties or their parent companies must have securities listed on a recognised exchange.

an exposure exceeding that threshold, a RW of 85% applies, in accordance with the Basel III standard. The SME supporting factor is applicable to all exposures to SMEs (whether rated or unrated, and whether treated under the SA or the IRBA). Concerning retail SMEs, the RW of 75% is already implemented and applicable in the EU. Consequently, all policy considerations relating to the treatment of unrated corporates must account for the effect of the SME supporting factor.

Policy options

Baseline option *- no change to the prudential framework*

- The existing RWs for corporates remain unchanged, including for unrated corporates.
- The existing SME supporting factor is kept.
- The OF is not implemented for unrated corporates.

Option 1*- full alignment with Basel III*

- The ECRA approach applies to all corporate exposures (including unrated corporates), also for the purposes of the output floor.
- The existing SME supporting factor is removed.

Option 2 *- implementation of ECRA in line with Basel III with a transitional treatment for IRBA banks in relation to unrated corporates*

- For unrated corporates, a transitional period lasting until 2030 is provided. During this period, when calculating their OF, IRBA banks are allowed to apply the SCRA to exposures to unrated corporates which have a PD corresponding to an investment grade rating. This treatment applies to all unrated corporates, irrespective of whether they are listed or not.
- For rated corporates, when calculating the OF, IRBA banks are allowed to use the ECRA to calculate capital requirements.
- The Commission is empowered to extend the transitional treatment by up to three years based on a report by the EBA.
- At the end of in the transitional period, IRBA apply the ECRA to all corporate exposures when calculating the OF.
- The existing SME supporting factor is kept.

Impacts and comparison across options

Under the **baseline option**, the shortcomings in terms of risk-capture of the SA-CR for corporates would remain unaddressed and the framework would continue to lack a backstop (in the form of an output floor) limiting excessive variability in capital requirements. At the same time, the level of capital requirements for the exposures concerned would remain largely unchanged.

Option 1 would be fully compliant with the Basel III standards and consistent with the EBA's advice[162]. However, the removal of the beneficial treatment of SMEs that EU co-legislators had agreed upon (in the CRR) and recently extended (in CRR II) could lead to a tightening of financing conditions for SMEs. Indeed, this option would lead to a material increase in minimum required capital for both SA banks (due to the removal of the SME supporting factor) and also IRBA banks (due to the direct effect of the removal of the SME supporting factor and, indirectly, as a result of the application of the output floor). This would, in turn, lead to either a reduction in the amount of loans banks would be willing to provide to SMEs (to the extent banks could not pass the increased cost of capital on SMEs via higher interest rates) or to an increase in the interest rates banks would charge SMEs for the loans (to the extent banks could pass on the increased cost of capital) or a combination of both.

Option 2 would preserve the use of external ratings for corporates and increase the risk-sensitivity of their treatment under the SA-CR. This option would be in line with the final Basel III standard, except when it comes to the EU-specific treatment of SMEs. The transitional adjustment for IRBA banks' exposures to unrated corporates would limit an increase in capital requirements as compared to option 1. It would avoid disruptive impacts on bank lending and leave sufficient time to establish public or private initiatives aimed at increasing the coverage of external ratings for corporates. Broadening the coverage of external ratings would also increase transparency in the EU corporate sector in the long run and thereby foster the Capital Markets Union (CMU).

Table 11. Comparison of policy options against effectiveness, efficiency and coherence criteria

	EFFECTIVENESS	*EFFICIENCY (cost-effectiveness)*	*COHERENCE*	*OVERALL SCORE*
Baseline option	0	0	0	0
Option 1	+	-	+	+
Option 2	++	≈	++	++

Magnitude of impact as compared with the Baseline option (the baseline is indicated as 0): ++ strongly positive; + positive; – – strongly negative; – negative; ≈ marginal/neutral; ? uncertain; n.a. not applicable

Preferred option

In light of the above analysis, which led to the overall score of each policy option in *Table 11* , **option 2** is the preferred policy option.

1.1.2. Specialised lending

Problem definition

There is no specific treatment for specialised lending (SL) exposures under the current SA-CR. Those exposures are treated as any corporate exposures even though they have a very

[162] Cf. EBA (2019) Policy advice on the Basel III reforms: Credit risk

specific risk profile. The latter depends more on the type of transaction and/or collateral provided to secure the transaction rather than on the creditworthiness of the borrower(s) since the borrower is typically a dedicated vehicle, which secures the debt with the cash flows generated by its assets. The lack of granularity in the current framework leads to under- or overestimation of risks under the SA-CR and does not allow to appropriately compare related capital requirements between SA and IRBA banks (the IRBA contains a specific treatment for SL exposures). The SA-CR can hence not act as a credible benchmark to internal models used for SL exposures.

To address these shortcomings of the SA-CR, the Basel III standard introduced a specific treatment for SL exposures, distinguishing between project finance, object finance and commodities finance based on the definitions of these three subcategories in the IRBA. Like for corporates exposures (see Section 1.1.1 of this Annex), two approaches are available in the Basel III SA-CR, one for jurisdictions allowing the use of external ratings for regulatory purposes and one for jurisdictions that do not allow it. The new treatment reflects more appropriately and accurately the risks associated with SL exposures and improves the consistency with the already existing treatment of those exposures under the IRBA. Under the new SA-CR, SL exposures for which no issue-specific external ratings are available would be assigned RWs ranging from 80% to 130%. The exact RW assigned to the exposure would depend on the relevant SL subcategory and, in the case of project finance, on the phase in which the project is (pre-operational/operational) as well as on whether certain quality criteria are met.[163]

However, similar to the case of exposures to unrated corporates, unintended consequences of the application of this new approach may arise in the EU, for essentially the same reasons: most SL exposures are not externally rated and are financed by IRBA banks that have in place internal models which produce materially lower RWs than those provided by the SA-CR. While the new standardised treatment for unrated SL exposures is more granular, it is not sufficiently risk-sensitive to reflect the effects of comprehensive security packages usually associated with these exposures (these packages comprise covenants and collateral subject to dedicated monitoring). The impact may be particularly felt in the case of object finance exposures in the context of the application of the OF. As a consequence, there could be a risk of discontinuation of these activities.

The impact on project finance is likely to be less significant because the EU has introduced a discount (= supporting) factor of 25% for exposures to high quality infrastructure projects that comply with a set of eligibility criteria capable to lower their risk profile and enhance the predictability of their cash flows. This treatment applies to both institutions using the SA and institutions using the IRBA.

Policy options

Baseline option*: no change to the prudential framework*

[163] In particular, a preferential risk weight of 80% is provided for high quality project finance exposures in the operational phase.

- No dedicated treatment for SL exposures would be available under the SA-CR.
- The OF is not implemented for SL exposures.
- The existing supporting factor for high quality infrastructure projects is kept.

Option 1 *- full alignment with Basel III*

- The new SL subcategories are introduced in the SA-CR framework while maintaining the use of issue-specific external credit ratings when available.
- The existing supporting factor for high quality infrastructure projects is removed.
- The new standardised RWs for SL exposures are used for the calculation of the OF.

Option 2 *- alignment with Basel III with adjustments for project and object finance*

- The new SL subcategories are introduced in the SA-CR framework while maintaining the use of issue-specific external credit ratings when available.
- The specific supporting factor for infrastructure projects remains applicable to complement the preferential treatment for high quality project finance which is limited to projects in the operational phasewhilst avoiding "double discounts"[164].
- A new subcategory for high quality object finance is introduced. The EBA is mandated to specify the relevant criteria via RTS.
- The new standardised RWs for SL exposures are used for the calculation of the output floor.

Impacts and comparison across options

Only a small portion of SL exposures in EU banks portfolios is rated (3.62%; see below *Table 12*). Among all SL exposures, non-rated project finance is the most important sub-class (81.5%), followed by non-rated object finance (9.3%) and non-rated commodities finance (5.6%).

[164] However, the supporting factor cannot be applied to the favourable treatment for high quality project finance to further lower the applicable RW (i.e. it is not possible to apply the discount of 25% to the preferential RW of 80% provided under Basel II for 'high quality' project finance).

Table 12. SL exposures under the SA-CR by sub-exposure class

Institutions	Commodity finance	Object finance	Project finance	Rated exposures	Total SL
All	5.56%	9.30%	81.53%	3.62%	100%
Large	6.02%	9.94%	80.17%	3.87%	100%
of which: G-SII	14.73%	1.63%	80.87%	2.78%	100%
of which: O-SII	0%	16.70%	78.97%	4.34%	100%
Medium	0%	2.09%	97.91%	0.00%	100%
Small	0%	0%	97.89%	2.11%	100%

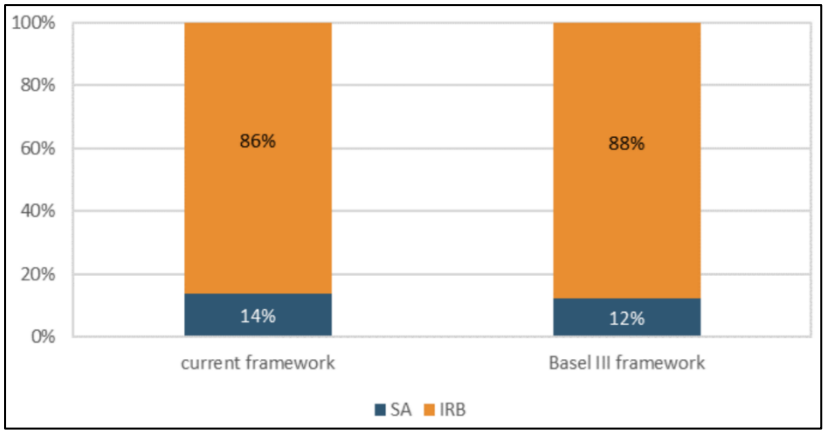
Source: EBA, CfA response

Based on the EBA's analysis, the impact on exposures (classified as corporate exposures under the current SA-CR), which would be classified as SL exposures under the revised SA-CR, appears to be limited, due to the limited volume of specialised transactions under the SA-CR (14% of all transactions; see *Figure 12* below).

As mentioned above, most SL exposures are in the portfolios of IRBA banks. Therefore, the new standardised RWs for SL would also indirectly impact those banks as a consequence of the introduction of the OF.[165]

Figure 12. Share of SL exposures RWA by regulatory approach in the current and revised framework

[165] In its additional analysis for SL, the EBA notices that the total impact of the final Basel III reform remains unchanged whether the LGD input floors for SL exposures are included or removed for SL exposures under IRB (see paragraph 1.2.1 on SL under IRBA). The exclusion of the LGD input floors for SL exposures would decrease the overall impact of the IRB reforms for SL exposures, but this lower impact would be completely compensated by a higher impact of the OF. The exclusion of the LGD input floor for SL exposures would benefit – in terms of capital requirements – mostly large IRBA banks. However, these benefits would not materialise as those banks, in general, are also the ones constrained by the output floor. This key aspect also needs to be taken into consideration for the final assessment of the impact of the calibrations of RWs for SL exposures under the Basel III SA-CR.



Sources: EBA 2018-Q2 QIS data and EBA calculations. Note: Based on a sample of 204 banks: IRB (78), SA (196).

Under the **baseline option**, SL would not be defined in the SA-CR. Consequently, a risk-sensitive and granular approach could not be used for those exposures. Instead, a flat RW of 100% would continue to apply to all forms of SL unless an issue-specific rating would be available.

Option 1 would allow to better reflect the specific risk-profile of SL under the SA-CR. However, the removal of the existing EU-supporting factor for high-quality infrastructure projects under this option would lower the incentives recently put in place in the legislative framework to foster private and public investments in high quality infrastructure projects with low risk profile[166]. In addition, some forms of SL (in particular object finance) would likely be materially impacted by the new RW calibrations, even though indirectly, i.e. through the application of the output floor.

Under **option 2**, the existing supporting factor for high quality infrastructure finance would be kept. At the same time, the lack of risk-sensitivity of the Basel treatment for unrated object finance exposures (RW of 100%) would be addressed by a specific treatment for "high-quality" object finance exposures and a revised calibration for those exposures, aligning the risk sensitivity for those categories with that of project finance. The indirect potential impact (as an effect of the output floor) for IRBA banks that have developed a SL activity would also be less material under this option than under option 1.

Table 13. Comparison of policy options against effectiveness, efficiency and coherence criteria

	EFFECTIVENESS	*EFFICIENCY (cost-effectiveness)*	*COHERENCE*	*OVERALL SCORE*
Baseline option	0	0	0	0
Option 1	+	-	+	+
Option 2	++	≈	++	++

Magnitude of impact as compared with the Baseline option (the baseline is indicated as 0): ++ strongly positive; + positive; – – strongly negative; – negative; ≈ marginal/neutral; ? uncertain; n.a. not applicable

[166] This is likely the only effect of removing the supporting factor. Given that it has become applicable only recently, it is unlikely that its removal would lead to a material increase in banks' capital requirements.

Preferred option

In light of the above analysis, which led to the overall score of each policy option in *Table 13*, **option 2** is deemed the preferred policy option

1.1.3. Equity exposures

Problem definition

The current (Basel II) treatment of equity exposures under the SA-CR is not risk-sensitive: In particular, it does not reflect the higher loss risk of equity compared to senior exposures nor does it differentiate between strategic and speculative (and hence riskier) investments. Furthermore, the different methods for calculating RWs for equities under the IRBA (simple risk weight method, internal model method, PD/LGD approach) have been found to be unduly complex, leading to different outcomes and to undue RWA variability. Finally, the current treatment allowed for regulatory arbitrage between the banking book and the trading book.[167]

To address these shortcomings, the final elements of the Basel III reform amend the treatment of equity exposures in two ways. First, banks can no longer use the IRBA for those exposures. Second, the calibration of RWs under the SA-CR is more granular and more conservative: the default RW for equity exposures increases from 100% to 250%. A more conservative RW of 400% is assigned to "speculative unlisted equity exposures" (most of those exposures are currently labelled as "high-risk" equity exposures and hence subject to a 150% RW). Those revisions can be phased-in over a five-year period. The existing 100% RW remains available only for equity investments made pursuant to "national legislated programmes" which meet certain eligibility conditions and have been approved by the competent authority.

Table 14: Risk weights applicable to equity exposures during the phased-in implementation of the Basel standards

Equity category	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5
Speculative unlisted	100%	160%	220%	280%	340%	400%
Exposures to certain legislative programmes	100%	100%	100%	100%	100%	100%
Other	100%	130%	160%	190%	220%	250%

Source: EBA, CfA response (Table 11, p. 59)

The final Basel III standard does not differentiate between the riskiness of certain types of equity holdings existing in the EU, such as equity investments in entities that are included in the same banking group (intragroup) or the same institutional protection schemes (IPS), or long-term and strategic equity investments in businesses outside the banking group (including holdings in insurance undertakings).

[167] In particular, banks designated their equity exposures to the banking book even though they were essentially held for trading to avoid the much more conservative treatment under the trading book rules.

Policy options

Baseline option *- no change to the prudential framework*

- The existing RWs (100% and 150%) for equity exposures under the SA-CR are kept.
- Banks may use the IRBA for equity exposures.

Option 1 *- full alignment with Basel III*

- The use of IRBA for equities is removed; in turn, the SA-CR becomes the only approach available for calculating capital requirements for the credit risk of equity exposures.
- For equity holdings made pursuant to national legislated programmes a preferential RW of 100% may be applied, subject to certain eligibility criteria and supervisory approval.
- The new RWs for speculative unlisted equity exposures (400%) and for other equity holdings (250%) are progressively phased-in during a 3-year period (see *Table 14* above).

Option 2 *- implement Basel III with targeted clarifications and adjustments*

- The current 100% RW remains applicable to intragroup equity exposures and equity holdings within institutional protection schemes (IPS).
- Existing long-term and strategic equity exposures to counterparties outside the banking sector (i.e. including in insurance undertakings) are subject to a grandfathering regime (i.e. banks are allowed to apply the existing RWs to those exposures).
- Only short-term equity investments with a holding period of less than 5 years are considered as speculative exposures and assigned a steady state RW of 400%.

Impacts and comparison across options

The **baseline option** would leave the identified problems largely unaddressed: Overly complex and discretionary methods under the IRBA would result in undue variability of RWAs whilst the SA-CR would provide insufficient risk coverage. As a consequence, banks would still have incentives to move equities from the trading to the banking book

The tightened treatment of equities under **Option 1** has been identified by the EBA as a major impact driver for increased capital requirements in the area of credit risk (it represents 2.8 pp of the overall increase in RWAs; see *Table 15* below) even without taking into account

the increase in RWs for intra-group equity exposures[168]. This would be partly compensated by a decrease in RWAs for some of the equity exposures migrating from the IRBA to the SA-CR (as internal modelling of equities' credit risk would not be allowed anymore; see *Table 18* below).

Table 15: Percentage change in equity RWA (relative to total current SA RWA) for equity exposures currently under the SA-CR, by equity category

Panel A Equity categories classified according to the revised Basel III	Change (%)
Exposures to certain legislative programmes	0
Other	2.6
Speculative unlisted	0.2
Total equity	2.8

Panel B Equity categories classified according to current CRR	Change (%)
Equity exposures classified as 'high-risk items' under Article 128	0.7
Holdings of own funds instruments that are currently risk-weighted in accordance with Article 49(4)	0.8
of which: holdings in insurance companies	0.7
of which: exposures to institutions part of the same institutional protection scheme	0.1
Other equity exposures	1.3
Total equity	2.8

Source: EBA, CfA response

Table 16: Percentage change in equity SA RWA (relative to total current SA RWA) for equity exposures currently under the IRB, per equity category

Panel A Equity categories classified in accordance with revised Basel III	Percentage
Exposures to certain legislative programmes	0.00
Other equity	-1.48
Speculative unlisted	0.15
Total equity	**-1.33**

Panel B Equity categories classified in accordance with current CRR	Percentage
Equity exposures in sufficiently diversified portfolios (Article 155(2) of the CRR)	-0.08
Holdings of own funds instruments that are currently risk-weighted in accordance with Article 49(4) of the CRR	-0.39
Other equity exposures	-0.86
Total equity	**-1.33**

Source: EBA, CfA response

The additional data collection at individual and sub-consolidated level performed by the EBA[169] shows the importance of the proportion of intragroup equity exposures at those levels and points to an even higher RWA impact on this subset of exposures.

[168] Given that the impact analysis is based on data at the highest level of EU consolidation, the increase in RWs for intra-group equity exposures is not reflected in the estimates, which may therefore underestimate its impact.

[169] On a sample of 16 banks, see link here

Table 17: Percentage of exposures to equity and exposures to equity intragroup (over total exposure), by approach

	SA		IRB	
	Equity exposure	Of which: Equity intragroup exposure	Equity exposure	Of which: Equity intragroup exposure
Total	3.3%	2.8%	5.2%	4.4%

Source: EBA response (5 March 2020) - Letter on additional analysis for the Call for Advice for the purposes of revising the own fund requirements for credit, operational, market and credit valuation adjustment risk: output floor and equity exposure class (Table 4, p. 14)

Table 18: Percentage change in equity RWA (relative to current equity RWA by approach), by equity sub-type

Approach	Equity, of which:	Equity intragroup	Equity other than intragroup
SA	136.2%	145.5%	99.3%
IRB	3.3%	6.7%	-12.2%

Source: EBA, Letter on additional analysis for the Call for Advice for the purposes of revising the own fund requirements for credit, operational, market and credit valuation adjustment risk: output floor and equity exposure class, March 2020

Table 19: Percentage change in equity RWA (relative to total current RWA), by approach

	SA		IRB	
	Equity exposure	Of which: Equity intragroup exposure	Equity exposure	Of which: Equity intragroup exposure
Total	15.7%	13.4%	1.1%	1.8%

Source: EBA, Letter on additional analysis for the Call for Advice for the purposes of revising the own fund requirements for credit, operational, market and credit valuation adjustment risk: output floor and equity exposure class, March 2020

Applying the increased RWs to all equity exposures at all levels (i.e. individual, sub-consolidated and consolidated level) would have a significantly higher impact than the application at consolidated application only. This would be mainly driven by intra-group equity exposures.

