

Multilateral development banks and development finance institutions

# DEFAULT AND RECOVERY STATISTICS

**PRIVATE AND  
PUBLIC LENDING  
1994-2023**



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### Private and public lending 1994-2023

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# Preface

The [Global Emerging Markets Risk Database \(GEMs\) Consortium](#) was established in 2009 as a joint initiative between the [European Investment Bank](#) and the [International Finance Corporation](#) to pool credit risk data. The GEMs database is a unique example of a tangible common good designed to catalyse investments in emerging markets and support technical cooperation between international institutions. At the time of writing, GEMs comprises 26 member institutions, all of which are multilateral development banks and development finance institutions, with business activities in emerging markets and developing economies.

GEMs collects de-identified data from multilateral development banks and development finance institutions on their performing and non-performing exposures in emerging markets and developing economies. In return, output statistics are produced encompassing default rates and recovery rates categorised by various dimensions, such as geography, sector, income group and others. GEMs is also a discussion and collaboration forum for building technical alignment and sharing best practices among member institutions, including through working-level meetings. Compiling GEMs risk statistics relies on a robust, shared methodological framework. Bringing together data and expertise from leading public institutions, GEMs offers:

- ✓ a **risk data hub of contract-level information** for private and public lending and sovereign and sovereign-guaranteed lending – one of the largest such datasets for emerging markets and developing economies;
- ✓ a **trusted data collection and processing platform** hosting a scalable data model, which could be expanded to cover other contract-level data related to investment projects;
- ✓ a **statistical platform for member multilateral development banks and development finance institutions**, with the ability to calculate GEMs outputs, default rates, recovery rates and rating migrations facilitating better-informed investment decisions in emerging markets and developing economies;
- ✓ a **public good data source for aggregated statistics**, with the reported default and recovery rates for private and public lending and sovereign and sovereign-guaranteed lending providing an anchor for risk perceptions.
- ✓ a **framework for collaboration among member multilateral development banks and development finance institutions** to improve risk management practices across the industry.

More private investment is needed to combat climate change and achieve the [Sustainable Development Goals](#). This requires institutions to work together on addressing some of the current barriers to investment. Key priorities include supporting the preparation of well-designed projects; facilitating the use of public resources to mitigate risks; promoting and enabling an appropriate legal and contractual environment; and improving standardisation, transparency and data availability. The scarcity of data around emerging markets and developing economies and the tightening of regulatory requirements call for more sophisticated risk management practices and more reliable metrics.

Through GEMs, member multilateral development banks and development finance institutions are addressing the investment gap by sharing their experience and market knowledge among themselves and with investors and the broader public. These banks and institutions pool their data using a harmonised template, generating more valuable statistics than those available to any individual lending institution. GEMs is thus a unique, comprehensive data source for current and potential investors in emerging markets – one that helps refine risk perceptions and inform better decision-making. The [Group of 20 \(G20\) Eminent Persons Group on Global Financial Governance](#) highlights the benefits of a joined-up system built by members, which delivers more than the sum of its parts. The need for a collaborative approach applies to member multilateral development banks and development finance institutions, to private investors and to other stakeholders constrained by the same persistent data gap.

The scarcity of accessible, standardised, transparent and high-quality information on investment projects in emerging markets can skew risk perceptions, leading to suboptimal investment decisions. Institutions with little or no experience in such markets have to rely on risk assumptions based on limited public information. By anchoring risk perceptions with actual statistics, GEMs aims to help unlock capital that can fill such investment gaps.

The statistics produced by GEMs enable the calibration and benchmarking of internal models, leading to efficient provisioning, greater accuracy in setting capital requirements, and better-informed investment decisions. GEMs statistics provide an objective, reliable and statistically significant basis for discussing regulatory compliance, capital adequacy and risk management practices with auditors, rating agencies and supervisors. Furthermore, GEMs statistics can be a powerful tool for transparent assessment of portfolio risks when third parties engage in risk transfer or co-financing operations with multilateral development banks or development finance institutions, or in any other balance sheet optimisation initiative – thereby supporting the crowding-in of additional funding for emerging markets.

Since 2021, GEMs has shared its aggregated statistics publicly, recognising the potential value for various stakeholders, from academics to regulators and commercial entities. This report builds on the well-received previous publications, combining and offering default and recovery statistics in greater detail and reflecting the contributing institutions’ lending profiles in emerging markets and developing economies. The report discloses statistics derived from pooled GEMs data from 1994 to 2023, supplied by 21 member institutions. Furthermore, niche features and unique insights of this database are described in the report, along with the methodological framework for generating GEMs statistics.

Specific applications of GEMs statistics may vary across institutions. GEMs therefore welcomes feedback from readers of this report and looks forward to working with financial stakeholders to improve the focus and content of future publications, aiming to support new and sustainable investment where it is most needed.

#### GEMs member institutions participating in this publication:



# 1 Highlights

The figures and tables in this report provide insights on the dataset composition for private and public lending, with the latter defined as lending to entities that are at least 50% state-owned. Compared with previous editions, this GEMs publication offers statistics with a much wider scope, delving into the details of the dataset and separating the default and recovery rates along various dimensions that have not been publicly disclosed to date.

Statistical metrics are provided on the underlying distributions of results, allowing readers to gauge the significance of the averages presented for default and recovery rates. As default rate distributions approximately follow a normal distribution, 90% confidence intervals are supplied for all averages. In contrast, for recovery rates – where the distributions are heavily skewed – distribution percentiles are provided.

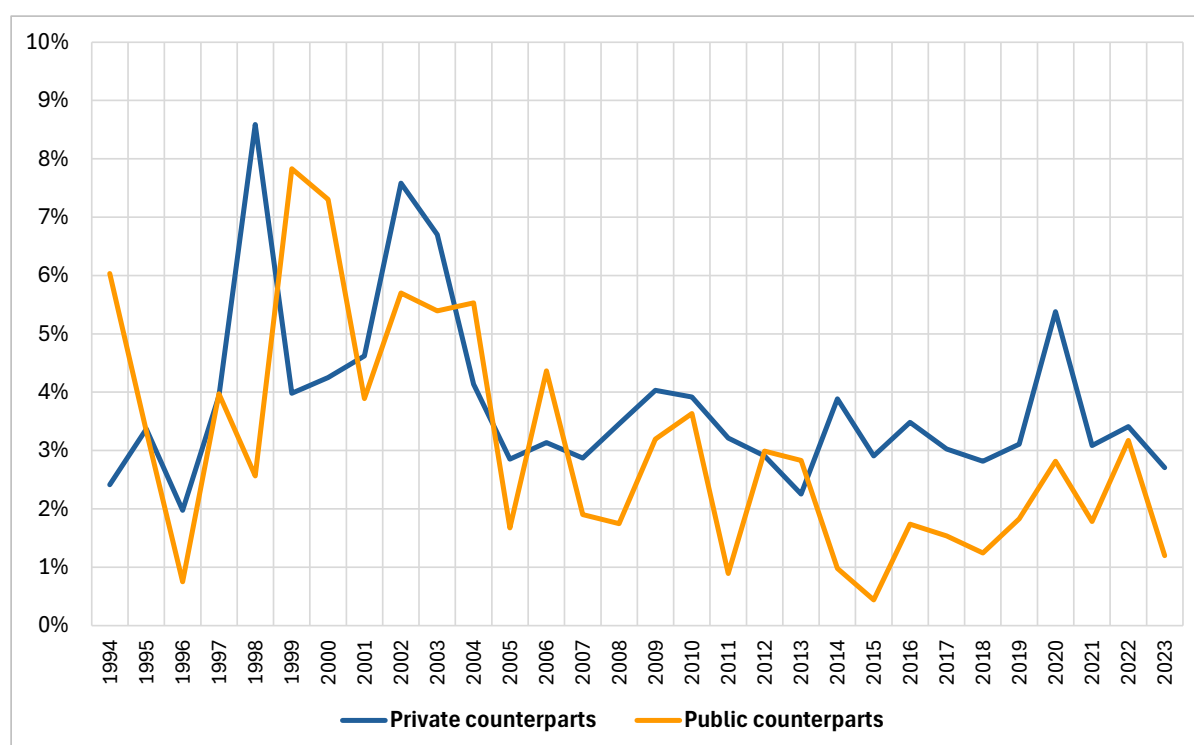
Table 1 provides insights into observed default rates, in line with GEMs methodology (see Section 3). The number of counterparts and the size of lending have increased compared with the previous edition of this report (*Default statistics: Private and Sub-sovereign Lending 1994-2022 - Volume 1*). Over the 1994-2023 reporting period, private counterparts exhibited an overall default rate of 3.56% (90% confidence interval: 3.21%, 3.92%). Public counterparts show a lower overall default rate of 2.59% (90% confidence interval: 2.08%, 3.10%), with a smaller sample size potentially explaining the wider interval for these counterparts. The average default rates are comparable to results in the previous edition of this report (3.5% and 2.4% for private and public counterparts, respectively).

**Table 1: Overall annual default rates by counterpart type**

Counterpart type	Counterparts	Observed years	Number of defaults	Number of observations	Signed amount in € million	Lower of 90% confidence interval	Average annual default rate	Upper of 90% confidence interval
Private	9 929	30	1 996	55 993	446 839	3.21%	<b>3.56%</b>	3.92%
Public	943	30	242	9 348	95 184	2.08%	<b>2.59%</b>	3.10%

Figure 1 illustrates the default rate by year and counterpart type. Although public counterparts have lower default rates compared with private counterparts, the evolution pattern of the two types of counterparts is similar. The highest default rates were observed in the late 1990s, stabilising gradually at the levels observed in recent reports. The highest averages were 8.6% for private counterparts in 1998 and 7.8% for public counterparts in 1999. The spikes seen in 2020 coincide with the COVID-19 pandemic, which created a challenging business environment across sectors.

Figure 1: Annual default rates by counterpart type



Recovery rates are calculated at a contract level as described in Section 5.1 and reflect a history of 30 years. The GEMs database contains 1 561 and 251 defaulted contracts with private and public counterparts, respectively.

Table 2 shows that the recovery rates for contracts with private counterparts have an average of 72.2% and a median of 89.9%. Contracts with public counterparts exhibit a higher average recovery rate of 85.9% and a median of 99.3%, which can be attributed to the smaller number of observations, and the implicit state guarantees that these types of borrowers often benefit from.

Table 2: Overall recovery rates by counterpart type

Counterpart type	Number of defaults	Signed amount in € million	Average recovery rate	Minimum observation	10th percentile	25th percentile	Median	75th percentile	90th percentile	Maximum observation
Private	1 561	28 967	72.2%	0.0%	9.3%	50.9%	89.9%	99.6%	100.0%	100.0%
Public	251	3 828	85.9%	0.0%	46.2%	88.9%	99.3%	100.0%	100.0%	100.0%

Table 3 and Figure 2 illustrate the distribution of the recovery rate by counterpart type. At least half of the defaulted contracts for each counterpart type have recovery rates greater than 90%, with less than 10.5% of defaults resulting in losses exceeding 90% of the due amounts. Recovery rates between 10% and 90% are fairly evenly distributed for both counterpart types.

Table 3: Distribution of recovery rates by counterpart type

Type	Recovery rate	From	0%	10%	20%	30%	40%	50%	60%	70%	80%	90%	Total
		To	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%	
Private counterparts	Defaulted contracts		162	60	70	46	49	57	74	104	160	779	1 561
	% of total		10.4%	3.8%	4.5%	2.9%	3.1%	3.7%	4.7%	6.7%	10.2%	49.9%	100%
Public counterparts	Defaulted contracts		14	8	0	1	7	3	4	12	17	185	251
	% of total		5.6%	3.2%	0.0%	0.4%	2.8%	1.2%	1.6%	4.8%	6.8%	73.7%	100%

Figure 2: Distribution of recovery rates by counterpart type (% of all defaults)

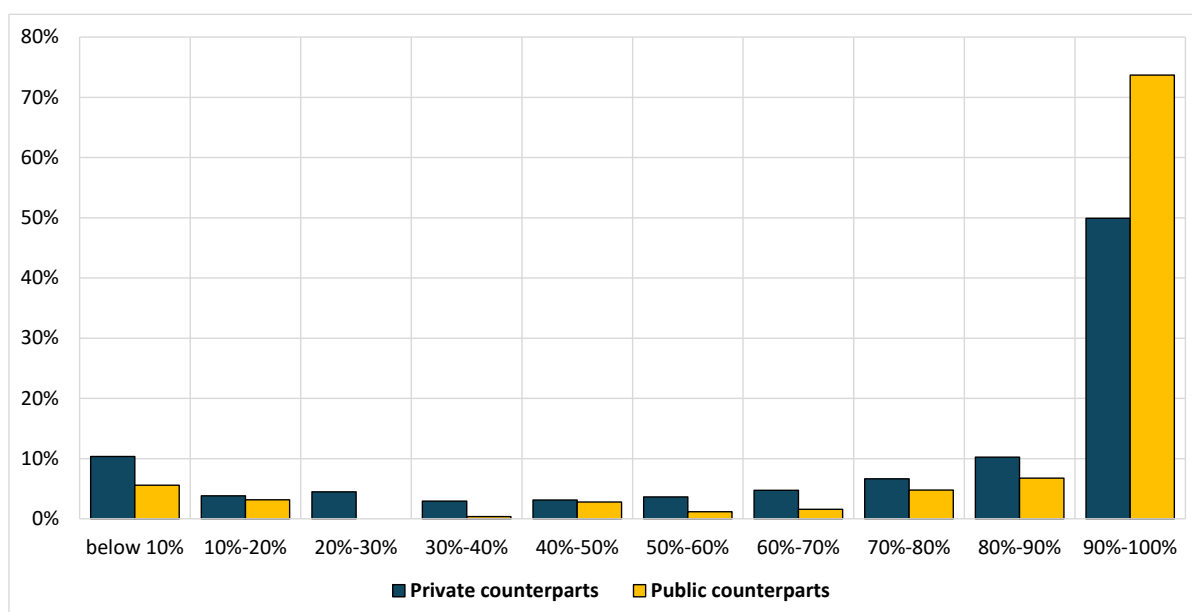
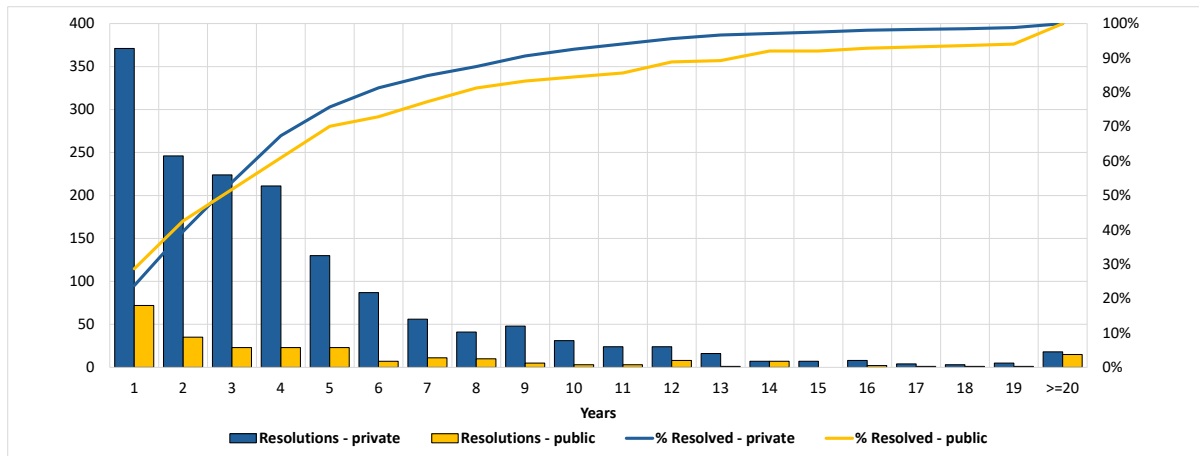


