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New definition of default

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Abstract

In September 2016, as a response to the growing variability in default identification and default treatment practices by banks, the European Banking Authority (EBA) published the guidelines on defining a default by credit institutions. Recognising the complexity of adopting the new definition of default (NDD), the EBA gave a considerable amount of time for banks to implement the new regulatory framework. Thus, the NDD comes into force in January 2021.

This paper provides the first insights into the challenges faced by credit institutions with the implementation of the NDD. At this point, the paper points to the common mistakes made by EU banks when adopting the NDD and suggests working solutions. To date, no other academic study exists to discuss the specific issues revolving around the NDD implementation.

Keywords: new definition of default, credit risk, European Banking Authority, CRR 3

JEL: G21, G28

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1. Introduction

This paper presents the review of the New Definition of Default (NDD) rollout across selected credit institutions in Europe. The purpose of this paper is to highlight the main pitfalls in the implementation of the NDD at European banks. In doing so, the paper discusses areas that should be of particular interest of both the institutions and supervisors, as these areas are subject to flaws and shortcomings.

As a result of the impact studies conducted by the European Banking Authority (EBA), the main drivers of the variability in defining and managing defaults have been identified across credit institutions. The existence of the variability in the treatment of defaults has prompted the regulators to issue specific guidelines on the application and definition of a default. Hereto, the EBA's guidelines (EBA/GL/2016/07) clarify all the important aspects of the application of the default definition and, together with the European Commission's Delegated Regulation providing draft regulatory technical standards on materiality thresholds for credit obligations (Commission Delegated Regulation (EU) 2018/171), constitute the backbone of the NDD.

The EBA's guidelines apply from 1 January 2021 and impacted credit institutions are required to be fully compliant with the NDD framework. As it transpires, works on implementing the NDD started before this deadline, with the EU banks being pushed to accelerate the transition by local regulators. This regulatory push is due to the fact that the NDD remains of particular importance for the IRB (internal ratings-based) banks, which are using their own default definitions and internal processes. The regulatory pressure was also caused by the fact that the EBA understood the importance of building the necessary time series for long-run default averages based on the NDD by the impacted banks.

All in all, as of January 2021, the impacted banks are required to implement the NDD and adjust their rating systems accordingly with necessary changes to the internal default procedures and IT systems. For the IRB banks, any of these adjustments constitute a material model change in light of the Commission Delegated Regulation (EU) No 529/2014 that requires a formal approval from the competent regulator prior to the implementation. This further complicates the rollout of the NDD across some of the IRB banks that are additionally scrutinised by the European Central Bank under the Targeted Review of Internal Models (TRIM) project. The TRIM specifically focuses on the implementation of the NDD by significant institutions that use the IRB approach.

As with every regulatory initiative, the supervisory authorities claim that the NDD serves to harmonise the use of the default definition across institutions and jurisdictions. The EBA guidelines are expected to increase the comparability of the IRB models. The policymakers also claim that the NDD lifts the burden of compliance for international banks. Ultimately, according to the EBA, the NDD should reduce the RWA variability across credit institutions. However, referring to the preceding paragraph and reviewing banks' practices in the area of the NDD implementation, the paper aims to show the bitter reality related to the rollout of the NDD that remains in stark contrast to the regulatory claims. The IRB banks already started the NDD rollout in years 2016–2018 by adapting internal procedures and implementing the relevant EBA guidelines prior to the deadline in order to create reference datasets for the PD model redevelopment under the NDD rules. Therefore, there is a context-rich premise for conducting a qualitative query into challenges and issues revolving around the NDD and to research best practices in this space.

This paper is structured as follows. The next section (Section 2) presents the regulatory and business background supported with the academic literature review. Section 3 provides details about

the research methodology and banks participating in this study. Section 4 discusses emerging issues and provides solutions to the flawed banking practices in relation to the NDD rollout. Section 5 provides a summary of the qualitative results with the principal conclusions.

2. Research background

This is the first academic paper that looks into the implementation aspects of the NDD. Given the nascence and topicality of the researched domain, issues revolving around the NDD implementation have not yet been analysed by academics.

The default concept was first defined in June 2006 by the Capital Requirements Directive (Directive 2006/48/EC of 14 June 2006) that was later replaced by the Capital Requirements Regulation (Regulation (EU) No 575/2013), known among banking practitioners as the CRR. Article 178 of the CRR provides several criteria for defining a default. However, as noted by Nehrebecka (2018), the CRR default criteria leave a considerable margin for loose interpretation. Adelson and Jacob (2015) also point to the absence of specific rules for identifying a defaulted status of an obligor. As a result of the unintended flexibility in interpreting the CRR default definition, credit institutions from different EU jurisdictions have adopted various approaches to defining the unlikeliness to pay and the defaulted status (Cesaroni 2015).

Considering the CRR default definition, Barisitz (2019) argues that the counting of past due days as well as the application of the materiality thresholds remains standardised across different jurisdictions. However, other aspects of a default remain undefined, prompting credit institutions to develop internal rules in the absence of regulatory specifications (Botha, Beyers, de Villiers 2019). As it transpires, most banks apply their own indicators for the unlikeliness to pay (UTP) based on their experience with obligors and credit portfolio characteristics (Novotny-Farkas 2016). These in--house developed add-ons to the default concept result in the variability of risk estimates and capital requirements. Bitar, Pukthuanthong and Walker (2018) argue that the differences in the treatment of defaulted obligors contributes to the underestimation or overestimation of capital requirements. There is also a subsequent lack of comparability across credit institutions caused by the variability of default definitions (Krüger, Rösch, Scheule 2018).

The default definition remains an important aspect in the credit risk management practice at every bank. As noted by Mendicino et al. (2018), the default definition determines the level of capital requirements and, according to Acharya, Engle and Pierret (2014), influences the calculation of key risk parameters, such as the risk-weighted assets (RWA) or the expected loss (EL). The ways of identifying defaults also impact on the model performance. As noted by Prorokowski (2019), the validation tools of internal credit risk models rely on the number of defaults for the calibration, discrimination and sensitivity performance tests. Since the number of defaults per rating class impacts on the validation tests, the freedom in recognising certain aspects while identifying defaults may lead to some models passing the annual validation exercise at one credit institution, but failing the performance tests at another bank. Ultimately, there is no level playing field across credit institutions when it comes to defining defaults and subsequently calculating own funds requirements and validating internal credit risk models.

Recognising the variability in the default definition impacting on the capital requirement levels, the EBA issued the NDD guidelines with the enforcement of the NDD from January 2021. According to the ECB (2018a), the NDD should eradicate various approached to defining the default status across the EU banks. The NDD is expected by the EBA (2016) to make a substantial impact on internal models, capital adequacy ratios, governance, IT processes and audit. As far as specific risk management frameworks are concerned, the NDD impacts not only the IRB credit risk models, but also the ICAAP, IFRS 9 provisioning and stress testing (ECB 2018b). With numerous areas impacted by the NDD, compliance with the EBA's guidelines might be challenging for some banks. The challenges with the NDD implementation are expected to be compounded for those banks that have drastically different approaches to defining and classifying defaults than the NDD (Wood, Powell 2017). Hereto, De Jongh et al. (2017) argue that compliance gaps with the NDD cannot be solved by including a new margin of conservatism to the calculation of internal risk estimates. In summation, the NDD overhauls the risk management practice and is regarded by practitioners as one of the most time-consuming, challenging and costly regulatory initiatives (Fonteijn, Lajkep 2018).

3. Methodology

3.1. Research motivation and purpose

The motivation for this study comes from the importance of the default definition that drives the risk management domain and the capital requirements of credit institutions. The NDD has a significant indirect impact on the risk-weighted assets, because it affects the IRB models and the calculation of the expected loss.

The implementation of the NDD is expected to pose significant challenges to banks and requires additional resources for the IRB approach, where the usual default definitions are different to the NDD. Therefore, banks using the IRB approach are not only amending the core default definitions, but entire IT systems for default recognition and classification, recalibration and redevelopment of their credit risk models and designing new internal policies for default management.

For the above reasons, this paper considers it pivotal to discuss the rollout of the NDD across different institutions. Thus, the findings contained in this paper can serve as an additional guidance for practitioners to the NDD implementation. There are multiple aspects related to the NDD rollout that range from defining the concept of default to calculating new materiality thresholds and recognising default contagion. All of these aspects are discussed in this study in order to deliver a comprehensive view on the NDD requirements.

Looking forward, the CRR 3 will implement the NDD in the capital requirements rules from January 2025. The main changes will encompass the abolishment of the 180 past due days for exposures secured with residential property and further alignment to the NDD rules proposed by the EBA. For example, from January 2025, a newly introduced Article 178(3)(d) of the CRR 3 will force banks to consider distress restructuring to occur when forbearance measures are extended toward an obligor. Recognising the growing importance of the NDD in the forthcoming regulations, this paper focuses on the NDD aspects (e.g. distressed restructuring) that will be reflected in the CRR 3.

Recognising the importance of the NDD and the nascence of the regulatory framework for the NDD rollout, the following research questions are attempted by this study: what challenges are faced with the NDD implementation and how these challenges can be addressed? This research question is transposed into a hypothesis described in the next section.

3.2. Qualitative query

This paper adopts a practitioner's perspective on the implementation of the NDD across credit risk models, thus the primary source of information about the challenges related to the rollout of the NDD are interviews with selected professionals in credit risk management at major European banks. The purpose of the interviews is to investigate the progress that the participating banks have made in implementing the NDD. Investigating the impact of the NDD on credit risk models, internal policies and model monitoring/validation processes is important, as challenges are expected to be faced at various steps of the NDD rollout. The following hypothesis is tested by the paper:

H0: EU credit institutions have adequate NDD implementation processes that ensure compliance with the EBA's guidelines.

The above hypothesis is rejected if the outcome of the qualitative query confirms that the majority of the participating banks do not have appropriate NDD frameworks. Testing the impact of the policy options on the risk parameters estimates performed by IRB banks is, in any case, very challenging, and some level of subjectivity used by institutions is unavoidable. The quality checks that have been performed by the EBA, in fact, revealed numerous data quality issues – in particular, in relation to the representativeness of the samples selected by the institutions. Wherever possible, the quality issues have been resolved, but, given the limitations in terms of subjectivity used by institutions, and of methodological simplifications, the results of the quantitative part should be interpreted with care, and used only as indicative, bearing in mind the approximations used in the calculations.

The choice of a qualitative query is motivated by the fact that, in 2016, the EBA conducted a qualitative impact study to analyse the impact on the regulatory capital of selected policy frameworks harmonising the definition of default used by European credit institutions (EBA 2016). This paper recognises the importance of the dialogue with practitioners that informs the regulatory practice and delivers the necessary results for amending policy tools. With this in mind, complementing the EBA's qualitative impact studies, this paper uses a similar approach to explore problems with the NDD adaptations. At this point, no quantitative tests are envisaged for the purpose of the study. Such tests require access to the internal data that is not feasible in many cases due to several compounding factors. For example, internal policies impose constraints on sharing internal default data with third parties. There are also unique in-house data systems that require a physical presence at the bank to access data. Furthermore, the EBA (2016) identified data quality issues in relation to the NDD (e.g. data completeness, representativeness) that would otherwise constitute additional hurdles for this paper.

The qualitative query is based on semi-structured interviews with selected practitioners who agreed to participate in the study. The interview questions are designed with the aim of receiving opinions from participating credit institutions on the practical issues revolving around the implementation of the NDD. In doing so, the qualitative query allows the paper to reach conclusions about the impact

of the NDD on European banks. Moreover, the semi-structured interviews serve to flag the NDD areas that remain especially challenging for the credit risk management practice, with insights into the observed issues faced by individual banks. Therefore, the paper can be viewed as a guide to best practice in the area of the NDD rollout.

