

EBA/CP/2020/11

09 June 2020

Consultation Paper

Draft Regulatory Technical Standards on the prudential treatment of software assets under Article 36 of Regulation (EU) No 575/2013 (Capital Requirements Regulation - CRR)

amending Delegated Regulation (EU) 241/2014 supplementing Regulation (EU) No 575/2013 of the European Parliament and of the Council with regard to regulatory technical standards for Own Funds requirements for institutions

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1. Responding to this consultation

The EBA invites comments on all proposals put forward in this paper and in particular on the specific questions summarised in 5.2.

Comments are most helpful if they:

- respond to the question stated;
- indicate the specific point to which a comment relates;
- contain a clear rationale;
- provide evidence to support the views expressed/ rationale proposed; and
- describe any alternative regulatory choices the EBA should consider.

Submission of responses

To submit your comments, click on the ‘send your comments’ button on the consultation page by 09.07.2020. Please note that comments submitted after this deadline, or submitted via other means may not be processed. To note, considering the current extraordinary situation and that the proposed treatment of software would result in a capital relief for institutions compared to the current regime, the EBA has opted for applying a shorter consultation period (i.e. 1 month) than usual (i.e. 3 months), balancing the need for receiving feedback from stakeholders with the opportunity to accelerate the application of the new regulatory treatment, in order to further support EU institutions, especially in the context of the current circumstances around the COVID19 crisis.

Publication of responses

Please clearly indicate in the consultation form if you wish your comments to be disclosed or to be treated as confidential. A confidential response may be requested from us in accordance with the EBA’s rules on public access to documents. We may consult you if we receive such a request. Any decision we make not to disclose the response is reviewable by the EBA’s Board of Appeal and the European Ombudsman.

Data protection

The protection of individuals with regard to the processing of personal data by the EBA is based on Regulation (EU) 2018/1725 of the European Parliament and of the Council on the protection of individuals with regard to the processing of personal data by the Union institutions and bodies, offices and agencies and on the free movement of such data, and repealing Regulation (EC) No 45/2001 and Decision No 1247/2002/EC (‘EUDPR’) as implemented by the EBA in its implementing rules adopted by its Management Board. Further information on data protection can be found under the [Legal notice section](#) of the EBA website.

2. Executive Summary

As part of the Risk Reduction Measures (RRM) package adopted by the European legislators, Article 36(1)(b) of the CRR has been amended, introducing, inter alia, an exemption from the deduction of intangible assets from Common Equity Tier 1 (CET1) items in case of *“prudently valued software assets, the value of which is not negatively affected by resolution, insolvency or liquidation of the institution”*. In order to ensure prudential soundness in the application of the revised prudential treatment of software, a new paragraph 4 in Article 36 of the CRR was introduced, giving the EBA the mandate to develop draft regulatory technical standards *“to specify the application of the deductions referred in to point (b) of paragraph 1, including the materiality of the negative effects on the value which do not cause prudential concerns.”* The EBA is fulfilling this new mandate by way of amending the existing Regulatory Technical Standards for Own Funds requirements for institutions¹. This Consultation Paper (CP) has been developed accordingly.

When developing this draft RTS, consideration has been given, inter alia, to: i) the differences in the valuation and amortisation of software assets and to the value realised from their sale; ii) the international developments and the differences in the regulatory treatment of investments in software; iii) the different prudential rules that apply to insurance undertakings, and iv) the diversity of the financial sector in the Union, including non-regulated entities such as financial technology companies. As part of its mandate, the EBA has investigated quantitative and qualitative aspects related to the amount of software assets held by EU institutions, their valuation and expected useful life and amortisation methodology in particular in the case of resolution, insolvency or liquidation, as well as implications stemming from a change of the current regulatory treatment.

The EBA aimed at achieving an appropriate balance between the need to maintain a certain margin of conservatism/prudence in the treatment of software for prudential purposes, especially given its limited value in a gone concern scenario, and the acknowledgment of the relevance of software assets from a business and an economic perspective, in a context of increasing digital environment.

In the EBA opinion, a prudential treatment of software assets based on their amortisation for prudential purposes is deemed to strike an appropriate balance between the objectives described above. In addition, it reflects the pattern under which the recoverable value of software is expected to decrease over time. The proposed approach has also been designed in order to be simple to implement and applicable to all institutions in a standardised manner as this is the case today with the deduction treatment.

Considering the interplay between the accounting and prudential framework, this CP also highlights a number of areas where a close scrutiny will be warranted by regulators, supervisors and external auditors, as a change in the current treatment will likely influence the accounting treatment of software assets.

¹ Delegated Regulation (EU) No 241/2014 supplementing Regulation (EU) No 575/2013 of the European Parliament and of the Council

Finally, it is the EBA intention to closely monitor the evolution of the investments in software assets going forward, including the link between the proposed prudential treatment and the need for EU institutions to make some necessary investments in IT developments in areas like cyber risk or digitalisation in particular.

Next steps

This CP is issued for a 1 month consultation period. The final draft RTS will be subsequently submitted to the Commission for adoption before being published in the Official Journal of the European Union.

3. Background and rationale

1. As part of the Risk Reduction Measures (RRM) package adopted by the European legislators in May 2019, Article 36(1)(b) of the CRR has been amended², introducing, inter alia, an exemption from the deduction of intangible assets from Common Equity Tier 1 (CET1) items in case of *“prudently valued software assets, the value of which is not negatively affected by resolution, insolvency or liquidation of the institution”*³.
2. The arguments considered by the EU legislators when deciding to revise the prudential treatment of software included the increasing importance of these investments in the context of the evolution of the banking sector in a more digital environment and the existence of a potential source of competitive disadvantage for European institutions in comparison with certain non-regulated technological players (e.g. Bigtech and Fintech companies) and with certain international competitors, which in particular do not account for software as an intangible asset and as a result do not deduct it from CET1 capital.
3. In order to ensure prudential soundness in the application of the revised prudential treatment of software, a new paragraph 4 in Article 36 of the CRR was introduced, giving the EBA the mandate to develop draft regulatory technical standards *“to specify the application of the deductions referred in to point (b) of paragraph 1, including the materiality of the negative effects on the value which do not cause prudential concerns.”*

3.1 General considerations on the EBA mandate

4. In a letter⁴ to the co-legislators, dated 5 October 2018, the EBA mentioned that *“software treatment should not be hastily changed given that deduction as presently applied still reflects the likely absence of value of software in resolution and even more in liquidation. Such treatment should not be lifted without an in depth analysis, also to assess if and to which extent the situation has changed due to the digital revolution”*. In the same letter, the EBA highlighted that the applicable regulatory framework for own funds has proven to be effective and weakening in the capital position of banks should be avoided.
5. The resulting standard should strike an appropriate balance between two aspects:
 - On the one hand, software is very unlikely to have value from an own funds/CET1 perspective. This is due to the fact that software assets are usually tailor -made and cannot be easily sold on the market as a standalone asset if needed (i.e. to absorb losses

² See Regulation (EU) 2019/876 of 20 May 2019 (“CRR2”) (<https://data.consilium.europa.eu/doc/document/ST-6288-2019-INIT/en/pdf>), amending Regulation (EU) No 575/2013.

³ In particular, according to Art 36 (1) (b), as amended by the CRR2, institutions shall deduct from CET1 items “intangible assets with the exception of prudently valued software assets, the value of which is not negatively affected by resolution, insolvency or liquidation of the institution”.

⁴ <https://eba.europa.eu/documents/10180/2101654/EBA+BS+2018+336+%28EBA+Letter+to+Trilogue+re+RRM%29.pdf/05b0acf1-0ee1-4dd0-8dfb-f6cbd5d48beb>

on an ongoing concern if losses arise). According to Article 26 (1), second subparagraph of the CRR, items shall be recognised as CET1 only where they are available to the institution for unrestricted and immediate use to cover risks or absorb losses as soon as they occur. By nature, intangible assets (including software) are highly unlikely to meet this requirement. In addition, the value of some software assets is deemed to present a high level of volatility and/or rapid obsolescence, due to the changes in technology.

- On the other hand, it is acknowledged that, from a business perspective, software assets have value for the institution which use them, as the institution could not continue its functioning, being in going concern or under resolution/liquidation, without its software. Furthermore, considering the increasing relevance that software assets and technology in general are assuming in the financial and banking industry, it is important to encourage IT investments with the aim of supporting the technological development and the modernisation of the financial and banking sector, given its importance also from a competitive perspective. That said, it cannot be disregarded that under a merger/acquisition, resolution or liquidation case, it appears that sooner or later software assets of the bank will lose their value. While this might not be at day one in particular for mergers/acquisitions or resolution cases (which is consistent with a full upfront deduction), this will come after some time (the related question being after which amount of time).
6. Based on investigations performed by the EBA on a representative selection of concrete cases of software transactions (see below), it appears that software has no recoverable value in case of liquidation, whilst it is worth pointing out that in some cases software assets continue to be used during the liquidation process, contributing to an orderly liquidation. According to these data, a strict and literal interpretation of the EBA mandate would probably lead to a very narrow or empty subset of software for which there would be no negative effects on the value which would not cause prudential concerns and for which no deduction from CET1 would apply. That said, it is the EBA view that this was not the intention of the co-legislators and that a less strict interpretation should be retained, as long as the resulting technical standard contains a satisfactory level of prudence. This approach would ensure consistency with both the investigations performed and the need for flexibility required in light of: i) the international developments and differences in the regulatory treatment of investments in software; ii) the different prudential rules that apply to institutions and insurance undertakings; and iii) the diversity of the financial sectors in the Union (including non-regulated entities such as financial technology companies).
7. In addition, it is the EBA view that the following high level principles should be followed when developing the regulatory treatment for software, according to which the revised prudential treatment of software shall:
- (a) be simple to implement and applicable to all institutions in a standardised manner as this is the case today with the deduction treatment;
 - (b) be easy to supervise by competent authorities;

- (c) not to be prone to circumvention by institutions;
 - (d) not lead to undue benefits/undue relief of CET1 capital; and
 - (e) continue to entail a certain margin of conservatism/prudence in the valuation of software for prudential purposes as explained above.
8. While developing the principles for an amended regulatory treatment, the EBA has identified a number of areas where a close scrutiny will be warranted by regulators, supervisors and external auditors, as a change in the current treatment will likely influence the accounting treatment of software assets and other related aspects for business combinations for example (goodwill in particular; see below).
9. In addition, it is the EBA intention to closely monitor the evolution of the investments in software assets going forward, including the link between the proposed prudential treatment and the need for EU institutions to make some necessary investments in IT developments in areas like cyber risk or digitalisation in particular.