This may lead to unintended consequences (such as divestments) for existing structures and business models if such increased RWs would be applied to intragroup and IPS equity exposures, or to strategic investments outside the banking group (i.e. including holdings in insurance undertakings).

The targeted adjustments envisaged under **Option 2** would prevent those unintended effects whilst addressing the shortcomings of the current treatment.

Table 20: Comparison of policy options against effectiveness, efficiency and coherence criteria

	EFFECTIVENESS	*EFFICIENCY (cost-effectiveness)*	*COHERENCE*	*OVERALL SCORE*
Baseline option	0	0	0	0
Option 1	+	-	+	+
Option 2	++	≈	++	++

Magnitude of impact as compared with the Baseline option (the baseline is indicated as 0): ++ strongly positive; + positive; – – strongly negative; – negative; ≈ marginal/neutral; ? uncertain; n.a. not applicable

Preferred option

In light of the above analysis, which led to the overall score of each policy option in *Table 20*, **option 2** is deemed the preferred policy option.

1.1.4. Real estate exposures

Problem definition

The GFC revealed a number of shortcomings of the current standardised treatment of real estate exposures which the Basel III SA-CR addresses.

Income-producing real estate exposures

Evidence showed that mortgage loans the repayment of which is materially dependent on the cash flows generated by the property securing those loans tend to be materially riskier than mortgage loans the repayment of which are materially dependent on the underlying capacity of the borrower to service the loan. However, under the current SA-CR no specific treatment is foreseen for such exposures, even though this dependence is an important risk driver. This may result in insufficient levels of capital to cover unexpected losses on this type of real estate exposures.

In order to address this shortcoming, the final Basel III standards introduced a new category of real estate exposures, namely income producing real estate (IPRE)[170] exposures, with a dedicated RW. This modification is intended not only to reflect more accurately the risk associated with those exposures, but also to improve consistency with the treatment of IPRE under the IRBA.

Land acquisition, development and construction exposures

Loans financing land acquisition, development or construction (ADC) of any properties incur a heightened risk where the source of repayment at origination of the loan is either a planned

[170] The IPRE category is further divided in two sub-categories: income producing residential real estate (IPRRE) and income producing commercial real estate (IPCRE).

but uncertain sale of the property or substantially uncertain cash flows (e.g. this may happen if the property has not yet been leased to the occupancy rate prevailing in that geographic market for that type of property). The current SA-CR applicable in the EU provides for a flat RW of 150% for so-called "speculative immovable property financing". The latter category is defined solely based on the borrower's intention to resell the property for a profit, without taking into account to which extent the repayment is actually uncertain. As a result of this lack of clarity and risk-sensitivity, capital requirements for ADC exposures are currently often deemed to be too high or too low..

To better reflect the risk of ADC financing models, the final Basel III standards introduce a dedicated sub-exposure class, referring to loans to companies or SPVs financing any of the land acquisition for development and construction purposes, or development and construction of any residential or commercial property. ADC exposures are to be risk-weighted at 150%. However, provided that certain risk-mitigating conditions[171] are met, ADC exposures to residential real estate may be risk-weighted at 100%.

Whole-loan vs. loan-splitting approach

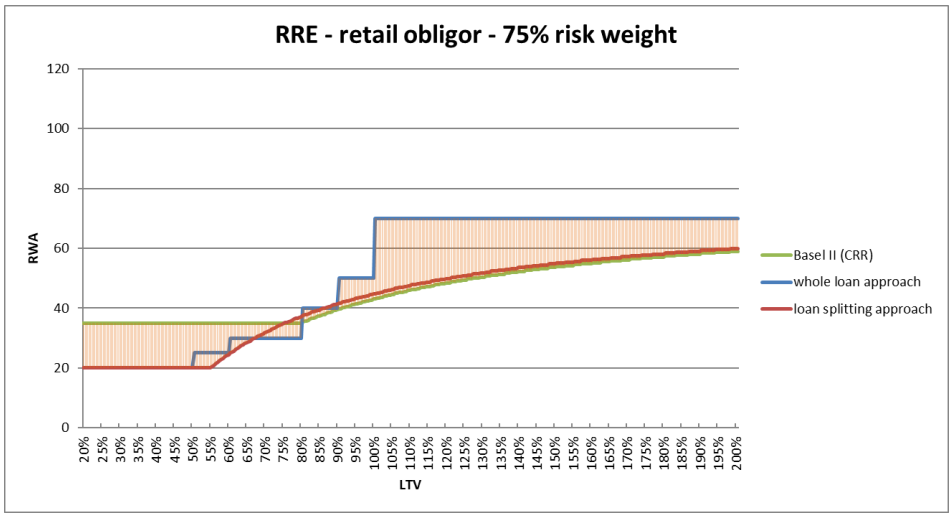
The final Basel III standards also provide two new, more granular and risk-sensitive approaches for general[172] residential and general commercial real estate exposures (GRRE and GCRE, respectively): (i) the loan splitting approach, which splits mortgage loans into a secured and an unsecured part and assigns a different risk weight to each of these two parts; and (ii) the whole loan approach, which considers mortgage loans as specific products and assigns a RW to the entire exposure based on its loan-to-value (LTV) ratio using different LTV buckets. According to the final Basel III standards, jurisdictions can apply either of these two approaches, but not both.

The rationale for using the LTV ratio as a risk driver for determining the applicable RWs is that the losses incurred in the event of a default and the likelihood of a borrower's default are lower when the outstanding loan amount relative to the value of the real estate collateral (i.e. the LTV ratio) is lower. However, only the loan splitting approach is also sensitive to the type of borrower (as it applies the RW of the counterparty to the unsecured part) and reflects the risk mitigating effects of the real estate collateral in the applicable RWs even in case of high LTV ratios. While the loan splitting approach is currently in place in the EU, its RW calibration has been found too conservative for mortgages with very low LTV ratios (see *Figure 13*).

[171] The 100% RW can be applied where i) prudent underwriting standards are applied and ii) pre-sale or pre-lease contracts amount to a significant portion of total contracts or substantial equity at risk. Pre-sale or pre-lease contracts must be legally binding written contracts and the purchaser/renter must have made a substantial cash deposit which is subject to forfeiture if the contract is terminated. Equity at risk should be determined as an appropriate amount of borrower-contributed equity to the real estate's appraised as-completed value.

[172] i.e. where the repayment does not materially depend on the cash flow generated by the property

Figure 13: Stylised illustration – RW function for residential real estate exposures under different approaches



Source: Commission

Prudent valuation of property

In the aftermath of the GFC, property prices dropped significantly and progressively in countries in- and outside of the EU. Those bank that had not revised downwards the value of the properties securing mortgage loans on a timely basis, to reflect their reduced market value, ended up underestimating the underlying credit risk of those loans and hence the corresponding capital requirement. Had they updated them, the LTV ratio of those loans would have increased thereby potentially increasing capital requirements).

To reduce the impact of cyclical effects on the valuation of property securing a loan and to keep capital requirements for mortgages more stable, the final Basel III standards cap the value of the property recognised for prudential purposes at the value measured at loan origination, unless modifications "unequivocally" increase the value of the property. At the same time, the standards do not oblige banks to monitor the development of property values. Instead, they only require adjustments in case of extraordinary events. By contrast, the current SA-CR applicable in the EU requires banks to regularly monitor the value of property pledged as collateral. Based on this monitoring, banks are require to make upwards or downwards adjustments to the property (irrespective of the property value at loan origination). The current SA-CR does not include a mechanism addressing cyclical effects in real estate, and hence it does not address the risk of overvaluation and volatile capital requirements for mortgages.

Policy options

***Baseline option**: no change to the prudential framework*

- The current loan splitting approach is kept unchanged.
- No specific treatment for IPRE and ADC exposures is provided for.

- The current rules on property value monitoring and adjustment are kept.

***Option 1**: full alignment with Basel III*

- The loan splitting approach is kept for GRRE and GCRE exposures, but with the revised calibration as set by the final Basel III standards.
- Specific treatments for IPRE and ADC exposures are introduced.
- Property values are capped at their value at loan origination and the current requirement for frequent monitoring is removed.

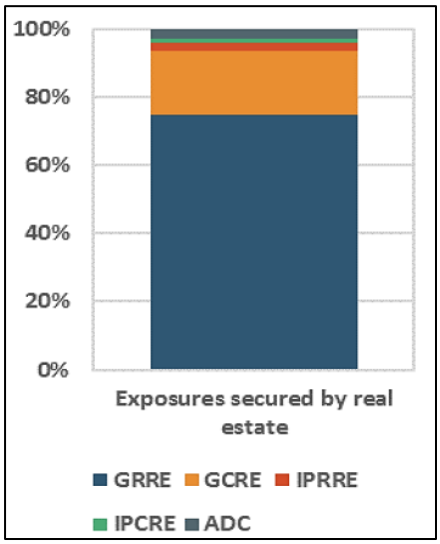
***Option 2**: alignment with Basel III with adjustment for property valuation*

- Specific treatments for IPRE and ADC exposures are introduced.
- The loan splitting approach is kept for GRRE and GCRE exposures, but with the revised calibration as set by the final Basel III standards.
- The current requirement for frequent monitoring of property values is kept, allowing upwards adjustment beyond the value at loan origination but with a cap set at the average value over the last 5 years.

Impacts and comparison across options

GRRE and GCRE account for the vast majority (more than 90%) of total exposures secured by real estate, whereas all the remaining categories, i.e. IPRE and ADC exposures, together amount to less than 10% (see *Figure 14*).

Figure 14: Exposure value breakdown as a percentage of total SA real estate exposure under the revised Basel III framework



Source: EBA – Basel III reforms: impact study and key recommendations (Figure 34, p. 88)

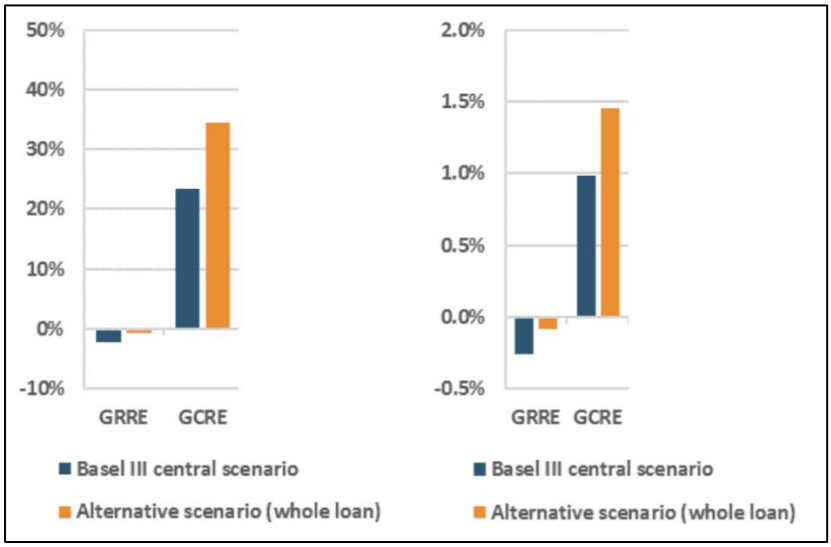
Under the **baseline option**, the lack of risk-sensitivity of the current framework in particular concerning IPRE and ADC exposures would remain, leading to inadequate levels of capital for covering unexpected losses on real estate exposures and potentially providing inappropriate incentives for banks' lending decisions. Furthermore, the (pro-) cyclicality of property valuations and, by consequence, of capital requirements would remain under the baseline option.

As regards **Option 1**, while the share of exposures in each category would change slightly as a result of the implementation of the revised SA-CR (more precisely because of the new definitions under Option 1; see *Figure 15* below), the RWs for exposures falling in the GRRE and GCRE categories would remain largely unchanged, as the revisions in these areas are marginal compared to the framework currently applicable in the EU.

For similar reasons, the impact of the new treatment for ADC exposures under Option 1 is expected to be limited. The overall impact is marginal as ADC exposures account for only 2.9% of total real estate exposures treated under the SA-CR.

By contrast, the application of the revised standardised treatment for IPRE would increase the RWAs for IPRRE by 47.6% under Option 1. This would be the most significant impact across all exposures secured by real estate. However, given the low share of IPRE in total exposures, the overall impact would be limited (IPRRE accounts for 2.5% of total real estate exposure, while IPCRE accounts for 1.1%).

Figure 15: Percentage change in exposures secured by real estate SA RWA, relative to current sub-exposure class SA RWA (left), and relative to total current SA RWA (right)



Source: EBA – Basel III reforms: impact study and key recommendations (Figure 35 and 36, p. 88)

The (re-)valuation approach provided by Basel III (**option 1**) is less pro-cyclical, but also less risk-sensitive than the current approach applicable in the EU. Under this option, banks would

not be required to adjust property values downwards based on continuous monitoring. They would only need to make adjustments following a supervisor's intervention or due to extraordinary events. This option would not fit European real estate markets, where mortgage loans usually have long(er) maturities (than in other Basel jurisdictions)[173]. Moreover, it would create perverse incentives for circumvention of the rules by repeated renewal of mortgage contracts, as highlighted in the EBA's advice. It would also put the burden to require downwards adjustments of property values on supervisors and could also have a negative effect on banks' risk management, as it would remove the requirement to frequently monitor property values.

Option 2 would have the same impacts as Option 1 on GRRE, GCRE, IPRRE and ADC exposures. By contrast, Option 2 would address potential pro-cyclical effects under option 1 by limiting any upward adjustments at the average value over a certain period thereby reducing the volatility in property values. This would address the disadvantages of the current approach while avoiding the problems inherent in the approach contained in Option 1.

Table 21: Comparison of policy options against effectiveness, efficiency and coherence criteria

	EFFECTIVENESS	***EFFICIENCY (cost-effectiveness)***	***COHERENCE***	***OVERALL SCORE***
Baseline option	0	0	0	0
Option 1	++	-	+	+
Option 2	++	+	++	++

Magnitude of impact as compared with the Baseline option (the baseline is indicated as 0): ++ strongly positive; + positive; – – strongly negative; – negative; ≈ marginal/neutral; ? uncertain; n.a. not applicable

Preferred option

In light of the above analysis, which led to the overall score of each policy option in *Table 21*, **option 2** is deemed the preferred policy option

1.2. Credit risk framework – Internal model approach

General background

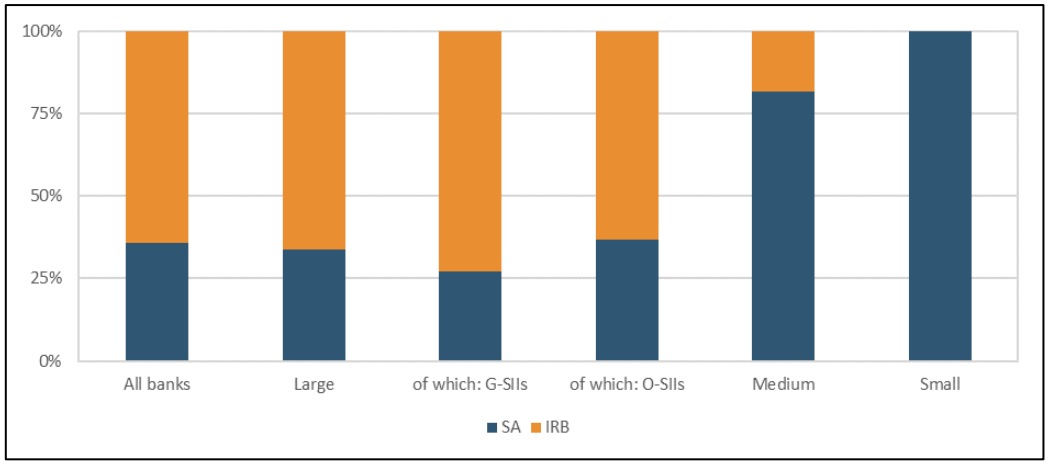
As an alternative to using the SA-CR, banks may also use one of the two approaches based on internal models, the so-called internal ratings-based (IRB) approaches, to calculate capital requirements for credit risk (subject to supervisory approval). The advanced IRB (AIRB) approach allows modelling of all key risk parameters, whereas the foundation IRB (FIRB)

[173] For example, mortgages in the US have a much shorter average maturity (about 7 years) than in the EU, meaning the property values can be updated when the loans are rolled over.

approach is somewhat more restrictive as modelling is allowed for only one out of the three key risk parameters[174].

The IRB approaches are complex and are therefore used primarily by large, sophisticated institutions. However, given the large market shares of these institutions, the capital requirements for the majority of credit risk exposures in the EU banking sector are calculated using the IRB approaches (see *Figure 16* below).

Figure 16: Exposure value: SA versus IRB composition (% of total credit risk exposure value)



Source: EBA 2018-Q2 QIS data and EBA calculations. Note: Based on a sample of 189 banks.

The GFC highlighted important deficiencies of the IRB approaches. A range of studies conducted at both international and EU level found an unacceptably wide variation in capital requirements across banks that cannot be explained solely by differences in the riskiness of banks' portfolios. This is undesirable, as it hinders the comparability of capital ratios and impacts the level playing field among banks. Also, the crisis has revealed instances where the losses incurred by banks on some portfolios were significantly higher than the model predictions, which resulted in insufficient levels of capital held by individual banks.

The December 2017 Basel III agreement aimed to address these deficiencies primarily by limiting banks' flexibility in calculating their capital requirements for credit risk[175]:

[174] Under the AIRB approach, the obligor's probability of default (PD), loss given default (LGD), and exposure at default (EAD) are allowed to be modelled, while under the FIRB approach only the PD is allowed to be modelled.

[175] Other changes included a modification of the "roll-out" requirement: The principle that those banks that intended to use the IRB approach for some of their exposures are obliged to roll it out to all exposures was modified so that this obligation applies separately for each exposure class.

- the possibility to use internal models was either limited or altogether removed for portfolios and risk parameters where the BCBS had concluded that the available data was insufficient to ensure reliable modelling (i.e. exposures to financial institutions and exposures to large corporates fall in the first category, while equity exposures fall in the second one);
- new minimum values ('input floors') were introduced for banks' estimates of the probability of default (PD), loss-given default (LGD) and exposure at default (EAD).

As outlined in Section 5.1., the preferred option for the implementation of the final elements of the Basel III reform in the area of credit risk is a revision of the IRB approaches in line with the Basel III standard with some adjustments. The subsections below discuss each of the aforementioned key areas and assess which adjustments are necessary in each case (if any).

1.2.1. Reduction in the scope of internal modelling

Problem definition

The GFC has revealed that in some cases banks have used the IRB approaches even though the respective portfolios were unsuitable for modelling due to insufficient amounts of relevant data being available. This had detrimental consequences for the robustness of the capital requirements produced by those models and thus on financial stability. Banks were able to continue using models for those portfolios because the applicable framework contained insufficient limits as regards the availability of IRB approaches for exposures classes that are difficult to model.

Specifically, banks' exposures to other banks, other financial sector entities and large corporates typically exhibit low levels of default. For such low-default portfolio (LDP) exposures, it has been shown that the low number of observed defaults makes it difficult for banks to produce reliable LGD estimates. Banks have tried to compensate for this lack of data by employing different statistical techniques, but this has resulted in an undesirable level of dispersion across banks in the level of estimated risk.