Mojtahed et al. (2014) regard semi-structured interviews as the appropriate research tool for gathering information about the current practice. Kallio et al. (2016) note that the semi-structured interviews allow to gain access to the subject matter expertise and opinions on complex ideas. According to Sallee and Flood (2012), semi-structured interviews constitute a bridge between theory and practice by yielding important practical implications and suggesting new theoretical avenues for future studies.

The interview questions are centred on the key aspects of the NDD and refer, in particular, to the following areas: NDD framework objectives; the concept of default; the overdraft concept; counting past due days; defining systemic and technical defaults; the methodology for calculating materiality thresholds; unlikeliness to pay indicators (UTPs); the return to a non-defaulted status; and default contagion.

3.3. Participating banks

Initially, 72 institutions that participated in the 2016 qualitative impact study by the EBA were approached to take part in this research. Out of the 72 EU banks, 22 institutions used a standardised approach to credit risk and only 32 developed an internal ratings-based approach (IRB). The latter were prioritised for the purpose of the current study. Thus, the sample of the credit institutions consists only of the IRB banks.

The participation in the semi-structured interviews was carried out on a voluntary and best-effort basis. Therefore, only a fraction of the initially targeted institutions agreed to participate in the study. Out of 72 initially targeted institutions, only 10 agreed to participate and share their experiences with the NDD rollout. The low number of respondents can be attributed to several factors. Firstly, the research objectives are more appealing for the IRB banks that constitute less than 50% of the initial sample. Secondly, works on the NDD implementation still continue at some institutions beyond the regulatory deadline with new IRB models being redeveloped under the NDD and awaiting the initial validation exercises as well as internal audit's approvals prior to the submission to the regulators.

Table 1 shows details of the participating banks. All the banks taking part in the interviews use the IRB approach to credit risk. The interviews were held in December 2020 and January 2021. The participants have been assured of their anonymity and every effort was made not to identify any of the credit institutions. The precautionary methods were taken not to link the NDD problems to specific institutions that would result in possible regulatory actions against the impacted banks.

The sample of the banks from Table 1 represents 31% of the IRB credit institutions that took part in the 2016 qualitative impact study conducted by the EBA.

4. Analysis

This section contains the analysis of specific aspects related to the NDD implementation. Several important issues emerged from the interviews that are discussed and investigated in this section.

Given the multi-fold character of the NDD, this section is structured as follows. Section 4.1 discusses the variability of the NDD launch process with associated challenges of providing an impact analysis and other regulatory-required elements of the NDD rollout. Section 4.2 continues the analysis of the NDD rollout with the focus on the conceptualisation of a default. At this point, any operational flaws leading to the misclassification of the arrears are investigated among the participating banks. Section 4.3 complements the concept of default by looking into the aspects of counting past due days and investigating challenges related to the treatment of changes to the paying schedules. Section 4.4 touches on the technical default conceptualisation pointing to the failures of this process at the participating banks. Going further, Section 4.5 investigates the emerging pitfalls related to the calculation of materiality thresholds. Finally, Section 4.6 discusses the unlikeness to pay (UTP) indicators that form the backbone of the NDD implementation and Section 4.7 reviews the default contagion rules that are brought forward by the NDD. Altogether, the seven sections discuss all the elements of the NDD that are new to the banking industry. Any challenges, implementation flaws or compliance gaps identified at the participating banks in relation to the NDD areas discussed in these sections would lead to rejecting the null hypothesis that EU banks have adequate NDD implementation processes in place.

4.1. NDD launch

In the majority of cases, the NDD rollout was triggered by the official letter from the ECB regarding the launch of the implementation process within the Single Supervisory Mechanism (SSM) framework for significant institutions using the IRB approach. The ECB set up a two-step implementation process in order to adhere to the EBA's roadmap for the NDD. With the aim of ensuring an effective and manageable process of implementing the NDD by the impacted banks, the decision was made to split the NDD rollout into two sequential implementation steps:

– the implementation of the NDD by the end of 2020;

– the adjustment of risk parameters under the NDD by the end of 2021.

Envisaging smooth progress with the NDD implementation, the ECB defined specific elements that would allow the impacted banks to perform a self-assessment of the NDD developments. In particular, the ECB requested the following NDD-related elements:

– **registry** – to record all relevant definitions of default and rating systems used within an institution;

– **gap analysis** – to provide a self-assessment of compliance with the EBA's guidelines and applicable optional practices regarding the NDD;

– **impact analysis** – to provide a best estimate of the impact of the change in the default definition on the rating systems, portfolio properties, risk parameters, expected loss amounts and weighted exposure amounts;

– **action plan** – to consolidate and record all necessary changes to be made to the rating systems, IT procedures and risk management processes under the NDD;

– **review of the IT infrastructure** – to ensure that the default detection processes are ready to handle the NDD-related changes.

As it transpires, challenges emerged in relation to compliance with the basic requirements for the ECB documentation. All the banks developed adequate policies for the NDD that would mandate

the ECB elements. However, Bank 3, Bank 4 and Bank 6 reported that their registries did not contain all past versions of the default definition in accordance with Article 113 of the EBA Guidelines. Hereto, the paper argues that the registry should list the entire history of default definition applied at a bank with the details on the scope of application, the approval body and the date of implementation of each definition of default for each IRB model. At this point, Bank 5 and Bank 7 failed to retrieve the implementation dates of past default definitions for their IRB models. Bank 10 reported issues with completing data of past regulatory approvals for the existing IRB models.

The variability of the NDD launch process further increases for the more complex regulatory requirements. All of the participating banks pointed to the challenges related to the impact analysis. The impact estimates were provided to a varying degree ranging from calculating a detailed RWA impact by Bank 9 to a high level overview of the IRB models affected by the NDD at Bank 3 and Bank 5. Table 2 provides an overview of the different responses to the ECB launch requirements by the participating banks.

In conclusion, the launch of the NDD yielded different outcomes for the participating banks. Challenges emerged at fulfilment of the basic ECB requirements such as the registry or the action plan. The review of compliance with the specific ECB elements in the NDD rollout process shows a great variability in the banks' practices, processes and procedures related to the NDD. There is no bank that reported no issues across the NDD elements: the registry; the gap analysis; impact analysis; the action plan; and the documentation of the NDD impact on the IT infrastructure.

If the participating banks struggled with completing the basic NDD launch elements, more issues would be expected with the specific NDD aspects that remain especially challenging for credit institutions. These aspects are investigated in the next sub-sections.

4.2. Concept of default

The concept of default and its application by the participating banks at the retail level of unique obligors remains correct. At this point, the banks consider an obligor to be in default in the case of significant areas (past due days) or being unable to fully meet their credit obligations.

Pursuant to Article 178(1)(2), credit institutions can choose to apply the definition of default at the facility level credit and not at the level of an individual obligor. In this vein, Bank 2 applied the default definition at the facility level for retail obligors that caused problems with implementing the new mechanics of calculating significant arrears and past due days that remain at the obligor level under the NDD. Going further, at Bank 3, a retail multi-debtor financed at least by two subsidiaries does not have a single identifier across these entities, which defies the NDD concept of a unique obligor. Bank 3 and Bank 4 suffer from additional disruptors to the NDD concept of a single unique identifier for a retail obligor. As it transpires, local regulations related to the personal data protection in France prohibit defining a unique identifier across subsidiaries. This issue refers to the French farmers that have to be excluded from the retail portfolios, as they would affect the calculation of default rates (DRs) under the NDD.

Reviewing the conceptualisation of the overdraft by the participating banks, in all cases, the overdraft amount includes the principal amount and interest and all remaining elements of a credit obligation, but fails to include interest on arrears or commissions that have not been paid at Bank 3,

Bank 5 and Bank 7. The majority of the banks also use correct dates that correspond to the contractual dates agreed between the banks and obligors when the loan was granted. However, Bank 7 and Bank 8 do not use the last agreed contractual dates upon changes to the loan timetable. For the start of the overdraft, the banks begin counting the past due days when an obligor exceeds the authorised limit. Additionally, Bank 3 starts the overdraft after an obligor is warned about the outstanding amount that lacks the confirmed authorisation. Bank 4, Bank 5 as well as Bank 10 fail to recognise the start of the overdraft with an unauthorised drawn amounts. As far as the inclusion of the off-balance sheet commitments under the NDD is concerned, the variability of practices increases further with Bank 3 and Bank 7 not recognising arrears on commissions that relate to the off-balance sheet exposures. Furthermore, Bank 2 fails to include guarantee commitments.

Under the NDD, the commissions and ancillary costs linked to a loan transaction payable by the debtor are, in practice, not collected upon granting the loan by the majority of the participating banks, and thus may generate arrears. Although in theory the loan-file fees are taken on signing the loan, operationally they are deducted from the loan account at Bank 1, Bank 2, Bank 3, Bank 5, Bank 7, Bank 9 and Bank 10. This operational flaw can lead to potential arrears that are not considered by the affected banks. The participating banks correctly recognise the overdraft on credit cards (deferred payment) by marking the start of the overdraft on the payment due date. Deferred payments are recorded in the current accounts of the obligors at the participating banks.

4.3. Counting of past due days

Article 16 of the EBA Guidelines stipulates that upon determining a new repayment schedule, the counting of past due days must be based on the new schedule. When the latter provides the suspension or postponement of payments for a defined period, the counting of past due days must also be suspended during this period. Against this backdrop, the qualitative query reveals that the treatment of the modifications to the repayment schedule is not always present in the NDD procedures and/or policies at the participating banks. The following NDD policy updates are missing:

- At Bank 1, Bank 2 and Bank 4 – there is no update of the definition of the modifications to the schedule in the NDD policies or procedures that impacts on the counting of past due days;
- At Bank 3, Bank 5 and Bank 7 – the rule that borrower, under certain conditions, can modify the loan repayment schedule (e.g. rate, length, bullet repayment, change of instalment payment date) is not considered in the NDD policies or procedures for counting past due days;
- At Bank 5, Bank 8 and Bank 10 – there are unresolved issues concerning the suspension of deadlines. Hereto, the relevant NDD policies/procedures do not regulate the case of postponing deadlines and/or giving temporary extensions that results in counting of past due days on the new date based on the new timetable;
- At Bank 10 – the counting of past due days fails to include the case where the postponement must be granted on the future due date not yet due and the obligor must settle the arrears before the postponement of the future due date.

Clarifying the issues revolving around the past due days, when the credit agreement expressly allows the obligor to modify the schedule, suspend or defer payments under certain conditions, and the obligor acts in accordance with the rights granted by the contract, the payments of which

the schedule have been changed or those whose payment have been suspended or postponed should not be considered as a default, but the counting of past due days should be based on the new schedule. At this point, if the obligor changes the schedule, suspends or postpones payments, the participating banks should analyse the reasons for this change and should assess the possible signs of a UTP in accordance with Article 178(1) and (3) of the CRR and pursuant to Section 5 of the EBA Guidelines.

The paper notes that the use of contractual clauses that are executed at an obligor's discretion allows the obligor to modify the conditions of the contract. As shown in Figure 1, such cases can be regarded as situations of emergency restructuring considered as a UTP when the obligor is assessed to experience financial difficulties. It should be noted that a bank can always refuse to modify the schedule and contractual clauses when an obligor is flagged as 'at risk' (already in arrears). Thus, the activation of the contractual clauses is not exclusively at the discretion of the obligor. The UTP and consequently a default can be applied based on the negative outlook when the obligor is subject to extensions of deadlines (Figure 1).

In addition to the problems with recognising changes to the paying schedules, the majority of the participating banks lack solutions for the treatment of mergers and acquisitions in the NDD procedures. In a merger or acquisition case, the counting of past due days should start from the point when a different entity/person agrees to pay the obligation. This paper considers three scenarios for the treatment of mergers and acquisitions:

Scenario 1. Acquisition of a majority/minority stake: the legal entity with outstanding credit obligation in arrears changes the ownership, but continues to exist. Its rights and obligations remain unchanged. At this point, without the clear commitment from the new shareholder or new shareholders, Bank 1, Bank 5, Bank 6, Bank 7 and Bank 9 still continue to reset the number of past due days to zero.

