eba European Banking Authority

CALL FOR ADVICE FOR THE PURPOSES OF BENCHMARKING OF NATIONAL LOAN ENFORCEMENT FRAMEWORKS

(FINAL REPORT)

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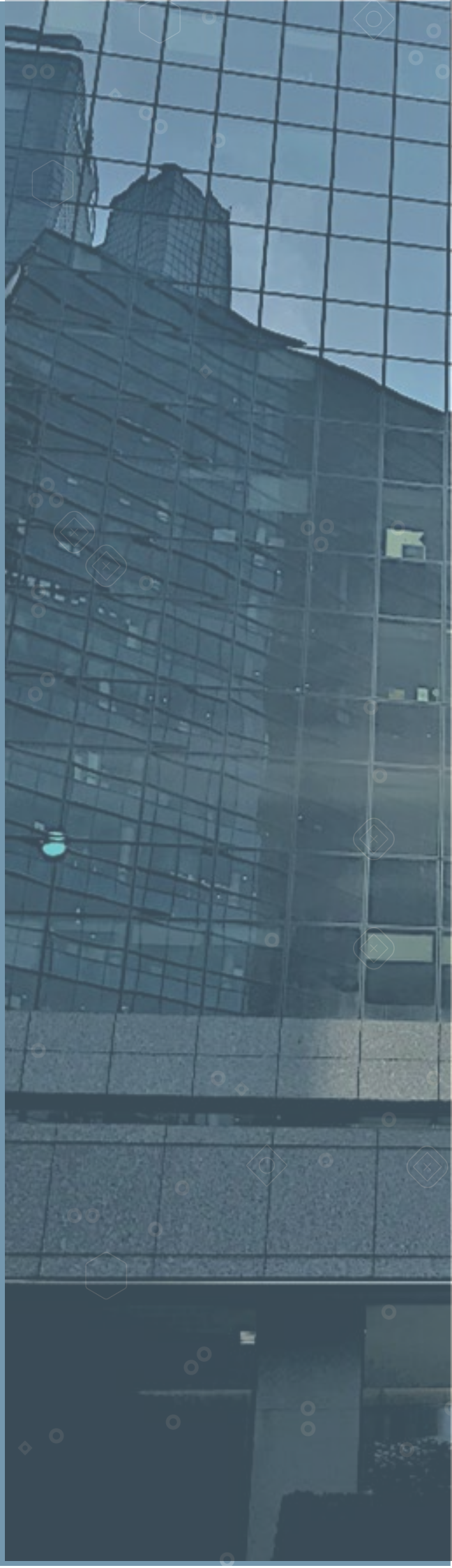

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Executive Summary

This is the 2025 EBA Final Report of the Call for Advice for the purposes of benchmarking of national loan enforcement frameworks. The EBA received from the European Commission (EC) a Call for Advice (CfA) to update the benchmarks of the previous 2020 EBA Report on recovery rates, time to recoveries, and judicial costs as instrumental indicators in establishing a counterfactual for a future assessment of the impact of EU corporate insolvency law. As in the previous exercise, this 2025 EBA Final Report is intended for publication.

The figures in this report are based on a sample of 260 banks, which was selected in 2024 by the EBA in cooperation with the ECB, the National Central Banks and the National Competent Authorities. In the sample selection phase, the EBA's objective was to ensure its representativeness per EU Member State and, to the extent possible, its consistency with the previous exercise. At the EU level, the selected sample accounts for about 10% of the EU/EEA banks. A minimum coverage of 60 % and a maximum coverage of 90% of each Member State's debtors in a legal procedure was also achieved. The benchmarks [1] considering the whole sample of Firms (i.e. including both Corporates and SMEs) are the following:

Table 1 Recovery Rates (Gross and Net), Time to Recovery and Judicial Cost to Recovery per group of asset classes (Firms) (27 EU simple average: loan level and by country)

	Firms - *2018Q4*			Firms - *2023Q3*		
	Simple Average at loan level	Simple Average by country	Obs.	Simple Average at loan level	Simple Average by country	Obs.
Gross Recovery Rate (%)	**34.0**	**42.5**	173,153	**28.2**	**42.2**	289,573
Net Recovery Rate (%)	**31.7**	**40.6**	173,153	**22.4**	**37.6**	289,573
Time to Recovery (years)	**3.3**	**3.0**	134,862	**3.4**	**4.2**	213,256
Judicial Cost to Recovery (%)	**3.4**	**4.3**	153,391	**6.9**	**3.5**	277,257

The 27EU Gross Recovery Rates (based on simple averages by country) are similar to the previous 2020 benchmarks (42.5% in 2018Q4 and 42.2% in 2023Q3). However, the 27EU Net Recovery Rates (simple averages by country) are lower (from 40.6% in 2018Q4 to 37.6% in 2023Q3). The difference between the 27EU Gross Recovery Rates and the 27EU Net Recovery Rates increased (from 2.31% in 2018Q4 to 5.8% in 2023Q3), due to a possible increase of total incurred costs (not only judicial costs) associated with the individual formal enforcement processes. Along the same line, for Firms, the 27EU Time to Recovery (simple averages by country) also increased significantly (from 3 years in 2018Q4 to 4.2 years in 2023Q3). On the other hand, the 27EU Judicial Costs to Recovery (simple averages by country), a highly varying but still important part of the total costs of the enforcement processes, slightly decreased (from 4.3% in 2018Q4 to 3.5% in 2023Q3). Some significant differences in certain Member States could be also due to the data quality issues from those Member States and are explained later in the report.

[1] Maintaining the same methodology, for comparison purposes as in the 2020 EBA Benchmarking exercise, to create the EU27 benchmarks for the recovery rates (gross and net), Time to recovery and judicial cost to recovery, the simple averages are calculated in two different ways. The main 'simple average at loan level' is based on the total number of observations per variable (i.e., a simple average over the total number of loans in the 27 EU Member States), and it is therefore influenced by the EU Members States with the highest number of observations in the sample. In contrast, the 'simple average by country' is calculated as a simple average of all EU Member States' simple averages and it is therefore not biased towards the countries with the highest number of observations.

In the 2025 EBA Final Report, the loans related to borrowers in insolvency procedures are divided in the following asset classes: corporate, and small and medium-sized enterprises (SMEs) and respective benchmarks are shown and described in detail (as in the 2020 exercise and for comparison purposes). Additional loans (that may be or not in the same insolvency procedure) are excluded from the analysis if they belong to different asset classes (e.g. CRE, RRE, credit cards) as not part of the 2025 Call for Advice.

As in the 2020 exercise, the calculated benchmarks were further scrutinised by a thorough econometric analysis. It was important to study the potential impacts on the banking systems by considering, inter alia: the possible limits to recovery values that may drive delays in resolution and/or cause undue cost burdens; and the factors that may impair banks' ability to recover collateral and cause a build-up of NPLs on the banks' balance sheets. The collection of comparative qualitative information of enforcement regimes within a Member State took into account the idiosyncratic aspects of an enforcement regime. The results of this analysis indicate that reforms pertaining to both legal framework characteristics and to judicial capacity are important to improve the recovery outcomes, confirming previous results from 2020 for a different period. For both (corporates and SMEs), the determinants (factors) of higher recovery rates are similar, namely: the existence of legal instruments to enable the out-of-court enforcement of collateral; the absence of long moratoria that suspend the enforcement of collateral; the possibility for creditors to influence the proceedings through creditor committees; and absence of privileges (prior rank) for debt towards specific types of creditors. Regarding the analysis of time to recovery, for both (corporates and SMEs), most of the determinants (factors) that contribute to increase recovery rates are also the same that reduce times to recoveries. The only exception is the characteristic regarding the absence of other general privileges for specific types of creditors, i.e. not significant to shorter the time to recovery. In particular for SMEs, the existence of 'pre-pack' insolvency (or restructuring) regimes is also a factor that contributes to higher recovery rates and lower times to recoveries. The results do not consider other economic and social implications of these positive characteristics, as they are not the purpose of this report. There are some characteristics in the enforcement frameworks that tend to improve the recovery rate averages and/or times to recoveries. Moreover, the legal system that forms the basis of the enforcement framework (i.e. Germanic, French, Anglo-Saxon or Nordic, referred to as legal origin throughout the report) was found to be an important factor in recovery rates and time to recovery. The importance of legal origin has also been confirmed in other studies of recovery rates.

It should be noted that the results of the analyses should be interpreted with caution, due to several factors: low quality of the data reported by some participating banks, especially when reporting certain benchmarks; the low number of observations for some EU Member-States; and possible differences in interpretation of the instructions. In addition, given the historical period considered the enforcement procedure, in some countries benchmark indicators can be affected by the large amount of disposal of NPLs. Moreover, national specificities (e.g. specific concentration of a type of loan and differences in loan enforcement strategies) also could influence the benchmarks. Finally, the reference dates of the data and comparisons include both, December 2018 (prior to the COVID-19 event) and September 2023 (therefore, after the COVID-19 event) and comparisons, among other topics, should take into account this important event. Consequently, particularly at country level, benchmark indicators may not be fully representative.

Introduction

In November 2020, the European Banking Authority (EBA) provided advice to the Commission on the performance of national loan enforcement frameworks[2]. The 2020 EBA report established numerical benchmarks for recovery rates, time to recovery and judicial costs to recovery for different asset classes by collecting and compiling data from a large set of banks across EU Member States. The advice fed into the Commission's work on non-performing loans and into an impact assessment for the Commission proposal regarding a draft Directive[3] aiming to harmonise certain elements of (non-bank) corporate insolvency law.

In 2022, the EBA was informed by the European Commission about a new request for performing a second benchmarking exercise. In particular, the EBA was asked to look for available sources of information[4] with the aim of updating the 2020 benchmarks, by applying the same methodology, subject to the necessary adaptations and improvements, and reducing as much as possible the reporting burden for the banking industry. In 2023, the EBA assessed that, for Euro area countries, the request from the Commission could be addressed drawing on confidential statistical information already reported, using the ECB's Analytical Credit Dataset ("AnaCredit"), since it contains granular information on bank loans in the euro area, submitted on the basis of a harmonised reporting format across all Euro-Area Member States. In March 2023, the EBA, following the approval by the ECB's Governing Council, was granted access to an extraction of AnaCredit data including information on relevant loans and debtors. The usage of AnaCredit by the EBA for the update of EU Insolvency Benchmarks is an important milestone in the sharing of confidential statistical information across EU institutions to reduce the reporting burden.

The AnaCredit data considerably improved the ability of the EBA perform the insolvency benchmarking exercise. However, to address all the points from the 2020 EBA Report, a complementary data collection was required to collect variables that are not available in AnaCredit, like judicial costs to recovery and duration of legal proceedings. Furthermore, an ad-hoc data collection was necessary for non-Euro area countries. For the complementary data collection to supplement AnaCredit the EBA, in cooperation with the ECB, the National Central Banks and the National Competent Authorities, selected in 2024 a sample of 232 banks from Euro Area countries. At the EA level, this represents about 10% of the banks while covering 80% of debtors in a formal enforcement procedure. Using AnaCredit and sampling in addition the complementary data has significantly reduced the reporting burden for the banks, even if it required a quality assurance to be performed (see section 6 for more details). For non-Euro Area countries, 60 banks were selected. The same banks used in the previous benchmarking exercise were maintained whenever possible. The representativeness of the sample per EU Member State was also assured. The ad-hoc data

[2] https://www.eba.europa.eu/sites/default/files/document_library/About%20Us/Missions%20and%20tasks/Call%20for%20Advice/2020/Report%20on%20the%20benchmarking%20of%20national%20loan%20enforcement%20frameworks/962022/Report%20on%20the%20benchmarking%20of%20national%20loan%20enforcement%20frameworks.pdf

[3] 2024, Council of the European Union. Proposal for a Directive of the European Parliament and of the Council harmonising certain aspects of insolvency law. https://data.consilium.europa.eu/doc/document/ST-16283-2024-INIT/en/pdf

[4] EC, 2021. Feasibility Assessment to enhance data reporting in order to allow for a regular assessment of the effectiveness of national loan enforcement regimes. https://finance.ec.europa.eu/system/files/2021-08/210802-national-loan-enforcement-feasibility-assessment_en.pdf

collection was launched in September 2024. Overall, 260 banks participated to the exercise (218 banks from Euro Area countries and 42 banks from non-Euro Area countries), with 32 banks being exempted, mainly due to contingent reasons, like ongoing reorganisations. In early 2025, the dataset was frozen and a quality assurance process was performed.

In April 2025, the EBA received from the European Commission (EC) the official Call for Advice (CfA) on Benchmarking of National Loan Enforcement Frameworks.[5] The CfA stems from: 1) the important complementary information on the trend in the amount of NPLs across EU banks and the assessment of the impact of measures to create more active secondary markets for NPLs in the EU;[6] 2) the need for an update of the benchmarks on recovery rates, time to recovery, and judicial costs as instrumental indicators in establishing a counterfactual for a future assessment of the impact of EU corporate insolvency law, once agreed by the co-legislators; 3) the need for a follow up on the recommendation issued by the Eurogroup in an inclusive format, in March 2024, to assess the necessary additional measures to facilitate further convergence in specific features of insolvency frameworks that could deter cross-border capital markets/investments.[7] In the CfA the EBA was invited to deliver its final report on insolvency benchmarking, documenting the methodology used, data limitations, results and their interpretation to the Commission services by 31 October 2025. By July 2025, EBA was invited to present to the Commission services a preliminary analysis of the data gathered, any identified data limitations and suggestions on how to address them, as well as descriptions of any adjustments to the methodology compared to the first benchmarking exercise.

Some data quality issues suggest that the results of the analyses should be interpreted with caution, in particular due, among others, to potential lower quality of the reported data by some participating banks, including issues such as the misreporting of missing observations. Furthermore, it should be noted that the first-time use of AnaCredit data for the current exercise entails a number of methodological challenges (e.g. information collected in the first reporting dates could be affected by data quality issues), despite multiple sensitivity analysis developed during the study as robustness checks. Moreover, for Euro Area Member States, the relatively low number of loans identified by the reporting banks as being in a legal proceeding in the relevant reference period, in comparison with the expected number based on the AnaCredit, should be interpreted with caution and subject to further analysis in future. Consequently, the respective EU benchmark indicators may not be representative for certain asset classes in some EU Member States.

This is the 2025 EBA Final Report of the project and is intended for publication. The report proceeds as follows. Chapter 1 presents the sample and methodology for the selections of loan-by-loan exposures. Chapter 2 presents the asset classes included in the exercise. Chapter 3 presents the data infrastructure, namely templates and process for data collection. Chapter 4 presents the variables' type and definitions. Chapter 5 presents the methodology to calculate the EU benchmarks. Chapter 6 presents the process for data quality assurance. Chapter 7 presents the EU Benchmarks. Chapter 8 presents the main determinants from enforcement frameworks across the EU explaining the recovery outcomes. Chapter 9 presents the supplementary information collected from other exercises.

[5] https://www.eba.europa.eu/about-us/organisation-and-governance/accountability/calls-advice
[6] C(2022) 7277 final.
[7] https://www.consilium.europa.eu/en/press/press-releases/2024/03/11/statement-of-the-eurogroup-in-inclusive-format-on-the-future-of-capital-markets-union/.

1. Sample – participating banks and loan-by-loan exposures

The current exercise being a follow-up to a previous study published in 2020, the designation of the sample of institutions involved in this exercise was done with the twofold objective of ensuring the highest level of representativeness at country level and maintaining consistency across the two exercises.[8] The sampling process was different for Euro area and non-Euro area countries.

For Euro Area banks, the ECB's Analytical Credit Dataset ("AnaCredit") was chosen as the primary data source. A data extraction provided a population of relevant debtors and loans in the Euro Area reported in AnaCredit[9]. Since a complementary ad-hoc data collection was needed to gather additional pieces of information not available in AnaCredit, with the aim of reducing the efforts to banks, it was decided not to request the complementary data to the full population and rather to perform the complementary data collection only for a selected sample of banks. The sampling criteria used was to select the banks with the highest number of debtors, per country and preferring, whenever possible, banks that had participated in the previous exercise, such that there is a minimum coverage of 60 % and a maximum coverage of 90% of the country debtors. As a result, the banks selected for the exercise represent about 10% of the relevant banks in AnaCredit and 80% of the relevant loans. The number of banks ranges from 4 to 12 in most countries, more than 20 in Austria, Finland, France and Italy, and 50 in Germany. The selection of banks was further refined for each country combining both banks that had participated in the previous exercise and banks that had the highest share of relevant debtors. The relevant debtors[10] are defined as those that have been subject to legal proceedings for any of the reporting reference dates since the beginning of AnaCredit reporting (end-Q3 2018) until September 2023.

Regarding banks from non-Euro Area countries, a data collection covering all the necessary variables was conducted. The sample of banks was designed to make use of the same banks that had participated in the 2019 exercise, as much as possible. In cases where banks ceased to exist or were merged with other institutions, discussions with the National Authorities allowed for the selection of other banks with similar characteristics in terms of size or business model, when possible.

The final sample of selected banks consisted of 292 institutions, out of which 260 participated to the exercise. The initial targeted sample having been defined in August 2024, natural evolutions

[8] Despite EBA's objective to ensure consistency between the current and the previous exercise, some changes in the sample were unavoidable, also due to different processes applied for the sample selection. Therefore, some fluctuations in the sample size may affect the observed trends and comparisons between the results of the current and previous editions should be interpreted with caution. See Annex 1 for further details.

[9] For a definition of the concerned instruments please refer to AnaCredit Reporting Manual Part I – General Methodology, chapter 5.

[10] Relevant debtors are those identified as: 'Under judicial administration, receivership or similar measures' or 'Bankruptcy/insolvency' or 'Other legal measures' at any reference date between September 2018 and September 2023, belonging to 'Non-financial corporation', with a residence in an EU country.

had occurred by the time of the data collection fieldwork period (30 September 2024 to 30 November 2024, as per the initial calendar, extended to early 2025), such as banks that ceased to exist or that were merged with other institutions. Other banks did not participate in the data collection due to not having any relevant loans in their portfolio or having technical difficulties.

The below table provides, for each EU country, the number of banks participating in the exercise, as well as the number of participating banks that reported loans in an enforcement proceeding in the country. It should be noted that banks may exclusively report loans for which the enforcement proceeding takes place in a country different from the country of the bank. Either by country of the banks or by country of enforcement, the sample of participating banks always covers at least 3 reporting entities, thus ensuring that individual financial institutions cannot be identified.

Table 2 Number of banks participating in the exercise

Country	Number of participating banks in the country	Number of participating banks having reported loans in an enforcement procedure in the country
AT	22	22
BE	6	12
BG	3	4
CY	5	6
CZ	5	7
DE	46	64
DK	6	6
EE	5	6
ES	7	12
FI	19	20
FR	20	24
GR	4	6
HR	9	14
HU	4	5
IE	5	3
IT	18	30
LT	5	5
LU	6	3
LV	10	10
MT	5	4
NL	5	8
PL	10	8
PT	7	8
RO	5	6
SE	9	10
SI	8	12
SK	6	9
Other (outside the EU)	NA	4

From each participating bank, the EBA collected loan-by-loan data. For the 2025 Final Report, and as in the previous exercise, all the benchmarks encompass all types of loans (e.g. without focusing on any of the benchmarks covering closed enforcement processes) therefore guaranteeing comparisons across benchmarks and across exercises. Other types of analysis have been performed, including breakdowns by the category of loans and by the split into closed and still active enforcement processes.[11]

For Euro Area countries, the relevant loans were identified ex-ante using the AnaCredit data and the banks were asked to report only the pieces of information not already available in AnaCredit. All selected loans on which information was requested to banks are loans such that the loan and/or the debtor has been identified by the bank itself as being in default during the relevant reference period. Banks were then asked to report whether each of the loans and/or debtors had been in a legal proceeding. For non-Euro Area countries, the selected banks were asked to identify themselves the relevant loans for the reference period. Information was requested on 1.6 million loans identified in the AnaCredit, out of which 1.4 million loans were reported, with around 600 thousand loans being declared by the bank has having been in a legal proceeding. Banks from outside the Euro Area have reported information referring to almost 500 thousand loans.

2. Asset classes

Information was collected for the following asset classes: Corporate, SMEs, Commercial Real Estate (CRE) and Residential Real Estate (RRE), Retail-Credit cards, and Retail-Other consumer credit.[12] Loans granted to natural persons were not covered in the current exercise, as they are not a part of the AnaCredit population. In this Report, the analysis is focussed on the aggregation of related asset classes, namely Firms (Corporate and SMEs). For asset classes Corporate, SMEs, Commercial Real Estate (CRE) and Residential Real Estate (RRE), the definition is similar to the one used for the Internal Models Benchmarks (see respective ITS and RTS package for 2019 - end 2018 data). The classification of loans' asset classes was defined based on European Regulation (followed by AnaCredit, for Euro Area banks, and by non-Euro Area countries in the data collection instructions with specific criteria, described in the following paragraphs in this section). In the case where a borrower has loans classified in different asset classes according to the purpose of each loan (under or not the same insolvency procedure), the different loans are studied according to such asset classes. For example, if a borrower has a loan secured by CRE and a loan related to a credit card (in the same or not legal procedure), the two loans are considered separately for benchmarking

[11] See Annex 6 for additional information.
[12] See Annex 6 for additional information.

purposes[13]. The purpose of this analysis is to study EU insolvency frameworks and respective characteristics, many of them observable at instrument level. At the same time, borrower-level insolvency procedures tend to mask instrument-level outcomes: a) a borrower undergoing insolvency may have multiple instruments with different recovery paths; b) aggregating at the borrower-level can obscure these differences. Finally, the current benchmarks also ensure compatibility with the 2020 Report.

The size of the borrowers was determined based on the total annual turnover for the consolidated group of which the borrower is a part. The total annual turnover was calculated in accordance with Article 4 of the Annex to Commission Recommendation 2003/361/EC1 and shall refer to the year ending one year before the reporting reference date. For Corporate, the size of the borrower was limited between EUR 50 million and EUR 200 million. For SMEs, the size of the borrower was limited to a maximum of EUR 50 million. For both Commercial Real Estate (CRE) and Residential Real Estate (RRE) the size of the borrower was limited to ≤EUR 200 million. For size of the borrower above EUR 200 million, there was no requirement to report, as these borrowers were not in the scope of the exercise.[14]. For Residential Real Estate (RRE), indicative characteristics were loans: i) granted to private individuals to purchase or refinance immovable property used as a residence; ii) secured by the immovable property an individual uses as their residence; or iii) where the purchased or refinanced immovable property, does not generate rental revenues and is either: (a) the primary residence to the owner; or, (b) a residential investment property that includes holiday homes and second homes; or, (c) where the Loan is to finance the development of immovable property, as defined in (a) or (b). For Commercial Real Estate (CRE), indicative characteristics were loans: i) granted to a Corporate to purchase or refinance commercial immovable property; ii) secured by the commercial immovable property; or iii) where the purchased or refinanced property is either: (a) Commercial immovable properties; or, (b) Residential immovable properties that are then rented out and that are secured by the residential immovable properties being purchased and are therefore used for the development of a commercial immovable property. This includes buy-to-let schemes. For Retail-Credit Cards and Retail-Other Consumer Credit, the asset classes include credit cards and consumer loans (e.g. overdrafts and personal loans), respectively. The loan purpose was defined as the purpose for which the loan was provided, e.g. consumer lending.[15] Financial institutions as debtors, specialised loans (e.g. project finance loans; infrastructure loans; and public sector loans), leasing or asset-backed finance loans (e.g. loans granted to corporates to purchase non-property collateral, loans for asset backed finance such as marine and aviation) were excluded from the exercise. Finally, in case a loan was collateralised by property as well as by another type of collateral, the asset class in which the loan was included was based on the type of collateral with the highest value as well as on the purpose of the loan (e.g. RRE; CRE).

[13] With regard to AnaCredit, reported loans were allocated into one of the six asset categories (following also European Regulation). If the AnaCredit variable "purpose" is equal to "Commercial real estate purpose", the loan is allocated into the category "Commercial Real Estate (CRE)". It the variable AnaCredit variable "purpose" is equal to "Residential real estate purchase", the loan is allocated into the category "Residential Real Estate (RRE). Out of the remaining loans, those such that the AnaCredit variable "type_of_instrument" is equal to "Credit card debt" are allocated into the category "Retail-Credit Cards" and those for which the same variable is equal to "Overdrafts" or "Finance leases" is allocated into the category "Retail-Other Consumer Credit". The remaining loans are allocated into "Corporate" or "SME", depending on the AnaCredit variables "enterprise_size" and "annual turnover". See Annex 5 and Annex 6 for Benchmarks computed based on an alternative allocation, including only broad Corporate and SME categories.

[14] The thresholds are based on previous EBA Benchmarking exercises (e.g. EBA Internal Models Benchmarking Exercises: large corporates are defined as firms with annual sales exceeding EUR 200 million). Given the existence of RTF/ITS with similar mandatory data collection, the use of the same thresholds to separate SMEs, Corporate and Large Corporate facilitates the data collection during this exercise.

[15] As mentioned in the CfA, the EBA NPL Transactions templates include similar data fields.

3. Templates and process for data collection

Although the data was collected via two separate data collections, one for banks in the Euro Area and another one for non-Euro Area banks, the template structure remained fundamentally identical, with respect to the 2019 exercise. This choice allows data comparability across exercises and it is in line with the objective of keeping the reporting effort as low as possible, as banks that participated in the previous exercise were already familiar with the template.

For non-Euro Area banks, the variables collected (24 variables) were the same as in the 2019 exercise, whereas for Euro Area banks, a reduced template (10 out of 24 variables) was used. The remaining variables, for Euro Area banks, were defined by mapping the AnaCredit variables with the variables necessary for the exercise.

The data was collected in Excel templates that were shared with participating banks via contact points in National Authorities. For Euro Area countries, each selected bank received a dedicated template including exclusively AnaCredit loan identifiers that the bank itself had already reported to the AnaCredit. For some countries, an additional mapping of these identifiers was provided to the EBA, as those present in the AnaCredit extraction could not be used. This collection was arranged and conducted in close collaboration with the ECB and National Central Banks. For non-Euro Area countries, banks received the template with no pre-selection of loans.

The data collected via the templates in the fieldwork period was then compiled and, for Euro Area countries, merged with AnaCredit variables. The merge took into account both the theoretical mapping of variables as well as time granularity, to obtain a loan-by-loan dataset. Most AnaCredit variables being reported monthly, different aggregation procedures were applied, depending on the specific variable.

4. Variables' type and definition

Data fields at the loan level (borrower, loan characteristics, collateral, as well as information regarding the defaulted status and the recovery process, namely costs and dates) were necessary to characterise the enforcement procedures (i.e. type of insolvency; phase within process of the insolvency procedure), and inform about their overall outcome, costs and length of the process.

For borrower identification of Euro Area banks, the loan and contract identifiers were provided directly in the pre-populated templates and the debtor identifiers (both the borrower identifier and the type of identifier provided) were collected.

Table 3 Borrower identification (Euro Area banks)

Identifiers			
Borrower Identifier	Borrower Identifier type	Contract ID	Instrument ID
Please provide a unique national identifier code	Please select the identifier type of the code provided in column A	unique identifier of the contract	unique identifier of the instrument

For non-Euro area banks, the following information was collected : LEI (where available); a national borrower identifier; the type of identifier provided (from a limited list, including Tax code or Business Register Number); and the bank's unique internal loan code and contract code (bank's internal code or a unique code created for the CfA Benchmarking of National Loan Enforcement exercise).

Table 3.2 Borrower identification (non Euro Area banks)

Borrower identifiers				
LEI	Borrower Identifier	Borrower Identifier type	Contract ID	Instrument ID (Loan Number)
LEI of the borrower, where available	Please provide a unique national identifier code	Please select the identifier type of the code provided in column B	unique identifier of the contract	unique identifier of the instrument

For borrower characteristics, the following information was collected from non-Euro area banks: Total Assets (according to CRR/CRD; in case total assets are not available, it is possible to use the annual turnover) and NACE code[16]. For the loan characteristics the following information was collected: Category of loans[17]; Security status (secured or unsecured); Security type (physical or

[16] 2 digit code. If not available, the participating bank could use formal national identifiers for sectors (e.g. provided by the respective statistical national entity). In case of not availability of the NACE or the national identifiers for sectors, the participating bank should use the respective internal identifiers for sectors of activity.

[17] Category of loans: 1-enforcement has been completed; 2-pending enforcement cases; 3-entered into formal enforcement procedures and that were sold to third parties; 4-formal restructuring processes; 5-situations in which the collateral is repossessed by the bank – after an enforcement procedure - but the asset was not yet sold by the bank. Regarding "Loans characteristics – Category of loans", the EBA staff and some BoS members understand that the inclusion of few different types of loans, such as "2-Pending enforcement cases with the starting date between 31 December 2015 and 31 December 2018, not falling into one of the other existing categories" and "3-Loans that entered into formal enforcement procedures after 31 Dec 2015 and that were sold to third parties" will be important for comparison purposes among jurisdictions. The particularity of loans sold to third parties are significant in some members. It will allow to better understand the national benchmarks and the necessary detailed analysis afterwards. To recall, the CfA requests not only the development of representative and comparable metrics (benchmarks) but the data gathered should give insights as regards formal (largely in-court) enforcement procedures, both by creditors individually and in the context of a collective proceeding in insolvency. The CfA mentions on page 2, in the scope of the requested work, that the EBA should provide country-by-country estimates, differentiated by type of loan and by type of enforcement.

non-physical); physical type (property or non-property); Currency; LTV (loan to value); Country of the formal enforcement; and Type of enforcement (individual or collective).

Table 4 Borrower and Loan characteristics

Borrower characteristics		Loan characteristics								
Total Assets	NACE	Category of loans	Security status	Security type	Physical type	Currency	LTV at time of credit authorisation	LTV at time of default	Country of the formal enforcement proceeding - judicial	Type of Enforcement

The collected variables regarding recovery details are as follows: Net recovery rate; Discount rate; Notional amount outstanding at time of default; Notional amount outstanding at the formal beginning of enforcement; Gross recovery amount; Net recovery amount; Judicial costs; Accumulated write-off.

Table 5 Recovery details

Recovery details							
Net Recovery Rate (%)	Discount rate	Notional amount outstanding at time of default	Notional amount outstanding at the formal	Gross recovery amount without deducting	Net recovery amount after costs from	Judicial costs	Accumulated write-off

The collected variables regarding time to recovery details are as follows: Time to recovery (in number of days); Date of default; Date of the initiation and Date of conclusion of formal legal proceedings; Date of ultimate recovery after formal legal action conclusion.

Table 6 Time to Recovery details

Time to recovery details				
Time to recovery	Date of Default	Formal legal proceedings - date of initiation	Formal legal proceedings - date of conclusion	Date of ultimate recovery after legal action conclusion

For Euro-Area banks, only a sub-selection of variables, not available in AnaCredit, was requested in the collection: Category of loans; Country of the formal enforcement; Type of Enforcement; Gross recovery amount; Net Recovery Rate; Judicial costs; Time to recovery; Date of the initiation and Date of conclusion of formal legal proceedings; Date of ultimate recovery after formal legal action conclusion. Other AnaCredit variables were also studied, however those variables revealed

methodological challenges, and additional work needs to be developed. Moreover, for comparison purposes with the previous exercise, most of the variables and respective definitions were maintained. In addition, two filtering variables were included: “Did the debtor enter into a legal proceeding?” and “Is the loan formally included in the legal proceeding?”.