Table 4 shows the time to resolution of defaults, with 67% of the defaulted contracts with private counterparts being recovered within four years of the default event. Only 18 contracts (representing 1.2% of the dataset) took longer than 20 years to recover. Public lending follows a similar trend, with 61% of defaulted obligations being recovered within four years, but almost 6% of contracts taking longer than 20 years to recover. The percentage of resolved contracts is slightly higher for public counterparts than for private counterparts in the first two years, with the trend reversing for longer recoveries (Figure 3). The median time to resolution across observations is between two and three years.

Table 4: Time to resolution by counterpart type

Counterpart type		Resolution of default during year																		Total		
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18		19	>=20
Private counterparts	Resolutions	371	246	224	211	130	87	56	41	48	31	24	24	16	7	7	8	4	3	5	18	1 561
	% resolved	24%	40%	54%	67%	76%	81%	85%	88%	91%	93%	94%	96%	97%	97%	98%	98%	98%	99%	99%	100%	
Public counterparts	Resolutions	72	35	23	23	23	7	11	10	5	3	3	8	1	7	0	2	1	1	1	15	251
	% resolved	29%	43%	52%	61%	70%	73%	77%	81%	83%	84%	86%	89%	89%	92%	92%	93%	93%	94%	94%	100%	

**Figure 3: Time to resolution by counterpart type** (left axis: annual resolutions; right axis: cumulative percentage resolved)



## 2 Characteristics of the private and public lending dataset

### 2.1 Definition

The GEMs risk database collects credit information on standard debt products of member multilateral development banks and development finance institutions. This report presents data on private and public counterparts. Private counterparts comprise a variety of entities, such as financial institutions and corporates. Public counterparts, referred to as sub-sovereign counterparts in previous publications, comprise entities such as municipalities or at least 50% state-owned enterprises. Loans contracted with these counterparts may benefit from guarantees that can be provided, for instance, by governments. For the ease of reporting, equity and non-standard lending products, observations from countries outside the World Bank Group regional classification system, regional projects not assignable to a single country, and operations provided by GEMs member institutions on behalf of third parties, are not included in the report.

### 2.2 Counterparts in the dataset

The dataset includes counterparts from a total of 169 developing countries, excluding pre-1990 EU countries and highly rated countries. Counterparts from these countries are either filtered out by the submitting institutions or through the quality control performed by the GEMs Secretariat. Figures 4 and 5 show that most of the dataset consists of lending obligations to private counterparts, comprising nearly €500 billion of signed contracts spanning over the 1994-2023 reporting period. Public counterparts represent a much smaller share, with higher average lending amounts, reaching nearly €100 billion.

Figure 4: Dataset composition – number of counterparts

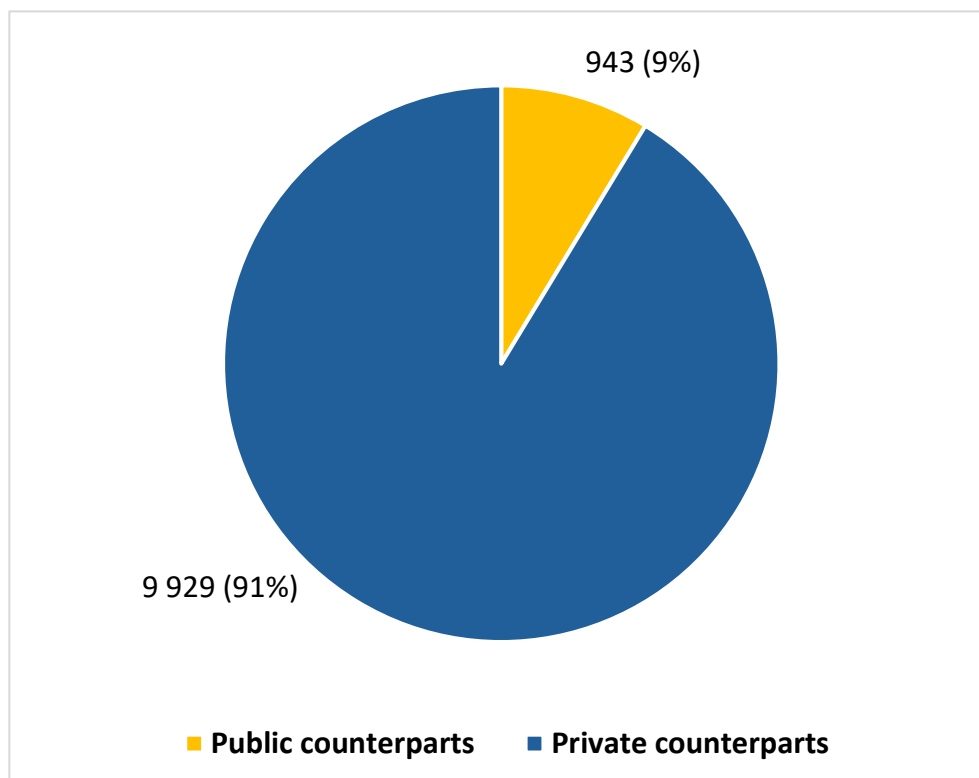
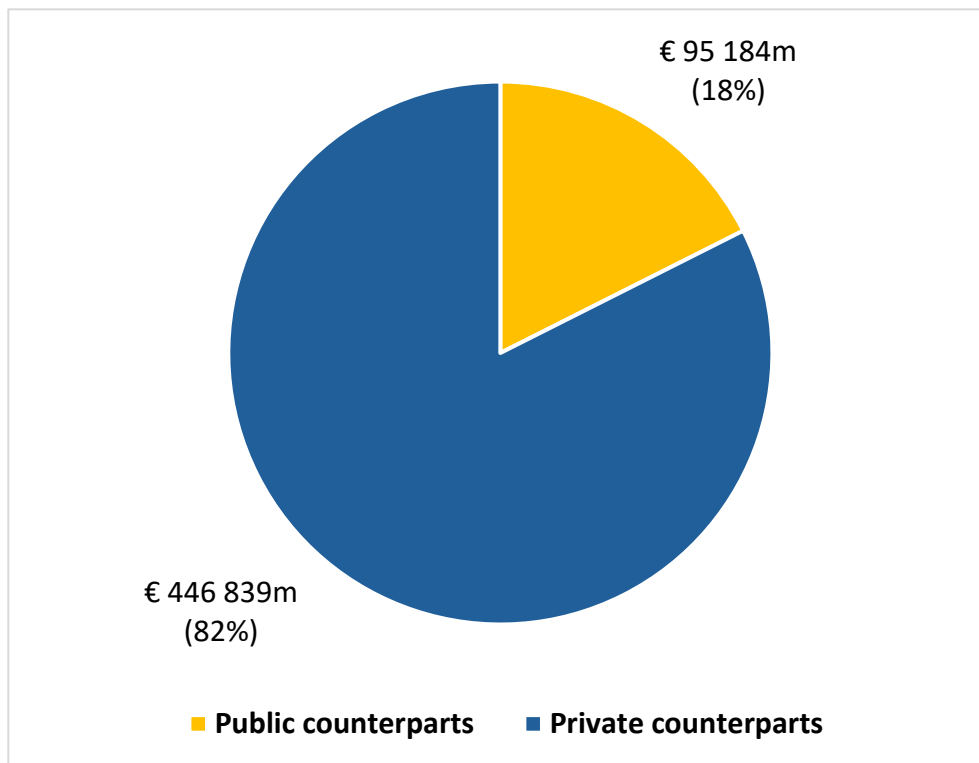
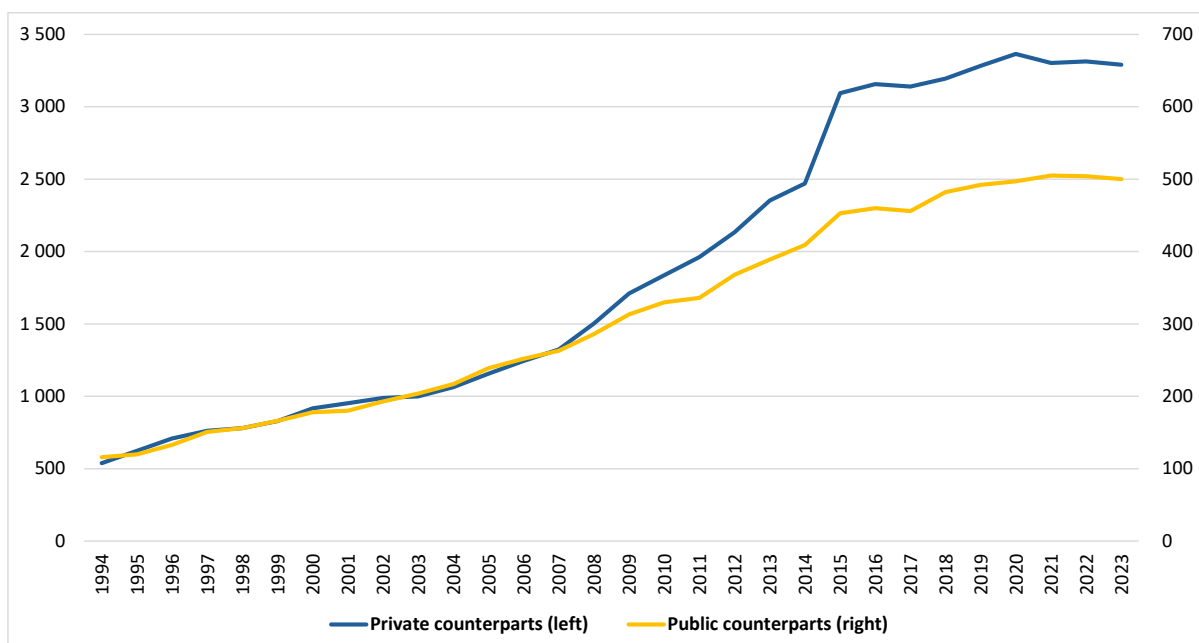


Figure 5: Dataset composition – signed amounts



The dataset contains 10 872 counterparts, which are not necessarily active throughout the 30-year reporting period. The number of active counterparts has grown steadily since 1994, reflecting the wider reach and increased lending by multilateral development banks and development finance institutions, with the trend showing signs of stabilisation after 2020.

Figure 6: Active counterparts





## 3 Default rate statistics

### 3.1 Default rate methodology

#### 3.1.1 Definition

According to the GEMs methodology, a default event can occur in six ways:

- non-payment within 90 days of being due
- specific provision raised for a contract
- write-off of an outstanding loan (either full or partial)
- agreement to distressed restructuring
- client enters bankruptcy
- realisation of loan security

#### 3.1.2 Calculations

Default rates are calculated at the counterpart level. During the reporting observation period, counterparts can either default or exit the portfolio (maturing contractual obligations). The number of active counterparts is determined at the beginning of each year.

The average annual default rate is calculated based on a weighted average that considers the number of observations. This approach is aimed at moderating the impact of outliers compared with the (unweighted) mean of the annual default rates.

Annual default rates are calculated as:

**Equation 1: Annual default rate for year  $i$**

$$x_i = \frac{d_i}{w_i}$$

Where:

$d_i$  = Number of new defaults of counterparts during year  $i$

$w_i$  = Number of performing counterparts as of 1 January of year  $i$

Annual default rates are averaged using the number of performing counterparts as of 1 January of each year as weights:

**Equation 2: Average annual default rate**

$$\bar{x}^* = \frac{\sum_{i=1}^N w_i x_i}{\sum_{i=1}^N w_i}$$

Where:

$N$  = Number of years

Weighted standard deviations of annual default rates are calculated using the number of performing counterparts as of 1 January of each year as weights:

### Equation 3: Weighted standard deviation of annual default rates

$$\sigma = \sqrt{\frac{\sum_{i=1}^N w_i (x_i - \bar{x}^*)^2}{\frac{(N-1)}{N} \sum_{i=1}^N w_i}}$$

Where:

$N$  is the number of years

$w_i$  are the weights, that is, the number of counterparts

$x_i$  are the observations, that is, the annual default rates for each year

$\bar{x}^*$  is the weighted mean of the default rates, as defined in Equation 2

Assuming default rates are normally distributed, the confidence intervals around the averages are determined as:

### Equation 4: Confidence intervals for annual default rates

$$CI_{upper} = \bar{x}^* + z * \frac{\sigma}{\sqrt{N}}$$

$$CI_{lower} = \bar{x}^* - z * \frac{\sigma}{\sqrt{N}}$$

Where:

$z^*$  =  $z^*$ -value from the standard normal distribution for the chosen confidence interval

#### 3.1.3 Output parameters

The report outputs assume a normal distribution for the default rates, with the confidence interval calculation based on the weighted standard deviation.

