



VALUATION HANDBOOK FOR PURPOSES OF RESOLUTION

CHAPTER 10. MANAGEMENT INFORMATION SYSTEMS

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Executive summary and background information

The present publication is part of and completes the European Banking Authority (EBA) *Handbook on valuation for purposes of resolution* ('handbook') that was published on 22 February 2019¹. In particular it replaces Chapter 10 therein relating to management information systems (MISs). Therefore, it has to be read as part of the Handbook, and the same abbreviations and terminology used therein apply here.

This Chapter of the Handbook deals with the RAs' assessment, in the context of the resolvability assessment, of the institutions' capability to swiftly provide data and information to support a robust valuation in the event of resolution. Enhancing institutions' preparedness in business as usual is of the essence for a timely and robust valuation, which contributes to the soundness of the resolution decision, the effectiveness of resolution actions and the achievement of the resolution objectives.

This Chapter, like the whole Handbook, is based on Article 29(2) of the EBA Regulation and is addressed to the RAs, with a view to strengthening the convergence of resolution practices across the European Union (EU) to ensure a level playing field. It sets out EU "best practices and high quality methodologies and processes" and supports the RAs in their interaction with those institutions destined for resolution for the purposes of the development/adjustment of the Valuation MIS. While this Handbook is not binding and not subject to comply/explain by the RAs, it is expected that the RAs will follow the Handbook's approach when assessing institutions' Valuation MIS in the resolution planning phase. The draft Chapter was presented at a Workshop with Stakeholders on 26 September 2019² and to the Banking Stakeholders Group on 14 October 2019. Comments received, also in writing, have been addressed where appropriate and relevant.

Along with underscoring the importance of institutions' preparedness, this Handbook also acknowledges the importance of proportionality requirements and takes a broad but balanced approach to valuation preparedness, at the same time mindful of potential institutions' costs.

The Valuation MIS approach focuses on the institutions' **internal capabilities**, intended as a combination of **internal data aggregation capabilities and internal valuation models** that are suitable — subject to potential adjustments if needed³ — for the valuation for resolution, with a **data dictionary for benchmarking purposes**. The data dictionary serves as an EU-wide single reference, it does not introduce any reporting obligation, and it is meant to be used by institutions to perform a self-assessment aimed at mapping the internally available data and information to support a robust valuation and comparing them with the Data Dictionary. The results of the self-

¹ Available at <https://eba.europa.eu/documents/10180/2613666/Valuation+Handbook.pdf/9f0772ea-a052-49e5-86ce-64c157adff10>

² The version published in view of the Workshop is available at <https://eba.europa.eu/sites/default/documents/files/Valuation%20Handbook%20for%20purposes%20of%20Resolution-%20Draft%20Chapter%20on%20Management%20Information%20Systems.zip>

³ The suitability of and potential for adjustments to the internal valuation models should be part of the resolvability assessment.

assessment will be the basis of a dialogue between the RA and the institution to calibrate the Valuation MIS requirements, taking into account the internal valuation models suitable for the valuation for resolution, the size, complexity and business model of the institution, and the materiality of on- and off-balance-sheet positions. If the RA's expectations as to the data and information needed to support a robust valuation are not met by the institution, the RA should consider requiring that the institution carries out actions proportionate to the nature and materiality of the failure to meet such expectations, so as to ensure the feasibility and credibility of the institution's resolvability.

10. Management Information Systems

10.1 The objective and legal basis of the Valuation MIS

10.1.1 Interaction between data/information, valuation and resolution

A robust valuation contributes to the effectiveness of resolution actions, including the legitimacy and soundness of the decision, and the achievement of the resolution objectives. To be robust, a valuation must rely on the valuer's **timely availability of high quality and complete data and information**. To ensure data availability and quality, there is a need to enhance institution's preparedness during the course of the resolution planning phase. As part of the resolvability assessment, the BRRD requires the RAs to assess the institution's MIS. Relevant legal bases are points (9) and (10) of Section C of the Annex to the BRRD⁴. The Section on resolvability assessment of the Commission Delegated Regulation 2016/1075 further develops such requirements⁵.

10.1.2 Sources of information under the Regulation on valuation before resolution

The interaction between valuation, information and preparedness is underscored in the Regulation on valuation before resolution. Article 4 sets out a **non-exhaustive list** of sources of information to perform the valuation in addition to the entity's financial statements, related audit reports and regulatory reporting as of a period ending as close as possible to the valuation date⁶. Such non-exhaustive list includes:

- a) 'the updated financial statements and regulatory reporting prepared by the entity as close as possible to the valuation date;
- b) an explanation of the key methodologies, assumptions and judgements used by the entity in order to prepare the financial statements and regulatory reporting;
- c) data contained in the records of the entity;
- d) relevant market data;
- e) conclusions drawn by the valuer from discussion with management and auditors;

⁴ 'When assessing the resolvability of an institution or group, the RA shall consider the following [...]: (9) the capacity of the management information systems to provide the information essential for the effective resolution of the institution at all times even under rapidly changing conditions; (10) the extent to which the institution has tested its management information systems under stress scenarios as defined by the RA'.