Scenario 2. Merger by absorption of assets and liabilities: the receivables change owners. The new buyer takes over the credit obligation to be repaid. At this point, Bank 1 and Bank 4 do not reset the past due days and Bank 8 does not re-start the counting of past due days from the moment when the buyer acquires the obligation.

Scenario 3. Merger by absorption of assets and liabilities: the buyer decides to renegotiate the loans and requests modifications to the repayment schedule. In this case, the counting of past due days should be based on the new schedule that is approved by both counterparties. This, however, is not the practice at Bank 1, Bank 4 and Bank 7.

Reviewing the concept of counting past due days, the paper points to another issue that should be clarified within the NDD procedures and relevant policies by the participating banks. Namely, some of the banks do not take a stance on the case when an obligor changes its name. In this case, the counting of past due days should not be changed. However, when the repayment of the obligation is subject to a dispute between the obligor and the bank, the counting of past due days may be suspended until the resolution of the dispute and when at least one of the following conditions are met:

Condition 1. The dispute concerning the existence or the amount of the credit obligation has been submitted to a court of law.

Condition 2. The dispute concerning the existence or the amount of the credit obligation is subject to another official procedure led by an external specialised party (e.g. arbitration) giving rise to a binding decision in accordance with the legal framework applicable to the relevant jurisdiction.

Condition 3. In the specific case of leasing, a formal complaint was sent to the bank concerning the subject of the contract and the merits of the complaint have been confirmed by an independent audit or another equivalent independent audit unit.

Table 3 shows how many of the participating banks consider the aforementioned conditions for the counting of past due days. At this point, only Bank 2 and Bank 3 analyse all three of these conditions. However, Bank 2 also looks into disputes between customers and suppliers or between property developers and buyers that should be outside of the consideration for the suspension of past due days, because these disputes are not linked to the bank.

It has also emerged from the interviews that not all material past due days are identified at the participating banks. Nonetheless, the percentage of the obligors that have at least one material past due day not identified remains small – falling between 0.26% and 0.47% of the retail and non-retail portfolios across the participating banks. These omissions are usually attributed to errors in the coding of the NDD databases. For example, at Bank 1, if an obligor suffered material past due days, but managed to improve its situation and suffered again material past due days at any point after the improvement, the new material past due days are not identified. Nevertheless, all the impacted obligors at Bank 1 were eventually set to default due to a UTP.

Summarising the above paragraphs, it appears that the participating banks miss certain elements of counting past due days from the NDD implementation. These omissions can lead to an underestimation of the number of defaults for calculating new default rates, and consequently an underestimation of the own funds requirements (RWAs) stemming from poorly recalibrated PD models. In some cases, the participating banks may opt for an additional margin of conservatism applied to the PD estimates in order to compensate for the shortcomings in the calculation of past due days.

4.4. Systemic and technical default

Pursuant to Article 22 of the EBA guidelines, the classification of the obligor to a defaulted status should not be subject to any additional expert judgement. Once the obligor meets the past due criterion, all exposures to that obligor are considered defaulted, unless the 'technical' past due situation occurs. Given the above, this paper reviews the rules applied by the participating banks for the systemic and technical defaults.

As it transpires, the participating banks attribute the defaulted status in an appropriate manner to both the retail and non-retail obligors based on the correct NDD thresholds shown in Table 4. With the NDD thresholds in place, the participating banks consider the affected obligor to suffer from a systemic default and no additional expert judgment is exercised.

Moving forward, the current paper reviews the correctness of the technical default conceptualisation at the participating banks. Table 5 provides validation checks for the NDD components related to the technical defaults. As shown in Table 5, the participating banks experience problems in embracing the notion of a technical default under the NDD.

Complementing Table 5, it should be noted that the participating banks fail to document and define the processes for detecting technical past due days in their internal procedures. There are also shortcomings in defining and documenting the audit trail between the technical past due days and the systemic default. At this point, at some of the participating banks the technical past due days degrade the quality of the obligor and, due to incorrect treatment, lead to a defaulted status.

The problems do not end at inadequate recognition of technical defaults. Some of the participating banks do not remove the cases of technical defaults from the reference dataset that feed the model

redevelopments under the NDD. This failure results in an incorrect estimation of risk parameters and using inflated default rates for PD model recalibrations.

Summing up, the participating banks are fully compliant with the NDD aspects regarding the absolute and relative thresholds, but gaps emerge in relation to the recognition and treatment of technical past due days. Improvements are also needed to the documentation of internal procedures, especially in the area of defining the audit trail between the technical past due and the default.

4.5. Calculating materiality threshold

As noted in the previous section, all the banks use correct NDD thresholds for retail and non-retail obligors. Pursuant to the EBA's guidelines, the materiality threshold is a threshold which, once crossed, triggers default when the number of consecutive past due days at the obligor level exceed 90 days. It should be noted that the mechanism for calculating past due days is based on the obligor-level. Therefore, under the NDD, the participating banks report on a default status in terms of past due days and the amount of credit obligation without taking into account own strategies (e.g. trading).

Table 6 presents some detailed checks for the correctness of calculating materiality thresholds by the participating banks.

There are, however, some inconsistences at the participating banks in the internally developed NDD procedures for stopping the count of past days when one of the obligor's materiality thresholds returns below the NDD-defined level. Therefore, the paper sheds some explanatory light on this issue in relation to the default triggering:

1. When the absolute or relative threshold is not breached on the calculation date, there is no counting of past due days – this rule is respected by all the banks.

2. The obligor is in default when two limits of the absolute and relative component of the materiality threshold are breached for 90 consecutive days. The obligor enters default on the 91st day – this rule is respected by all the banks.

3. It is sufficient to stop the counting of past due days (and reset the counting to zero) when the thresholds return below the absolute or relative limits due to the partial or total reimbursement – this rule is not respected at Bank 4 and Bank 5.

4. The counting of past due days is carried out on a daily basis. However, in exceptional cases, when the bank cannot calculate the past due days on a daily basis, a frequency of calculation should be established such that default can be identified in appropriate time – this rule is not implemented in the NDD procedures at Bank 1, Bank 6 and Bank 7.

In order to aid credit institutions in developing appropriate procedures for calculating the materiality thresholds, this paper presents a model for the process of calculating the materiality threshold combined with the transversal management process. For the purpose of maximising practical implications, the model incorporates a global structure of an international bank with entities across different countries. This entails aggregating default/past due/UTP information at the local level and streamlining the information to the consolidated group level, as shown in Figure 2. Hereto, it should be noted that only Bank 2 operates a similar model and the remaining banks are unable to aggregate default information within a group due to the lack of adequate processes.

The following steps for calculating the materiality threshold and aggregating default data at the group level are proposed by the model:

Step 1. **Identification of default events at a subsidiary (local audit trail)**. Locally, data is collected and aggregated at the obligor level; calculation of the number of days of exceeding thresholds with the creation of an audit trail is performed; the subsidiary is responsible for the quality of the data processed (completeness, identification and processing of past due days); UTP indicators are identified.

Step 2. **Communication of default events (new daily flow)**. Communication on a daily basis of the past due days and UTP (amount of exposure; amount of overdraft; UTPs). In the case of disruption to the daily flow and the interval of information feeds exceeding a daily frequency, the information on the past due days and UTP is entered into the Workflow and the monthly data is used for the calculation of the past due criteria.

Step 3. **Consolidation of default events at the Group level**. Calculation of the number of past due days per obligor above the consolidated group thresholds defined in the NDD. Use of the new daily flow or monthly data depending on the circumstances. Group consolidated aggregation of past due days and exposures. Calculation of the number of days since the absence of past due criteria. Management of the duration of the observation period.

Step 4. **Group-level Audit Trail**

Step 5. **Restitution by flow and display in the Workflow**. The results of the calculations at the group level (with the group level thresholds used) are returned to the workflow for the subsidiaries and other departments (e.g. Front Office; Collection) and default managers.

Step 6. **Issue of Alerts via the Workflow**. Alerts are generated in order to communicate to the various subsidiaries about the UTP, past due days and the obligors being financed.

Step 7. **Use by departments and subsidiaries**. Not only the relevant departments, but subsidiaries are kept informed about the situation so preventive actions can be taken against certain obligors (e.g. recovery procedures; granting of additional credit lines etc.).

Summing up, the lack of the operational model enabling the participating banks to gather default information across all subsidiaries results in the underestimation of key risk parameters as well as the capital requirements. Currently, the data from subsidiaries and other entities remain unavailable in the core banking systems at the participating banks (with the exception of Bank 2) and the relevant subsidiary-related defaults are not considered in the reference datasets for the NDD recalibration/redevelopment of the IRB PD models. This issue gains in prominence given Article 34 of the EBA Guidelines, which allows banks' subsidiaries to determine defaults on the basis of lower thresholds. In doing so, the subsidiaries of the participating banks can use more conservative thresholds if they can demonstrate that these measures constitute a relevant sign of a UTP and do not produce an excessive number of defaults followed by an immediate return to the non-defaulted status. In the current setups, no information regarding the defaults or changes in the utilised thresholds are effectively communicated across the groups of the participating banks. Recognising this limitation, Bank 3 implements a margin of conservatism to the PD estimates. Bank 1 assessed this issue as immaterial in terms of EAD/RWA as well as the number of impacted obligors in relation to the PD reference datasets due to having a small number of subsidiaries. The remaining banks chose not to escalate the fact that they lack an operational solution for the process that integrates all default data across the group.

4.6. Use of unlikeness to pay indicators (UTPs)

All of the participating banks have developed and implemented UTPs and this section checks the correctness of these indicators under the NDD. If any of the UTPs are activated, the obligor is automatically classified as in default. Against this backdrop, Bank 1 and Bank 10 already display signs of the NDD compliance gaps due to the problematic nature of their UTPs that are assigned by relationship managers, often upon requests from the compliance team to monitor a given obligor. In these cases, the UTPs do not necessarily indicate unlikeliness to pay.

This paper points to the EBA Guidelines that specify various indicators of UTP, providing some of the quantitative thresholds for triggering the default. During the interviews, focus was placed on the processes of supplementing the existing indicators and their overall exhaustiveness in capturing the possible scenarios of unlikeness to pay. Thus, the following UTPs are analysed in the paper:

Non-accrued status

Pursuant to Article 35 of the EBA Guidelines, institutions should consider that an obligor is unlikely to pay where interest related to credit obligations is no longer recognised in the income statement of the institution due to the decrease of the credit quality of the obligation. Under the IFRS 9, some of the participating banks do not recognise interest not collected when the outstanding amounts are in a doubtful state. Thus, stopping the recognition of accrued interest and their non-collection is linked to the decline in credit quality – where the obligor is already flagged as being in default. Hereto, the decrease of the credit quality would be the first UTP trigger and a cause of a default flag followed by the non-recognition and non-collection of accrued interest at Bank 1, Bank 2, Bank 3 and Bank 9.

Specific credit risk adjustments

Under the IFRS 9, the participating banks consider an exposure as default, when it is treated as credit-impaired and assigned to Stage 3. Hereto, all exposures in Stage 3 of IFRS 9 Financial Instruments are considered as defaults. This paper confirms that the choice to rely on the IFRS9 Stage 3 classification for the UTP and default is a consistent practice among the participating banks. Furthermore, there are no unwarranted switches to different accounting frameworks for classifying exposures as impaired/defaulted.

Sale of the credit obligation

Pursuant to Article 42 of the EBA Guidelines, the sale of credit obligation is not considered as a default indicator if it is not linked to the credit risk, but there is the need to increase the liquidity of the institution or there is a change in business strategy, and the institution does not perceive the credit quality of those obligations as declined. In this vein, the paper conducts a robustness test for specific cases of selling the credit obligation in order to check if the participating banks consider the link to credit risk correctly. The robustness check embarks on presenting several cases where the sale of credit obligation is not linked to the credit risk and is not influenced by the deterioration in the credit quality of the obligation. The respondents to the tests were required to correctly analyse the cases. The results of the robustness check are presented in Table 7.