3.2 Approach followed in developing the draft RTS

Overview of the approach followed

10. According to the Recital (27) of the CRR⁵, in the context of the development of an appropriate prudential treatment for software, consideration should be given, inter alia, to:
- the differences in the valuation and amortisation of software assets and in the value realised from their sale;
 - the international developments and the differences in the regulatory treatment of investments in software;
 - the different prudential rules that apply to insurance undertakings, and
 - the diversity of the financial sector in the Union, including non-regulated entities such as financial technology companies⁶.
11. In the light of this, as part of the mandate provided in Article 36 (4) of the CRR, the EBA investigated the following aspects:

⁵ Regulation (EU) 2019/876 of the European Parliament and of the Council of 20 May 2019 amending Regulation (EU) No 575/2013 on prudential requirements for credit institutions and investment firms

⁶ In particular, according to the Recital (27) of the CRR2 “[...] *In that context, differences in the valuation and amortisation of software assets and the realised sales of such assets should be taken into account. Furthermore, consideration should be given to international developments and differences in the regulatory treatment of investments in software, to different prudential rules that apply to institutions and insurance undertakings, and to the diversity of the financial sector in the Union, including non-regulated entities such as financial technology companies*”.

- (a) the treatment of software under the different accounting standards applied in the EU (i.e. IFRS and national GAAPs);
- (b) the practices observed for the purpose of software valuation in concrete cases of past transactions involving the EU banking sector (being liquidation, resolution or mergers/acquisitions cases), including the recoverable amount of the software at stake; this qualitative data collection exercise is believed to be fundamental in order to assess the behaviour of software in real cases and under different types of business models and different types of circumstances;
- (c) the prudential treatment of software applied in other jurisdictions at the national level and;
- (d) the regulatory treatment applicable to insurance undertakings in the EU according to the Delegated Regulation (EU) 2015/35 supplementing Directive 2009/138/EC (Solvency II Directive).

12. The main conclusions of the qualitative data collection can be summarised as follows:

- (a) Full detailed information in all cases since several transactions occurred many years in the past was not always retrievable, in particular for resolution and liquidation cases in a pre-BRRD world, and sometimes due to some confidentiality issues. Moreover, even when accessible, the degree of information contained in evaluation reports for the valuation of software was quite limited.
- (b) Recovery and resolution plans generally do not include detailed information on software assets and when they do, they show very large ranges of values with no specification of the valuation methodologies adopted.
- (c) While all cases investigated were quite specific and contained many case-by-case elements, some commonalities influencing the software valuation could be identified. They are related in particular to the following elements: i) acquiring entity (in particular domestic vs non domestic buyer), ii) resolution strategy, iii) features of the concerned software (degree of obsolescence, customisation, supporting or not the client service quality, materiality of the software in the balance sheet etc.), iv) time needed by the acquirer to integrate the acquired bank and its software in its own platform;
- (d) As mentioned above, on the basis of the collected information and the presented cases, software has no recoverable value in case of liquidation;
- (e) Any software, without a distinction of specific categories, seemed to have a similar probability to be written off or recovered;
- (f) Usually the valuation of software (or its expected useful life) is revised by the acquirer after the acquisition date, on the basis of an assessment of the IT systems to be replaced, as a result of the migration process, which, according to the collected evidences could range

between 1 and 3 years. This means that the final value of software is not always known at the date of the acquisition. This also means that the software of the acquired entity ultimately loses its value when replaced by the software of the acquirer.

13. In addition, as a complement to the qualitative collection of concrete cases mentioned above, a more quantitative data collection exercise on software has been performed on an EU sample of institutions in parallel to a similar exercise launched at the level of the Basel Committee on Banking Supervision (BCBS). This allowed to gather data on the amount of software assets, on their amortisation period, as well as on the potential implications stemming from a change of the current regulatory treatment.
14. Finally, the EBA had bilateral exchanges with the banking industry aimed at collecting preliminary views on the national accounting standards applied to software, on the amount of software in banks' balance sheet, on the different categories of software, as well as on possible alternative options to the deduction regime.
15. The whole set of information collected through the abovementioned analysis, both qualitative and quantitative, as well as the information through the roundtable have been used by the EBA for the development of this draft RTS.

Treatment of software under the accounting standards applicable in the EU

Accounting treatment of software under IFRS

A. Capitalisation of software

16. Under IFRS, software is explicitly mentioned as an example of intangible asset⁷. Moreover, IAS 38 "*Intangible assets*" establishes strict criteria for the capitalisation of internally generated software, requiring to distinguish between the research and the development phases of an internal project. Indeed, according to IAS 38:
 - the costs related to the research phase of a project (i.e. "research costs") cannot be capitalised and shall be expensed in the income statement, while;
 - those costs related to the development phase of the project (i.e. "development costs") shall be recognised as intangible asset, if they meet the conditions for capitalisation established in IAS 38⁸.
17. To note, under IFRS, software that is an integral part of the related hardware is classified as tangible asset and treated under IAS 16 "*Property, Plant and Equipment*". This is, for instance, the case of that software embedded in computer-controlled equipment and essential for its correct functioning⁹ or of the operating system of a computer. Even though, given the strict conditions

⁷ To note, according to the IFRS framework, an intangible asset corresponds to an identifiable non-monetary asset without physical substance. In addition, some characteristics need to be observed to meet the definition of intangible asset, in particular: identifiability, control over a resource and existence of future economic benefits

⁸ See, in particular IAS 38 par. 57.

⁹ To the extent that hardware cannot operate without it.

established in IFRS, the amount of software classified within tangible assets is generally limited, in some cases, certain EU institutions and financial conglomerates have reported a higher than expected part of their software assets within tangible assets.

B. Amortisation of software

18. Under IFRS, software is normally accounted for using the “cost model”¹⁰ and amortised on a straight-line basis¹¹. In this regard, it is worth pointing out that:

- a. the amortisation process shall begin when the related asset is available for use, meaning that it shall be in the condition necessary to be capable of operating in the manner intended by management. Therefore, in some cases, the amortisation process could start even a long time after the date of initial capitalisation. This could occur, in particular, in case of certain internally generated software;
- b. the amortisation period of intangible assets shall reflect their useful life, intended as the time during which they are expected to be available to use that, in the specific case of software, could be affected by the rapid changes in technology.

In particular, based on the evidences gathered through the quantitative data collection performed on the EU sample, the amortisation period of software assets held by European institutions is on average around 6 years.

Accounting treatment of software under the national GAAP applied in the EU

19. Even in those EU jurisdictions where IFRS standards are not mandatory applicable to institutions, the accounting treatment of software is generally aligned to IFRS. However, in certain jurisdictions some differences have been observed, mainly with reference to the aspects reported below:

A. Capitalisation of software

Certain national GAAPs applicable in the EU establish a different regime for the capitalisation of software compared to IFRS. In particular, in some jurisdictions, the capitalisation of internally generated software is not allowed or is subject to strict conditions¹², while in others the national accounting standards provide the option to capitalise development costs or to expense them, while research costs shall always be expensed as in IFRS. Such an option is applicable also to those costs related to the development of internally generated software¹³. This means that, depending on the adopted accounting policy, the amount of software capitalised on the balance sheet may be lower compared to institutions applying IFRS. In addition, in some cases, the above-mentioned option is associated to a specific regime for tax purposes.

¹⁰ According to the so called “cost model”, an asset is measured at its cost less any accumulated amortisation and any accumulated impairment losses.

¹¹ However, different amortisation methods are also allowed under IAS 38.

¹² This is, for instance, the case of Austria and the Czech Republic.

¹³ This is the case, inter alia, of Ireland, Finland, France, Germany and Sweden.

B. Amortisation of software

Like in IFRS, under the national GAAPs applied in the EU, the amortisation period of software shall reflect its useful life. In particular, based on the collected evidences, institutions applying national GAAPs generally amortise their software over a period that ranges between 3 and 10 years. Nevertheless, in certain cases, the amortisation period could be even significantly longer. Indeed, in some cases, certain software assets are amortised in more than 15 or 20 years. In addition, whilst some national GAAPs provide with a predefined maximum timeframe for the amortisation of intangible assets (including software)¹⁴, this limit is generally applicable only when the useful life of the related intangible asset cannot be reliably estimated. Therefore, in practice, they have no or limited application in case of software assets.

Potential implications on institutions' accounting practices that could arise from a revision of the current prudential treatment of software

20. Given the interplay between the prudential regulation and the accounting framework, it cannot be excluded that any change to the prudential treatment of software might affect the accounting practices currently adopted by EU institutions, including, inter alia, those related to the following aspects:

A. Capitalisation of costs related to internally generated software

21. According to both IFRS and the national GAAP applied in the EU, only those costs related to the development phase of an internal project can be capitalised, while the research costs shall be expensed in the income statement. Nevertheless, the boundary between research and the development costs is not always clear since the accounting standards provides little guidance in this regard. Therefore, it cannot be excluded that any revision to the current regulatory treatment of software could provide institutions with incentives to inflate the amount of capitalised software, by exploiting the lack of clarity in the accounting standards. Moreover, in those EU jurisdictions, where the relevant national GAAP give the option to capitalise development costs or to expense them, institutions may be prone to change their initial accounting policy choice, in order to benefit from the revised prudential treatment of software¹⁵. Scrutiny from all interested parties (regulators, supervisors, external auditors) will need to be exercised in this regard.

B. Amortisation of software

22. A prudential treatment of software based on amortisation may encourage institutions to extend and align the accounting amortisation period to the prudential one, even when the effective useful life of their software would be shorter. Therefore, it is paramount that the length of the prudential amortisation period is calibrated in a conservative manner. Moreover, as already mentioned above, in some cases (and in particular in the case of certain internally generated software) the accounting amortisation process could start even a long time after the date of initial capitalisation. In light of this, a regulatory framework for software assets, based on their prudential amortisation

¹⁴ Usually 5 or 10 years.

¹⁵ Indeed, according to the accounting policy currently applied by some institutions in these jurisdictions, internally generated software are not capitalised.

could also provide institutions with incentives to accelerate the finalisation and the entry into amortisation of their internal projects.

C. Treatment of software acquired in business combinations

23. In a business combination, the acquirer should recognise an intangible asset separately from goodwill and should be able to determine its fair value. However, empirical evidence highlights that, according to current practices, even in case of acquisitions of companies that are software-based, a lot of the value of the acquired firm is generally attributed to goodwill. Nevertheless, it cannot be excluded that, in light of the revised regulatory treatment of software, institutions may be prone to try to allocate more (fair) value to the software acquired in business combinations, in order to further benefit alternatively from:

- the recognition of a lower amount of goodwill, given that, for regulatory purposes, it is deducted from CET1 capital, or;
- the recognition of a higher amount of bargain purchase gain (so called “badwill”), to the extent that it is included in CET1 capital as part of the net income of the acquiring bank.