⁵ Article 22(3)(a) requires that a resolution plan contain at least 'a description of the information, and processes for ensuring availability in an appropriate timescale of that information required for the purposes of valuation, in particular pursuant to Articles 36 and 49 of Directive 2014/59/EU [...]'. Article 29(2) of the same regulation provides that, in assessing the existence of potential impediments to resolution, the RA must consider 'the capability of the institution or group to provide information to carry out a valuation to determine the amount of write-down or recapitalisation required'.

⁶ Article 4 of the Regulation on valuation before resolution clarifies that, in addition to the entity's financial statements, related audit reports and regulatory reporting as of a period ending as close as possible to the valuation date, relevant information may include those listed in that provision.

- f) where available, supervisory assessments of the entity's financial condition, including information acquired pursuant to point (h) of Article 27(1) of Directive 2014/59/EU;
- g) industry-wide assessments of asset quality, where relevant to the entity's assets, as well as stress test results;
- h) valuations of peers, adequately adjusted to capture the entity's specific circumstances;
- i) historical information, adequately adjusted to eliminate factors that are no longer relevant and to incorporate others that did not affect the historical information; or
- j) trend analyses, adequately adjusted to reflect the entity's specific circumstances'.

It is worth underscoring that, in any case, the valuation will be based on 'any information pertinent to the valuation date which is deemed relevant by the valuer'. This entails that the **valuer remains free to assess what information is relevant and what may be disregarded, whether it is complete or it needs to be integrated.**

Most data and information have to be provided by the institution to be valued. The use of further non-institution specific data and information, such as market data or other kinds of information in the public domain, will conversely be within the valuer's remit. These include macroeconomic assumptions for which economic forecasts developed by the public sector may be used.

The Regulation on valuation before resolution expressly envisages the possibility for the valuation to rely on the institution's internal capabilities, by providing for the possibility for the valuer "to determine the most appropriate valuation methodologies that may rely on internal models, taking into account the entity's risk management framework and the quality of data and information available' (Article 7(2)). Overall, the Regulation indicates that 'the ability of internal capabilities and systems to support resolution valuations should be assessed by the resolution authority as part of the resolvability assessment'⁷, hence the need to prepare for resolution valuations in business as usual.

10.1.3 The development of the Valuation MIS

As a default indication, the RAs should only require the following **institutions** to develop the valuation MIS:

- (a) **resolution entities** — in accordance with the definition set out in point (83a) of Article 2(1) BRRD 2 — and imposed TLAC/MREL by the RA;
- (b) **material subsidiaries** — in accordance with the definition set out in point (135) of Article 4(1)(1) CRR2 — which are imposed internal TLAC requirements;
- (c) subsidiaries of resolution entities that are **not themselves resolution entities** but have to comply with internal MREL requirements with a positive recapitalisation amount or that have been waived of such a requirement by the relevant RA;

⁷ Recital (3) of the Regulation on valuation before resolution.

(d) **subsidiaries of the entities** identified in letters (b) and (c) to the extent that the timely valuation of such subsidiaries is material - in the RAs' view - to the determination of the resolution group's losses, recapitalisation needs and post-resolution equity value.

In the case of cross-border resolution groups, the institutions' development of the Valuation MIS should be part of the normal exchange of information and cooperation among the RAs in the context of group resolution planning within the appropriate fora, such as resolution colleges. In the case of resolution, host RAs should cooperate with the group level resolution authority to facilitate the timely provision of relevant data and information to support group-wide valuations when needed.

Institutions that are assessed as being destined for insolvency and that are not imposed MREL with a positive recapitalisation amount should not be required to adapt their MIS for valuation purposes, since the institution will be liquidated. In specific cases when — in accordance with the applicable national insolvency law and practice — the **feasibility of the insolvency strategy** requires the swift implementation of insolvency actions, the RA could request that such institutions develop specific areas of the valuation MIS that are necessary to support the immediate implementation of the actions envisaged by the normal insolvency proceedings.