Accurate statistical representation under a certain category is achieved by applying the following thresholds:

- Minimum number of counterparts for each bucket in the reporting dimension is ten.
- Minimum number of active years for each bucket in the reporting dimension is five.

## 3.2 Annual default rates

### 3.2.1 Annual default rates by year and counterpart type

Table 5 presents the annual default rates per counterpart type, offering a comparison between public and private lending. The increase in the number of counterparts after 2015 can be attributed to expanding operations in emerging markets and developing economies by GEMs members, as reported in the data submission content. The decreasing trend in default rates reflects the lower numbers of defaults as a percentage of active counterparts and is visible in Figure 7 and Figure 8. A lower average default rate for private and public counterparts occurs between 2004 and 2013 compared with the preceding decade and is maintained in the following decade (2014-2023) for private counterparts but further declines for public counterparts. The effects of the COVID-19 pandemic are evident through the increase in defaults in 2020, up by almost 80% from the year before.

Table 5: Annual default rates by counterpart type

Year	Private counterparts				Public counterparts			
	Signed amount in € million	Number of defaults	Active counterparts	Annual default rate	Signed amount in € million	Number of defaults	Active counterparts	Annual default rate
1994	105 787	13	538	2.42%	10 072	7	116	6.03%
1995	93 234	21	623	3.37%	13 088	4	120	3.33%
1996	89 873	14	709	1.97%	15 432	1	133	0.75%
1997	83 013	30	762	3.94%	16 966	6	151	3.97%
1998	65 114	67	780	8.59%	17 340	4	156	2.56%
1999	58 047	33	829	3.98%	17 983	13	166	7.83%
2000	63 331	39	917	4.25%	19 520	13	178	7.30%
2001	65 636	44	952	4.62%	19 506	7	180	3.89%
2002	66 000	75	989	7.58%	22 911	11	193	5.70%
2003	53 993	67	1 000	6.70%	21 456	11	204	5.39%
2004	45 299	44	1 063	4.14%	23 886	12	217	5.53%
2005	45 952	33	1 157	2.85%	30 361	4	239	1.67%
2006	57 753	39	1 244	3.14%	30 217	11	252	4.37%
2007	77 144	38	1 323	2.87%	32 342	5	263	1.90%
2008	83 800	52	1 504	3.46%	34 873	5	286	1.75%
2009	102 013	69	1 711	4.03%	37 691	10	313	3.19%
2010	100 406	72	1 837	3.92%	40 913	12	330	3.64%
2011	107 216	63	1 961	3.21%	43 170	3	336	0.89%
2012	114 851	62	2 133	2.91%	46 352	11	368	2.99%
2013	124 004	53	2 353	2.25%	51 339	11	389	2.83%
2014	128 190	96	2 470	3.89%	53 336	4	409	0.98%
2015	154 686	90	3 094	2.91%	61 588	2	453	0.44%
2016	159 904	110	3 156	3.49%	63 118	8	460	1.74%
2017	153 485	95	3 139	3.03%	64 087	7	456	1.54%
2018	157 864	90	3 195	2.82%	69 757	6	482	1.24%
2019	162 611	102	3 283	3.11%	72 082	9	492	1.83%
2020	167 634	181	3 365	5.38%	73 044	14	497	2.82%
2021	163 525	102	3 303	3.09%	74 439	9	505	1.78%
2022	160 274	113	3 313	3.41%	73 994	16	504	3.17%
2023	156 653	89	3 290	2.71%	73 473	6	500	1.20%
<b>Overall</b>		<b>1 996</b>		<b>3.56%</b>		<b>242</b>		<b>2.59%</b>

Figure 7: Annual default rates and averages – private counterparts

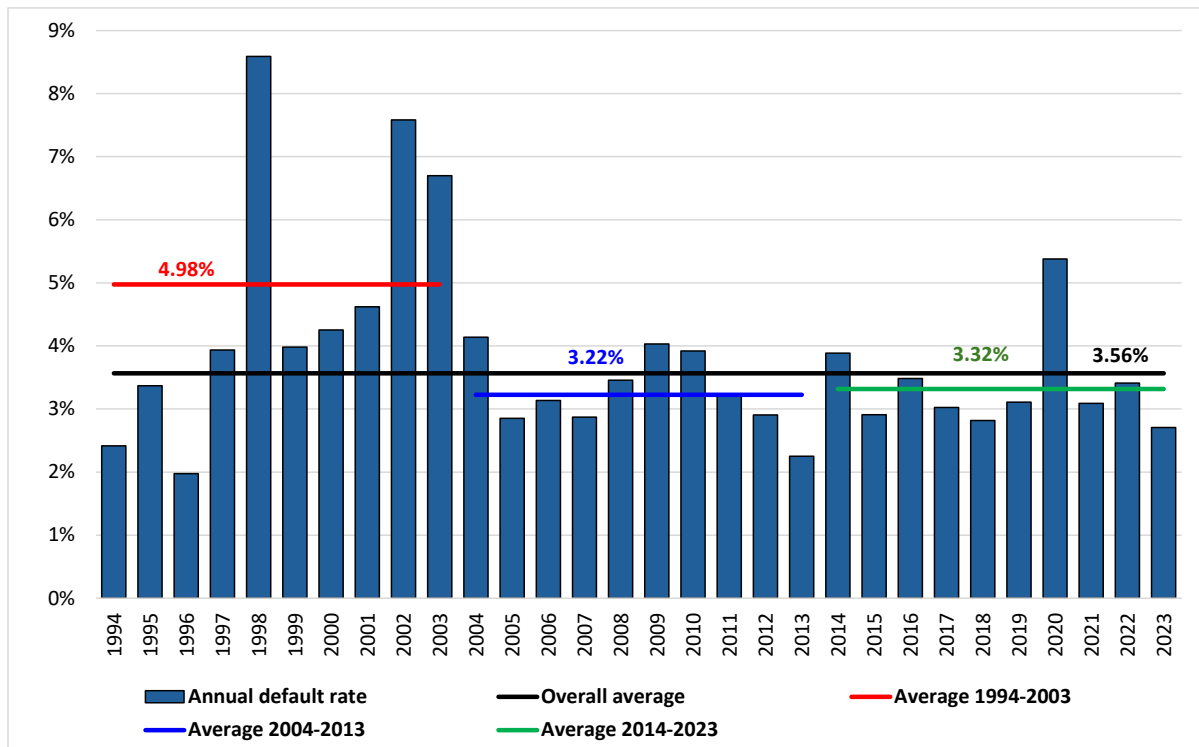
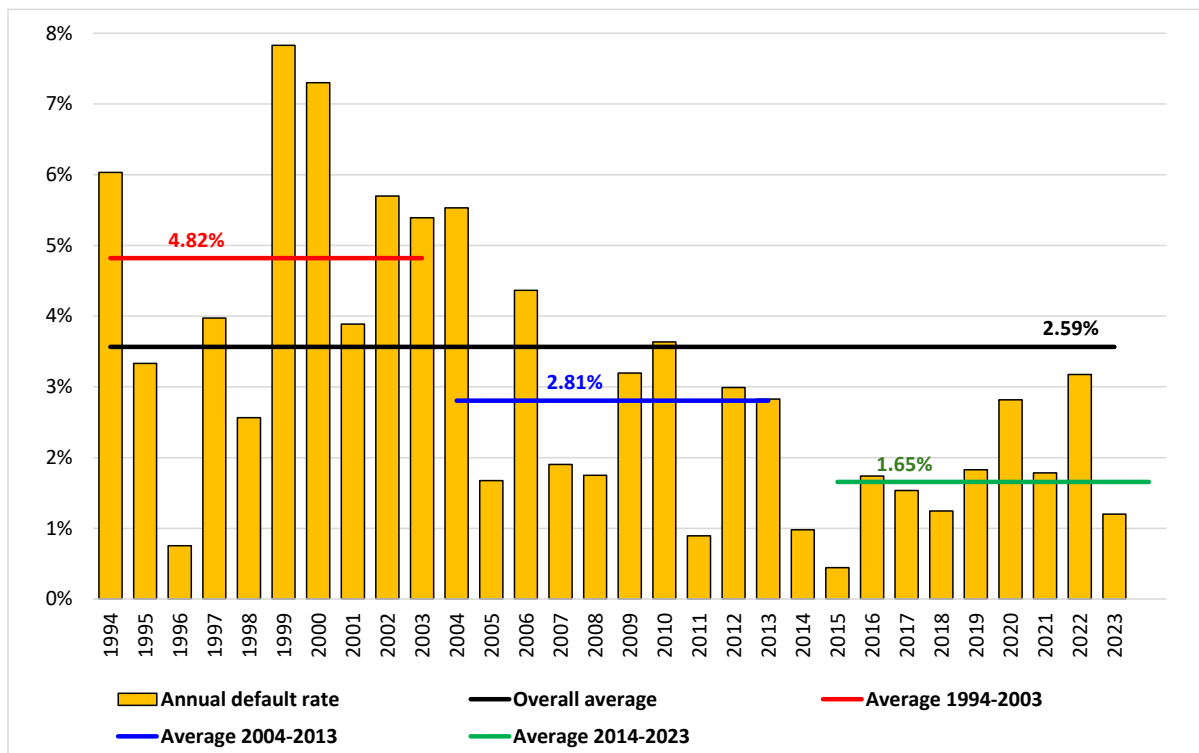


Figure 8: Annual default rates and averages – public counterparts



### 3.3 Default rates by region

The country and region assigned to each counterpart in the dataset is the location of the main legal address of the borrower. The [World Bank Group classification of countries to regions](#) is used for the statistics in this section. The category “Multiple” is used for counterparts that are supranational organisations or active in more than one country and in several regions.

#### 3.3.1 Private lending

Among the private counterparts, 57% are in Europe and Central Asia, and Latin America and the Caribbean, representing around 47% of the observed defaults. The highest average default rate pertains to sub-Saharan Africa followed by the East Asia and Pacific region.

Table 6: Annual default rates by region – private counterparts

Region	Counterparts	Observed years	Number of defaults	Number of observations	Signed amount in € million	Lower of 90% confidence interval	Average annual default rate	Upper of 90% confidence interval
East Asia & Pacific	897	30	181	4 523	49 697	2.97%	4.00%	5.03%
Europe & Central Asia	3 416	30	568	20 095	127 910	2.35%	2.83%	3.31%
Latin America & Caribbean	2 256	30	368	12 245	107 058	2.36%	3.01%	3.65%
Middle East & North Africa	682	30	147	4 136	34 290	2.69%	3.55%	4.42%
Multiple	251	24	32	1 197	32 861	1.68%	2.67%	3.67%
South Asia	836	30	155	4 506	39 771	2.34%	3.44%	4.54%
Sub-Saharan Africa	1 591	30	545	9 291	55 250	5.34%	5.87%	6.39%
Overall, including omitted categories	9 929	30	1 996	55 993	446 839	3.21%	3.56%	3.92%

Figure 9: Dataset composition by region – private counterparts

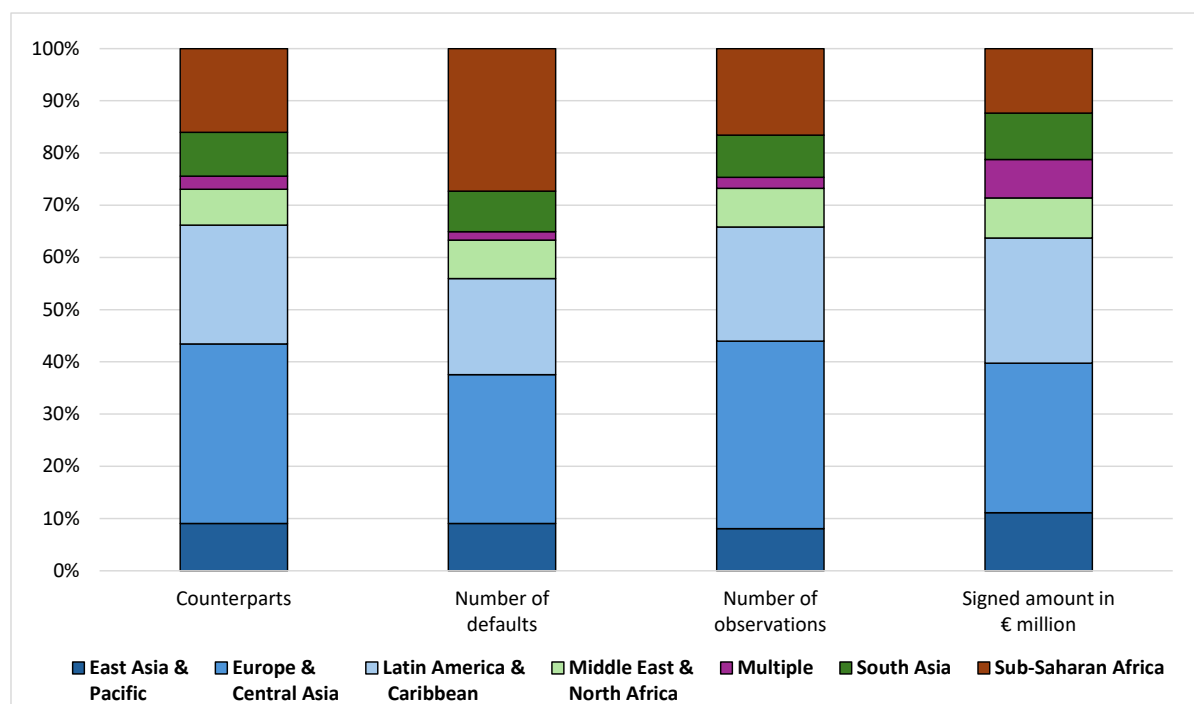
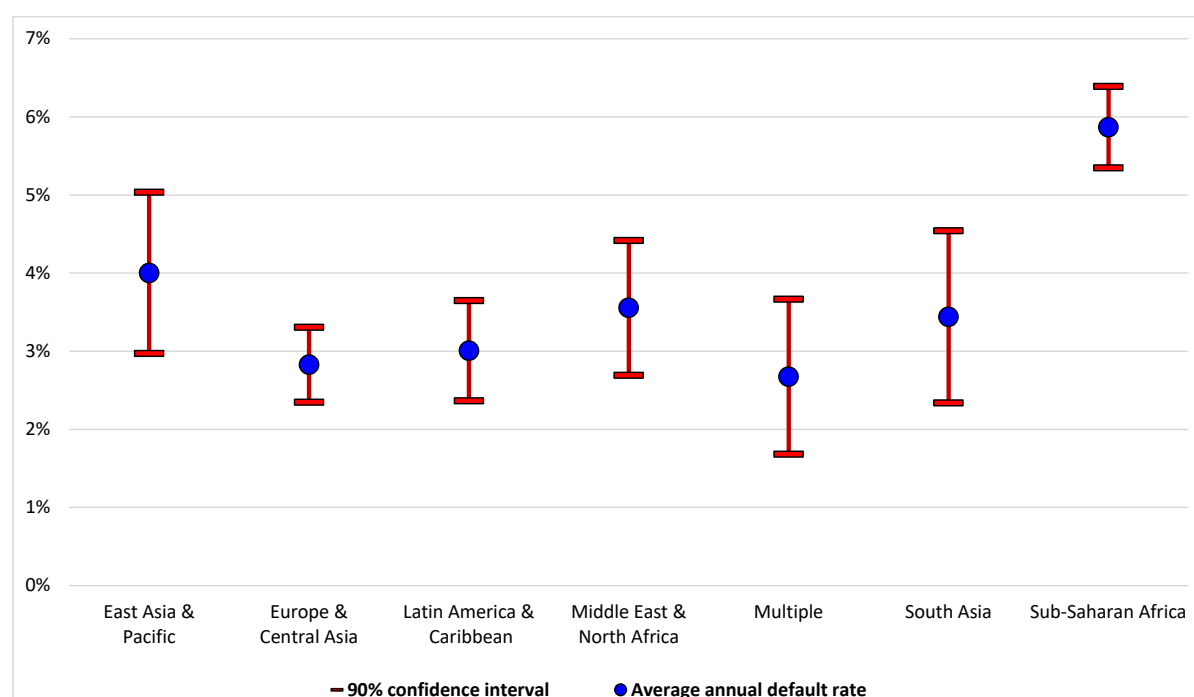