Table 7 Collected variables for Euro Area banks

Selected variables											
Did the debtor enter into a legal proceeding?	Is the loan formally included in the legal proceeding?	If the debtor has entered into a legal proceeding, please answer the below fields:									
		Category of loans	Country of the formal enforcement proceeding - judicial system	Type of Enforcement	Gross recovery amount without deducting costs from recovery process	Net Recovery Rate (%)	Judicial costs	Time to recovery	Formal legal proceedings - date of initiation	Formal legal proceedings - date of conclusion	Date of ultimate recovery after legal action conclusion

For Euro Area banks, the remaining variables necessary to the exercise are AnaCredit variables. The theoretical mapping below has been developed, as follows:

Table 8 Theoretical mapping of AnaCredit variables and data collection variables – Borrower characteristics

EBA data collection variable name	Anacredit variables
Bank LEI	"legal_entity_identifier" [of bank]
Bank name	"name" [of bank]
LEI	"legal_entity_identifier" [of borrower]
Identifier	"entity_riad_id" [of borrower]
Loan Number	"instrument_int_id"
Total Assets	"balance_sheet_total" and/or "annual_turnover"
NACE	"economic_activity"
Portfolio breakdown	"purpose" + "type_of_instrument" + "enterprize_size" + "number_of_employees"

Table 8.2 Theoretical mapping of AnaCredit variables and data collection variables – Loan characteristics

EBA data collection variable name	Anacredit variables
Category of loans	NA
Security status	"protection_int_id" + "instrument_int_id" [if they exist in the relevant table]
Security type	"type_of_protection"
Physical type	"type_of_protection"
Currency	NA - all amounts in EUR
LTV at time of credit authorisation	"protection_value" + "inception_date"
LTV at time of default	"protection_value" + **Date of Default** [derived]
Country of the formal enforcement proceeding - judicial system	NA
Type of Enforcement	"status_of_legal_proceedings"

Table 8.3 Theoretical mapping of AnaCredit variables and data collection variables – Recovery details

EBA data collection variable name	Anacredit variables
Discount rate	"interest_rate" + "interest_rate_type"
Notional amount outstanding at time of default	"outstanding_nominal_amount" + **Date of Default** [derived]
Notional amount outstanding at the formal beginning of enforcement	"outstanding_nominal_amount"+ **Formal legal proceedings - date of initiation** [derived]
Gross recovery amount without deducting costs from recovery process	NA
Net recovery amount after costs from recovery process	"cumulative_recoveries_since_default" [date=reference date] - [date=initiation of proceedings]
Judicial costs	NA
Accumulated write-off	"accumulated_write_offs"

Table 8.4 Theoretical mapping of AnaCredit variables and data collection variables – Time to recovery details

EBA data collection variable name	Anacredit variables
Time to recovery	NA
Date of Default	"instrument_default_status" + "date_of_instrument_default_status" and/or "default_status_of_the_counterparty" + "date_of_the_default_status_of_the_counterparty"
Formal legal proceedings - date of initiation	"date_of_initiation_of_legal_proceedings" + "status_of_legal_proceedings"
Formal legal proceedings - date of conclusion	NA
Date of ultimate recovery after legal action conclusion	NA

5. Methodology

On the basis of the information collected, the EBA has computed the EU asset class-specific, country-by-country benchmarks of national loan enforcement regimes (including insolvency), based on loan-by-loan data for loans and borrowers that have entered an enforcement process. The benchmarks are computed on the population of loans. Benchmarks are computed at loan level for specified asset classes. Despite the legal procedure, which in general is conducted at borrower-level, instruments can be treated differently within the borrower-level procedure. For instance, Out-of-Court Workouts or Pre-Pack Procedures may be negotiated instrument-by-instrument. The purpose of this analysis is to study EU insolvency frameworks and respective characteristics, many of them observable at instrument level. At the same time, borrower-level insolvency procedures tend to mask instrument-level outcomes: a) a borrower undergoing insolvency may have multiple instruments with different recovery paths; b) aggregating at the borrower-level can obscure these differences (see Annex 5). Finally, the current benchmarks also ensure compatibility with the 2020 Report.

The characteristics of the main variables (Recovery Rate; Time to Recovery; and Judicial Cost to Recovery) were calculated at country-level.[18] An aggregate combination of asset classes is presented, namely total firms (aggregate of Corporate and SME), as well as the individual asset classes Corporate and SMEs. A borrower may not only be considered as Corporate or SME, but it can also be identified in a different asset class, such as CRE, RRE and even Retail, disentangling the full scope of instruments of the borrower within the same legal procedure, and allowing the production of different benchmarks according to the type of instruments with significant different recovery paths.

5.1 Recovery rate

The recovery rate is based on two benchmarks, namely the "Gross recovery amount" and the "Net recovery amount" as numerators and the "Notional amount outstanding at time of default" as denominator [19].

The variable "Gross recovery amount" was defined as the NPL's notional amount outstanding, which has been recovered by the bank (or where applicable, by an external debt collector) only through the formal enforcement process before or after its completion (i.e. before any deduction of costs, including the sales proceeds or total cash recovered and costs incurred). Sales proceeds may include real estate sale after repossession or loan sale. The value of the repossessed collateral should consider the market value, if available, or the book value. For loans that entered into formal enforcement procedures after 1 September 2018, that have not been sold to third parties and in which the collateral is repossessed by the bank – after an enforcement procedure - but the asset

[18] The EU Benchmarks are presented only in case of number of observations (i.e. loans under a formal enforcement procedure) above 4.

[19] The variable "Notional amount outstanding at time of default" was defined, for non-Euro Area banks, as the notional amount outstanding of the loan at the time of default, i.e. where the loan has a status of Defaulted as defined by CRR Art. 178: a) the institution considers that the obligor is unlikely to pay its credit obligations to the institution, the parent undertaking or any of its subsidiaries in full, without recourse by the institution to actions such as realising security; b) more than 90 days past due. For Euro Area banks, the AnaCredit variable "Outstanding nominal amount" closest to the default date was used.

was not yet sold by the bank. The variable may also include the sales proceeds from the collateral or the value of the repossessed collateral or total cash recovered and costs incurred of the notional amount outstanding which has been recovered by the bank (or where applicable, by an external debt collector) only through the formal enforcement process before or after its completion (i.e. before any deduction of costs). For comparison purposes, the same definition was used in the 2019 EBA Insolvency Report (using the date of 31 December 2015 for loans that entered into formal enforcement procedures after this date). The variable "Gross Recovery Rate" was defined using the gross recovery amounts as a share of the notional amounts at time of default, as follows:

$$\text{Gross Recovery Rate} = \frac{\text{Gross Recovery Amount}}{\text{Notional amount outstanding at time of default}}$$

The variable "Net recovery rate" is defined as the total recovered share through the enforcement process of the total defaulted exposure. The recovered amount was defined as the NPL's notional amount outstanding which has been recovered by the bank (or where applicable, by an external debt collector) only through the enforcement process after its completion (i.e. after any deduction of costs). Net amount is defined gross recovery amount less all incurred costs associated with the formal enforcement process. It includes all costs, not only the judicial costs. Recovery costs include other costs in addition to "Judicial costs". For instance, fees paid to external legal firms for their activity in the enforcement process should be considered recovery costs (but not "Judicial costs"). There was a specific variable named "Judicial costs", to consider only direct costs from the judicial system. All incurred costs associated with the formal enforcement process should include staffing costs of the units/departments dedicated to the formal enforcement processes within the respective bank. For comparison purposes, the same definition was used in the 2019 EBA Insolvency Report (collecting first the Net Recovery Amounts). Formally, the variable "Net Recovery Rate" can thus be defined as follows:

$$\text{Net Recovery Rate} = \frac{\text{Net Recovery Amount}}{\text{Notional amount outstanding at time of default}}$$

Gross recovery amount and net recovery rate were directly reported banks in the data collection, while the notional amount outstanding (and, mechanically, the gross recovery rate) has been computed based on AnaCredit data.

5.2 Time to Recovery

The variable "Time to recovery" was defined as the length (in days) of the recovery period (as part of the recovery rate process, from the start of the formal enforcement status to the date of ultimate recovery from the formal enforcement procedures). The specific date to start counting the number of days was the date of the bank's decision to enter into a formal legal enforcement procedure. It contains the days until full recovery. The date of the initiation by a court may not be the date of the initiation of the formal enforcement process (normally, before the initiation by a possible court there are several number of days of formal enforcement procedures). In case the length of the recovery period was not available before the initiation by the court for each formal enforcement process, banks estimated such initial period (based on experience from similar processes) and added the respective estimates (i.e. number of days) to the known remaining days to report the

"Time to Recovery". For comparison purposes, the same definition was used in the 2020 EBA Insolvency Report.

In the 2025 Final Report, only the variable "Time to Recovery" is used as benchmarks. The following time variables are used for additional calculations.[20] The variable "Date of default" was the specific date in which the loan defaulted. For each loan, the "Date of Default" was the date considered in the most recent legal enforcement process. The date of entry into default was the date of the first entry into default for the most recent legal enforcement process of such loan. The date of default of the borrower is bank-specific. For each borrower and bank, the earliest date of default was selected as the reference to calculate the outstanding nominal amount at default for every single loan. If the date of default of the borrower was not reported, the reported date of default of the loan was used. Regarding Euro Area, in the case of a default (at borrower/loan level) declared before the first AnaCredit reporting date (i.e. September 2018), the outstanding nominal amount available at the first reporting date was used.[21] The variable "Date of beginning of formal proceedings" was defined as the beginning date of formal insolvency proceedings. The legal enforcement procedure may start before (or even without) court actions, i.e. it starts when the bank initiates the legal procedure (e.g. administrative actions and delivery of documentation via judicial system; the notification of the debtor of the enforcement order) for the enforcement and recovery. The variable "Date of conclusion of formal proceedings" took into account the possible different phases of the loan's enforcement. By definition, it is the specific date on which the final court order was issued, e.g. order on the conclusion of the insolvency proceeding or an outright possession order on the property collateral. For some EU Member States, it may not be necessary to have a court judgment to put an end to the formal/legal enforcement procedure (it depends on the respective national framework). Some loans, however, entered into formal enforcement procedures after 31 December 2015, and have not been sold to third parties, but the collateral was repossessed by the bank – after an enforcement procedure - and the asset was not yet sold by the bank. For those cases, the "Date of conclusion of formal proceedings" is defined as the date from which the banks have legal and physical conditions to actually sell the property collateral. For example, the date when the saleability certificate is issued by a Legal Office, which may occur after the conclusion of the formal proceedings (e.g. there are some administrative issues that need to be solved first). Moreover, in case of some loans without a date on which the final court order has been issued or without a date from which the banks have legal and physical conditions to actually sell the property collateral, banks provided the expected dates whenever possible. The variable "Date of ultimate recovery" took into account the possible different phases of the loan's enforcement. By default, it was defined as the date on which the bank or, if applicable, an external debt collector, received the final proceeds after the date of conclusion of formal proceedings, e.g. date of sale of the foreclosed property collateral. It was the date of the effective selling of the asset (not the time of the accounting register of the asset nor the promissory contract of purchase and sale). Some loans, however, entered into formal enforcement procedures after 31 December 2015, and have not been sold to third parties, but the collateral was repossessed by the bank – after an enforcement procedure - and the asset was not yet sold by the bank. For those cases, the "Date of ultimate recovery" is the date from which the asset becomes saleable from banks' perspective.

[20] This can be analysed via a survival econometric model.
[21] See Annex 4 for additional details.

Moreover, in case of loans without a date on which the bank received the final proceeds after the date of conclusion of formal proceedings, or in case of loans without a date that corresponds to the date from which the asset becomes saleable from banks' perspective (i.e. the date of the effective/potential selling of the asset), banks provided the expected dates whenever possible. For example, the expected average time recovery - by taking into account the information from similar closed formal procedures - could be used to estimate the date of ultimate recovery. Finally, no threshold based on the borrower's exposure for the time/date of the last recovery payment was considered.

5.3 Judicial Cost to recovery

The variable "Judicial Cost to recovery" was defined using the judicial costs as a share of the Notional amounts at time of default, as follows:

$$\text{Judicial Cost to Recovery} = \frac{\text{Judicial Costs}}{\text{Notional amount outstanding at time of default}}$$

The variable "Judicial Costs" includes only direct costs from the judicial system. Judicial costs managed at asset class level may be calculated and reported by the participating bank based on the share of costs related to the particular loan. Staffing costs of the units/departments dedicated to the formal enforcement processes within the respective bank are not considered judicial costs.
The variable "Notional amount outstanding at time of default" was defined as the notional amount outstanding of the loan at the time of default, i.e. where the loan has a status of 'Defaulted' as defined by CRR Art. 178: a) the institution considers that the obligor is unlikely to pay its credit obligations to the institution, the parent undertaking or any of its subsidiaries in full, without recourse by the institution to actions such as realising security; b) more than 90 days past due.

5.4 Country and EU measures

Similarly, to the previous benchmarking exercise, the indicators for the main variables are based on averages (simple and weighted), medians, and quartiles. In the summary of 27EU Benchmarks for the Recovery Rates (Gross and Net), Time to Recovery and Judicial Cost to Recovery per asset classes, as mentioned before, the simple averages are calculated in two ways:

- the "Simple Average at loan level": based on the total number of observations for each variable. This measure, at EU level, is influenced by the EU Members States with higher number of observations (reported loans).
- the "Simple Average by country": calculated as an average of all EU Member States' simple averages (i.e. not influenced by the higher number of reported loans from some Member States).

6. Quality assurance

A primary objective of the exercise was to keep a low burden for both National Authorities and financial institutions. Therefore, differently from EBA's standards applied in regular reporting of supervisory data, no validation rules were applied in collecting data from National Central Banks[22] and the process heavily relied on the data quality process established for Anacredit. Any interaction with banks during the process was limited to providing banks with support, whenever needed. A quality assurance and a data curation process were performed by the EBA in order to address, to the extent possible, some of the issues due to possible different interpretation of guidelines[23] or different banks' practices[24], missing observations in the variables, for example due to difficulties in allocating recoveries and costs pro-rata, as well as formatting (e.g. naming convention) and consistency issues.

Quality checks were performed based on the following data quality features: completeness, formatting, accuracy, consistency and plausibility. In a low number of cases, specific values were recoded based on predefined assumptions (for example, when a date was reported including only the month and the year, a specific day was designated, to allow for computations based on this observation). Accuracy checks identified observations that did not respect theoretical conditions (e.g. negative values for time to recovery), consistency checks were usually performed to pairs of variables (e.g. the date of the beginning of the legal proceeding should happen before the date of conclusion of the legal proceeding) and plausibility checks assessed the likelihood of specific values in the distribution.

In the computations of the benchmarks presented in this Report, specific conditions were applied to define the relevant population of loans. The benchmarking population was defined by excluding loans for which the country of the loan enforcement procedure[25], currency of the loan or category of loan were not valid. In addition, loans for which the variable "Notional amount outstanding at time of default" was below 10 were excluded.[26] This methodology was applied also in the 2020 exercise.

For "Gross Recovery Rate" and "Net Recovery Rate", percentage values outside the allowed range (i.e. between 0% and 100%) were limited to the lower/upper bounds of the range to prevent

[22] Nevertheless, after data quality checks, some experts from National Authorities had the opportunity to provide relevant contributions by investigating in detail respective national data and provide comments accordingly.

[23] For example, the comparability between net and gross recovery rates could have been affected by the way banks discounted gross flows to achieve net recovery rates.

[24] As for any type of benchmarks, ratios, values, indicators, etc. produced to be compared across banks in several studies, the results can embed banks' different approaches (for instance in this study, to collecting data for recoveries/costs, in general, and for recoveries/costs during the insolvency process, in particular). Even if banks are aligned to template instructions comparability could be influenced by the choices applied. Additionally, as in any benchmark studies, it is possible that results can be influenced by country features (for instance in this study, may lie outside the scope of the insolvency regimes covered in the templates). For example, country's differences such as the concentration of specific category of loan (e.g. NPL disposals) in the selected reference period, or level of recoveries collected in different country than the creditor (controlled via country of enforcement procedures instead of country of creditor) influence the respective benchmarks.

[25] The country of the loan enforcement procedure can be different from the country of the bank reporting the loan. Out of the 1.1 million loans reported for the asset class categories 'Corporate' and 'SME', there were 600 thousand loans for which a country of the legal proceeding in the EU was reported. See table 32 in annex 1.

[26] The variables country of the loan enforcement procedure, currency of the loan and category of the loan were reported in the data collections. The variable national amount outstanding was reported in the data collection for non-Euro area banks and was extracted from the AnaCredit for Euro area banks.

distorted results. Observations where either the "Gross Recovery Amount" and "Net Recovery Rate" were missing were excluded from the computation. The same sample of loans was used for both benchmarks, and respective simple and notional amount weighted averages, for both indicators was provided were used.

The "Gross Recovery Rate" was computed as the ratio of the "Gross Recovery Amount", which was directly reported by banks in the data collections, and the variable "Notional amount outstanding at time of default", which was directly reported by banks outside the Euro Area and defined based on a mapping to the relevant AnaCredit variable[27] for Euro Area banks. For "Time to Recovery", observations with missing or negative values were excluded from the computations. Observations with a value higher than 40 years were recoded as being equal to 40 years. The variable was directly reported by banks. The additional date variables (date of default, date of initiation of legal proceedings, date of conclusion of legal proceedings, date of ultimate recovery) were not used for this benchmark.[28].

For "Judicial Cost to Recovery", observations with missing or negative values were excluded from the computations. The benchmark was computed as a ratio of the "Judicial Costs", which was directly reported by banks in the data collections, and the variable "Notional amount outstanding at time of default", which was directly reported by banks outside the Euro Area and defined based on a mapping to the relevant AnaCredit variable for Euro Area banks (as for the "Gross Recovery Rate" benchmark). In this exercise, an additional treatment was added: observations value of the "Judicial costs" is higher than the difference between the gross recovery amount and the net recovery amount were recoded as being equal to this difference. A simple outlier detection methodology was applied at asset class and country level by removing all observations more than 2.5 standard deviations away from the mean.

In order to make the most use of the data collected and due to missing data points for some of the variables used in the benchmarks, specific treatments were performed to define the samples from the overall population of loans, as described in the previous paragraphs. This resulted in three different yet similar samples of loans, representative of the same population of banks for the computations of the respective benchmarks (the same sample for the gross and net recovery rates; another one for the time to recovery; and a third one for judicial costs to recovery).[29]

[27] The AnaCredit variable used is the "Outstanding nominal amount". The average across the reported values between 3 months before and 3 months after the default date is used (due to possible missing info regarding the amount in the specific default date). In case the default date happened before the beginning of AnaCredit reporting, the first reported date of the variable is used. The default date is defined as the earliest default date of the borrower, for each bank reporting the debtor. In case this variable is missing, the default date of the instrument is used.

[28] See Annex 3 presenting sensitivity analysis, showing benchmarks considering the conclusion or not of legal proceedings (closed proceedings or open proceedings).

[29] The number of loans used for computing each benchmark with reference to all the reported loans with a country of legal proceeding in the EU is provided in table 32 in annex 1.

7. Benchmarks

7.1 Corporate - EU benchmarks

The Benchmarks for the variables "Gross Recovery Rate" and "Net Recovery Rate" are presented for Corporate as follows:

Table 9 EU Benchmarks – Gross Recovery rate (%), per EU Member-State - Corporates

Country of formal enforcement	Number of observations *2018Q4*	Simple average *2018Q4*	Weighted average *2018Q4*	Number of observations 2023Q3	Simple average 2023Q3	Weighted average 2023Q3	Standard Deviation 2023Q3	1st quartile 2023Q3	Median 2023Q3	3rd quartile 2023Q3
AT	38	34.9	41.3	142	63.1	59.4	43.0	12.5	96.8	100.0
BE	*Not shown	-	-	59	62.0	88.7	47.4	0.0	100.0	100.0
BG	252	67.9	53.6	2,246	29.5	45.3	37.3	0.0	6.8	56.9
CY	57	17.6	18.0	0						
CZ	38	6.9	5.0	5	18.8	87.2	41.5	0.1	0.4	0.4
DE	-	-	-	1,359	46.5	27.3	44.0	0.0	39.5	100.0
DK*	17	95.2	97.7	0						
EE	27	56.6	54.7	0						
ES	332	42.2	54.6	4,155	12.5	21.6	30.4	0.0	0.0	0.3
FI	NA	-	-	160	44.9	37.2	47.8	0.0	3.5	100.0
FR	85	35.6	48.6	144	43.1	36.6	42.5	0.0	29.1	95.4
GR	353	10.9	10.7	295	14.8	12.8	26.8	0.0	0.5	23.0
HR	726	30.2	60.0	23	35.2	12.7	48.4	0.0	0.0	100.0
HU	NA	-	-	0						
IE	NA	-	-	0						
IT	878	32.3	29.4	13,793	20.3	9.7	32.3	0.0	3.4	22.8
LT	NA	-	-	12	79.6	59.1	25.1	50.0	98.8	100.0
LU	*Not shown	-	-	0						
LV	NA	-	-							
MT	*Not shown	-	-	0						
NL	180	67.5	42.9	15	20.0	38.9	41.4	0.0	0.0	0.0
PL	321	6.9	5.0	679	27.4	30.4	39.8	0.0	0.8	46.6
PT	403	35.0	21.1	540	12.0	10.5	30.0	0.0	0.0	1.3
RO	68	69.3	55.7	54	36.7	50.9	36.3	0.0	23.7	70.3
SE	14	92.0	100.0							
SI	-	-	-	9	47.8	56.9	42.0	10.4	27.5	92.0
SK	14	28.6	24.8	9	27.0	44.1	43.4	0.0	0.0	45.4
Other - *outside EU*										

Note: *One bank is excluded from the computations.
Note: Rows are left empty when the number of observations is below five. The EU27 figures include not shown observations.
Note: The 2018Q4 numbers were published in EBA/Rep/2020/29 '*Report on the Benchmarking of National Loan Enforcement Frameworks'*. The original notation has been maintained.
Data source: EBA computations based on AnaCredit and dedicated data collections.

The EU MS Gross Recovery Rates (simple averages) decreased in 7 EU MS and increased in 6 EU MS. A larger difference is shown by the EU MS Gross Recovery Rates (weighted averages, based on the amounts at time of default), reducing in 8 EU MS and increasing in 5 EU MS between 2018Q4 and 2023Q3. Three EU MS contribute with more than 86% of the total loans. The significant increase of the number of reported loans (number of observations) between 2018 and 2023 may be due not only to an increase of the number of loans under formal enforcement process but also to the improvement in the data collection process (for the Eurozone, the use of AnaCredit and respective access to a higher number of banks and loans).

Similarly, to the Gross Recovery Rates, also the Net Recovery Rates (simple average) decreased in 7 EU MS and increased in 6 EU MS. However, the reductions are more prominent, showing a negative trend between 2018Q4 and 2023Q3. The same is shown by the Gross Recovery Rates

(weighted averages, based on the amounts at time of default), reducing in 7 EU MS and increasing in 6 EU MS between 2018Q4 and 2023Q3.

Table 10 EU Benchmarks – Net Recovery rate (%), per EU Member-State - Corporates

Country of formal enforcement	Number of observations *2018Q4*	Simple average *2018Q4*	Weighted average *2018Q4*	Number of observations 2023Q3	Simple average 2023Q3	Weighted average 2023Q3	Standard Deviation 2023Q3	1st quartile 2023Q3	Median 2023Q3	3rd quartile 2023Q3
AT	38	34.6	40.8	142	58.1	54.4	43.3	3.2	79.6	100.0
BE	*Not shown	-	-	59	31.2	50.6	34.4	0.0	28.6	28.6
BG	252	65.2	50.8	2,246	11.2	29.5	18.5	0.0	0.0	16.0
CY	57	15.9	17.3	0						
CZ	38	6.6	4.7	5	16.7	77.3	36.7	0.2	0.4	0.4
DE	-	-	-	1,359	49.7	38.9	40.4	1.0	52.0	91.9
DK*	17	93.4	96.9	0						
EE	27	53.8	52.0	0						
ES	332	41.3	54.4	4,155	8.5	17.2	23.6	0.0	0.0	0.0
FI	NA	-	-	160	41.5	48.1	47.6	0.0	0.0	99.9
FR	85	35.6	48.5	144	41.5	34.9	41.2	0.0	28.7	81.3
GR	353	10.8	10.6	295	15.8	12.3	29.1	0.0	0.5	22.2
HR	726	27.4	60.0	23	30.8	8.9	45.9	0.0	0.0	100.0
HU	NA	-	-	0						
IE	-			0						
IT	878	22.7	18.6	13,793	11.8	9.5	20.6	0.0	1.7	13.6
LT	NA	-	-	12	93.6	91.8	7.3	90.2	93.9	100.0
LU	*Not shown	-	-	0						
LV	-	-	-							
MT	*Not shown	-	-	0						
NL	180	67.5	42.7	15	20.0	38.9	41.4	0.0	0.0	0.0
PL	321	0.3	0.4	679	26.5	29.0	39.4	0.0	1.0	39.0
PT	403	34.6	21.1	540	7.9	9.3	22.2	0.0	0.0	1.9
RO	68	56.8	48.6	54	36.7	50.9	36.3	0.0	23.7	70.3
SE	14	91.8	100.0							
SI	-	-	-	9	29.7	46.0	26.7	9.4	21.3	32.3
SK	14	28.5	24.7	9	28.2	50.1	44.1	0.0	0.0	55.7
Other - *outside EU*										

Note: *One bank is excluded from the computations.
Note: Rows are left empty when the number of observations is below five. The EU27 figures include not shown observations.
Note: The 2018Q4 numbers were published in EBA/Rep/2020/29 '*Report on the Benchmarking of National Loan Enforcement Frameworks'*. The original notation has been maintained.
Data source: EBA computations based on the dedicated data collections.

The Time to Recovery (years, simple average – loan level) decreased in 6 EU MS and increased in 7 EU MS.

Table 11 EU Benchmarks – Time to Recovery (years), per EU Member-State - Corporates

Country of formal enforcement	Number of observations *2018Q4*	Simple average *2018Q4*	Weighted average *2018Q4*	Number of observations 2023Q3	Simple average 2023Q3	Weighted average 2023Q3	Standard Deviation 2023Q3	1st quartile 2023Q3	Median 2023Q3	3rd quartile 2023Q3
AT	32	3.5	3.2	116	2.6	3.9	2.8	0.5	1.7	3.7
BE	*Not shown	-	-	45	4.1	3.6	3.3	2.2	4.8	4.8
BG	234	4.1	4.3	2,238	4.7	6.4	4.1	1.4	2.9	9.1
CY	47	2.2	2.0	0						
CZ	38	5.1	8.4	5	13.4	3.9	10.4	6.9	8.1	24.6
DE	-	-	-	642	1.7	2.8	2.4	0.1	0.8	2.4
DK*	30	1.7	1.8	0						
EE	27	1.1	1.4	0						
ES	190	7.0	2.5	1,691	1.0	1.8	2.3	0.0	0.0	0.0
FI	12	2.5	2.0	68	1.8	1.5	1.7	0.7	1.2	2.4
FR	48	5.0	4.9	115	6.1	6.5	3.5	3.9	5.9	8.2
GR	70	1.3	1.2	276	2.6	1.5	2.4	0.0	2.6	4.1
HR	896	2.4	1.0	9	3.9	9.5	5.8	0.0	2.1	4.9
HU**	NA	-		0						
IE	6	6.5	7.0	0						
IT	943	5.3	5.5	12,552	3.3	3.4	2.5	1.5	2.8	4.6
LT	NA	-		12	1.9	0.9	1.7	1.3	1.5	2.1
LU	15	1.4	1.4	0						
LV	NA	-								
MT	7	5.7	5.2	0						
NL	218	1.4	2.5	10	1.4	1.7	1.0	0.8	1.8	2.1
PL	61	1.5	2.6	157	2.5	6.2	2.2	1.1	1.5	3.1
PT	309	3.1	2.8	241	4.2	5.8	2.3	3.0	3.1	5.0
RO	46	3.9	3.0	110	1.2	3.1	1.7	0.0	0.5	1.7
SE	32	1.8	10.0							
SI	859	2.3	2.1							
SK	12	3.8	3.7							
Other - *outside EU*										

Note: *One bank is excluded from the computations.
Note: **One bank is excluded from the computations.
Note: Rows are left empty when the number of observations is below five. The EU27 figures include not shown observations.
Note: The 2018Q4 numbers were published in EBA/Rep/2020/29 '*Report on the Benchmarking of National Loan Enforcement Frameworks'*. The original notation has been maintained.
Data source: EBA computations based on the dedicated data collections.

The Judicial Costs to Recovery (simple average) show a high level of variability across countries.

Table 12 EU Benchmarks – Judicial Cost to recovery (%), per EU Member-State - Corporates

Country of formal enforcement	Number of observations *2018Q4*	Simple average *2018Q4*	Weighted average *2018Q4*	Number of observations 2023Q3	Simple average 2023Q3	Weighted average 2023Q3	Standard Deviation 2023Q3	1st quartile 2023Q3	Median 2023Q3	3rd quartile 2023Q3
AT	37	0.3	0.6	182	0.1	0.3	0.6	0.0	0.0	0.0
BE	NA	-	-	41	1.4	0.2	3.8	0.0	0.0	0.4
BG	245	6.7	4.6	2,194	5.1	4.6	10.3	0.0	2.3	6.9
CY	61	0.6	0.3	0						
CZ	38	2.3	0.1							
DE	-	-	-	624	1.2	0.1	4.2	0.0	0.0	1.1
DK*	16	0.0	0.0	19	0.0	0.0	0.0	0.0	0.0	0.0
EE	24	21.2	0.5	0						
ES	339	2.1	0.7	4,930	0.5	0.0	6.0	0.0	0.0	0.0
FI	NA	-	-	19	0.0	0.0	0.0	0.0	0.0	0.0
FR	11	0.1	0.1	150	0.2	0.3	0.8	0.0	0.0	0.0
GR	*Not shown	-	-	188	0.2	0.0	1.4	0.0	0.0	0.0
HR	703	0.2	0.0	24	0.0	0.0	0.0	0.0	0.0	0.0
HU	NA	-	-	0						
IE	NA	-	-	0						
IT	1,088	1.1	0.2	13,783	10.1	0.2	81.4	0.0	0.0	0.3
LT	NA	-	-	7	0.0	0.0	0.0	0.0	0.0	0.0
LU	16	0.7	0.5	0						
LV	NA	-	-	0						
MT	35	4.9	2.3	0						
NL	118	0.5	0.0	10	0.0	0.0	0.0	0.0	0.0	0.0
PL	331	0.4	0.0	685	0.0	0.0	0.1	0.0	0.0	0.0
PT	457	0.4	0.1	605	0.3	0.0	1.9	0.0	0.0	0.0
RO	61	13.8	13.0	53	0.0	0.0	0.0	0.0	0.0	0.0
SE	14	0.0	0.0	10	0.0	0.0	0.0	0.0	0.0	0.0
SI	830	0.6	0.6							
SK	10	0.1	0.1	8	0.0	0.0	0.0	0.0	0.0	0.0
Other - *outside EU*				7	0.0	0.0	0.0	0.0	0.0	0.0

Note: *One bank is excluded from the computations.
Note: Rows are left empty when the number of observations is below five. The EU27 figures include not shown observations.
Note: The 2018Q4 numbers were published in EBA/Rep/2020/29 'Report on the Benchmarking of National Loan Enforcement Frameworks'. The original notation has been maintained.
Data source: EBA computations based on AnaCredit and dedicated data collections.