10.2 Valuation MIS: the general approach and proportionality

There is no specific legal definition of MIS; however, it can be broadly understood as a **mix of data, information and processes set up and maintained by the institution for the organisation, aggregation and swift provision of high-quality data and information that are necessary to support decisions within an institution**. With regard to the valuation for the purposes of resolution, the MIS is expected to be organised on the basis of processes that enable the institution to make available to the valuer and/or the RA, in case needed, high quality data and information that are necessary to conduct robust valuations before resolution, including the *ex ante* NCWO valuation or, to the limited extent envisaged in Section 10.1.3 above, to swiftly implement insolvency decisions ('Valuation MIS'). The Valuation MIS approach is focused on enhancing institutions' internal capabilities to make such high-quality data and information available to the RA/valuer if needed.

The Valuation MIS is respectful of **proportionality** requirements and mindful of the potential costs that might be incurred by institutions in enhancing preparedness for valuation purposes, and is aimed at finding a balanced solution that is able to support a **robust valuation** and meet the resolution objectives.

Consistently, the Valuation MIS approach relies on the institution's **data aggregation capabilities** and on the institution's **internal valuation models** suitable — subject to potential adjustments if needed — for the purposes of conducting a valuation for resolution (see the definition in Section 10.3). The Valuation MIS approach is complemented by a **data dictionary**, set out in **Annex II** for benchmarking purposes, that sets out an EU single reference of the RAs' expectations of data and information to support a robust economic valuation before resolution ('Data

Dictionary'). The different ways to use the Data Dictionary depend on the availability of the internal valuation models suitable for a resolution valuation for each material on- and off-balance-sheet position and are illustrated in Section 10.5.

Proportionality requirements are also embedded in materiality considerations, impacting the need and/or the degree of data and information granularity for the performance of a robust valuation. This entails that material positions, likely to significantly affect the valuation, should be adequately represented by data and information, whereas positions that are not material should be treated differently, for instance in terms of granularity and/or prioritisation.

As far as possible, the Valuation MIS should therefore be based on data and information already available to the institution and on the valuation capabilities of the institution's **internal valuation models** suitable for the valuation for resolution (see Section 10.3). Reliance on aggregation capabilities and internal valuation models restricts the imposition of **additional/specific data or information requirements** based on the Data Dictionary to those material positions for which there are not already data or information available within the institution or no reliable internal valuation models suitable for a resolution are in place (see Section 10.7.1). In order to uniformly determine a common EU reference for data and information to support a robust valuation for resolution, the Data Dictionary indicates relevant data items for the various assets, liabilities and off-balance-sheet items and assigns different priorities according to their relevance to the valuation.

As part of the calibration of the Valuation MIS requirements, based on the institution's specificities, the RA should also determine the data and information that the institution should be able to swiftly upload into a **virtual data room ('VDR')**⁸ if needed. In particular, this is in respect of (i) assets and liabilities valued by internal valuation models, and the documents and manuals maintained by the institution for each valuation capability, containing the description of the criteria, methodology, assumptions, internally and externally provided input parameters (including their sources) and scenarios; (ii) other assets and liabilities, and the data provided by the institution through its internal capabilities, using the Data Dictionary as a benchmark. The RAs should assess institutions' preparedness to set up the VDR in case needed (as specified in Section 10.7.1, letter f). In case an institution is not able to do so, the RA could ultimately require a permanent VDR to be in place.

The Valuation MIS approach therefore intends to be **broad, light and proportionate**. It is broad, since it covers all asset and liability classes and off-balance-sheet positions and sets out the Data Dictionary as a single common reference for the whole EU. At the same time, this approach is light and proportionate, since it relies as much as possible on institutions' internal capabilities and does not introduce reporting requirements.

10.3 Internal valuation models

For the purposes of this Handbook, internal valuation models should be understood as any institution's internal systems that are able to estimate accounting and economic values for specific

⁸ A VDR is generally intended to be an online facility where documents and information for performing due diligence are uploaded.

on- and off-balance-sheet positions⁹, which can be used — subject to potential adjustments if needed — to support the economic valuation before resolution (**internal valuation models suitable for the valuation for resolution**). The suitability assessment should be conducted by the RA in the context of resolution planning, as laid down in Section 10.7.2.

In order to use internal valuation models suitable for the valuation for resolution, preparatory work in the resolution planning phase should endeavour to ensure that the **valuer is able to review their building methodologies and have an in-depth understanding of the input parameters (as opposed to individual data fields) as well as applied assumptions. It should also be possible for the valuer to have the possibility to change the input parameters of the valuation models and/or their processing in such a way that the valuation model provides values that can be used in valuation for resolution.** Furthermore, it should also be considered that the valuer can perform some additional tests (e.g. sample based and/or benchmarking against peer group) as appropriate, to draw comfort around model outputs. In this respect, institutions should also be ready to provide any additional data and information to support this process.