Figure 10: Annual default rates by region – private counterparts



### 3.3.2 Public lending

Similar to private counterparts, the largest number of public borrowers is in Europe and Central Asia, followed by sub-Saharan Africa. The highest annual default rate is in sub-Saharan Africa, with the rate for the East Asia and Pacific region having the widest confidence interval due to the small number of reported counterparts.

Table 7: Annual default rates by region – public counterparts

Region	Counterparts	Observed years	Number of defaults	Number of observations	Signed amount in € million	Lower of 90% confidence interval	Average annual default rate	Upper of 90% confidence interval
East Asia & Pacific	38	30	17	420	2 622	2.33%	4.05%	5.76%
Europe & Central Asia	441	29	41	3 962	35 216	0.56%	1.03%	1.51%
Latin America & Caribbean	111	30	15	947	14 927	0.62%	1.58%	2.55%
Middle East & North Africa	111	30	25	1 315	26 000	1.16%	1.90%	2.65%
Multiple								
South Asia								
Sub-Saharan Africa	216	30	144	2 509	12 686	4.62%	5.74%	6.86%
Overall, including omitted categories	943	30	242	9 348	95 184	2.08%	2.59%	3.10%

Figure 11: Dataset composition by region – public counterparts

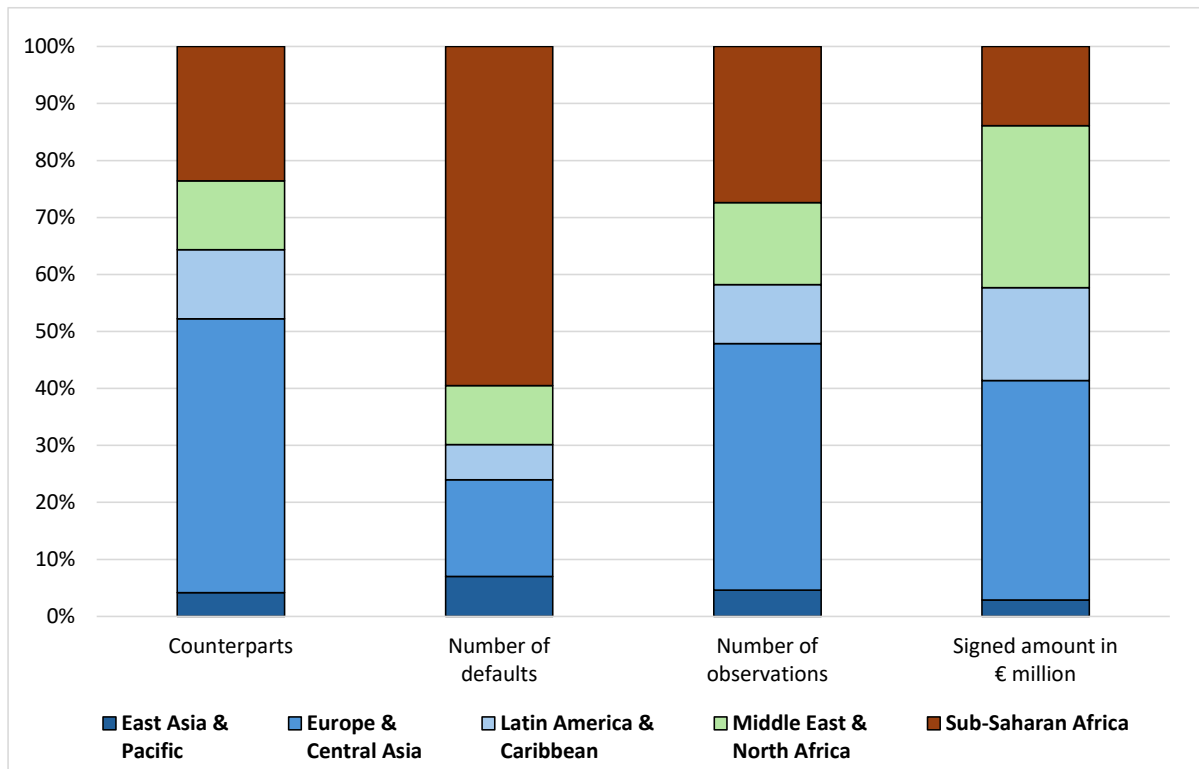
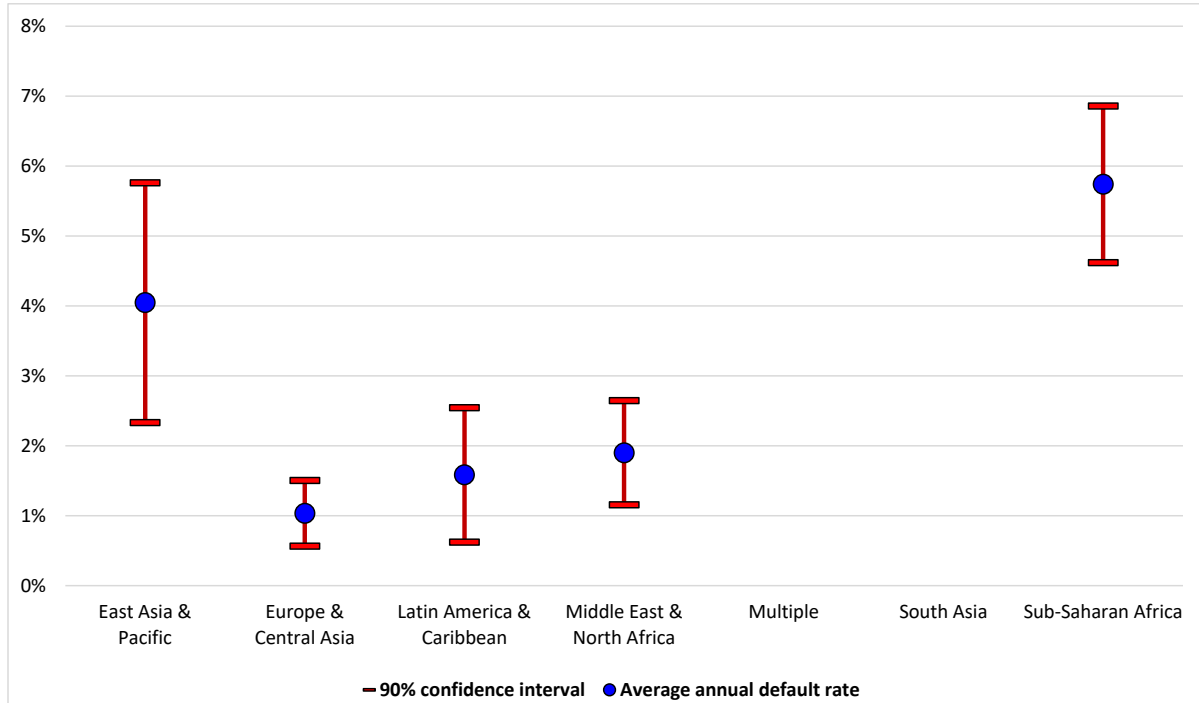


Figure 12: Annual default rates by region – public counterparts



## 3.4 Default rates by sector

The public and private lending dataset is categorised into industry sectors following the [Global Industry Classification Standard \(GICS\)](#) 2018 system, which is an industry standard.

### 3.4.1 Private lending

Among the private borrowing obligations, 36% fall under financials, and the three largest sectoral classifications (financials, consumer staple and utilities) cover 62% of available data. The highest default rate occurs in consumer discretionary and information technology and the lowest is in financials.

Table 8: Annual default rates by sector – private counterparts

Sector	Counterparts	Observed years	Number of defaults	Number of observations	Signed amount in € million	Lower of 90% confidence interval	Average annual default rate	Upper of 90% confidence interval
Administration	29	16	5	167	2 077	0.95%	2.99%	5.03%
Communication services	292	30	55	1 512	14 342	2.66%	3.64%	4.62%
Consumer discretionary	771	30	241	3 955	19 683	5.16%	6.09%	7.03%
Consumer staples	1 201	30	321	6 203	51 009	4.54%	5.17%	5.81%
Energy	235	30	42	1 284	17 807	2.26%	3.27%	4.28%
Financials	3 595	30	494	21 675	181 860	1.94%	2.28%	2.61%
Healthcare	241	30	63	1 159	9 034	3.98%	5.44%	6.89%
Industrials	774	30	182	4 044	32 640	3.83%	4.50%	5.17%
Information technology	54	30	14	230	1 509	3.19%	6.09%	8.99%
Materials	874	30	227	5 148	37 141	3.70%	4.41%	5.12%
Others	330	30	63	1 675	6 359	2.73%	3.76%	4.80%
Real estate	174	30	44	804	6 191	4.22%	5.47%	6.72%
Utilities	1 359	30	245	8 137	67 187	2.61%	3.01%	3.42%
<b>Overall, including omitted categories</b>	<b>9 929</b>	<b>30</b>	<b>1 996</b>	<b>55 993</b>	<b>446 839</b>	<b>3.21%</b>	<b>3.56%</b>	<b>3.92%</b>

Figure 13: Dataset composition by sector – private counterparts

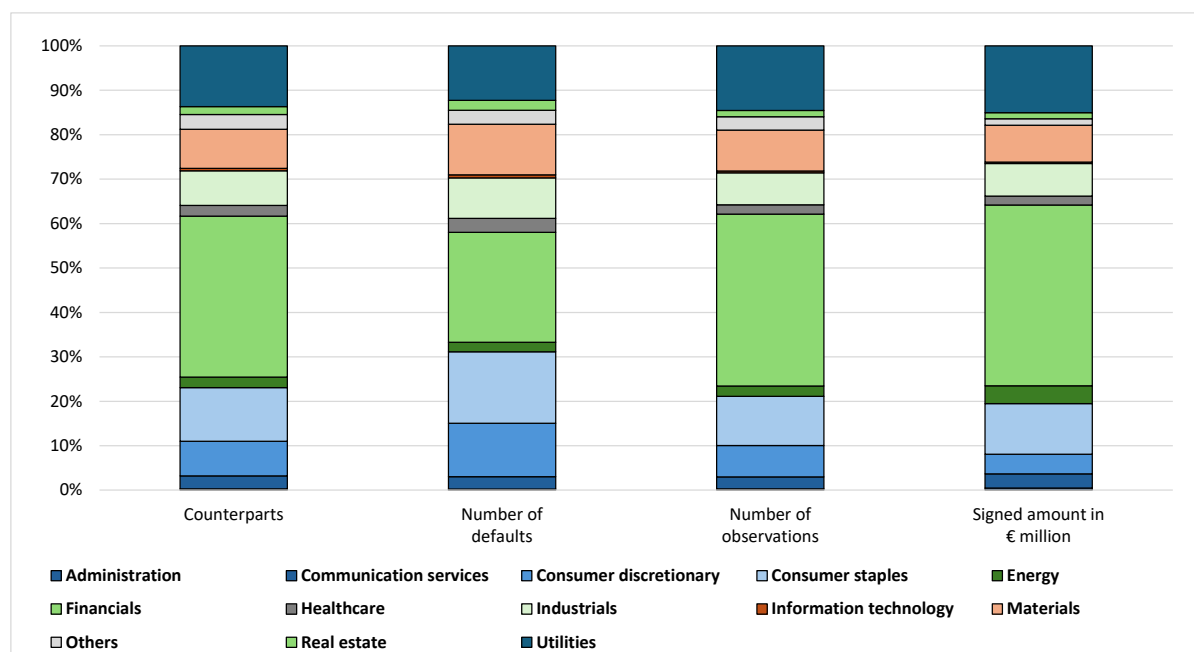
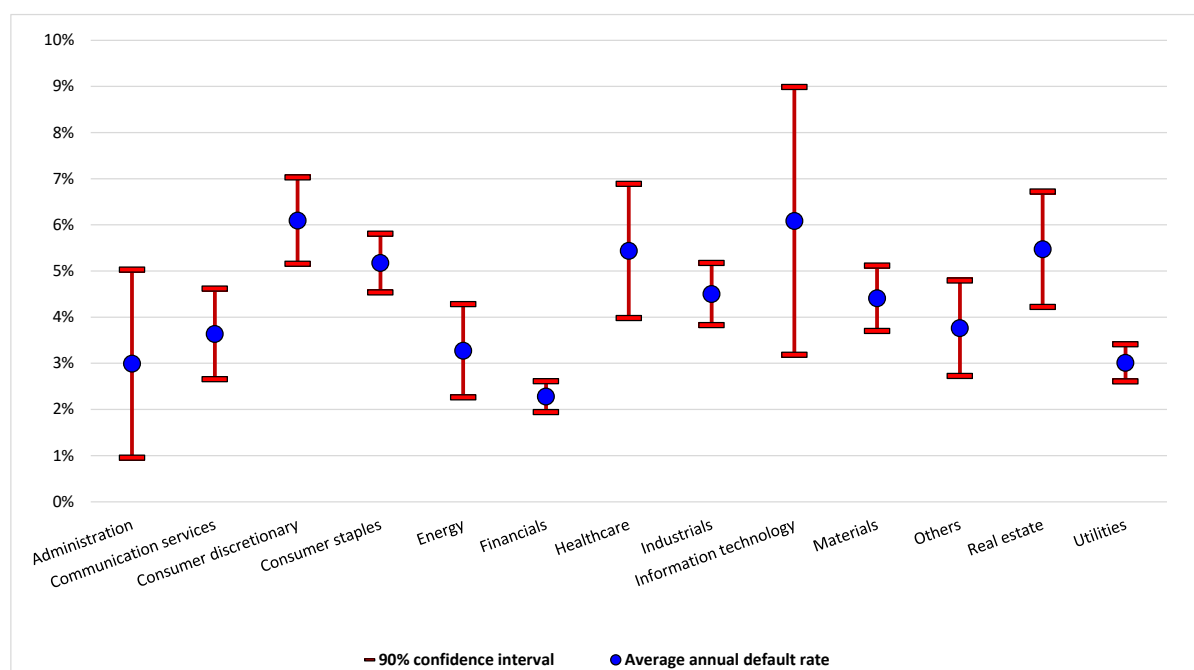