Table 7 informs about discrepancies in the treatment of the sale of the credit obligation by the participating banks. As it transpires, some of the banks classify these specific cases incorrectly as UTPs. There is no uniform approach to the default classification of the sale of the credit obligation leading to compliance gaps with the NDD. Complementing the robustness check, the paper notes that the following rules should be in place regarding the sale of credit obligation:

- When the sale of credit obligation is linked to credit risk / credit quality decline, then the bank is required to calculate the 5% materiality threshold as indicated in Art. 44 in the EBA Guidelines. Only the credit obligations breaching this threshold should be regarded as an indication of default.
- In the case of a partial sale of the total obligations of an obligor, where the sale is associated to a material credit-related economic loss, all the remaining exposures to this obligor should be treated as defaulted.

Distressed restructuring

Pursuant to Articles 49 and 50 of the EBA Guidelines, the distressed restructuring can be a sign of probable non-payment when the debtor is in a non-default status. Reviewing the UTP operational procedures at the participating banks in relation to the distressed restructuring, Table 8 analyses specific steps for the calculation of the reduction in the financial obligation.

The paper confirms that the majority of the banks set the threshold at which the reduction in the financial obligation is significant at 1%, which is correct from the regulatory standpoint. However, it has emerged during the interviews that the operational procedures for this UTP remain too high and fail to explain what should be done in the case of not breaching the 1% threshold; and in relation to the specific treatment of such obligors. Therefore, Figure 3 specifies a decision tree for the assignment of the UTP based on the 1% threshold for the diminished financial obligation.

For the non-retail obligors, Figure 3 points to additional validation tasks of the default if the deterioration of the financial obligation is less than 1%. In this vein, the participating bank should analyse other characteristics linked to the distressed restructuring, including:

– the possibility of paying a large lump sum at the end of the repayment period,
– an irregular, progressive repayment schedule,
– a significant grace period at the start of the repayment schedule.
– the fact that the debtor's exposures have undergone emergency restructuring more than once.

As it transpires, none of the participating banks utilises additional analysis of the above characteristics to trigger a default for the UTP threshold below 1%. Furthermore, for the retail obligors, the paper points to the fact that there is no expert analysis of cases where the reduction in the financial obligation is less than 1% at the participating banks.

The participating banks justify the aforementioned omissions in the following ways:

- Bank 1, Bank 2 and Bank 8: significant grace periods are generally granted to debtors who are the subject to collective proceedings and already in default (UTP Bankruptcy);
- Bank 3: the repayment schedule is linear;
- Bank 1, Bank 6, Bank 7 and Bank 8: the conditions that are subject to modifications are limited to:
  – the extension of the duration of the loan (thus not generating financial deterioration),
  – the modification of the interest rate, generally upwards to take into account the increase in risk;

- Bank 2, Bank 9 and Bank 10: when the obligor is requesting another restructuring, it is already in default (for a reason of significant arrears, negative prospects etc.) and following the first restructuring measure.

Forbearance

Numerous NDD issues revolving around forbearance are especially problematic for the participating banks. Most troublesome remains the treatment of the loan consolidation where a credit institution wishes to capitalise on the forborne exposures or doubtful loans. At this point, Bank 6 is unable to link the old and new loans in order to calculate the consolidated outstanding arrears and past due days.

At Bank 2, Bank 3 and Bank 10, for credit granting under forbearance, loans granted under such circumstances are not automatically considered as forbearance. At Bank 5 and Bank 7 the credit granting under forbearance leads to a UTP. However, Bank 2 is of the opinion that, legally, such cases are not forbearance and should not be subject to the calculation of the diminished financial obligation.

It has emerged during the interviews that one of the most problematic issues in relation to the forbearance is to find out how to deal with the case of falling interest rates that still remain higher than the average rate offered on the market when the obligor is ranked forborne. The participating banks are not in a position to address the issue of falling interest rates. Operationally, to eliminate the unwarranted concessions, the participating banks must use a reference rate reflecting the average market interest rate by loan category. None of the banks was able to construct such a rate. Bank 2 reviewed potential vendors supplying the necessary information, but no decision was taken for any collaboration in this space.

The paper checks the alignment of the non-performing and forborne classifications with the Basel regulations in order to test the convergence between the non-performing status and a default at the participating banks. Table 9 contains the assessed criteria.

Bankruptcy

Bankruptcy is flagged by an adequate UTP at all the banks in relation to the insolvency procedures. This UTP is usually viewed as a case where the bank or the obligor applies to the courts for the bankruptcy or a similar measure concerning the loan obligation.

Clarifying the definition of a UTP and pursuant to Article 56 of the EBA Guidelines, the paper has determined the following measures, considered as measures leading to bankruptcy and constituting signs of unlikeness to pay that trigger defaults:

– request to open a bankruptcy procedure – respected by all the participating banks;

– request to open an accelerated bankruptcy procedure – respected by all the participating banks;

– request to open an accelerated financial safeguard procedure – not recognised by Bank 1, Bank 6 and Bank 7;

– request to open a litigation procedure – not recognised by Bank 7.

To summarise, the review of the utilised UTPs reveals some deficiencies that impact to a varying degree on the appropriate recognition of defaults and the level of DRs that are conditioned on the UTPs in the reference datasets for PD modelling. The paper points to the issues and challenges revolving around the exhaustiveness of the forbearance and distressed restructuring flags at the participating

banks. In some cases, the UTPs are not reactive to external events due to procedural deficiencies. There is also an apparent lack of uniformity in the application of the UTPs across the participating banks.

4.7. Return to non-defaulted status

Given the fact that the probation period is a new notion for the participating banks and the existing NDD regulations do not clearly specify the start of the observation period, the paper sheds some explanatory light on the triggers for the three months observation period:

- When the overdraft is no longer significant: it is sufficient to start the observation period when one of the two thresholds (absolute or relative) is no longer reached and when the overdraft is considered non-significant. Example: the obligor has 5 monthly payments that have not been regulated (remain due). The obligor reimburses a monthly payment making the relative threshold < 1%.
- When the arrears at the obligor level are less than 90 days. This is only true when the default event is other than the UTP.
- When there are no more active UTPs triggering the default. It should be noted that some UTPs do not require a minimum observation period of 3 months, but longer.

For the conditions of exiting the default and stopping the probation period, the paper checks the compliance of the process with Article 71 of the EBA Guidelines. Table 10 tests the purpose-designed conditions that should trigger the reclassification to a non-defaulted status by the participating banks.

The participating banks assume that when an obligor has a new UTP trigger during the probation period, the obligor has a default status associated with the UTP and then the probation counter is reset. However, the paper notes that there are more cases of prolonging the probation period that should be taken into consideration.

The first case assumes that no default event is triggered during the probation period, but significant arrears at the debtor level for more than 30 days are noted. At this point, an observation period of at least 3 months is reset immediately after the 30 days of significant arrears until the absence of significant arrears for more than 30 days and the absence of significant arrears at the end of the observation period. This process has not been observed at Bank 4 and Bank 5.

The second case assumes that no default event is triggered during the probation period, but at the end of the 3-month period, a significant overdraft appears (above the materiality thresholds), but whose past due days count is below 30 days. In this case, the obligor is kept in default and the observation period is extended until the overdraft becomes insignificant (i.e. the number of past due days is zero). This process is not adequately documented at Bank 5, Bank 6, Bank 7 and Bank 9.

The third case assumes that no default event is triggered during the observation period (in particular a UTP), or during the extension period (in particular for cases of past due days which may exceed 90 days). The observation period is stopped in this case and the obligor is considered to be in default. The observation period is reset when these default events are no longer active. This process is not followed at Bank 1, Bank 5 and Bank 7.

As far as the conditions for the non-default reclassification of distressed restructuring are concerned, the paper points to the absence of defined internal rules in the NDD methodologies and procedures at the participating banks. Operationally, Bank 1, Bank 4, Bank 5, Bank 6, Bank 7 and Bank 10 do not take into consideration specific elements at the start of the NDD observation

period under the distressed restructuring or forbearance. Recognising these shortcoming, Figure 4 provides guidelines for the process of the default reclassification under the distressed restructuring or forbearance. Hereto, different plausible scenarios are considered and analysed.

Summarising Figure 4, for the absence of significant arrears at the end of the observation period, operationally, the obligor exits default when – at the end of the probation period – there are no significant arrears. For the case where no UTP is applicable, a credit institution must verify that – at the end of the probation period of minimum 1 year – there are no active UTPs. This concerns any new UTP registered after the start of the observation period.

In conclusion, the qualitative review shows that the participating banks struggle with finding a working solution for the end of the probation period under the forbearance or distressed restructuring. The outlined scenarios indicate the need for understanding that no chronological order is imposed on the loan instalments. This is due to the assumption of unpaid instalments at the end of the probation period on the forborne contract. Therefore, as advised in this paper, banks should ensure that payments are made on the agreed dates under the restructuring terms. Furthermore, in the case of not granting any partial reduction of the claim while the obligor settles the debt before the restructuring agreement, no checks should be made before the obligor exits the defaulted status. The aforementioned tactical solutions are absent at the participating banks, whose PD reference datasets tend to overestimate DRs in this space. This is due to the fact that the reference datasets do not incorporate cases where the prolongation of the probation period is possible and are built on the oversimplified assumptions that any new UTP emerging during the probation period signifies a default. Although such an approach is viewed by the participating banks as conservative, it does not fully reflect the NDD framework. To this end, the paper points to the fact that the EBA Guidelines do not specify the minimum period for extending the probation period.

4.8. Default contagion

This section reviews the NDD contagion rules defined for retail obligors by the participating banks: where there is a joint account or an obligor is linked to the business sphere. Under the NDD framework, the contagion is defined as exposure to two or more obligors equally responsible for the repayment of the credit obligation. The paper highlights that this definition does not extend to the credit obligations of a debtor guaranteed by another natural person or entity in the form of a guarantee or other credit protection. The qualitative query confirms that the participating banks recognise two major types of credit obligations:

– the debt is joint and each co-obligor is required to reimburse the joint creditor up to their share; or

– the debt is joint and several and each co-obligor is required to pay the total debt of the creditor.

Pursuant to Article 104 of the EBA Guidelines, the joint obligor should be treated as a different obligor derived from each of the individual obligors in the joint account. For example, when a couple (Mrs. X and Mr. Y) takes out a loan earmarked for the purchase of a car, the spouses are joint obligors to a credit institution. They must reimburse the joint debt until its end in solidarity, even in the event of separation or divorce, unless agreed otherwise. In fact, following Article 104 of the EBA Guidelines, there are three obligors: Mrs. X; Mr. Y and a joint obligor Mrs. X + Mr. Y.

Figure 5 shows a visual conceptualisation for the contagion scenarios. For Scenario 1, the joint--obligor (holding the joint account) is in default. In this case, the bank should consider that all of the joint credit obligations of the same set of obligors and all of the exposures of the obligors as defaulted. However, this contagion rule is not appropriate when one of the following conditions is satisfied:

- The late payment of a joint credit obligation is caused by a dispute between obligors participating in the joint obligation. This dispute must be submitted to a court of law or be the subject of an official procedure. In addition, the obligors taken separately should not have a worrying financial situation. This condition is not recognised at Bank 4 and Bank 7.
- Disputes in the event of the separation or divorce of the joint debtors can be considered as litigation. The joint-obligor's account is considered to be in default and the accounts of the obligors are in non-default status when they do not otherwise have a worrying financial situation. This condition is not recognised at Bank1, Bank 4 and Bank 7.
- The joint credit obligation represents an immaterial part of the total debtor's obligations. All of the participating banks have determined a quantitative threshold appropriately in this space.
- It should be noted that the default of the joint-obligor must not lead to the systemic default (but a UTP instead) of other joint-obligors holding other joint credit obligations towards other natural persons or entities not participating in the credit obligation which was initially placed in default. This condition is not documented at Bank 4.