Moreover, where banks use internal models to calculate the capital requirements for credit risk of equity exposures, they typically base their risk assessment on publicly available data. Since all banks have access to pretty much the same public data, it is hard to justify the differences one can observe in capital requirements produced by banks' models for those exposures. Also, the internal modelling of equity exposures entails a level of complexity that may not be justified in light of the relatively low amounts of equity exposures held by banks in their banking books.

In view of the above, the final Basel III standards limit the exposures classes for which internal models can be used to calculate capital requirements for credit risk. Specifically, it allows the use of internal models only for those exposure classes for which robust modelling

is possible. The abovementioned exposure classes are, in contrast, "migrated" to less sophisticated approaches:

- for exposures to large corporates with total consolidated annual sales greater than EUR 500 million, for exposures to banks and for exposures to financial institutions (including financial institutions treated as corporates), the use of the AIRB approach is no longer available: for those exposures banks can only use the FIRB approach[176];
- for equity exposures, the IRB approaches are no longer available: banks must use the SA-CR.

The BCBS' decision is based on the consideration that disallowing the use of certain modelling approaches in this manner would remove an important source of undue RWA variability and thereby improve the comparability of capital requirements. In addition, it would remove a source of unnecessary complexity from the framework.

However, an unintended consequence of this "migration" may arise in the EU for exposures to public sector entities (PSEs) and regional governments and local authorities (RGLAs). Under the current IRB approach, exposures to PSEs and RGLAs are treated either as exposures to central governments or as exposures to banks. For the purpose of RWA calculation, it is of relatively limited significance into which category a PSE and RGLA fall, as the applicable rules are broadly similar.

Under the final Basel III standards, exposures to PSEs and RGLAs can continue to be treated either as exposures to central governments or as exposures to banks. However, given that under those standards exposures to banks are subject to significant modelling constraints, while exposures to central governments are not, the classification of a PSE or RGLA exposure can have potentially significant implications on the capital requirement for that exposure.

Policy options

Baseline option*: no change to the prudential framework*

- All IRB approaches remain available for exposures to large corporates, banks and other financial institutions.
- The treatment of exposures to RGLAs and PSEs remains unchanged.

Option 1*: implement the key change in the scope of the IRB approaches as foreseen by the Basel III standard*

- The AIRB approach is no longer available for LDP exposures: only the FIRB approach remains available.
- The IRB approaches are no longer available for equity exposures: banks have to use the SA-CR.

[176] See footnote 163 for an explanation of the difference between the two approaches.

***Option 2**: implement the key change in the scope of the IRB approaches as foreseen by the Basel III standard with adjustments*

- Same as Option 1.
- In addition, address the unintended consequences of Option 1 for exposures to PSEs and RGLAs by creating a new PSE/RGLA exposure class; the AIRB approach would remain available for those exposure classes, subject to input floors (see next section for details on the latter).

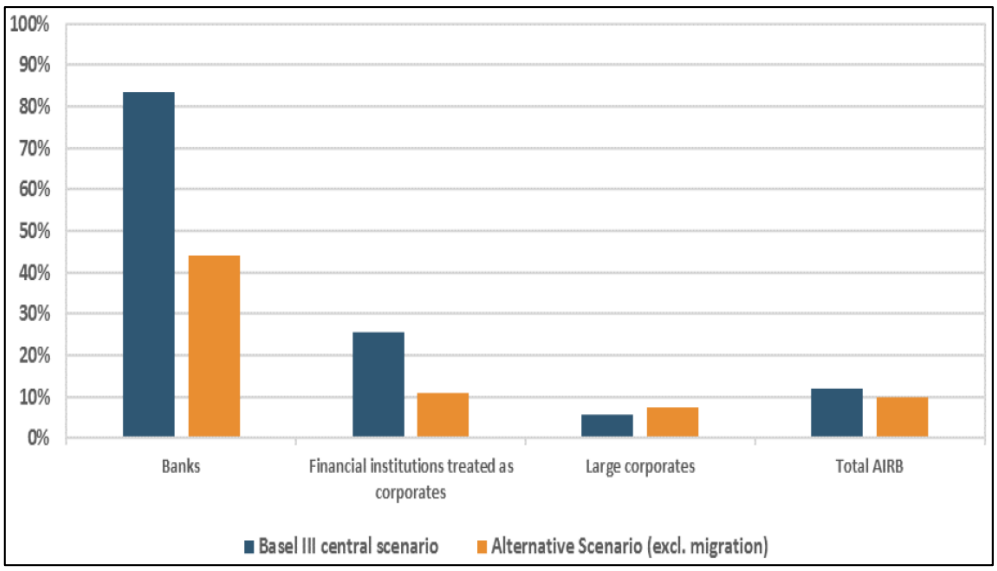
Impacts and comparison across options

The **baseline option** would leave the problems identified in the current prudential framework unaddressed (insufficient robustness of certain models, undue variability of RWAs, inappropriate levels of capital requirements).

The restrictions proposed under **Option 1** are a key measure to strengthen the reliability of internal models. Indeed, in its policy advice on the implementation of the final elements of the Basel III reform, the EBA stated that "[t]his measure is consistent with the intention to limit the variability of model outcomes, since these portfolios typically show severe shortages of default data. In particular, the availability of empirical observations for LGD estimation is problematic for LDPs, since the realised LGDs can only be observed on defaulted exposures."

Under the option, however, in line with the final Basel III standard, the use of the FIRB approach for exposures to banks, financial institutions and large corporates is still allowed, as valid PD modelling remains achievable in this context. The impact of Option 1, in terms of increase in capital requirements for AIRB exposures to banks and to financial institutions, would be among the highest of all the impacts due to the implementation of the final elements of the Basel III reform (80% and 30% increase in RWAs, respectively, see *Figure 17* below). The migration from AIRB to FIRB is the main driver of the increase. Exposures to large corporates would be much less affected (+5%) due to a decrease in the regulatory LGD for these exposures under the FIRB approach compared to the current rules.

Figure 17: Marginal impact on RWAs per exposure class due to their "migration" to the IRB approach (relative to current RWAs of AIRB exposures in each exposure class)



Source: EBA Policy advice on the Basel III reforms: credit risk, Figure 25.

For exposures to PSEs and RGLAs, the EBA has assessed that, under option 1, PSEs and RGLAs that are currently treated as exposures to central governments, would see a decrease in capital requirements between 10% and 28%, respectively, partly as a result of the removal of the current 1.06 scaling factor. In contrast, exposures to PSEs and RGLAs that are currently treated as exposures to banks would see an increase of 78%, mostly as an effect of the of the banks' exposure class being limited to the FIRB approach.

This discrepancy in impact is not justified by the underlying risk characteristics of the entities in question. As stated by the EBA, "the inconsistent treatment of PSEs and RGLAs leads to disproportionate impacts and adds unnecessary complexity to the framework". Besides, implementing this differentiated treatment could also lead to an increase in undue RWA variability across banks, rather than a decrease, as the applicable treatment is decided by competent authorities.

Option 2 would address the weaknesses of the IRB approach as identified by the Basel Committee by implementing all the elements of the reform (i.e. those listed in option 1). Compared to option 1, however, it would have the advantage of removing the unjustified disparity in impact on exposures to PSEs and RGLAs by treating them according to the same principles, while at the same time reducing the undue RWA variability for those exposures (because of the application of the input floors). The increase in capital requirements for banks arising from model "migration" would be somewhat lower under option 2 compared to option 1 as no "migration" would be imposed on any exposures to PSEs/RGLAs.

Table 22: Comparison of policy options against effectiveness, efficiency and coherence criteria

	EFFECTIVENESS	***EFFICIENCY (cost-effectiveness)***	***COHERENCE***	***OVERALL SCORE***
Baseline option	0	0	0	0
Option 1	++	+	+	+
Option 2	++	+	++	++

Magnitude of impact as compared with the Baseline option (the baseline is indicated as 0): ++ strongly positive; + positive; – – strongly negative; – negative; ≈ marginal/neutral; ? uncertain; n.a. not applicable

Preferred option

In light of the above analysis, which led to the overall score of each policy option in *Table 22*, **option 2** is deemed the preferred policy option

1.2.2. Input floors

Problem definition

The financial crisis revealed that the calibrations of regulatory risk parameters used as inputs to the regulatory formula to calculate RWAs under the IRB approaches were at times not calibrated in a sufficiently robust or conservative manner by some banks, leading to unwarranted RWA variability and possibly insufficient capital requirements in such cases.

As a result, the final Basel III standards introduce minimum values for bank-estimated IRB parameters that are used as inputs to the calculation of RWAs ('input floors'). These input floors would act as safeguard to ensure that capital requirements do not fall below prudent levels; they would mitigate model risk due to such factors as incorrect model specification, measurement error and data limitations; and they would improve the comparability of capital ratios across banks.

In some cases, these floors consist of recalibrated values of the existing Basel II input floors, while in most cases the input floors are new. They include PD floors for both the AIRB approach and the FIRB approach, and LGD and EAD floors for the AIRB approach.

In order to achieve their intended aims, the input floors must be calibrated in a sufficiently conservative manner. However, where those floors are calibrated too conservatively, this may discourage banks from adopting the IRB approaches and the associated risk management standards. Banks may also be incentivised to shift their portfolios to higher risk exposures and exploit the constraint imposed by the input floors with a view to generating a higher return. In order to avoid such unintended consequences, risk parameter floors should appropriately reflect certain risk characteristics of the underlying exposures, in particular by taking on different values for different types of exposure where appropriate.

Under the final Basel III standard, the PD floor is increased from 0.03% under Basel II to 0.05%. LGD floors apply to secured and unsecured exposures and range from 0% to 50%, depending on the type of the exposure and on the type of collateral used (see *Table 23*).

Table 23: LGD input floors under Basel II (current) vs Basel III (new**)**

Collateral type	Current value of LGD_S	Proposed new value of LGD_S
Eligible financial collateral	0%	0%
Receivables	35%	20%
CRE/RRE	35%	20%
Other physical collateral	40%	25%

Source: Commission

The final Basel III standards furthermore introduce a formula for the calculation of the input floor for partially secured exposures. The comprehensive list of LGD floors introduced by the Basel III standards constitute a significant change from those contained in the Basel II standards, which apply only at portfolio level and only to exposures secured by immovable property. No input floors apply to sovereign exposures.

While SL exposures[177] have risk characteristics that differ from general corporate exposures, the final Basel III standards apply the same input floors in both cases. The EBA's analysis has shown that an LGD input floor may tightly constrain banks' own estimates for SL exposures, due to the low levels of banks' own LGD estimates at the reference date. The EBA has not found conclusive evidence that the LGD input floor for general corporate exposures is excessively conservative for specialised lending exposures, pointing to banks' "heavy losses suffered from specialised lending under adverse market conditions". However, the explanatory power of the evidence is limited by the small size of the sample used and the complexity and idiosyncrasies of the underlying transactions, so that further analysis may be warranted.

Policy options

***Baseline option**: no change to the prudential framework*

- The existing Basel II PD floor of 0,03% is kept.
- The PD, LGD and EAD input floors provided by the final Basel III standards are not introduced.

[177] For a general explanation of SL exposures, see section 1.1.

***Option 1**: full implementation of Basel III*

- The new PD, LGD and EAD input floors provided by the final Basel III standards are introduced.

***Option 2**: implementation of Basel III input floors with possibility for EU-specific adjustments*

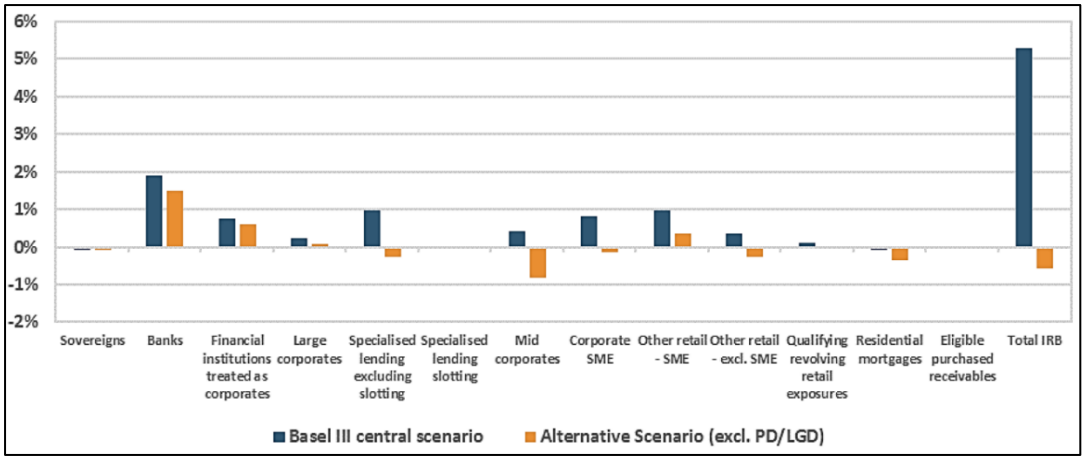
- The new PD, LGD and EAD inputs floors provided by the final Basel III standards are introduced.
- An empowerment allowing the Commission to adopt a delegated act is introduced to adapt the input floors for specialised lending, based on a detailed analysis to be conducted by the EBA.

Impacts and comparison across options

Under the **baseline option**, the flaws identified in the current framework would remain unaddressed (lack of robustness of modelling approaches in certain circumstances, undue RWA variability).

Option 1 would provide tools to address the problems identified under the current framework. The level of the input floors contained in the final Basel III standards appear to be calibrated in a sufficiently conservative manner to achieve this aim, while at the same time being adapted to the risk characteristics of the underlying exposures. Concerning the impact of this option on RWAs, the EBA has assessed that around 20% of the total increase in IRB RWA would be due to the revised PD floor, and around 80% would be due to the LGD floors, whereas the EAD floor would only play a "minor role". An illustration of the impacts by exposure class is shown in *Figure 18* below (see blue "Basel III central scenario").

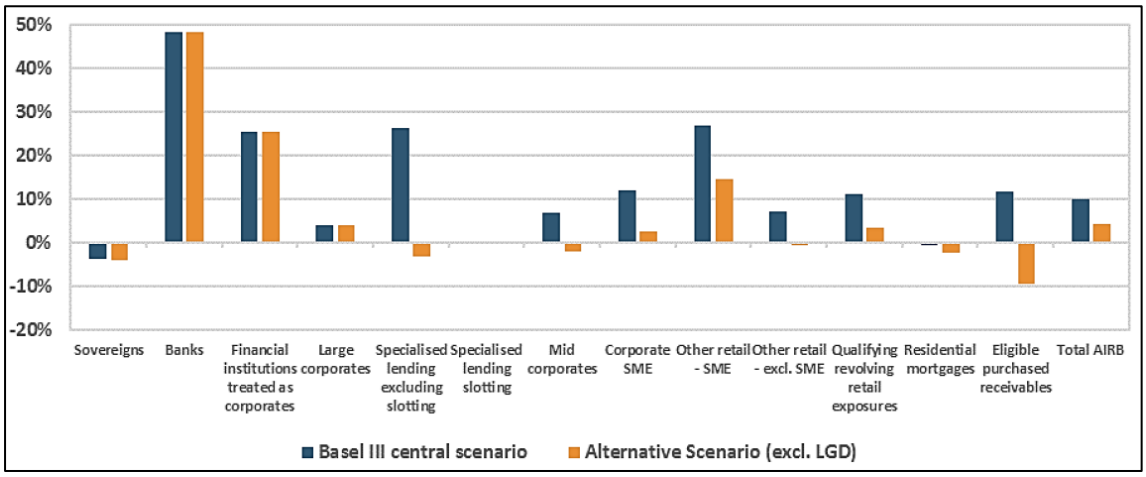
Figure 18: Percentage change in IRB RWA per exposure class excluding PD & LGD input floors (relative to total current IRB RWA)



Source: EBA Impact Study on the Basel III reforms, Figure 52.

The potential impact of the floors on SL exposures would be particularly important (30% increase in RWAs), mainly due to the LGD floors. In fact, SL is the exposure class that would be the most affected by the LGD floors (see *Figure 19* below), because those are significantly higher than the LGDs currently calculated by banks.. On the one hand according to the EBA, the aforementioned "heavy losses" incurred by SL exposures may be insufficiently reflected in banks' current loss estimates, which would suggest that an increase in capital requirements would be justified. On the other hand, stakeholders have argued that SL exposures tend to be low-risk and that the projected increase in capital requirements would therefore be unjustified. Unjustified increases in capital requirements would be particularly undesirable in the case of SL in view of its importance for the real economy as they might result in undesirable constraints on such lending.

Figure 19: Marginal impact (difference between orange and blue bars) of the LGD floors per exposure class, in terms of increase in A-IRB RWAs (relative to total current A-IRB RWAs) [alternative scenario excludes LGD input floors for SL exposures]



Source: EBA Impact Study on the Basel III reforms, Figure 52.

Option 2 would be as effective as option 1 in tackling the aforementioned problems relating to risk parameter estimation. In addition, the empowerment for the Commission would prevent potential unintended consequences on specialised lending option 1 might entail.

Table 24: Comparison of policy options against effectiveness, efficiency and coherence criteria

	EFFECTIVENESS	***EFFICIENCY (cost-effectiveness)***	***COHERENCE***	***OVERALL SCORE***
Baseline option	0	0	0	0
Option 1	++	-	+	+
Option 2	++	++	++	++

Magnitude of impact as compared with the Baseline option (the baseline is indicated as 0): ++ strongly positive; + positive; – – strongly negative; – negative; ≈ marginal/neutral; ? uncertain; n.a. not applicable

Preferred option

In light of the above analysis, which led to the overall score of each policy option in *Table 24*, **Option 2** is deemed the preferred policy option

1.3. Market risk framework

Problem definition

Financial instruments held by banks for trading purposes (e.g. shares, bonds, derivatives), are subject to market risk, i.e. the risk of movements in the instruments' market prices that impact banks' daily profits and losses. These market price movements can be large and sudden which can affect a bank's solvency position. Because of the idiosyncratic nature of this risk, the CRR contains a specific treatment for the financial instruments subject to market risk, referred to as trading book positions[178]. As is the case for other types of risk, the CRR allows banks to use two types of approaches to calculate their capital requirements for market risk: a standardised approach and an internal model approach.

During the GFC, the level of capital required against trading book exposures proved insufficient to absorb the losses incurred by a number of banks, both in the EU and in non-EU jurisdictions[179]. The magnitude and the severity of the adverse market movements revealed that some banks, although fully compliant with existing market risk capital requirements, did not, in fact, have sufficient capital to cover market risk losses that arose during the GFC. The

[178] In order to determine the relevant approach to calculate capital requirements for the positions they have, banks are required to allocate those positions to either the trading book or the non-trading book, based on the intention of each transaction. Non-trading book positions, often referred to as banking book exposures, are usually financial instruments held by banks until they mature (e.g. loans) and mainly subject to credit risk. For this reason, banking book exposures are subject to the capital requirement for credit risk.
[179] See https://www.bis.org/bcbs/publ/d457_note.pdf

crisis therefore revealed a number of weaknesses in the design of the framework used for calculating capital requirements for market risk that needed to be addressed.

In 2009, a first reform of the market risk standards (known as the 'Basel 2.5' reform) was adopted by the BCBS. This reform focused on increasing the overall capital requirements for market risk to address the most pressing deficiencies in the international standards in this area. It was implemented in Union law by means of Directive 2010/76/EU[180] (also known as the third Capital Requirements Directive or CRD III) and subsequently incorporated in the CRR.