24. While the above-mentioned accounting implications shall in the first place be subject to the scrutiny by the external auditors, monitoring the possible existence of this practice would be a matter of interest from both a regulatory and supervisory perspective, given their potential implications on the relevant regulatory metrics. Moreover, they give rise to additional arguments for maintaining an appropriate margin of prudence in the revision of the prudential treatment of software assets.

Other frameworks that have been considered in the context of the draft RTS

Treatment applied in other jurisdictions at international level

25. At the international level, the regulatory treatment applied in case of investments in software largely depends on their accounting classification as intangible or tangible assets. A significant number of jurisdictions require or allow the application of IFRS standards as in the EU (this is in particular the case of Canada¹⁶, Japan¹⁷ and Saudi Arabia).

26. That said, some differences have been observed in other international accounting frameworks. A relevant example is given by the accounting principles applicable in the United States (i.e. “US GAAP”). Indeed, as a difference with IFRS, US GAAP does not explicitly state whether capitalised software shall be classified as a tangible or an intangible asset. Indeed, in 2009, AcSEC¹⁸ decided that it was not necessary to characterize computer software as either intangible assets or tangible assets when similar characterisations have not been made for most other assets. Therefore, US

¹⁶ In Canada IFRS Standards are required for most listed companies and financial institutions. However, companies also filing in the United States are permitted to apply US GAAP

¹⁷ In Japan, IFRS Standards are one of the permitted accounting framework.

¹⁸ AcSEC is the American Institute of Certified Public Accountants (AICPA)’s former senior standard-setting body known as the Accounting Standards Executive Committee.

banks generally do not classify software as intangible assets and, from a prudential perspective, include it in their risk-weighted assets¹⁹, instead of deducting from own funds. A similar prudential treatment is also applied by certain Swiss banks.

Treatment applied to EU insurance undertakings

27. Insurance and reinsurance undertakings in the EU are subject to Delegated Regulation (EU) 2015/35 supplementing Directive 2009/138/EC (Solvency II Directive). The prudential framework for insurance and reinsurance undertakings, in accordance with the Solvency II Directive, builds on a full market-consistent (fair value) valuation of all assets and technical provisions, including other liabilities, as the basis for the prudential balance sheet. The recognition and measurement of assets and liabilities other than technical provisions follows IFRSs to the extent a full market-consistent valuation can be ensured. The Delegated Regulation (EU) 2015/35 points out several areas where IFRSs are not, or only partially, applicable. Further, the Delegated Regulation (EU) 2015/35 deviates from the recognition of assets and liabilities following IFRSs in some instances, where, for example, contingent liabilities have to be recognised in the Solvency II balance sheet. In this regard, it is worth pointing out that under Solvency II, all intangible assets, including software, shall be valued at zero, i.e. shall not be recognised, unless:

- (a) they can be sold separately; and
- (b) it can be demonstrated that there is a value for the same or similar assets, which is based on quoted market prices in an active market²⁰

In addition, for those intangible assets for which a positive value is recognised, insurance companies are required to hold capital up to 80% of their value²¹.

28. The spirit of the limited recognition of intangible assets, which are separately recognisable and sellable at an active market, is to acknowledge that in a full market-consistently valued balance sheet, there may be intangible assets, which can actually support the own funds of the insurance or reinsurance undertaking with a market value that is reliably measurable, as quoted on an active market.

29. The EBA further investigated, also with the support of the EIOPA, the effective application to software assets according to Solvency II requirements in case of insurance undertakings and financial conglomerates. Based on the information collected, it seems that only in limited circumstances insurance undertakings report a positive value for their intangible assets and that the amount reported normally does not include software assets²². This is also consistent with the fact that software is generally not expected to be sold separately and, in the majority of the cases, an active market is unlikely to exist for certain type of software, given its tailor-made features.

¹⁹ Usually with a 100% risk weight.

²⁰ See Article 12 and Article 10 (2) of the Delegated Regulation (EU) 2015/35.

²¹ See Article 203 of the Delegated Regulation (EU) 2015/35.

²² With specific reference to those software assets classified as intangible assets for accounting purposes.

Proposed treatment

30. Based on what precedes, the EBA has investigated several options being as follows: i) full CET1 deduction, ii) CET1 deduction by software category, iii) alignment with Solvency II requirements and iv) prudential amortisation. All options are explained in more detail in the cost/benefit analysis section of this consultation paper, including pros and cons of each option.
31. The approach developed in the draft technical standards is based on the last option, i.e. prudential amortisation, which is deemed to strike a right balance between the objectives as previously described. Under this approach, the positive difference between the prudential and the accounting accumulated amortisation would be fully deducted from CET1 capital, while the residual portion of the carrying amount of software would be risk weighted. Should the useful life of software estimated for accounting purposes be shorter than the prudential amortisation period, the former would be used also for prudential purposes.
32. On the basis of the evidences collected on the length of the migration process in particular (observed to be between 1 and 3 years), the calibration of the prudential amortisation period is for the time being proposed to be set at 2 years.

4. Draft regulatory technical standards

In between the text of the draft RTS that follows, further explanations on specific aspects of the proposed text are occasionally provided, which either offer examples or provide the rationale behind a provision, or set out specific questions for the consultation process. Where this is the case, this explanatory text appears in a framed text box.

COMMISSION DELEGATED REGULATION (EU) No .../..

amending Delegated Regulation (EU) No 241/2014 supplementing Regulation (EU) No 575/2013 of the European Parliament and of the Council with regard to regulatory technical standards for own funds requirements for institutions

(Text with EEA relevance)

THE EUROPEAN COMMISSION,

Having regard to the Treaty on the Functioning of the European Union,

Having regard to Regulation (EU) No 575/2013 of the European Parliament and of the Council of 26 June 2013 on prudential requirements for credit institutions and investment firms and amending Regulation (EU) No 648/2012²³, and in particular the third subparagraph of Article 36(4) thereof,

Whereas:

- (1) In order to develop a prudential framework for the treatment of software assets, it is paramount to find an appropriate balance between the likely limited value that those assets are expected to have in case of resolution, insolvency or liquidation of an institution and their value from a business and an economic perspective, for those institutions using them as part of their activities
- (2) For the purposes of this Regulation, consideration has been given to the need to implement a prudential treatment for software assets to all institutions in a standardized and simple manner, while maintaining an appropriate margin of conservatism and avoiding undue relief in Common Equity Tier 1 capital.
- (3) The prudential treatment of software assets based on their amortisation should reflect the pattern under which the value of these assets is negatively affected over time in case of occurrence of an external acquisition, in particular following the resolution, insolvency or liquidation of an institution. Such an approach would, therefore, contribute to limit the materiality of the negative effects on the value of those assets, which do not cause prudential concerns.
- (4) Given the rapid changes in technology, institutions may sustain investments for maintaining, enhancing or upgrading their software assets. In order to mitigate any potential risk of regulatory arbitrage, these investments should be treated separately from the existing software to which they refer, provided that they meet the conditions to be recognised as an intangible asset in the balance sheet of the institution in accordance with the applicable accounting framework.

²³ OJ L 176, 27.6.2013, p. 1.

- (5) This Regulation should not prevent competent authorities from exercising their supervisory powers in accordance with Directive 2013/36/EU where, inter alia, it is ascertained on a case-by-case basis that the application of this Regulation to the stock of investments in software held by certain institutions could result in an undesired prudential benefit or that the degree of judgement required in the application of the accounting principles is used to circumvent the provisions of this Regulation, with the aim of recognising an undue prudential relief.
- (6) This Regulation is based on the draft regulatory technical standards submitted by the European Banking Authority (EBA) to the Commission.
- (7) The EBA has conducted open public consultations on the draft regulatory technical standards on which this Regulation is based, analysed the potential related costs and benefits and requested the opinion of the Banking Stakeholder Group established in accordance with Article 37 of Regulation (EU) No 1093/2010 of the European Parliament and of the Council²⁴.
- (8) Delegated Regulation (EU) No 241/2014 should therefore be amended accordingly.

Article 1

Amendments to Delegated Regulation (EU) No 241/2014

Delegated Regulation (EU) No 241/2014 is amended as follows:

- (1) In Article 1, point (f) is replaced by the following:

‘(f) the application of the deductions from Common Equity Tier 1 items and other deductions for Common Equity Tier 1, Additional Tier 1 and Tier 2 items according to Article 36(2) and (4) of Regulation (EU) 575/2013;’

- (2) The following article is inserted:

‘Article 13a

Deduction of intangible assets for the purposes of Article 36(1)(b) of Regulation (EU) No 575/2013

1. For the purposes of applying the deductions referred to in point (b) of Article 36(1) of Regulation (EU) No 575/2013, software assets that meet the definition of intangible assets set out in point (115) of paragraph 1 of Article 4 of Regulation (EU) No 575/2013 shall be subject to the prudential amortisation and shall be deducted from Common Equity Tier 1 items in accordance with this Article.

²⁴ Regulation (EU) No 1093/2010 of the European Parliament and of the Council of 24 November 2010 establishing a European Supervisory Authority (European Banking Authority), amending Decision No 716/2009/EC and repealing Commission Decision 2009/78/EC (OJ L 331, 15.12.2010, p. 12).

2. Institutions shall calculate the prudential amortisation of software assets by multiplying the result derived from the calculation referred in point (a) by the amount referred to in point (b) as follows:
 - (a) the amount at which the software assets have been initially recognised in the balance sheet of the institution in accordance with the applicable accounting framework, divided by the number of calendar days of a period that shall not exceed the lower of:
 - i. the useful life of the respective software assets estimated for accounting purposes;
 - ii. 2 years, starting from the date referred to in paragraph 3;
 - (b) the number of calendar days elapsed since the date referred to in paragraph 3 and up to the end of the period referred in point (a) above.

[Paragraphs 3 and 4 in case of application of Option A]

3. The prudential amortisation referred to in paragraph 2 shall be calculated starting from the date of the initial recognition of the software assets on the institutions' balance sheet under the applicable accounting framework, regardless of the date on which the software assets would be available for use and would begin to be amortised for accounting purposes, accordingly.
4. By way of derogation of paragraph 3, in case of software assets acquired from any undertaking, including a non-financial sector entity, that is part of the same group as the institution, the amortisation of the software assets referred to in paragraph 2 shall be calculated from the date of the initial recognition on that undertaking's balance sheet.

[Alternative paragraphs 3 and 4 in case of application of Option B]

3. The prudential amortisation referred to in paragraph 2 shall be calculated starting from the date on which the software assets would be available for use and would begin to be amortised for accounting purposes.
4. By way of derogation of paragraph 3, in case of software assets acquired from any undertaking, including a non-financial sector entity, that is part of the same group as the institution, the amortisation of the software assets referred to in paragraph 2 shall be calculated from the date on which they began to be amortised under the applicable accounting framework in that undertaking's balance sheet.