7.2 SMEs - EU benchmarks

For SMEs, the EU MS Gross Recovery Rates (simple averages) decreased in 9 EU MS and increased in 16 EU MS. The same is shown by the EU MS Gross Recovery Rates (weighted averages, based on the amounts at time of default), reducing in 9 EU MS and increasing in 16 EU MS between 2018Q4 and 2023Q3. Three EU MS contribute with more than 52% of the total loans. As mentioned before, the significant increase of the number of reported loans (number of observations) may be due to both: the change in the data collection process (for the Eurozone, the use of AnaCredit and respective access to a higher number of banks and loans); and the possible significant real increase of the number of loans under formal enforcement process between 2018Q4 and 2023Q3 in some EU MS.

Table 13 EU Benchmarks – Gross Recovery rate (%), per EU Member-State - SMEs

Country of formal enforcement	Number of observations *2018Q4*	Simple average *2018Q4*	Weighted average *2018Q4*	Number of observations 2023Q3	Simple average 2023Q3	Weighted average 2023Q3	Standard Deviation 2023Q3	1st quartile 2023Q3	Median 2023Q3	3rd quartile 2023Q3
AT	4,460	53.0	54.4	3,177	52.9	61.3	44.8	0.0	62.0	100.0
BE	50	55.0	72.2	12,684	59.4	41.2	45.2	0.1	92.1	100.0
BG	2,861	38.8	37.3	1,190	45.1	53.1	40.5	0.7	36.8	94.2
CY	1,137	25.6	33.3	245	51.3	51.2	42.1	5.3	46.3	100.0
CZ	8,444	28.1	12.6	4,931	34.5	23.9	39.7	0.0	11.7	71.0
DE	898	49.1	72.0	7,429	42.9	19.6	44.4	0.0	21.3	99.2
DK*	63	47.4	79.1	2,089	52.5	87.0	46.2	0.0	62.4	100.0
EE	14	29.5	21.3	31	76.5	90.3	37.8	70.6	100.0	100.0
ES	19,670	66.3	66.1	38,204	26.2	35.6	40.6	0.0	0.0	56.3
FI	42	39.8	32.9	6,363	63.7	56.3	41.2	16.4	86.8	100.0
FR	9,954	34.4	35.4	11,900	44.0	39.2	41.7	0.0	34.1	98.6
GR	24,086	5.0	11.6	21,686	9.9	12.5	21.7	0.0	0.5	5.7
HR	851	20.8	6.0	1,992	39.3	46.3	44.3	0.0	9.3	100.0
HU	20,587	21.2	2.8	7,043	22.7	40.9	32.8	0.0	3.3	41.7
IE	456	6.7	8.5	2,171	40.3	24.3	42.3	0.0	20.5	100.0
IT	14,707	25.8	20.8	75,526	21.1	10.7	34.5	0.0	1.6	26.3
LT	365	54.7	48.0	504	68.1	59.0	36.4	41.4	83.4	100.0
LU	151	74.9	79.9	8	92.0	81.3	15.1	86.4	100.0	100.0
LV	225	53.3	66.4	80	66.1	62.6	41.0	20.8	89.0	100.0
MT	36	33.7	22.8							
NL	14,607	64.0	65.5	6,515	55.3	54.7	46.1	0.0	76.3	100.0
PL	14,653	10.9	6.9	24,742	26.6	29.3	36.6	0.0	5.2	39.7
PT	19,089	42.9	42.0	21,444	18.8	25.2	35.3	0.0	0.0	11.3
RO	8,021	25.9	26.9	8,752	23.6	19.9	35.7	0.0	0.1	39.9
SE	1,307	68.5	45.0	4,902	51.2	50.9	46.6	0.0	50.1	100.0
SI	-	-	-	977	35.0	63.2	41.5	0.0	10.0	83.6
SK	312	50.1	47.7	1,283	30.0	38.4	40.5	0.0	1.1	77.5
Other - *outside EU*				179	57.8	53.7	43.3	2.9	80.9	100.0

Note: *One bank is excluded from the computations.
Note: Rows are left empty when the number of observations is below five. The EU27 figures include not shown observations.
Note: The 2018Q4 numbers were published in EBA/Rep/2020/29 '*Report on the Benchmarking of National Loan Enforcement Frameworks'*. The original notation has been maintained.
Note IE: Aggregate data reported for Ireland includes a significant portfolio of legacy loans (pre-2008 origination) where the work out processes may not be representative of that observed by other lenders in the Irish market.
Data source: EBA computations based on AnaCredit and dedicated data collections.

The EU MS Net Recovery Rates (simple averages) decreased in 10 EU MS and increased in 15 EU MS.

Table 14 EU Benchmarks – Net Recovery rate (%), per EU Member-State - SMEs

Country of formal enforcement	Number of observations *2018Q4*	Simple average *2018Q4*	Weighted average *2018Q4*	Number of observations 2023Q3	Simple average 2023Q3	Weighted average 2023Q3	Standard Deviation 2023Q3	1st quartile 2023Q3	Median 2023Q3	3rd quartile 2023Q3
AT	4,460	50.2	52.9	3,177	62.0	59.7	41.9	9.2	82.0	100.0
BE	50	54.7	71.3	12,684	52.9	30.0	44.4	0.0	56.0	100.0
BG	2,861	29.6	32.5	1,190	27.4	38.8	32.8	0.0	13.1	43.1
CY	1,137	23.7	31.6	245	46.5	49.2	40.9	0.9	38.3	90.6
CZ	8,444	26.7	12.2	4,931	34.6	28.5	39.8	0.0	11.6	71.8
DE	898	48.5	71.9	7,429	44.5	23.0	42.9	0.0	32.8	94.9
DK*	63	44.6	70.9	2,089	51.0	76.8	46.2	0.0	53.0	100.0
EE	14	29.5	21.3	31	76.2	67.5	38.1	64.7	100.0	100.0
ES	19,670	64.2	64.9	38,204	11.8	16.7	28.1	0.0	0.0	0.3
FI	42	37.7	29.1	6,363	66.3	57.5	41.6	19.4	95.7	100.0
FR	9,954	34.3	35.1	11,900	39.9	35.9	38.5	0.0	31.1	75.3
GR	24,086	5.0	11.4	21,686	9.9	13.5	21.6	0.0	0.5	5.7
HR	851	20.0	6.0	1,992	29.4	28.4	38.9	0.0	4.6	60.2
HU	20,587	21.0	2.6	7,043	25.4	42.3	36.1	0.0	3.3	47.4
IE	456	7.6	8.3	2,171	40.8	24.6	42.4	0.0	21.0	100.0
IT	14,707	19.6	16.9	75,526	11.4	9.8	20.9	0.0	0.2	11.2
LT	365	53.7	47.7	504	60.8	53.3	35.5	32.9	68.8	98.4
LU	151	74.3	78.9	8	60.4	53.0	39.0	28.5	80.0	83.0
LV	225	51.9	64.5	80	59.6	47.1	38.7	20.2	71.0	100.0
MT	36	33.1	22.7							
NL	14,607	63.3	64.5	6,515	41.6	46.3	38.9	0.0	35.7	79.1
PL	14,653	5.3	4.1	24,742	29.8	29.9	39.2	0.0	6.0	51.0
PT	19,089	39.0	36.8	21,444	14.1	20.8	29.0	0.0	0.0	5.8
RO	8,021	22.9	19.9	8,752	23.6	19.9	35.7	0.0	0.1	39.9
SE	1,307	67.7	44.6	4,902	51.4	46.9	46.8	0.0	50.4	100.0
SI	-	-	-	977	26.9	61.6	36.8	0.0	1.8	45.9
SK	312	47.8	45.6	1,283	27.8	36.1	38.1	0.0	0.8	54.2
Other - outside EU				179	60.4	50.6	44.5	3.0	94.0	100.0

Note: *One bank is excluded from the computations.
Note: Rows are left empty when the number of observations is below five. The EU27 figures include not shown observations.
Note: The 2018Q4 numbers were published in EBA/Rep/2020/29 'Report on the Benchmarking of National Loan Enforcement Frameworks'. The original notation has been maintained.
Note IE: Aggregate data reported for Ireland includes a significant portfolio of legacy loans (pre-2008 origination) where the work out processes may not be representative of that observed by other lenders in the Irish market.
Data source: EBA computations based on the dedicated data collections.

Time to Recovery (in years, simple average at loan level) decreased in 7 EU MS and increased in 19 EU MS. The same is shown by the Time to Recovery (in years, weighted averages at loan level, based on the amounts at time of default), reducing in 8 EU MS and increasing in 18 EU MS between 2018Q4 and 2023Q3.

Table 15 EU Benchmarks – Time to recovery (years), per EU Member-State - SMEs

Country of formal enforcement	Number of observations *2018Q4*	Simple average *2018Q4*	Weighted average *2018Q4*	Number of observations 2023Q3	Simple average 2023Q3	Weighted average 2023Q3	Standard Deviation 2023Q3	1st quartile 2023Q3	Median 2023Q3	3rd quartile 2023Q3
AT	3,253	2.3	3.6	2,646	2.0	2.6	1.9	0.6	1.5	2.7
BE	55	2.9	3.5	7,005	3.5	4.6	3.6	0.9	2.3	4.8
BG	2,842	3.9	4.1	1,075	5.7	7.0	4.1	1.6	5.3	9.2
CY	962	4.1	2.5	257	7.2	7.2	3.8	4.5	7.5	9.2
CZ	8,823	4.3	3.9	4,845	1.9	5.2	2.5	0.0	0.9	2.2
DE	900	1.7	2.6	3,332	1.8	3.5	2.3	0.4	1.0	2.2
DK*	300	3.0	3.5	2,090	3.5	4.0	3.0	1.3	3.1	4.7
EE	13	2.0	2.0	21	2.6	2.4	1.3	2.1	2.2	2.9
ES	11,206	4.0	4.2	14,584	1.9	2.6	2.7	0.0	0.7	2.7
FI	427	1.4	1.7	5,170	2.6	4.2	3.2	0.4	1.3	3.2
FR	6,793	3.7	4.8	10,431	7.2	7.6	3.7	4.6	7.0	9.3
GR	1,325	1.5	1.7	20,557	1.8	1.6	2.4	0.0	0.0	3.9
HR	973	0.3	0.2	837	2.4	4.7	3.6	0.0	0.0	5.0
HU	17,351	1.8	2.7	1,939	4.1	6.1	3.3	1.3	3.2	7.3
IE	41	6.1	6.6	1,900	10.1	10.0	2.3	8.6	10.2	11.8
IT	14,960	6.4	6.1	72,957	4.0	4.1	3.0	1.8	3.5	5.7
LT	301	3.2	5.3	489	3.4	5.2	2.8	1.6	2.9	4.3
LU	1,019	1.9	3.1	6	24.8	26.3	10.8	25.0	29.1	31.2
LV	117	2.2	2.8	55	4.0	6.3	4.4	1.0	1.9	6.6
MT	60	5.3	5.3							
NL	15,810	1.8	2.5	6,591	1.5	2.1	1.1	0.8	1.3	2.2
PL	5,578	3.5	3.1	11,648	2.8	0.8	3.1	1.1	1.6	3.2
PT	22,572	3.3	3.3	11,939	3.9	5.0	2.9	2.6	3.0	4.9
RO	6,090	3.8	3.6	8,609	4.3	5.8	3.6	1.1	3.2	7.3
SE	1,362	0.6	1.8	4,094	1.3	2.3	2.2	0.0	0.3	1.6
SI	5,379	3.3	3.2	1,175	2.4	3.2	3.4	0.0	0.0	4.5
SK	2,205	2.5	3.1	707	3.2	4.0	2.5	1.4	2.7	4.4
Other - *outside EU*				178	4.6	3.8	5.0	0.9	2.5	6.0

Note: *One bank is excluded from the computations.
Note: Rows are left empty when the number of observations is below five. The EU27 figures include not shown observations.
Note: The 2018Q4 numbers were published in EBA/Rep/2020/29 'Report on the Benchmarking of National Loan Enforcement Frameworks'. The original notation has been maintained.
Note LU: The number of observations reported by the institutions significantly decreased in Luxembourg with respect to the data collected in the previous exercise (i.e. 1019 observations collected in 2018 with an average of 1.9 years while only 6 observations collected in 2023 with an average of above 25 years). The decrease in the sample considered for this exercise triggered high values in the country's results that might not properly reflect the current efficiency of loan enforcement procedures in terms of times to recovery for the whole system.
Note LU (2): In the case of Luxembourg, an average duration of around 25 years can be explained by the legal proceedings' conclusions in the country, allowing the banks to agree on a repayment plan, with small regular reimbursement amounts, linked to the life expectancy of the guarantor. As a result, such duration of 25 years can indeed occur by construction.
Note IE: Aggregate data reported for Ireland includes a significant portfolio of legacy loans (pre-2008 origination) where the work out processes may not be representative of that observed by other lenders in the Irish market.
Data source: EBA computations based on the dedicated data collections.

Also for SMEs, the Judicial Costs to Recovery (simple averages) show a high level of variability across countries.

Table 16 EU Benchmarks – Judicial Cost to recovery (%), per EU Member-State - SMEs

Country of formal enforcement	Number of observations *2018Q4*	Simple average *2018Q4*	Weighted average *2018Q4*	Number of observations 2023Q3	Simple average 2023Q3	Weighted average 2023Q3	Standard Deviation 2023Q3	1st quartile 2023Q3	Median 2023Q3	3rd quartile 2023Q3
AT	4,462	2.4	1.0	3,166	0.3	0.2	2.1	0.0	0.0	0.0
BE	61	2.2	2.1	7,680	12.9	0.9	106.9	0.0	0.0	0.0
BG	2,617	11.3	5.9	1,244	4.4	4.0	7.0	0.0	4.2	5.0
CY	893	3.5	0.9	248	1.1	0.3	2.0	0.1	0.3	1.1
CZ	8,696	2.0	0.2	3,713	3.3	1.0	10.8	0.0	0.0	0.0
DE	925	2.3	1.3	4,572	1.3	0.3	10.6	0.0	0.0	0.0
DK*	61	0.1	0.1	2,629	0.0	0.1	0.1	0.0	0.0	0.0
EE	14	1.5	0.7	29	0.0	0.0	0.1	0.0	0.0	0.0
ES	10,054	3.9	2.0	40,904	2.7	0.5	29.1	0.0	0.0	0.0
FI	66	0.1	0.0	1,757	0.0	0.0	0.0	0.0	0.0	0.0
FR	1,480	13.5	2.0	12,306	0.9	0.3	4.4	0.0	0.0	0.1
GR	387	19.0	7.1	13,384	0.1	0.0	0.7	0.0	0.0	0.0
HR	850	0.7	0.0	2,028	15.0	1.7	109.2	0.0	0.0	0.9
HU	20,224	0.1	0.3	6,532	0.1	0.1	0.4	0.0	0.0	0.0
IE	684	2.6	0.1	2,171	0.2	0.0	2.4	0.0	0.0	0.0
IT	18,863	1.7	0.7	75,318	18.5	0.4	181.0	0.0	0.0	0.3
LT	371	0.4	0.1	403	1.1	0.5	3.6	0.0	0.0	0.1
LU	550	0.6	0.2	8	21.6	9.4	25.6	0.0	13.4	42.5
LV	218	0.9	0.8	74	0.3	0.3	0.6	0.0	0.0	0.4
MT	60	5.1	2.1	0						
NL	16,395	1.7	1.4	7,331	0.0	0.0	0.0	0.0	0.0	0.0
PL	14,938	0.3	0.1	24,866	0.3	0.2	1.8	0.0	0.0	0.0
PT	30,710	9.0	1.1	28,062	1.3	0.2	15.4	0.0	0.0	0.0
RO	7,701	2.4	5.0	8,732	0.0	0.0	0.0	0.0	0.0	0.0
SE	1,693	7.1	0.6	5,018	5.7	0.0	13.7	0.0	0.0	2.6
SI	5,381	0.7	0.6	669	0.5	0.5	2.1	0.0	0.0	0.0
SK	589	9.3	4.6	876	0.3	0.2	1.5	0.0	0.0	0.0
Other - *outside EU*				202	0.0	0.0	0.0	0.0	0.0	0.0

Note: *One bank is excluded from the computations.
Note: Rows are left empty when the number of observations is below five. The EU27 figures include not shown observations.
Note: The 2018Q4 numbers were published in EBA/Rep/2020/29 'Report on the Benchmarking of National Loan Enforcement Frameworks'. The original notation has been maintained.
Note IE: Aggregate data reported for Ireland includes a significant portfolio of legacy loans (pre-2008 origination) where the work out processes may not be representative of that observed by other lenders in the Irish market.
Data source: EBA computations based on AnaCredit and dedicated data collections.

7.3 Benchmarks at EU level

As mentioned before, the aggregation at EU level of the national benchmarks at loan level should be read carefully, since the measures could be biased towards the high number of reported loans from some few EU MS under formal enforcement processes. For this reason, the descriptions of the 27EU benchmarks are focused on the averages of averages by country (i.e. Simple Average by Country, and not at loan level and therefore not biased towards the high number of loans reported by some EU Member States).

Considering the whole sample of Firms (i.e. including both Corporates and SMEs), the 27EU Gross Recovery Rates (based on simple averages by country) are similar to the previous benchmarks (42.5% in 2018Q4 and 42.2% in 2023Q3).

However, the 27EU Net Recovery Rates (simple averages by country) are lower (from 40.6% in 2018Q4 to 37.6% in 2023Q3). The difference between the 27EU Gross Recovery Rates and the 27EU Net Recovery Rates increased (from 1.9% in 2018Q4 to 4.6% in 2023Q3) and are due to a possible increase of total incurred costs associated with the individual formal enforcement processes.
Along the same line, for Firms, the 27EU Time to Recovery (simple averages by country) also increased significantly (from 3 years in 2018Q4 to 4.2 years in 2023Q3).
On the other hand, the 27EU Judicial Costs to Recovery (simple averages by country), an important part of the total costs of the enforcement processes, decreased (from 4.3% in 2018Q4 to 3.5% in 2023Q3).

Table 17 Recovery Rates (Gross and Net), Time to Recovery and Judicial Cost to Recovery per group of asset classes (Firms) (27 EU simple average: loan level and by country)

	Firms - *2018Q4*			Firms - *2023Q3*		
	Simple Average at loan level	**Simple Average by country**	**Obs.**	**Simple Average at loan level**	**Simple Average by country**	**Obs.**
Gross Recovery Rate (%)	**34.0**	**42.5**	173,153	**28.2**	**42.2**	289,573
Net Recovery Rate (%)	**31.7**	**40.6**	173,153	**22.4**	**37.6**	289,573
Time to Recovery (years)	**3.3**	**3.0**	134,862	**3.4**	**4.2**	213,256
Judicial Cost to Recovery (%)	**3.4**	**4.3**	153,391	**6.9**	**3.5**	277,257

When deep-diving per asset classes, in 2023Q3, Corporate and SMEs show similarities and differences per different types of benchmarks.

7.3.1. Recovery Rates

In 2023Q3, the 27EU benchmarks (simple average by country) for Corporate are lower than the 27EU benchmarks for SMEs. The 27EU Gross Recovery Rates (simple averages by country) are lower despite similar (Corporate with 40.1% and SMEs with 42.6%). The differences are more prominent on the remaining benchmarks. COVID-19 may have originated complex and multifaceted changes in insolvency benchmarks (e.g. government interventions temporarily suppressing insolvencies, particularly for SMEs) with potential long-term implications that are not covered in this study (data covered only until September 2023).

The 27EU Net Recovery Rates (simple averages by country) are lower for Corporates (34.7% vs 38% for SMEs), the 27EU Time to Recovery is also lower for Corporates (3.8 years vs 4.2 years for SMEs). The 27EU Judicial Cost to Recovery (simple averages by country), as expected given the higher exposures to recover on average, is also proportionally lower for Corporates (0.9% vs 3.5% for SMEs).

Table 18 Recovery Rates (Gross and Net), Time to Recovery and Judicial Cost to Recovery per asset class (Corporate and SMEs), (27 EU simple average: loan level and by country)

	Corporates - *2018Q4*			Corporates - *2023Q3*		
	Simple Average at loan level	Simple Average by country	Obs.	Simple Average at loan level	Simple Average by country	Obs.
Gross Recovery Rate (%)	40.4	44.6	4,277	22.0	40.1	23,704
Net Recovery Rate (%)	36.8	41.6	4,277	14.6	34.7	23,704
Time to Recovery (years)	3.4	3.3	4,145	3.2	3.8	18,296
Judicial Cost to Recovery (%)	1.4	2.7	4,448	6.5	0.9	23,537

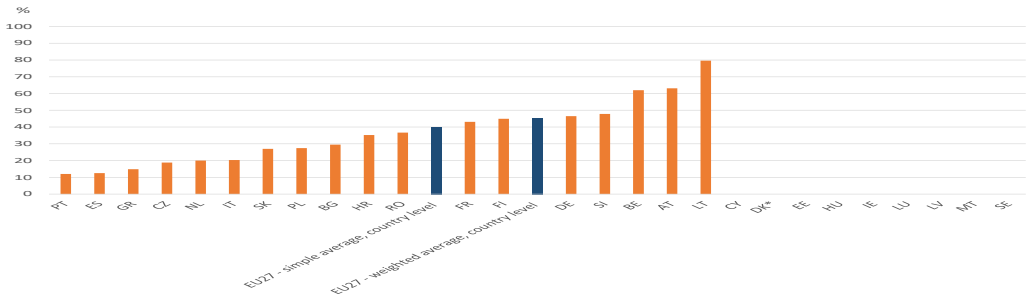
	SMEs - *2018Q4*			SMEs - *2023Q3*		
	Simple Average at loan level	Simple Average by country	Obs.	Simple Average at loan level	Simple Average by country	Obs.
Gross Recovery Rate (%)	33.8	41.4	168,876	28.7	42.6	265,869
Net Recovery Rate (%)	31.5	39.6	168,876	23.1	38.0	265,869
Time to Recovery (years)	3.3	3.0	130,717	3.4	4.2	194,960
Judicial Cost to Recovery (%)	3.5	3.9	148,943	6.9	3.5	253,720

The difference in the trend between the 27EU Gross Recovery Rate (simple average, country level), that reduced between 2018Q4 and 2023Q3 (from 44.6% to 40.1%), and the 27EU Gross Recovery Rate (weighted average, country level) that increased in the same period (from 43.1% to 45.4%), is explained by the positive relationship between the size (in amounts) of the loan and the 27EU Gross Recovery Rate (weighted average). The weighted average - based on amounts, is higher than simple average at country level (both not biased by the higher number of loans from some EU MS). In general, there is a positive evolution (higher 27EU Gross Recovery Rate) for higher loans' amounts (country level weighted average) and a negative evolution (lower 27EU Gross Recovery Rate) for smaller loans' amounts (country level simple average).

Table 19 Gross Recovery Rate – EU27 benchmarks (loan level and country level) – Corporates

Country of formal enforcement	Number of observations *2018Q4*	Simple average *2018Q4*	Weighted average *2018Q4*	Number of observations 2023Q3	Simple average 2023Q3	Weighted average 2023Q3	Standard Deviation 2023Q3	1st quartile 2023Q3	Median 2023Q3	3rd quartile 2023Q3
EU27 - *loan level*	4,277	40.4	26.2	23,704	22.0	19.3	34.9	0.0	1.6	27.5
EU27 - *country level*	4,277	44.6	43.1	23,704	40.1	45.4				

Figure 1 EU Benchmarks – Gross Recovery rate (%), Simple average (loan level) per EU Member-State and both EU27 Simple average (country level) and EU27 Weighted average (country level) – 2023Q3 – Corporates



Note: *One bank is excluded from the calculations.
Note: Not shown when the number of observations is below five. The EU27 figures include not shown observations.

Note: The EU27 figures denote country-level averages.
Data source: EBA computations based on AnaCredit and dedicated data collections.

For Corporate, the 27EU Net Recovery Rate (simple average, country level, i.e. not influenced by the number of loans from particular EU MS) decreased as well (from 41.6% in 2018Q4 to 34.7% in 2023Q3). On the other hand, the 27EU Net Recovery Rate (weighted average, country level, i.e. based on the amounts at time of default and also not influenced by the number of loans from particular EU MS) slightly increased (from 41.5% in 2018Q4 to 42.7% in 2023Q3).

Similarly to the 27EU Gross Recovery Rate, the difference in the trend between the 27EU Net Recovery Rate (simple average, country level), that reduce between 2018Q4 and 2023Q3, and the 27EU Net Recovery Rate (weighted average, country level) that slightly increased in the same period, is explained by the positive relationship between the size (in amounts) of the loan and the 27EU Net Recovery Rate (weighted average).

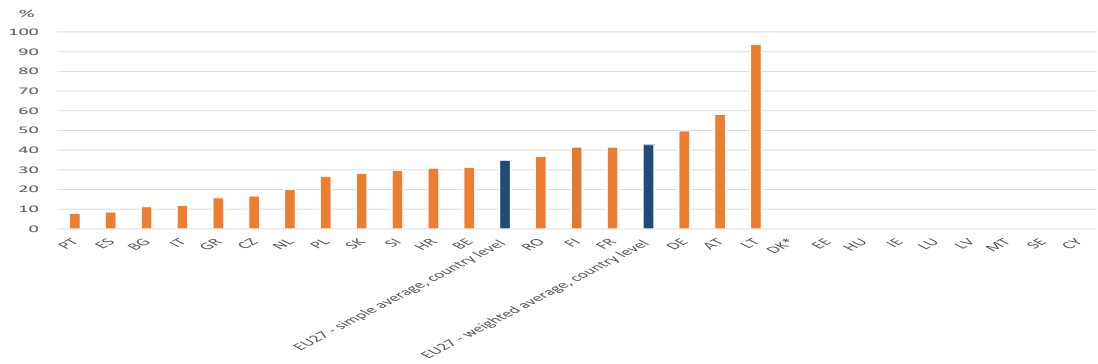
The weighted average (based on amounts), is higher than simple average at country level (both not biased by the higher number of loans from some EU MS). In general, there is a slightly positive evolution (higher 27EU Net Recovery Rate) for higher loans' amounts and a negative evolution (lower 27EU Net Recovery Rate) for smaller loans' amounts.

The positive evolution of EU27 Gross Recovery Rate for higher loans' amounts (230 bps variation, i.e. from 43.1% to 45.4%, seen at country level weighted average in the previous table) seems to be, however, consumed by the costs to recovery (i.e. the difference between Gross Recovery Rate and Net Recovery Rate, including Judicial Costs to Recovery), with only a slight increase (120 bps variation, i.e. from 41.5% to 42.7%) regarding the 27EU Net Recovery Rate.

Table 20 Net Recovery Rate – EU27 benchmarks (loan level and country level) – Corporates

Country of formal enforcement	Number of observations *2018Q4*	Simple average *2018Q4*	Weighted average *2018Q4*	Number of observations 2023Q3	Simple average 2023Q3	Weighted average 2023Q3	Standard Deviation 2023Q3	1st quartile 2023Q3	Median 2023Q3	3rd quartile 2023Q3
EU27 - *loan level*	4,277	36.8	23.7	23,704	14.6	19.0	26.4	0.0	0.2	15.7
EU27 - *country level*	4,277	41.6	41.5	23,704	34.7	42.7				

Figure 2 EU Benchmarks – Net Recovery rate (%), Simple average (loan level) per EU Member-State and both EU Simple average (country level) and EU Weighted average (country level) – 2023Q3 – Corporates



Note: * One bank is excluded from the computations.
Note: Not shown when the number of observations is below five. The EU27 figures include not shown observations.

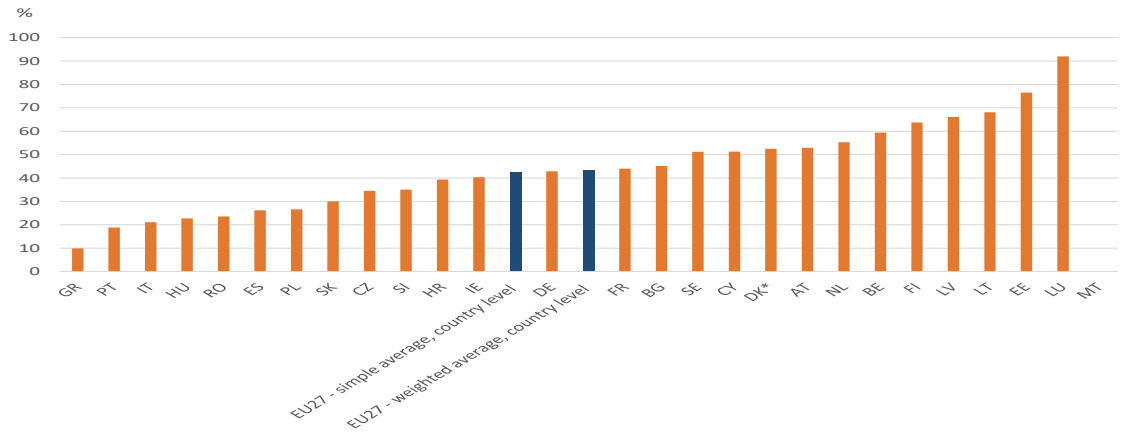
Note: The EU27 figures denote country-level averages.
Data source: EBA computations based on the dedicated data collections.

For SMEs, the 27EU Gross Recovery Rate (simple average, country level, i.e. not influenced by the number of loans from particular EU MS) increased (from 41.4% in 2018Q4 to 42.6% in 2023Q3). Moreover, the 27EU Gross Recovery Rate (weighted average, country level, i.e. based on the amounts at time of default and also not influenced by the number of loans from particular EU MS) also increased (from 40.8% in 2018Q4 to 43.6% in 2023Q3). The weighted average - based on amounts, is higher than simple average at country level (both not biased by the higher number of loans from some EU MS). In general, for SMEs, there is a positive evolution of the 27EU Gross Recovery Rate.

Table 21 Gross Recovery Rate – EU27 benchmarks (loan level and by country) – SMEs

Country of formal enforcement	Number of observations *2018Q4*	Simple average *2018Q4*	Weighted average *2018Q4*	Number of observations 2023Q3	Simple average 2023Q3	Weighted average 2023Q3	Standard Deviation 2023Q3	1st quartile 2023Q3	Median 2023Q3	3rd quartile 2023Q3
EU27 - *loan level*	168,876	33.8	35.1	265,869	28.7	25.5	39.9	0.0	2.4	61.5
EU27 - *country level*	168,876	41.4	40.8	265,869	42.6	43.6				

Figure 3 EU Benchmarks – Gross Recovery rate (%), Simple average (loan level) per EU Member-State and both EU Simple average (country level) and EU Weighted average (country level) – 2023Q3 – SMEs



Note: * One bank is excluded from the computations.
Note: Not shown when the number of observations is below five. The EU27 figures include not shown observations.
Note: The EU27 figures denote country-level averages.
Data source: EBA computations based on AnaCredit and dedicated data collections.