Textbox – Fair value modelling capabilities

The reliance of the valuation of asset and liability on an institution's internal valuation models may in particular apply to (financial) assets and liabilities that are measured by an institution at their **fair value** in the financial statements (for instance listed shares or debt securities, as well as derivatives, valued in accordance with, for example, IFRS 9 and IFRS 13). For these positions, data needs might, for instance, depend on the accounting level of the fair value hierarchy (levels 1, 2 and 3 inputs as defined in IFRS 13) according to which the respective valuation is categorised¹⁰. In any case, it is necessary that the data provided (which can be supplemented with data obtained from external sources) enable the valuer to determine economic values for respective financial and/or other assets and liabilities and off-balance-sheet positions.

In cases of **level 1 (financial) positions**, the valuer might need proof that the assumption that an asset or liability is a level 1 instrument is correct and that the market price is really used by the institution. The institution should, for this purpose, provide the values, the source for these values and any further proof that the assets are level 1.

In cases of **level 2 or level 3 (financial) positions**, i.e. mostly relating to more complex and/or partially or fully illiquid financial products, when valuation is actually based on a specific institution's internal valuation models, the valuer should be provided with a description of the valuation model that explains the (key) assumptions and input parameters — regardless of whether they are from an institution's internal source or from external sources — as well as their processing within the model. In this case, as mentioned above, the Valuation MIS should ensure that the institution collects and makes available to the valuer **an explanation of the key methodologies,**

⁹ Institutions usually have in place internal valuation models and systems aimed at determining different values, namely fair value of assets/liabilities for accounting purposes; models used for calculating expected credit losses for IFRS 9 purposes; models used for calculating risk metrics for risk management or compliance with capital requirements (e.g. value at risk, probabilities of default, etc.); models used for pricing derivatives; etc.

¹⁰ On the definition of these input levels see IFRS 13.76, 81 and 86.

assumptions, (input) parameters and judgements used by the entity in the processing of the data sets.

For the purpose of using the internal valuation models and depending on the circumstances, valuers would need to perform certain steps. In order to provide the RAs with an overview of the relevant process, the textbox below illustrates a potential approach that could be applied by valuers to the validation of the derivative internal valuation models.

Textbox — Potential approach to derivative internal valuation model validation

A potential approach to derivative internal valuation model validation may be articulated in four steps.

First, an understanding of how the model is used should be achieved, which includes the range of the products priced by the model; hedging strategies or portfolio decisions made on the basis of model outputs; and the P&L process and exceptions.

Second, the model assumptions should be reviewed, which concerns the number and type of model components (stochastic differential equation, static distribution, parameterisation, etc.); the number of stochastic variables and complexity of modelled behaviour (distribution, mean reversion, drift, jumps, etc.); and model solution (e.g. closed-form solution, numerical method, Monte Carlo) and any techniques (e.g. accelerated Monte Carlo methods).

Third, the input data used should be assessed. This relates to the similarity of market data to required instruments and use of proxies; interpolation/extrapolation; bid/ask, the depth of the market and other illiquidity considerations; frequency of re-marking and availability of marks.

Fourth, the model calibration should be reviewed. Model calibration refers to degrees of freedom and global/local considerations; calibration fit and the number of different possible calibrations that give a good fit; economic intuition of parameter values; sensitivity to parameters; and the frequency of recalibration.

In the light of the description above, documents and information on the range of products covered by a valuation model, the model assumptions and its input data as well as the model calibration should be provided to the valuer.

10.4 The Data Dictionary for benchmarking purposes

10.4.1 Notion and purpose

The **Data Dictionary** defines an EU-wide single benchmark of **data and information** in the form of data fields that are expected to be useful to perform an **economic valuation before resolution** either directly or indirectly when they underpin valuation results produced by internal valuation models (Chapters 2 and 5). The Data Dictionary **does not introduce any reporting requirement**. As a general consideration, it may be assumed that data and information to perform Valuation 1 are

already included within that provided to conduct a definitive Valuation 2. Data and information necessary to perform the *ex ante* NCWO valuation, in the context of Valuation 2, are also covered by the Data Dictionary. In addition, the Data Dictionary provides an indication of the **significance of each data field** for the performance of the valuation by indicating their level of priority: priority 1 (data considered essential for valuation; the data fields that are potentially most relevant in the case of a provisional Valuation 2); priority 2 (data that are assumed to have material impact on the valuation; the level of impact of each field on the valuation results depends on the specific circumstances of the resolution); or priority 3 (data that presumably add value to the valuation but that are not necessarily assumed to have a significant impact on the valuation results in general; the judgement on the priority level should be exercised on a case-by-case basis).

The data and information included in the Data Dictionary are neither exclusive nor exhaustive, and, in accordance with the Regulation on valuation before resolution, the RAs/valuers may ask institutions for any other information deemed relevant to conduct the valuation for resolution or may disregard data fields included in the Data Dictionary if they are not pertinent and relevant to the valuation.