5. Institutions shall deduct from Common Equity Tier 1 items the amount resulting from the difference, if positive, between the amount in point (a) and the amount in point (b):
 - (a) the prudential accumulated amortisation of software assets calculated in accordance with paragraphs 2 to 4;
 - (b) the sum of the accumulated amortisation and any accumulated impairment losses of software assets recognised in accordance with the applicable accounting framework.

[Paragraph 6 to be added in case of application of Option B]

6. By way of derogation of paragraph 5, until the date referred to in paragraph 3, institutions shall deduct from Common Equity Tier 1 items the full amount at which the software assets are recognised in the balance sheet of the institution in accordance with the applicable accounting framework.
7. The prudential amortisations and deductions set out in this Article shall be made separately for each software asset.

[Paragraph 8 in case of application of Option A]

8. For the purposes of this Article, institutions' investments in maintaining, enhancing or upgrading an existing software asset shall be treated as separate assets from the former, provided that they meet the conditions to be recognised as an intangible asset in the balance sheet of the institution in accordance with the applicable accounting framework. For these purposes, the prudential amortisation of those investments shall be calculated from the date of their initial recognition in the balance sheet of the institution, while the related existing software asset shall continue to be amortised from the date of its own initial recognition and until the end of the period referred to in paragraph 2.'

[Alternative paragraph 8 in case of application of Option B]

8. For the purposes of this Article, institutions' investments in maintaining, enhancing or upgrading an existing software asset shall be treated as separate assets from the former, provided that they meet the conditions to be recognised as an intangible asset in the balance sheet of the institution in accordance with the applicable accounting framework. For these purposes and without prejudice to paragraph 6, the prudential amortisation of those investments shall be calculated from the date on which they would begin to be amortised under the applicable accounting framework, while the related existing software asset shall continue to be amortised from the date of its own initial amortisation for accounting purposes and until the end of the period referred to in paragraph 2.'

Explanatory box for the consultation

According to Article 4 (1) (115) of the CRR, the term “intangible assets” has the same meaning as under the applicable accounting framework. In this regard, it is worth noting that under IFRS “computer software” is mentioned as an example of intangible asset²⁵. Nevertheless, according to IAS 38, those software assets that are considered an integral part of the related hardware shall be classified within tangible assets²⁶. This is the case, for instance, of those software assets embedded in computer-controlled equipment and essential for its correct functioning²⁷ or of the operating system of a computer. Whilst, given the strict conditions established in IFRS, the amount of software classified within tangible assets is generally limited, in some cases, certain EU institutions and financial conglomerates have reported a higher than expected part of their software assets within tangible assets.

In line with the provisions of the Level 1 text, this Regulation applies to those software assets that are classified as intangible assets for accounting purposes and, as such, are within the scope of application of Article 36 (1) (b) of the CRR. However, competent authorities shall assess, on a case by case basis, and in close cooperation with external auditors, whether the degree of judgement requested by the accounting principles in the classification of software assets is used in such a manner that could result in circumventing the provisions of this Regulation, with the aim of recognising an undue prudential relief and, if this is the case, the appropriate supervisory measures shall be undertaken. This is also an aspect that would need to be monitored via regular QIS data collections.

In addition, competent authorities shall consider, also liaising with the external auditors, whether the revision of the prudential treatment of software might affect the accounting practices currently used by the supervised institutions and to what extent this would have an impact on the regulatory metrics. In this regard, potential areas to be monitored deal with the practices adopted for:

- the capitalisation of the costs related to internally generated software;
- the estimation of the expected useful life and the amortisation methodology of software assets;
- the treatment of software assets acquired as part of business combinations.

²⁵ According to the IFRS framework, an intangible asset corresponds to an identifiable non-monetary asset without physical substance. Nevertheless, according to IAS 38, some characteristics need to be observed to meet the definition of intangible asset, in particular: identifiability, control over a resource and existence of future economic benefits

²⁶ I.e. within Property, Plant and Equipment.

²⁷ To the degree that hardware cannot operate without it.

Question 1: In case some software assets are classified within tangible assets in your institution, what are the main reasons for doing so and what is the percentage of this classification compared with the classification as intangible?

Explanatory box for the consultation

Investments in software have become a strategic asset for banking sector's competitiveness and resilience, allowing institutions, inter alia, to deliver digital services competitively and to develop measures for dealing with ever greater IT and cybersecurity risks. Nevertheless, from a prudential perspective there are still concerns regarding the uncertainty of the recoverable value of software, especially in a situation of gone concern. Indeed, generally, software assets cannot be sold separately. In addition, the evidences collected showed that, in the majority of the cases, an active market is unlikely to exist for certain type of software, given its tailor-made features. This raises concerns on the loss absorbency capacity of software from an own funds perspective, since it might not be sold on markets in times of stress.

In the light of these considerations, the Level 1 text limits the exemption from CET1 deduction only to those *"prudentially valued software, the value of which is not negatively affected by resolution, insolvency or liquidation of the institution"*²⁸. Indeed, as better clarified in the Recital (27) of the CRR2, *"software is a broad concept that covers many different types of assets, not all of which preserve their value in the situation of a gone concern."* Furthermore, in developing a prudential treatment for software assets, consideration should be given, inter alia, also to the *"differences in the valuation and amortisation of software assets and the realised sales of such assets"*.

Against this backdrop, the EBA investigated the practices adopted by EU institutions in concrete cases of software transactions, with the aim of gathering a better understanding on whether and to what extent the software at stake preserved its value, especially in case of acquisitions involving institutions in resolution, liquidation or other insolvency procedure. Based on the collected evidences, it was noted that the valuation of software or its expected useful life is usually revised after the acquisition date by the acquired, on the basis of an assessment of these software assets to be replaced and in consideration of the time needed to migrate to its own IT systems. This means that, even when the acquired software is not fully written down at the date of acquisition, generally its value is negatively affected over time, until the end of the migration period²⁹, that, on the basis of the evidences collected, usually ranges between 1 and 3 years from the acquisition date.

The EBA is of the view that this pattern in the valuation of software can be reflected in the prudential regime by building up a treatment based on the amortisation of software, according to which its value is systematically reduced for prudential purposes, in order to reflect the passage of time until the end of a pre-defined prudential amortisation period.

²⁸ See Article 36 (1) (b) of the CRR2.

²⁹ Intended as the time needed by an acquirer to migrate to its own IT systems in case of software acquired as part of a business line or of a merger and acquisition transaction.

In particular, according to this approach, for each software asset, institutions shall deduct from CET1 items the positive difference between:

- i) the accumulated amortisation calculated for prudential purposes and
- ii) the sum of the accumulated amortisation and any impairment losses recognised in accordance with the applicable accounting framework.

In addition, the residual portion of the carrying amount of the related software asset³⁰ would be subject to a 100% risk-weight, pursuant to the provisions of Article 113 (5) and Article 156 of the CRR. Indeed, in the opinion of the EBA, such an approach would appropriately take into account the manner the recoverable value of software assets is negatively affected over time, in line with the requirements of the Level 1 text.

Under this approach, an appropriate calibration of the amortisation period used for prudential purposes would be paramount. Indeed:

- a too short amortisation period could negatively affect large scale software and IT infrastructure investments with longer useful life that could contribute to improve the EU banking sector's competitiveness and resilience, while;
- a too long amortisation period could not adequately consider the practices observed in case of merger and acquisition (M&A) transactions, involving the EU banking sector. Moreover, depending on the estimation of the useful life of software performed for accounting purposes, it could result in a nil CET1 deduction for certain institutions.

In this regard, the EBA is of the opinion that calibrating the prudential amortisation period on the basis of the evidences collected on the length of the migration process in case of external acquisition would represent an appropriate and conservative approach. In particular, a calibration of the amortisation period on a 2-year time horizon would have the merit of both reflecting the evidences collected from the assessment of concrete cases of software transactions and of ensuring the application of an appropriate margin of conservatism in the revised prudential treatment of software.

Finally, the prudential amortisation and deductions shall be determined separately for each software asset of the institution (i.e. asset by asset), in order to avoid any compensating effect.

Example of the application of the proposed prudential treatment of software assets

The current proposal for the prudential treatment of software assets is based on a mixed approach, entailing:

³⁰ Intended as the portion of the accounting carrying amount of each software asset that is not deducted from CET 1 items as a result of the application of the prudential amortisation treatment.

- the deduction from CET1 items of the difference between the prudential and the accounting accumulated amortisation; and
- the application of a 100% risk-weighting to the component of the carrying amount of each software assets that has not been deducted from CET1 items, in accordance with the provisions of Article 113 (5) and Article 156 of the CRR.

A simplified example of the application of the proposed approach is presented below. For the purpose of this example, it has been assumed that as of 1st September 2019 an institution (Bank X) purchased software assets for an amount of 100 mln with an estimated useful life of 6 years³¹.

Bank X Financial Statement	31/12/19	31/12/20	31/12/21	31/12/22	31/12/23	31/12/24	31/12/25
<i>Software assets</i>							
Gross book value	100	100	100	100	100	100	100
Accounting amortisation	6	17	17	17	17	17	11
Accounting Accumulated amortisation (A)	6	22	39	56	72	89	100
Net Carrying amount (C)	94	78	61	44	28	11	0



Bank X Calculation of prudential amortisation	31/12/19	31/12/20	31/12/21	31/12/22	31/12/23	31/12/24	31/12/25
Prudential Amortisation	17	50	33	0	0	0	0
Prudential Accumulated amortisation (B)	17	67	100	100	100	100	100



Bank X Calculation of CET1 Deduction	31/12/19	31/12/20	31/12/21	31/12/22	31/12/23	31/12/24	31/12/25
CET 1 Deduction (D= B-A)	11	44	61	44	28	11	0
Amount to be Risk weighted (C-D)	83	33	0	0	0	0	0

As a reminder, the prudential outcome resulting from the application of the current prudential treatment of software assets as intangibles (full deduction from CET1 capital) is illustrated below:

Bank X	Current prudential treatment under CRR						
	31/12/19	31/12/20	31/12/21	31/12/22	31/12/23	31/12/24	31/12/25
CET 1 Deduction	94	78	61	44	28	11	0

³¹ To note, for the purpose of the example above, it has been assumed that at the date of its acquisition the software assets at stake would still be available for use, and as such, in the example, they have been amortised starting from the 1st September 2019, for both accounting and prudential purposes.

Question 2: Do you have any comment on the proposed approach for the prudential treatment of software assets?

Question 3: What is your view on the calibration of the prudential amortisation period?

Explanatory box for the consultation

In accounting, the amortisation process shall begin when the related asset is available for use, meaning that it shall be in the condition necessary to be capable of operating in the manner intended by management³². Therefore, in some cases, the amortisation process could start even a long time after the date of initial capitalisation. This could be, in particular, the case of certain internally generated software.