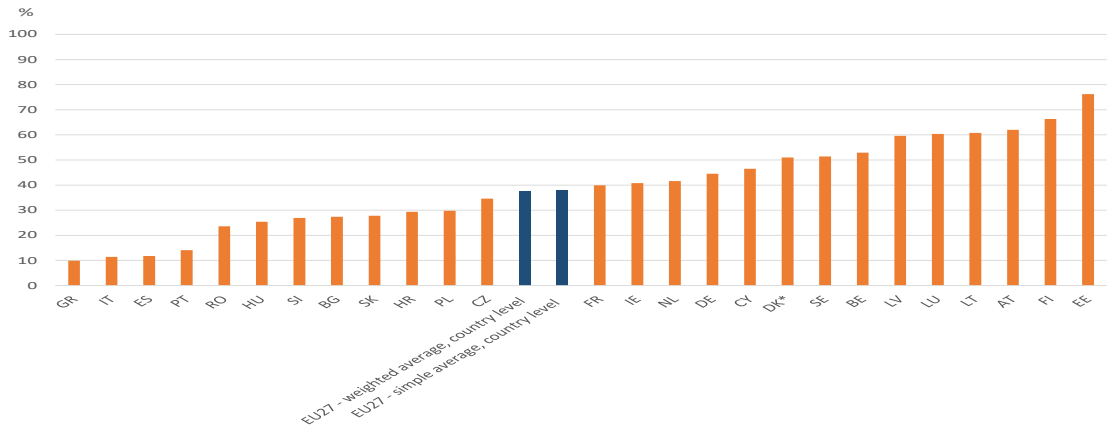
For SMEs, nevertheless, the 27EU Net Recovery Rate (simple average, country level, i.e. not influenced by the number of loans from particular EU MS) slightly decreased (from 39.6% in 2018Q4 to 38% in 2023Q3). Similarly, the 27EU Net Recovery Rate (weighted average, country level, i.e. based on the amounts at time of default and also not influenced by the number of loans from particular EU MS) slightly decreased (from 38.9% in 2018Q4 to 37.7% in 2023Q3). As expected, for SMEs the loans' amounts do not create significant differences between both the 27EU Net Recovery Rate (simple average, country level) and the 27EU Net Recovery Rate (weighted average, country level).

Moreover, and similarly to Corporate for higher loans' amounts, the positive trend shown by the SME 27EU Gross Recovery Rate (i.e. increase between 2018Q4 and 2023Q3) seems to be, however, consumed by the costs to recovery (i.e. the difference between Gross Recovery Rate and Net Recovery Rate, including Judicial Costs to Recovery). In general, for SMEs, the evolution shows stable benchmarks for the 27EU Net Recovery Rate.[30]

Table 22 Net Recovery Rate – EU27 benchmarks (loan level and by country) – SMEs

Country of formal enforcement	Number of observations *2018Q4*	Simple average *2018Q4*	Weighted average *2018Q4*	Number of observations 2023Q3	Simple average 2023Q3	Weighted average 2023Q3	Standard Deviation 2023Q3	1st quartile 2023Q3	Median 2023Q3	3rd quartile 2023Q3
EU27 - *loan level*	168,876	31.5	33.3	265,869	23.1	22.1	35.5	0.0	0.8	35.7
EU27 - *country level*	168,876	39.6	38.9	265,869	38.0	37.7				

Figure 4 EU Benchmarks – Net Recovery rate (%), Simple average (loan level) per EU Member-State and both EU Simple average (country level) and EU Weighted average (country level) – 2023Q3 – SMEs



Note: * One bank is excluded from the computations.
Note: Not shown when the number of observations is below five. The EU27 figures include not shown observations.
Note: The EU27 figures denote country-level averages.
Data source: EBA computations based on the dedicated data collections.

7.3.2. Time to Recovery

For Corporate, the 27EU Time to Recovery (years, simple average – country level, i.e. not influenced by the number of loans from particular EU MS) is higher than the previous benchmarks (3.3 years in 2018Q4 and 3.8 years in 2023Q3). Moreover, the EU Time to Recovery (years, weighted averages by country, i.e. based on the amounts at time of default and also not influenced by the number of loans from particular EU MS) increased as well (from 3.5 years in 2018Q4 to 4.3 years in 2023Q3).

In 2023Q3, the EU27 Time to Recovery (years, simple average – loan level) is similar to the EU27 Time to Recovery (years, weighted average – loan level, i.e. 3.2 years and 3.1 years, respectively). This shows that the size (in amounts) of the loan does not influence the Time to Recovery, although with a possible bias towards the higher number of loans from few EU MS. On the other hand, a positive relationship is shown for Time to Recovery (years, weighted average higher than simple average) at country level (in this case, not biased by the higher number of loans from some EU MS).

[30] See Annex 2 for additional net recovery rate benchmarks by category of loans.

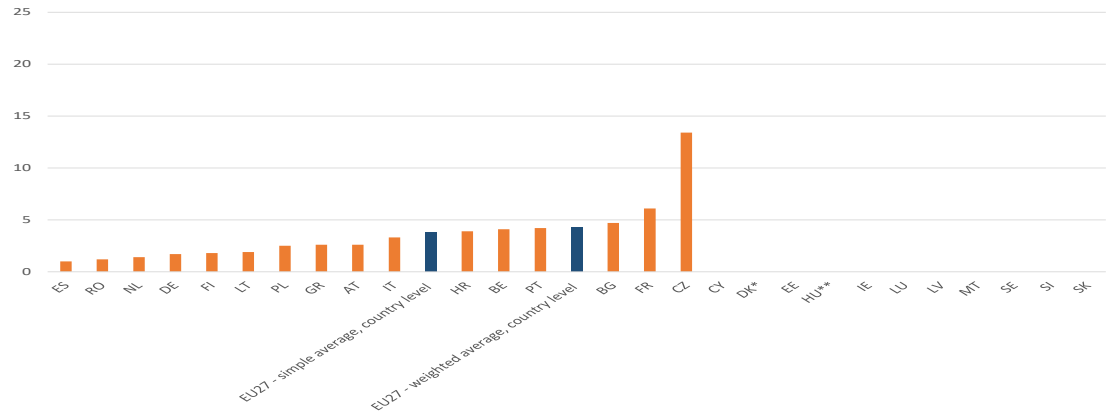
That is, for Corporate, the higher the size (in amounts) of the loan, the higher the Time to Recovery, with possible differences per Member State.

In general, for Corporate, the evolution of both EU27 Time to Recovery (years, simple average and weighted average) at country level is negative (from 3.3 years to 3.8 years and from 3.5 years to 4.3 years, respectively), between 2028Q4 and 2023Q3.

Table 23 Time to Recovery (years) – EU27 benchmarks (loan level and country level) – Corporates

Country of formal enforcement	Number of observations *2018Q4*	Simple average *2018Q4*	Weighted average *2018Q4*	Number of observations 2023Q3	Simple average 2023Q3	Weighted average 2023Q3	Standard Deviation 2023Q3	1st quartile 2023Q3	Median 2023Q3	3rd quartile 2023Q3
EU27 - *loan level*	4,145	3.4	3.9	18,296	3.2	3.1	2.9	1.2	2.4	4.6
EU27 - *country level*	4,145	3.3	3.5	18,296	3.8	4.3				

Figure 5 EU Benchmarks – Time to recovery (years), Simple average (loan level) per EU Member-State and both EU Simple average (country level) and EU Weighted average (country level) – 2023Q3 – Corporates



Note: * One bank is excluded from the computations.
Note: ** One bank is excluded from the computations.
Note: Not shown when the number of observations is below five. The EU27 figures include not shown observations.
Note: The EU27 figures denote country-level averages.
Data source: EBA computations based on the dedicated data collections.

For SMEs, the 27EU Time to Recovery (years, simple average – country level, i.e. not influenced by the number of loans from particular EU MS) is higher than the previous benchmarks (3 years in 2018Q4 and 4.2 years in 2023Q3). In the same vein, the EU Time to Recovery (years, weighted average - country level, i.e. based on the amounts at time of default and also not influenced by the number of loans from particular EU MS) increased as well (from 3.4 years in 2018Q4 to 5.1 years in 2023Q3).

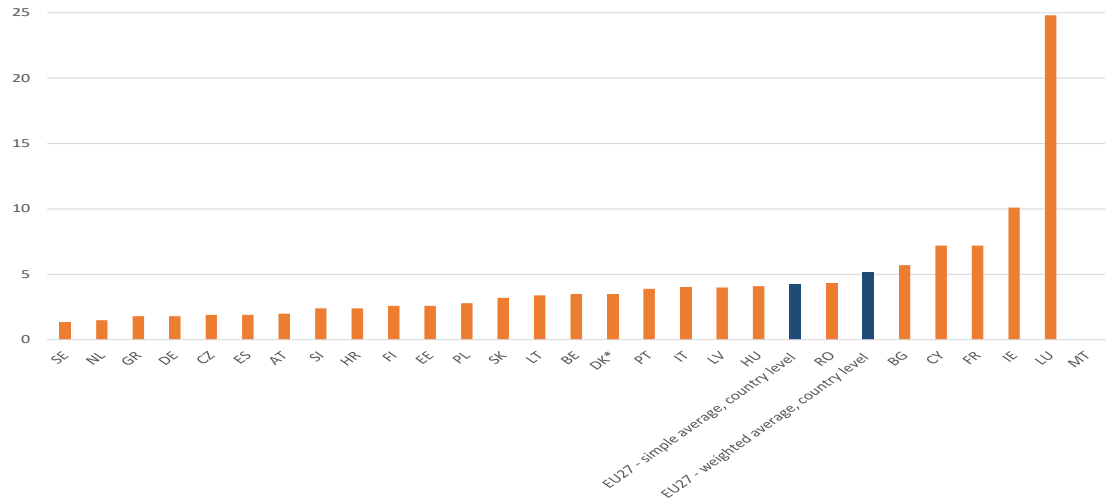
For SMEs, in 2023Q3 the EU27 Time to Recovery (years, simple average – loan level) is lower than the EU27 Time to Recovery (years, weighted average – loan level), showing a positive relationship between the size of the loan (in amounts) and the Time to Recovery. The same positive relationship is shown for Time to Recovery (years, weighted average higher than simple average) at country level (in this case, not biased by the higher number of loans from some EU MS). That is, for SMEs, the higher the size (in amounts) of the loan, the higher the Time to Recovery.

In general, and similarly to Corporate, the evolution of both SMEs EU27 Time to Recovery (years, simple average and weighted average) at country level is negative (from 3.3 years to 3.5 years and from 3.4 years to 3.7 years, respectively), between 2018Q4 and 2023Q3.

Table 24 Time to Recovery (years) – EU27 benchmarks (loan level and by country) – SMEs

Country of formal enforcement	Number of observations *2018Q4*	Simple average *2018Q4*	Weighted average *2018Q4*	Number of observations 2023Q3	Simple average 2023Q3	Weighted average 2023Q3	Standard Deviation 2023Q3	1st quartile 2023Q3	Median 2023Q3	3rd quartile 2023Q3
EU27 - *loan level*	130,717	3.3	3.5	194,960	3.4	3.7	3.3	0.9	2.7	5.1
EU27 - *country level*	130,717	3.0	3.4	194,960	4.2	5.1				

Figure 6 EU Benchmarks – Time to recovery (years), Simple average (loan level) per EU Member-State and both EU Simple average (country level) and EU Weighted average (country level) – 2023Q3 – SMEs



Note: * One bank is excluded from the computations.
Note: Not shown when the number of observations is below five. The EU27 figures include not shown observations.
Note: The EU27 figures denote country-level averages.
Data source: EBA computations based on the dedicated data collections.

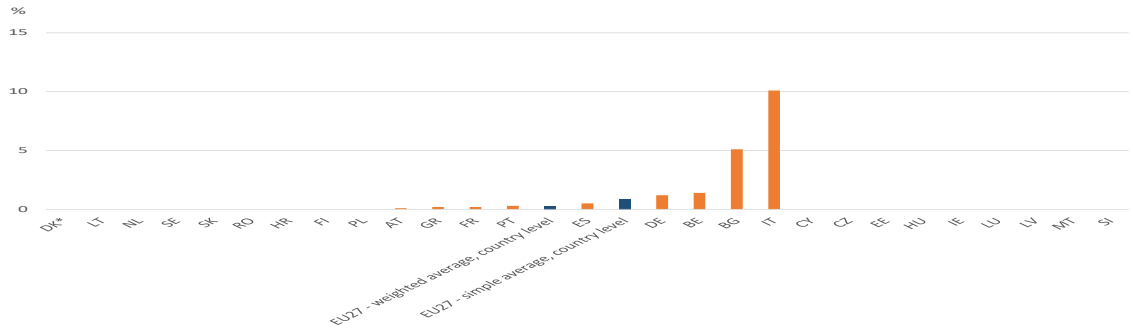
7.3.3. Judicial Cost to Recovery

For Corporate, the 27EU Judicial Costs to Recovery (simple average, country level, i.e. not influenced by the number of loans from particular EU MS) decreased (from 2.7% in 2018Q4 to 0.9% in 2023Q3). Similarly, the 27EU Judicial Costs to Recovery (weighted average, country level, i.e. based on the amounts at time of default and also not influenced by the number of loans from particular EU MS) also decreased (from 1.2% in 2018Q4 to 0.3% in 2023Q3). As expected, for Corporate the loans' amounts show significant differences between both the 27EU Judicial Costs to Recovery (simple average, country level) and the 27EU Judicial Costs to Recovery (weighted average, country level). Moreover, the positive trend shown by the Corporate 27EU Gross Recovery Rate seems to be not consumed by Judicial Costs, despite a potential increase in the general costs to recovery (i.e. the difference between Gross Recovery Rate and Net Recovery Rate).

Table 25 Judicial Cost to Recovery – EU27 benchmarks (loan level and country level) – Corporates

Country of formal enforcement	Number of observations *2018Q4*	Simple average *2018Q4*	Weighted average *2018Q4*	Number of observations 2023Q3	Simple average 2023Q3	Weighted average 2023Q3	Standard Deviation 2023Q3	1st quartile 2023Q3	Median 2023Q3	3rd quartile 2023Q3
EU27 - *loan level*	4,448	1.4	0.5	23,537	6.5	0.3	62.6	0.0	0.0	0.2
EU27 - *country level*	4,448	2.7	1.2	23,537	0.9	0.3				

Figure 7 EU Benchmarks – Judicial Cost to recovery (%), Simple average (loan level) per EU Member-State and both EU Simple average (country level) and EU Weighted average (country level) – 2023Q3 – Corporates



Note: * One bank is excluded from the computations.
Note: Not shown when the number of observations is below five. The EU27 figures include not shown observations.
Note: The EU27 figures denote country-level averages.
Data source: EBA computations based on AnaCredit and dedicated data collections.

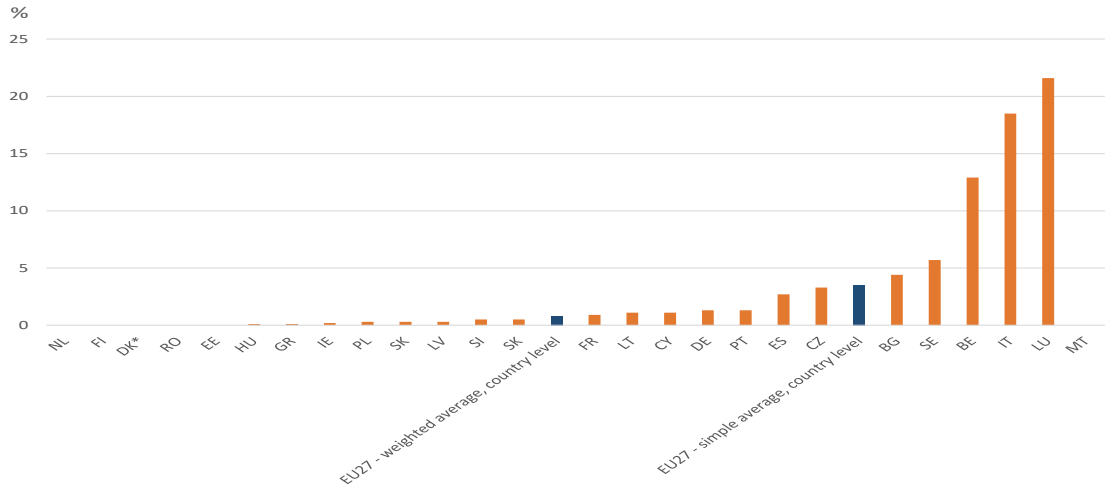
For SMEs, the 27EU Judicial Costs to Recovery (simple average, country level, i.e. not influenced by the number of loans from particular EU MS) slightly decreased (from 3.9% in 2018Q4 to 3.5% in 2023Q3). Similarly, the 27EU Judicial Costs to Recovery (weighted average, country level, i.e. based on the amounts at time of default and also not influenced by the number of loans from particular EU MS) also decreased (from 1.5% in 2018Q4 to 0.8% in 2023Q3). As expected, for SMEs the loans' amounts show significant differences between both the 27EU Judicial Costs to Recovery (simple average, country level) and the 27EU Judicial Costs to Recovery (weighted average, country level).

Moreover, and similarly to Corporate for higher loans' amounts, the positive trend shown by the SME 27EU Gross Recovery Rate seems to be not consumed by Judicial Costs, despite a potential increase in the general costs to recovery (i.e. the difference between Gross Recovery Rate and Net Recovery Rate).

Table 26 Judicial Cost to Recovery – EU27 benchmarks (loan level and by country) – SMEs

Country of formal enforcement	Number of observations *2018Q4*	Simple average *2018Q4*	Weighted average *2018Q4*	Number of observations 2023Q3	Simple average 2023Q3	Weighted average 2023Q3	Standard Deviation 2023Q3	1st quartile 2023Q3	Median 2023Q3	3rd quartile 2023Q3
EU27 - *loan level*	148,943	3.5	1.2	253,720	6.9	0.3	102.0	0.0	0.0	0.0
EU27 - *country level*	148,943	3.9	1.5	253,720	3.5	0.8				

Figure 8 EU benchmark – Judicial Cost to recovery (%), Simple average (loan level) per EU Member-State and both EU Simple average (country level) and EU Weighted average (country level) – 2023Q3 – SMEs



Note: * One bank is excluded from the computations.
Note: Not shown when the number of observations is below five. The EU27 figures include not shown observations.
Note: The EU27 figures denote country-level averages.
Data source: EBA computations based on AnaCredit and dedicated data collections.

8. Main determinants from EU enforcement frameworks explaining the recovery outcomes

The main factors that explain the differences in recovery outcomes were compared against the EU benchmarks. National loan enforcement regimes vary significantly across EU Member States in terms of the range of enforcement processes available to creditors, the scope and consistency of rule application, and the efficiency of court systems. It was important to study[31] the potential impacts on the banking systems by considering, *inter alia*, the following:

- the possible limits to recovery values that may drive delays in resolution and/or cause undue cost burdens;
- the factors that may impair banks' ability to recover collateral and cause a build-up of NPLs on the banks' balance sheets.

The investigation of the key features of the national loan enforcement regimes and the links to efficient debt enforcement outcomes from a creditor perspective, i.e. via higher recovery rates and shorter time to recoveries, shed some light on the significant differences in recovery outcomes across the EU.

The potential explanatory indicators for the key characteristics that define the national loan enforcement regimes could be collected by using questionnaires and publicly available information. In 2018, the Commission started the qualitative analysis on the basis of a survey sent to Member States through the Financial Services Committee. The Commission services collected this qualitative information and provided the EBA with a translation of it into quantitative information. The translation into quantitative indicators produced either ordinal[32] or binary variables. The collection of comparative qualitative information of enforcement regimes within a Member State took into account the idiosyncratic aspects of an enforcement regime such as national institutional characteristics (e.g. individual and collective enforcement methods, the existence of specialised courts, court capacity, and court clearance rates of a Member State).

The data analysis assumes that the national institutional characteristics have a direct impact on the efficiency of the enforcement regime, influencing the main indicators/EU benchmarks, i.e. recovery rates and time to recoveries.

[31] In the future, it will also be important to study the potential impacts on the banking systems by considering, inter alia, the following: a) the potential to impede on the credit supply and contribute to suboptimal resource allocation of funds to the real economy; and b) the potential to discourage both national and cross-border lending and investment.

[32] See for details regarding the questionnaire and respective variables: European Commission - Analysis of the individual and collective loan enforcement laws in the EU Member States, 2019. Translating qualitative information into quantitative indicators is subject to ambiguity, so the use of dummy variables to avoid having to give arbitrary values where a clear effectiveness ranking is not present is also a possibility. That is, in the event of a natural order in a factor (e.g. an indicator for 'no rules', 'informal rules', and 'formal rules'), the factor will be split into three dummy variables, of which one will function as the reference category. For details, see treatment effect literature.

Cross-sectional data

The characteristics of the enforcement frameworks for the EU Member States based on a survey collected during 2019 provides cross-sectional data. The survey was collected from selected countries (EU Member States) in a single time period and the reference date of 31 December 2018. In addition, the loan-by-loan level data on the main variables (i.e. recovery rate, time to recovery, judicial costs to recovery, etc…) used in the analysis were collected with reference to a certain point in time, namely 30 September 2023. Each loan was observed under formal enforcement in the sample only once. Thus, the behaviour of each loan under enforcement is observed only once (not across time, despite different information collected at different moments, for instance at the time of default and at the time of enforcement).

The participating banks, as in a cross-sectional study, were selected based only the inclusion and exclusion criteria set for the study. There is no time dimension involved in cross-sectional studies. The data collection lasted several months for both, the EU survey and the loan-by-loan data; however, the point in time data is similar to both rather than the calendar time to collect the data. The main data in this study was collected with reference to 30 September 2023. Since this is a one-time measurement of exposure and outcome, it is difficult to derive causal relationships from cross-sectional analysis. However, under certain circumstances a cross-sectional design may be valid when studying potentially causal associations. For example, if the association is assumed to be stable over time, a cross-sectional design may be valid. In this case, it is assumed that the main characteristics of the enforcement frameworks (even if a few changes have happened between 2018 and 2023) and the characteristics of the loans, individuals, banks and countries (as part of the sample) are stable over time. Some control variables are time series data collected at different points in time (e.g. banks efficiency). In these cases, each variable is observed once per time period for a number of periods. The business cycle has an impact on these relationships; however, due to data and time constraints, this was not entirely taken into account in the study. Some variables were transformed and converted into natural logs (ln). The purpose was to bring all values to a similar scale and also to reduce the effect of any outliers.

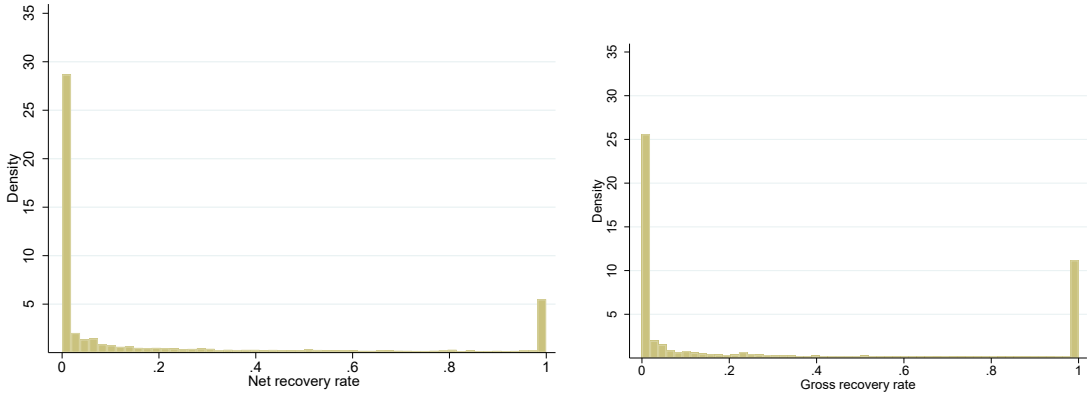
Recovery rate variables

Figure 9 shows the distributions of the cumulative of both variables, net recovery rate and gross recovery rate for corporate and SMEs. The distributions are bimodal with many observations with low recovery and many with complete recovery. Bimodal distributions of bank loan recoveries are also found in Asarnow and Edwards (1995)[33], Felsovalyi and Hurt (1998)[34], Franks et al. (2004)[35], Araten et al. (2004)[36] and Caselli et al. (2008)[37]. The histogram of enforced loans' recovery rates

[33] Asarnow, E. and Edwards, D., 'Measuring loss on defaulted bank loans: A 24-year study', Journal of Commercial Lending, Vol. 77, No. 7, 1995, pp. 11-23.
[34] Felsovalyi, A. and Hurt, L., 'Measuring loss on Latin American defaulted bank loans: A 27-year study of 27 countries', Journal of Lending & Credit Risk Management, Vol. 81, No. 2, 1998, pp. 41-46.
[35] Franks, J., de Servigny, A. and Davydenko, D., 'A comparative analysis of the recovery process and recovery rates for private companies in the UK, France and Germany', Standard and Poor's Risk Solutions, 2004.
[36] Araten, M., Jacobs, M. and Varshney, P., 'Measuring LGD on commercial loans: An 18-year internal study', *The RMA Journal*, Vol. 4., 2004, pp. 96-103.
[37] Caselli, S., Gatti, S. and Querci, F., 'The sensitivity of the loss given default rate to systematic risk: new empirical evidence on bank loans', *Journal of Financial Services Research*, Vol. 34, 2008, pp. 1-34.

demonstrates two peaks, with a bimodal characteristic demonstrating that the probabilities of full recovery rates and the probabilities of low rates are both very high.

Figure 9: Firms (corporate and SMEs) – histogram – net recovery rate and gross recovery rate



A common method to estimate the distribution of recovery rates is Beta distribution, which forms a smooth curve compared with the histogram. The Beta distribution estimation cannot fit the bimodal distribution of defaulted loans' recovery rates. Beta distribution estimation can partly describe the distribution of recovery rates but cannot fit its multiple peaks characteristic.[38]

Logistic function

As Figure 9 shows, the recovery rate is restricted to the interval between 0 and 1. Owing to the bounded nature of the dependent variable one cannot implement an ordinary least squares (OLS) regression because the predicted values from the OLS regression can never be guaranteed to lie in the unit interval. In addition, least squares estimates for regression models are highly sensitive to observations that do not follow the pattern of the other observations (i.e. outliers).

The logit–normal model is preferable on the grounds that it has the desirable property to restrict recovery rates to the interval between 0% and 100%. This additional structural element may make parameter estimation more efficient.[39]

Cross-sectional regressions

After collecting the information on the key characteristics of the enforcement regimes on a country-by-country basis, the analysis takes a cross-sectional view of all EU Member States for each indicator/factor. The objective is to obtain explanatory factors relating to enforcement procedures (including corporate insolvency and personal insolvency).

It was possible to develop a statistical identification of the effects on a loan level basis through cross-sectional regressions for each of the recovery outcomes (rates, times) with the data obtained on borrower characteristics, (extra) judicial timings, and qualitative enforcement regime factors, among other things. For instance, it was possible to test the effect of enforcement regime indicators on observed recovery rates directly. The impact of loan enforcement regimes and institutional factors was estimated on the loan recovery rates, while controlling for unobservable differences in

[38] Düllmann and Gehde-Trapp (2004) utilize a logit-normal distribution and empirically analyse the recovery rates.
[39] See Annex 7 for details.

countries beyond enforcement regimes and loan characteristics. The recovery rates were collected for all loans under formal enforcement procedures observed in all EU Member States.

The enforcement indicators are the qualitative characteristics, transformed into binary information, observed at the EU Member State level. A series of controls were used, such as banks' characteristics (size, business models, efficiency)[40] and legal origin of the enforcement.[41] The approach allows for the quantification of the impact of various enforcement indicators captured by the variety of loans (e.g. loans going through foreclosure, as an example).

The influence of the economic situation of the EU Member States during the formal enforcement of the loans was taken into account for controls. Several EU Members States data show the situation in different economic cycles, and this affects every single variable: in case of negative macroeconomic cycles, recovery rates plunge because of lower collateral values and deterioration of the debtor's situation, and time to recovery increases as a result of overloaded judicial systems. Furthermore, where the negative macroeconomic cycles has been long, samples collected may be overpopulated by the most difficult to recover assets. Creditors with better solvency or better collateral may be recovered in the first stages of the process, while the most difficult cases tend to take longer to recover. Therefore, these types of cases may be overrepresented in the sample of certain EU Member States. Macroeconomic factors, despite not capturing completely the potential business cycle impact given some data restrictions, could be used to explain some of the differences observed among EU Member States, and could be also relevant for studying the differences among enforcement frameworks.[42] The quality of the final model specifications was validated through statistical testing.

Clustered standard errors

Some observations in the data set are related to each other and this correlation exists because some loan characteristics (e.g. a bank's debtor or country of enforcement) are identical or similar for groups of observations within clusters (the observations within each cluster are not independently and identically distributed). For instance, some banks may be more efficient in the enforcement process than other banks.[43] The cluster-adjusted standard error will account for within-cluster correlation or heteroscedasticity.

Data was sampled from a population of EU Member States using clustered sampling for the participating banks and the intention of the study is to infer something about the broader population of banks. When using clustered standard errors it is important for clustering to take into account how the sample was selected and whether there are clusters in the population of interest

[40] The level of capital (measured against the capital requirements) and the level of NPL (or NPL ratio) were also considered and provided similar results to control variables.

[41] See Annex 7 for details.

[42] A future possibility is the treatment of data for different reference dates (i.e. not only 30 September 2023). The analysis could study different timeframes in which the loans entered into enforcement procedures (e.g. well before 2018 or after) as this would have an expected impact on the variables (given the judicial/legal reforms that were implemented in some Member States over time).

[43] The existence of clusters will lead to: standard errors that are smaller than regular OLS standard errors, narrow confidence intervals, t-statistics that are too large and misleadingly small p-values (see Cameron, A. & Miller, Douglas. (2015). A Practitioner's Guide to Cluster-Robust Inference. Journal of Human Resources. University of Wisconsin Press, vol. 50(2), pages 317-372)

that are not represented in the sample. Given the sampling design, we clustered standard errors by both countries of enforcement and banks. The research questions and hypothesis clearly support this model.

The analysis begins with the univariate relationships between recovery rates and the explanatory variables (dichotomic variables showing the characteristics of the enforcement frameworks). The aim is to find a mathematical relationship between the explanatory and response variables. The simple relationship between loan recovery rates and each of the dichotomic variables was examined. Successive models were built on the entire sample by enforcement/insolvency qualitative characteristics. Each enforcement/insolvency qualitative characteristics is a dummy variable that is entered into the regression equation.

Control for the presence of potential endogeneity

Several control variables are entered into the model to test the recovery rate. It is important to control for loan characteristics (time to recovery), bank characteristics (efficiency, size and business model), country characteristics (legal system).[44]

Endogeneity can occur in a variety of cases. There are two common cases: first, when important variables are omitted from the model, also called omitted variable bias, and second, when the outcome variable is a predictor of 'x' and not simply a response to 'x', also called simultaneity bias or selection bias. The second case, i.e. when the outcome variable of interest is, in fact, a predictor of the 'x' variable(s) in a model, is more difficult to control. This simultaneity (reciprocal effects) produces biased coefficients that generally lead to overestimation of the effect size of 'x' in regression models.

The possibility that in EU Member States with lower levels of recovery rates this may induce a higher public pressure to improve the efficiency of the judicial system, with recovery rates being the cause of changes (independent variable) rather than the consequence (dependent variable) was studied. To control for the presence of potential endogeneity, among other control variables, the legal origin of the EU Member State (i.e. a country legal origin) was used as an instrument variable for the proxy for the efficiency of the judicial system.

To account for unobserved cultural and institutional effects, country fixed effects were used.[45] This accounts for unobserved, time-invariant country heterogeneity. Not accounting for unobservable country heterogeneity in cross-country analyses causes a serious omitted variable bias on estimates of institutional effects – if such omitted country characteristics are correlated with these institutions. However, when controlling for country fixed effects (country dummies), many of the country dummies are omitted because of collinearity (a situation where there is either an exact or approximately exact linear relationship among the explanatory variables). A wide number of

[44] Other control *variables* such as additional borrower characteristics (total assets), loan characteristics (discount rate, LTV), industry sector fixed effects and time-period effects could be also useful if more observations were available.