Figure 14: Annual default rates by sector – private counterparts



### 3.4.2 Public lending

The total number of observations for public lending is substantially smaller than that for private lending. Financials again account for over 30% of the dataset, with the lowest default rates in the administration and energy sectors and the highest default rate in consumer discretionary sector.

Table 9: Annual default rates by sector – public counterparts

Sector	Counterparts	Observed years	Number of defaults	Number of observations	Signed amount in € million	Lower of 90% confidence interval	Average annual default rate	Upper of 90% confidence interval
Administration	99	30	7	969	7 278	0.09%	<b>0.72%</b>	1.36%
Communication services	20	30	9	177	1 180	2.81%	<b>5.08%</b>	7.36%
Consumer discretionary	30	30	18	311	601	3.04%	<b>5.79%</b>	8.53%
Consumer staples								
Energy	24	30	2	205	2 963	0.00%	<b>0.98%</b>	2.23%
Financials	300	30	97	2 736	45 325	2.58%	<b>3.55%</b>	4.51%
Healthcare								
Industrials	114	30	18	1 199	12 591	0.86%	<b>1.50%</b>	2.14%
Information technology								
Materials								
Others	144	27	21	1 363	2 922	0.49%	<b>1.54%</b>	2.59%
Real estate								
Utilities	171	30	44	1 917	19 174	1.67%	<b>2.30%</b>	2.93%
<b>Overall, including omitted categories</b>	<b>943</b>	<b>30</b>	<b>242</b>	<b>9 348</b>	<b>95 184</b>	<b>2.08%</b>	<b>2.59%</b>	<b>3.10%</b>

Figure 15: Dataset composition by sector – public counterparts

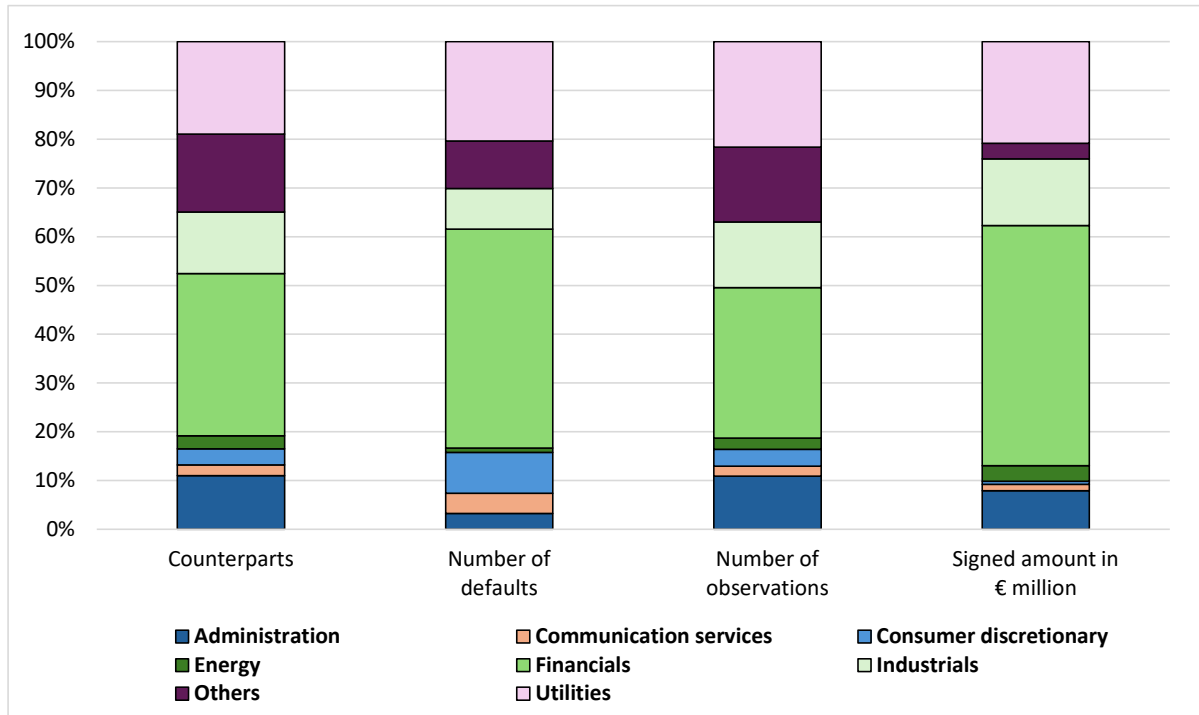
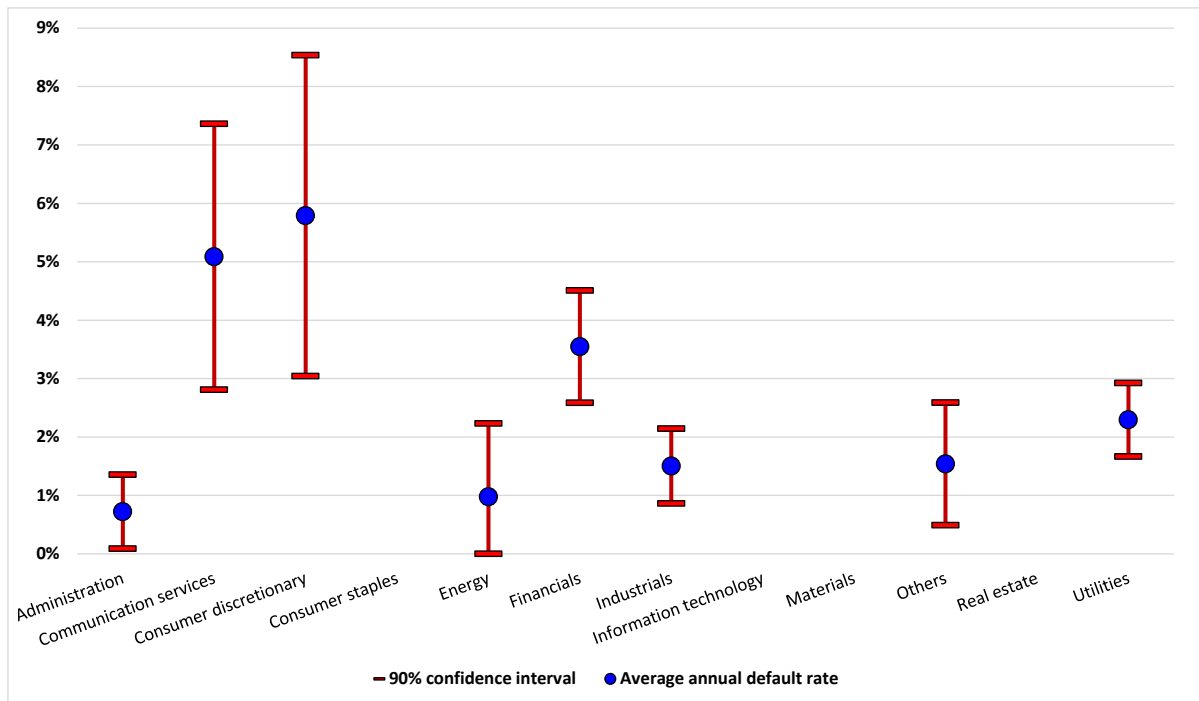


Figure 16: Annual default rates by sector – public counterparts



### 3.5 Default rates by region and sector combination

Table 10 and Table 11 show the average default rates and confidence intervals per sector and per geographical location for private and public counterparts, respectively, providing insights into the lending profile characteristics of the different industrial sectors for each geographical region. The range and confidence intervals are wide at times, which is due to regional market differences and dataset characteristics that reflect the implicit guarantees for certain sectors (financials, utilities) or government subsidies (energy).

#### 3.5.1 Private lending

Table 10: Annual default rates by region and sector – private counterparts

Region	Item	Administration	Communication services	Consumer discretionary	Consumer staples	Energy	Financials	Healthcare	Industrials	Information technology	Materials	Others	Real estate	Utilities
East Asia & Pacific	Lower of 90% confidence interval		0.44%	4.47%	2.69%		1.43%	0.00%	4.31%		4.52%			0.24%
	<b>Average annual default rate</b>		<b>2.00%</b>	<b>6.67%</b>	<b>4.36%</b>		<b>2.88%</b>	<b>3.49%</b>	<b>6.99%</b>		<b>6.50%</b>			<b>0.99%</b>
	Upper of 90% confidence interval		3.56%	8.87%	6.03%		4.34%	7.56%	9.68%		8.48%			1.74%
Europe & Central Asia	Lower of 90% confidence interval		0.57%	3.69%	3.29%	1.41%	0.86%	3.11%	2.81%	1.62%	2.37%	2.57%	2.82%	3.14%
	<b>Average annual default rate</b>		<b>1.89%</b>	<b>4.77%</b>	<b>4.66%</b>	<b>2.36%</b>	<b>1.16%</b>	<b>4.64%</b>	<b>3.81%</b>	<b>3.70%</b>	<b>3.35%</b>	<b>3.64%</b>	<b>4.63%</b>	<b>4.43%</b>
	Upper of 90% confidence interval		3.21%	5.86%	6.03%	3.30%	1.45%	6.17%	4.82%	5.79%	4.32%	4.72%	6.44%	5.72%
Latin America & Caribbean	Lower of 90% confidence interval		1.76%	2.02%	3.10%	0.25%	1.27%	2.65%	1.76%		2.01%	1.78%	0.70%	2.74%
	<b>Average annual default rate</b>		<b>3.52%</b>	<b>3.38%</b>	<b>4.36%</b>	<b>1.95%</b>	<b>1.96%</b>	<b>6.02%</b>	<b>2.72%</b>		<b>3.57%</b>	<b>3.49%</b>	<b>6.02%</b>	<b>3.62%</b>
	Upper of 90% confidence interval		5.28%	4.74%	5.62%	3.66%	2.64%	9.40%	3.67%		5.14%	5.20%	11.35%	4.50%
Middle East & North Africa	Lower of 90% confidence interval			3.25%	2.46%	1.70%	2.34%	0.58%	4.74%		2.51%			0.21%
	<b>Average annual default rate</b>			<b>6.88%</b>	<b>6.47%</b>	<b>4.14%</b>	<b>3.82%</b>	<b>3.62%</b>	<b>8.38%</b>		<b>3.91%</b>			<b>0.44%</b>
	Upper of 90% confidence interval			10.51%	10.48%	6.57%	5.30%	6.67%	12.01%		5.31%			0.66%
Multiple	Lower of 90% confidence interval					0.00%		1.27%		0.42%				
	<b>Average annual default rate</b>					<b>0.58%</b>		<b>2.35%</b>		<b>4.67%</b>				
	Upper of 90% confidence interval					1.41%		3.44%		8.91%				
South Asia	Lower of 90% confidence interval		1.38%	4.13%	1.71%		1.55%	0.88%	1.72%		1.06%			1.27%
	<b>Average annual default rate</b>		<b>3.77%</b>	<b>8.14%</b>	<b>3.37%</b>		<b>2.99%</b>	<b>5.74%</b>	<b>3.60%</b>		<b>4.32%</b>			<b>1.81%</b>
	Upper of 90% confidence interval		6.17%	12.16%	5.02%		4.44%	10.59%	5.48%		7.57%			2.36%
Sub-Saharan Africa	Lower of 90% confidence interval		2.91%	8.04%	7.52%	1.48%	3.33%	8.44%	5.85%		5.29%		4.70%	3.58%
	<b>Average annual default rate</b>		<b>5.12%</b>	<b>10.09%</b>	<b>9.02%</b>	<b>3.76%</b>	<b>4.03%</b>	<b>12.93%</b>	<b>8.13%</b>		<b>6.90%</b>		<b>6.47%</b>	<b>4.72%</b>
	Upper of 90% confidence interval		7.33%	12.14%	10.51%	6.04%	4.74%	17.42%	10.41%		8.52%		8.25%	5.86%