In light of this, the EBA considered the following two alternative options for the purpose of determining the starting date of the prudential amortisation process:

- Option A: under this approach, the prudential amortisation of each software asset would start from the date of its initial capitalisation, regardless of the date from which, it would begin to be amortised for accounting purposes.
- Option B: according to this approach, the prudential amortisation of each software asset would start from the date when it is available to use, in line with the accounting framework. Nevertheless, all the costs capitalised until the beginning of the prudential amortisation process would be fully deducted from CET1 capital.

Both approaches described above would provide institutions with appropriate incentives to accelerate the finalisation and the entry into amortisation of their internal projects.

Option A would introduce an appropriate margin of prudence in the treatment of software assets. That said, it could result in an additional burden for institutions, since the costs related to the development of an internal project are generally capitalised in different periods of time until the completion of the project itself.

Option B could be perceived as discouraging investments in internally generated software compared to purchased software. However, such an approach would take into consideration the fact that in case of internally generated software, the boundary between research costs (that shall be always expensed for accounting purposes) and development costs is not always clear. Furthermore, such an approach would also reflect the fact that in a scenario where the project would not be completed, the capitalised development costs would be of no use and would not have any loss absorbency capacity. Finally, it could be argued that an alignment with accounting would be easier to implement and monitor.

³² See IAS 38 par. 97 with reference to the IFRS framework.

In light of these considerations, both alternative options have been reflected in this Consultation Paper and the EBA is seeking views from stakeholders on the application of these two different approaches. To this extent, an example on their practical application is illustrated in the box below.

Example on the application of the two alternative options presented in the CP

As of 31 January 2019 Bank Y finalised a project for the development of an internally generated software, which resulted in the capitalisation of 100 mln on 1st December 2018 and 60 mln on 31st January 2019. The useful life of software was estimated in 6 years for accounting purposes. The software asset started to be amortised for accounting purposes from 1st February 2019.

Option A

Assuming that prudential amortisation would start from the date of initial capitalisation of the costs related to the project for the internally generated software, the application of the proposed prudential treatment would result in the following outcome:

Bank Y Financial statement	31/12/18	31/12/19	31/12/20	31/12/21	31/12/22	31/12/23	31/12/24	31/12/25
<i>Software assets</i>								
Capitalised costs	100	60						
Gross book value	100	160	160	160	160	160	160	160
Accounting amortisation	0	24	27	27	27	27	27	2
Accounting Accumulated amortisation (A)	0	24	51	78	104	131	158	160
Net Carrying amount (C)	100	136	109	82	56	29	2	0



Bank Y Calculation of prudential amortisation	31/12/18	31/12/19	31/12/20	Option A 31/12/21	31/12/22	31/12/23	31/12/24	31/12/25
Prudential Amortisation	4	78	76	3	0	0	0	0
Prudential Accumulated amortisation (B)	4	82	158	160	160	160	160	160




Bank Y Calculation of CET1 Deduction	31/12/18	31/12/19	31/12/20	Option A 31/12/21	31/12/22	31/12/23	31/12/24	31/12/25
CET 1 Deduction (D = B-A)	4	57	106	82	56	29	2	0
Amount to be Risk weighted (C-D)	96	78	3	0	0	0	0	0

Option B:

By contrast, the alignment of the starting date of prudential amortisation with the accounting one and the deduction from CET1 items of all capitalised costs until the beginning of the prudential amortisation process would result in the following outcome:

Bank Y	Option B							
Calculation of prudential amortisation	31/12/18	31/12/19	31/12/20	31/12/21	31/12/22	31/12/23	31/12/24	31/12/25
Prudential Amortisation	0	73	80	7	0	0	0	0
Prudential Accumulated amortisation (B)	0	73	153	160	160	160	160	160



Bank Y	Option B							
Calculation of CET1 Deduction	31/12/18	31/12/19	31/12/20	31/12/21	31/12/22	31/12/23	31/12/24	31/12/25
CET 1 Deduction (D = B - A)	100	49	102	82	56	29	2	0
Amount to be Risk weighted (C-D)	0	87	7	0	0	0	0	0

As a reminder, the prudential outcome resulting from the application of the current treatment of software assets as intangibles (full deduction from CET1 capital) is illustrated below:

Bank Y	Current prudential treatment under CRR							
	31/12/18	31/12/19	31/12/20	31/12/21	31/12/22	31/12/23	31/12/24	31/12/25
CET 1 Deduction	100	136	109	82	56	29	2	0

Question 4: What is your view on the proposed alternative approaches illustrated above?

Explanatory box for the consultation

In addition to the above, paragraph 8 of Article 1 of this Regulation introduces specific provisions for the treatment of the additional investments sustained for upgrading or improving an existing software, with the aim of clarifying that the occurrence of such investments shall not affect in any case the regulatory treatment of the related existing software, regardless of the approach used for accounting purposes. Said otherwise, a software asset which is already fully amortised would remain fully amortised.

Indeed, in the EBA view the prudential treatment of software proposed in this Regulation should not result in any undue benefit with specific reference to those software assets that have been fully amortised for accounting or prudential purposes. This objective would require an enhanced scrutiny from competent authorities, with the aim of preventing that the provisions of this Regulation would be circumvented in order to recognize an undue prudential relief. In this regard, competent authorities should liaise with the external auditors as far as accounting aspects are concerned.



Article 2

Entry into force

This Regulation shall enter into force on the twentieth day following that of its publication in the *Official Journal of the European Union*.

This Regulation shall be binding in its entirety and directly applicable in all Member States.

Done at Brussels,

*For the Commission
The President*

*[For the Commission
On behalf of the President*

[Position]

5. Accompanying documents

5.1 Draft cost-benefit analysis / impact assessment

1. Article 10(1) of the EBA Regulation provides that any submission of regulatory technical standards (RTS) from the EBA to the Commission for adoption should be accompanied by an impact assessment, which, inter alia, includes the analysis of ‘the related potential costs and benefits’. To this end, the present section provides an impact assessment (IA) of the draft RTS, developed on the basis of the evidences stemming from the data collection on software assets launched by the EBA on a sample of 64 EU institutions as an extension of the BCBS QIS.
2. In this regard, it is worth noting that the BCBS QIS included a number of templates, aimed at collecting information on the following aspects:
 - a. Software valuation, regulatory impact and planned investments: including information on the volume of software assets, the regulatory treatment applied and the projection of upcoming investments in software;
 - b. Software amortisation: including data on the amortisation period and the years in use of both software not yet fully amortised and past investments in software assets;
 - c. Realised sales of software, including information related to software valuation in case of merger and acquisition transactions or in resolution.

In addition, for the purpose of the QIS templates, institutions were also demanded to distinguish their investments in software among the following categories:

- Regulatory compliance, risk management and cybersecurity: this category includes software for risk management, investments related to cybersecurity or the implementation of regulatory requirements and reporting;
- Core banking and trading software and investments in digitalisation of processes: this category includes software for core banking functions day-by-day banking activities (e.g. payment services, digital banking, customers and external stakeholder relations) and trading and investment operations, as well as software investments affecting the function or the performance of multiple categories of software;
- Software developed to be sold;
- Other.



3. The reference date of the BCBS QIS on software assets was 31 December 2018. The EU data collection replicated fully the BCBS QIS templates but the EBA complemented them with some qualitative information based on the examination of past concrete cases of software transactions as explained in the background section of this consultation paper.
4. The impact assessment includes an overview of the existing problems, which the draft RTS deals with, the options proposed for resolving them as well as the potential impact of these options.

A. Problem identification

5. The EBA has developed these draft RTS in accordance with the mandate provided in Article 36(4) of the CRR under which the EBA shall develop draft regulatory technical standards to specify the application of the deductions referred to in point (b) of paragraph 1 of Article 36, including the materiality of negative effects on the value which do not cause prudential concerns.
6. Article 36(1)(b) of the CRR establishes that intangible assets shall be deducted from Common Equity Tier 1 (CET1) items. However, as part of the Risk Reduction Measure Package approved in May 2019 by the European legislators, this Article has been amended, introducing an exemption from deduction of intangible assets from CET1 items for “*prudently valued software assets, the value of which is not negatively affected by resolution, insolvency or liquidation of the institution*”. Such a specification is important, since software is a broad concept that covers many different types of assets, while the objective of this amendment is to limit the exemption from CET1 deduction only to those software assets that would preserve their value even in a situation of gone concern³³.

B. Policy objectives

7. These draft RTS aim at providing clarity to institutions regarding the application of the provisions introduced in Article 36(1)(b) CRR, with specific reference to the prudential treatment of software assets. In this regard, in the EBA view, these RTS should strike the appropriate balance between the following two aspects:
 - On the one hand, software is very unlikely to have value from an own funds/CET1 perspective. This is due to the fact that software assets are usually tailor-made and cannot be easily sold on the market as a standalone asset if needed (i.e. to absorb losses on an ongoing concern if losses arise). According to Article 26 of the CRR, items shall be recognised as CET1 only where they are available to the institution for unrestricted and immediate use to cover risks or losses as soon as they occur. By nature, intangible assets (including software) are highly unlikely to meet this requirement. In addition, the value of some software assets is deemed to present a high level of volatility and/or rapid obsolescence, due to the changes in technology.

³³ See also Recital 27 of Regulation (EU) No 2019/876 ('CRR2'), amending the CRR.



- On the other hand, it is acknowledged that, from a business perspective, software assets have value for the institution which use them, as the institution could not continue its functioning, being in going concern or under resolution/liquidation, without its software. Furthermore, considering the increasing relevance that software assets and technology in general are assuming in the financial and banking industry, it is important to encourage IT investments with the aim of supporting the technological development and the modernisation of the financial and banking sector, given its importance also from a competitive perspective. That said, it cannot be disregarded that under a merger/acquisition, resolution or liquidation case, it appears that sooner or later the software of the bank will lose its value. While this might not be at day one in particular for mergers/acquisitions or resolution cases (which is consistent with a full upfront deduction), this will come after some time (the related question being after which amount of time).
8. Based on investigations performed by the EBA on a selection of concrete cases of software transactions, it appears that software has no recoverable value in case of liquidation, whilst it is worth pointing out that in some cases, software assets continue to be used during the liquidation process, contributing to an orderly liquidation, and, therefore, enhancing the overall liquidation value of the institution. A strict and literal interpretation of the EBA mandate would probably lead to a very narrow or empty subset of software for which there would be no negative effects on the value which would not cause prudential concerns and for which no deduction from CET1 would apply. That said, it is EBA's views that this was not the intention of the co-legislators and that a less strict interpretation could be retained, as long as the resulting technical standard contains a satisfactory level of prudence and conservatism.
9. In addition, it is EBA's views that the following general principles should be followed in developing the regulatory treatment for software, according to which the revised prudential treatment of software shall:
- (a) be simple to implement and applicable to all institution in a standardised manner as this is the case today with the deduction treatment;
 - (b) be easy to supervise by competent authorities;
 - (c) not to be prone to circumvention by institutions;
 - (d) not lead to undue benefits/undue creation of CET1 capital, and
 - (e) continue to entail a certain margin of conservatism/prudence in the valuation of software for prudential purposes.