Review of Scenario 1 implies the following:

- The joint-obligor (Mrs. Y + Mr. X) holding the C3 obligation is considered to be in default. If there were other joint obligations between Mrs. Y and Mr. X, the materiality threshold should be calculated on all the joint obligations of the same set of co-obligors (Mrs. Y + Mr. X) and therefore all the other joint obligations would be in default.
- Mrs. Y is in default – therefore C1 and C2 are in default.
- Mr. X is in default – therefore C4 is in default.
- The co-obligor (Mr. X + Sister) holding the joint obligation C5 is not systemically in default, but may present a UTP. The obligor (Mr. X and Sister) is not systemically in default. This implies further that the obligor (Sister of Mr. X) is not systemically in default. Thus, C6 is also not in default.

For Scenario 2, the individual obligor (holding the joint account) is in default. In this case, the default event is the number of past due days > 90 days on the material total obligation (C1 + C2) of Mrs. Y. Review of Scenario 2 implies the following:

- Mrs. Y is in default – therefore C1 and C2 are in default.
- The joint-obligor (Mrs. Y + Mr. X) in not systemically in default but presents a UTP (e.g. matrimonial property can be an indicator). Indeed, in the event of full mutual responsibility for all of the obligations, the default of one of the obligors must be considered as a UTP of the other obligor.
- Mr. X is not systemically in default. Thus, if Mr. X is judged to be in default based on the UTP, then the obligor (Mr. X + Sister) can be in default based on the UTP, and this can generate default of Sister of Mr. X.

For Scenario 3, both of the individual obligors (holding the joint account) are in default. Under this scenario, the default event is the number of past due days > 90 days on the material total obligation (C1 + C2) of Mrs. Y and the obligation C4 of Mr. X has undergone distressed restructuring with the financial loss greater than 1%.

Review of Scenario 3 implies the following:

- The joint-obligor (Mrs. Y + Mr. X) holding the C3 obligation is systemically in default.
- The impact of the NDD contagion on the obligor (Mr. X + Sister) and Sister of Mr. X is identical to Scenario 2.

As far as the NDD contagion between the retail and business sphere is concerned, pursuant to Article 101 of the EBA Guidelines, banks must analyse the legal forms of the entities and the extent of the liability of owners, partners, shareholders or managers for the obligations of a company according to the legal form of the entity. However, as it transpires, the internal procedures dealing with the default do not specify the precise rules of the concept of the level of complete responsibility and the rules of contagion between the professional and private spheres of exposures to retail customers at Bank 1, Bank 4, Bank 6, Bank 7 and Bank 8.

In conclusion, the NDD contagion is defined at some of the participating banks in a way that leads to a potential bias in recognising defaults across joint obligors. This section has presented several scenarios to further clarify the aspects of the NDD contagion, where the systemic default does not apply. Furthermore, the qualitative query has found out that, in certain cases of the NDD contagion between the business and private spheres, the participating banks do not adequately define the contagion rules.

5. Conclusions

Reviewing the implementation of the NDD across a sample of the European IRB banks, this paper has shown major shortcomings, challenges and pitfalls in the NDD rollout. The results of the qualitative query undermine the regulatory assumptions that the NDD serves to harmonise the use of the default definition across institutions and jurisdictions. Contrary to the assumptions made by the EBA, the review of the banks' practices reveals that the failures in the NDD implementation across the impacted credit institutions further contribute to the RWA variability.

Reviewing the NDD progress across several axes (NDD launch; concept of default; return to a non-defaulted status; default contagion), the majority of the participating credit institutions are not ready to embrace this regulatory-induced change. At this point, the qualitative findings serve to reject the hypothesis that EU credit institutions have adequate NDD implementation processes that ensure compliance with the EBA's guidelines.

The reported challenges emerge at various stages of the NDD implementation, ranging from failures at keeping the registry to gaps in the defined default contagion rules. As far as the key concepts of defaults are concerned, the operational flaws related to the treatment of loan fees often lead to the non-recognition of the overdraft and an underestimation of default risk. There are also omissions in the counting of past due days that result in a significant underestimation of default risk, which has to be addressed through the means of applying a margin of conservatism to the utilised PD models.

Although the banks exhibit full compliance with the NDD aspects regarding the absolute and relative thresholds, there are issues revolving around the recognition and treatment of technical past due days. Moreover, the banks struggle with establishing sound models that gather relevant default information (e.g. from subsidiaries or counterparties with no credit exposure). There also issues related to the application of the UTPs and their exhaustiveness for the forbearance and distressed

restructuring scenarios. Altogether, these gaps result in the underestimation of default risk and own funds requirements.

Upon analysing the specific aspects of the NDD rollout across the participating banks, this paper has yielded some practical implications. In this vein, the study designs NDD-related contagion scenarios advising the banking industry on cases where the systemic default should not apply. Recognising the gaps in implementing working solutions for the end of the probation period, the paper shows decision trees for the non-default reclassification of distressed restructuring that can be adopted as guidelines for internal rules in the NDD methodologies and procedures. Finally, the paper presents a functional model aiding global banks in the process of aggregating default data from subsidiaries under the NDD rules.

As far as any policy advice is concerned, the paper shows that the NDD does not decrease the variability in the RWAs. At this point, the regulators should improve their supervisory techniques. As it transpires, the ECB follows the same process of gathering information from targeted credit institutions, which boils down to interviewing key personnel at the banks and reviewing relevant documentation. It remains worrying how the NDD failures revealed in this paper could be omitted during the regulatory inspections and the NDD implementations have been approved by the ECB at all of the participating banks. Against this backdrop, the paper argues for a change in the regulatory approach from an intrusive supervision to a more partnership-based guidance.

Given the nascence of the discussed topics and the lack of similar research, the study is not free of limitations. The low number of the participating banks impacts on the generalisation of the findings. Thus, the rejection of the null hypothesis should be considered with caution. However, the study is able to show the NDD implementation areas that require improvement. The qualitative query provides valuable insights into the NDD pitfalls for prospective practitioners. The future study should seek to obtain relevant default data in order to introduce some quantitative analysis to the NDD rollout.

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Appendix

Table 1
Participating banks

Bank	Designation	Country	Department
Bank 1	D-SIB	Luxembourg	Internal Validation
Bank 2	D-SIB	Belgium	Internal Validation
Bank 3	D-SIB	France	Credit Risk Management
Bank 4	G-SIB	France	Credit Modelling
Bank 5	D-SIB	Germany	Credit Data Science
Bank 6	G-SIB	Germany	Internal Audit
Bank 7	D-SIB	Germany	Governance
Bank 8	D-SIB	Netherlands	Internal Validation
Bank 9	D-SIB	Netherlands	Internal Validation
Bank 10	D-SIB	Netherlands	Internal Validation

Table 2
NDD launch elements requested by the ECB

Institution	Registry	Gap analysis	Impact analysis	Action plan	IT infrastructure
Bank 1	no issues	limited compliance gap analysis no assessment of necessary IT adjustments	no detailed impact on RWA	no action plan for updating IT procedures	incomplete documentation on the review of IT infrastructure
Bank 2	the IRB models lack the use test	limited compliance gap analysis no assessment of IT systems used in default identification	no impact on portfolio properties	no action plan for updating IT procedures	incomplete documentation on the review of IT infrastructure
Bank 3	no issues	no process gap analysis	no issues	no issues	no issues
Bank 4	incomplete default definition history	limited compliance gap analysis no process gap analysis	no quantitative impact analysis (qualitative impact analysis used as fall-back)	use of an outdated version of the ECB action plan template	no issues
Bank 5	no implementation dates for past default definitions	no business gap analysis no assessment of necessary IT adjustments	no detailed RWA impact no impact on expected loss amounts	no estimation of the timeline for the implementation of all required changes	incomplete documentation on the review of IT infrastructure
Bank 6	incomplete default definition history	no compliance gap analysis no review of open regulatory obligations no process gap analysis	no impact on expected loss amounts	no action plan for changes to the rating systems	incomplete documentation on the review of IT infrastructure
Bank 7	no implementation dates for past default definitions	limited compliance gap analysis no policy review for necessary updates	no detailed impact on RWA	no action plan for process changes (policy updates)	no issues

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Institution	Registry	Gap analysis	Impact analysis	Action plan	IT infrastructure
Bank 8	lack of the definition of new absolute and relative thresholds in the credit policy	limited compliance gap analysis no review of open regulatory obligations	issues with the retrospective simulation of identified gaps	no issues	no issues
Bank 9	no issues	no review of open regulatory obligations no policy review for necessary updates	no impact on portfolio properties	no action plan for process changes (policy updates)	no issues
Bank 10	no track of past regulatory approvals for IRB models	limited compliance gap analysis	limited simulation	no issues	no issues

Table 3
Conditions for suspension of past due days

Institution	Condition 1	Condition 2	Condition 3
Bank 1	No	No	No
Bank 2	Yes	Yes	Yes
Bank 3	Yes	Yes	Yes
Bank 4	No	No	No
Bank 5	No	No	No
Bank 6	No	No	Yes
Bank 7	No	No	No
Bank 8	Yes	No	No
Bank 9	Yes	No	No
Bank 10	Yes	No	No

Yes – condition considered for the suspension of the counting of past due days.
No – condition not considered for the suspension of the counting of past due days.

Table 4
Systemic default (NDD)

Systemic default	Retail	Non retail
Absolute threshold	Past due EUR 100	Past due EUR 500
Relative threshold	Past due/On-balance sheet exposure ≤ 1%	Past due/On-balance sheet exposure ≤ 1%
Past due days	90	90

Table 5
Technical default conceptualisation

NDD technical default	Conceptualisation failures
Where an institution identifies that the defaulted status was a result of data or system error of the institution, including manual errors of standardised processes but excluding wrong credit decisions	Bank 2 and Bank 4 do not recognise the failure to enter the acceptance of the renewal of the authorisations (the renewal decision was granted and accepted by the debtor) as a technical default Bank 5 does not recognise the failure to enter the postponement of maturities on a loan (the postponement decision was granted and accepted by the debtor) as a technical default Bank 6 and Bank 8 failed to conceptualise the problems with merging accounts as a technical default Bank 7 does not recognise the amounts charged in the system to the obligor, but whose due date has not been reached as a technical default Bank 10 does not recognise computer bugs as a technical default
Where an institution identifies that the defaulted status was a result of the non-execution, defective or late execution of the payment transaction ordered by the obligor or where there is evidence that the payment was unsuccessful due to the failure of the payment system	Bank 2 does not recognise errors due to incorrect allocation of the account receiving payment as a technical default Bank 4, Bank 5, Bank 6 and Bank 7 do not recognise delays in execution linked to administrative hurdles in the context of binding foreign exchange as a technical default Bank 5 and Bank 7 do not recognise delays in execution linked to administrative hurdles in the context of taxation as a technical default
Where due to the nature of the transaction there is a time lag between the receipt of the payment by an institution and the allocation of that payment to the relevant account, so that the payment was made before the 90 days and the crediting in the client's account took place after the 90 days past due	Bank 1 does not recognise problems with book-keeping internal accounts as a technical default
In the specific case of factoring arrangements where the purchased receivables are recorded on the balance sheet of the institution and the materiality threshold set by the competent authority in accordance with point (d) of Article 178(2) of the CRR is breached but none of the receivables to the obligor is past due more than 30 days	Due to the lack of the described events, there are no relevant examples at the participating banks for recognising the factoring arrangements in relation to the consideration of a technical default

Table 6
Calculating materiality threshold

Materiality threshold component	Review comments
The absolute component	At all the banks, the absolute component is specified as the sum of all amounts in arrears of more than one day owed by an obligor to the bank on all credit obligations
The relative component	At all the banks, the relative component is specified as a ratio between the absolute component (numerator) and the total amount of exposures to this obligor appearing on the bank's balance sheet (denominator), excluding capital exposures (equity type instruments etc.)
Threshold denominator	At all the banks, the threshold denominator includes the capital remaining due not payable. In the case of securities, this is the reimbursement amount of the security At all the banks, the threshold denominator includes capital arrears and interest (including commissions and late payment interest) At all the banks, the threshold denominator includes accrued interest not due
Overdraft treatment	Regarding overdrafts, at all the banks, the numerator shows only the amount of the arrears, either the unauthorised amount or the amount exceeding the authorised limit At the level of the denominator, the total amount of the exposure used in the balance sheet is taken by all the participating banks
Consistency between the numerator and denominator	At all the banks, commitments given, financing or guarantee, are not included in the denominator for the purpose of consistency between the numerator and the denominator. As long as these commitments are not drawn, they do not enter the basis for calculating the relative component
Derivatives treatment	At all the banks, derivatives are not included in the basis for calculating the materiality threshold
Capital exposures treatment	At all the banks, capital exposures (e.g. stocks or any instrument that does not give rise to a repayment schedule) are excluded from the calculation of the denominator because they do not generate past due days at the level of the numerator
Balance sheet exposures treatment	At all the banks, the balance sheet exposures correspond to all debt securities and loans and advances (debt instruments: amortisable loans, overdrafts, discounts etc.)