[45] Such unobservable time-invariant country characteristics include, for example, culture, history, response behaviour, and formal institutions that are not captured by available measures.

predictors being omitted because of collinearity is because most of them are redundant. Nevertheless, the use of country dummies increases the adjusted[46] R^2 and improves the likelihood ratio (LR) statistic.[47] In this way, the effects of de facto time-invariant institutions will be identified in models with country fixed effects. The variables are defined in Table 27.

Table 27 Variables Description

Variables	*Description*
Time to recovery (years) of the participating bank	The length of the recovery period (as part of the recovery rate process, from the start of the formal enforcement status to the date of ultimate recovery from the formal enforcement procedures). The time to recovery is reported by the participating institutions.
Efficiency 2023 (ratio) of the participating bank	Noninterest expense before foreclosed property expense, amortisation of intangibles, and goodwill impairments as a percentage of net interest income (fully taxable equivalent, if available) and noninterest revenues, excluding only gains from securities transactions and nonrecurring items. For European banks, expenses include foreclosed property and amortization of intangibles and income includes security transactions. *Source: SNL Financial Fundamentals.*
Legal origin: d_Legalorigin	Legal origin based on four groups corresponding to the type of legal system in each EU Member State: 1 = Germanic; 2 = French; 3 = Anglo-Saxon[48]; or 4 = Nordic. *French Law*: BE, ES, FR, GR, IT, LT, LU, MT, NL, PT, RO *Germanic Law*: AT, BG, HR, CZ, EE, DE, HU, LV, PL, SK, SI *Anglo -Saxon Law*: CY, IE *Nordic Law*: DK, FI, SE, NO *Source : La Porta et al. (1997, 1998, 2008)* [49]
Bank size: ln_ta_18_23	Log of average total assets between 2018 and 2023. Average bank size (total assets in EUR) between 2018 and 2023. *Source: SNL Financial Fundamentals.*
Business model of the participating bank: d_b_BM	Business model of the participating bank: 1 = cross-border universal; 2 = retail-oriented; 3 = Corporate-oriented; or 4 = other specialised. *Source: EBA Staff Paper on Business Models.*[50]

[46] The standard R^2 is not very useful for qualitative response models. Various alternative statistics can be used to estimate the quality of the fit (called pseudo-R^2s): R^2 of McFadden, Count R^2, etc.

[47] To test the null hypothesis that all the slope coefficients are simultaneously equal to zero, we rely on the LR statistic (under the null it follows a Chi-squared distribution with degrees of freedom equal to the number of explanatory variables). It is equivalent to the F–test used for the standard linear regression model.

[48] Anglo-Saxon legal origin relates largely to CY data (IE contributes with few observations). The analysis was also tested by including MT and the results did not change. The results should be used with caution given the small number of observations.

[49] La Porta, R., López-de-Silanes, F., Shleifer, 'The Economic Consequences of Legal Origins', Journal of Economic Literature, Vol.46, No. 2, 2008, pp. 285-332; La Porta, R., López-de-Silanes, F., Shleifer, A. and Vishny, R.W., 'Legal determinants of external finance', *Journal of Finance*, Vol. 52, No. 3, 1997, pp. 1131-1150, and La Porta, R., López-de-Silanes, F., Shleifer, A. and Vishny, R.W., 'Law and finance', *Journal of Political Economy*, Vol. 106, 1998, pp. 1113-1155.

[50] For details, see Cernov, M. and Urbano, T., 'Identification of EU bank business models: A novel approach to classifying banks in the EU regulatory framework', EBA Staff Paper Series No. 2, 2018, available at: https://eba.europa.eu/documents/10180/2259345/Identification+of+EU+bank+business+models++Marina+Cernov%2C%20Teresa+Urbano+-+June+2018.pdf/8a69aed9-3e58-4f81-bc4c-80a48e4c3779.

The estimated parameters of the significant explanatory enforcement regime indicators show the impact of such explanatory indicators on the recovery outcomes. The resulting impact for individual EU Member States could be used to evaluate the estimated parameters, including scenario analysis of the impact on recovery outcomes of a Member State moving to a more efficient regime (all else equal).

Hence, the basic thesis that some factors (characteristics) of the enforcement frameworks are significant indicators of the likely average recovery rate amongst bank loans appears to be substantiated. In addition, the univariate results using bank specific variables show the expected behaviours and assures the quality of the data collection regarding the dependent variable. These univariate regressions,[51] and the multivariate regressions discussed in the following sections, were calculated using the recovery rate as the dependent variable.

***R*obustness checks**

Some robustness checks were carried out to verify how the results would change when taking into account several important modifications to the approach.

The models shown in the tables are based on the net recovery rates directly reported by the banks. One might argue that this variable is conceptually different from an indirect calculation of recovery rates using the amounts reported by the banks. Both specifications are important. The results are based on the recovery rates reported by the banks provide similar results.

In addition, the regional legal origin (as a supra-national regional categorical variable) in a country random effects model provides also a sufficient robustness check and substitution for omitted country fixed effects. The reason for the neglect of the time dimension is that most political institutions and governance structures regarding judicial systems and enforcement frameworks tend to be rather stable over time, causing their available measures to be correlated too highly with any vector of country dummies. This high correlation implies that in most empirical models the effects of country characteristics of the enforcement frameworks are difficult to be (statistically) identified, when country fixed effects are added.

Finally, robustness checks were also developed by restricting the sample included in the regressions. For example, regarding the categories of loans, by excluding pending enforcement cases (i.e. loans reported as category 2) or regarding recovery rates reported as zeros in the second quartile of the distributions by excluding those few MS. Whenever the reduction of the sample was possible, given the sampling design, the regressions provide similar results, i.e. the positive characteristics of the enforcement frameworks are the same. Furthermore, the regressions yield

[51] Cramér's V as a statistical measure of association between two variables was used. As expected, the correlations among some of the qualitative characteristics of the enforcement frameworks tend to be high and well above 0.5 (1=perfect association). That is, when a specific characteristic exists it is reasonable to also find similar characteristics in the same framework. For example, one characteristic such as the absence of privileges (prior rank) for wages, pension schemes (D28) are frequently seen together with another similar characteristic such as the absence of other general privileges for specific types of creditors/debt (D29) in the MS and respective enforcement framework (Cramér's V=0.83).

positive and significant coefficients when excluding the three largest countries in terms of reported loans from the regressions, providing also similar results.

8.1 Recovery rate

As in the previous report[52], the analysis is developed by grouping the corporate and SME portfolios (named Firms). To allow comparability between 2020 and 2025 Final Reports, the same legal characteristics are assessed. The characteristics of the enforcement frameworks that contribute to higher recovery rates were similar for corporate and SMEs. The results largely confirm the conclusions reported in 2020.

The characteristics (factors) that are associated with higher recovery rates[53] for both (corporate and SMEs) and are therefore key variables of interest in the data analysis are the following:

- legal techniques to enable out-of-court enforcement of collateral available;
- out-of-court enforcement of collateral available – tangible moveable assets;
- absence of long moratoria that suspend enforcement of collateral;
- creditors' chances to impact on the proceedings through creditor committees;
- absence of privileges (prior rank) for debt towards government, social security etc. (‘clearance of arrears to public sector’);
- absence of privileges (prior rank) for wages, pension schemes, etc.;
- absence of other general privileges for specific types of creditors/debt;
- 'pre-pack' insolvency (or restructuring) available for SMEs.

In a multivariate analysis, more complex models to explain recovery rates were developed, by adding several variables to the enforcement/insolvency qualitative characteristic. Table 28 shows, in addition to the enforcement/insolvency qualitative characteristic, the estimations with the inclusion of other variables such as time to recovery, banks’ characteristics (efficiency, size and business models), and the legal origin of the enforcement framework (i.e. Germanic, French, Anglo-Saxonic, or Nordic).

A positive and significant coefficient indicates that the enforcement/insolvency qualitative characteristic being considered increases the total recovery rate. The basic structure of the most successful models is the following: logit models for each of the key variables of interest together with several control variables were developed. The result shows that the dummy variables are consistently positive and statistically significant across all specifications. Regressions in columns 1–7 build the ‘basic models’ with all enforcement/insolvency qualitative characteristic (factors) significant (based on their *t*-ratios).

Time to recovery is expected to be an inverse measure of enforcement/insolvency efficiency. Higher time to recovery results in a lower recovery rate, reflecting poor enforcement/insolvency procedures. It was expected that this variable would have a negative coefficient in the recovery rate regression. In addition, higher efficiency (i.e. a negative signal of the variable) increases the

[52] 2020 EBA Benchmarking exercise.
https://www.eba.europa.eu/sites/default/files/document_library/About%20Us/Missions%20and%20tasks/Call%20for%20Advice/2020/Report%20on%20the%20benchmarking%20of%20national%20loan%20enforcement%20frameworks/962022/Report%20on%20the%20benchmarking%20of%20national%20loan%20enforcement%20frameworks.pdf

[53] That is, if the country enforcement framework confirms the existence of such qualitative characteristic the recovery rate is, on average, higher than in countries without such qualitative characteristics. Other qualitative characteristics of the same questionnaire were used and were not significant.

recovery rates. The results include, in addition to banks' efficiency, other bank-level variables to control for the potential effects of banks' characteristics, namely size and business models. The banks' characteristics help to control more effectively for the effect of business model, size, and operating efficiency on recovery rates. The results are generally robust to the use of control variables.

The regressions are cross-sectional across the collected sample of loans included in the exercise and do not include a time dimension. The evolvement of recovery rates across time may be also influenced by changes in macroeconomic conditions. However, previous empirical studies do not confirm that macroeconomic conditions have a statistically significant impact on recovery rates. Altman et al. (2005)[54] regressed average recovery rates on default rates and macroeconomic variables based on a sample of corporate bond defaults between 1982 - 2002 and found that recovery rates and default rates are closely linked, and that macroeconomic variables become insignificant and redundant once default rates (as banks' NPLs) are included as explanatory variables. Macroeconomic variables in general are significant determinants of default probabilities but not of recovery rate distributions (Bruche and González-Aguado, 2008[55]). In addition, Asarnow and Edwards (1995)[56] carried out a long-term empirical study on recovery rates, which covers a time period of 24 years from 1970 to 1993 and found a time-stable non-linear uptrend of the recovery rate variable that seems to be independent of macroeconomic factors.

In addition, the results confirm the legal origin of the EU Member State as a valid control variable.[57]

Table 28 shows for corporate and SMEs the characteristics (factors) that were already associated with higher recovery rates in the previous study. To recover value from the collateral of a secured loan, when a creditor has the possibility of receiving either the collateral itself or the proceeds therefrom without a court proceeding it seems to increase the recovery rates.

The fact that out-of-court enforcement could be available just so, or only upon prior agreement with the borrower, is a positive and significant factor for firms in the enforcement frameworks. Across the EU, out-of-court enforcement is not available in all Member States or is available only for some specific asset classes. Tangible movable assets seem to be one of the types of asset classes that benefit from better recovery rates when the out-of-court enforcement is available.

With regard to moratoria, enforcement often comes with a moratorium or stay, meaning that the borrower is given additional time during which a creditor cannot enforce. The absence of the possibility of a long moratorium improves recovery rates. Moreover, the existence in the enforcement frameworks of the possibility of creditors' chances to impact on the proceedings seems to be an important factor for higher recovery rates. Generally, creditors' chances to impact on the proceedings means that the proceedings are geared more towards recovery of value by the creditors.

Finally, the existence of privileges for debt towards government, wages, pensions and other general privileges by taking precedence over other creditors results in lower recovery rates to banks. In the absence of such rules, banks are able to recover more.

[54] Altman, E., Brady, B. Resti, A. and Sironi, A., 'The link between default and recovery rates: Theory, empirical evidence and implications', *Journal of Business*, Vol. 78, 2005, pp. 2203-2228. 10.1086/497044.
[55] Bruche, M. and González-Aguado, C., 'Recovery rates, default probabilities and the credit cycle', *Journal of Banking and Finance*, Vol. 34, No. 4, pp. 754-764.
[56] Asarnow, E. and Edwards, D., 'Measuring loss on defaulted bank loans: A 24-year study', *Journal of Commercial Lending*, Vol. 77, No. 7, 1995, pp. 11-23.
[57] See Annex 8 for descriptive statistics and correlations.

Table 28: Firms (corporate and SMEs) – characteristics (factors) that are associated with higher net recovery rates

VARIABLES	(1) *Net Recovery Rate*	(2) *Net Recovery Rate*	(3) *Net Recovery Rate*	(4) *Net Recovery Rate*	(5) *Net Recovery Rate*	(6) *Net Recovery Rate*	(7) *Net Recovery Rate*	(8) *Net Recovery Rate*	(9) *Net Recovery Rate*
D1 Out-of-court enforcement of collateral	1.154**								
	(2.05)								
D2 Out-of-court enforcement of collateral, for real-estate collateral		1.150**							
		(2.03)							
D3 Out-of-court enforcement of collateral, for tangeble movable assets			1.150**						
			(2.03)						
D10 Abstence of long moratoria that suspend enforcement of collateral				1.139**					
				(2.04)					
D25 Creditors' chances to impact on the proceedings through creditor committees					0.993				
					(1.49)				
D27 Abstence of privelages (prior rank) for debt towards government, social security						1.154**			
						(2.05)			
D28 Abstence of privelages (prior rank) for wages, pension schemes							1.154**		
							(2.05)		
D29 Absence of other general privileges for specific types of creditors/debt								0.803	
								(1.17)	
D30 Pre-pack' insolvency (or restructuring) available for SMEs									0.803
									(1.17)
time to recovery (years)	-0.0334	-0.0344	-0.0344	-0.0334	-0.0334	-0.0334	-0.0334	-0.0334	-0.0334
	(-1.32)	(-1.32)	(-1.32)	(-1.30)	(-1.32)	(-1.32)	(-1.32)	(-1.32)	(-1.32)
Efficiency Ratio 2023	-0.0180	-0.0198	-0.0198	-0.0175	-0.0180	-0.0180	-0.0180	-0.0180	-0.0180
	(-1.23)	(-1.35)	(-1.35)	(-1.19)	(-1.23)	(-1.23)	(-1.23)	(-1.23)	(-1.23)
ln_ta_18_23	-0.230**	-0.225**	-0.225**	-0.219**	-0.230**	-0.230**	-0.230**	-0.230**	-0.230**
	(-2.56)	(-2.48)	(-2.48)	(-2.37)	(-2.56)	(-2.56)	(-2.56)	(-2.56)	(-2.56)
d_legalorigin (reference = 2)									
Germanic Law	0.250	0.250	0.250	0.267	1.404**	1.404**	1.404**	1.404**	0.602
	(0.32)	(0.32)	(0.32)	(0.34)	(2.30)	(2.30)	(2.30)	(2.30)	(0.70)
Anglo-Saxon Law	0.538	0.534	0.534	0.515	1.692**	2.847***	2.847***	1.692**	0.890
	(0.62)	(0.61)	(0.61)	(0.60)	(2.57)	(3.28)	(3.28)	(2.57)	(0.93)
Nordic Law	0.697	0.685	0.685	-0.436	1.691***	0.697	1.852**	1.500	0.697
	(0.88)	(0.87)	(0.87)	(-0.44)	(2.87)	(0.88)	(1.99)	(1.44)	(0.88)
d_b_BM (reference = 2)									
Cross-border Iniversal (Bank Business Model)	-0.254	-0.288	-0.288	-0.271	-0.254	-0.254	-0.254	-0.254	-0.254
	(-0.58)	(-0.64)	(-0.64)	(-0.62)	(-0.58)	(-0.58)	(-0.58)	(-0.58)	(-0.58)
Corporate-oriented (Bank Business Model)	-2.272***	-2.258***	-2.258***	-2.268***	-2.272***	-2.272***	-2.272***	-2.272***	-2.272***
	(-4.21)	(-4.19)	(-4.19)	(-4.22)	(-4.21)	(-4.21)	(-4.21)	(-4.21)	(-4.21)
Other specialised (Bank Business Model)	-0.528	-0.520	-0.520	-0.505	-0.528	-0.528	-0.528	-0.528	-0.528
	(-0.40)	(-0.40)	(-0.40)	(-0.38)	(-0.40)	(-0.40)	(-0.40)	(-0.40)	(-0.40)
Constant	6.916***	6.915***	6.915***	6.631***	5.922***	5.761**	5.761**	6.113**	6.916***
	(2.93)	(2.91)	(2.91)	(2.75)	(2.85)	(2.51)	(2.51)	(2.49)	(2.93)
Bank (clustered standard errors)	Y	Y	Y	Y	Y	Y	Y	Y	Y
Country (clustered standard errors)	Y	Y	Y	Y	Y	Y	Y	Y	Y
Country fixed effects	Y	Y	Y	Y	Y	Y	Y	Y	Y
Adjusted R-squared	0.075	0.077	0.077	0.075	0.075	0.075	0.075	0.075	0.075
No. Banks	170	165	165	169	170	170	170	170	170
No. clusters	199	191	191	196	199	199	199	199	199
Observations	143798	137329	137329	141719	143798	143798	143798	143798	143798
logLikelihood	-71454.8	-67257.1	-67257.1	-70224.1	-71454.8	-71454.8	-71454.8	-71454.8	-71454.8

Robust t-statistics in paretheses

*** p<0.01, ** p<0.05, * p<0.1

The existence of legal instruments to enable the out-of-court enforcement of collateral posted can contribute to increase recovery rates and lower times to recoveries for different reasons. It reduces uncertainty for creditors by improvements in the assessment recovery prospects. Moreover, court processes are expensive (legal fees, court costs, administrative expenses) and a larger share of the proceeds are supported by creditors. At the same time, the possibility of a prompt collateral enforcement incentive debtors to negotiate or restructure earlier to avoid insolvency. A faster resolution allowing creditors to seize and sell collateral without lengthy court proceedings can also

reduce delays, and therefore assets can be liquidated before they lose value due to market changes, depreciation, or asset stripping.[58]

Regarding the prevention of asset deterioration, long moratoria allow collateral assets to depreciate, deteriorate, or become obsolete while enforcement is suspended. Without extended stays, secured creditors can quickly liquidate assets while they retain maximum value. This is particularly crucial for perishable goods, technology equipment, inventory, or financial instruments that lose value over time. At the same time, on the reduction of administrative and holding costs, the extended moratoria generate ongoing costs for asset maintenance, storage, insurance, and administration. These carrying costs compound over time, erode the collateral's net value, and ultimately reduce recoveries. Therefore, a swift enforcement eliminates these value-destroying holding periods. Moreover, as market timing advantages, asset values fluctuate with market conditions. Long enforcement suspensions may force sales during unfavourable market conditions, while prompt enforcement allows creditors to capitalize on optimal timing. This is especially important for commodities, real estate, or securities subject to market volatility. Furthermore, on the elimination of strategic debtor behaviour, extended moratoria can incentivize debtors to engage in strategic behaviour, using the additional time to strip assets, favour certain creditors, or delay inevitable liquidation while asset values decline. Shorter or absent moratoria reduce opportunities for such value-destructive activities. Additionally, regarding reduced uncertainty, a shorter or absent moratoria accelerate the entire insolvency process, reducing the period of uncertainty that often depresses asset values and discourages potential purchasers or investors from participating in the process. Therefore, the key is striking the right balance between providing enough time for meaningful restructuring efforts and at the same time preventing value destruction through overly extended enforcement suspensions.

The possibility for creditors to influence the proceedings through creditor committees can enhance recovery rates and reduce recovery times through several key mechanisms. Regarding the enhancement of oversight and monitoring, creditor committees can provide direct oversight of the insolvency practitioner's actions, ensuring decisions are made in the creditors' best interests rather than solely at the discretion of the debtor or court-appointed officials. This mechanism of oversight and monitoring reduces the risk of value-destroying decisions and helps maintain focus on maximizing recoveries. With respect to informed decision-making, creditor committees bring diverse expertise and market knowledge from different creditor perspectives. This helps identify optimal asset disposition strategies, evaluate restructuring proposals more effectively, and spot opportunities that might be missed by insolvency practitioners working alone. The result is better-informed decisions that typically yield higher recoveries. Moreover, the streamlining of the approval processes, creditor committees can provide faster authorization for time-sensitive actions like asset sales, contract assignments, or restructuring negotiations (rather than requiring court approval for every significant decision). This helps eliminate procedural delays that might otherwise allow asset values to deteriorate or opportunities to be lost. With regards to market credibility and confidence, the involvement of creditors through creditors' committees signals to potential buyers, investors, and counterparties that the process is commercially driven and credible. This enhanced confidence typically attracts more bidders and better offers for assets, driving up recovery values. Regarding negotiating power and expertise, creditor committees aggregate the collective bargaining power of multiple creditors, enabling more effective negotiations with buyers, debtors, and other stakeholders. Creditor committee members often bring specialized knowledge about asset values, market conditions, and industry dynamics that improves negotiation outcomes. With respect to prevention of value-destructive activities, creditor committees can quickly identify and

[58] For details see: Degryse, Ioannidou, Liberti & Sturgess (2018) – "How Do Laws and Institutions Affect Recovery Rates on Collateral?" Armour, Hansmann & Kraakman (2009) – "Agency Problems, Legal Strategies, and Enforcement"; Couwenberg and Jong (2008) - "Costs and Recovery Rates in the Dutch Liquidation-based Bankruptcy System".

prevent actions that might reduce recovery values, such as inappropriate asset dispositions, excessive administrative costs, or preferential treatments. Their active involvement creates accountability and reduces the risk of mismanagement. In addition, on the facilitation of coordination among creditors, creditors' committees provide a forum for creditors to coordinate their interests and avoid conflicting actions that might reduce overall recoveries. This coordination prevents scenarios where individual creditor actions inadvertently harm collective recovery prospects. Finally, the acceleration of information flow, creditors' committees typically receive regular updates and have direct communication channels with insolvency practitioners, enabling faster identification of problems and opportunities. This improved information flow supports quicker decision-making and more responsive management of the insolvency process. Therefore, on the one hand seems positive ensuring creditors' committees have appropriate authority and access to information while, on the other, hand maintaining efficient decision-making structures that do not create bureaucratic delays.

The absence of privileges (prior rank) for debt towards specific types of creditors (such as government, social security, wages, pension schemes) can enhance recovery rates and reduce recovery times through several key mechanisms. Regarding the simplification of priority structure, without complex priority hierarchies favouring government claims, social security, wages, or pension schemes, insolvency practitioners can focus on straightforward asset liquidation. It avoids extensive legal analysis of competing priority claims and eliminates time-consuming processes of categorizing, calculating, and ranking various privileged claims, and therefore accelerating the overall proceedings. At the same time, on the reduction of administrative costs, privileged claims often require extensive verification processes, employment law analysis, tax audits, and regulatory compliance reviews that consume significant time and resources. Without these complexities, administrative costs are lower, meaning more value flows to creditors rather than being consumed by the process itself. Moreover, the elimination of strategic claim inflation avoids that privileged status can incentivize certain creditors (particularly government entities) to inflate claims or pursue aggressive collection tactics knowing they have priority. Without such privileges, all creditors have incentives to be realistic about claim values and timelines, reducing disputes and accelerating resolutions. With regards to faster asset disposition, Privileged claims often come with regulatory restrictions or approval requirements that can delay asset sales. Government claims, for instance, might require lengthy audit processes or regulatory clearances. Removing these privileges eliminates such procedural bottlenecks, enabling quicker liquidation when assets are at peak value. Furthermore, it improves investor and buyer confidence in the sense that potential acquirers and investors are more willing to participate when they can clearly assess the claims structure without worrying about unknown or expanding privileged claims that might emerge. This clarity typically results in more competitive bidding and higher asset values. Regarding the prevention of value destruction through delays, privileged creditors, knowing their priority position, may have less incentive to support efficient proceedings and might even benefit from delays. Without such privileges, all creditors share similar incentives to maximize value and minimize time to recovery.

In concrete for SMEs, the existence of 'pre-pack' insolvency or restructuring regimes available can enhance recovery rates and reduce recovery times through different mechanisms. The preservation of going-concern Value is due to the fact that pre-pack procedures allow businesses to arrange their sale or restructuring before formally entering insolvency proceedings. This prevents the value destruction that typically occurs when businesses enter formal insolvency, where operations may be disrupted, key employees leave, customers flee, and suppliers withdraw credit. By maintaining business continuity, pre-packs preserve the going-concern premium that would otherwise be lost in traditional lengthy insolvency processes. Another factor is the speed of execution, concerning the fact that pre-pack arrangements are negotiated and agreed upon before the formal insolvency filing, allowing for immediate implementation once proceedings commence. This eliminates the

months or years typically required for marketing assets, negotiating with multiple stakeholders, and obtaining court approvals. The rapid execution prevents asset deterioration and reduces holding costs that accumulate during extended proceedings. At the same time, reduce administrative and legal costs by streamlining the process and reducing court involvement. Pre-packs significantly lower professional fees, administrative expenses, and other transaction costs that typically consume a substantial portion of the estate in traditional insolvency proceedings. Moreover, with respect to the enhanced certainty and reduced market disruption, the pre-negotiated nature of pre-packs provides greater certainty about outcomes for all stakeholders. This certainty attracts higher-quality buyers and better offers, as purchasers face less uncertainty about the transaction's completion and the assets they're acquiring. The reduced market disruption also prevents possible stigma and reputational damage associated with formal insolvency proceedings. In addition, on the optimal timing for asset disposition, pre-pack procedures allow stakeholders to time the business sale or restructuring optimally, rather than being forced into fire-sale conditions that characterize many formal insolvency processes. This strategic timing can capture better market conditions and maximize asset values. Pre-pack regimes allow also tailored solutions for SME needs given the fact that they often lack the resources and sophistication to navigate complex formal insolvency procedures effectively. Pre-pack regimes provide a more accessible and proportionate mechanism that recognizes the specific constraints and characteristics of smaller businesses, including limited management bandwidth and simpler capital structures. The pre-pack also helps to reduce information asymmetries, since pre-pack arrangements are negotiated by parties with intimate knowledge of the business. Therefore, reduce the information asymmetries that often lead to suboptimal outcomes in formal proceedings where external administrators must quickly learn complex business operations. Furthermore, on confidentiality benefits, pre-pack procedures can often be conducted with greater confidentiality than formal insolvency proceedings, preventing the negative publicity that can further damage business value and stakeholder relationships. In sum, the key advantage of pre-pack regimes is that they harness market mechanisms and private negotiations while providing the legal framework necessary to bind dissenting creditors and achieve orderly business transfers or restructurings. This combination typically yields superior outcomes compared to both informal workouts (which lack binding power) and formal insolvency proceedings (which are often too slow and destructive for SMEs).

The legal framework development should consider in the insolvency law design potential differences between corporate and SMEs. Traditional insolvency frameworks may be ill-suited to SME needs, pointing toward the need for specialized procedures.

Table 29 shows additional data analysis maintaining the positive characteristics (factors) of the enforcement frameworks and also comparing both types of asset classes (corporate or SMEs). A dichotomic variable ‘type of portfolio’ (SME=0; corporate=1) is used in the analysis.[59]

[59] For simplification purposes, only the positive characteristics (factors) are used in the analysis together with the dichotomous variable ‘type of portfolio’ (SME =0 ; corporate = 1).

Table 29: Corporate and SMEs – characteristics (factors) associated with higher recovery rates and comparison between asset classes

VARIABLES	(1) Net Recovery Rate	(2) Net Recovery Rate	(3) Net Recovery Rate	(4) Net Recovery Rate	(5) Net Recovery Rate	(6) Net Recovery Rate	(7) Net Recovery Rate	(8) Net Recovery Rate	(9) Net Recovery Rate	(10) Net Recovery Rate
Type of portfolio (Corporate = 1, SME = 0)	-0.0417	0.0580	0.123	0.123	0.0580	0.0580	0.0580	0.0580	0.0580	0.0580
	(-0.200)	(0.310)	(0.590)	(0.590)	(0.310)	(0.310)	(0.310)	(0.310)	(0.310)	(0.310)
D1 Out-of-court enforcement of collateral		0.678*								
		(1.770)								
D2 Out-of-court enforcement of collateral, for real-estate collateral			0.676*							
			(1.770)							
D3 Out-of-court enforcement of collateral, for tangeble movable assets				0.676*						
				(1.770)						
D10 Abstence of long moratoria that suspend enforcement of collateral					0.678*					
					(1.770)					
D25 Creditors' chances to impact on the proceedings through creditor committees						0.678*				
						(1.770)				
D27 Abstence of privelages (prior rank) for debt towards government, social security							0.678*			
							(1.770)			
D28 Abstence of privelages (prior rank) for wages, pension schemes								0.678*		
								(1.770)		
D29 Absence of other general privileges for specific types of creditors/debt									1.275***	
									(3.270)	
D30 Pre-pack' insolvency (or restructuring) available for SMEs										1.275***
										(3.270)
Constant	0.284	0.668**	0.667**	0.667**	0.668**	0.668**	0.668**	0.668**	0.0713	0.0713
	(1.120)	(2.130)	(2.130)	(2.130)	(2.130)	(2.130)	(2.130)	(2.130)	(0.220)	(0.220)
Bank (Clustered standard errors)	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Country (clustered standard errors)	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Country fixed effects	N	Y	Y	Y	Y	Y	Y	Y	Y	Y
Observations	264310	264310	225736	225736	262231	264310	264310	264310	264310	264310
Adjusted R-squared	0.000	0.095	0.057	0.057	0.095	0.095	0.095	0.095	0.095	0.095
No. Banks	213	213	208	208	212	213	213	213	213	213
No. Clusters	256	256	247	247	253	256	256	256	256	256
logLikelihood	-180632	-163557	-141159	-141159	-162249	-163557	-163557	-163557	-163557	-163557

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*** p<0.01, ** p<0.05, * p<0.1

A similar analysis was developed with the size of the firms (total assets) and the results are identical.[60] The dichotomic variable for the type of portfolios (Corporate or SMEs) is not significant, whereas the characteristics of the enforcement frameworks continue to show significance. It is important to mention that COVID-19 may have provoked complex and multifaceted changes in insolvency benchmarks, particularly affecting the recovery rate differential between corporate firms and SMEs. This event created an unusual phenomenon where government interventions temporarily suppressed insolvencies, particularly for SMEs. This may be particularly pronounced among financially weak, small firms, having potential long-term implications that are not covered in this study (data covered only until September 2023) and deserve further updates.

8.2 Time to Recovery

In this section, the analysis focuses on the observed and expected duration of time until the end of the formal process of enforcement (the event of interest). The statistical method is named survival analysis and the survival time (of the formal process of enforcement) is measured in years using the variable 'time to recovery' (predicting the duration of the event).

To find reasonable explanations of the final estimate, this study used information concerning enforcement characteristics provided by the Commission. These enforcements' characteristics are

[60] The regression without country-fixed effects (column 1) is presented just for control and comparison purposes with the remaining regressions with country-fixed effects.

the covariates that were investigated as possible explanatory variables to the survival time (of the formal process of enforcement), i.e. Time to Recovery. Given the study of factors that characterize the countries' enforcement frameworks and influence the recovery outcomes, the selection of such respective covariates via univariate analysis is therefore the focus of this investigation.
These covariates were set to the information available at default and at the beginning of the formal enforcement process and did not vary over time.

The study implements a survival analysis method on recovery data to estimate the survival time (of the formal process of enforcement), investigates what drives the estimate and to compare the estimate between different asset classes among the covariates of interest.