Nevertheless, the 2009 reform did not address all the design flaws present in the market risk framework, such as[181]:

- lack of clarity in the scope of application of the capital requirements for market risk: the lack of clear rules around instruments' allocation to the trading book and the banking book allows banks to engage in regulatory arbitrage[182], i.e. allocate instruments to the 'book' that generates the lowest capital requirements;

- insufficient risk capture: many features of market risk are not adequately reflected in the current rules for calculating capital requirements. Consequently, the amount of capital required for certain instruments is not aligned with the real risks that banks face when holding these instruments[183]. For some trading book positions, banks may not have sufficient amounts of capital to absorb potential losses that may arise from adverse changes to market conditions. This could endanger their solvency. For other trading book positions the capital requirements may, conversely, be excessive compared to the actual risk. This could negatively affect banks' trading in the specific instruments and hence have an impact on their market liquidity and transactions costs;

- high variability of modelling outcomes: as highlighted by the BCBS regulatory and consistency assessment program[184], a high variability of outcomes across banks worldwide using the internal model approach to calculate the capital requirements for market risk was observed, even for identical portfolios. Similar observations were made

[180] Directive 2010/76/EU of the European Parliament and of the Council of 24 November 2010 amending Directives 2006/48/EC and 2006/49/EC as regards capital requirements for the trading book and for re-securitisations, and the supervisory review of remuneration policies.
[181] A full overview of the weaknesses of the Basel 2,5 market risk standards has been described by the BCBS in https://www.bis.org/bcbs/publ/d457_note.pdf.
[182] For example, prior to the crisis, securitisation instruments were usually allocated to the trading book because of the low volatility of the securitisation markets (leading to low capital requirements under the market risk rules) even if there was no evidence of regular trading in these instruments (which made it likely that banks holding those positions did not really actively trade them).
[183] As an example, the risk of holding more illiquid instruments is not recognised since the current capital requirements for market risk assume that all trading book positions can be extinguished within two weeks.
[184] See https://www.bis.org/publ/bcbs267.htm.

across EU banks following the EBA's Market Risk Benchmarking exercises[185]. The dispersion of outcomes has been found larger for more complex trading portfolios. These findings indicate that banks have used the leeway offered by the rules to implement market risk internal models in different manners, using a wide range of assumptions.

To tackle the abovementioned design flaws, after the Basel 2.5 reform, the BCBS launched a more fundamental reform of the international standards for market risk, known as the fundamental review of the trading book (FRTB). A first set of revised market risk standards (hereafter 'original FRTB standards') was published by the BCBS in January 2016, with a recommended implementation deadline of 1 January 2019; it addressed the above issues by:

- providing more objective rules to allocate transactions either to the trading book or to the banking book;
- developing a revised standardised approach ('FRTB SA') and internal model approach ('FRTB IMA') that better capture market risk;
- reducing the flexibility for banks to use their own modelling assumptions under the FRTB IMA, while helping supervisors to assess their robustness with the help of new quantitative tests that all FRTB IMA must fulfil.

In the course of monitoring the expected impact of the original FRTB standards, the BCBS identified a number of issues that needed to be addressed. Following a consultation[186] launched in March 2018, the BCBS changed certain elements of the original FRTB standards and published a revised version in January 2019 (hereafter 'final FRTB standards'), with a new recommended implementation deadline set to 1 January 2022[187] (as in the case of the rest of the final elements of the Basel III reform, the BCBS postponed this deadline by one year, to 1 January 2023, in light of the COVID-19 pandemic).

The Commission originally proposed to introduce binding capital requirements based on the original FRTB standards as part of the CRR II to address the deficiencies of the market risk framework. However, given the BCBS's subsequent decision to revise those standards, with timelines incompatible with the milestones in the CRR II negotiation process, the European Parliament and the Council agreed to implement the original FRTB standards in the prudential framework as a first step only for reporting purposes[188]. Reporting were set to start once the elements of the final FRTB standards that would be necessary for the reporting requirements would be incorporated in Union law through secondary legislation[189]. The

[185] See section on "Market risk" in https://www.eba.europa.eu/regulation-and-policy/supervisory-benchmarking-exercises.
[186] See https://www.bis.org/bcbs/publ/d436.htm.
[187] See https://www.bis.org/bcbs/publ/d457.htm.
[188] This allows banks time to prepare for implementing the new approaches (in particular banks that will be using the FRTB IMA) and also allows for the monitoring of the functioning of the new approaches before they will be used for the purpose of calculating capital requirements.
[189] The secondary legislation comprises a delegated act specifying some technical elements of the FRTB SA, adopted by the Commission on 17 December 2019, and a number of regulatory technical standards mandated to EBA to specify some technical elements of the FRTB IMA, already submitted by EBA to the Commission and which adoption is currently being processed.

introduction of binding capital requirements based on the final FRTB standards was left to a separate ordinary legislative initiative. In the meantime, EU banks will keep using the current approaches set out in the CRR to calculate their capital requirements for market risk.

Policy options

Baseline option *– No changes to the prudential framework related to market risk*

The baseline option would consist in keeping the FRTB standard as a reporting requirement, as agreed under CRR II, and maintain the current approaches set out in the CRR to calculate capital requirements for market risk. As a consequence, the weakness of those approaches would be left unaddressed. The reporting requirement based on the final FRTB standards as adopted under the CRR II would help supervisors to further assess EU banks' exposure to market risk based on the revised FRTB SA and FRTB IMA, but this assessment would remain indicative. Moreover, as some important elements of the final FRTB standards, most notably the revised scope of application of the trading book, were not yet included in the CRR II, they would not be implemented in Union law.

Option 1 *- Convert the FRTB reporting requirement into a capital requirement, fully aligned with the Basel standards*

Option 1 would implement the necessary amendments to the prudential framework to convert the reporting requirement based on the FRTB approaches adopted in the CRR II into a binding capital requirement fully aligned with the final FRTB standards agreed by the BCBS. Consequently, EU banks would no longer use the current approaches for calculating capital requirements for market risk and they would therefore no longer be exposed to the weaknesses identified in those approaches during the GFC. The prudential framework would also be amended to introduce the revised elements of the final FRTB standards that have not yet been included in the CRR II for the purposes of the reporting requirements. The amendments would include, for example, the revised standards defining the scope of application of the trading book, the revised disclosure requirements based on the FRTB approaches and the possibility to use a simplified standardised approach for banks with medium-sized trading books at supervisors' discretion.

In addition, under option 1, some of the specific adjustments to the final FRTB standards already adopted under the CRR II to take account of EU specificities[190] would be removed to fully align the EU rules with the final Basel standards.

Option 2 *- Convert the FRTB reporting requirement into a capital requirement, taking into account EU specificities and international level playing field.*

Similarly to option 1, option 2 would make the necessary adjustments to the prudential framework to convert the reporting requirement based on the FRTB approaches adopted in the CRR II into a binding capital requirement aligned with the final FRTB standards. EU

[190] For example, this would include the beneficial treatment of covered bonds issued by banks located in the EU set out in Article 325ah(1) of the CRR and the beneficial treatment of foreign exchange rates composed of the euro and the non-euro currency of a Member State set out in paragraphs 2 and 3 of Article 325av of the CRR.

banks would also no longer be allowed to use the current approaches for calculating capital requirements for market risk and would therefore no longer be exposed to the weaknesses identified in those approaches.

However, unlike option 1, option 2 would maintain the specific adjustments adopted under the CRR II to take account of EU specificities in the calculation of the binding capital requirements under the FRTB approaches. In addition, two additional adjustments would be introduced under option 2 to mitigate a potential excessive increase in capital requirements for market risk under the final FRTB standards affecting key trading/market making activities to the EU economy, specifically:

- treatment of collective investment undertakings ('CIUs') under both the internal model and the standardised approaches: CIUs play a crucial role in facilitating the accumulation of personal savings, whether for major investments or for retirement. They are also important because they make institutional and personal savings available to companies and projects which contribute to growth and jobs. The seamless provision of CIUs as investment product hinges on banks' ability to continuously offer to their clients the possibility to buy or sell back those instruments. For that purpose, banks must keep inventories of CIUs in their trading books. Under the final FRTB standard, banks can use internal models to calculate capital requirements for market risk due to exposures to CIUs only under the condition that the bank can look through the CIUs' composition[191]. When this condition cannot be met, banks would have to use the standardised approach, which presents much more conservative assumptions[192], leading to a significant increase in capital requirements for those products. A number of respondents to the consultation raised this issue and the EBA also highlighted the risk of a potentially excessive capital impact in its response to the Call for Advice. To ensure continued market-making in CIUs, adjustments would be proposed to the final FRTB standard with two main objectives, namely (i) to ensure that more CIUs could be eligible to internal model approach; and (ii) to ensure that the treatment of CIUs under the standardised approach is less penalising;
- treatment of carbon emissions allowances under the standardised approach: in the EU emission trading scheme (ETS), banks play an important role in providing liquidity to carbon emissions allowances market. They typically fill their clients' estimated demand for allowances at a future date via derivatives ('forward') transactions. Under

[191] The condition requires being able to frequently access the information on all the exposures composing the fund.

[192] Under the FRTB standardised approach, the market risk capital requirements of most CIUs (all CIUs, except those tracking recognised indices) would be based on either 'the mandate-based' or the 'single-equity' approaches, both lacking risk-sensitivity and considered too conservative by the industry. On the one hand, under the mandate-based approach, the CIUs would be capitalised based on a hypothetical portfolio which would produce the highest capital requirements according to the fund's mandate. On the other hand, the 'single-equity' approach would treat the CIU as an unrated equity exposure as an unrated equity exposure allocated to the "other sector" bucket, which attracts the highest RWs (e.g. 70% for delta equity risk class)."

the SA of the final FRTB standards, the exposures to carbon emission allowances are assimilated to electricity contracts, which could be considered too conservative in light of historical data. A number of respondents to the consultation paper raised concerns about the conservativeness of this treatment that does not reflect the volatility of the price of carbon emission allowances, which is closer to physical commodities than to electricity. In addition, the creation of the Market Stability Reserve by the Commission in 2015[193], aimed at addressing the surplus of allowances and improving the system's resilience to major shocks by adjusting the supply of allowances to be auctioned, has stabilised the volatility of the price of ETS allowances. This would justify creating a specific risk category for ETS allowances under the SA, distinct from electricity, with a lower risk weight equal to 40% to better reflect the actual price volatility of this EU-specific commodity.

In addition, as opposed to option 1, the use of the simplified standardised approach for banks with medium-sized trading books would not be left to the discretion of supervisors, but would rather be harmonised across the EU, consistently with the eligibility criteria agreed by co-legislators in the CRR II to exempt banks with the same profile from the FRTB reporting requirements[194].

Finally, monitoring the implementation of the final FRTB standards in other member jurisdictions of the BCBS would be key to identify, and potentially address, distortions to the playing field for EU banks' trading activities if some of these jurisdictions would delay the implementation of the FRTB framework or relax its calibration[195]. To do so, option 2 would introduce an empowerment for the Commission to delay, if necessary, the application of the capital requirements based on the FRTB framework and/or to adjust its calibration based on international developments. This empowerment would also allow the Commission to revise, if necessary, the specific adjustments introduced as part of this legislative initiative for the treatment of CIUs and carbon emissions allowances, based on a report mandated to the EBA.

Impacts of policy options

Under **the baseline option**, banks would not be subject to direct capital impacts, but they would still incur the operational costs of implementing and maintaining the FRTB approaches

[193] Decision (EU) 2015/1814 of the European Parliament and of the Council of 6 October 2015 concerning the establishment and operation of a market stability reserve for the Union greenhouse gas emission trading scheme and amending Directive 2003/87/EC (available at https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32015D1814&from=EN).

[194] These eligibility criteria, set out in Article 325a of the CRR, would therefore fulfil their original purpose as set out in the Commission proposal for the CRR II, before co-legislators agreed to keep the FRTB approaches for reporting purposes only.

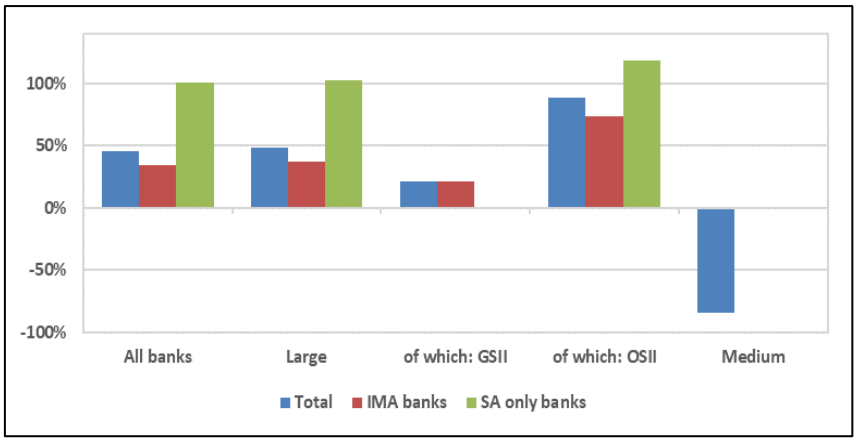
[195] Hong Kong and Singapore publically announced the application of the final FRTB standards as a reporting requirement from 1 January 2023 and committed to implement the standards as a capital requirements at a later stage. Other jurisdictions have already publically indicated a delay of the application of the final FRTB standards as capital requirement, as compared to the BCBS recommended implementation date: Q3 2023 for Japan; Q1 2014 for Canada; 1 January for Australia. Finally other major jurisdictions (e.g. US, CH) have publically announced their commitment to implement the FRTB framework as capital requirements without more details at this stage.

for the reporting requirements introduced by the CRR II, in parallel with the existing approaches for calculating capital requirements for market risk.

Both **options 1 and 2** would introduce more effective approaches for calculating capital requirements for market risk by addressing the weaknesses of the current approaches. Both options 1 and 2 would also be more cost-effective compared to the baseline by limiting the operational costs , as banks would be required to use the same approaches (based on the final FRTB standards) for both reporting and capital calculation purposes.

As part of its 2020 CfA response, the EBA estimated that **option 1** would lead to an increase of the 0.8% in the total capital requirements of EU banks included in the EBA sample (roughly a 50% increase in the capital requirements for market risk). As illustrated in *Figure 20* below, this impact appears more pronounced for banks using the FRTB SA as compared to banks using the FRTB IMA. The impact also varies depending on the group of EU banks.

Figure 20: Impact of the final FRTB standards in terms of total market risk RWA (relative to total current market RWA), by size and bank type



Source: EBA, based on data collected for the December 2020 report.

Note: this impact comes from the "reduced bias estimation" sample in which the EBA removed 3 G-SII banks from the sample due to some concerns that they may have overestimated the impact.

As a result, EU banks particularly active in these areas would incur a large increase in the capital requirement for trading book exposures. This would potentially lead to increased prices, reduced trading volumes and restricted access to funding and risk management solutions for some economic actors. However, it is important to note that the impacts of the final FRTB standards may be overestimated in the EBA CfA QIS since some elements of the rules that have the potential to reduce the capital requirements of EU banks under the FRTB IMA are not yet operational (e.g. the use of data pooling services to improve the passing rate of the assessment of model lability) or are not yet applicable (e.g. the final draft RTS on capital requirement for "non-modellable risk factors" developed by the EBA is still in the process of being adopted by the Commission).

Option 2 would further improve risk capture compared to option 1 by making a number of adjustments that better reflect the market risk of certain specific instruments traded by EU banks. However, the EBA has so far not been able to estimate the impact of those adjustments[196]. Therefore, option 2 would mandate the EBA to prepare a report reviewing whether those adjustments achieve their objectives.

Table 25. Comparison of policy options against effectiveness, efficiency and coherence criteria

	EFFECTIVENESS	*EFFICIENCY (cost-effectiveness)*	*COHERENCE*	*OVERALL SCORE*
Baseline option	0	0	0	0
Option 1	+	-	+	≈
Option 2	++	+	++	++

Magnitude of impact as compared with the Baseline option (the baseline is indicated as 0): ++ strongly positive; + positive; – – strongly negative; – negative; ≈ marginal/neutral; ? uncertain; n.a. not applicable

Preferred option

In light of the above analysis, which led to the overall score of each policy option in *Table 25*, **option 2** is deemed the preferred policy option.

1.4. Operational risk framework

1.4.1. General background

Under the current prudential framework, operational risk is broadly defined as the risk of loss resulting from inadequate or failed internal processes (resulting from either internal staff or internal systems) or from external events[197]. This risk usually encompasses a wide subset of more specific risks related to the daily functioning of banks, such as legal risk, conduct risk, IT risk, cyber risk and risk of fraud.

The capital requirements for operational risk under the CRR are based on the Basel II standards that were adopted by the BCBS in 2005. Under the CRR, EU banks can calculate their operational risk capital requirement using either an internal model approach subject to supervisory approval (the so-called advanced measurement approach (AMA)[198]) or one of the

[196] Nevertheless, in its December 2019 CfA response, the EBA highlights that the impact of the final FRTB standards may be driven by the treatment for CIUs.

[197] Article 4(1), point (52) of Regulation (EU) No 575/2013.

[198] The own funds requirements for operational risk are set out in Articles 312 to 324 of Regulation (EU) No 575/2013.

three standardised approaches[199] with varying degrees of complexity. The requirements banks have to fulfil to use the AMA offer significant flexibility allowing banks to use a diverse range of modelling practices.

According to the EBA Risk Assessment Report[200] published in December 2020, operational risk accounted for around 10% of the total capital requirement of EU banks in June 2020, representing the second largest capital requirement after credit risk. The EBA also showed that the occurrence of operational risk events has almost tripled from 2014 to 2019 (see *Figure 21* below). However, during the same period, the amount of total losses from new events has significantly decreased: they represented 1.74% of the total CET1 amounts of EU banks in 2014 against 0.76% in 2019.

In their responses to the autumn 2020 Risk Assessment Questionnaire (RAQ), EU banks and analysts acknowledged the increased importance of operational risk over the last few years[201]. In their responses, banks and analysts identified cyber-risks and data security as currently the main drivers of operational risk (other majors drivers identified include money laundering, terrorist financing, conduct risk and legal risk). Supervisors also consider operational risk as a key area of supervisory scrutiny, for instance as highlighted by through the key messages on the outcome of the ECB 2019 supervisory review and evaluation process (SREP)[202].

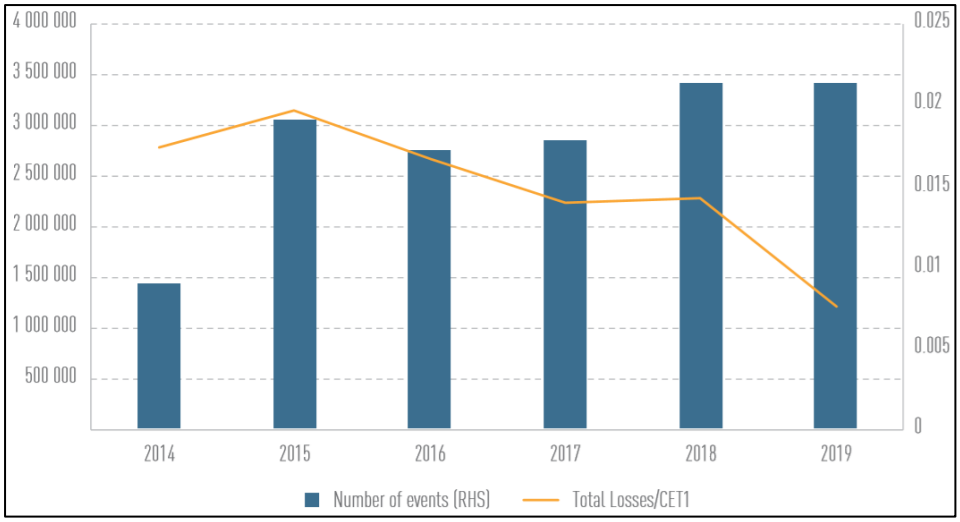
Figure 21. Total losses from new events in operational risk as a share of CET1 capital (right-hand side y-axis) and number of new events (left-hand side y-axis) over time.