Table 7
Sale of the credit obligation

Case description	Response from the banks	
	linked	not-linked
Execution of strategic plans	–	all banks
Respecting the limits on credit concentration risk in a specific industry sector	–	all banks
Willingness of the bank to reduce its exposure	Bank: 5, 6	Bank: 1, 2, 3, 4, 7, 8, 9, 10
Responding to the change in the economic strategy on counterparties	Bank: 4, 5, 6, 7	Bank: 1, 2, 3, 8, 9, 10
Change of type of financing	Bank: 5	Bank: 1, 2, 3, 4, 6, 7, 8, 9, 10
Regulatory restrictions on geographic areas	Bank: 4, 7, 8	Bank: 1, 2, 3, 5, 6, 9, 10
Increase in the liquidity	Bank: 5, 7	Bank: 1, 2, 3, 4, 6, 8, 9, 10
Conventional securitisation transactions with risk transfer	all banks	

Table 8
Distressed restructuring and the threshold for the diminished financial obligation

Item	Discovered NND non-compliance issues
Date of distressed restructuring	Does not correspond to the date of the renegotiation of the contract (date of the forbearance) at Bank 4 and Bank 7
Net present value of cash flows: NPV_0	Does not correspond to the general amount of the principal and the expected interest at Bank 4, Bank 5 and Bank 8 Unregulated due dates (arrears) are not included in cash flows as they are not considered expected by Bank 1, Bank 4, Bank 5 and Bank 7
Net present value of cash flows expected: NPV_1	Does not correspond to the new schedule (amortisation table) after restructuring expected by the entity (future) on the date of restructuring by applying the new loan conditions at Bank 4, Bank 5, Bank 6 and Bank 8 Does not correspond to the amount of principal and interest expected when applying the new conditions at Bank 1, Bank 4, Bank 5, Bank 7 and Bank 8 Restructuring costs and other costs related to the renegotiation transaction are not included in the expected cash flows at Bank 4, Bank 5, Bank 7 and Bank 8
Diminished financial obligation: D_0	Corresponds to a threshold for the diminished financial obligation that is considered to be caused by material forgiveness or postponement of principal, interest, or fees, and which should not be higher than 1% at Bank 4 and Bank 7

Table 9
Classification of forborne obligations

Assessed criterion	Comments
All non-default distressed restructuring contracts (having been in default) with a backlog greater than 30 days during the probationary period (2 years minimum) systemically switch to default	The probation period is set to 12 months at Bank 1, which is lower than the period used by the remaining banks (2 years)
All non-default distressed restructuring contracts (having previously been in default) undergoing a second distressed restructuring during their probationary period then switch to default. When the client has not gone through default status: if the client is undergoing a second restructuring, the reduction of the financial obligation must be calculated	The file is not re-classified as non--performing in this case at Bank 2, Bank 3 and Bank 10
When the bank grants a restructuring on a contract that has never been the subject of a restructuring, even if the obligor has already gone through default status: the triggering of the default is not systemic; the bank must calculate the reduction in the financial obligation of the restructured contract for the triggering (or not) of the default	The relevant UTP is not automatically de-activated as soon as the new restructured contract is enforced and the obligor has resumed its payments at Bank 5 and Bank 7

Table 10
Return to a non-defaulted status

Condition	Description	Bank 1	Bank 2	Bank 3	Bank 4	Bank 5	Bank 6	Bank 7	Bank 8	Bank 9	Bank 10
Absence of significant arrears not settled at the end of the 3-month observation period	This condition makes it possible, from an economic point of view and in the context of monitoring credit risk, to reclassify non-defaulting obligors with non-significant arrears (absolute threshold and/or relative threshold not breached) to a non-defaulted status	No	Yes	Yes	Yes	No	No	No	Yes	Yes	Yes
Taking into account the financial situation and the behaviour of the obligor	In addition to the absolute and/or relative threshold not being breached, banks can take into account the financial situation and the behaviour of an obligor. In this case, an obligor comes out of the probation period when no significant arrears for more than 30 consecutive days are observed during the observation period	Yes	Yes	Yes	Yes	No	Yes	No	No	Yes	Yes
Absence of UTP	When one of the default events occurs, either stemming from the significant arrears greater than 90 days past due or the UTP, after the start of the observation period, the latter will be stopped (suspended) and reset when this event is no longer satisfied/active	No	Yes	Yes	Yes	No	Yes	No	Yes	Yes	Yes

Yes – the specific condition triggered the reclassification
No – the specific condition did not trigger the reclassification

Figure 1
Change of repayment schedule

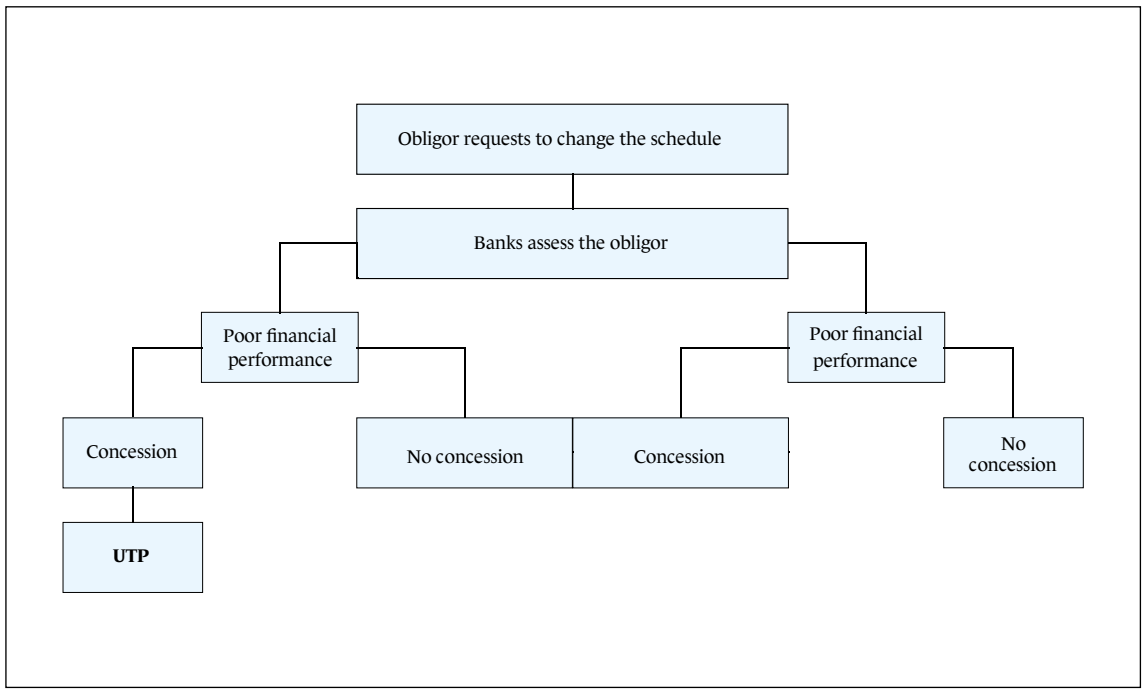
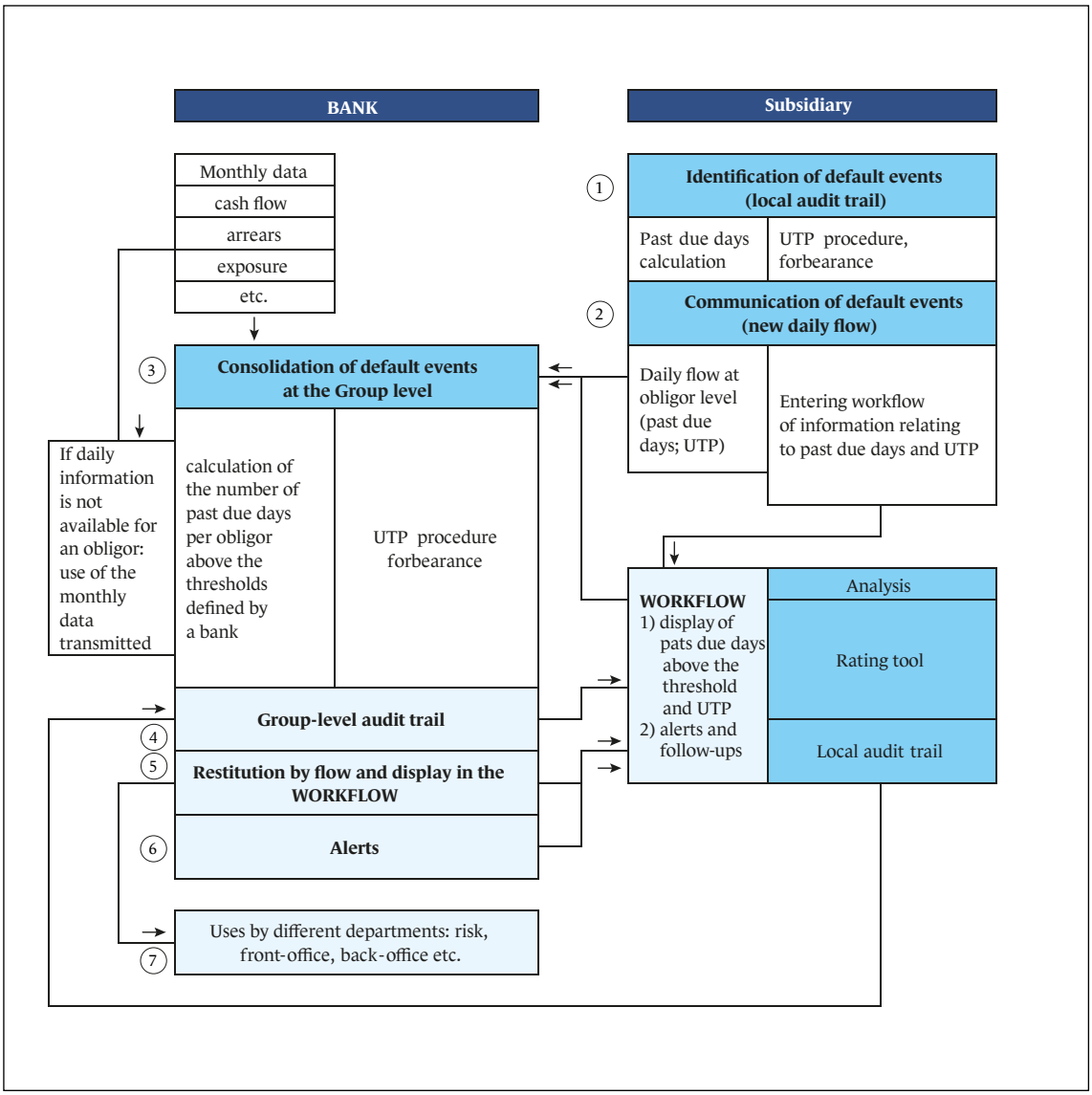