There are several survival analysis methods. This study uses the Cox proportional hazards model (i.e. a semi-parametric method), and to validate the model's predictive ability it uses both Kaplan – Meier survival curves and the log-rank test for equality of survivor functions. The Cox model is not restricted to any assumptions on an underlying distribution of the survival times and the method to investigate predictive ability (Kaplan–Meier survival curves) is easy to interpret. Kaplan–Meier survival curves and logrank tests are useful only when the predictor variable is categorical. Cox proportional hazards regression analysis works for both quantitative predictor variables and categorical variables. Furthermore, the Cox regression model extends survival analysis methods to assess simultaneously the effect of several risk factors on survival time. Some of the loans did not complete the formal enforcement process and are, therefore, in need of censoring owing to the end of the period of study (30 September 2023), whereas the enforcement process did not finish (no date of event), which is a right-censoring issue.

The outcome variable is a time variable measuring time to the event. This time variable and the event status variable (indicating for each loan if the enforcement process finished or not) are the two dependent variables in survival analysis. These two variables provide two key concepts: the survival function and the hazard function (for details, see Cox, 1972; and Allison, 2010).[61]

In a formal enforcement process, a low survival rate means that banks will get a larger recovery rate (amounts of debt paid back) and a short predicted survival means that the debt will be paid off earlier.

Figure 10 shows the estimated survival curves for some of the characteristics of the enforcement frameworks (and respective levels for the dichotomic variables). The Kaplan–Meier survival estimates show the probability of the event (i.e. close of the enforcement process) at a certain time interval. In comparison, for the same level of probability, a curve to the left and above shows a shorter time to achieve the same event. As examples, characteristics such as the absence of privileges (prior rank) for debt towards government, social security (D27) and the absence of other general privileges for specific types of creditors/debt (D29) show that their existence in the enforcement frameworks (i.e. D27 = 1 and D29 = 1) reduce the time to recovery (i.e. curve D27=1 on the left and above). The absence of privileges (prior rank) for debt towards government, social security (D27) shows a late emerging difference behaviour when the enforcement process reaches 5 years. The absence of other general privileges for wages and pension schemes (D28) shows a transient difference behaviour Irefrom the beginning in addition to a late-emerging difference behaviour when the enforcement process reaches 5 years (a similar pattern was observed in the 2020 Report).

[61] Cox, D., 'Regression models and life-tables', Journal of the Royal Statistical Society. Series B (Methodological), Vol. 34, No. 2, 1972, pp. 187-220; Allison, P.D., Survival Analysis Using SAS@: A Practical Guide, Second Edition, SAS Institute Inc., Cary, North Carolina, USA, 2010.

Figure 10: Estimated survival curves for the characteristics of the enforcement framework D27 and D28

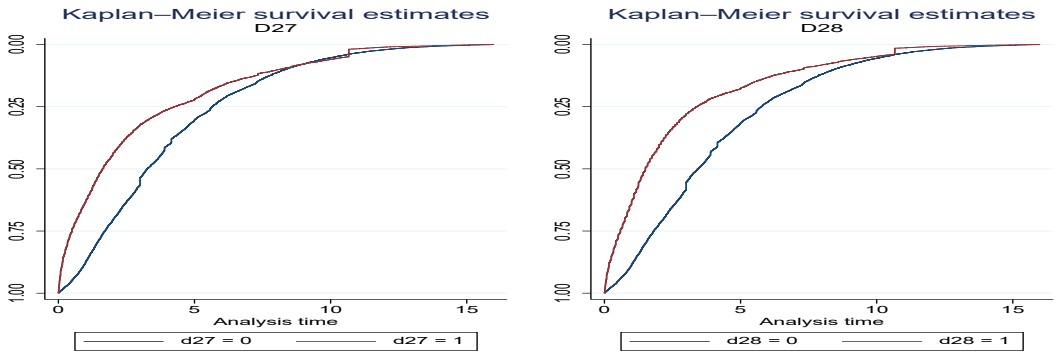

Table 30 shows the parameter estimates for the hazard ratios using variables associated with shorter time to recovery. The exponentiated coefficients are known as hazard ratios and give the effect size of covariates. For example, the existence of out-of-court enforcement of collateral (D1) in an enforcement framework (i.e. D1 = 1) increases the hazard by a factor of 2.74, or 174%. That is, the existence of D1 is associated, not only with a higher recovery rate (table 32) but also with a shorter time to recovery. By contrast, the existence of creditors' chances to impact on the proceedings through creditor committees (D25)[62] in an enforcement framework (i.e. D25 = 1) shows insignificant parameter estimates for the hazard ratio, therefore, this characteristic cannot convincingly be associated with higher hazard ratios (i.e. lower time to recovery) in the underlying data.

Table 30: Parameter estimates for the hazard ratios – insolvency frameworks characteristics associated with shorter time to recovery

VARIABLES		(1) Time to Recovery	(2) Time to Recovery	(3) Time to Recovery	(4) Time to Recovery	(5) Time to Recovery	(6) Time to Recovery	(7) Time to Recovery	(8) Time to Recovery	(9) Time to Recovery
D1	Out-of-court enforcement of collateral	2.743***								
		(6.88)								
D2	Out-of-court enforcement of collateral, for real-estate collateral		2.792***							
			(6.9)							
D3	Out-of-court enforcement of collateral, for tangeble movable assets			2.792***						
				(6.9)						
D10	Abstence of long moratoria that suspend enforcement of collateral				2.746***					
					(6.87)					
D25	Creditors' chances to impact on the proceedings through creditor committees					0.617				
						(-0.77)				
D27	Abstence of privelages (prior rank) for debt towards government, social security						2.743***			
							(6.88)			
D28	Abstence of privelages (prior rank) for wages, pension schemes							2.743***		
								(6.88)		
D29	Absence of other general privileges for specific types of creditors/debt								2.743***	
									(6.88)	
D30	Pre-pack' insolvency (or restructuring) available for SMEs									1.793***
										(5.27)
Bank (Clustered standard errors)		Y	Y	Y	Y	Y	Y	Y	Y	Y
Country (clustered standard errors)		Y	Y	Y	Y	Y	Y	Y	Y	Y
Country fixed effects		Y	Y	Y	Y	Y	Y	Y	Y	Y
No. Banks		206	200	200	205	206	206	206	206	206
No. Clusters		234	225	225	231	234	234	234	234	234
Observations		184,378	174,175	174,175	182,298	184,378	184,378	184,378	184,378	184,378
Log likelihood		-2,036,646	-1,913,540	-1,913,540	-2,011,446	-2,036,646	-2,036,646	-2,036,646	-2,036,646	-2,036,646
Prob > chi2		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

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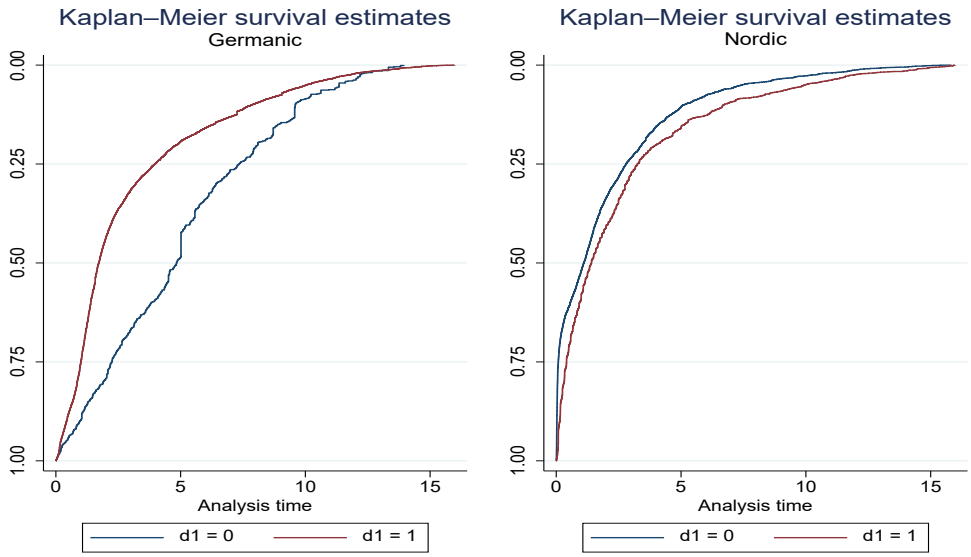
*** p<0.01, ** p<0.05, * p<0.1

The legal origin of the enforcement framework is an important variable to explain the time to recovery. Several studies have been showing there are notable differences in insolvency frameworks based on legal origin (Germanic, French, Nordic), particularly regarding creditor privileges and their impact on recovery outcomes.

[62] Note that D25 assumes the value of 1 for 25 out of the 27 countries included in the sample (D25 = 0 for the remaining two countries.)

For example, the existence of the out-of-court enforcement of collateral (D1) as a characteristic in the enforcement frameworks is associated, not only with a higher recovery rate but also with a shorter time to recovery if the legal origin is Germanic. Although D1 is associated with a lower time to recovery if the legal origin is Nordic, this effect is more muted and seems to dissipate over time, given the existence of several loans under enforcement for several years. In case the enforcement framework does not allow the existence of D1 (Figure 11, on the right-hand panel (Nordic) – for D1 = 0 it is always to the left of the D1 = 1, however the recovery is marginally faster without the presence of D1. This differs from the results shown in left-hand panel (Germanic), which suggest that the presence of D1 is associated with shorter time to recovery, which in turn is consistent with the pooled regression results reported in table 34. As expected, for variables D2 and D3 (same type of characteristic to D1) the behaviour is very similar to D1.[63]

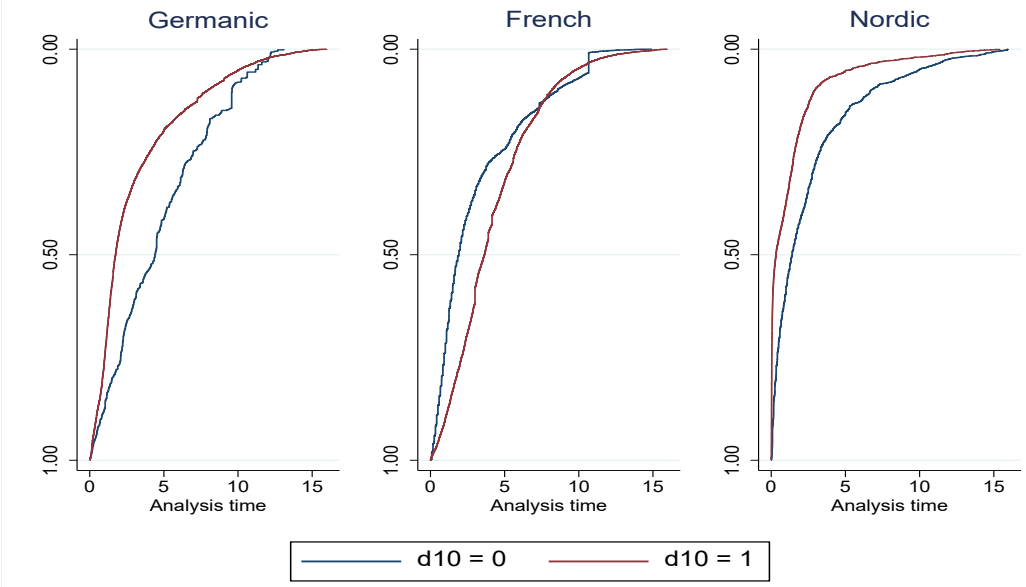
Figure 11: Estimated survival curves for the characteristics of the enforcement frameworks D1, by legal origin (left panel: Germanic; right panel: Nordic)



Regarding the absence of long moratoria that suspend the enforcement of collateral (D10), the existence of this characteristic in the enforcement frameworks is associated, not only with a higher recovery rate but also, and as expected, with a shorter time to recovery if the legal origin is Germanic or Nordic. However, the existence of this characteristic in the enforcement frameworks is associated with a higher time to recovery in case the legal origin is French. For enforcement procedures within the French legal framework, D10 is associated with slightly longer time to recovery for procedures but only when the process of enforcement is shorter than 6 years. Figure 12 shows the Kaplan-Meier survival curves for the time to recovery in case D10 is available in the enforcement framework (i.e. D10 = 1).

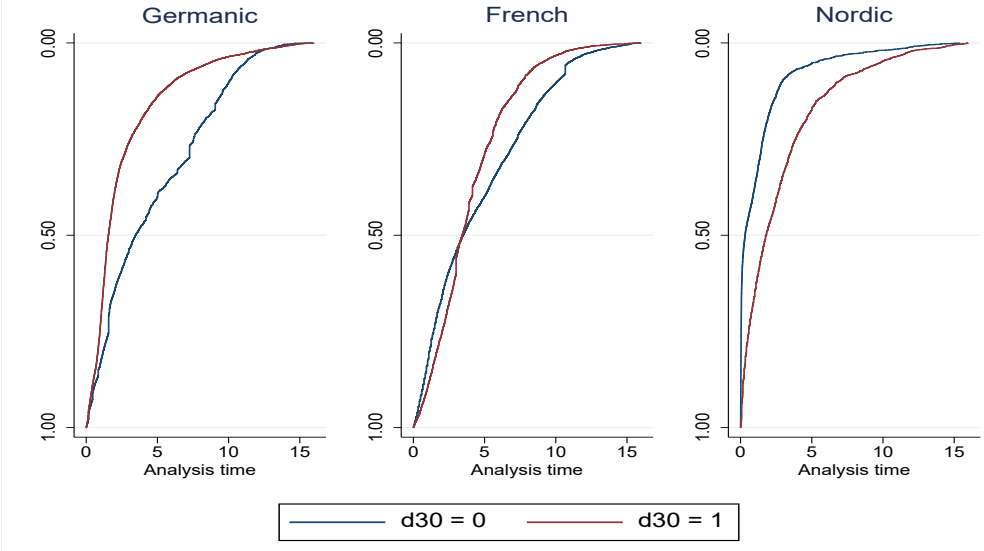
[63] Given the lack of observations for French and Anglo-Saxon legal origin it is not possible to provide such an analysis.

Figure 12: Estimated survival curves for the characteristics of the enforcement frameworks D10, by legal origin (left panel: Germanic; centre panel: French; right panel: Nordic)



With regards to the possibility of pre-pack insolvency (or restructuring) available for SMEs (D30 = 1), the existence of this characteristic in the enforcement frameworks is associated, not only with a higher recovery rate but also with a shorter time to recovery in case the legal origin is Germanic. However, the existence of this characteristic in the enforcement frameworks is associated with a higher time to recovery if the legal origin is French (but only for enforcement processes shorter than 3 years), and Nordic. Figure 13 shows, in the left-hand panel, the effect of a longer time to recovery (curve to the left) in the first 10 years of the formal enforcement process when the legal origin in Germanic and characteristic D30 is available in the enforcement framework (i.e. D30 = 1).

Figure 13: Estimated survival curves for the characteristics of the enforcement framework D30, by legal origin (Left panel: Germanic, Middle panel: French, right panel: Nordic)



With reference to both absence of privileges (prior rank) for debt towards government, social security as well as for wages and pension schemes (D27 and D28), the absence of these characteristics in the enforcement frameworks is associated, not only with a higher recovery rate but also to with shorter time to recovery in case the legal origins are Germanic, Anglo-Saxon or

Nordic. However, the absence of these characteristics in the enforcement frameworks is associated with a higher time to recovery in case the legal origin is French.
Regarding enforcement frameworks with a Germanic legal origin, the existence of variables D1, D2, D3, D10, D27, D28, D29, and D30 in the frameworks seems important (and statistically significant) in reducing the time to recovery. With regard to enforcement frameworks with French legal origins, D2 seem important to reducing the time to recovery. For enforcement frameworks with an Anglo-Saxon legal origin, D10 seems an important variable in reducing the time to recovery. Finally, with reference to enforcement frameworks with Nordic legal origins, the existence of variables D27, D28 and D30 seem important in contributing to reducing the time to recovery.

9. Supplementary information collected from other exercises

The collection of potential explanatory indicators for the key characteristics that define the national loan enforcement regimes could be done by using questionnaires and publicly available information.

In 2018, the EC started the qualitative analysis on the basis of a survey sent to Member States through the Financial Services Committee.[64] The EC services collected such qualitative information and provided this information to the EBA, already translated into quantitative information.[65] The translation into quantitative indicators produced either ordinal[66] or binary variables. The collection of comparative qualitative information of enforcement regimes within a Member State took into account idiosyncratic aspects of an enforcement regime such as national institutional characteristics (e.g. individual and collective enforcement methods; existence of specialised courts; court capacity; and court clearance rates of a Member State). Given the number of years since the development and answers to the survey in 2018, it would be useful to have access to an update by the EU MS in order to study the recent evolution of the respective national frameworks and the impact on the EU MS insolvency benchmarks in detail. Given the existence of several complementary indicators of national institutional characteristics, a possible way to incorporate and summarise the information is by using principal component analysis ("PCA") and composite indicator techniques. These techniques will make it possible to group the explanatory indicators into categories to improve their interpretation and the robustness of the final results.

[64] Report "Analysis of the individual and collective loan enforcement laws in the EU Member States". https://finance.ec.europa.eu/system/files/2019-12/191203-study-loan-enforcement-laws_en.pdf
[65] The translation exercise may need to include legal interpretation and/or legal analysis of the relevant publications, or any review of applicable legislation. The Commission services may also choose to convoke a group of independent experts on insolvency law for the purpose of helping in the elaboration of the data request and for ensuring plausibility checks regarding the data collection elements and data recovery statistics, and possibly also including the explanatory variables for explaining differentials in outcomes. The EBA will be given the possibility to interact with the group as it sees fit.
[66] Translating qualitative information into quantitative indicators is subject to ambiguity, so the use of dummy variables to avoid having to give arbitrary values where a clear effectiveness ranking is not present is also a possibility. That is, in the event of a natural order in a factor (e.g. an indicator for "no rules", "informal rules", and "formal rules"), the factor will be split into three dummy variables, of which one will function as the reference category. For details, see treatment effect literature.

10. Conclusion

This report answers to a Call for Advice published by the European Commission in April 2025 to invite the EBA to replicate the work carried-out in the 2020 Insolvency Benchmarking exercise. The EBA's update of the insolvency benchmarks cater for a number of policy considerations. The updated benchmarks on recovery value, recovery time and judicial costs are instrumental in establishing a point of reference for the assessment of the impact of EU corporate insolvency law. In addition, updated benchmarks allows the Commission services to assess the need for additional measures to facilitate further convergence in specific features of insolvency frameworks. Currently there are no available indicators for insolvency benchmarking produced by other institutions.[67]

Considering the whole sample of Firms (i.e. including both Corporates and SMEs) and comparing with the previous exercise, the 27EU Gross Recovery Rates (based on simple averages by country) are similar to the previous benchmarks, whereas the 27EU Net Recovery Rates are lower than previous benchmarks. The difference between the 27EU Gross Recovery Rates and the 27EU Net Recovery Rates increased and are due to a possible increase of total incurred costs associated with the formal enforcement processes. Along the same line, for Firms, the 27EU Time to Recovery also increased significantly. The dispersion's level of recovery rates and time to recovery across the same EU Member States subsist. The link between the dispersion's level of recovery outcomes and the LGD outcomes from other EBA Reports is also evident. During the period of analysis, the Covid-19 event led to debt moratoria that reduced and delayed the number of potential real insolvency cases (among other factors such as energy price shock and economic adjustments). The full impact will only become clear as government supportive measures across the EU continue to unwind and the backlog of delayed insolvencies works through the national legal systems over the next few years. These factors are having an impact on the duration of recovery proceedings and therewith on recovery values and respective benchmarks.

From a more specific insolvency framework perspective, the main determinants that explain the recovery outcomes for firms (corporates and SMEs) were scrutinised by a thorough econometric analysis, studying both recovery rates and times to recoveries. For both (corporates and SMEs), the determinants (factors) of higher recovery rates are similar, namely: the existence of legal instruments to enable the out-of-court enforcement of collateral posted; the absence of long moratoria that suspend the enforcement of collateral; the possibility for creditors to influence the proceedings through creditor committees; and absence of privileges (prior rank) for debt towards specific types of creditors/debt (such as government, social security, wages, pension schemes). Regarding the analysis of time to recovery, for both (corporates and SMEs), most of the determinants (factors) that contribute to increase recovery rates are also the same that reduce times to recoveries. The only exception is the characteristic regarding the absence of other general privileges for specific types of creditors/debt, i.e. not significant to shorter the time to recovery. In particular for SMEs, the existence of 'pre-pack' insolvency (or restructuring) regimes is also a factor

[67] Adalet McGowan, M. and D. Andrews (2018), "Design of insolvency regimes across countries", OECD Economics Department Working Papers, No. 1504, OECD Publishing, Paris, https://doi.org/10.1787/d44dc56f-en. As mentioned by the CfA, The World Bank discontinued the compilation of its indicators on insolvency in 2020, with the last observations covering 2019. In any event, the indicators complied by the World Bank suffered from a number of weaknesses, as they were based on surveys of practitioners regarding a hypothetical insolvency case, unlike the EBA's benchmarks that were based on actual economic data from banks' balance sheets and internal reporting. Another set of insolvency indicators compiled by the OECD and EBRD were based on structural features of insolvency systems across countries (furthermore, the EBRD's indicators focused on provisions on restructuring and covered only few EU Member States). Unlike the EBA's benchmarks, these indicators by the OECD and EBRD however did not contain information about the actual performance of these features in terms of economic variables that matter for creditors and investors.

that contributes to higher recovery rates and lower times to recoveries. These results for recovery rates and time to recovery confirm the previous study from 2020 exercise, using a different timespan.

The existence of legal instruments to enable the out-of-court enforcement of collateral posted can contribute to increase recovery rates and lower times to recoveries for different reasons, namely: reduce uncertainty for creditors; lower costs for creditors; incentive debtors to negotiate or restructure; allow creditors to avoid lengthy court proceedings; and reduce asset deterioration. The absence of long moratoria that suspend enforcement of collateral can also contribute to increase the recovery rates and lower times to recoveries as follows: prevention of asset deterioration; reduction of administrative and holding costs; market timing advantages; elimination of strategic debtor behaviour; and reduction of uncertainty. The possibility for creditors to influence the proceedings through creditor committees can enhance recovery rates and reduce recovery times through the following: enhancement of oversight and monitoring; informed decision-making; streamlining of the approval processes; market credibility and confidence; negotiation power and expertise; prevention of value-destructive activities; facilitation of coordination among creditors; and acceleration of information flow. In addition, the absence of privileges (prior rank) for debt towards specific types of creditors (such as government, social security, wages, pension schemes) can enhance recovery rates and reduce recovery times through different factors. Notwithstanding, the absence of privileges towards workers and tax protections may also raise significant social policy concerns beyond pure efficiency metrics (and, as mentioned before, these considerations are not in the scope of this report). The factors that can enhance recovery outcomes are the following: simplified priority structure; reduced administrative costs; elimination of strategic claim inflation; faster asset disposition; improved investor and buyer confidence; and prevention of value destruction through delay.

In concrete for SMEs, the existence of 'pre-pack' insolvency or restructuring regimes available can enhance recovery rates and reduce recovery times through different mechanisms, namely: preservation of going-concern value and commercial relationships; speed of execution; reduced administrative and legal costs; enhanced certainty and reduced market disruption; optimal timing for asset disposition; tailored solutions for SME needs; reduced information asymmetries; and confidentiality benefits.

Moreover, the legal origin of the enforcement framework is an important factor in the time to recovery. As expected, the legal system that forms the basis of the enforcement framework (i.e. Germanic, French, Anglo‐Saxon or Nordic, referred to as legal origin throughout the report) was found once more to be an important factor in recovery rates and time to recovery. The importance of legal origin has also been confirmed in other studies of recovery rates. For this reason, the continuous collection of potential explanatory indicators for the key characteristics that define the national loan enforcement regimes is crucial to be maintained for further analysis. Several Member States in recent years have been regularly changing the respective national frameworks. The collection of comparative qualitative information of enforcement regimes within a Member State should continue to consider idiosyncratic aspects of an enforcement regime given the number of years since the development and answers to the survey in 2018, therefore it would be fundamental to have access to an update by the EU MS in this regard.

The results of this analysis reinforce the findings from previous study in 2020, indicating that reforms pertaining to both legal framework characteristics and to judicial capacity are important to improve the recovery outcomes. Regarding limitations, the results do not consider other economic and social implications of these positive characteristics, as they are not the purpose of this report. In addition, COVID-19 may have provoked complex and multifaceted changes in insolvency

benchmarks, for instance with government interventions temporarily suppressing insolvencies, and those changes are having potential long-term implications that are not covered in this study. In sum, as presented in 2020, there are some characteristics in some EU Member States' enforcement frameworks that tend to improve the recovery rate averages and/or times to recoveries.

Annex 1 – Benchmarks - Number and percentage of total reported loans

Table 31 Sample per Member state – Firms – 2018Q4

		Number of loans included in the benchmarks			% of total reported loans included in the benchmarks		
Country of enforcement	Total number of reported loans	Number of loans - Recovery rate	Number of loans -Time to recovery	Number of loans -Judicial cost to recovery	% loans - Recovery rate	% loans - Time to recovery	% loans - Judicial cost to recovery
AT	4,736	4,517	3,333	4,527	95.4%	70.4%	95.6%
BE	82	51	56	61	62.2%	68.3%	74.4%
BG	3,313	2,152	3,076	2,861	65.0%	92.8%	86.4%
CY	1,866	1,194	1,009	953	64.0%	54.1%	51.1%
CZ	8,905	8,457	8,864	8,855	95.0%	99.5%	99.4%
DE	967	906	893	935	93.7%	92.3%	96.7%
DK	504	80	330	77	15.9%	65.5%	15.3%
EE	84	17	40	14	20.2%	47.6%	16.7%
ES	32,177	17,949	9,742	8,085	55.8%	30.3%	25.1%
FI	709	43	441	18	6.1%	62.2%	2.5%
FR	11,313	10,039	6,841	1,513	88.7%	60.5%	13.4%
GR	32,760	1	7,661	1	0.0%	23.4%	0.0%
HR	2,445	720	2,441	1,551	29.4%	99.8%	63.4%
HU	20,710	20,602	945	20,104	99.5%	4.6%	97.1%
IE	2,862	451	61	684	15.8%	2.1%	23.9%
IT	20,448	15,577	15,902	19,954	76.2%	77.8%	97.6%
LU	1,428	151	1,033	565	10.6%	72.3%	39.6%
LV	334	223	214	194	66.8%	64.1%	58.1%
MT	19	3	1	9	15.8%	5.3%	47.4%
NL	18,597	14,787	16,028	16,598	79.5%	86.2%	89.3%
PL	17,575	7,464	5,554	4,049	42.5%	31.6%	23.0%
PT	33,258	15,599	22,881	15,119	46.9%	68.8%	45.5%
RO	8,090	7,859	5,870	7,403	97.1%	72.6%	91.5%
SE	2,538	1,408	1,430	1,580	55.5%	56.3%	62.3%
SI	6,343	6,263	4,065	6,220	98.7%	64.1%	98.1%
SK	3,329	326	2,214	602	9.8%	66.5%	18.1%
EU27	**235,392**	**136,839**	**120,925**	**122,532**	**58.1%**	**51.4%**	**52.1%**
NO	1	1	1	1	100.0%	100.0%	100.0%

Table 32 Sample per Member country – Firms – 2023Q3

		Number of loans included in the benchmarks			% of total reported loans included in the benchmarks		
Country of enforcement	Total number of reported loans	Number of loans - Recovery rate	Number of loans - Time to recovery	Number of loans - Judicial cost to recovery	% loans - Recovery rate	% loans - Time to recovery	% loans - Judicial cost to recovery
AT	5,262	3,319	2,762	3,348	62.7%	52.2%	62.9%
BE	18,966	12,743	7,050	7,721	67.2%	37.2%	40.7%
BG	3,628	3,436	3,313	3,438	94.7%	91.3%	94.8%
CY	363	245	257	248	67.5%	70.8%	68.3%
CZ	9,701	4,936	4,850	3,716	50.9%	50.0%	38.3%
DE	17,597	8,788	3,974	5,196	49.9%	22.6%	29.5%
DK	10,999	2,089	2,090	2,648	19.0%	19.0%	24.1%
EE	31	31	21	29	100.0%	67.7%	93.5%
ES	155,911	42,359	16,275	45,834	27.2%	10.4%	29.4%
FI	9,834	6,523	5,238	1,776	66.3%	53.3%	18.1%
FR	24,132	12,044	10,546	12,456	49.9%	43.7%	51.6%
GR	41,239	21,981	20,833	13,572	53.3%	50.5%	32.9%
HR	2,757	2,015	846	2,052	73.1%	30.7%	74.4%
HU	38,441	7,043	1,939	6,532	18.3%	5.0%	17.0%
IE	2,374	2,171	1,900	2,171	91.4%	80.0%	91.4%
IT	131,479	89,319	85,509	89,101	67.9%	65.0%	67.8%
LT	688	516	501	410	75.0%	72.8%	59.6%
LU	11	8	6	8	72.7%	54.5%	72.7%
LV	89	81	56	74	91.0%	62.9%	83.1%
MT	19	1	1	-	5.3%	5.3%	0.0%
NL	7,837	6,530	6,601	7,341	83.3%	84.2%	93.7%
PL	26,969	25,421	11,805	25,551	94.3%	43.8%	94.7%
PT	85,644	21,984	12,180	28,667	25.7%	14.2%	33.5%
RO	10,347	8,806	8,719	8,785	85.1%	84.3%	84.9%
SE	5,699	4,906	4,097	5,028	86.1%	71.9%	88.2%
SI	1,735	986	1,177	671	56.8%	67.8%	38.7%
SK	1,443	1,292	710	884	89.5%	49.2%	61.3%
EU27	613,195	289,573	213,256	277,257	47.2%	34.8%	45.2%

Annex 2 – Net recovery rate by category of loans[68]

Table 33 Net recovery rate for category 1 – Corporates

Country of formal enforcement	Number of observations	Simple average	Weighted average	Standard Deviation	1st quartile	Median	3rd quartile
AT	69	65.7	68.4	40.7	19.5	88.3	100.0
BE	7	65.4	97.9	44.9	6.8	100.0	100.0
BG	545	21.1	37.2	22.9	0.0	14.6	36.3
CY							
CZ							
DE	231	60.8	64.6	40.1	13.5	80.7	97.1
DK							
EE							
ES	903	4.4	32.4	18.3	0.0	0.0	0.0
FI	35	61.6	91.6	47.8	6.0	100.0	100.0
FR	64	47.7	44.8	41.6	0.0	50.3	96.4
GR	29	21.5	14.6	39.6	0.0	0.0	0.0
HR							
HU							
IE							
IT	570	11.3	13.4	21.2	0.0	0.0	10.9
LT							
LU							
LV							
MT							
NL	10	30.0	53.1	48.3	0.0	0.0	100.0
PL	152	45.4	40.7	48.0	0.0	13.0	100.0
PT	173	1.7	0.2	10.9	0.0	0.0	0.0
RO							
SE							
SI	5	25.4	19.8	25.1	9.4	18.1	21.3
SK							
EU27	2,803	19.6	34.1	33.1	0.0	0.0	28.0
Other - outside EU							

[68] The footnotes specific to tables in section 7 of this report apply to the corresponding benchmarks in this annex.