### 3.5.2 Public lending

Table 11: Annual default rates by region and sector – public counterpart

Region	Item	Administration	Communication services	Consumer discretionary	Consumer staples	Energy	Financials	Healthcare	Industrials	Information technology	Materials	Others	Real estate	Utilities
East Asia & Pacific	Lower of 90% confidence interval													
	<b>Average annual default rate</b>													
	Upper of 90% confidence interval													
Europe & Central Asia	Lower of 90% confidence interval	0.05%					0.44%		0.18%			0.49%		0.40%
	<b>Average annual default rate</b>	<b>0.25%</b>					<b>1.01%</b>		<b>1.26%</b>			<b>1.55%</b>		<b>0.84%</b>
	Upper of 90% confidence interval	0.46%					1.59%		2.33%			2.61%		1.29%
Latin America & Caribbean	Lower of 90% confidence interval						1.08%							0.00%
	<b>Average annual default rate</b>						<b>2.74%</b>							<b>0.42%</b>
	Upper of 90% confidence interval						4.40%							1.29%
Middle East & North Africa	Lower of 90% confidence interval						0.62%							0.86%
	<b>Average annual default rate</b>						<b>2.07%</b>							<b>2.12%</b>
	Upper of 90% confidence interval						3.52%							3.38%
Multiple	Lower of 90% confidence interval													
	<b>Average annual default rate</b>													
	Upper of 90% confidence interval													
South Asia	Lower of 90% confidence interval													
	<b>Average annual default rate</b>													
	Upper of 90% confidence interval													
Sub-Saharan Africa	Lower of 90% confidence interval						5.44%		0.85%					3.46%
	<b>Average annual default rate</b>						<b>7.19%</b>		<b>2.12%</b>					<b>5.05%</b>
	Upper of 90% confidence interval						8.94%		3.39%					6.64%

## 3.6 Default rates by country

The average default rates for all available counterparts broken down by country are presented in Table 12 and Table 13. Private lending data cover most of the geographical spectrum, whereas public lending data are only available for 11 countries. The confidence intervals per country show a large disparity that depends on the number of observations and the default profiles.

### 3.6.1 Private lending

Table 12: Annual default rates by country – private counterparts

Country	Counterparts	Observed years	Number of defaults	Number of observations	Signed amount in € million	Lower of 90% confidence interval	Average annual default rate	Upper of 90% confidence interval
Albania	53	30	17	276	633	3.94%	<b>6.16%</b>	8.38%
Argentina	221	30	59	1 263	14 013	2.41%	<b>4.67%</b>	6.93%
Armenia	122	23	11	760	2 004	0.82%	<b>1.45%</b>	2.08%
Azerbaijan	124	26	32	686	1 707	2.89%	<b>4.66%</b>	6.43%
Bangladesh	98	28	9	535	2 686	0.00%	<b>1.68%</b>	3.39%
Belarus	57	20	14	308	1 097	1.42%	<b>4.55%</b>	7.67%
Benin	28	30	15	184	214	4.59%	<b>8.15%</b>	11.71%
Bolivia	37	30	11	220	210	2.50%	<b>5.00%</b>	7.50%
Bosnia and Herzegovina	86	26	15	624	1 770	0.77%	<b>2.40%</b>	4.03%
Botswana	20	24	7	85	256	3.25%	<b>8.24%</b>	13.22%
Brazil	313	30	37	1 704	20 127	1.43%	<b>2.17%</b>	2.91%
Burkina Faso	47	30	16	264	407	4.29%	<b>6.06%</b>	7.83%
Cambodia	42	19	2	237	791	0.14%	<b>0.84%</b>	1.55%
Cameroon	44	30	16	343	842	2.47%	<b>4.66%</b>	6.85%
Chile	90	30	23	443	9 663	3.28%	<b>5.19%</b>	7.10%
China	242	30	35	1 183	7 954	1.96%	<b>2.96%</b>	3.96%
Colombia	142	30	19	653	8 354	1.81%	<b>2.91%</b>	4.01%
Costa Rica	110	30	8	672	1 899	0.27%	<b>1.19%</b>	2.11%
Côte d'Ivoire	104	30	51	609	4 224	6.58%	<b>8.37%</b>	10.17%
Democratic Republic of the Congo	26	26	6	125	1 710	2.60%	<b>4.80%</b>	7.00%
Dominican Republic	57	30	11	411	779	0.82%	<b>2.68%</b>	4.53%
Ecuador	83	30	5	420	3 342	0.00%	<b>1.19%</b>	2.68%
Egypt	193	30	31	1 078	7 245	1.88%	<b>2.88%</b>	3.87%
El Salvador	94	29	1	552	2 914	0.02%	<b>0.18%</b>	0.35%
Georgia	189	26	34	1 061	4 790	2.08%	<b>3.20%</b>	4.33%
Ghana	90	30	36	531	4 562	5.30%	<b>6.78%</b>	8.26%
Guatemala	80	30	8	424	2 166	1.07%	<b>1.89%</b>	2.71%
Haiti	25	26	13	147	167	5.33%	<b>8.84%</b>	12.36%
Honduras	80	29	11	481	1 539	1.09%	<b>2.29%</b>	3.49%
India	490	30	71	2 512	21 277	1.96%	<b>2.83%</b>	3.69%
Indonesia	131	30	30	676	6 177	1.78%	<b>4.44%</b>	7.09%
Jamaica	40	30	6	267	621	0.05%	<b>2.25%</b>	4.45%
Jordan	113	30	14	732	3 718	0.54%	<b>1.91%</b>	3.28%
Kazakhstan	138	27	14	802	5 075	0.81%	<b>1.75%</b>	2.68%
Kenya	142	30	32	785	14 511	3.01%	<b>4.08%</b>	5.14%
Kosovo	35	18	5	217	386	0.53%	<b>2.30%</b>	4.08%
Kyrgyzstan	73	28	1	410	414	0.00%	<b>0.24%</b>	0.58%
Lebanon	57	30	38	383	1 780	3.87%	<b>9.92%</b>	15.97%
Madagascar	33	30	16	219	2 002	3.07%	<b>7.31%</b>	11.54%
Mali	56	30	30	356	410	6.16%	<b>8.43%</b>	10.70%
Mauritania	20	26	12	139	197	4.49%	<b>8.63%</b>	12.77%
Mauritius	28	30	5	237	1 234	0.34%	<b>2.11%</b>	3.88%
Mexico	265	30	57	1 291	25 544	3.20%	<b>4.42%</b>	5.63%
Moldova	73	28	9	539	1 312	0.73%	<b>1.67%</b>	2.61%
Mongolia	95	21	21	561	2 399	2.40%	<b>3.74%</b>	5.08%

Table 12 (continued): Annual default rates by country – private counterparts

Country	Counterparts	Observed years	Number of defaults	Number of observations	Signed amount in € million	Lower of 90% confidence interval	Average annual default rate	Upper of 90% confidence interval
Montenegro	33	21	5	262	449	0.36%	1.91%	3.46%
Morocco	85	30	10	500	7 531	0.78%	2.00%	3.22%
Mozambique	41	30	20	277	638	5.12%	7.22%	9.32%
Myanmar	45	10	29	183	1 574	4.61%	15.85%	27.08%
Nepal	25	30	7	125	290	1.82%	5.60%	9.38%
Nicaragua	84	25	17	517	1 616	1.75%	3.29%	4.82%
Nigeria	144	30	37	818	5 843	3.11%	4.52%	5.94%
North Macedonia	45	28	4	313	517	0.00%	1.28%	2.70%
Other	251	24	32	1 197	32 861	1.68%	2.67%	3.67%
Pakistan	135	30	42	872	4 124	1.85%	4.82%	7.78%
Palestinian territories	31	26	11	156	276	2.12%	7.05%	11.98%
Panama	82	30	12	421	1 904	1.54%	2.85%	4.16%
Paraguay	64	17	1	312	1 945	0.00%	0.32%	0.72%
Peru	137	30	14	712	3 622	1.08%	1.97%	2.85%
Philippines	81	30	24	439	8 502	3.05%	5.47%	7.89%
Regional	240	27	41	990	4 915	2.90%	4.14%	5.38%
Russia	433	30	57	2 517	14 539	1.15%	2.26%	3.38%
Rwanda	33	18	12	187	241	2.13%	6.42%	10.71%
Senegal	99	30	38	662	1 701	4.11%	5.74%	7.37%
Serbia	131	22	17	869	6 129	1.13%	1.96%	2.78%
South Africa	115	26	22	699	4 721	2.16%	3.15%	4.13%
Sri Lanka	57	28	17	296	10 933	0.94%	5.74%	10.54%
Tajikistan	65	26	18	390	319	2.94%	4.62%	6.29%
Tanzania	64	30	22	323	1 444	3.61%	6.81%	10.02%
Thailand	64	30	11	356	4 822	1.30%	3.09%	4.88%
Togo	27	30	9	159	728	2.82%	5.66%	8.50%
Trinidad and Tobago	21	29	8	125	415	2.45%	6.40%	10.35%
Tunisia	76	30	18	598	7 082	1.89%	3.01%	4.13%
Türkiye	455	30	62	2 770	41 519	1.50%	2.24%	2.98%
Turkmenistan	44	18	30	206	157	6.67%	14.56%	22.46%
Uganda	75	30	23	503	1 295	2.88%	4.57%	6.27%
Ukraine	300	28	110	1 552	9 113	3.87%	7.09%	10.31%
Uruguay	52	30	7	294	1 712	0.00%	2.38%	5.47%
Uzbekistan	92	30	17	336	1 940	2.05%	5.06%	8.07%
Venezuela	23	26	8	132	207	1.93%	6.06%	10.19%
Vietnam	99	29	16	438	1 799	1.72%	3.65%	5.59%
Zambia	66	30	29	370	1 069	5.45%	7.84%	10.22%
Zimbabwe	40	30	13	184	1 361	3.56%	7.07%	10.57%
<b>Overall, including omitted categories</b>	<b>9 929</b>	<b>30</b>	<b>1 996</b>	<b>1 996</b>	<b>446 839</b>	<b>3.21%</b>	<b>3.56%</b>	<b>3.92%</b>

### 3.6.2 Public lending

Table 13: Annual default rates by country – public counterparts

Country	Counterparts	Observed years	Number of defaults	Number of observations	Signed amount in € million	Lower of 90% confidence interval	Average annual default rate	Upper of 90% confidence interval
Egypt	23	30	7	278	9 012	0.78%	2.52%	4.26%
Kazakhstan	37	24	7	268	2 763	0.73%	2.61%	4.50%
Morocco	52	30	8	635	9 221	0.61%	1.26%	1.91%
Poland	31	25	0	321	1 482	0.00%	0.00%	0.00%
Russia	39	29	5	345	2 875	0.31%	1.45%	2.58%
Serbia	23	22	1	210	1 217	0.00%	0.48%	1.24%
Tunisia	20	30	6	279	4 177	0.82%	2.15%	3.48%
Türkiye	60	28	5	681	17 250	0.19%	0.73%	1.27%
Ukraine	43	18	12	332	2 299	0.13%	3.61%	7.10%
South Africa	28	28	3	326	4 560	0.00%	0.92%	2.02%
<b>Overall, including omitted categories</b>	<b>943</b>	<b>30</b>	<b>242</b>	<b>9 348</b>	<b>95 184</b>	<b>2.08%</b>	<b>2.59%</b>	<b>3.10%</b>

## 3.7 Default rates by historic income group

The default rates in this section are presented by the [World Bank Group income group classification](#). The highest default rate is found in low-income countries for both types of counterparts.

### 3.7.1 Private lending

Table 14: Annual default rates by historic income group – private counterparts

Historic income group	Counterparts	Observed years	Number of defaults	Number of observations	Signed amount in € million	Lower of 90% confidence interval	Average annual default rate	Upper of 90% confidence interval
High income	1 081	30	80	3 817	63 704	1.60%	<b>2.10%</b>	2.59%
Upper middle income	4 469	30	630	23 051	199 141	2.29%	<b>2.73%</b>	3.17%
Lower middle income	3 400	30	785	20 391	136 930	3.45%	<b>3.85%</b>	4.25%
Low income	461	30	426	6 451	9 069	5.73%	<b>6.60%</b>	7.47%
Not available	518	30	75	2 283	37 994	2.59%	<b>3.29%</b>	3.98%
<b>Overall, including omitted categories</b>	<b>9 929</b>	<b>30</b>	<b>1 996</b>	<b>55 993</b>	<b>446 839</b>	<b>3.21%</b>	<b>3.56%</b>	<b>3.92%</b>

Note: The historic income group is defined as of default date.