The Data Dictionary lays down common EU descriptions for each data field relevant for valuation purposes, and the RA should make sure that there is a common understanding among the institutions of their actual meaning. In order to reflect proportionality requirements, and avoid duplication of the regulation and imposing excessive costs on institutions, the Data Dictionary is built, to the extent possible, on existing common EU definitions set out in the EU regulatory, supervisory and reporting framework.

Except for those data fields where the Data Dictionary incorporates definitions enshrined in EU law that are applicable to the specific institution, RAs are not expected to assess an institution's ability to supply data and information that matches the exact description of the specific data field set out in the Data Dictionary. This entails that, when the Data Dictionary includes definitions set out for instance in FINREP or in AnaCredit, for those institutions subject to those reporting requirements, such definitions should exactly be matched and not be derogated by the institution. In all other cases, including those in which the Data Dictionary refers to definitions embodied in EU law but not applicable to the specific institution, institutions should provide data and information that the RAs believe satisfy the definitions. The RA and the institution should establish a dialogue to determine a clear and common understanding of the definitions and the data supplied and whether or not they fulfil the RA's expectations.

This approach of finding a common understanding of definitions is consistent with the use of internal valuation models to perform the valuation before resolution. Taking this into account, the Data Dictionary does not always lay down detailed definitions but rather descriptions for for example, the different asset classes, collaterals and liabilities, as each individual case requires careful consideration.

10.4.2 Content of the Data Dictionary

The **Data Dictionary** covers assets, liabilities and off-balance-sheet positions. To avoid a double burden on institutions and to leverage as much as possible on internal capabilities, the Data Dictionary is based on the data fields used in the templates envisaged in the EU regulatory, supervisory and reporting framework — such as the European Central Bank AnaCredit, the EBA NPL templates¹¹ and the European Securities and Markets Authority securitisation templates¹² — that already incorporate common EU definitions. It therefore replicates from those existing templates the data fields that are relevant for valuation purposes and introduces new data fields when they are not covered by existing EU sources. Given that the Data Dictionary is for benchmarking purposes only, references to AnaCredit data fields do not impinge on non-Banking Union Member States and institutions.

For **liabilities**, the Data Dictionary is based, in the first instance, on the EBA Liability Data Structure template, which is part of the EBA Implementing Technical Standards (ITS) on information for resolution planning reporting¹³. For the data not contained therein that are relevant for valuation purposes, the Data Dictionary is based on the SRB Liability Data Template¹⁴.

A section of the Data Dictionary also sets out some general data and information expectations for conducting financial due diligence on a credit institution in order to support the valuation. However, not all data and information expectations related to an institution's equity valuation (see Chapter 6) that are relevant to determining the post-conversion equity value in the case of bail-in (see Chapter 7.2.3) are covered by the Data Dictionary. However, institutions are expected to have forecasting capabilities to support this kind of valuation. For instance, when the DCF methodology is used, such valuation would require a business plan laying down the considerations described in Chapter 6.2 of the Handbook. These considerations include forecasts of an institution's P&L accounts, forecast volumes, funding plans, risk-weighted assets and capital plans.

10.4.3 Format and timeline for the provision of data and information

The Data Dictionary does not impose a specific format to be used by institutions for the provision of data and information to the RA/valuer; rather it allows institutions to use any format, provided it is used in common valuation practice and allows valuers to apply common valuation models and methodologies.

Data and information to be made available to the RA/valuer should refer to a date as close as possible before the expected date of resolution. For the performance of a robust valuation supported by high-quality data, the institution should aggregate the latest available data that have

¹¹ The EBA NPL templates are available on the EBA's website (<https://eba.europa.eu/risk-analysis-and-data/eba-work-on-npls>). Although strictly speaking not part of EU law, these templates are an authoritative market and regulatory reference for NPL valuation..

¹² In accordance with Regulation (EU) No 2017/2402 laying down a general framework for securitisation and creating a specific framework for simple, transparent and standardised securitisation.

¹³ See <https://eba.europa.eu/regulation-and-policy/recovery-and-resolution/implementing-technical-standards-on-procedures-forms-and-templates-for-resolution-planning>

¹⁴ See <https://srb.europa.eu/en/content/liability-data-report>

been subject to internal control and validation procedures ensuring their consistency with the accounting records and/or with other information reported internally or externally as appropriate. As far as possible, considering the current circumstances, these data should then be updated by the institution to a date closer to or as of the (expected) date of resolution ('cut-off date'). The data could then be used to perform the valuation, which would also be subject to further adjustments, which might be required to determine a value as of the date of resolution.