Table 34 Net recovery rate for category 1 – SMEs

Country of formal enforcement	Number of observations	Simple average	Weighted average	Standard Deviation	1st quartile	Median	3rd quartile
AT	2,061	64.8	66.6	40.9	22.3	90.2	100.0
BE	3,323	67.3	27.4	40.2	30.6	100.0	100.0
BG	531	32.7	46.1	32.8	0.7	24.7	54.8
CY	94	68.0	68.4	35.7	37.6	83.9	98.6
CZ	442	70.1	17.0	42.6	20.1	100.0	100.0
DE	1,770	66.6	38.9	39.3	32.7	91.0	98.4
DK	1,348	41.1	42.9	45.2	0.0	14.0	100.0
EE							
ES	7,791	8.2	16.6	24.7	0.0	0.0	0.0
FI	5,552	65.8	54.0	42.0	14.1	96.6	100.0
FR	5,547	44.6	46.1	41.0	0.0	44.5	89.1
GR	3,451	8.6	9.8	23.6	0.0	0.0	1.6
HR	239	41.3	24.1	41.9	0.0	24.5	99.3
HU	4,668	22.4	34.8	34.7	0.0	0.3	36.5
IE	1,911	41.9	24.5	42.4	0.0	24.0	100.0
IT	2,313	14.1	16.0	21.6	0.0	1.9	21.1
LT	352	62.3	51.2	34.2	41.3	70.5	98.1
LU	6	80.5	69.9	13.8	80.0	80.5	85.0
LV	24	72.0	46.0	36.2	50.5	86.5	100.0
MT							
NL	6,488	41.5	46.2	38.8	0.0	35.7	79.0
PL	7,382	45.5	34.6	47.4	0.0	16.0	100.0
PT	5,885	7.2	10.4	23.2	0.0	0.0	0.0
RO	4,097	16.3	15.7	31.6	0.0	0.0	12.3
SE	2,243	38.7	46.6	45.3	0.0	4.7	100.0
SI	310	32.2	48.5	39.6	0.0	10.0	67.9
SK	242	38.9	36.4	44.7	0.0	5.4	100.0
EU27	68,074	34.7	31.6	42.4	0.0	3.0	87.8
Other - outside EU	162	59.0	50.2	44.7	2.0	84.5	100.0

Table 35 Net recovery rate for category 2 – Corporates

Country of formal enforcement	Number of observations	Simple average	Weighted average	Standard Deviation	1st quartile	Median	3rd quartile
AT	19	50.5	42.1	48.1	0.0	55.1	98.2
BE	52	26.6	43.1	30.4	0.0	28.6	28.6
BG	1,663	7.4	11.5	14.6	0.0	0.0	8.5
CY							
CZ							
DE	819	40.7	33.8	38.5	0.0	44.0	76.9
DK							
EE							
ES	1,031	5.3	12.1	19.9	0.0	0.0	0.0
FI							
FR	19	35.7	21.9	34.4	0.0	39.4	62.8
GR	84	18.5	13.0	36.1	0.0	0.0	4.0
HR	10	40.0	4.4	51.6	0.0	0.0	100.0
HU							
IE							
IT	1,288	13.8	10.1	26.8	0.0	0.0	8.9
LT							
LU							
LV							
MT							
NL	5	0.0	0.0	0.0	0.0	0.0	0.0
PL	186	23.8	23.8	39.8	0.0	1.0	33.0
PT	95	15.5	19.5	28.9	0.0	1.7	12.6
RO							
SE							
SI							
SK	6	9.3	39.7	22.7	0.0	0.0	0.0
EU27	5,282	15.1	23.1	28.6	0.0	0.0	13.3
Other - outside EU							

Table 36 Net recovery rate for category 2 – SMEs

Country of formal enforcement	Number of observations	Simple average	Weighted average	Standard Deviation	1st quartile	Median	3rd quartile
AT	340	42.0	46.7	43.8	0.0	24.2	95.5
BE	8,477	45.4	28.7	44.7	0.0	30.1	100.0
BG	535	22.2	39.8	32.7	0.0	4.7	30.4
CY	12	40.8	32.3	45.8	0.0	20.3	93.2
CZ	1,614	32.4	30.1	38.3	0.0	12.4	66.2
DE	3,905	29.1	16.6	39.4	0.0	0.8	63.0
DK							
EE	8	59.5	91.0	49.9	0.0	88.0	100.0
ES	12,430	14.6	16.1	31.5	0.0	0.0	2.9
FI	158	61.9	52.9	40.9	14.6	80.0	100.0
FR	1,859	45.2	35.6	36.0	8.3	44.0	77.5
GR	4,091	9.6	8.7	24.3	0.0	0.0	2.9
HR	1,118	31.4	40.0	39.3	0.0	7.9	65.6
HU	478	49.6	51.3	40.2	0.0	66.9	84.0
IE							
IT	5,550	9.1	12.2	20.6	0.0	0.0	2.5
LT	38	58.7	50.0	40.4	7.2	71.1	100.0
LU							
LV	16	51.7	40.5	30.7	28.0	52.5	76.7
MT							
NL	27	43.9	57.8	45.5	3.2	6.9	100.0
PL	1,389	43.6	29.2	47.3	0.0	7.0	100.0
PT	1,601	35.3	29.0	38.6	0.0	19.6	75.1
RO	1,997	18.7	25.3	32.7	0.0	0.0	17.3
SE	2,496	63.3	55.5	45.1	0.0	100.0	100.0
SI	220	16.6	21.4	32.2	0.0	0.0	13.2
SK	284	24.8	30.5	35.1	0.0	0.0	48.3
EU27	48,647	27.3	19.0	39.4	0.0	0.0	56.6
Other - outside EU							

Table 37 Net recovery rate for category 3 – Corporates

Country of formal enforcement	Number of observations	Simple average	Weighted average	Standard Deviation	1st quartile	Median	3rd quartile
AT							
BE							
BG	37	33.5	44.4	31.4	6.0	24.8	53.2
CY							
CZ							
DE	43	51.8	5.6	40.4	6.2	40.4	100.0
DK							
EE							
ES	520	9.9	11.1	25.8	0.0	0.0	2.7
FI							
FR							
GR	168	12.6	11.2	20.4	0.0	1.6	23.1
HR							
HU							
IE							
IT	9,982	10.9	8.3	18.2	0.0	2.3	13.7
LT							
LU							
LV							
MT							
NL							
PL	130	33.7	59.6	31.5	12.0	26.0	36.0
PT	195	12.0	10.0	26.4	0.0	0.0	4.3
RO	5	53.5	51.2	35.8	23.1	44.2	81.2
SE							
SI							
SK							
EU27	11,089	11.4	10.7	19.7	0.0	2.2	14.1
Other - outside EU							

Table 38 Net recovery rate s for category 3 – SMEs

Country of formal enforcement	Number of observations	Simple average	Weighted average	Standard Deviation	1st quartile	Median	3rd quartile
AT	7	24.5	23.3	29.4	0.0	20.2	56.0
BE	43	55.2	33.4	47.8	0.0	81.2	100.0
BG	123	27.5	24.5	29.8	0.0	19.2	43.6
CY	111	24.8	26.0	32.6	0.0	9.3	40.7
CZ	2,667	28.9	26.8	36.6	0.0	5.9	54.1
DE	320	50.7	9.6	41.1	4.8	49.0	99.8
DK							
EE							
ES	5,579	10.2	14.7	25.6	0.0	0.0	4.1
FI	31	74.9	58.6	32.1	55.0	92.4	98.6
FR	294	58.1	48.1	28.8	45.6	62.5	79.3
GR	13,387	9.9	18.5	19.4	0.0	2.3	7.0
HR	180	48.3	22.1	43.9	0.0	43.0	99.3
HU	1,896	26.6	44.0	36.2	1.7	4.4	44.1
IE	240	33.5	30.2	41.6	0.0	3.8	81.3
IT	53,836	9.6	8.7	18.3	0.0	0.3	8.8
LT	95	49.2	53.4	35.9	17.1	43.0	86.8
LU							
LV	10	57.4	59.5	36.8	28.7	60.0	100.0
MT							
NL							
PL	8,761	32.3	41.1	31.4	10.0	25.0	44.0
PT	11,838	13.0	22.1	26.3	0.0	0.0	7.9
RO	652	28.8	13.8	31.0	0.0	21.5	46.1
SE							
SI	272	32.0	81.2	36.5	0.0	19.2	48.7
SK	214	42.0	53.5	37.0	4.1	44.3	75.8
EU27	100,557	13.7	15.9	24.4	0.0	1.4	14.6
Other - outside EU							

Table 39 Net recovery rate for category 4 – Corporates

Country of formal enforcement	Number of observations	Simple average	Weighted average	Standard Deviation	1st quartile	Median	3rd quartile
AT	49	49.8	53.1	45.0	0.0	66.0	100.0
BE							
BG							
CY							
CZ							
DE	260	68.0	35.7	37.9	33.5	86.4	100.0
DK							
EE							
ES	1,685	12.1	11.8	26.5	0.0	0.0	0.0
FI	125	35.8	34.7	46.2	0.0	0.0	98.1
FR	61	36.8	40.7	42.3	0.0	15.8	83.3
GR	11	11.6	10.3	30.4	0.0	0.0	0.9
HR	11	19.0	11.1	37.7	0.0	0.0	16.3
HU							
IE							
IT	1,948	15.1	13.3	26.4	0.0	2.6	17.6
LT	8	96.1	98.0	4.6	90.6	98.6	100.0
LU							
LV							
MT							
NL							
PL	210	10.3	16.4	27.7	0.0	0.0	0.0
PT	77	2.3	0.7	13.6	0.0	0.0	0.0
RO	49	35.0	50.9	36.3	0.0	22.6	66.6
SE							
SI							
SK							
EU27	4,496	18.2	20.1	31.9	0.0	0.0	17.9
Other - outside EU							

Table 40 Net recovery rate s for category 4 – SMEs

Country of formal enforcement	Number of observations	Simple average	Weighted average	Standard Deviation	1st quartile	Median	3rd quartile
AT	768	63.5	52.4	41.2	16.8	85.3	100.0
BE	841	72.2	75.6	36.4	39.2	100.0	100.0
BG							
CY	24	64.5	72.1	42.9	12.2	92.6	99.3
CZ	174	45.0	28.9	43.2	0.7	33.8	99.0
DE	1,354	58.4	47.7	39.4	16.3	70.8	100.0
DK	740	68.8	80.1	42.8	14.1	100.0	100.0
EE	19	79.3	63.5	35.1	64.7	100.0	100.0
ES	12,262	11.8	18.3	27.1	0.0	0.0	0.0
FI	564	70.0	74.6	38.1	40.5	93.4	99.9
FR	4,200	30.0	26.3	34.3	0.0	16.6	52.6
GR	511	10.4	5.3	25.4	0.0	0.0	4.5
HR	444	9.8	13.2	22.6	0.0	0.0	7.6
HU							
IE	19	17.1	19.6	36.2	0.0	0.0	1.0
IT	13,560	19.0	13.4	27.9	0.0	2.1	31.0
LT	19	95.7	98.9	17.4	100.0	100.0	100.0
LU							
LV	29	53.6	46.3	44.6	0.0	57.8	100.0
MT							
NL							
PL	7,208	8.0	24.0	23.9	0.0	0.0	0.0
PT	2,094	23.5	15.9	38.5	0.0	0.0	45.1
RO	2,001	41.7	43.1	41.2	0.0	27.6	88.5
SE	160	46.8	53.7	44.8	0.0	32.5	100.0
SI	173	22.4	23.0	34.7	0.0	0.0	43.5
SK	541	18.7	25.9	33.7	0.0	0.0	16.0
EU27	47,707	21.9	26.2	34.4	0.0	0.0	35.6
Other - outside EU	14	72.1	99.0	45.7	7.0	100.0	100.0

Table 41 Net recovery rate for category 5 – Corporates

Country of formal enforcement	Number of observations	Simple average	Weighted average	Standard Deviation	1st quartile	Median	3rd quartile
AT							
BE							
BG							
CY							
CZ							
DE	6	48.2	57.6	40.0	0.0	61.2	66.8
DK							
EE							
ES	16	16.2	20.0	35.4	0.0	0.0	0.0
FI							
FR							
GR							
HR							
HU							
IE							
IT	5	12.9	2.7	20.7	0.0	0.0	17.1
LT							
LU							
LV							
MT							
NL							
PL							
PT							
RO							
SE							
SI							
SK							
EU27	34	33.4	49.7	39.9	0.0	0.0	66.8
Other - outside EU							

Table 42 Net recovery rate for category 5 – SMEs

Country of formal enforcement	Number of observations	Simple average	Weighted average	Standard Deviation	1st quartile	Median	3rd quartile
AT							
BE							
BG							
CY							
CZ	34	61.5	79.2	43.6	0.3	90.5	98.9
DE	80	49.1	76.8	42.6	0.0	48.3	99.3
DK							
EE							
ES	142	28.7	24.3	41.0	0.0	0.0	58.0
FI	58	81.1	80.0	32.9	79.8	98.8	100.0
FR							
GR	246	31.1	27.8	32.5	2.2	20.4	47.0
HR	11	54.4	69.4	38.9	6.3	69.8	92.9
HU							
IE							
IT	267	7.1	3.5	19.3	0.0	0.0	0.0
LT							
LU							
LV							
MT							
NL							
PL							
PT	26	29.3	21.2	26.8	3.4	35.5	43.3
RO	5	0.1	0.1	0.2	0.0	0.0	0.0
SE							
SI							
SK							
EU27	884	29.9	30.2	38.2	0.0	5.0	57.7
Other - outside EU							

Annex 3 – Benchmarks considering the conclusion or not of legal proceedings (closed or open proceedings)[69]

Loans are classified as being in an open position if the "Date of conclusion of formal proceedings" is either reported in the future (from 1/1/2025) or as missing. The remaining loans are classified as being in a closed position.

Table 43 Net recovery rate for open positions – Corporates

Country of formal enforcement	Number of observations	Simple average	Weighted average	Standard Deviation	1st quartile	Median	3rd quartile
AT	50	60.1	57.6	45.3	0.1	94.0	98.9
BE	48	26.7	45.0	29.1	0.0	28.6	28.6
BG	49	45.2	46.8	37.4	6.4	40.3	86.3
CY							
CZ							
DE	1,079	47.7	33.5	39.9	0.9	44.0	87.8
DK							
EE							
ES	2,537	8.5	9.0	23.3	0.0	0.0	0.0
FI	34	39.8	3.1	46.4	0.0	8.0	100.0
FR	123	38.8	34.2	40.8	0.0	23.0	78.9
GR	128	18.4	13.7	24.0	0.0	6.9	29.4
HR	12	1.7	1.0	4.8	0.0	0.0	0.0
HU							
IE							
IT	10,362	11.3	8.7	20.0	0.0	1.7	13.6
LT							
LU							
LV							
MT							
NL	5	0.0	0.0	0.0	0.0	0.0	0.0
PL	482	24.5	29.4	40.2	0.0	0.0	41.0
PT	480	4.6	9.2	16.1	0.0	0.0	0.0
RO	41	33.7	51.5	36.4	0.0	19.6	66.6
SE							
SI							
SK	8	19.5	47.7	37.9	0.0	0.0	27.8
EU27	15,444	14.3	15.7	26.1	0.0	0.4	15.5
Other - outside EU							

[69] The footnotes specific to tables in section 7 of this report apply to the corresponding benchmarks in this annex.

Table 44 Net recovery rate for open positions – SMEs

Country of formal enforcement	Number of observations	Simple average	Weighted average	Standard Deviation	1st quartile	Median	3rd quartile
AT	890	67.3	52.8	42.5	16.8	99.1	100.0
BE	7,161	46.9	30.7	44.4	0.0	36.4	100.0
BG	531	41.3	41.5	38.2	2.1	29.6	86.0
CY	29	28.7	28.0	37.7	0.0	0.0	46.0
CZ	2,123	22.0	23.4	33.6	0.0	2.5	31.8
DE	5,541	40.7	20.2	41.9	0.0	21.0	90.2
DK							
EE	8	79.1	59.2	29.7	54.4	98.5	100.0
ES	20,479	8.8	12.6	23.8	0.0	0.0	0.0
FI	4,261	67.1	56.4	41.5	21.2	97.5	100.0
FR	8,420	36.4	30.8	37.8	0.0	24.1	69.7
GR	9,973	13.6	17.7	21.7	1.2	3.7	16.3
HR	1,544	24.7	28.7	36.1	0.0	1.5	45.1
HU	486	49.6	49.0	40.1	0.0	66.9	84.0
IE	273	31.1	29.6	41.2	0.0	1.0	73.3
IT	55,033	11.9	9.0	21.1	0.0	1.0	12.9
LT	54	40.1	49.8	36.8	6.0	27.6	79.0
LU							
LV	28	45.2	41.9	41.8	0.0	41.3	100.0
MT							
NL	64	51.5	64.1	34.4	24.5	52.5	78.3
PL	8,216	22.5	27.3	39.0	0.0	0.0	25.0
PT	16,341	12.9	20.5	27.6	0.0	0.0	4.0
RO	6,442	22.6	19.9	35.3	0.0	0.0	35.7
SE	2,732	57.4	23.0	46.1	0.0	100.0	100.0
SI	412	19.9	65.6	34.2	0.0	0.0	25.9
SK	844	22.9	30.6	34.5	0.0	0.0	43.7
EU27	151,886	20.1	18.9	33.0	0.0	0.6	26.1
Other - outside EU							

Table 45 Net recovery rate for closed positions – Corporates

Country of formal enforcement	Number of observations	Simple average	Weighted average	Standard Deviation	1st quartile	Median	3rd quartile
AT	92	57.1	52.3	42.4	5.6	74.7	100.0
BE	11	50.7	76.8	48.7	0.0	44.5	100.0
BG	2,197	10.4	12.5	17.1	0.0	0.0	15.3
CY							
CZ	5	16.7	77.3	36.7	0.2	0.4	0.4
DE	280	57.7	55.0	41.4	7.5	73.5	100.0
DK							
EE							
ES	1,618	8.4	29.0	24.0	0.0	0.0	0.0
FI	126	41.9	75.6	48.1	0.0	0.0	99.9
FR	21	57.7	52.8	40.3	21.1	58.8	100.0
GR	167	13.9	10.5	32.3	0.0	0.0	2.6
HR	11	62.6	23.8	49.8	0.0	100.0	100.0
HU							
IE							
IT	3,431	13.3	12.0	22.4	0.0	1.5	14.2
LT	11	94.2	97.6	7.3	90.6	97.2	100.0
LU							
LV							
MT							
NL	10	30.0	53.1	48.3	0.0	0.0	100.0
PL	197	31.3	18.9	36.8	0.0	24.0	36.0
PT	60	34.3	16.7	40.0	0.0	7.3	69.1
RO	13	46.3	47.8	35.7	22.3	35.1	78.6
SE							
SI	6	33.9	48.4	30.6	9.4	19.7	69.1
SK							
EU27	8,260	15.1	26.5	27.1	0.0	0.0	16.0
Other - outside EU							

Table 46 Net recovery rate for closed positions – SMEs

Country of formal enforcement	Number of observations	Simple average	Weighted average	Standard Deviation	1st quartile	Median	3rd quartile
AT	2,287	59.9	62.2	41.5	7.3	76.1	100.0
BE	5,523	60.8	29.5	43.1	9.0	90.0	100.0
BG	659	16.2	13.2	22.2	0.0	6.2	26.6
CY	216	48.9	52.0	40.8	6.3	45.6	93.4
CZ	2,808	44.1	34.9	41.5	0.0	38.8	100.0
DE	1,888	55.7	27.4	43.8	0.1	67.1	100.0
DK	2,089	51.0	76.8	46.2	0.0	53.0	100.0
EE	23	75.2	94.9	41.2	74.4	100.0	100.0
ES	17,725	15.2	21.1	32.1	0.0	0.0	3.6
FI	2,102	64.6	58.5	41.8	12.0	92.2	100.0
FR	3,480	48.5	50.9	38.8	0.6	50.2	86.0
GR	11,713	6.8	9.5	21.0	0.0	0.0	0.5
HR	448	45.6	27.9	43.7	0.0	29.6	100.0
HU	6,557	23.6	41.7	35.2	0.0	3.0	38.0
IE	1,898	42.2	24.4	42.4	0.0	25.0	100.0
IT	20,493	9.9	11.6	20.5	0.0	0.0	7.8
LT	450	63.3	54.2	34.6	39.0	74.2	99.0
LU	7	69.0	64.6	32.9	57.0	80.0	85.0
LV	52	67.3	51.1	35.0	47.4	79.5	100.0
MT							
NL	6,451	41.5	46.0	38.9	0.0	35.3	79.1
PL	16,526	33.4	33.2	38.8	0.0	17.0	58.0
PT	5,103	18.0	21.5	32.7	0.0	0.0	16.0
RO	2,310	26.1	20.0	36.9	0.0	1.0	50.0
SE	2,170	43.9	57.4	46.5	0.0	15.9	100.0
SI	565	32.0	57.4	37.8	0.0	14.3	59.4
SK	439	37.3	46.1	42.8	0.0	8.5	91.1
EU27	113,983	27.0	25.8	38.2	0.0	1.0	50.1
Other - outside EU	178	60.5	50.6	44.7	3.0	95.0	100.0

Table 47 Time to recovery for open positions – Corporates

Country of formal enforcement	Number of observations	Simple average	Weighted average	Standard Deviation	1st quartile	Median	3rd quartile
AT	17	1.7	1.2	2.8	0.5	0.6	2.0
BE	43	4.2	3.6	3.3	0.0	4.8	4.8
BG	41	7.5	7.6	2.7	5.9	7.4	8.9
CY							
CZ							
DE	374	1.1	3.7	1.9	0.1	0.1	1.3
DK							
EE							
ES	1,084	0.0	0.0	0.0	0.0	0.0	0.0
FI	25	1.6	0.7	1.2	0.7	1.2	2.8
FR	87	6.1	6.4	3.7	3.7	5.4	8.2
GR	109	3.0	1.8	1.5	2.3	3.9	3.9
HR							
HU							
IE							
IT	7,286	3.4	3.7	2.6	1.4	2.9	5.1
LT							
LU							
LV							
MT							
NL							
PL	48	5.2	6.5	2.2	3.6	5.1	6.8
PT	131	4.5	6.3	2.6	3.1	4.7	5.7
RO	78	1.4	3.1	1.8	0.0	0.6	2.4
SE							
SI							
SK							
EU27	9,331	3.0	3.2	2.7	0.8	2.4	4.6
Other - outside EU							

Table 48 Time to recovery for open positions – SMEs

Country of formal enforcement	Number of observations	Simple average	Weighted average	Standard Deviation	1st quartile	Median	3rd quartile
AT	574	1.2	1.9	1.8	0.0	0.4	1.8
BE	4,682	2.9	4.3	3.5	0.3	1.9	4.1
BG	416	6.5	7.1	3.6	3.7	6.5	9.3
CY	43	5.2	4.8	4.1	1.5	4.5	7.9
CZ	2,037	0.7	3.6	1.0	0.0	0.3	1.1
DE	1,828	1.3	3.4	1.9	0.2	0.8	1.5
DK							
EE	5	2.2	2.1	1.5	1.1	1.4	2.9
ES	2,804	0.0	0.0	0.2	0.0	0.0	0.0
FI	3,411	1.4	1.6	1.5	0.2	1.0	2.3
FR	5,949	7.9	8.2	3.9	5.3	7.8	10.1
GR	8,839	3.1	2.0	1.7	2.5	3.9	4.1
HR	537	1.0	3.6	2.9	0.0	0.0	0.0
HU	25	0.9	0.2	2.6	0.0	0.0	0.0
IE							
IT	37,881	4.0	3.7	2.9	2.2	3.7	5.5
LT	40	3.2	4.0	1.5	2.3	3.0	3.4
LU							
LV	14	2.6	3.0	2.0	1.2	2.2	3.2
MT							
NL	82	1.8	1.2	2.3	0.0	1.5	2.0
PL	2,490	3.4	0.5	3.5	1.0	2.6	4.3
PT	4,587	4.4	5.3	3.2	2.9	3.0	5.3
RO	6,304	4.2	6.2	3.8	0.9	2.6	7.3
SE	2,519	0.5	1.5	1.1	0.0	0.1	0.4
SI	361	1.2	2.1	2.7	0.0	0.0	0.0
SK	410	3.4	4.7	2.4	1.7	3.0	4.7
EU27	85,838	3.6	3.6	3.3	1.0	3.1	5.1
Other - outside EU							

Table 49 Time to recovery for closed positions – Corporates

Country of formal enforcement	Number of observations	Simple average	Weighted average	Standard Deviation	1st quartile	Median	3rd quartile
AT	99	2.8	4.2	2.8	0.6	2.5	3.8
BE							
BG	2,197	4.7	5.3	4.1	1.3	2.7	9.1
CY							
CZ	5	13.4	3.9	10.4	6.9	8.1	24.6
DE	268	2.7	2.6	2.7	0.8	2.0	3.3
DK							
EE							
ES	607	2.7	3.3	3.2	0.0	1.6	3.5
FI	43	1.9	1.7	2.0	1.1	1.1	2.4
FR	28	6.1	7.0	2.6	5.9	6.3	8.2
GR	167	2.3	1.3	2.8	0.0	1.3	4.7
HR	6	5.8	11.0	6.4	2.1	4.9	4.9
HU							
IE							
IT	5,266	3.0	3.0	2.3	1.5	2.5	3.9
LT	11	2.1	1.7	1.7	1.3	1.7	2.1
LU							
LV							
MT							
NL	10	1.4	1.7	1.0	0.8	1.8	2.1
PL	109	1.3	2.2	0.6	1.0	1.2	1.7
PT	110	3.7	4.3	1.8	3.0	3.0	4.7
RO	32	0.8	2.9	1.3	0.0	0.0	1.0
SE							
SI							
SK							
EU27	8,965	3.4	3.0	3.1	1.3	2.5	4.5
Other - outside EU							

Table 50 Time to recovery for closed positions – SMEs

Country of formal enforcement	Number of observations	Simple average	Weighted average	Standard Deviation	1st quartile	Median	3rd quartile
AT	2,072	2.2	2.7	1.9	0.9	1.7	2.9
BE	2,323	4.5	6.1	3.7	1.7	3.4	6.5
BG	659	5.2	6.5	4.2	1.6	3.3	9.1
CY	214	7.6	7.9	3.6	4.8	7.6	9.3
CZ	2,808	2.7	6.0	2.9	0.2	1.5	5.5
DE	1,504	2.4	3.5	2.6	0.5	1.4	3.3
DK	2,090	3.5	4.0	3.0	1.3	3.1	4.7
EE	16	2.8	3.1	1.2	2.2	2.2	3.0
ES	11,780	2.3	3.3	2.8	0.2	1.3	3.3
FI	1,759	4.7	6.4	4.3	0.9	3.3	7.2
FR	4,482	6.3	6.6	3.1	4.0	6.0	8.1
GR	11,718	0.8	1.3	2.3	0.0	0.0	0.0
HR	300	5.0	6.4	3.3	2.6	5.0	6.5
HU	1,914	4.2	6.3	3.2	1.3	3.3	7.3
IE	1,900	10.1	10.0	2.3	8.6	10.2	11.8
IT	35,076	4.0	4.4	3.1	1.5	3.2	5.9
LT	449	3.4	5.5	2.9	1.5	2.8	4.5
LU	6	24.8	26.3	10.8	25.0	29.1	31.2
LV	41	4.5	7.7	4.8	0.9	1.9	7.5
MT							
NL	6,509	1.5	2.1	1.1	0.8	1.3	2.2
PL	9,158	2.6	1.2	3.0	1.1	1.5	2.6
PT	7,352	3.6	4.6	2.7	2.4	3.0	3.9
RO	2,305	4.5	5.2	3.1	1.6	4.7	6.8
SE	1,575	2.4	2.5	2.9	0.7	1.4	2.6
SI	814	2.9	4.4	3.5	0.0	1.2	5.2
SK	297	2.9	3.3	2.6	1.1	2.5	4.3
EU27	109,122	3.3	3.8	3.3	0.8	2.3	5.2
Other - outside EU	178	4.6	3.8	5.0	0.9	2.5	6.0

Annex 4 – Euro Area - Net recovery rate benchmarks by date of default (before or after beginning of AnaCredit)

Loans for which the "Date of default" is extracted from the AnaCredit are divided into two groups: date of default being before the beginning of AnaCredit reporting (before September 2018) or loans for which the date of default is already included in AnaCredit reporting (September 2018 or later).

Table 51 Net recovery rate for date of default before the beginning of AnaCredit reporting – Corporates

Country of formal enforcement	Number of observations	Simple average	Weighted average	Standard Deviation	1st quartile	Median	3rd quartile
AT	50	56.9	64.1	39.1	13.2	66.8	98.0
BE	9	19.8	27.8	39.7	0.0	0.0	0.0
CY							
DE	193	42.3	34.1	36.6	2.1	40.9	73.0
EE							
ES	2,683	4.9	15.9	19.2	0.0	0.0	0.0
FI	12	57.1	52.5	47.2	0.0	75.0	100.0
FR	120	47.3	46.2	40.5	0.0	50.2	93.4
GR	187	11.6	6.8	29.6	0.0	0.0	1.4
HR	11	46.9	7.6	51.0	0.0	16.3	100.0
IE							
IT	7,520	12.2	11.1	19.2	0.0	3.0	16.6
LT	10	93.6	96.7	7.4	90.6	93.9	100.0
LU							
LV							
MT							
NL							
PT	331	12.6	9.9	26.8	0.0	0.0	5.7
SI	8	33.5	47.7	25.9	13.7	26.8	50.7
SK							

Table 52 Net recovery rate for date of default before the beginning of AnaCredit reporting – SMEs

Country of formal enforcement	Number of observations	Simple average	Weighted average	Standard Deviation	1st quartile	Median	3rd quartile
AT	814	54.6	52.8	40.6	6.0	61.0	98.7
BE	4,013	55.2	53.5	44.1	0.0	68.2	100.0
CY	203	50.0	50.8	40.8	7.0	48.5	94.2
DE	1,082	44.7	19.1	40.1	1.7	42.0	89.4
EE							
ES	17,159	11.3	17.2	28.9	0.0	0.0	0.0
FI	1,900	60.4	50.9	41.1	8.0	77.2	100.0
FR	11,222	40.7	37.6	38.4	0.0	33.1	76.0
GR	19,011	8.3	8.8	19.8	0.0	0.2	4.5
HR	1,033	35.6	30.6	41.1	0.0	10.1	78.6
IE	2,157	40.8	24.6	42.4	0.0	21.0	100.0
IT	37,661	9.9	9.6	18.5	0.0	0.2	10.2
LT	169	51.5	43.4	30.7	33.7	46.0	75.7
LU							
LV	38	50.4	46.4	36.2	14.2	53.0	82.3
MT							
NL	3,606	45.7	47.0	39.4	4.6	39.3	89.9
PT	10,658	17.1	21.9	30.5	0.0	0.0	18.5
SI	527	30.1	66.5	35.8	0.0	14.3	50.3
SK	433	33.9	30.7	39.2	0.0	9.7	68.0

Table 53 Net recovery rate for date of default after the beginning of AnaCredit reporting – Corporates

Country of formal enforcement	Number of observations	Simple average	Weighted average	Standard Deviation	1st quartile	Median	3rd quartile
AT	92	58.8	48.3	45.6	2.7	88.3	100.0
BE	50	33.3	52.3	33.4	0.0	28.6	28.6
CY							
DE	1,166	51.0	40.2	40.9	1.0	55.2	94.4
EE							
ES	1,472	15.0	21.1	28.9	0.0	0.0	5.0
FI	148	40.2	48.0	47.6	0.0	0.0	99.9
FR	24	12.8	19.6	31.6	0.0	0.0	1.4
GR	108	23.2	22.3	26.8	1.4	14.0	32.3
HR	12	16.1	11.5	36.7	0.0	0.0	2.0
IE							
IT	6,273	11.3	6.9	22.3	0.0	0.3	8.0
LT							
LU							
LV							
MT							
NL	13	7.7	23.9	27.7	0.0	0.0	0.0
PT	209	0.5	0.2	6.9	0.0	0.0	0.0
SI							
SK	5	0.0	0.0	0.0	0.0	0.0	0.0

Table 54 Net recovery rate for date of default after the beginning of AnaCredit reporting –

Country of formal enforcement	Number of observations	Simple average	Weighted average	Standard Deviation	1st quartile	Median	3rd quartile
AT	2,363	64.5	63.8	42.0	13.0	92.4	100.0
BE	8,671	51.9	23.2	44.5	0.0	48.2	100.0
CY	42	29.6	28.9	37.0	0.0	9.5	44.5
DE	6,347	44.5	25.5	43.3	0.0	30.5	95.5
EE	27	77.2	62.1	37.6	64.7	100.0	100.0
ES	21,045	12.2	16.2	27.5	0.0	0.0	2.5
FI	4,463	68.8	63.7	41.5	24.0	98.7	100.0
FR	678	27.0	15.5	38.4	0.0	0.0	61.2
GR	2,675	21.0	27.1	29.2	0.3	5.7	32.6
HR	959	22.7	24.0	35.2	0.0	1.9	33.3
IE	14	39.0	36.1	47.0	0.0	0.0	87.5
IT	37,865	12.8	10.3	23.0	0.0	0.3	13.0
LT	335	65.5	60.0	36.9	31.9	81.6	100.0
LU	5	76.6	65.8	11.1	80.0	80.0	81.0
LV	42	67.9	49.2	39.4	34.0	84.8	100.0
MT							
NL	2,909	36.4	44.0	37.6	0.0	23.0	68.3
PT	10,786	11.1	15.1	27.1	0.0	0.0	0.1
SI	450	23.1	27.5	37.7	0.0	0.0	35.1
SK	850	24.8	41.2	37.2	0.0	0.0	48.9

Annex 5 - Benchmarks at the borrower-level

This annex presents benchmarks for the aggregation of loans at the borrower-level. The borrower is identified based on the AnaCredit, for Euro Area countries. In some cases, banks have reported borrower identifiers that do not match with those reported in the AnaCredit (e.g. a borrower has three loans identified in the AnaCredit but the bank reported three different borrowers for these loans). For non-Euro-Area countries, the identifiers provided in the data collection are used. One PL bank has not reported borrower identifiers and is therefore not included in this annex's results. Amounts are aggregated with summation, the net recovery rate and time to recovery are aggregated with averages weighted by the outstanding nominal amount of the respective instruments. Borrowers with loans in legal proceedings in different jurisdictions have been considered separately. The overall loan population is that of the asset class categories used in section 7 of the Report. Template instructions in the data collection requested banks to report variables at the instrument level, and if not possible, to provide pro-rata amounts.