C. Baseline scenario

10. The baseline scenario (i.e. the scenario against which the impact is assessed), is the current situation, where software assets are deducted from Common Equity Tier 1 items, in accordance with the CRR provisions currently applicable. To note, based on the data gathered through the data collection launched by the EBA, the current regulatory treatment of software has a negative impact of approximately 34.6 bps on the CET1 ratio of the institutions in the sample. As a matter of fact, in line with the spirit of the amendments introduced to Article 36(1)(b) of the CRR, all the policy options considered by the EBA would result in a more favourable outcome compared to the current regulatory treatment.
11. Note that due to data limitation, some assumptions were necessary to assess the impact of the different policy options:
- For the purpose of the impact assessment, the investments in software are assumed to be capitalised in full as of 31 December of each year.
 - For 2018 and previous years, the gross investment in year t is estimated by subtracting the reported gross software exposure in year $t-1$ from the gross software exposure in year t .³⁴
 - Since banks were asked to report a lump-sum amount of future software investments for 2019-2021, the analysis assumes that this investment is equally allocated to each year.³⁵

D. Options considered

12. In developing these draft RTS, the following policy options have been considered for the development of a prudential framework for software assets:
- **Option 1:** Maintaining the current regulatory treatment established in the CRR, envisaging the deduction of software assets from CET1 items (Full CET1 deduction);
 - **Option 2:** Introducing a prudential framework based on the deduction from CET1 items of software, depending on their categorisation (CET1 deduction by software category);
 - **Option 3:** Applying the regulatory treatment established in the Delegated Regulation (EU) 2015/35 (Alignment with Solvency II requirements);
 - **Option 4:** Introducing a prudential framework based on the amortisation of software assets (Prudential amortisation).

³⁴ Thus, it is assumed that no software is sold or written down. If the computation leads to a negative amount or if gross book value is not reported for years before 2018, the investment is assumed nil.

³⁵ Thus, the impact under the prudential 2-year amortisation schedule (Option 4) appears the same for 2020 and 2021 in the impact assessment. If the bank did not report any future investment, it is assumed to be constant and equal to 2018 level.



E. Cost-Benefit Analysis

Option 1: Full CET1 deduction

13. This option would result in confirming the current regulatory treatment of software established in the CRR, given the high degree of uncertainty related to its recoverable value of these assets a gone concern scenario.
14. While such an approach would not be in line with the spirit of the amendments to the CRR introduced as part of the Risk Reduction Measure Package, the evidences collected from the analysis of concrete cases of software transactions confirmed the uncertainty of the recoverable value of software and this would represent a valid argument for maintaining a certain margin of conservatism in its prudential treatment.

Option 2: CET1 deduction by software category

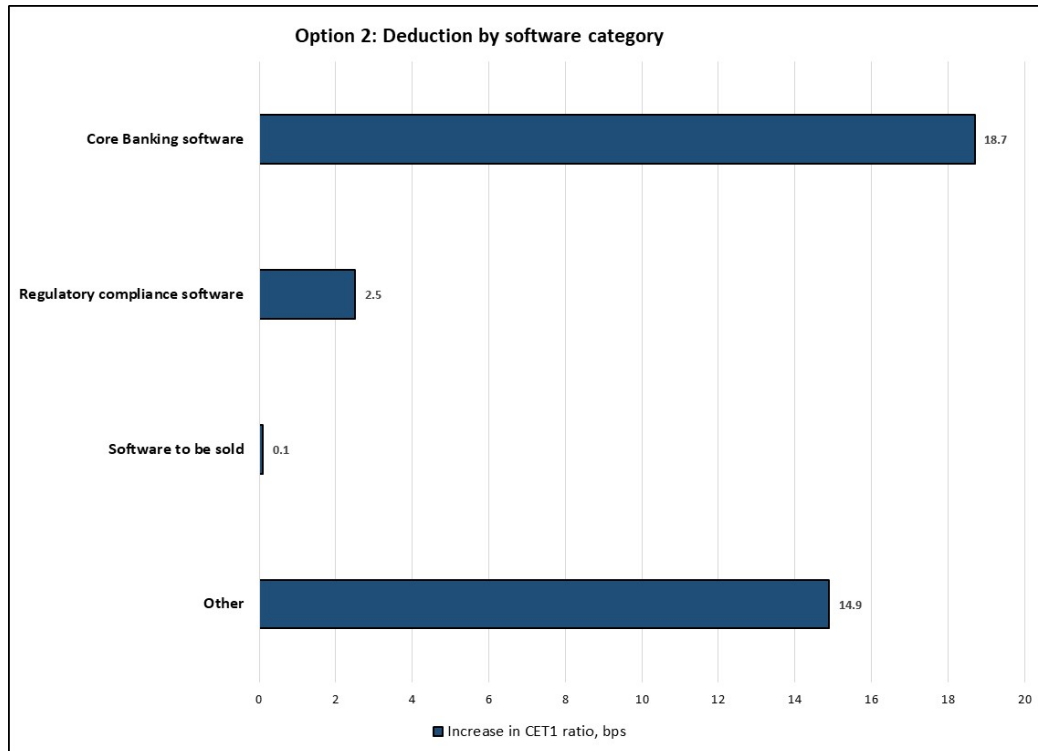
15. Under this option software assets would be classified within different categories and a 100% risk weight would be applied to those categories of software that are expected to preserve their value even in a situation of gone concern³⁶, while the remaining software assets would continue to be fully deducted from CET1 items, in line with the current regulatory treatment.
16. As a matter of fact, the impact of this option would vary depending on which category of software is exempted from the deduction from CET1 items. In particular, based on the software categorisation illustrated above, the increase in the CET1 ratio of the institutions in the sample of the EBA data collection would range between 0.1 bps to 18.7 bps³⁷, depending on the category excluded from CET 1 deduction, as shown in the figure 1 below³⁸:

³⁶ In line with the provisions of Article 113 (5) and Article 156 of the CRR.

³⁷ In particular, the CET1 ratio of the institutions in the sample would increase of 0.1 bps when only those “software developed to be sold” would be exempted from CET1 deduction. By contrast, excluding from CET1 deduction the category “Core banking and trading software and investments in digitalisation of processes” would result in an increase in the CET1 ratio of 18.7 bps.

³⁸ To note, for the sake of simplicity the analysis below does not consider the implications on CET1 capital stemming from the increase in CET1 threshold established in Article 48 CRR.

Figure 1: Option 2: Increase in CET1 Ratio in basis points as of December 2018



17. The impact on CET1 capital stemming from the application of this option would also vary depending on which category of software is exempted from the deduction from CET1 items. In particular, the increase in CET1 capital would range between EUR 0.04 billion and EUR 12.8 billion.

Figure 2: Option 2: Increase in CET1 capital in EUR billion as of December 2018

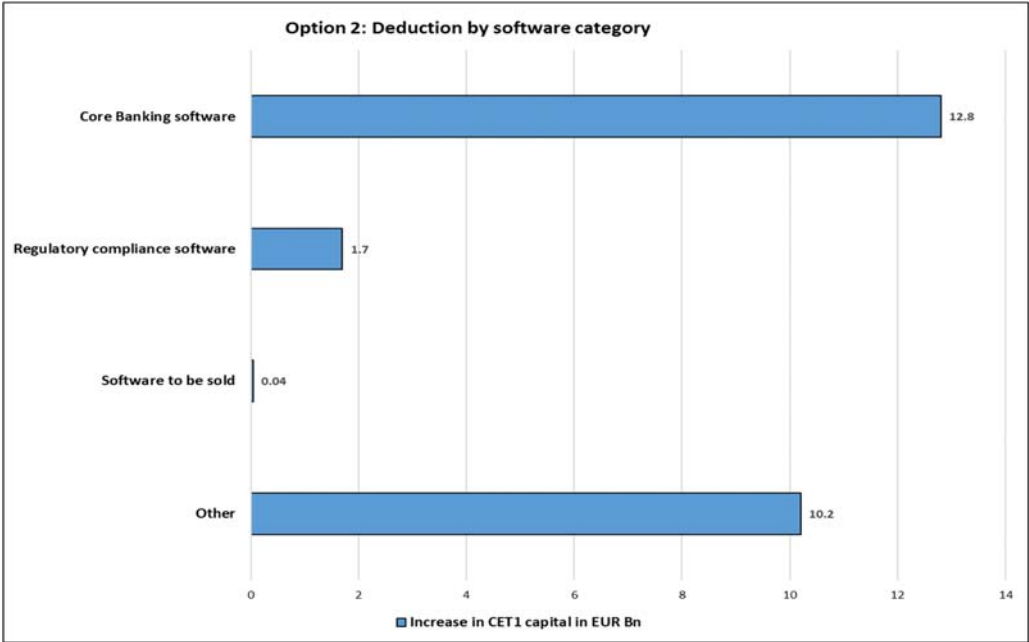
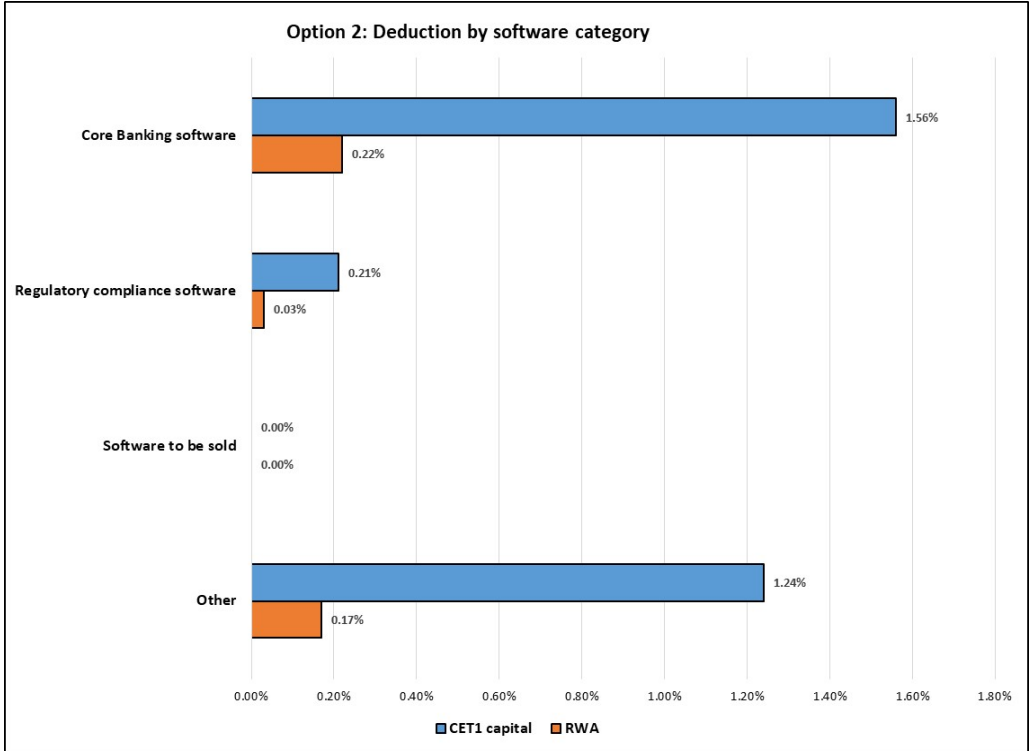


Figure 3: Option 2: Increase in CET1 capital and in RWA (in percentage) as of December 2018





18. Even though this option seems to be the one most aligned with the wording used in the Level 1 text³⁹, any categorisation of software would involve, by definition, a certain degree of judgement and, as such, might result difficult to challenge by supervisors and would therefore introduce potential room for regulatory arbitrage. Moreover, whether (and to what extent) software could have a recoverable value in case of resolution, liquidation or other insolvency procedure is controversial and difficult to generalise. Indeed, given the different factors that could affect software valuation, it is not possible to identify a specific category of software assets, the value of which could be considered recoverable even in a gone concern scenario, since, a priori, all software seems to have the same probability of being written off and the amount effectively recovered would mainly be dependent on the specific characteristics of the transaction and on the features of the IT systems at stake.