For the purposes of this Handbook, the RA should assess the institutions' internal capability to swiftly make high-quality data and information available to the RA/valuer. Different timelines could be envisaged by the RA based, for instance, on the materiality of the positions and on the priority level of the data and information.

10.5 Interplay between internal valuation models and the Data Dictionary

The RAs are expected to ensure that institutions use the **Data Dictionary** to conduct a **self-assessment aimed at mapping the available data and information** within the institution and to **compare the results of the self-assessment** with the Data Dictionary (i.e. for benchmarking purposes). Such a self-assessment should be conducted for both those positions covered by an internal valuation model (in order to check if the model reflects commonly expected data inputs and can be considered suitable for resolution valuation) and for those that are not covered by suitable internal valuation models. The institution's self-assessment should also support the identification of positions material to the valuation.

Based on the results of this exercise, a **dialogue between the RA and the institution** would follow in the resolution planning phase, during which the RAs would calibrate the assessment and the Valuation MIS requirements, having regard among other things, to the features (soundness, completeness, complexity, etc.) of the internal valuation models and the institution's specificities, including the identification of the material parts of the balance sheet, and the institution's business model, activities, size and complexity.

Within the Valuation MIS approach, the internal valuation models and the Data Dictionary are not meant to overlap; and their interplay can be summarised as follows.

(a) Positions for which internal valuation models suitable for resolution valuation are in place.

Where internal valuation models suitable for resolution valuation are in place, the Data Dictionary is expected to be used to identify the model's input parameters (as opposed to the specific individual data itself), supporting the valuation results. In case of internal valuation models calibrated at portfolio level, the Data Dictionary is expected to provide the benchmark for the relevant categories of input parameters that should underpin the model in order to produce robust valuation results. In particular in this case, the portfolio-oriented parts of the Data Dictionary (portfolio information, historical information, potentially also financial due diligence related information) might be the more relevant parts of the Data Dictionary.

(b) Positions for which internal valuation models suitable for resolution valuation are not in place.

Where internal valuation models suitable for resolution valuation are not in place for all or some material on- or off-balance-sheet positions, the Data Dictionary indicates the data and information that an institution is expected to be able to make available to the valuer at individual transaction or portfolio level if needed (see Section 10.3).

Textbox — Annex III: Interplay between internal valuation models and the Data Dictionary

For the purposes of clarification, Annex III illustrates the potential interplay between institutions' internal valuation models and the Data Dictionary for benchmarking purposes. Annex III — which, for the sake of completeness, is based on FINREP positions — indicates for different groups of assets and liabilities, including loans, collateral, derivatives and debt securities issued, as well as of off-balance-sheet positions (e.g. loan commitments, financial guarantees), the data and information (data sources and/or potential additional data/information, including reference to the Data Dictionary) that are potentially relevant to the development or adjustment of the valuation MIS. The FINREP basis of Annex III should not imply that the economic valuation would be related to balance sheet values or similar; it only aims to ensure that all assets, liabilities, and on- and off-balance sheet positions that are potentially relevant to the resolution valuation(s) are properly identified.

The table in Annex III pays attention also to proportionality requirements and indicates that potential simplifications of data/information needs might be considered on the basis of materiality aspects of the balance sheet. Proportionality requirements would also be captured and met by the less complex nature and the business models of smaller institutions, which might reduce the amount and type of data needs. It might similarly be reflected in the smaller number and lower complexity of the institution's internal valuation models. Furthermore, as already underscored, the indication of such data and information should not be considered a minimum standard or an exhaustive list. It is not prescriptive and serves only for benchmarking purposes.

The presumption that, for certain groups of assets or liabilities, such as loans or non-listed debt securities issued, a Data Dictionary-based approach prevails does not imply that, in such a case, a valuation model-based approach may not be applied. For instance, if an institution also has valuation models for its loans in place, a valuation model-based approach for their valuation might be considered appropriate to support a robust valuation. However, also in this case, the Data Dictionary would support the identification of the valuation models' input parameters.

10.6 Internal data aggregation capabilities

To ensure the swift provision of data and information to the RA/valuer, the Valuation MIS leverages on the institution's ability to **aggregate data dispersed in various data sources within the institution**. When, for instance, data related to one loan are extracted from different data sources, the institution should make sure that the respective data can be easily linked to that loan through one unique identifier. If, for instance, the contractual data of a loan come from one data source and the data on the collateral provided for this loan come from another data source, both data sets should have one **unique identifier** so that the RA/valuer can link these two data sets exactly to this one loan.

This approach builds on supervisory efforts laid down in the Basel Committee on Banking Supervision (BCBS) *Principles for effective risk data aggregation and risk reporting* (2013), **BCBS 239**¹⁵. BCBS 239 makes express reference to the improved effectiveness of the requirement in order to provide timely access to data, as laid down in the Financial Stability Board (FSB) *Key attributes of effective resolution regimes for financial institutions* (notably FSB KA 4.12)¹⁶.