Figure 17: Dataset composition by historic income group – private counterparts

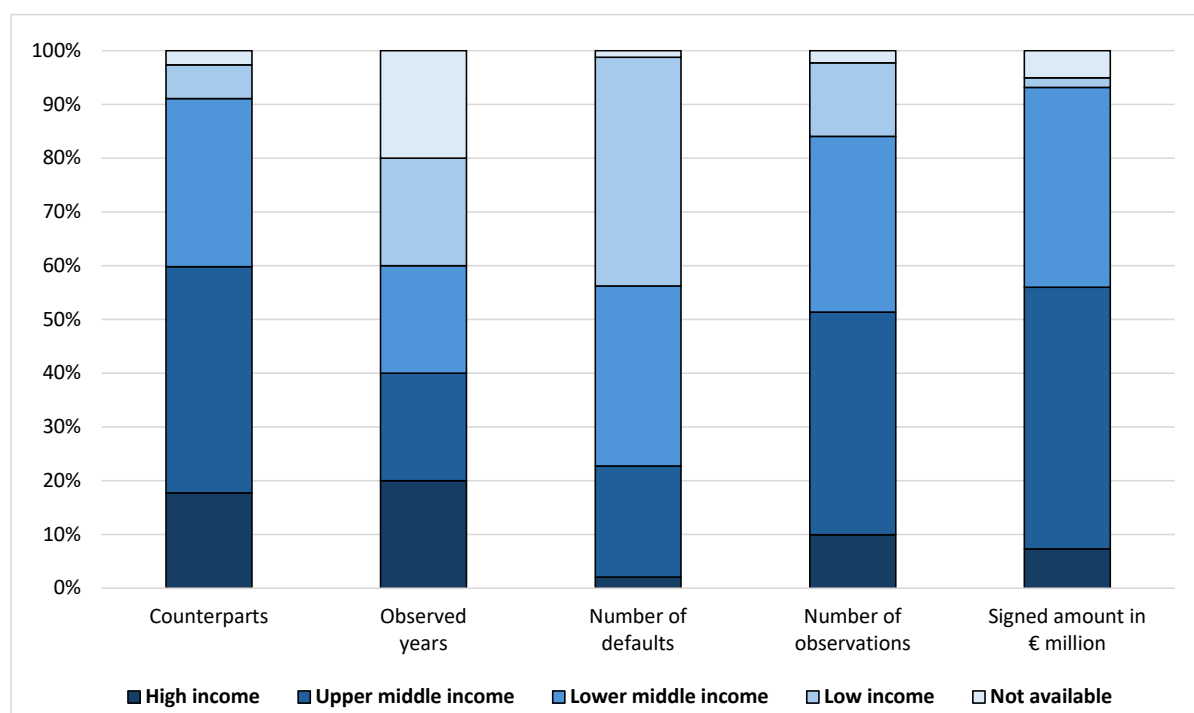
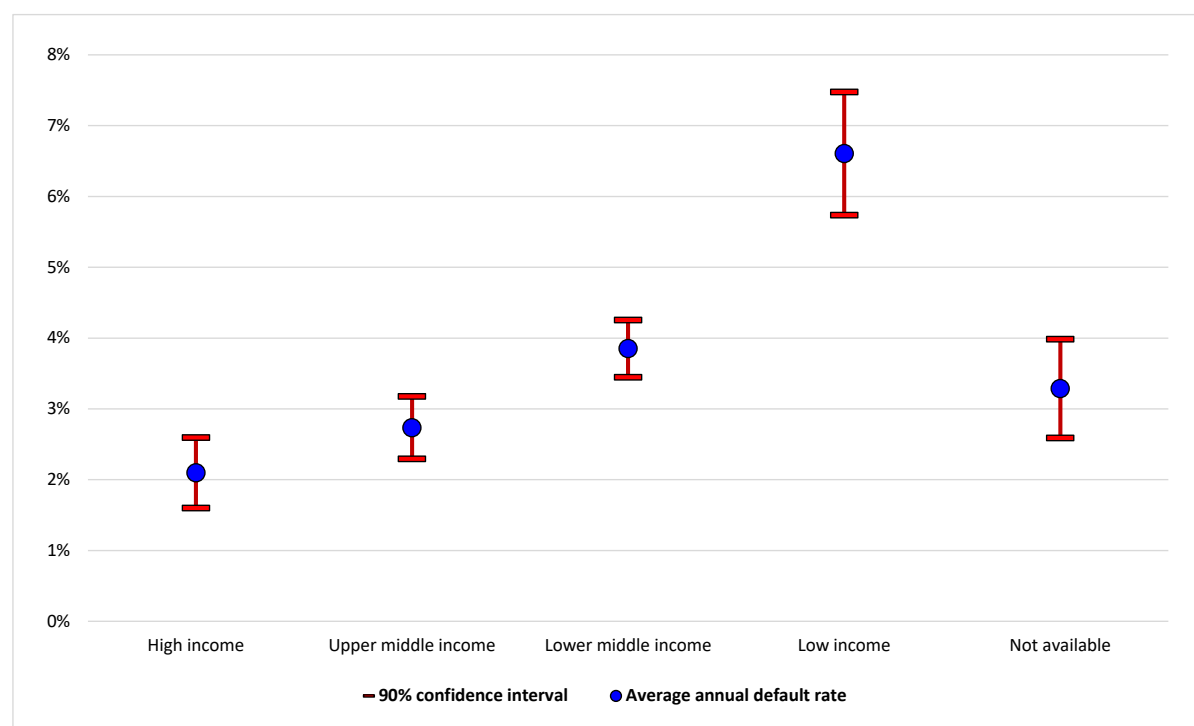


Figure 18: Annual default rates by historic income group – private counterparts



### 3.7.2 Public lending

Table 15: Annual default rates by historic income group – public counterparts

Historic income group	Counterparts	Observed years	Number of defaults	Number of observations	Signed amount in € million	Lower of 90% confidence interval	Average annual default rate	Upper of 90% confidence interval
High income	167	30	5	927	6 932	0.00%	0.54%	1.28%
Upper middle income	397	30	50	3 873	46 353	0.87%	1.29%	1.71%
Lower middle income	295	30	81	3 054	35 357	2.11%	2.65%	3.20%
Low income	59	30	103	1 282	1 718	6.48%	8.03%	9.59%
Not available	25	30	3	212	4 825	0.00%	1.42%	2.84%
<b>Overall, including omitted categories</b>	<b>943</b>	<b>30</b>	<b>242</b>	<b>9 348</b>	<b>95 184</b>	<b>2.1%</b>	<b>2.6%</b>	<b>3.1%</b>

Note: The historic income group is defined as of default date.



Figure 19: Dataset composition by historic income group – public counterparts

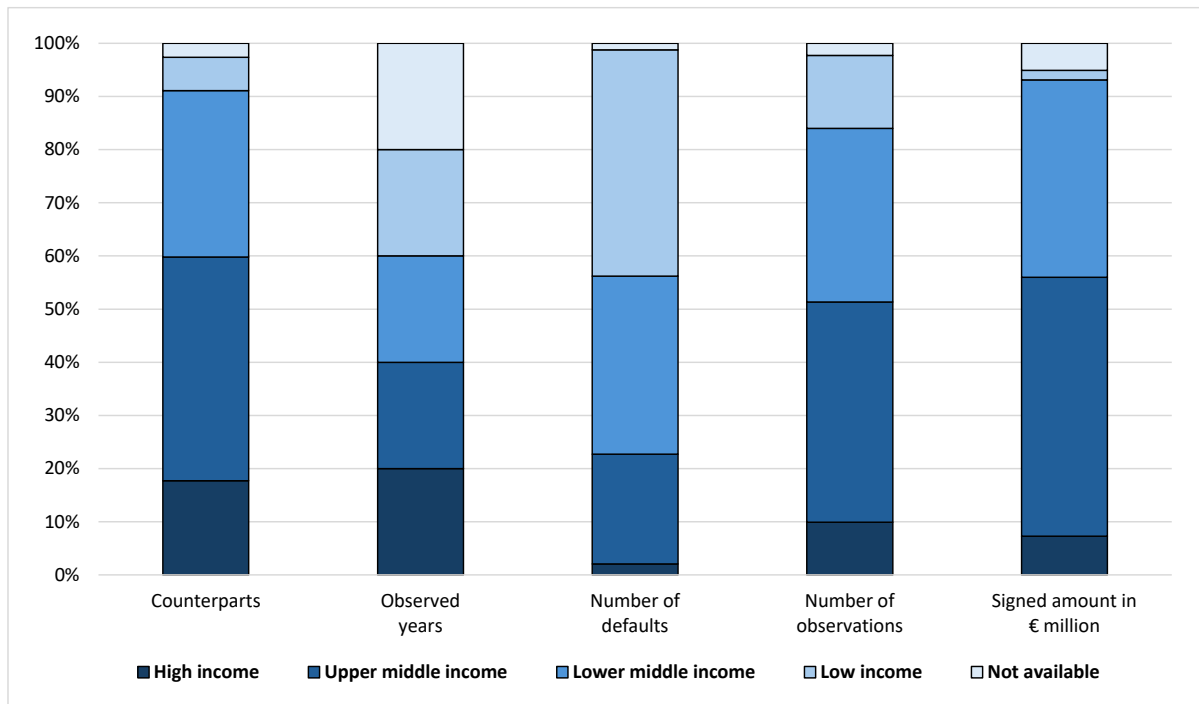
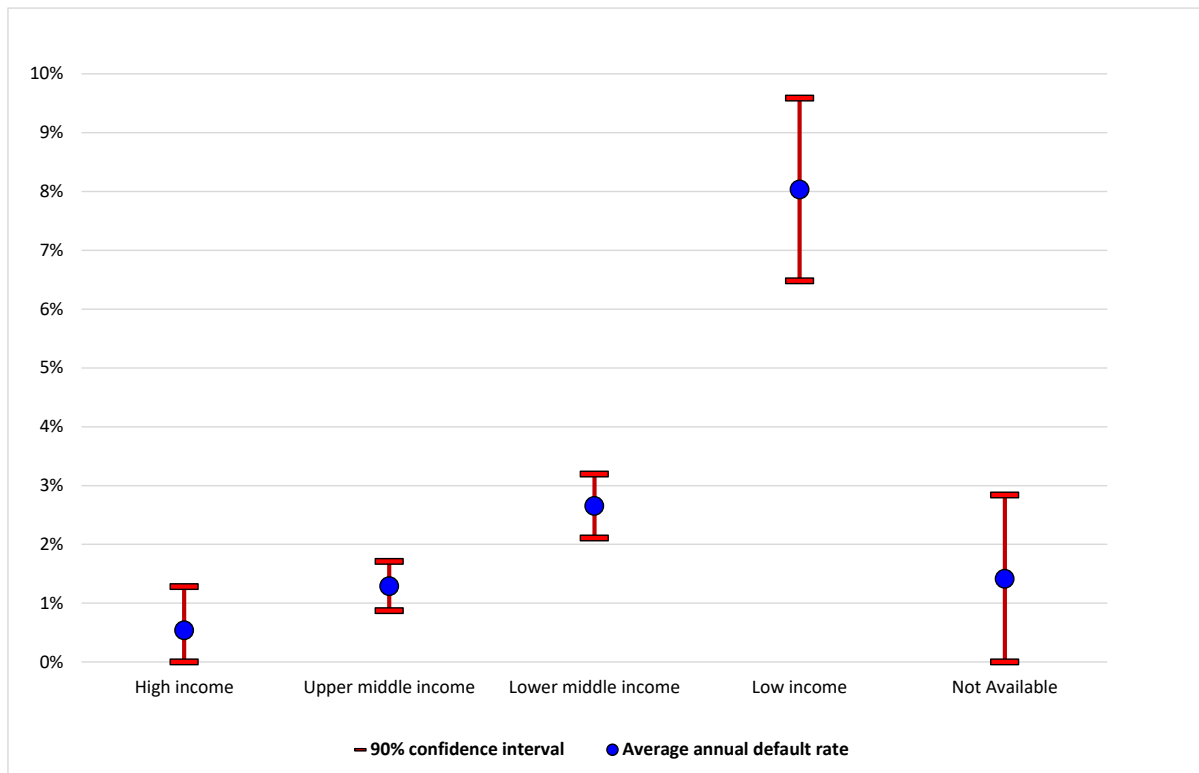


Figure 20: Annual default rates by historic income group – public counterparts



## 4 Recovery rate statistics

### 4.1 Recovery rate methodology

#### 4.1.1 Definition

Recovery rate is the ratio between the discounted cash flows received (or expected to be received) after a set discount date (for example, default date) and the outstanding amount as of this date. Cash flows can include principal, interest, penalties and fees, and can arise from the debtor, potential guarantors or from the sale of collateral.

#### 4.1.2 Calculations

The GEMs database captures three levels of exposure: counterpart, contract and tranche. This structure is needed because a counterpart can have several contracts, each of which can consist of several tranches with different currencies and/or interest rates. For private and public counterparts, recovery rates are calculated per contract by aggregating all discounted cash flows on a tranche level, which considers the timing of the received cash flows and the respective tranche lending rate, over the lifetime of the contract. Consequently, a single recovery rate is calculated per contract for the period from the earliest default to the maturity date and this captures all subsequent default events and associated cash flows.

The recovery rate statistics in this publication consider unresolved contracts only if they have spent a minimum of eight years in default. This requirement ensures consistency of the statistics presented. In such cases, the due amounts that are not recovered at the reporting date are considered lost and, similarly, no amount reflecting expected future cash flows is considered.

Recovery rates are calculated as follows:

#### Equation 5: Recovery rate (RR) calculation

$$RR = \frac{A+B}{C+D}$$

Where:

*A* = Amounts paid after the discount date and up to the resolution of default, discounted to the chosen discount date

*B* = Amount outstanding after the chosen reporting horizon for cash flows discounted to the chosen discount date

*C* = Initial amount outstanding as of the discount date

*D* = Post-default disbursed amounts, discounted to the chosen discount date

#### 4.1.3 Output parameters

To ensure the significance of the resulting recovery rate statistics, each disclosed table or figure must comprise observations of at least ten defaulted contracts for each respective data dimension category (for example, a specific year or region). No values are disclosed if the predefined threshold is not met. The average recovery rates shown are simple averages of the observations in the respective dimensions and categories.

Percentile values provided across the different figures along the mean and/or median values supply insights into the distribution of the underlying data dimension category. This approach was selected over the

confidence interval approach used for the default rate statistics given the non-normal distribution of the recovery data.

## 4.2 Recovery rates by region

Using the [World Bank Group classification of countries](#) to regions, this section presents the recovery rates per geographical region for private and public counterparts, providing information on the regional distribution of the statistics.

### 4.2.1 Private lending

The highest average recovery rate is in sub-Saharan Africa, while the lowest is in Europe and Central Asia. This contrasts with the default rates analysis presented in section 4.3.1, where sub-Saharan Africa displayed the highest default rate among regions.