[199] The Basic Indicator Approach (BIA) is the least complex of the three approaches, originally designed for small and non-complex banks. Under this approach, the capital requirement is equal to a percentage of a bank's GI indicator. In contrast, the Standardised Approach (TSA) is more sophisticated than the BIA as it allows a more granular treatment of the GI indicator. The alternative standardised approach (ASA), which is a variant of the TSA, allows banks with specific business models to use a simplified method to compute operational risk capital requirements.

[200] See Risk Assessment of the European Banking System.

[201] Over 58% of respondents share the view that the importance of operational risk has increased over recent years, marking the highest level of that perception as collected through of the autumn RAQs over the past three years.

[202] ECB: The Supervisory Review and Evaluation Process in 2019 – Aggregate SREP outcome for 2019, January 2020.



Source: Risk Assessment of the European banking system, EBA, December 2020.

As observed by the BCBS[203], the GFC highlighted some weaknesses in the capital requirements for operational risk under the Basel standards, which in many cases resulted in insufficient capital requirements to cover the actual operational risk to which banks were exposed to. Despite a significant increase in the number and severity of operational risk events observed after the GFC[204], EU banks' capital requirements for operational risk have remained relatively stable afterwards.

An important weakness identified by the BCBS is the lack of risk-sensitivity in the calculation of operational risk capital requirements under the standardised approaches. Under those approaches, the capital requirements for operational risk are calculated as a percentage of the gross income (GI) indicator (basically, the positive annual gross income of a bank) to estimate operational risk exposures. In other words, the existing approaches are based on the assumption that banks' potential losses related to operational risk are linearly proportionate to their revenues. As a result, the decrease in banks' annual gross income during the GFC led to a mechanical decrease of the capital requirements for operational risk while at the same time banks suffered from an increase in actual losses due to operational risk events.

A second weakness identified by the BCBS is the inappropriate capture of potential operational risk losses by banks' AMA. The BCBS observed a wide variability of operational risk capital requirements calculated under banks' AMA. This is mainly due to the significant flexibility offered to banks in modelling AMA that led many banks to choose modelling assumptions that ultimately underestimate the actual risks they are exposed to[205]. As part of

[203] The BCBS launched a number of comprehensive data collection on banks' operational losses after the GFC confirming the weakness of the international standards to appropriately capture this risk (see 2008 BCBS loss data collection exercise, 2010 BCBS QIS, 2015 BCBS QIS).
[204] For instance, the BCBS showed that fines related to misconduct rose from less than EUR 10 billion in 2008 to more than EUR 60 billion in 2014 for a sample of 111 internationally active banks. The number of those fines surged from less than 20 in 2008 to almost 100 in 2015 (see Finalising Basel III – In brief).
[205] See Basel III Monitoring report – Results of the cumulative quantitative impact studies

its 2019 SREP report, the ECB confirmed[206] these findings for some SI under its direct supervision.

To address the above weaknesses of the current approaches, the BCBS adopted revised standards for operational risk as part of the final Basel III reforms. More specifically, the BCBS removed the use of internal models for operational risk and replaced the three existing standardised approaches with a single revised standardised approach, known as the Standardised Measurement Approach (SMA).

The SMA improves the risk-sensitivity of the current standardised approaches by combining[207] two components to determine the capital requirement for operational risk: the Business Indicator Component (BIC), that takes into account the main elements of banks incomes and expenses, and the Internal Loss Multiplier (ILM), that takes into account banks historical operational risk losses.

1.4.2. Implementation of the Internal Loss Multiplier (ILM)

Problem definition

In the development of the revised standards for operational risk, the BCBS collected some empirical evidence suggesting that banks that have experienced higher operational risk losses in the past were more prone to experience higher operational risk losses in the future. In light of this observation, the BCBS proposed that a bank's capital requirement for operational risk under the SMA should be somewhat proportionate to the bank's historical operational risk losses. The loss[208] data are incorporated through the Loss Component (LC) in the formula defining the ILM. Basically, if a bank suffered large historical operational risk losses (relative to its incomes and expenses as measured by the BIC) the ILM would be greater than 1, which would ultimately increase the capital requirement for operational risk under the SMA. Conversely, if a bank suffered low historical operational risk losses (relative to its incomes and expenses as measured by the BIC) the ILM would be lower than 1 which would ultimately decrease the capital requirement for operational risk under the SMA.

The revised Basel standards for operational risk offer a number of discretions for the implementation of the SMA regarding the incorporation of historical operational risk losses. First, they allow each jurisdiction to disregard the use of the historical operational risk losses in the calculation of the capital requirements for operational risk of all 'bucket 2' and 'bucket 3' banks[209] (mostly medium and large banks) by setting the ILM to 1. In jurisdictions where this discretion would be exercised, the capital requirement for operational risk under SMA of these banks would therefore be equal to their BIC component.

[206] See The Supervisory Review and Evaluation Process in 2019 – Aggregate SREP outcome for 2019
[207] The capital requirement for operational risk under the SMA is a simple product of the BIC and the ILM.
[208] More specifically, these loss data use the average annual operational risk losses incurred by the bank over the previous ten years.
[209] The revised Basel standards for operational risk differentiate three groups of banks based on their Business Indicator (BI). Banks with a BI of less or equal to EUR 1 billion are assigned to bucket 1, while banks with a BI of more than EUR 30 billion are assigned to bucket 3. All other banks are assigned to bucket 2.

Second, the they allow each jurisdiction to incorporate the historical operational risk losses in the calculation of the capital requirements for operational risk of all 'bucket 1' banks[170] (mostly small banks), for which the ILM is set to 1 by default, provided that they meet some requirements related to the collection and management of their operational risk loss data. The BCBS deemed that incorporating by default the use of the historical operational risk losses in the calculation of the capital requirements for operational risks under the SMA would make the approach too complex for those banks.

In addition, in jurisdictions that allow banks to incorporate the historical operational risk losses in the calculation of the capital requirements for operational risks, those banks may request their supervisors to disregard some of their historical operational risk events in that calculation. Specifically, those banks may increase the threshold to identify historical operational risk loss events (from EUR 20 000 to EUR 100 000) or remove exceptional events that they deem not to be representative in view of their current risk profile.

Policy options

Baseline option *– Maintain the discretions of the Basel standards to implement the historical operational risk losses*

The baseline option would maintain the discretions offered to jurisdictions under the revised Basel standards to implement the historical operational risk losses. Under this option, supervisors would be allowed to disregard the use of the historical operational risk losses of their 'bucket 2' and 'bucket 3' banks. At the same time, they would be allowed to exercise the discretion to incorporate the historical operational risk losses of 'bucket 1' banks in the calculation of their capital requirements for operational risks. Furthermore, supervisors would be allowed to disregard some historical operational risk events and the corresponding historical operational risk losses in the calculation of the capital requirements for operational risk, at banks' request.

Option 1 *- Implement ILM using historical operational risk losses under the SMA for all banks*

Option 1 would exercise the discretions offered under the revised Basel standards in a harmonised way to allow the incorporation of historical operational risk losses for all EU banks, irrespective of their size. To recognise some differences between the operational risk profiles of EU banks (e.g. relating to the size of an average loss), this option would still allow supervisors to grant, under specific conditions, the permission for banks to increase the threshold to identify common historical loss events (from EUR 20 000 to EUR 100 000).

Option 2 *– Disregard historical operational risk losses in the ILM component under the SMA for all banks*

Similar to option 1, option 2 would also exercise the discretions offered under the revised Basel standards in a harmonised way across EU Member States. However, option 2 would propose to disregard the use of historical operational risk losses in the calculation of capital requirements for operational risk under the SMA by setting ILM to 1 for all EU banks. Under

this option, the calculation of capital requirements for operational risks of EU banks would simply be based on the BIC component.

Impacts of and comparison across policy options

Under the **baseline option**, supervisors would be allowed to exercise the discretions related to historical operational risk losses in the revised operational risk framework for the banks they supervise. At present, it is not possible to quantify the impact of this option since it is not possible to predict how supervisors would exercise those discretions. However, if supervisors would take different decisions on the matter, it would lead to a fragmentation of the prudential framework and hence to an un-level playing field across the Union.

As compared to the baseline option, both **options 1 and 2** would improve the comparability of EU banks' capital requirements for operational risk and maintain a level playing field across the Union since banks would apply the same rules, irrespective of their location and their size.

Option 1 would improve the risk sensitivity of the prudential framework since it would take into account banks' past operational risk losses in the calculation of the capital requirements for operational risk. However, this option would lead to a material impact[210] on EU banks' capital requirements for operational risk: according to the EBA's 2020 CfA response, it would represent a weighted average increase of 3.8% in the total capital requirements of banks included in the EBA sample. More granular data from the EBA's August 2019 CfA response shows that option 1 would represent a weighted average increase of roughly 40% in the capital requirements for operational risk of EU banks.

As shown in the EBA's 2020 CfA response, option 1 would have a more significant impact on the capital requirements of large banks, particularly on G-SIIs due to high operational risk losses over the last 10 years[211]. For medium-sized banks, the impact would be almost neutral under this option, while for small banks there would be a decrease in capital requirement for operational risk[212].

By default, the Basel SMA sets a EUR 20 000 threshold for the collection of losses that are used for the computation of the loss component. Under option 1, supervisors would be allowed to raise that threshold up to EUR 100 000. In its August 2019 CfA response, the EBA estimated that the impact of raising the threshold to EUR 100 000 for all the banks would slightly mitigate the impact of the revised operational risk framework under option 1.

[210] This estimated impact may overestimate the actual impact since it does not take into account the flexibility of the revised Basel standards for banks to disregard certain events in their historical operational risk losses, upon supervisory approval.

[211] It should also be noted the impact of option 1 may progressively decrease over time, since the sliding 10 years windows, of the large operational risk losses incurred by the largest EU banks occurred before 2017, by the end of the phase-in period the LCs of those banks would no longer include those losses which, all else being equal, should mean that their LC (and consequently their capital requirements for operational risk) would be significantly lower.

[212] Note that the estimates for small banks has to be treated with caution in view of the limited number of these banks in the EBA sample.

Disregarding historical losses as suggested under **Option 2** would more than halve the impact estimated for option 1: the weighted average increase in the total capital requirements of EU banks included in the EBA sample would be reduced to 1.7%. While large banks would benefit from a large decrease in the impact compared to option 1, medium-sized banks would, in contrast, incur an increase in their capital requirements for operational risk compared to that option. 2.

Option 2 would simplify to a large extent the calculation of capital requirements for operational risk under the revised framework. However, the reduction of the operational burden for EU banks would be limited since they would be required to gather, maintain and disclose their operational losses history under option 2. [213]

During the public consultations launched by the Commission, stakeholders expressed mixed views on the implementation of the ILM. Option 1 received some support from some Member States and medium-to small-sized banks, while large banks favoured option 2 (see Annex 2 for more details).

Table 26. Comparison of policy options against effectiveness, efficiency and coherence criteria

	EFFECTIVENESS	*EFFICIENCY (cost-effectiveness)*	*COHERENCE*	*OVERALL SCORE*
Baseline option	0	0	0	0
Option 1	++	-	+	≈
Option 2	+	+	++	+

Magnitude of impact as compared with the Baseline option (the baseline is indicated as 0): ++ strongly positive; + positive; – – strongly negative; – negative; ≈ marginal/neutral; ? uncertain; n.a. not applicable

Preferred option

In light of the above analysis, which led to the overall score of each policy option in *Table 26*, **option 2** is deemed to be the preferred policy option.

1.5. Credit valuation adjustment risk framework

1.5.1 General background

The credit valuation adjustment (CVA) is a fair-value accounting adjustment to the price of a derivative instrument, aiming to provision against potential losses due to the deterioration in the creditworthiness of the counterparty to that instrument. The value of CVA depends on the level of credit spread of the respective counterparty (an increase in the counterparty's credit spread would lead to an increase of CVA, and vice versa) but also on the market value of the derivative instrument (an increase in the derivative instrument value would lead to an increase of CVA, and vice versa). Therefore, CVA embeds several risks: the credit spread

[213] Note that banks already collect information on all their operational losses, irrespective of their size and they will almost certainly continue to do so in the future. So while option 2 would not decrease the administrative burden of banks, it would not increase it either.

risk associated with the creditworthiness of the counterparty, but also the market risk associated with the derivative transaction (e.g. interest rate risk where the derivative transaction is an interest rate swap).

CVA is generally reflected in the price that banks charge to their clients for derivative transactions. Since CVA is a downward adjustment to the price, CVA losses are incurred by the bank when the value of CVA increases. Therefore, reducing the CVA is beneficial for both the bank and its clients: the bank reduces its potential future loss while the client lowers the cost for the transaction. CVA can be reduced naturally if a client improves its creditworthiness. But a bank may also further reduce CVA by the use of credit derivatives, which allow it to insure itself against client's losses, or by exchanging collateral with the counterparty to reduce the exposure of the derivative instrument. Furthermore, CVA risk (i.e. the risk of changes in the CVA value) can be mitigated using dynamic hedging strategies relying on various financial instruments associated with the different risks embedded in CVA (e.g. interest rates derivatives to hedge against the interest rate risk of CVA).

CVA, and CVA risk, are complex to model and therefore to quantify. In fact, the quantification requires banks to model at the same time the probability of a counterparty's default over multiple future dates, the potential future market value of the associated derivative instrument at those dates and the potential amount that the bank would recover from the liquidation of the instrument upon the counterparty's default. This high level of complexity led banks to develop a wide variety of models used for accounting purposes.

During the GFC, a number of systemically important banks incurred significant CVA losses because of the deterioration in the creditworthiness[214] of their counterparties. To ensure that banks' CVA risk would be covered with sufficient capital in the future, the BCBS introduced in 2011, as part of the first set of Basel III reforms, new standards to calculate capital requirements for CVA risk[215]. In line with the Basel standards for other types of financial risk, the capital requirements for CVA risk can be calculated by banks using two different approaches: a standardised method and an advanced method (the latter being considered as an internal model approach). In contrast to the complexity of the modelling approaches used by banks to calculate CVA risk for accounting purposes, the BCBS decided to develop relatively simple standards to calculate the capital requirement for CVA risk in order to ensure a high comparability of outcomes across banks. The relevant Basel standard was transposed in Union law in 2013 through the CRR (hereafter 'current CVA framework'). According to the 2020 EBA Risk Assessment Report[216], in June 2020, CVA risk accounted, on average, for around 2% of the total capital requirements of EU banks.

[214] According to the BCBS, roughly two-thirds of losses that materialised on counterparty credit risk were attributed to CVA losses on non-defaulted counterparties whereas one-third was attributed to actual defaults of counterparties (see https://www.bis.org/press/p110601.pdf).

[215] Basel III, A global regulatory framework for more resilient banks and banking systems, BCBS, 2011 (see https://www.bis.org/publ/bcbs189.pdf).

[216] EBA: Risk Assessment of the European Banking System, December 2020 (see https://www.eba.europa.eu/sites/default/documents/files/document_library/Risk%20Analysis%20and%20Data/

After its adoption by the BCBS, the standard of capital requirement for CVA risk has been criticised by banks and supervisors in most jurisdictions due to its inability to appropriately capture CVA risk. On the one hand, banks highlighted the lack of risk-sensitivity of the approaches to be used to calculate the capital requirements for CVA risk and complained about the non-recognition of their existing CVA models developed for accounting purposes, as well as of the hedging strategies they were using to reduce their CVA risks for accounting purposes. In their view, this led to an overstatement of the actual level of CVA risk they were exposed to. On the other hand, supervisors complained that the approaches only captured one type of CVA risk (i.e. the credit spread risk of the counterparty), neglecting the potentially material market risk embedded in the derivative transactions. In their view, this resulted in potentially too low capital requirements for CVA risk in certain cases.

To address those concerns, the BCBS published a revised standard for the calculation of capital requirements for CVA risk (hereafter 'revised CVA standard') in December 2017, as part of the final Basel III reform. The revised CVA standards introduced three new approaches for the calculation of capital requirements for CVA risks: the simplified approach, the basic approach (BA-CVA), and the standardised approach (SA-CVA).

These approaches improve the calculation of capital requirements for CVA risk by:

- enhancing its risk sensitivity by taking into account the exposure component of CVA risk alongside with its associated hedges (in contrast to the current CVA framework captures only the credit spread risk of CVA);
- reflecting banks' existing CVA models developed for accounting purposes under SA-CVA (in contrast to the current CVA framework which is based on a prescribed formula); and
- introducing more proportionality in the prudential framework with the simplified approach. This approach would be available for banks with relatively low volumes of derivatives activities[217].

In the course of monitoring the expected impact of the revised CVA standard, the BCBS identified a few issues[218] that needed to be addressed. Following a public consultation[219] launched in December 2019, the BCBS revised certain elements of the standard and published a final version[220] in July 2020 (hereafter 'final CVA standard'). These targeted revisions led to a significant decrease in the impact of the revised CVA standards and

Risk%20Assessment%20Reports/2020/December%202020/961060/Risk%20Assessment_Report_December_2020.pdf).

[217] Under the Basel standard, the simplified approach is restricted to banks with less than EUR 100 billion of total nominal value of non-centrally cleared derivatives transactions.

[218] More specifically, the calibration of the revised CVA standard was deemed too high, leading to significant increase in capital requirements and not sufficiently aligned with the revised market risk framework. In addition, the treatment of fair-valued SFTs in the scope of the capital requirements, as well as the treatment of credit and equity indices as hedging instruments, were not considered adequate under the revised CVA standard.

[219] See https://www.bis.org/bcbs/publ/d488.pdf.

[220] See https://www.bis.org/bcbs/publ/d507.pdf.

improved the consistency of the prudential framework. As part of its 2020 CfA response, the EBA recommended to implement those revisions in Union law. Similarly to the other elements of the final Basel III reform, the implementation deadline of the final CVA standard has been postponed to 1 January 2023 in light of the COVID-19 pandemic.

1.5.2 Exemptions from the current CVA framework

Similarly to the original CVA standard, the final CVA standard adopted by the BCBS contains limited exemptions from the calculation of the capital requirement for CVA risk[221]. By contrast, when adopting the current CVA framework in Union law via the CRR, the EU co-legislators exempted certain additional types of derivative transactions from the calculation of capital requirements for CVA risk. These were mostly transactions with counterparties that were exempted from the clearing/margining mandates under Regulation (EU) No 648/2012 (also known as EMIR)[222]. The exemptions were introduced to prevent a potential excessive increase in the cost of derivative transactions triggered by the introduction of the then new capital requirements for CVA risk.

The exemptions did not affect the calculation of CVA under the accounting rules. Therefore, the actual CVA risk of the exempted transactions under the CRR may still be a source of significant risk for some banks that benefit from those exemptions; if those risks materialise, the banks concerned could suffer significant losses. As highlighted by the EBA in its report on CVA published in February 2015, these exemptions may have significantly decreased the capital requirements for CVA risk[223] for EU banks. . In its report, the EBA took the position, unchanged since then, that the CVA exemptions should be removed for prudential reasons. In 2017, the EBA started developing guidelines[224] on how supervisors should assess the CVA risk of exempted transactions under the SREP; the guidelines were never finalised due to a presumed lack of legal basis in the CRR/CRD.