Supervisory assessment of institution's data aggregation capabilities is envisaged in the EBA 2014 Guidelines on common procedure and methodologies for the supervisory review and evaluation process (**SREP**)¹⁷. In addition, the EBA Guidelines on institution's stress testing¹⁸ envisage that institutions should endeavour to also refer, to the extent appropriate, to the principles for effective risk data aggregation and risk reporting of the BCBS principles for effective risk data aggregation and risk reporting.

10.7 Governance and assessment criteria of valuation MIS

10.7.1 Governance

The valuation MIS should be supported by institutions' adequate and effective **internal governance arrangements**, covering policies and **processes for data collection and aggregation** across the various areas of the institution and across the various group entities. This is in line with the institution's internal governance requirements, which acknowledge that the 'reliability of financial and non-financial information reported both internally and externally'¹⁹ as well as the **flow and consistency of data and information across the group** is part of the internal control framework under the responsibility of the management body and is primarily assessed by the competent authority in the context of the SREP.

¹⁵ Available at <https://www.bis.org/publ/bcbs239.pdf>. See also BCBS, *Progress in adopting the principles for effective risk data aggregation and risk reporting* (2017), available at <https://www.bis.org/bcbs/publ/d399.pdf>. It underscores that, while some progress has been made, most globally systemically important banks have not fully implemented the principles, and the level of compliance with the principles is unsatisfactory. In the light of the report's assessment and in order to promote further adoption of the principles, the Committee has made additional recommendations in order to ensure full compliance by the banks.

¹⁶ Paragraph 3 of the BCBS 239 document reads as follows: 'Improving banks' ability to aggregate risk data will improve their resolvability. For global systemically important banks (G-SIBs) in particular, it is essential that resolution authorities have access to aggregate risk data that complies with the FSB's Key Attributes of Effective Resolution Regimes for Financial Institutions⁴ as well as the principles set out below. For recovery, a robust data framework will help banks and supervisors anticipate problems ahead. It will also improve the prospects of finding alternative options to restore financial strength and viability when the firm comes under severe stress. For example, it could improve the prospects of finding a suitable merger partner.'

¹⁷ EBA GL/2014/13 of 19 December 2014 on common procedure and methodologies for the supervisory review and evaluation process (SREP), available at <http://www.eba.europa.eu/documents/10180/935249/EBA-GL-2014-13+%28Guidelines+on+SREP+methodologies+and+processes%29.pdf/4b842c7e-3294-4947-94cd-ad7f94405d66>

¹⁸ See Section 4.3 of EBA/GL/2018/04 of 19 July 2018, available at <https://www.eba.europa.eu/documents/10180/2282644/Guidelines+on+institutions+stress+testing+%28EBA-GL-2018-04%29.pdf>

¹⁹ Paragraph 129(d) of the EBA Guidelines on internal governance under Directive 2013/36 (EBA/GL/2017/11 of 26 September 2017), available at <https://www.eba.europa.eu/documents/10180/1972987/Final+Guidelines+on+Internal+Governance+%28EBA-GL-2017-11%29.pdf>

The RA should in particular assess the institution’s preparedness, notably that arrangements and processes address the requirement to ensure that the Valuation MIS can make available high-quality data and information for the resolution valuation in case needed. This would include for instance:

- (a) the clear allocation of internal responsibilities within the institution as documented by internal policies and processes as well as the adoption of **adequate processes and systems** to ensure that high-quality and complete data and information are made swiftly available to the RA/valuer in case needed. To ensure coordination within the institution and efficiency of communication with the RA/valuer, the institution should indicate the **person responsible** for the contacts with the RA/valuer for the purposes of the Valuation MIS, both in business as usual and in the event of resolution;
- (b) the **execution of a self-assessment by the institution to map the various internal valuation models and data sources** collecting data and information relevant to valuation purposes and the comparison with the Data Dictionary for benchmarking purposes (Section 10.4) — as part of the exercise, the RA should ensure that the institution prepares and provides a description of the internal valuation models that are relevant for the valuation for resolution, the methodology, the purpose for which data are collected and processed by each mapped model, the input parameters and the underlying assumptions;
- (c) the **maintenance of a complete and updated manual and documentation of each internal valuation model suitable for valuation for resolution**, covering in particular the description of the methodology, criteria, input parameters, underlying assumptions, and procedures for assessing and ensuring the design and operational effectiveness for each relevant internal valuation model. Such documentation should also cover the possibility of amending assumptions and input parameters, in order to enable the valuer do so in case a valuation needs to be performed;
- (d) the adequacy of procedures for verifying and ensuring the quality of the **data used, the methodology, and the design and operational effectiveness** of relevant internal valuation models;
- (e) the adequacy of procedures for **data verification, validation and remediation**, if necessary, in order to ensure the provision of **high-quality data** to the RA/valuer;
- (f) the **capability** to make **data and information swiftly available to the RA/valuer in case needed**. To the extent required by the RAs, **and at any rate with the exception of valuation results produced by internal valuation models suitable for valuation for resolution, the capability to swiftly upload in the VDR, in case needed, the data and information collected via the Valuation MIS**. This entails that in the resolution planning phase, the RAs should assess the arrangements, e.g. information technology (IT) contracts and providers, made by the institution for this purpose.