Option 3: Alignment with Solvency II requirements

19. This option would entail the adoption of the same regulatory treatment applicable to insurance and reinsurance undertakings in accordance with the Delegated Regulation (EU) 2015/35 (supplementing Solvency II Directive). This approach would be consistent with the indications included in the Recital 27 of the CRR2⁴⁰. In addition, the principles retained in Solvency II, as well as the evidence collected on the effective application by insurance entities and financial conglomerates of these principles seem to align with some observations made by the EBA that software assets do not always have value in the markets on a standalone basis and that an active market is unlikely to exist for certain type of software, given its tailor-made features. In this regard, it is worth noting that the EBA investigated the regulatory treatment of software assets adopted by the insurance parts in a sample of EU financial conglomerates⁴¹. The evidence collected confirmed that those software assets classified for accounting purposes within intangible assets are reported at a nil value for Solvency II purposes.

20. That said, there are some reasons to be considered on why the treatment applied for insurance entities, while being fully valid for these, might not be valid for banks. Hereby it is worth pointing out that Solvency II provides for an approach to – in principle – not to recognise any intangible assets unless the insurance or reinsurance undertaking can provide reasonable evidence that indeed that asset can be sold in an active market and could be liquidated under normal market conditions. Very clearly, such intangible assets recognized in the Solvency II balance sheets are insignificant and amount to 0.0002% of the European insurers' total assets at Q3 2019⁴².

³⁹ According to Art 36 (1) (b) CRR2, institutions shall deduct from CET1 items “intangible assets with the exception of prudently valued software assets, the value of which is not negatively affected by resolution, insolvency or liquidation of the institution”.

⁴⁰ Pursuant to Recital 27 of the CRR2, in developing the prudential treatment of software, consideration should be also given to the “*different prudential rules that apply to institutions and insurance undertakings*”.

⁴¹ The stock take included 19 financial conglomerates from 7 different EU Countries.

⁴² See EIOPA (2020): Quarterly statistics (solo):

https://register.eiopa.europa.eu/Publications/Insurance%20Statistics/SQ_Balance_Sheet.xlsx



Option 4: Prudential amortisation

21. This approach would result to the application of a prudential amortisation schedule to all software assets, regardless of the estimated useful life adopted for accounting purposes. In particular, under this approach, the positive difference between i) the accumulated amortisation calculated for prudential purposes and ii) the sum of the accumulated amortisation and any impairment losses recognised in accordance with the applicable accounting framework would be fully deducted from CET1 items. The remaining portion of the carrying amount of each software asset⁴³ would, instead, be subject to a 100% risk-weight, in accordance with the CRR provisions. Moreover, should the useful life of software estimated for accounting purposes be shorter than the prudential amortisation period, the former would be used also for prudential purposes.
22. Under this option, the prudential treatment of software would affect EU institutions' regulatory metrics over time, resulting in a relief in CET1 capital, progressively decreasing until the end of the amortisation period defined for prudential purposes. The magnitude of the relief would also depend, inter alia, on the yearly rate of investments in software made by each institution. In this regard, it could be argued that the prudential treatment proposed under Option 4 would also have the merit to encourage EU institutions' investments in software, in line with the spirit of the Level 1 text. Finally, as a matter of fact, the prudential relief with respect to the current regulatory treatment would also depend on the length of the prudential amortisation period. In this regard for the purpose of assessing the impact stemming from this policy option, a prudential amortisation period of 2 years has been assumed, in line with the approach established in this RTS. To note, the length of the prudential amortisation period used for the purpose of the impact assessment is consistent with the evidences collected on the migration process in case of external acquisitions that generally ranges between 1 and 3 years.
23. Based on the information gathered through the data collection exercise and on the assumptions adopted for the purpose of the impact assessment⁴⁴, for the entire sample this option would lead to a maximum increase in CET1 capital of approximately EUR 13.6 billion in 2018, EUR 15.3 billion in 2019, EUR 15 billion in 2020 and EUR 15 billion in 2021. For the sake

⁴³ Intended as the portion of the accounting carrying amount of each software asset that is not deducted from CET 1 items as a result of the application of the prudential amortisation treatment.

⁴⁴ To note, the figures below are based on the information gathered through the EBA data collection on software assets, conducted with December 2018 reference date. In particular, the data on the period 2019-2021 are based on the information reported by a sample of EEA institutions on the aggregated level of investments in software, envisaged in the next 3 years after the reporting period (from December 2018 to December 2021). In addition, for the sake of simplicity the following assumptions have been made:

- Given the lack of detailed data, it has been assumed that the total amount of investments in software are distributed equally to each year (2019-2021). Additionally, for those institutions that did not report any information on the future investments in software planned for the period 2019-2021, the amount of the investments in software made in 2018 has been taken as a proxy for future investments in software;
- Given the lack of information on the allocation of the accumulated impairment losses for each of the software assets reported by the institutions in the sample up to December 2018, it has been assumed that these impairment losses referred to software assets capitalised since more than 2 years, and that, as such, should have been completely amortised for prudential purposes.
- The implications on CET1 capital stemming from the increase in CET1 threshold established in Article 48 CRR have not been taken into account.

of clarity, it is worth noting that, given the lack of information on both the starting date of the accounting amortisation for each software asset and the date of its capitalisation, the impact stemming from this policy option has been, inter alia, estimated assuming that for each reporting year, the investments in software are capitalised as of 31 December of each year and that prudential amortisation start since this date.

Figure 4: Option 4: increase in CET1 capital in EUR billion (2 year amortisation)

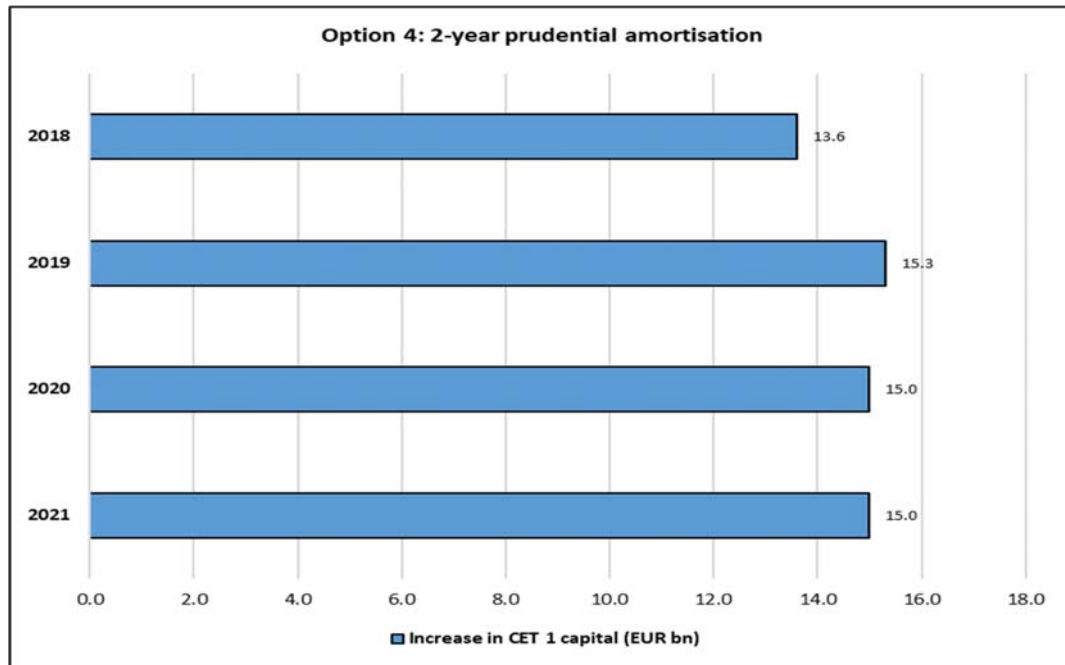


Figure 5: Option 4: increase in CET1 capital and in RWA (in percentage) (2 year amortisation)

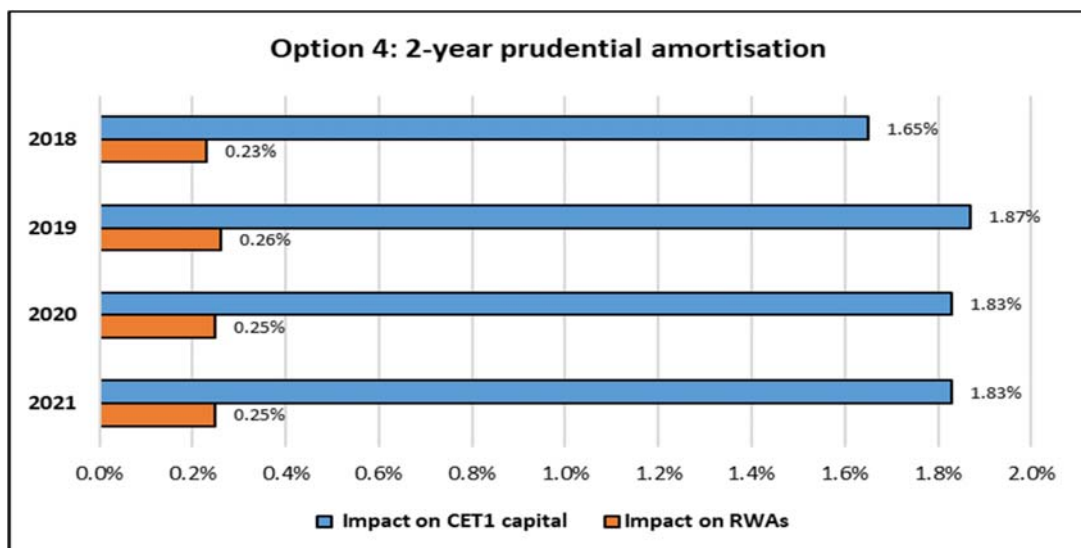


Figure 6: Option 4: increase in CET1 Ratio in basis points (2 year amortisation)