The CVA exemptions are one of the main reasons why, in 2014, the BCBS judged the EU implementation of the Basel III standards on capital requirements as materially non-compliant[225].

Policy options

Option 1 *- Remove the existing CVA exemptions*

[221] Only derivatives transactions with qualified CCPs and with CCPs' clients where a bank acts as clearing member are exempted.
[222] The exemptions cover derivative transactions with EU Member States, certain local authorities, most non-financial corporates, and pension funds.
[223] See The EBA advises the European Commission on Credit Valuation Adjustment (CVA) risk | European Banking Authority (europa.eu)
[224] Guidelines on the treatment of CVA risk under SREP | European Banking Authority (europa.eu)
[225] See Regulatory Consistency Assessment Programme (RCAP) - Assessment of Basel III regulations - European Union (bis.org)

Under this option the CRR would be fully aligned with the final CVA standard, including through the removal of the existing additional CVA exemptions.

Option 2 *- Keep the existing CVA exemptions while reinforcing the monitoring of the corresponding risks*

Like under option 1, option 2 would also implement the final CVA standard in the CRR, but would keep the existing CVA exemptions contained in the CRR. In addition, to enhance the monitoring of CVA risk related to the exempted transactions, option 2 would require banks to report to their supervisors the calculation[226] of capital requirements for CVA risk for those transactions. Finally, in consideration that the CRD V already clarified the rights for supervisors to impose supervisory measures for risks exempted from Pillar 1, option 2 would mandate the EBA to develop guidelines to help supervisors with the identification of excessive CVA risk. The guidelines would improve the harmonisation of supervisory action across the EU in this area.

Impacts and comparison across options

Option 1 would strengthen the capital position of EU banks by removing the current CVA exemptions. However, it would also lead to a significant increase in the capital requirements for EU banks: in its 2020 CfA response, the EBA estimated that removing the existing exemptions would lead to a weighted average increase of 2.1% in the total capital requirements of EU banks in the EBA sample. This would likely lead to an increase in the costs of derivative transactions, which may in turn lead bank clients that currently use derivatives for hedging their financial risks to reduce their use of derivatives or even stop using them altogether (the latter may be especially the case for those clients that cannot post collateral on their derivative transactions due to operational constrains).

Keeping the exemptions as proposed under **option 2** would significantly mitigate the impact of implementing the final CVA standard: the EBA estimated that under this option the weighted average increase would be reduced to 0.5% of the total capital requirements. While option 2 would not address the issue of the CVA risk of the exempted transactions, it would provide supervisors with additional guidance on how to address cases of excessive CVA risk with Pillar 2 measures.

Stakeholders' views are mixed on what to do with the CVA exemptions: Member States' views are split, the supervisory community (including the ECB and the EBA) supports option 1, while the EP and the banking sector support option 2 (see Annex 2 for more details).

Table 27. Comparison of policy options against effectiveness, efficiency and coherence criteria

	EFFECTIVENESS	***EFFICIENCY (cost-effectiveness)***	***COHERENCE***	***OVERALL SCORE***
Baseline option	0	0	0	0
Option 1	++	-	≈	≈
Option 2	+	++	++	++

[226] That is the calculation of capital required for CVA risks if the transactions were not exempted under CRR.

Magnitude of impact as compared with the Baseline option (the baseline is indicated as 0): ++ strongly positive; + positive; – – strongly negative; – negative; ≈ marginal/neutral; ? uncertain; n.a. not applicable

Preferred option

In light of the above analysis, which led to the overall score of each policy option in *Table 27*, **option 2** is deemed the preferred policy option.

1.6. Minimum haircut floor framework for SFTs

Problem definition

Non-bank financial intermediation can, if appropriately conducted, help to diversify the funding sources of corporates and households. In addition, it may stimulate competition, which ultimately supports real economic activity, and help distributing financial risks across a wider range of investors and lenders. Since the GFC, this source of financing has become an increasingly important alternative to banks[227].

This surge of activity outside the banking sector has raised concerns in the regulatory community that non-bank financial intermediation may also become a source of systemic risk, given that this sector is usually subject to less stringent supervision, if any, and hence potentially more prone to pro-cyclicality and the build-up of excessive leverage.[228] This is particularity true if this sector engages in activities that are typically performed by banks, such as liquidity and maturity transformation.

One element that can contribute to the potential build-up of leverage created outside the banking sector are so-called SFTs[229]. SFTs are collateralised bilateral transactions, whereby cash, securities or commodities are transferred from one counterparty (transferor) to the other counterparty (transferee), and the transferee provides collateral in the form of cash or securities to the transferor. SFT markets play an essential role in the EU financial system by allowing financial intermediaries to manage their own liquidity position and support their securities market-making activities. They also allow central banks to transmit, via financial intermediaries, their monetary policy to the real economy.

According to the EBA's August 2019 CfA response, repurchase agreements (so-called 'repos' and their counterparts 'reverse repos'), are the most important type of SFTs used by

[227] The assets of the money market and investment funds and other non-bank financial institutions sector in the EU almost doubled from EUR 23 trillion in 2008 to EUR 39 trillion by the Q3 2020 (see ECB statistical data warehouse: https://sdw.ecb.europa.eu/browseSelection.do?type=series&q=RAI.Q.D0.IFOFI1.Z01.QSA.E&node=SEARCHRESULTS&ec=&oc=&rc=&cv=&pb=&dc=&df=)

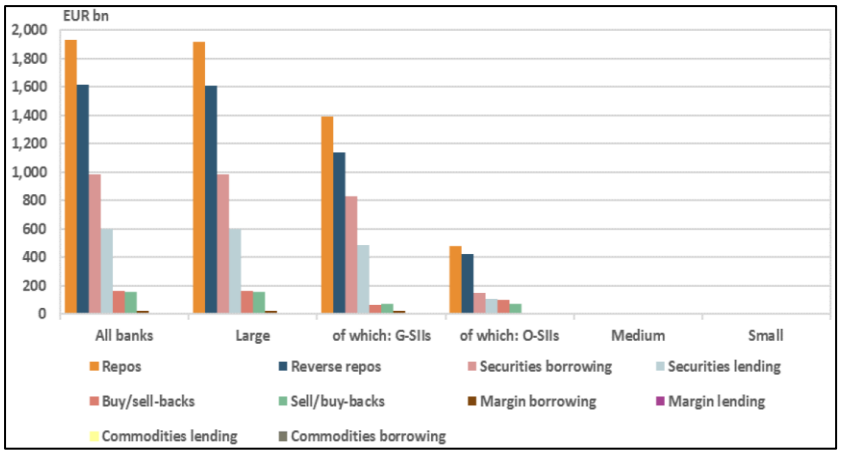
[228] See for instance, EU Non-bank Financial Intermediation Risk Monitor 2019, ESRB, July 2019

[229] See Report on securities financing transactions and leverage in the EU, ESMA, October 2016.

EU banks in terms of trading volumes[230] (see *Figure 22)*. Repos are particularly useful for banks as they offer a secured alternative to unsecured interbank lending to manage their funding and liquidity needs. Institutional investors and non-financial counterparties also use the repo markets, usually to invest their excess cash. The second most important type of SFTs in the EU are securities lending and borrowing. In contrast to repos, securities lending and borrowing are motivated by the demand from financial intermediaries for a particular type of securities, instead of a funding need.

Figure 22 also shows that outstanding SFT market activities are highly concentrated within large banks, in particular within G-SIIs and O-SIIs. In addition, *Figure 23* shows the wide range of EU banks' counterparties in SFTs, which differ significantly across SFT types. Repos traded by EU banks, of which a significant portion is cleared through central counterparties, has the widest range of counterparties. In contrast, securities lending/borrowing and margin lending/borrowing transactions of EU banks are more concentrated with one type of counterparties (other banks for the former, unregulated financial intermediaries for the latter).

Figure 22: Breakdown of outstanding SFTs volumes across EU banks, by SFT type and bank size

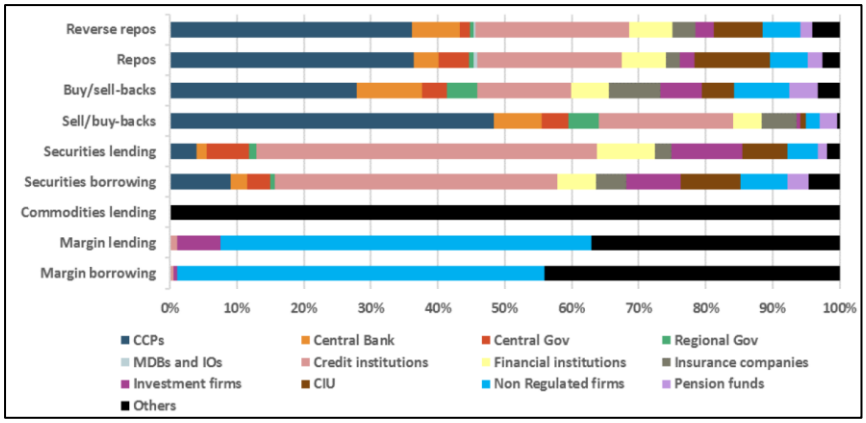


Source: Basel III reforms: Impact study and key recommendations, August 2019, EBA.

Note: for each type of SFTs, volumes are expressed in gross amount of one of the two legs of the SFT.

Figure 23: Breakdown of EU banks' counterparties in their outstanding SFTs, by counterparty type and SFT type.

[230] A more comprehensive estimate of the European repo market (including both repos and reverse repos) is provided by the ESBR, with a total value amounting to EUR 8.3 trillion at the end of 2019 (see EU Non-bank Financial Intermediation Risk Monitor 2020)



Source: Basel III reforms: Impact study and key recommendations, August 2019, EBA.

Note: for each type of SFTs, the % of total gross amount of outstanding SFTs

While the merits and the importance of SFTs are widely recognised, SFTs can also enable financial intermediaries to recursively leverage their positions by reinvesting the cash received through an SFT to borrow new securities via other SFTs. Such strategy can create opaque interconnectedness[231] between the banking sector and the less regulated or unregulated non-bank financial sector which could go unnoticed by supervisory authorities and which could increase risk of financial contagion during stressed market conditions.

In order to reduce the build-up of leverage outside of the banking sector in the EU, the Financial Stability Board (FSB) published in 2013 a number of prudential recommendations for the SFT market[232]. One of these recommendations was to introduce of minimum haircut floors framework for specific SFTs between banks and non-bank financial counterparties[233], either directly via a market regulation or indirectly via a more punitive capital treatment of SFTs not meeting the minimum haircut floors that was developed by the BCBS. The choice of the implementation approach was left to each FSB member jurisdiction.

More specifically, the FSB recommended to require banks that engage in non-centrally cleared SFTs in which they provide financing to non-bank financial counterparties against collateral other than government securities ('in-scope SFTs') to obtain from these counterparties a certain minimum amount of over-collateralisation[234]. This additional collateral amount mainly would depend on the type of collateral received as well as its remaining maturity.

[231] An illustration of this interconnectedness has been provided by the ESRB as the volume of EU banks' repo liabilities to non-Money Market Funds and other financial institutions amounting to EUR 44 billion at the end of 2019 (see EU Non-bank Financial Intermediation Risk Monitor 2020).
[232] FSB: Strengthening Oversight and Regulation of Shadow Banking, 29 August 2013.
[233] Another FSB recommendation suggested the introduction of the same minimum collateral haircuts for specific SFTs between non-bank and non-bank financial counterparties, but this time only via a market regulation since no counterparties to the SFTs would be subject to the Basel standard.
[234] To ensure a level playing field, the SFTs that do not meet the minimum amount of over-collateralisation (in other words, that do not comply with the minimum haircut floors) should be identified in the same way by banks whether their authorities decide to introduce the minimum haircut floors framework for SFTs via a market regulation or by implementing the Basel standard.

For those jurisdictions that would choose to implement the SFT minimum collateral haircuts recommendation via market regulation, banks would no longer be allowed to conduct in-scope SFTs with non-banks financial counterparties that would not comply with the defined minimum level of collateralisation, i.e. where non-banks financial counterparties do not provide the minimum amount of over-collateralisation. In contrast, those jurisdictions that would choose to implement the SFT minimum collateral haircuts recommendation via the implementation of the Basel standard, banks would still be allowed to conduct in-scope SFTs with non-banks financial counterparties that would not comply with the defined minimum level of over-collateralisation, but these transactions would be treated as unsecured loans under the Basel standard (rather than secured exposures under the normal treatment). As a consequence, the capital requirements for the non-compliant SFTs would significantly increase, creating a strong disincentive for banks to conduct such transactions. The final elements of the Basel III reform published in 2017 include a detailed methodology to verify whether SFTs comply with the minimum collateral haircuts agreed by the FSB, including for cases where multiple SFTs are subject to a master netting agreement[235].

Due to its connection with the Basel standards, the initial implementation deadline of the FSB recommendation has been aligned with the implementation deadline of the final Basel III reform, i.e. 1 January 2022. The FSB later postponed the deadline by one year[236] to align it with the postponement of the deadline for implementing the final elements of the Basel III reform decided by the BCBS in March 2020 in light of the COVID-19 pandemic.

Policy options

Baseline option *- No changes to the EU regulatory framework*

The baseline option does not entail any policy changes or regulatory initiatives to reduce the potential build-up of leverage outside of the banking sector in the EU. In this situation, the build-up of leverage outside of the banking sector may continue to persist or even intensify.[237]

Option 1 *- Introduce the minimum haircut floors framework for SFTs, either via the prudential framework applicable to banks or via a market regulation*

The EU already adopted a number of the FSB recommendations in 2015 via Regulation (EU) 2015/2365[238], also known as the Securities Financing Transactions Regulation (SFTR). However, the SFT minimum collateral haircuts framework are not yet implemented. Option 1 would therefore introduce the SFT minimum collateral haircuts framework in Union law,

[235] While verifying the compliance with the minimum collateral haircut requirement is relatively simple for a single SFT, it becomes more complicated where multiple SFTs are included in a master netting agreement. In fact, in this case, compliance has to be verified at portfolio level, taking into account the various collateral types included in all the SFT subject to the master netting agreement.

[236] See FSB extends implementation timelines for securities financing transactions - Financial Stability Board

[237] Available data does not suggest that the level of leverage outside the banking sector will decrease on its own over time.

[238] Regulation (EU) 2015/2365 of the European Parliament and of the Council of 25 November 2015 on transparency of securities financing transactions and of reuse and amending Regulation (EU) No 648/2012.

either via a market regulation (requiring amendments to either SFTR or MIFIR, or introduced via a new regulation) or via the implementation of the relevant standard of the final Basel III reform in the CRR.

Option 2 - *Postpone the introduction of the minimum haircut floors framework until sufficient data on impacts are available*

In its dedicated report on the implementation of the minimum collateral haircut framework published[239] in August 2019 as part of its CfA response, the EBA highlighted the lack of clarity of certain aspects of the minimum haircut floors framework for SFTs, in particular regarding the scope of SFTs that must be subject to the framework. Some of these aspects have been clarified by the FSB in a technical guidance published[240] in November 2019.

The EBA's opinion is consistent with the conclusions of a report[241] mandated by SFTR and published by the Commission in 2017 on progress in international efforts to mitigate the risks associated with SFTs, including on the implementation of minimum haircut floors framework for SFTs. In this report, the Commission highlighted that it is not clear whether the prudential objectives of the minimum collateral haircut framework (i.e. reduction of the potential leverage outside the banking sector) could be attained without the risk of creating undesirable consequences on EU SFT markets. This report stressed the need to assess the impacts of introducing this framework in Union law on the basis of a wider set of more granular data which will be available once the reporting requirements set out under SFTR become effective. For credit institutions established in the EU, the SFTR reporting requirement started recently, in April 2020, following the adoption of technical standards developed by the ESMA specifying its operational details. The ESMA expressed a similar preference in its 2016 report on SFTs[242].

Taking into account the above elements, option 2 would propose to postpone the introduction of the minimum haircut floors framework in Union law until EBA and ESMA jointly report to the Commission by [*one year after entry into force of CRRIII*] on the appropriateness of the two implementation approaches recommended by the FSB to implement this framework (i.e. a market regulation or a more punitive treatment of capital requirement under the Basel standards) to reduce the potential build-up of leverage outside the banking sector while avoiding undesirable consequences on the functioning of the EU SFT markets. This report will exploit as much as possible the data collected by the ESMA via the SFTR reporting requirements.

Based on the findings of this report, the Commission would propose a new legislative initiative by [*two years after entry into force of CRRIII*] to implement the minimum collateral haircut framework for SFTs in Union law. This proposal would take the form of an amendment to the prudential framework, in case the Commission would propose to

[239] See EBA: Policy Advice on the Basel III Reforms on Security Financing Transactions (SFTs), August 2019.
[240] See Annex 2, in SFT minimum haircut standards - Technical Guidance (fsb.org)
[241] See Register of Commission Documents - COM(2017)604 (europa.eu)
[242] ESMA: Report on securities financing transactions and leverage in the EU, October 2016.

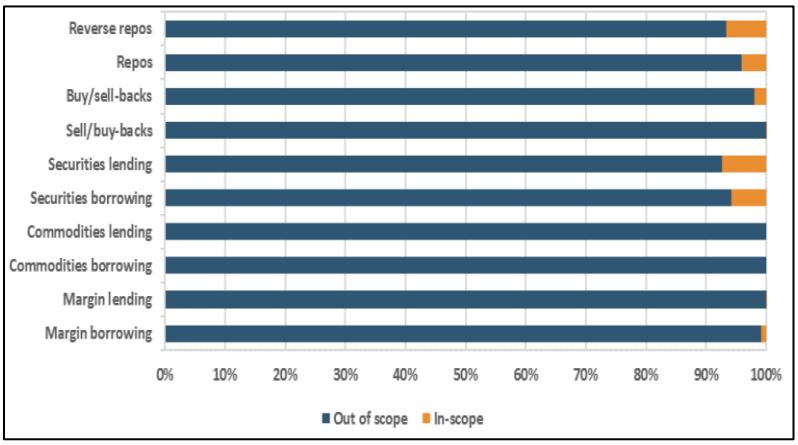
implement this framework via a punitive treatment of capital requirement. Alternatively, the Commission would propose the implementation of this framework via an amendment to an existing market regulation or, if necessary, a new market regulation.

Impacts and comparison across options

The **baseline option** would have no direct impact on EU banks' capital requirements since no change would be made to the prudential framework. However, no prudential measures would be introduced to reduce the build-up of leverage outside of the banking sector in the EU, as recommended by the FSB. This option would provide no further indication when the EU would fulfil the FSB recommendation to address this issue, which may further undermine market confidence in the EU financial system.

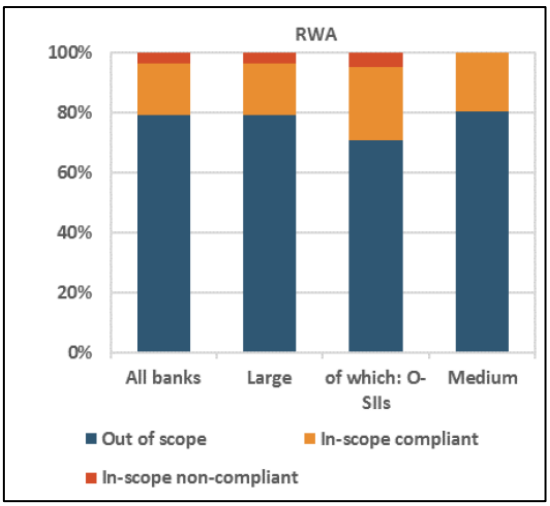
As shown in *Figure 24* below, the EBA estimated that only a small proportion of all the SFTs (i.e. 7.4% of total gross amount of outstanding SFTs) currently traded by EU banks would qualify as in-scope SFTs, i.e. would fall under the minimum haircut floors framework as implemented under **option 1**. However, this amount would still be large when measured in terms of risk (as shown in *Figure 25* below, it represents roughly 20% of the total RWAs of outstanding SFTs).