Table 55 Gross recovery rate at the borrower-level – Corporates

Country of formal enforcement	Number of borrowers	Simple average	Weighted average	Standard Deviation	1st quartile	Median	3rd quartile
AT	63	59.5	59.5	39.0	20.0	65.1	100.0
BE	12	65.7	89.3	44.0	17.5	92.5	100.0
BG	1,809	31.3	45.5	37.2	0.3	11.3	59.2
CY							
CZ							
DE	363	39.8	26.5	42.9	0.0	19.4	97.1
DK							
EE							
ES	689	23.8	22.4	37.2	0.0	0.9	39.6
FI	30	60.9	38.6	42.6	15.2	81.8	100.0
FR	84	43.5	36.1	42.4	0.0	29.7	92.2
GR	71	15.5	13.2	21.5	0.2	3.5	25.3
HR	13	33.9	18.7	47.2	0.0	0.1	100.0
HU							
IE							
IT	2,734	21.7	10.1	30.8	0.0	5.3	29.9
LT	5	68.5	53.6	27.8	46.5	53.0	97.6
LU							
LV							
MT							
NL	6	33.3	38.9	51.6	0.0	0.0	100.0
PL	382	30.6	32.1	38.2	0.0	12.2	49.5
PT	48	25.9	11.2	36.2	0.0	5.4	48.0
RO	10	42.8	50.9	37.6	2.9	43.0	74.9
SE							
SI							
SK							
EU27	6,336	27.3	19.9	35.8	0.0	6.3	47.0
Other - outside EU							

Table 56 Gross recovery rate at the borrower-level – SMEs

Country of formal enforcement	Number of borrowers	Simple average	Weighted average	Standard Deviation	1st quartile	Median	3rd quartile
AT	1,489	59.0	60.7	41.4	12.4	72.5	100.0
BE	4,875	62.1	42.8	42.3	11.9	86.9	100.0
BG	1,093	46.0	53.1	40.1	1.9	38.2	94.2
CY	104	48.9	53.1	32.5	25.3	48.0	69.5
CZ	3,709	35.8	23.9	40.1	0.0	14.1	75.6
DE	3,064	38.3	19.7	42.3	0.0	13.1	88.3
DK	1,781	52.3	86.6	45.8	0.0	57.8	100.0
EE	18	66.1	90.3	41.1	22.8	78.1	100.0
ES	12,738	34.4	36.1	41.8	0.0	5.9	84.5
FI	3,657	62.7	55.0	39.0	23.5	76.7	100.0
FR	7,065	44.7	38.8	39.6	0.9	38.2	88.1
GR	9,261	8.9	12.6	18.2	0.0	1.1	7.7
HR	1,224	43.1	47.8	43.8	0.0	24.4	100.0
HU	4,673	18.4	40.9	30.5	0.0	2.0	23.0
IE	1,396	47.0	24.5	41.8	4.8	33.7	100.0
IT	17,278	20.9	12.1	32.4	0.0	3.1	27.0
LT	268	67.4	59.0	35.8	37.0	80.1	100.0
LU	7	90.8	81.3	15.9	72.7	100.0	100.0
LV	60	69.6	65.6	40.6	18.5	97.5	100.0
MT							
NL	1,946	53.8	59.4	45.3	0.0	65.5	100.0
PL	18,141	26.0	30.0	36.1	0.0	5.7	34.8
PT	5,579	28.9	27.3	37.3	0.0	7.3	53.6
RO	5,032	25.3	19.9	35.3	0.0	1.5	49.4
SE	3,582	54.2	50.6	45.5	0.0	63.6	100.0
SI	530	37.2	72.3	40.1	0.0	21.5	78.0
SK	635	36.3	40.8	39.9	0.0	15.0	79.0
EU27	109,206	32.5	26.6	39.8	0.0	8.8	69.1
Other - outside EU	126	65.7	54.0	40.0	27.4	88.3	100.0

Table 57 Net recovery rate at the borrower-level – Corporates

Country of formal enforcement	Number of borrowers	Simple average	Weighted average	Standard Deviation	1st quartile	Median	3rd quartile
AT	63	52.7	49.0	39.1	7.8	52.9	93.6
BE	12	39.4	50.6	37.0	2.7	42.4	72.5
BG	1,809	12.1	29.5	19.1	0.0	1.1	18.0
CY							
CZ							
DE	363	39.5	35.2	40.1	0.0	23.5	82.0
DK							
EE							
ES	689	12.7	15.4	26.0	0.0	0.0	6.9
FI	30	54.5	47.8	43.8	5.8	58.0	99.0
FR	84	40.6	33.9	40.2	0.0	27.3	81.3
GR	71	14.7	11.9	21.2	0.2	3.8	25.5
HR	13	24.2	8.9	41.8	0.0	0.0	16.3
HU							
IE							
IT	2,734	12.4	9.2	20.1	0.0	2.6	16.8
LT	5	79.3	80.0	27.9	76.9	87.0	100.0
LU							
LV							
MT							
NL	6	33.3	38.9	51.6	0.0	0.0	100.0
PL	382	28.5	29.0	36.8	0.0	10.0	46.1
PT	48	14.8	9.3	23.9	0.0	1.6	15.3
RO	10	42.8	50.9	37.6	2.9	43.0	74.9
SE							
SI							
SK							
EU27	6,336	16.2	18.2	26.1	0.0	2.3	21.3
Other - outside EU							

Table 58 Net recovery rate at the borrower-level – SMEs

Country of formal enforcement	Number of borrowers	Simple average	Weighted average	Standard Deviation	1st quartile	Median	3rd quartile
AT	1,489	59.4	56.1	38.5	21.9	68.0	99.2
BE	4,875	58.7	30.0	41.9	10.2	71.8	100.0
BG	1,093	28.6	38.8	33.4	0.0	14.2	44.4
CY	104	41.3	49.2	30.3	14.7	41.0	61.3
CZ	3,709	35.7	28.5	40.1	0.0	13.9	75.5
DE	3,064	37.6	22.3	40.7	0.0	15.9	82.0
DK	1,781	51.1	76.2	45.8	0.0	51.4	100.0
EE	18	64.9	67.5	41.1	27.3	80.8	100.0
ES	12,738	17.0	15.9	30.5	0.0	0.0	17.9
FI	3,657	66.0	54.3	39.0	29.8	86.4	100.0
FR	7,065	39.5	34.6	36.1	0.8	33.1	70.2
GR	9,261	8.9	12.7	18.0	0.0	1.1	7.6
HR	1,224	28.5	27.7	36.6	0.0	8.4	52.5
HU	4,673	19.5	42.3	32.1	0.0	2.0	23.5
IE	1,396	46.7	24.6	41.7	5.0	33.3	100.0
IT	17,278	10.5	9.7	20.1	0.0	0.4	10.3
LT	268	64.8	52.2	35.3	34.5	77.9	98.7
LU	7	57.6	53.0	41.3	0.0	80.0	85.0
LV	60	61.6	47.1	38.0	27.6	66.0	100.0
MT							
NL	1,946	41.5	44.2	40.2	0.0	31.2	85.1
PL	18,141	26.7	29.9	36.3	0.0	6.5	38.0
PT	5,579	20.2	20.4	29.1	0.0	4.1	32.1
RO	5,032	25.3	19.9	35.3	0.0	1.5	49.4
SE	3,582	53.9	46.4	45.5	0.0	62.4	100.0
SI	530	28.5	61.0	35.3	0.0	8.6	49.1
SK	635	33.1	36.1	37.2	0.0	12.7	64.2
EU27	109,206	27.5	21.5	36.8	0.0	4.9	50.0
Other - outside EU	126	68.0	50.6	40.7	27.5	100.0	100.0

Table 59 Time to recovery at the borrower-level – Corporates

Country of formal enforcement	Number of borrowers	Simple average	Weighted average	Standard Deviation	1st quartile	Median	3rd quartile
AT	52	2.6	3.3	2.5	0.7	2.5	3.4
BE	8	3.5	3.1	4.0	0.0	2.7	5.7
BG	1,801	5.0	6.4	4.1	1.4	3.1	9.1
CY							
CZ							
DE	201	2.5	2.2	3.0	0.5	1.6	3.5
DK							
EE							
ES	389	1.5	1.4	2.8	0.0	0.0	1.9
FI	20	2.1	0.8	2.8	0.1	0.8	3.2
FR	65	6.0	6.5	3.9	3.3	6.1	8.2
GR	68	2.3	1.4	2.3	0.0	2.2	3.9
HR							
HU							
IE							
IT	2,341	3.2	3.2	2.6	1.3	2.7	4.8
LT	5	2.1	0.8	2.7	0.8	1.3	1.7
LU							
LV							
MT							
NL	5	1.5	1.7	1.1	0.8	1.8	2.1
PL	135	2.0	5.6	1.8	1.0	1.3	1.9
PT	31	4.4	5.4	3.0	2.9	3.2	6.7
RO	18	2.7	2.9	2.5	0.5	2.3	4.8
SE							
SI							
SK							
EU27	5,155	3.7	2.7	3.5	1.0	2.5	5.7
Other - outside EU							

Table 60 Time to recovery at the borrower-level – SMEs

Country of formal enforcement	Number of borrowers	Simple average	Weighted average	Standard Deviation	1st quartile	Median	3rd quartile
AT	1,306	2.1	2.4	1.9	0.8	1.6	2.9
BE	3,054	3.4	4.5	3.7	0.6	2.3	5.0
BG	980	5.8	7.0	4.0	1.7	5.5	9.2
CY	116	7.2	7.0	3.8	4.6	7.6	8.8
CZ	3,623	2.2	5.2	2.7	0.0	1.1	4.3
DE	1,357	2.1	3.4	2.5	0.4	1.2	2.8
DK	1,781	3.3	4.0	3.0	1.2	2.8	4.4
EE	9	3.0	2.4	1.9	1.4	2.3	4.5
ES	7,188	1.8	2.1	2.6	0.0	0.6	2.5
FI	3,219	2.2	3.7	3.1	0.3	1.1	2.7
FR	5,925	7.1	7.6	3.7	4.4	6.9	9.1
GR	8,764	1.6	1.5	2.2	0.0	0.0	3.9
HR	505	2.1	4.6	3.6	0.0	0.0	3.2
HU	785	2.6	6.0	2.8	0.6	1.6	3.4
IE	1,239	10.0	10.0	2.3	8.5	10.2	11.6
IT	15,829	4.1	4.0	3.2	1.5	3.7	6.1
LT	258	3.5	5.1	3.1	1.3	2.7	4.7
LU	5	23.6	26.3	11.6	25.0	27.8	30.5
LV	41	3.1	6.3	3.4	0.9	1.7	4.2
MT							
NL	1,952	1.4	2.0	1.1	0.7	1.1	2.0
PL	8,612	1.8	0.8	1.3	1.0	1.4	2.2
PT	3,684	4.2	4.6	3.4	1.9	3.0	5.7
RO	5,021	4.1	5.8	3.6	1.0	2.6	6.8
SE	3,216	1.2	2.3	2.2	0.0	0.3	1.5
SI	589	2.4	3.2	3.2	0.0	0.7	4.4
SK	373	3.2	2.9	2.4	1.5	2.6	4.3
EU27	79,432	3.2	3.5	3.4	0.5	2.0	4.9
Other - outside EU	125	5.2	3.8	5.5	0.9	2.7	7.9

Table 61 Judicial costs to recovery at the borrower-level – Corporates

Country of formal enforcement	Number of borrowers	Simple average	Weighted average	Standard Deviation	1st quartile	Median	3rd quartile
AT	64	0.3	0.3	0.9	0.0	0.0	0.0
BE	8	0.1	0.3	0.2	0.0	0.0	0.1
BG	1,742	5.2	4.7	7.6	0.0	3.2	7.4
CY							
CZ							
DE	212	1.1	0.1	3.8	0.0	0.0	0.1
DK							
EE							
ES	764	0.2	0.0	1.7	0.0	0.0	0.0
FI	11	0.0	0.0	0.0	0.0	0.0	0.0
FR	71	0.2	0.1	0.7	0.0	0.0	0.1
GR	40	0.0	0.0	0.2	0.0	0.0	0.0
HR	13	0.0	0.0	0.0	0.0	0.0	0.0
HU							
IE							
IT	2,711	3.1	0.2	19.5	0.0	0.0	0.8
LT							
LU							
LV							
MT							
NL	5	0.0	0.0	0.0	0.0	0.0	0.0
PL	390	0.0	0.0	0.1	0.0	0.0	0.0
PT	58	0.1	0.0	0.3	0.0	0.0	0.0
RO	10	0.0	0.0	0.0	0.0	0.0	0.0
SE	8	0.0	0.0	0.0	0.0	0.0	0.0
SI							
SK							
EU27	6,121	2.9	0.3	13.8	0.0	0.0	1.8
Other - outside EU	5	0.0	0.0	0.0	0.0	0.0	0.0

Table 62 Judicial costs to recovery at the borrower-level – SMEs

Country of formal enforcement	Number of borrowers	Simple average	Weighted average	Standard Deviation	1st quartile	Median	3rd quartile
AT	1,467	0.4	0.2	1.7	0.0	0.0	0.0
BE	3,414	2.6	0.9	12.1	0.0	0.0	0.0
BG	1,101	4.7	4.0	7.2	0.0	5.0	5.0
CY	107	1.3	0.4	2.2	0.0	0.3	1.4
CZ	2,540	4.0	1.0	11.7	0.0	0.0	0.0
DE	1,999	1.0	0.2	7.2	0.0	0.0	0.0
DK	2,079	0.0	0.2	0.1	0.0	0.0	0.0
EE	17	0.2	0.0	0.8	0.0	0.0	0.0
ES	12,388	1.6	0.6	22.7	0.0	0.0	0.1
FI	1,028	0.0	0.0	0.0	0.0	0.0	0.0
FR	6,743	0.6	0.3	2.5	0.0	0.0	0.2
GR	5,754	0.0	0.0	0.1	0.0	0.0	0.0
HR	1,249	14.5	1.9	87.4	0.0	0.0	2.0
HU	4,489	0.1	0.1	0.4	0.0	0.0	0.0
IE	1,376	0.0	0.0	0.2	0.0	0.0	0.0
IT	17,088	6.7	0.5	73.6	0.0	0.0	0.8
LT	240	0.8	0.6	2.5	0.0	0.0	0.2
LU	7	16.2	9.4	22.2	0.0	3.6	27.6
LV	58	0.3	0.3	0.6	0.0	0.0	0.4
MT							
NL	2,101	0.0	0.0	0.0	0.0	0.0	0.0
PL	18,048	0.2	0.2	1.1	0.0	0.0	0.0
PT	7,005	1.5	0.2	13.1	0.0	0.0	0.0
RO	5,020	0.0	0.0	0.0	0.0	0.0	0.0
SE	3,636	6.2	0.0	14.0	0.0	0.0	4.1
SI	385	0.3	0.7	1.0	0.0	0.0	0.0
SK	507	0.5	0.2	2.0	0.0	0.0	0.0
EU27	99,846	2.2	0.4	33.5	0.0	0.0	0.0
Other - outside EU	139	0.0	0.0	0.0	0.0	0.0	0.0

Annex 6 - Euro Area Benchmarks (with additional asset class categories not belonging to Corporate or SMEs asset class categories)

For Euro Area banks reporting loans in a legal enforcement in a country in the Euro Area (i.e. not including enforcement proceedings from non-Euro Area), an alternative allocation of loans into asset classes is presented in this annex. Loans that had been classified by the banks, for instance, as Retail or Real Estate, and therefore excluded from the analysis in this Report, have been allocated to the broad categories "Corporate" and "SMEs", depending on the size of the borrower. This analysis is only possible to Euro Area countries as the information is available in the AnaCredit. For non-Euro Area countries, the information provided in the data templates, per asset class (at instrument level), does not allow for this allocation.

Table 63 Gross recovery rate with additional asset classes – Corporate

Country of formal enforcement	Number of observations	Simple average	Weighted average	Standard Deviation	1st quartile	Median	3rd quartile
AT	202	58.4	57.9	44.0	2.1	78.6	100.0
BE	76	59.3	76.5	47.9	0.0	100.0	100.0
CY							
DE	2,537	33.6	21.8	42.7	0.0	1.5	86.6
EE							
ES	5,108	14.9	21.8	32.8	0.0	0.0	1.8
FI	777	84.9	38.9	35.0	100.0	100.0	100.0
FR	248	44.5	45.4	43.9	0.0	29.1	100.0
GR	315	14.2	12.7	26.6	0.0	0.3	19.5
HR	30	30.4	12.3	46.4	0.0	0.0	100.0
IE							
IT	19,774	19.5	9.4	31.9	0.0	2.7	22.8
LT	38	73.8	63.0	38.4	50.0	97.4	100.0
LU							
LV							
MT							
NL	127	84.1	93.6	36.5	100.0	100.0	100.0
PT	589	13.0	10.5	30.8	0.0	0.0	2.4
SI	10	43.0	56.9	42.3	8.8	25.1	92.0
SK	6	16.7	0.0	40.8	0.0	0.0	0.0

Table 64 Gross recovery rate with additional asset classes – SMEs

Country of formal enforcement	Number of observations	Simple average	Weighted average	Standard Deviation	1st quartile	Median	3rd quartile
AT	5,040	48.8	57.4	45.5	0.0	45.0	100.0
BE	19,842	65.6	42.4	43.8	6.9	100.0	100.0
CY	352	49.1	50.9	42.7	0.4	43.0	100.0
DE	17,769	27.0	18.0	40.5	0.0	0.0	62.1
EE	61	70.4	91.6	40.5	42.1	98.0	100.0
ES	49,311	26.4	35.7	40.7	0.0	0.0	57.1
FI	7,689	63.6	56.5	41.8	14.5	88.3	100.0
FR	22,907	43.0	35.9	42.8	0.0	28.2	100.0
GR	23,271	9.6	12.2	21.5	0.0	0.3	5.2
HR	2,709	34.0	45.0	43.3	0.0	3.5	98.2
IE	320	27.5	12.3	40.0	0.0	0.4	54.1
IT	129,697	19.0	10.0	33.2	0.0	0.5	21.0
LT	1,246	69.1	62.1	38.7	41.6	95.0	100.0
LU	12	90.4	78.8	18.0	86.4	100.0	100.0
LV	137	56.6	63.8	44.1	1.4	81.8	100.0
MT	9	67.7	5.3	48.6	9.0	100.0	100.0
NL	10,877	51.0	48.9	46.4	0.0	49.8	100.0
PT	27,585	19.9	25.2	35.8	0.0	0.0	17.4
SI	1,533	31.1	62.4	41.4	0.0	0.0	74.7
SK	2,072	31.1	31.2	41.1	0.0	2.7	74.8

Table 65 Net recovery rate with additional asset classes – Corporate

Country of formal enforcement	Number of observations	Simple average	Weighted average	Standard Deviation	1st quartile	Median	3rd quartile
AT	202	53.9	54.6	44.3	0.0	67.9	99.6
BE	76	34.3	48.7	37.7	0.0	28.6	57.9
CY							
DE	2,537	42.5	33.8	41.8	0.0	33.1	90.0
EE							
ES	5,108	8.9	17.4	24.0	0.0	0.0	0.0
FI	777	84.5	49.7	35.3	100.0	100.0	100.0
FR	248	42.3	44.2	42.1	0.0	27.7	93.4
GR	315	15.2	12.3	28.8	0.0	0.3	15.8
HR	30	25.2	8.6	42.0	0.0	0.0	43.0
IE							
IT	19,774	10.9	8.7	20.1	0.0	0.9	11.2
LT	38	96.5	73.2	7.3	97.8	99.4	99.9
LU							
LV							
MT							
NL	127	87.2	96.0	32.5	100.0	100.0	100.0
PT	589	8.8	9.3	23.3	0.0	0.0	2.3
SI	10	26.8	46.0	26.8	8.8	19.7	32.3
SK	6	5.9	0.0	14.5	0.0	0.0	0.0

Table 66 Net recovery rate with additional asset classes – SMEs

Country of formal enforcement	Number of observations	Simple average	Weighted average	Standard Deviation	1st quartile	Median	3rd quartile
AT	5,040	53.4	56.0	44.0	0.0	62.3	100.0
BE	19,842	58.2	34.1	43.8	2.9	78.5	100.0
CY	352	43.8	49.5	41.6	0.0	31.5	90.9
DE	17,769	32.9	21.3	41.6	0.0	2.6	81.3
EE	61	69.3	74.8	40.5	43.9	96.9	100.0
ES	49,311	12.1	17.5	28.4	0.0	0.0	1.0
FI	7,689	68.7	59.4	41.4	25.0	98.4	100.0
FR	22,907	38.9	33.3	39.7	0.0	26.0	78.1
GR	23,271	9.6	13.2	21.5	0.0	0.3	5.3
HR	2,709	23.6	27.8	36.5	0.0	0.4	38.0
IE	320	28.7	19.0	39.7	0.0	0.0	62.9
IT	129,697	9.9	8.4	19.9	0.0	0.0	7.9
LT	1,246	59.6	56.6	36.8	29.5	73.0	97.9
LU	12	50.8	50.0	42.2	0.0	68.5	83.0
LV	137	51.7	52.3	41.8	1.0	54.8	100.0
MT	9	48.8	2.6	49.0	4.0	20.0	100.0
NL	10,877	43.7	48.5	39.6	0.0	39.2	85.9
PT	27,585	14.9	20.9	29.5	0.0	0.0	10.0
SI	1,533	23.6	58.6	36.9	0.0	0.0	37.0
SK	2,072	28.7	29.7	38.3	0.0	2.3	63.1

Table 67 Time to recovery with additional asset classes – Corporate

Country of formal enforcement	Number of observations	Simple average	Weighted average	Standard Deviation	1st quartile	Median	3rd quartile
AT	169	2.5	3.7	2.7	0.6	1.4	3.7
BE	52	3.9	3.8	3.4	1.2	4.8	4.8
CY							
DE	1,125	2.0	2.6	2.5	0.3	1.2	2.7
EE							
ES	1,930	1.2	1.9	2.5	0.0	0.0	0.8
FI	654	1.9	1.3	1.1	0.8	2.3	2.8
FR	178	6.4	7.0	3.7	4.2	6.2	8.2
GR	296	2.5	1.5	2.4	0.0	2.3	4.1
HR	9	3.9	9.5	5.8	0.0	2.1	4.9
IE							
IT	17,676	3.2	3.4	2.6	1.3	2.7	4.6
LT	37	0.9	3.2	1.4	0.0	0.2	1.3
LU							
LV							
MT							
NL	131	2.7	3.5	1.5	1.2	3.4	4.1
PT	271	4.3	5.8	2.5	3.0	3.1	5.2
SI	12	1.6	8.9	3.8	0.0	0.0	0.0
SK							

Table 68 Time to recovery with additional asset classes – SMEs

Country of formal enforcement	Number of observations	Simple average	Weighted average	Standard Deviation	1st quartile	Median	3rd quartile
AT	4,393	2.2	3.1	2.0	0.8	1.8	3.0
BE	10,442	3.3	4.5	3.5	0.8	2.2	4.6
CY	342	6.9	6.9	3.8	4.3	7.0	9.2
DE	7,144	2.2	3.5	2.7	0.4	1.3	2.8
EE	44	2.3	2.2	1.4	1.3	2.2	3.1
ES	19,205	1.9	2.8	2.7	0.0	0.7	2.7
FI	6,592	1.6	2.6	1.9	0.2	1.0	2.3
FR	19,381	7.0	7.7	3.7	4.4	6.8	9.1
GR	22,134	1.7	1.6	2.4	0.0	0.0	3.9
HR	1,006	2.3	4.2	3.6	0.0	0.0	4.9
IE	35	3.0	3.8	2.6	0.3	3.1	4.9
IT	122,741	3.8	3.9	3.2	1.4	3.3	5.7
LT	1,211	2.9	5.0	2.3	1.3	2.5	3.6
LU	8	20.8	24.9	12.1	8.7	26.4	30.9
LV	92	3.5	5.3	3.7	0.9	1.9	4.2
MT	8	9.1	0.7	8.0	3.2	6.7	15.4
NL	10,976	1.6	2.3	1.3	0.7	1.2	2.2
PT	14,915	3.9	4.9	2.9	2.5	3.0	5.0
SI	1,788	1.9	3.1	3.1	0.0	0.0	2.9
SK	1,209	2.9	3.9	2.5	1.1	2.5	4.2

Annex 7 - Main determinants from enforcement frameworks - Methodology

Dullmann & Trapp, 2004[70], utilize a logit-normal distribution and empirically analyse the recovery rates. Following a proposal by Schonbucher, 2003, the recovery rate is modelled as a logit transformation of a normally distributed random variable Yj. The recovery rate R (Yj (X)) follows alogit–normal distribution defined as follows:

$$Y_j(X) = \mu + \sigma\sqrt{\omega}\,X + \sigma\sqrt{1-\omega}\,Z_j$$
$$R(Y_j(X)) = \frac{\exp(Y_j(X))}{1+\exp(Y_j(X))},$$

where X and Zj are independent standard normally distributed. The parameter ω is restricted to the interval [0, 1]. The study that utilise a logit-normal distribution demand that PD, μ, σ and ω, like ρ, are constant for all observations and across all time periods. The same study further assume that the Zj are pairwise uncorrelated cross–sectionally.

Logistic function

As Figure 9 shows, the recovery rate is restricted to the interval between 0 and 1. Due to the bounded nature of the dependent variable one cannot implement an ordinary least squares (OLS) regression since the predicted values from the OLS regression can never be guaranteed to lie in the unit interval. In addition, least squares estimates for regression models are highly sensitive to observations which do not follow the pattern of the other observations (i.e. outliers).

$$E(r|\mathbf{x}) = \beta_0 + \beta_1 x_1 + \ldots + \beta_k x_k = \mathbf{x}\beta, \qquad (1)$$

If OLS or WLS cannot be used, non-linear estimation procedures are required (i.e. the maximum likelihood estimator). An alternative specification to equation (1) is

$$E(r|\mathbf{x}) = G(\mathbf{x}\beta), \qquad (2)$$

where G(.) satisfies 0 < G(z) < 1 for all z. This condition guarantees that the predicted recovery rates lie in the unit interval. The most common functional forms for G(.) are the cumulative normal distribution, the logistic function,

$$G(\mathbf{x}\beta) = \frac{1}{1+\exp(-\mathbf{x}\beta)}, \qquad (3)$$

The model creates a relationship in the form of a logistic line that best approximates all the individual data points. The logit–normal model is preferable on the grounds that it has the desirable property to restrict recovery rates to the interval between 0% and 100%. This additional structural element may make parameter estimation more efficient.

[70] Düllmann, Klaus and Gehde-Trapp, Monika, Systematic Risk in Recovery Rates - an Empirical Analysis of U.S. Corporate Credit Exposures (June 2004).

Annex 8 - Main determinants from enforcement frameworks - Descriptive statistics

DESCRIPTIVE STATISTICS

Variable	Observations	Mean	Standard Deviation	Min	Max
Net Recovery Rate	289,850	0.22	0.35	0.00	1.00
D1	478,285	0.95	0.21	0.00	1.00
D2	338,377	0.66	0.47	0.00	1.00
D3	338,377	0.93	0.25	0.00	1.00
D10	474,412	0.94	0.24	0.00	1.00
D25	478,285	0.96	0.19	0.00	1.00
D27	478,285	0.10	0.30	0.00	1.00
D28	478,285	0.10	0.30	0.00	1.00
D29	478,285	0.10	0.29	0.00	1.00
D30	478,285	0.86	0.35	0.00	1.00
Time to Recovery	213,386	3.43	3.29	0.00	40.00
Efficiency ratio 2023	462,162	47.37	9.43	14.89	121.55
ln_ta_2018_2023	471,451	25.80	1.95	18.21	28.37
Bank model					
Cross-border universal	475,521	0.92	0.26	0.00	1.00
Corporate oriented	475,521	0.01	0.12	0.00	1.00
Other specilised	475,521	0.00	0.02	0.00	1.00
legal origin					
Germanic	478,285	0.14	0.35	0.00	1.00
Anglo-Saxon	478,285	0.01	0.07	0.00	1.00
Nordic	478,285	0.04	0.19	0.00	1.00
Type of portfolio (Corporates = 1)	478,285.0	0.12	0.32	0.00	1.00

CORRELATIONS

	Net Recovery Rate	Time to Recovery	Efficiency ratio 2023	Firm ln total assets
Net Recovery Rate	1.000			
Time to Recovery	-0.003	1.000		
Efficiency ratio 2023	0.072	0.069	1.000	
Firm ln total assets	-0.152	0.053	-0.060	1.000

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