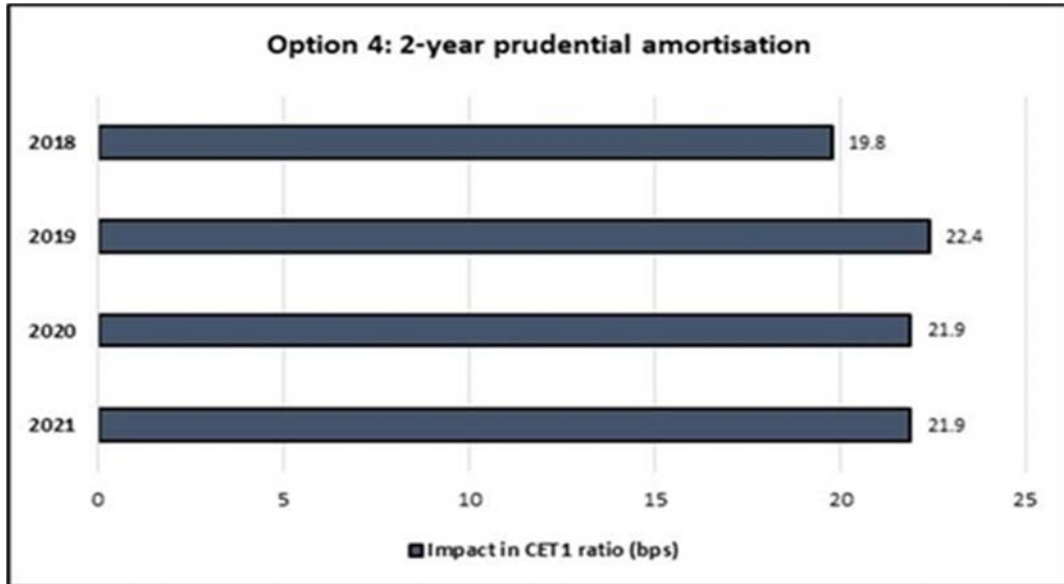
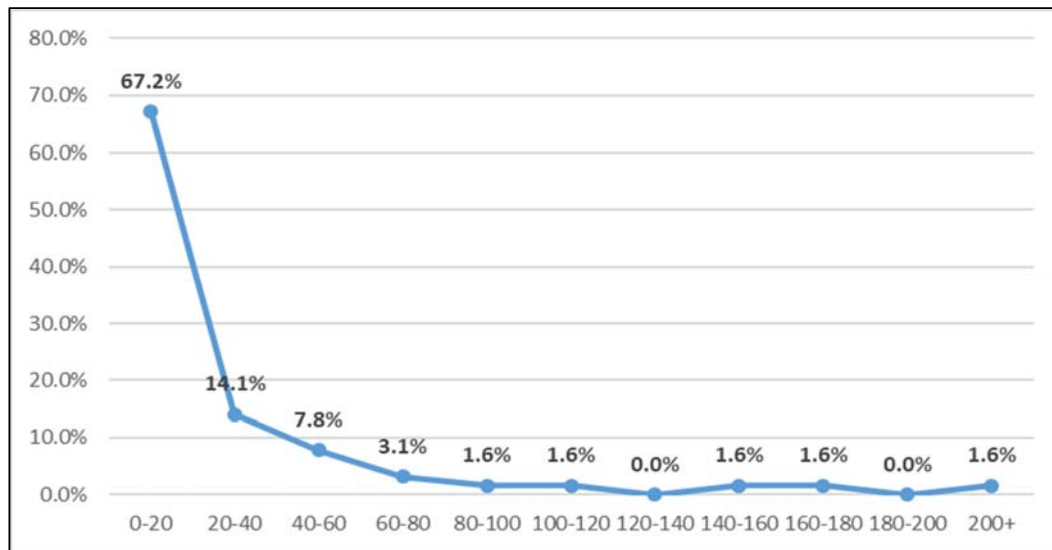


Figure 7: Option 4: Distribution of the impact on CET1 ratio as of 31 December 2018 (2 year amortisation) ⁴⁵



⁴⁵ For the purpose of this graph in the x-axis it is represented the CET1 ratio impact bucket (in bps), while in the y-axis it is represented the percentage of reporting institutions belonging to each impact bucket.



Discussion with the banking sector

24. Different stakeholders and representative of banking associations provided the EBA with their initial thoughts and proposals for the development of a prudential framework on software. In general, there was broad support for an approach to be easy to implement and applicable to all EU institutions. Moreover, the majority of stakeholders expressed preference for a prudential framework applicable to all software assets and based on their expected remaining useful life, even though the approaches proposed presented some differences in their implementation. However, the main proposals generally dealt with the following two different approaches:

- Approach 1: This approach would entail: i) the exemption from CET1 deduction of those software assets with a remaining useful life below a certain threshold (generally 5-6 years)⁴⁶ and ii) the deduction from CET1 items of the portion of the net book value of software that reflects a remaining useful life beyond the threshold (potentially with a system based on gradually increasing deduction percentages);
- Approach 2: Under this approach, software assets would be allocated to different buckets corresponding to different percentages of CET1 deduction in consideration of their remaining useful life. Also in this case, the portion not deducted from CET 1 items would be subject to a 100% risk weight.

25. As mentioned above, the rationale behind these approaches is to develop a prudential framework for software assets that takes into account their remaining useful life. In this regard, they present certain elements of similarity with the prudential amortisation presented under Option 4 above. However, the latter differs from the approaches proposed by the industry, at least with reference to the following main aspects:

(a) Calibration

The approaches proposed by the industry are calibrated on the basis of the remaining useful life of software estimated for accounting purposes. Nevertheless, in accounting, the estimation of the useful life of an asset shall reflect the time during which it is expected to be available to use and it is based on “going concern” considerations⁴⁷, while the Level 1 test explicitly refers to the recoverable value of software even in a gone concern scenario⁴⁸. In addition, relying on the accounting useful life could result in some potential unlevelled playing field issues among EU institutions, given the differences in the accounting amortisation period of software observed among them. Indeed, based on the collected evidences, whilst software assets are amortised on an average of 6 years, certain institutions amortise their software even over a

⁴⁶ To note, the amounts excluded from CET1 deduction would be subject to a 100% risk weight.

⁴⁷ To note, financial statements / accounting figures are prepared on a going concern basis. In other words, the accounting values disclosed by entities that are not under liquidation or other insolvency procedure are prepared on the basic assumption that the entity will continue its activities in the future.

⁴⁸ In particular, Article 36 (1) (b) CRR explicitly refers to “prudently valued software assets, the value of which is not negatively affected by resolution, insolvency or liquidation of the institution.”



significantly longer timeframe. By contrast, the prudential amortisation option addresses the abovementioned issues by:

- i. calibrating the maximum prudential amortisation period on the basis of the time needed on average to complete the migration process, according to the evidences collected from the analysis of concrete cases of acquisitions of distressed banks. In this regard, this option would be more aligned to the provisions of the Level 1 text and would reflect the fact that, in case of gone concern, the recoverable value of software is expected to be negatively affected at least over time up to the end of the migration period.
- ii. introducing a prudential amortisation scheduling applicable to all institutions, regardless of the differences in the accounting amortisation of their software assets.

(b) Incentives for EU institutions

Both the approaches proposed by the industry would result in a 100% risk weight of a portion of institutions' software assets until the end of their respective useful lives, as estimated for accounting amortisation purposes. This could still provide institutions with some incentives in revising the estimation of the useful life of software, in order to further benefit from the new prudential treatment. By contrast, in the case of the prudential amortisation option, such a risk is mitigated by the application of a single amortisation schedule, established for prudential purposes.

(c) Amortisation of internally generated software

As already mentioned, the approaches proposed by the industry rely on the estimation of the useful life of software and the related amortisation period used for accounting purposes. However, in accounting, the amortisation process begins when the related asset is available for use⁴⁹, meaning that, in case of certain internally generated software, it could start even after the date of initial capitalisation. In this regard, it can be argued, that the prudential amortisation option could provide institutions with more incentives to accelerate, to the extent possible, the finalization and the entry into amortisation of their projects for the development of internally generated software.

Preferred option

26. The EBA considers that the best option is Option 4 (Prudential amortisation). In particular, the EBA is of the view that a prudential framework based on the amortisation of software would appropriately reflect the pattern of the recoverable value of software in a gone concern scenario, in line with the requirements of the Level 1 text. In addition, according to the EBA, calibrating the prudential amortisation period on a 2 year horizon would have the merit of both reflecting the evidences collected from the assessment of concrete cases of software

⁴⁹ Meaning that it shall be in the condition necessary to be capable of operating in the manner intended by management.



transactions and of ensuring the application of an appropriate margin of prudence in the revised prudential treatment of software.

Question 5: If considered needed, please provide any complementary information regarding the costs and benefits from the application of these draft RTS.

Question 6: If considered material, please provide your own estimate on the difference in the impact of prudential amortisation treatment between (i) assuming the capitalisation date of software assets as the starting point for prudential amortisation (ie. Option A illustrated in this CP) and (ii) assuming the date of accounting amortisation as the starting point for prudential amortisation, but fully deducting from CET1 items the costs capitalised until this date is (i.e. Option B illustrated in this CP) .

Question 7: Please provide any additional comments on the Consultation Paper.



5.2 Overview of questions for consultation

Question 1: In case some software assets are classified within tangible assets in your institution, what are the main reasons for doing so and what is the percentage of this classification compared with the classification as intangible?

Question 2: Do you have any comment on the proposed approach for the prudential treatment of software assets?

Question 3: What is your view on the calibration of the prudential amortisation period?

Question 4: What is your view on the proposed alternative approaches illustrated above?

Question 5: If considered needed, please provide any complementary information regarding the costs and benefits from the application of these draft RTS.

Question 6: If considered material, please provide your own estimate on the difference in the impact of prudential amortisation treatment between (i) assuming the capitalisation date of software assets as the starting point for prudential amortisation (ie. Option A illustrated in this CP) and (ii) assuming the date of accounting amortisation as the starting point for prudential amortisation, but fully deducting from CET1 items the costs capitalised until this date is (i.e. Option B illustrated in this CP) .

Question 7: Please provide any additional comments on the Consultation Paper.