Figure 24: Proportions of in-scope SFTs, by SFT type (% of total gross amount of outstanding SFTs).



Source: EBA, Basel III Reforms: Impact Study and Key Recommendations, August 2019.

Figure 25: Breakdown of SFTs RWA subject to the minimum haircut floors (expressed as % of total current SFTs RWAs)



Source: EBA, Basel III Reforms: Impact Study and Key Recommendations, August 2019

Under option 1, EU banks would be subject to new regulatory constraints on their SFT activities as compared to the baseline option which is likely to be more costly. However, the impacts between the two possible implementation approaches would differ.

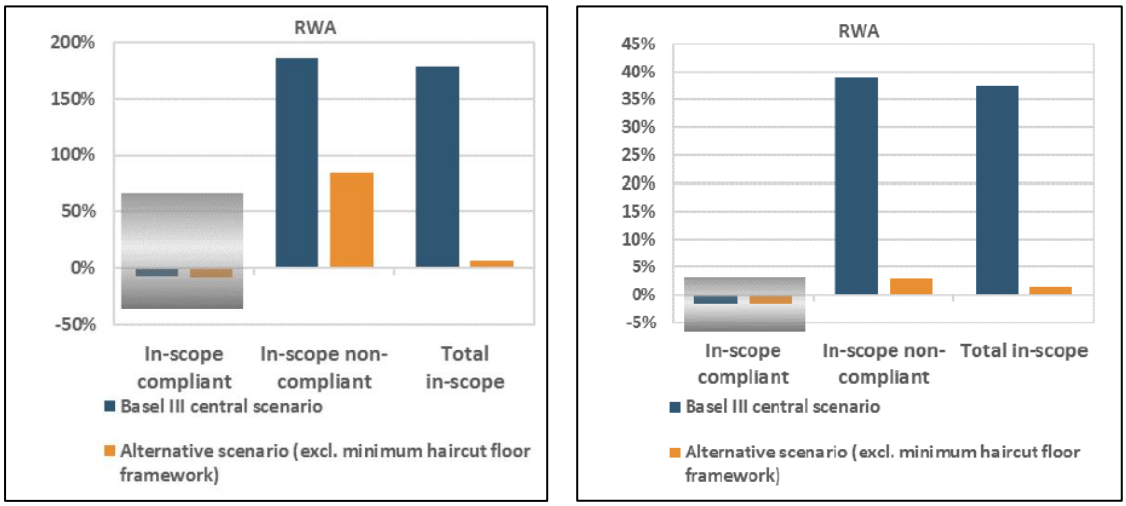
If option 1 would take the form of the implementation of the Basel standard, the EBA estimated as part of its August 2019 CfA response that this would result in a significant increase in the capital requirements for those SFTs that would not comply with the minimum haircut floor framework. Specifically, it would lead to a weighted average increase in RWAs of for those transactions of approximately 180%, representing a weighted average increase of more than 35% on the full SFTs portfolio of EU banks in the EBA sample (see "Basel III central scenario" in). As estimated by the EBA, this increase would be largely mitigated if all EU banks were to receive all the required additional collateral amount on the in-scope SFTs that do not currently comply with the minimum haircut floors to be compliant (see "Alternative scenario" in *Figure 26*).

If option 1 would take the form of a market regulation, EU banks would be required to receive more collateral to continue engaging in the SFTs transactions that are currently non-compliant with the minimum haircut floors ('first scenario'). Otherwise, those transactions would no longer be permitted ('second scenario'). Therefore, the impact of this implementation approach would fall between the impacts under those two scenarios. In case of the first scenario, the impact in terms of capital requirements would be similar to the impact under above-mentioned "Alternative scenario" (see *Figure 26*). In case of the second scenario, the volume of SFTs that do not comply with the minimum haircut floor framework would drop to zero, which would in turn result in a small reduction in the RWAs of the overall SFTs portfolio (see *Figure 25*).

A market regulation approach to implement the minimum haircut floor for SFTs may be more advantageous than the Basel standard approach from a level playing field perspective. In fact, the FSB also recommended their member jurisdictions to implement the minimum haircut

floor for SFTs between non-banks. This can only be done via a market regulation since non-banks are usually not subject to the prudential framework applicable to banks (neither in the EU nor elsewhere). For these reasons, a number of respondents to the public consultation supported the implementation of the minimum haircut floor for SFTs in the EU via a market regulation that would apply to both banks and non-banks engaging in SFTs.

Figure 26. Impacts of the minimum haircut floor framework on the capital requirements of SFTs as implemented in the prudential framework under option 1. Expressed in % change of RWAs on individual group of SFTs (left-hand side) and on all the SFTs portfolio (right-hand side)



Source: EBA, Basel III Reforms: Impact Study and Key Recommendations, August 2019.

It should be noted that the above estimated impacts do not represent a comprehensive picture of the real impact of the minimum haircut floor framework for SFTs since the sample of EU banks providing data on the minimum haircut floor framework for SFTs as part of the CfA QIS was relatively limited (only 39 out of the 189 banks participating to the CfA QIS). In addition, the impact on non-banks has yet to be estimated. A reliable analysis would require a broader data collection than the one performed by the EBA.

In addition, some respondents to the Commission's 2019 public consultation stressed that the minimum haircut floors framework could render some types of SFTs uneconomical due to the nature of those transactions. In particular, securities lending transactions, which are not undertaken to provide financing but rather to source a specific security, may be particularly affected by this reform (as shown in *Figure 22*, they represent the second most traded type of SFTs in the EU). Those respondents' concern was that a potential lender of a security, which is typically a non-bank, could refrain from engaging in this type of transactions if its ability to

apply an appropriate haircut on the borrowing counterparty, which is usually a bank, would be restricted due to a minimum haircut floor applied on the lending side of the transaction.[243]

Postponing the implementation of the minimum haircut floors framework for SFTs as proposed under **option 2** would preserve the status quo meaning that no capital or market impact would occur for now. The additional time would allow to carry out a comprehensive assessment by the EBA and the ESMA of the impact of the implementation of the minimum haircut floor framework in the EU and of potential issues with the framework, based on sufficient supporting evidence from both banks and non-banks engaging in the EU SFTs markets. Option 2 would provide the indication to the FSB and EU banking sector that this framework would be implemented once the assessment would be performed, so it would not bring in question our commitment to implement the FSB recommendations.

Table 28: Comparison of policy options against effectiveness, efficiency and coherence criteria

	EFFECTIVENESS	*EFFICIENCY (cost-effectiveness)*	*COHERENCE*	*OVERALL SCORE*
Baseline option	0	0	0	0
Option 1	≈	-	+	≈
Option 2	+	+	+	+

Magnitude of impact as compared with the Baseline option (the baseline is indicated as 0): ++ strongly positive; + positive; – – strongly negative; – negative; ≈ marginal/neutral; ? uncertain; n.a. not applicable

Preferred option

In light of the above analysis, which led to the overall score of each policy option in *Table 28*, **option 2** is deemed the preferred policy option.

1.7. Standardised approach for counterparty credit risk

Problem definition

In 2014, the BCBS adopted[244] a new standardised approach to calculate the capital requirements for counterparty credit risk of derivative transactions, the so-called standardised approach for counterparty credit risk (SA-CCR). Under the SA-CCR, the exposure value of a derivative transaction is given by the sum of two components, the replacement cost (RC) and the potential future exposure (PFE), multiplied by a supervisory parameter ('alpha', equal to 1.4).

The SA-CCR addresses deficiencies identified by the BCBS in the former standardised approaches to calculate the capital requirements for counterparty credit risk, mainly their lack of risk sensitivity. In addition for the purpose of calculating capital requirements for

[243] According to both the FSB recommendation and the Basel standard, the minimum haircut has to be applied on the non-bank side of the transaction in order to reduce the amount of financing that could be obtained against a certain amount of collateral. In the example at hand, this would be the lending side of the transaction.
[244] BCBS: The standardised approach for measuring counterparty credit risk exposures, April 2014.

counterparty credit risk, the SA-CCR is used in other parts of the Basel framework, namely the large exposures standard, the leverage ratio standard, the standard on capital requirements for exposures to central counterparties and, starting from 1 January 2023, the output floor (since the output floor relies on the capital requirements of a bank calculated using all the standardised approaches of the Basel framework, as explained in Section 1.8 of this Annex).

In the EU, the SA-CCR was adopted in May 2019 as part of the CRR II, in full compliance with the Basel standard. Starting from 28 June 2021, EU banks are required to use the SA-CCR to calculate the exposure values of their derivative transactions, unless they have been granted the permission to use the internal model approach[245] for counterparty credit risk (generally used by EU banks with the largest derivative portfolios) or are eligible to use one of the simpler standardised approaches[246] available under the CRR (generally used by EU banks with very small derivative portfolios). In the absence of a comprehensive assessment of the impact of the SA-CCR across the prudential framework at the time it was adopted, the CRR2 mandated the EBA to report to the Commission on the appropriate calibration of the SA-CCR by June 2023[247].

The EU banking sector have expressed concern about the potential impact of the SA-CCR in their responses to the two consultations organised by the Commission. In particular, stakeholders have called for a review of the calibration of the SA-CCR in general and of the alpha parameter in particular. In their view, the difference in calibration between the SA-CCR and the internal model approach for counterparty credit risk is particularly important compared to the calibration between the standardised approaches and internal model approaches for other risks.[248] With the forthcoming implementation of the output floor into the European prudential framework, that difference may become significant, as the standardised approaches would potentially constrain the outcome of internal models. A disproportionate increase in capital requirements for derivative transactions due to the interplay between SA-CCR and the output floor might in turn translate into significant price increases for end-user and thereby reduce their incentives to use derivative transactions to hedge their financial risks.

Against this background, the CMRP adopted by EU co-legislators in February 2021 asked the Commission to review the calibration of SA-CCR[249] before its application in Union law, taking into account the international level playing field.

[245] The internal model approach for counterparty credit risk, so-called Internal Model Method (IMM) is set out in Section 6, Chapter 6 of Title II of Part Three of the CRR. It should be noted that banks that have been granted the use to IMM to calculate the exposure value of their derivative transactions would still be required to use SACCR in some areas of the prudential framework, e.g. for the calculation of the leverage ratio.
[246] The eligibility criteria to use those approaches are set out in Article 273a of CRR
[247] See Article 514 of CRR.
[248] For other types of risk, the ratio between the capital requirements produced by the standardised approach and those produced by the corresponding internal model is, on average, around 1.5:1, whereas for counterparty credit risk it is, on average, around 2:1.
[249] See EUR-Lex - 32021R0337 - EN - EUR-Lex (europa.eu)

Policy options

Baseline option: *No changes to the SA-CCR calibration*

Under the baseline option, no changes would be made to the calibration of the SA-CCR. The Commission would review the impact and calibration of the SA-CCR at a later stage, on the basis of the dedicated EBA report due by June 2023, as mandated in the CRR II.

Option 1: *Revise permanently the calibration of SA-CCR*

Option 1 would permanently lower the overall calibration of the SA-CCR for all derivative transactions across the prudential framework. A simple way to lower the overall calibration would be to reduce the value of the alpha parameter, as requested by the banking sector.

Option 2*: Adjust temporarily the calibration of the SA-CCR in the context of the output floor only*

Under option 2, the calibration of the SA-CCR would be lowered temporarily for all derivative transactions. Like in case of option 1, this would be done by lowering the calibration of the alpha parameter. However, the lower calibration under option 2 would only be applied when the SA-CCR would be used in the calculation of the output floor; when the SA-CCR would be used in other parts of the prudential framework, the calibration of the alpha parameter would stay at 1.4 as adopted under the CRR II. Under this option, the Commission would take into account the evidence to be collected by the EBA and the conclusions of the report to be delivered by the EBA by June 2023, to inform its decision on whether the calibration of SA-CCR should be permanently revised across the prudential framework.

Impacts and comparison across options

While SA-CCR improves the calculation of the exposure value of derivative transactions across the prudential framework, the **baseline option** would likely result in an increase in capital requirements for banks using the internal model approach for counterparty credit risk due to the use of the SA-CCR in the context of the OF[250]. This could increase the costs of derivatives transactions for end users, which could force end users to reduce the amount of hedging they do with derivatives or potentially stop using derivatives for hedging altogether.

Compared with the baseline option, **option 1** would lead to a permanent decrease in the exposure value of derivative calculated using SA-CCR (of up to roughly 30% in case alpha would be recalibrated to 1) across the prudential framework. As a result, the capital requirements of derivatives transactions based on the SA-CCR would decrease, while the treatment of derivatives transactions under the large exposure or leverage ratio frameworks would become less binding. At the same time, the impact of the output floor for banks using internal models for counterparty credit risk would be lowered. The overall impact for individual banks would depend on the extent to which they would use the SA-CCR, which

[250] Banks that use one of the standardised approaches for calculating exposure values of derivatives transactions would not be affected under the baseline scenario.

has not been assessed by the EBA as part of the CfA QIS. The revised calibration may, in turn, lower the trading costs for end-users (provided that banks would pass at least part of the capital reduction on to their clients). In addition, for banks using the internal model approach to calculate their capital requirements for counterparty credit risk, the introduction of the output floor would, overall, be less constraining under this option. While option 1 would address the concerns raised by the EU banking sector about the SA-CCR calibration and, to some extent, respond to the request of the EU co-legislators to review the SA-CCR calibration, this option would provide a blanket approach that would not be supported by empirical evidence and hence would be difficult to justify. . In particular, the revised calibration of SA-CCR would however not benefit from the evidence to be established by an EBA report which is due alongside with potential recommendations, only by June 2023.

In addition, option 1 could lead to a material reduction in capital requirements for counterparty credit risk of EU banks. The prudential framework already provides exemptions from the capital requirements for CVA risk for an important number of derivative transactions (see Section 1.5 of this Annex). Introducing a further deviation on those transactions with the proposed SA-CCR recalibration under option 1 could lead to a significant underestimation of risks associated with derivative transactions, notably in the absence of supporting evidence, and result in unjustifiably low capital requirements for counterparty credit risk. This could jeopardise the robustness of the capital requirement for EU banks that are large dealers of derivative transactions. In addition, such a change in the SA-CCR calibration would substantially deviate from the Basel standards, negatively impacting the international level playing field.

Compared to option 1**, option 2** would also lead to a decrease of the exposure value calculated using SA-CCR (of up to roughly 30% in case alpha would be recalibrated to 1), but only temporarily and only in the context of the calculation of the transitional period of the output floor. Although option 2 would not lower the SA-CCR calibration across the prudential framework in the short-term, this option would largely respond to the main concerns raised by EU banks. In the public consultation banks stressed the potential excessive increase in capital requirements due to the interplay between SA-CCR and the introduction of the output floor, translating in higher trading costs for their clients. The 5-year transitional period would offer sufficient time for an in-depth review of the calibration of SA-CCR based on t the EBA report and to further discuss this issue at international level.

Table 29. Comparison of policy options against effectiveness, efficiency and coherence criteria

	EFFECTIVENESS	*EFFICIENCY (cost-effectiveness)*	*COHERENCE*	*OVERALL SCORE*
Baseline option	0	0	0	0
Option 1	+	++	--	≈
Option 2	+	+	++	+

Magnitude of impact as compared with the Baseline option (the baseline is indicated as 0): ++ strongly positive; + positive; – – strongly negative; – negative; ≈ marginal/neutral; ? uncertain; n.a. not applicable

Preferred option

In light of the above analysis, which led to the overall score of each policy option in *Table 29*, **option 2** is deemed the preferred policy option.

1.8. Output Floor

Problem definition

A range of studies[251] conducted at both international and EU level found a wide variation in capital requirements across banks using internal models that cannot be explained solely by differences in the riskiness of banks' exposures. This variation makes it difficult to compare capital ratios across banks, questions their calculation and undermines confidence in capital ratios. The studies shed a light on large discrepancies in capital requirements for the same types of risks depending on how internal models were built and on the modelling assumptions underpinning them. This in turn raised level-playing-field concerns across globally active banks from different jurisdictions. It also contributed to impairing market confidence in the capital framework. The credibility of internal models further deteriorated, after they were identified as sources of endogenous risk and as one of the factors that fuelled the global financial crisis.[252] This was also due to the limited capacity of some supervisors to constrain modelling, so as to ensure that models accurately reflect the riskiness of individual bank's activities.

The variability also highlighted the ineffectiveness of the so-called Basel I floor, a measure that was introduced as part of the Basel II framework and has been implemented very heterogeneously across different regions and MS. The Basel I floor was aimed at ensuring that the capital requirements produced by internal models would not fall below 80% of the minimum capital requirements calculated under the Basel I standardised approaches. The Basel I floor was implemented in Union law, but expired[253] by the end of 2017. However,, the Basel I floor did not achieve to reduce the variability in RWAs, mainly because of the way it was applied in practice.

Under the current rules, supervisors have to approve the use of internal models and assess whether they comply with the applicable requirements. Supervisors have to assess whether

[251] See https://www.bis.org/publ/bcbs256.htm and https://www.bis.org/bcbs/publ/d363.htm for benchmarking studies, as well as https://eba.europa.eu/regulation-and-policy/supervisory-benchmarking-exercises for EBA benchmarking exercises.

[252] Danielsson, J., Hyun S.-S., and J.-P. Zigrand, "Endogenous and systemic risk", Quantifying systemic risk, University of Chicago Press, Chiacgo, 2012, pp. 73-94; Eichengreen, B., "Origins and responses to the current crisis", *CESifo Forum*, Vol. 9, No 4, ifo Institut für Wirtschaftsforschung an der Universität München, Munich, 2008, pp. 6-11.

[253] Article 500(1) of the CRR contained a provisional measure for a floor that prevented the capital requirements calculated by using internally modelled approaches from falling below 80% of the minimum capital requirements as calculated under the Consolidated Banking Directive (which transposed the capital requirements under Basel I). The so-called "Basel I floor" which has been implemented very heterogeneously across different regions and MS, often in ways considered ineffective, expired at the end of 2017.

banks measure risks correctly and consistently. Where deficiencies of a model are identified, they may require additional capital or apply other measures to address the situation case-by-case. Significant efforts are being undertaken by the EBA[254] and competent authorities including the ECB[255] to ensure a harmonised application of the rules on internal models and to mitigate the concerns about variability in RWAs. While those efforts are improving the situation, variability among internal model outputs (across asset classes and risk-categories) remains thereby undermining confidence in internal models used by banks in the EU.

Policy options

Baseline option: *No risk-based backstop to internal models*

The baseline is the current prudential framework, which – since the expiry of the transitional provision on the Basel I floor – does not entail a risk-based backstop that would limit the capital benefit an institution may obtain by using internal models, compared to using the standardised approaches.

Option 1 - *Implement the OF over the 5-years phase-in at the highest level of consolidation taking into account all the risk-based capital requirements contained in EU law*

Under this option, the OF would apply to total RWAs, limiting the variations – be they justified or not – between banks for the same underlying risks. This would produce floored RWAs to be used for the calculation of the stack of all the risk-based capital requirements contained in the EU prudential framework, including those that are not or not explicitly set out in the Basel framework: the minimum capital requirement (the so-called 'Pillar 1 requirement'), the capital conservation buffer (CCB) requirement, the countercyclical capital buffer (CCyB) requirement, the buffer requirements for global systemically-important and other systemically-important institutions (G-/O-SIIs), as well as bank-specific capital requirements imposed by supervisors ('Pillar 2 requirement' or P2R) and the systemic risk buffer (SRB) requirement[256].