10.7.2 Assessment

In accordance with the BRRD (Annex, Section C, points 9 and 10), the **RA is requested to assess as a minimum the following requirements:**

- (a) the **'capacity** of the management information systems to provide the information essential for the effective resolution of the institution **at all times even under rapidly changing conditions'**;
- (b) **'the extent to which the institution has tested its management information systems under stress scenarios** as defined by the RA'.

To assess the condition under (a), it is proposed that the RA assesses the systems and processes set up by the institution referred to in Section 10.7.1. on governance, including by means of on-site inspections if needed.

When internal capabilities are assessed by the competent authority, in particular their compliance with BCBS 239, the RA should communicate with the supervisory authority to also leverage as much as possible on the **reviews and assessments already conducted by the supervisor** in the context of SREP assessment or other thematic reviews, such as asset quality reviews. Arrangements for the exchange of information between the supervisory authority and the resolution authority should be in place. Ideally, cooperation between the RAs and the competent authorities should also cover potential enhancements of supervisory assessments so as to better capture the RAs' needs for valuation purposes to the extent possible. To avoid the duplication of burden on institutions, arrangements should also be in place with the competent authorities to ensure that the RAs are provided by the competent authorities of at least the data and information indicated in the Data Dictionary that are in possession of the competent authority and that are relevant to the valuation for resolution. This should cover, for instance, reporting data such as FinRep, CoRep, AnaCredit (when applicable).

As regards the **internal valuation models** suitable for resolution valuation that are not captured by the supervisory reviews or are assessed by the supervisory authority for purposes other than those relevant to the RA, the RAs' assessment of their suitability for valuation for resolution should not aim at a 'model validation'. It should rather consist, for instance, of checking the internal valuation model governance, including whether the institution has adequate processes in place to ensure, regularly test and verify - also by independent parties within the institution or by third parties - the accuracy and reliability of the methodologies and techniques for producing a valuation for resolution. The firm's governance should ensure a regular review of the relevant assumptions and input parameters, including respective sources of information for reviewing model documentation as indicated in letter (d) of Section 10.7.1²⁰. As a further step and when appropriate, tests could also be run to gain a degree of assurance. In the event of specific concerns, the RA could also require the institution to provide an expert report about one or more specific models of a specific institution. As a general remark, the assessment of the internal valuation model(s) could be based,

²⁰ Note that, in accordance with the EBA Guidelines on internal governance, the internal audit function 'should verify in particular, the integrity of the processes ensuring the reliability of the institution's methods and techniques, and the assumptions and sources of information used in its internal models (e.g. risk modelling and accounting measurements)' (paragraph 202).

as a starting point, on a report, requested by the institution, by an external auditor. This would be without prejudice to the RA's prerogative to request integrations into and/or additional reviews of this assessment and the RA's ultimate decision as to the overall adequacy of the Valuation MIS.

To assess the conditions under (b), the RAs should define institutions' internal stress scenarios, for instance, to test the simultaneous use of internal capabilities to provide multiple data under time pressure, for instance relating to deposit outflows, liquidity management, the tracking of mark-to-market valuations and the like. The idea behind developing these scenarios would be to assess the capacity and effectiveness of the Valuation MIS to produce valuation results and provide high-quality and updated data and information in stress conditions. These scenarios might, for instance, include assumed stress of processes, people and IT systems. The result of these stress scenarios might also show which areas of data extraction and collection might be particularly vulnerable.

When the RA considers that the assessment conditions are not met, it should consider requiring the institution to adopt **measures to** ensure consistency with the RA's expectations that are proportionate to the nature and materiality of the obstacle to the credibility and feasibility of the institution's resolvability.

10.7.3 Timeline for implementation of the Valuation MIS

The RAs should determine a timeline within which institutions should be expected to complete the development of the Valuation MIS. This timeline should take into account resolution planning needs aimed at ensuring the credibility and feasibility of the resolution strategy and institutions' operationalisation requirements. The timeline could, for instance, envisage different phases and reflect materiality, including priority, considerations.



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