Figure 2
Model for materiality threshold calculation



① Step 1. Identification of default events at a subsidiary (local audit trail)
② Step 2. Communication of default events (new daily flow)
③ Step 3. Consolidation of default events at the Group level
④ Step 4. Group-level audit trail
⑤ Step 5. Restitution by flow and display in the WORKFLOW
⑥ Step 6. Issue of alerts via the WORKFLOW
⑦ Step 7. Use by departments and subsidiaries

Figure 3
Decision tree for distressed restructuring

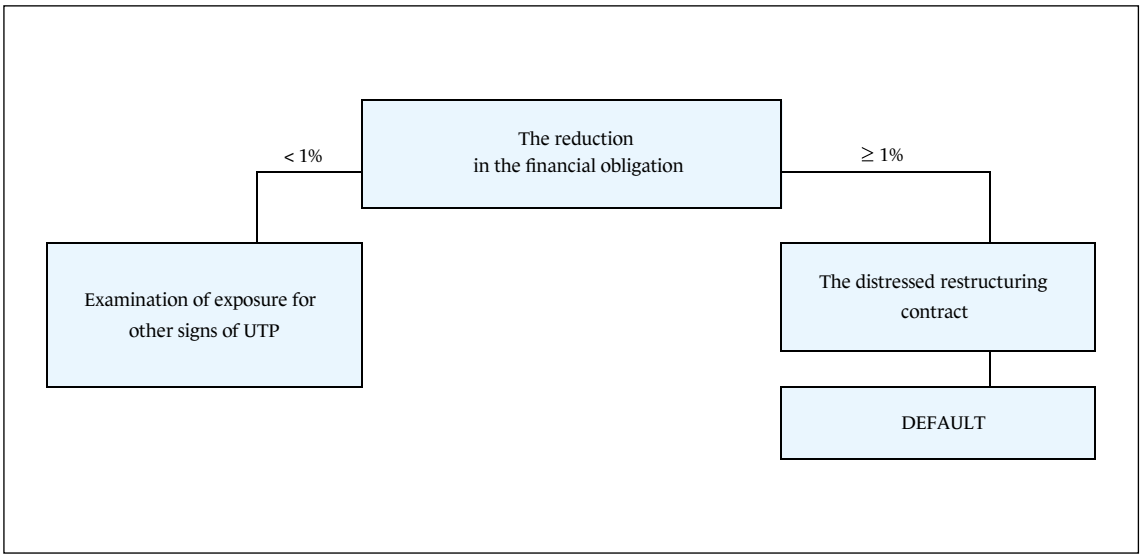


Figure 4
Default reclassification

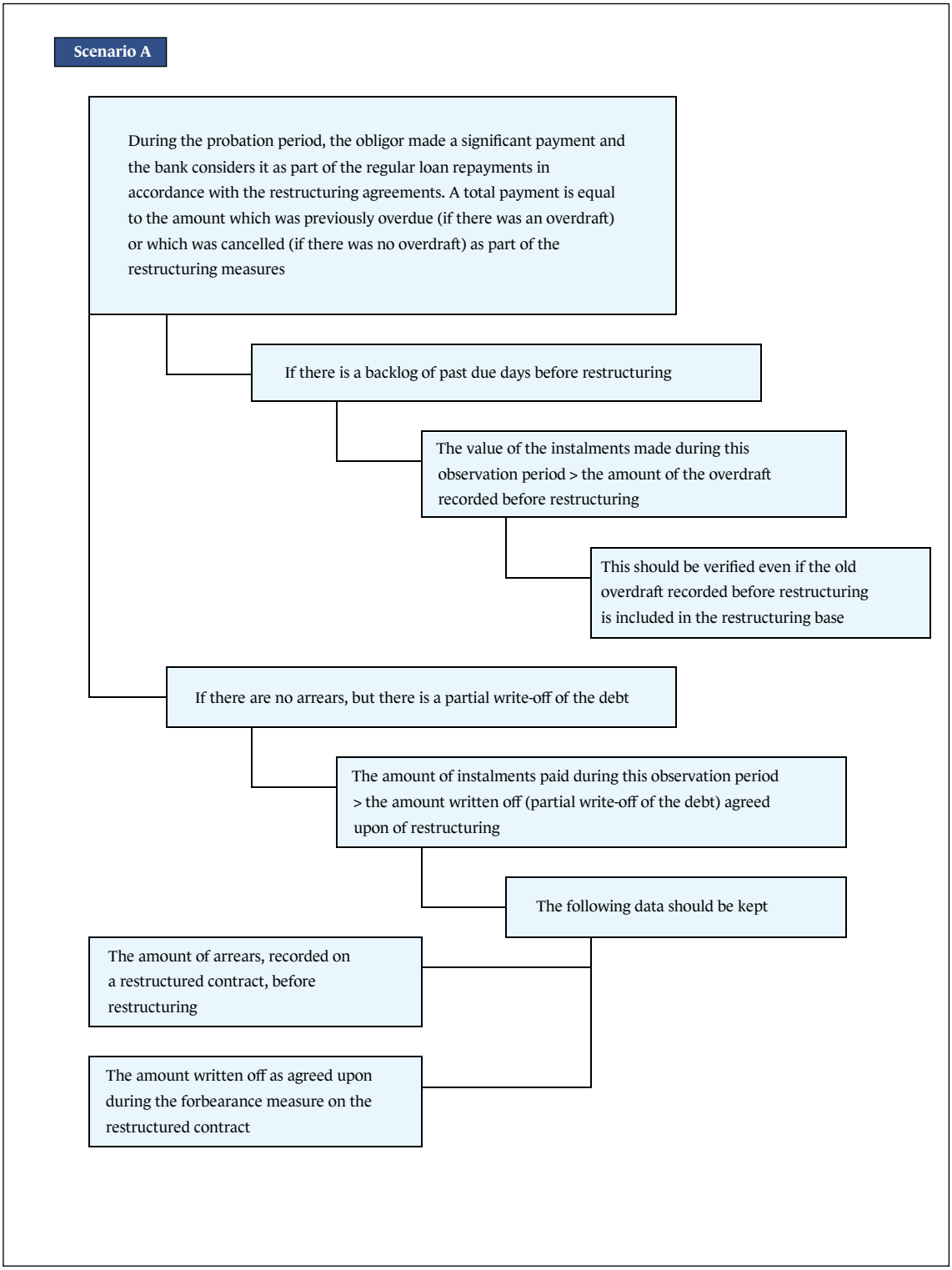


Figure 4, con't

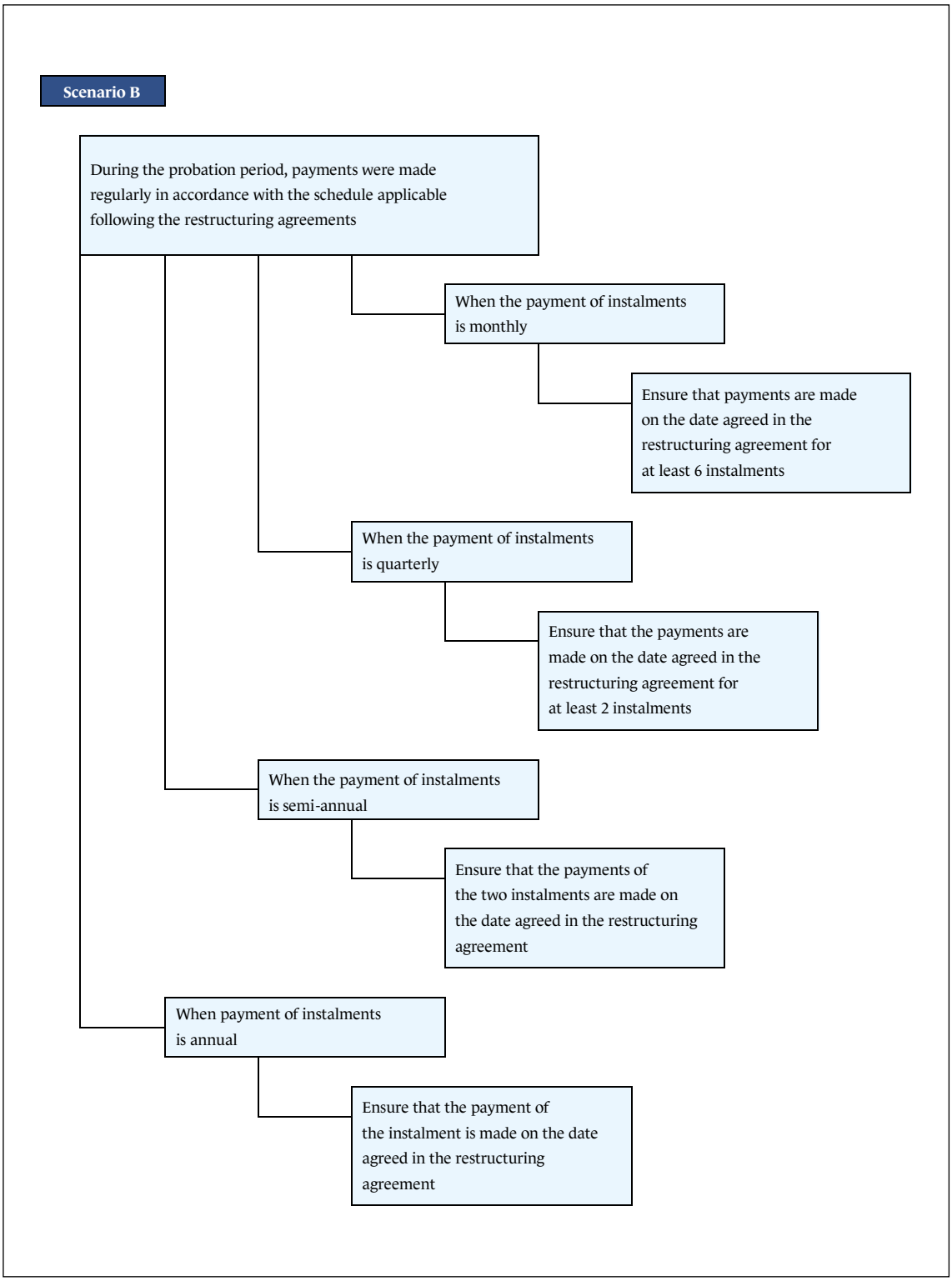


Figure 4, con't

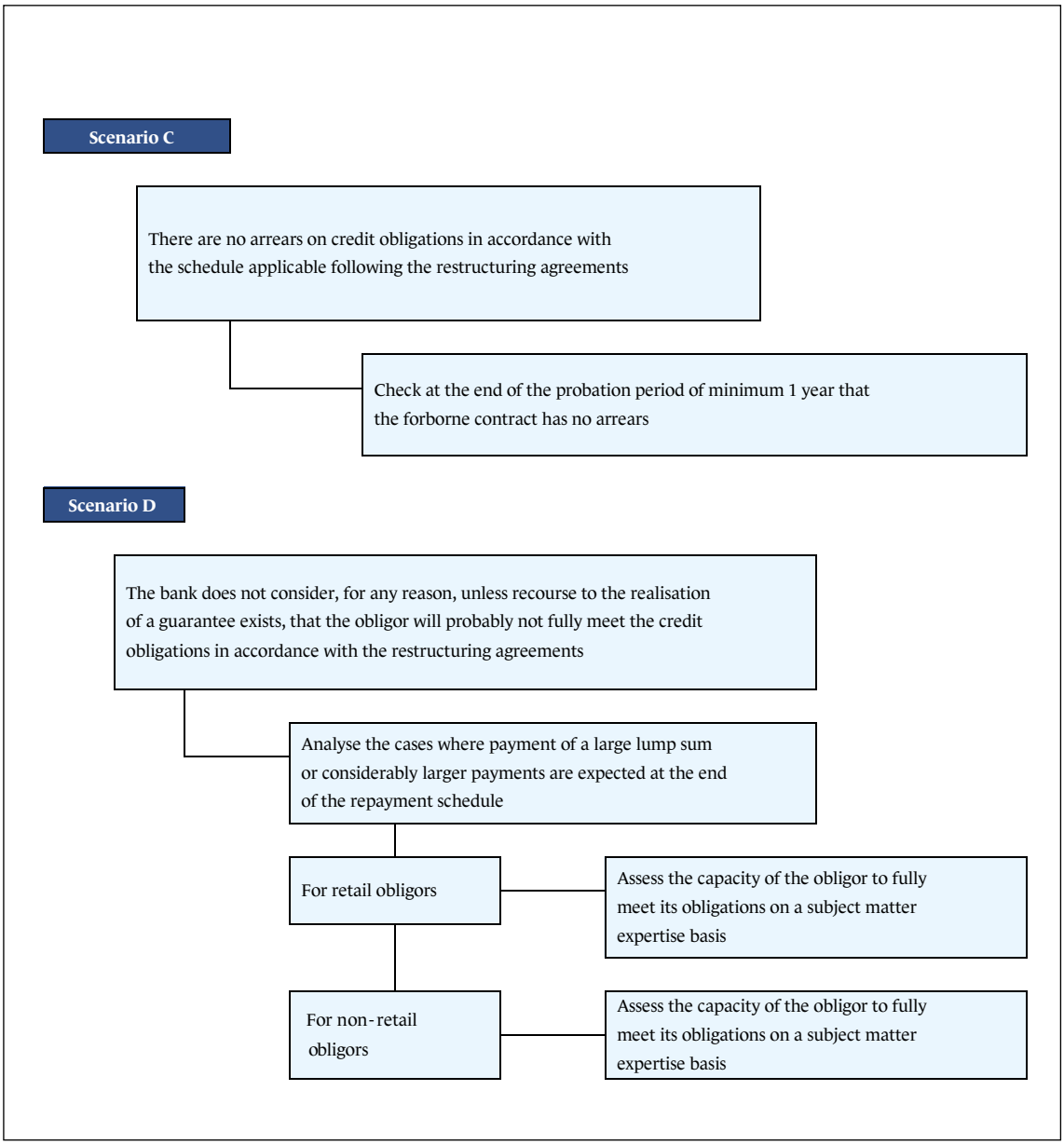
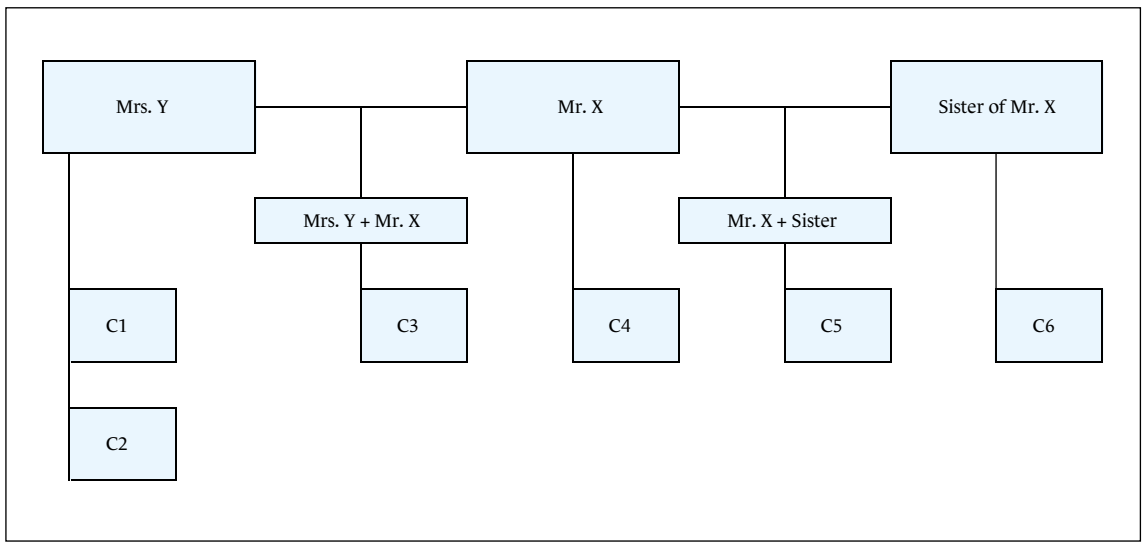


Figure 5
The joint-obligor (holding the joint account) is in default



Nowa definicja niewykonania zobowiązania

Streszczenie

We wrześniu 2016 r. w odpowiedzi na rosnącą zmienność wykorzystywanych przez banki sposobów identyfikacji niewykonania zobowiązania przez ich klientów Europejski Urząd Nadzoru Bankowego (EBA) opublikował wytyczne dotyczące definiowania niewykonania zobowiązania w instytucjach kredytowych. Uznając, że zastosowanie nowej definicji niewykonania zobowiązania (NDD) jest kwestią złożoną, EBA dał bankom znaczną ilość czasu na wdrożenie nowych regulacji. NDD weszło w życie w styczniu 2021 r., a w styczniu 2025 r. zostanie włączone do rozporządzenia w sprawie wymogów kapitałowych.

Dokonując przeglądu wdrożenia NDD w wybranych instytucjach kredytowych UE, w artykule poddano jakościowej ocenie twierdzenie twórców regulacji bankowych, że NDD służy poprawie porównywalności wewnętrznych modeli ryzyka kredytowego, a jednocześnie ujednolica stosowanie definicji niewykonania zobowiązania w różnych instytucjach i jurysdykcjach. W ten sposób sprawdzono hipotezę, że instytucje kredytowe UE są gotowe do wdrożenia NDD bez znaczących wyzwań. Na podstawie częściowo ustrukturyzowanych wywiadów przeprowadzonych na początku 2021 r. z 10 bankami z UE wskazano na dominujące przeszkody we wdrożeniu NDD, gdy uczestniczące banki walczą o zapewnienie pełnej zgodności z nowymi wytycznymi dotyczącymi definiowania niewykonania zobowiązania.

Motywacja do tego badania wynika ze znaczenia definicji niewykonania zobowiązania, która silnie oddziałuje na zarządzanie ryzykiem i spełnianie wymogów kapitałowych w instytucjach kredytowych. NDD ma istotny pośredni wpływ na aktywa ważone ryzykiem, ponieważ oddziałuje na modele wewnętrznych ratingów (IRB) i obliczanie oczekiwanej straty.

Oczekuje się, że wdrożenie NDD będzie stanowić poważne wyzwanie dla banków i wymaga dodatkowych zasobów w przypadku stosowania modeli wewnętrznych ratigów (IRB), gdyż zwykłe definicje niewykonania zobowiązania różnią się od NDD. Z tego powodu banki stosujące metodę IRB zmieniają nie podstawowe definicje niewykonania zobowiązania, ale całe systemy informatyczne do rozpoznawania i klasyfikacji niewykonania zobowiązania oraz rekalibracji i przebudowy modeli ryzyka kredytowego, a także projektują nową wewnętrzną politykę zarządzania niewykonaniem zobowiązania.

Z powyższych powodów w niniejszym artykule za kluczowe uznano omówienie wdrażania NDD w różnych instytucjach. Ustalenia w nim zawarte mogą zatem służyć jako dodatkowe wskazówki dla praktyków we wdrażaniu NDD. Istnieje wiele aspektów wdrażania NDD, od zdefiniowania koncepcji niewykonania zobowiązania po obliczenie nowych progów istotności i rozpoznanie zarażenia niewypłacalnością. Wszystkie te aspekty zostały omówione w niniejszym opracowaniu w celu przedstawienia kompleksowego obrazu wymagań, które niesie ze sobą wdrożenie NDD.