As P2R and SRB requirements are currently being used to address, inter alia, shortcomings of internal models that result in underestimation of risks (so-called "model risk"), the CRR/D would prescribe that any double counting of the risks captured by the OF and the risks captured by any of the other requirements – notably those imposed by supervisors under

[254] EBA, Progress report on IRB roadmap – Monitoring Implementation, Reporting, and Transparency, July 2019, https://eba.europa.eu/eba-publishes-report-on-progress-made-on-its-roadmap-to-repair-irb-models.

[255] The ECB's targeted review of internal models (TRIM) is a multi-year project to ensure that capital requirements for banks using internal models are calculated correctly, consistently and in a comparable manner, for more details see e.g. https://www.bankingsupervision.europa.eu/press/publications/newsletter/2019/html/ssm.nl190515_6.en.html.

[256] Separately, the same RWAs would also be used for the calculation of the risk-based total loss-absorbing capacity (TLAC) requirement. In the EU, the TLAC standard adopted by the FSB has been implemented through a minimum requirement for own funds and eligible liabilities (MREL). The MREL consists of own funds and part of a bank's liabilities. If a bank fails and goes into resolution, the MREL acts as a buffer to absorb losses and to provide new capital to the bank. This ensures that the costs of failure of a bank will as much as possible be borne by the bank's investors, i.e. its shareholders and creditors. While a harmonised minimum level of MREL for G-SIIs is introduced into CRR, the MREL for other institutions is regulated in BRRD and SRMR.

Pillar 2 and the macro-prudential framework[257] – must be avoided (see example in *Figure 27*, P2R currently addressing model risk would be consumed by the OF). Supervisors would hence need to reduce some of the requirements as certain risks would be captured by the OF. The EBA's advice[258] includes a specific recommendation to supervisors to this effect and calls on them, more generally, to reconsider the appropriate level of P2R and buffer requirements in light of the OF, once it would apply.[259] Furthermore, any increase of the P2R and/or SRB requirement that do not stem from the increase in risks but from the increase in RWAs following the introduction of the OF would need to be neutralised.

In concrete terms, supervisors and macro-prudential authorities would need to take the following two steps.

- In a first step, supervisors would be required to review the calibration of the P2R and the need for risk-weight floors, respectively to avoid double-counting of model risk once the output floor would be in place. This means for example that a supervisor/authority currently imposing a Pillar 2 capital add-on/ risk-weight floor to address model risk, should reduce or completely eliminate this add-on/floor following this review. The actual outcome would however depend on the increase in risk weighted assets due to the OF.
- In a second step, supervisors would be required to review the calibration of the P2R and the systemic risk buffer, respectively, in view of a potential increase in risk weighted assets due to the introduction of the OF. Until the completion of the review, the P2R and the SRB would be frozen in nominal terms (i.e. in terms of the actual amount of capital required). This would avoid automatic (also referred to as "arithmetic") increases in the amount of capital required under Pillar 2 and the SRB due to the potential increase in RWAs following the introduction of the OF. The increase in RWAs would also push up the EUR amount in terms of P2R/SRB where they are currently calculated as a percentage of RWAs (see "Basel III without adjustments" in *Figure 27*). This effect would be purely arithmetic and would not reflect an actual increase in risks that would necessitate additional capital.[260] Supervisors would therefore be required to neutralise this increase by calibrating the risk charge accordingly (see option 1 in *Figure 27*).

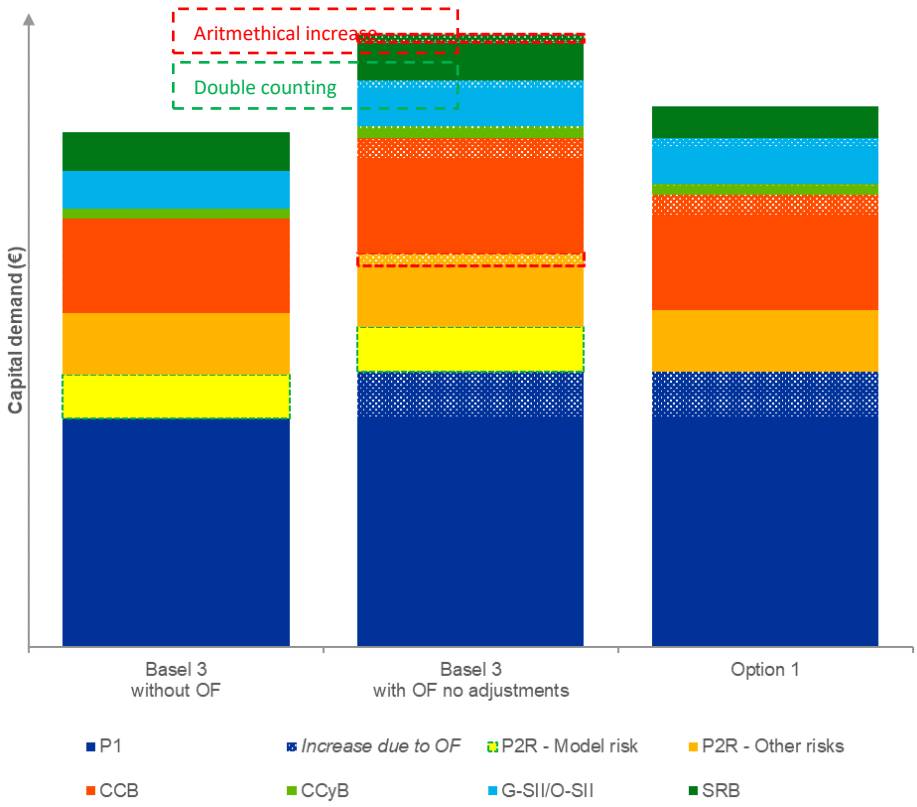
[257] Besides the SRB, authorities can revert to so-called "national flexibility measures" to address systemic risks stemming from the use of internal models. Specifically, a number authorities have introduced "floors" requiring banks that use internal models to apply minimum risk-weights to certain exposures (e.g. mortgages and/or corporates). Those measures increase the Pillar 1 capital requirements.

[258] EBA, Policy Advice on the Basel III reforms: Output Floor, August 2019.

[259] In cases where the OF will increase total RWAs supervisors would need to consider the effect on the absolute level of capital requirements.

[260] Assume that today a bank needs to hold 2% of RWAs as additional capital, which amounts to EUR 1 billion of actual capital. Now, if RWAs for that bank increase by 20% due to the new OF, the 2% might suddenly go from EUR 1 billion to EUR 1.2 billion of actual capital. This increase would not reflect additional but represent a purely arithmetic effect that should be neutralised in the P2R calculations, cf. "Basel III – journey or destination?", Keynote speech by Andrea Enria, Chair of the Supervisory Board of the ECB, at the European Commission's DG Financial Stability, Financial Services and Capital Markets Union conference on the implementation of Basel III, November 2019, https://www.bankingsupervision.europa.eu/press/speeches/date/2019/html/ssm.sp191112_1~01be3b89b0.en.html.

Figure 27: Stylised example – functioning of the OF (option 1)



Notes: Dotted areas of the stack indicate the increase in capital demand driven by the increase in RWA due to the OF. This increase is expected to be neutralised for P2R/SRB requirements. "P2R – Model risk" refers to the part of current P2R that would be removed due to an overlap with the OF.

Option 1 would also make use of the transitional arrangements for the OF provided by the Basel III standards on an optional basis, i.e. a 5-year transitional path until 2030 (see *Table 30*) for institutions to grow into and adjust to the OF requirement as well as a "transitory cap"[261] that temporarily prevents RWAs from increasing by more than 25% because of the OF.

Table 30: Phased-in implementation of the OF

	1st Jan 2025	1st Jan 2026	1st Jan 2027	1st Jan 2028	1st Jan 2029	1st Jan 2030
calibration	50%	55%	60%	65%	70%	72.5%

[261] During the phase-in period the incremental increase in a bank's total RWAs that results from the application of the OF would be capped. This transitional cap would be set at 25% of a bank's RWAs before the application of the floor.

As regards the level at which the OF would apply, option 1 would entail its application only at the highest level of consolidation in the EU, recognising the benefits of risk diversification across different entities and business models of entities within the same banking group. While the potential increase in capital, required due to the application of the OF at consolidated level, would have to be distributed fairly across the entities of the banking group taking into account their risk profile, capital requirements at sub-consolidated and individual levels would continue to be calculated based on RWAs that are not subject to the OF.

Option 2 *- Implement the OF over the 5-years phase-in at all levels of application taking into account all risk-based capital requirements contained in EU law*

Under this option, the OF would apply to all the risk-based capital requirements contained in EU law, including those that are not or not explicitly set out in the Basel framework. However, it would apply at all levels of application, i.e. at the consolidated, sub-consolidated and individual level, as it is the case for many other prudential requirements such as the leverage ratio.

Option 3 *- Implement the OF as a parallel requirement applicable at the highest level of consolidation that takes into account only the risk-based capital requirements provided by the Basel framework ("parallel stack approach")*

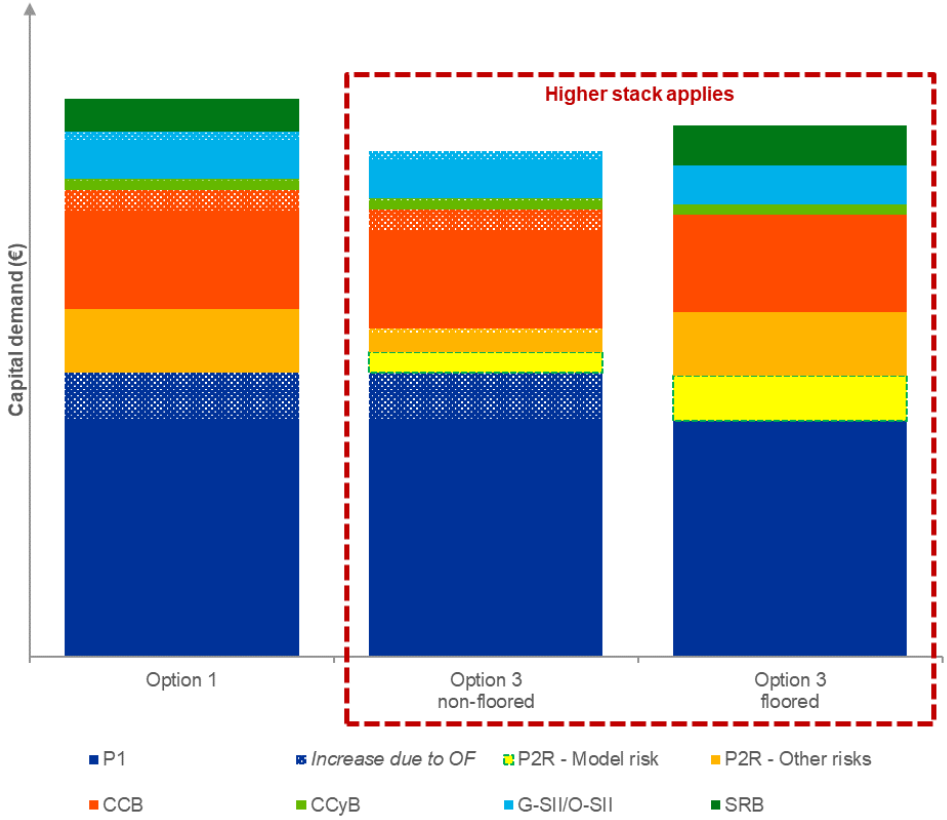
Under this option, two different overall capital requirements based on different stacks of capital requirements would be calculated, compared, and the higher of these two amounts would be the binding capital requirement.

- The first stack would reflect the sum of the risk-based capital requirements listed in the Basel standards as well as some elements of the P2R (e.g. risks which are exclusively covered under the risk-based Pillar 2 and excluded from Pillar 1 such as interest risk in the banking book, etc., or excessive model risk that are not fully addressed by the OF) calculated on the basis of floored RWAs;

- The second stack would represent the sum of all risk-based capital requirements applicable in the EU calculated in accordance with internally modelled approaches on the basis of non-floored RWAs.

The floor applies if the first stack results in a higher overall requirement (see *Figure 28*). Precondition for implementing this approach would be a clear decomposition of risks to be captured under the floored stack vs. the risks to be captured under the non-floored stack.

Figure 28: Stylised example – comparison of option 1 vs option 2



Notes: Dotted areas of the stack indicate the increase in capital demand driven by the increase in RWA due to the OF. This increase is expected to be neutralised for P2R/SRB requirements. "P2R – Model risk" refers to the part of current P2R that would be removed due to an overlap with the OF.

Under option 3 the OF applied to the floored stack would be subject to the transitional arrangements for the OF provided by the Basel III standards.

Option 4 - *Implement the OF as a parallel requirement that takes into account only the risk-based capital requirements provided by the Basel framework ("parallel stack approach") and apply at all levels*

Under this option, the OF would be a parallel requirement applied only to the risk-based capital requirements that are explicitly listed in the Basel framework, like under option 3. However, it would apply at all levels of application, i.e. at the consolidated, sub-consolidated and individual level, as it is the case for many other prudential requirements such as the leverage ratio.

Impacts and comparison across options

The impact of either option ultimately depends on the extent to which supervisors actually adjust the requirements in their remit, in particular P2R, in view of the OF, which in itself depends on the specific risk-profile of each individual bank: Under Option 1, supervisors would adjust P2R and SRB / other related macro-prudential capital requirements to avoid double counting of risks. Under Option 2 supervisors would address some institutions-specific risks by imposing P2R also for the calculation of the floored stack.

If the OF were implemented without any adjustments to the current percentage levels of P2R and/or SRB and other related macro-prudential capital requirements, where applicable, EBA estimates marginal increase in capital requirements in the short term (i.e. at the beginning of the phase-in period in 2025 when the OF would be 50%) and of +6.7% in the long term at its steady-state implementation (see *Table 2* in section 6.1.).

However, with the two-step approach (1. no-double, 2. no-arithmetical increase) proposed under **Option 1**, the estimated increase would be lower, provided that supervisors make the adjustments described above. Option 1 would have a relatively low impact in the short-term, as the OF will be phased-in over a 5-year period. Option 1 would also limit the impact of the OF in the long-term: less than +5.7% average increase in capital requirements (as compared to +6.7% without the adjustments to P2R and buffer requirements). As Option 1 would implement the OF in the existing stack of capital requirements in the EU, the framework would be simple, transparent, and consistent with the Basel standards. The application of the floor at the highest level of consolidation in the EU would help limiting its impact and ensure coherence with the logic of the Banking Union where the redistribution mechanism would provide for a fair distribution of the additional capital across the various subsidiaries of the group according to their risk profile as if the floor would be applied at individual level[262].

Option 3 would give relatively more weight to modelling outcomes. This option would hence be less effective in addressing the identified problems with certain internal models. It would not fully capture banks that use more aggressive internal models, unless a specific Pillar 2 requirements would be added in the floored stack to this end, or banks with high P2R and SRB requirements addressing other risks (than those associated with internal models):

- if the first (floored) stack based on floored RWAs leads to higher overall requirements, the risks supervisors have addressed through P2R or the SRB could be effectively ignored in the binding capital requirement, depending on the requirements of the floored stack;
- if the second (non-floored) stack calculated on the basis of non-floored RWAs leads to higher overall requirements, it could be argued that the OF would be ignored (even though the OF would still be applied to the requirements set out in the Basel standards), even where the institution's internal model is particularly aggressive.

Furthermore, as the EBA highlighted Option 3 would increase the level of complexity as the bank would have to calculate and disclose two risk -based capital ratios, one for each stack.

[262] This means that the distribution key for any additional capital required by the OF would depend on the contribution of each entity to the consolidated floor requirement.

This could create confusion, in particular among investors and clients, in terms of trigger levels, such as for the conversion/write-down of Additional Tier 1 instruments or for calculating the minimum distributable amount (MDA). While Option 3 would allow investors to compare the RWAs of banks using internal models (as it is already the case for the baseline), the comparability of their risk-based capital ratios would actually be reduced as the binding requirement would be calculated for different capital stacks across institutions.

Options 1 and 3 would have both have a negligible impact in the short-term. Over the long-term, the impact of option 2 is likely to be lower than option 1, leading to an average increase in capital requirements of more than +1.5% but no more than +5.4%. Option 1 may therefore reduce banks' capital ratio in the steady state to a greater extent than Option 3, which might in turn lead to more scrutiny by markets when analysing the risk profile of the bank.

In its analysis in response to the Call for Advice, the EBA has only quantified comprehensively the impact of the implementing the OF at the highest level of consolidation due to difficulties to perform the quantitative analysis at all levels of application.

For banking groups with several levels of application (e.g. at EU-consolidated, MS-sub-consolidated, and individual level) the total capital impact of applying the OF at all levels as implied by Options 2 and 4 will be higher than applying the respective approach only at the highest level of consolidation[263]. Applying the OF at all levels would likely lead to a higher increase in capital requirements compared to its application only at consolidated level, as it would also act on intra-group exposures and limit the possibility to consolidate risks across different parts of the banking group. This could have a disproportionate impact on certain group structures (e.g. regional banks in cooperative groups which use internal approaches) and subsidiaries with specific business models (e.g. real estate lending or leasing) and cause additional compliance burden (due to multiple calculations at parent and subsidiary level), as highlighted by the EBA in its advice. Applying the OF at all levels could furthermore distort the internal risk allocation of cross-border banking groups, in particular in case of large intragroup exposures, and contribute to a fragmentation of the single market.

Overall, the EBA's QIS results indicate that the OF complements other requirements, resulting in a broadly comparable impact of the revised Basel III framework for most business models. In terms of the objectives of reducing excessive RWA variability and promoting comparability of risk-weighted capital ratios, the QIS demonstrates that the OF under options 1 and 2 would raise the average RWs of institutions that are constrained by the floor. As a result, the RWs become more comparable across institutions using internal models. The QIS also show that the OF mitigates variability in internal modelling output for various portfolio types. The floor particularly constrains those institutions that tend to have lower RW densities[264] than most of the other institutions using internal models.[265]

[263] A simple explanation comes from a mathematical property of the maximum operator (used under the under which the maximum of two sums of values is lower than the sum of the maximum of the values composing

[264] The RWA density is computed as the ratio of the total RWA over the current total asset of each bank. As the RWA changes under the different frameworks, the denominator is kept constant.

Table 31: Comparison of policy options against effectiveness, efficiency and coherence criteria

	EFFECTIVENESS	***EFFICIENCY (cost-effectiveness)***	***COHERENCE***	***OVERALL SCORE***
Baseline option	0	0	0	0
Option 1	++	-	++	+
Option 2	++	--	+	≈
Option 3	+	≈	-	≈
Option 4	+	≈	-	≈

Magnitude of impact as compared with the Baseline option (the baseline is indicated as 0): ++ strongly positive; + positive; – – strongly negative; – negative; ≈ marginal/neutral; ? uncertain; n.a. not applicable

Preferred option

In light of the above analysis, which led to the overall score of each policy option in *Table 31*, **option 1** is deemed the preferred policy option

[265] In particular, institutions that are constrained by the OF have, on average, a larger divergence between internally modelled RWs and standardised RWs on various portfolios (e.g. residential counterparties and specialised lending) than institutions that are not constrained by the OF.