W artykule przyjęto perspektywę praktyka w odniesieniu do wdrażania NDD w przypadku różnych modeli ryzyka kredytowego. Z tego względu podstawowym źródłem informacji o wyzwaniach związanych z wdrożeniem NDD są wywiady z wybranymi specjalistami w zakresie zarządzania ryzykiem kredytowym w największych europejskich bankach. Celem wywiadów jest zbadanie, jaki postęp banki uczestniczące w badaniu poczyniły we wdrażaniu NDD. Zbadanie wpływu NDD

na modele ryzyka kredytowego, politykę wewnętrzną i procesy monitorowania/walidacji modeli jest ważne, ponieważ oczekuje się, że na różnych etapach wdrażania NDD pojawią się wyzwania. W artykule testowana jest następująca hipoteza:

H0: instytucje kredytowe UE opracowały odpowiednie procesy wdrażania NDD, które zapewniają zgodność z wytycznymi EBA.

Powyższa hipoteza jest odrzucana, jeśli wynik zapytania jakościowego potwierdzi, że większość banków uczestniczących w badaniu nie ma odpowiednich struktur dla NDD. Testowanie wpływu przyjętej polityki wewnętrznej na oszacowania parametrów ryzyka dokonywane przez banki stosujące wewnętrzne modele ratingów IRB jest w każdym przypadku bardzo trudne, ale pewien subiektywizm jest nieunikniony. Kontrole przeprowadzone przez EBA ujawniły liczne problemy z jakością danych – w szczególności w odniesieniu do reprezentatywności prób wybranych przez instytucje.

Dokonując przeglądu wdrożenia NDD na próbie europejskich banków stosujących IRB, w niniejszym artykule pokazano główne niedociągnięcia, wyzwania i pułapki we wdrażaniu NDD. Wyniki kwerendy jakościowej podważają założenia regulacyjne, że NDD służy harmonizacji stosowania domyślnej definicji niewykonania zobowiązania w instytucjach i jurysdykcjach. Wbrew założeniom EBA przegląd praktyk banków pokazuje, że niepowodzenia we wdrażaniu NDD w instytucjach kredytowych, których to dotyczy, dodatkowo przyczyniają się do zmienności aktywów ważonych ryzykiem.

Zważywszy na postęp we wdrażaniu NDD na kilku płaszczyznach (uruchomienie NDD, koncepcja niewykonania zobowiązania, powrót do braku niewykonania zobowiązania, zarażenie niewykonaniem zobowiązania), większość instytucji kredytowych uczestniczących w badaniu nie jest gotowa na przyjęcie tej zmiany wynikającej z przepisów. W tym momencie ustalenia jakościowe służą odrzuceniu hipotezy, że instytucje kredytowe UE opracowały odpowiednie procesy wdrażania NDD, które zapewniają zgodność z wytycznymi EBA.

Zgłoszone wyzwania pojawiają się na różnych etapach wdrażania NDD, od niepowodzeń w prowadzeniu rejestru po luki w zdefiniowanych domyślnych regułach zarażania. Jeśli chodzi o kluczowe koncepcje niewykonania zobowiązania, to wady operacyjne związane z traktowaniem opłat kredytowych często prowadzą do nieuznawania kredytu w rachunku bieżącym i niedoszacowania ryzyka niewykonania zobowiązania. Istnieją również pominięcia w liczeniu dni opóźnienia realizacji zobowiązań. Powoduje to znaczne niedoszacowanie ryzyka niewykonania zobowiązania, co należy rozwiązać przez konserwatywne podejście do stosowanych modeli oceny prawdopodobieństwa upadłości.

Banki zmagają się z tworzeniem solidnych modeli ryzyka, które gromadzą odpowiednie informacje o niewypłacalności (np. od podmiotów zależnych lub kontrahentów bez ekspozycji kredytowej). Luki te powodują niedoszacowanie ryzyka niewykonania zobowiązania i niespełnienie wymogów w zakresie funduszy własnych.

Słowa kluczowe: nowa definicja niewykonania zobowiązania; ryzyko kredytowe; Europejski Urząd Nadzoru Bankowego; rozporządzenie w sprawie wymogów kapitałowych