Table 16: Recovery rates by region – private lending

Region	Defaulted contracts	Signed amount in € million	Average recovery rate	Minimum observation	10th percentile	25th percentile	Median	75th percentile	90th percentile	Maximum observation
East Asia & Pacific	129	3 113	72.4%	0.0%	22.2%	47.8%	90.8%	99.2%	100.0%	100.0%
Europe & Central Asia	512	9 086	68.5%	0.0%	8.8%	44.7%	82.5%	96.7%	100.0%	100.0%
Latin America & Caribbean	289	7 823	70.9%	0.0%	11.4%	41.9%	87.5%	100.0%	100.0%	100.0%
Middle East & North Africa	95	1 991	71.0%	0.0%	4.5%	35.7%	98.0%	100.0%	100.0%	100.0%
Multiple	32	616	74.2%	0.0%	7.8%	73.9%	82.2%	94.4%	100.0%	100.0%
South Asia	115	2 334	72.6%	0.0%	5.5%	51.9%	92.9%	100.0%	100.0%	100.0%
Sub-Saharan Africa	389	4 003	77.8%	0.0%	7.1%	72.0%	97.4%	100.0%	100.0%	100.0%
Overall, including omitted categories	1 561	28 967	72.2%	0.0%	9.3%	50.9%	89.9%	99.6%	100.0%	100.0%

Figure 21: Dataset composition by region – private lending

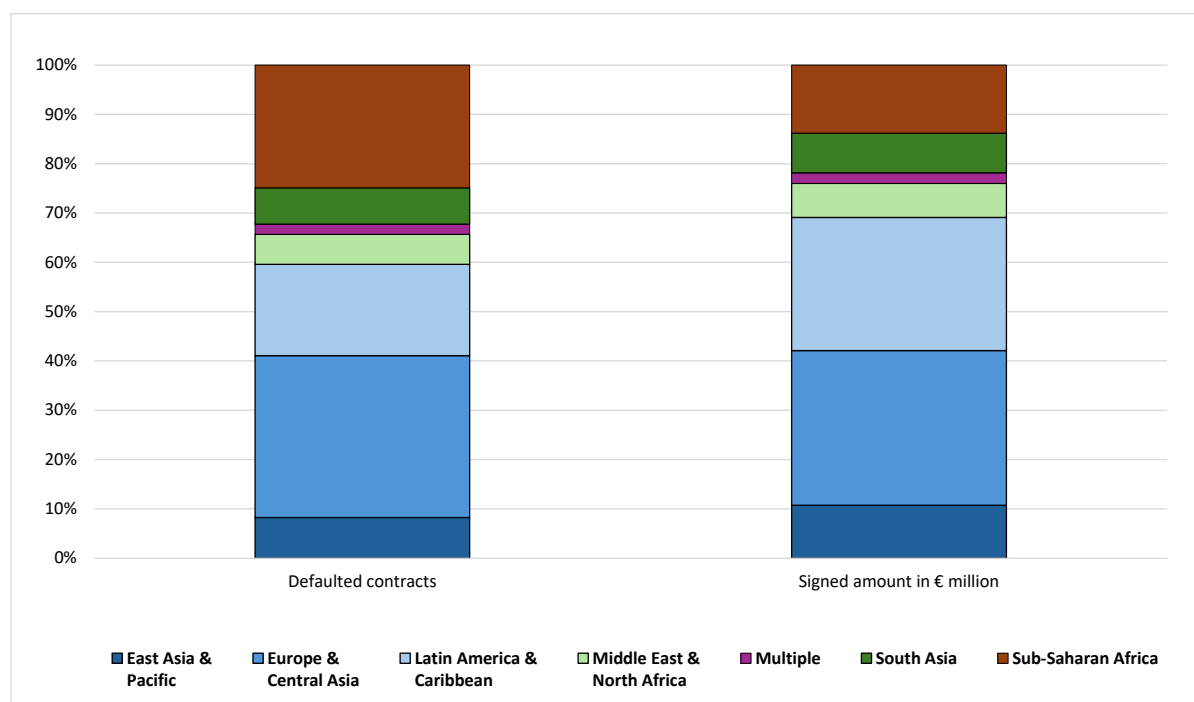
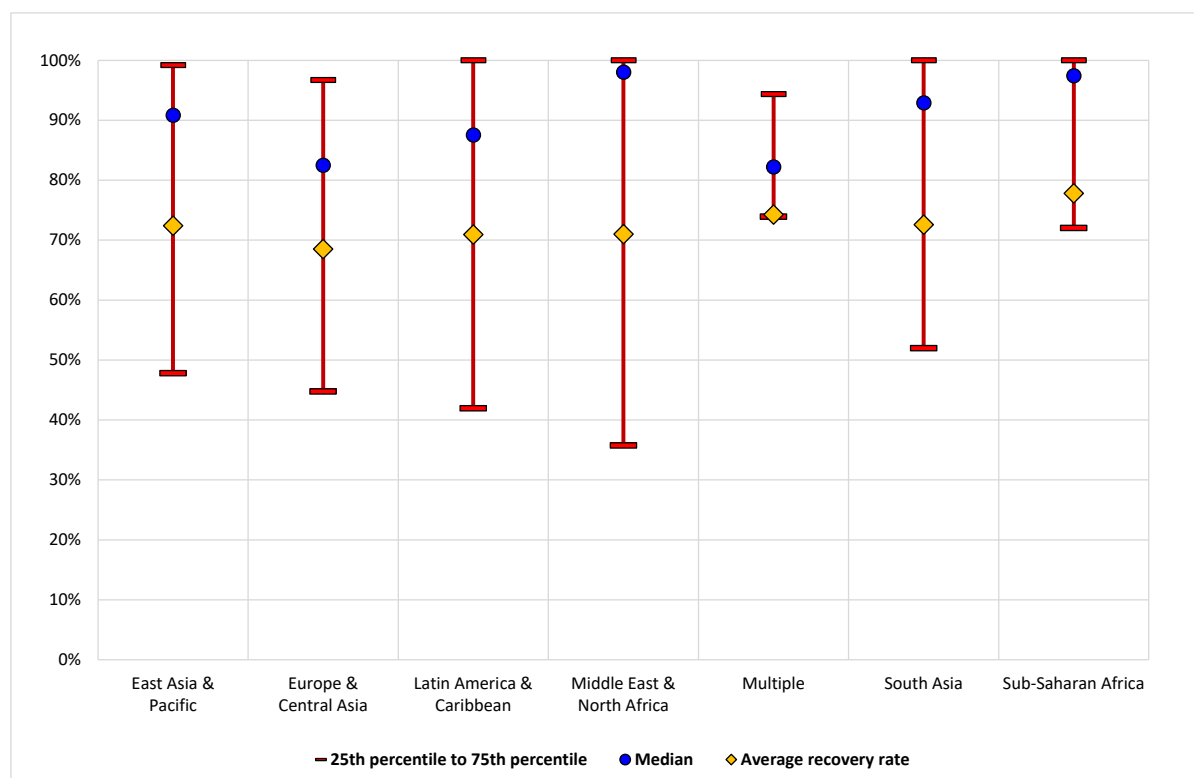


Figure 22: Recovery rates by region – private lending



#### 4.2.2 Public lending

The overall average recovery rate for defaulted contracts of public counterparts is higher than that of their private equivalents. The lowest average recovery rate is in Europe and Central Asia, whereas the highest rate is in Latin America and the Caribbean. Sub-Saharan Africa comprises 63% of the observations, resulting in an average recovery rate of 88%.

Table 17: Recovery rates by region – public lending

Region	Defaulted contracts	Signed amount in € million	Average recovery rate	Minimum observation	10th percentile	25th percentile	Median	75th percentile	90th percentile	Maximum observation
East Asia & Pacific	17	73	80.6%	0.0%	35.8%	78.9%	98.6%	100.0%	100.0%	100.0%
Europe & Central Asia	38	796	73.4%	0.0%	13.6%	56.5%	86.7%	98.3%	100.0%	100.0%
Latin America & Caribbean	12	99	96.7%	67.3%	97.2%	98.6%	99.9%	100.0%	100.0%	100.0%
Middle East & North Africa	27	808	91.5%	0.0%	80.6%	94.1%	99.7%	100.0%	100.0%	100.0%
Multiple										
South Asia										
Sub-Saharan Africa	157	2 052	87.7%	0.0%	46.7%	93.3%	99.5%	100.0%	100.0%	100.0%
Overall, including omitted categories	251	3 828	85.9%	0.0%	46.2%	88.9%	99.3%	100.0%	100.0%	100.0%

Figure 23: Dataset composition by region – public lending

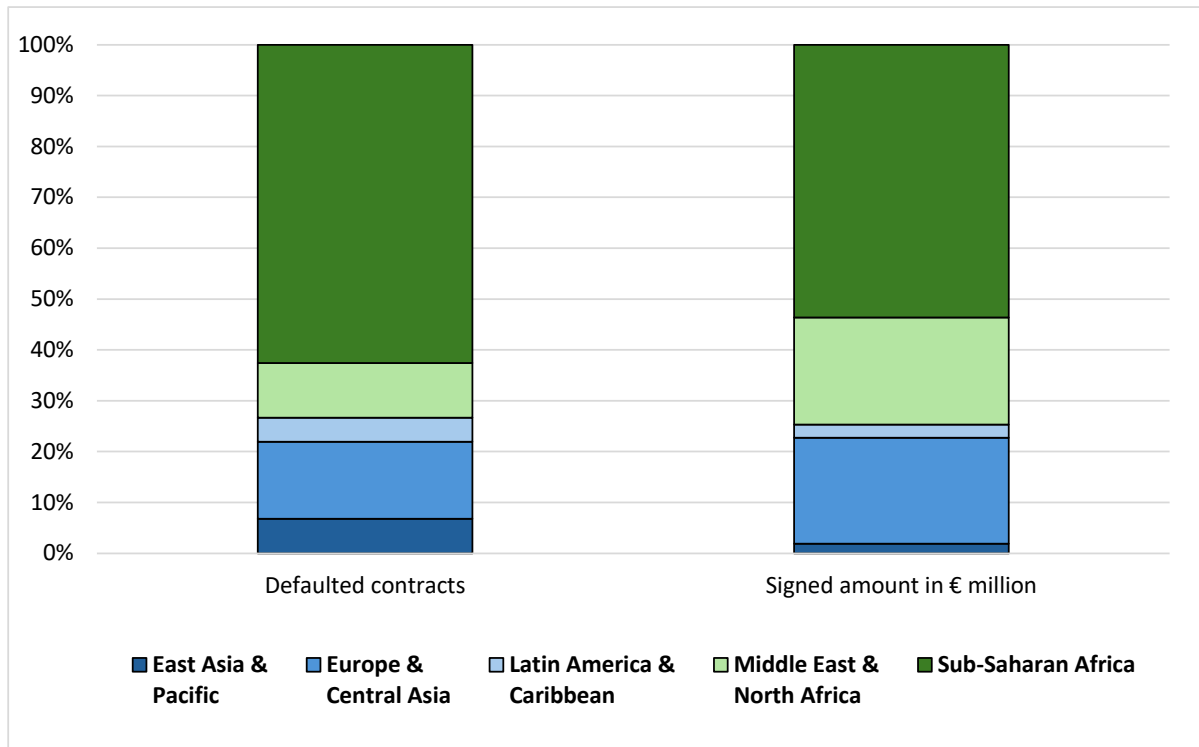
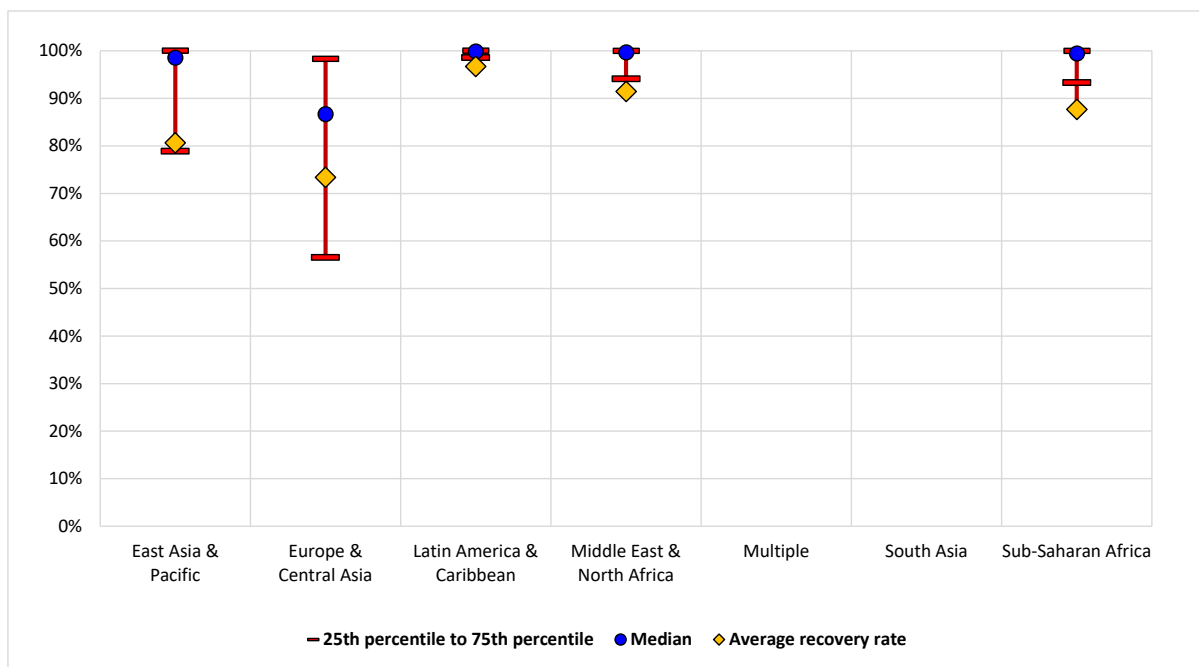


Figure 24: Recovery rates by region – public lending



## 4.3 Recovery rates by sector

Like the annual default rates analysis in section 4.4, the industry sectors presented for recovery rates follow the [GICS](#) 2018 classification system.

### 4.3.1 Private lending

Recovery rates across the different sector classifications are evenly distributed for private counterparts, with the lowest and highest values recorded in information technology and energy, respectively. These two sectors also have few available observations.

Table 18: Recovery rates by sector – private lending

Sector	Defaulted contracts	Signed amount in € million	Average recovery rate	Minimum observation	10th percentile	25th percentile	Median	75th percentile	90th percentile	Maximum observation
<b>Administration</b>										
Communication services	44	1 566	74.4%	0.0%	2.6%	67.1%	96.5%	100.0%	100.0%	100.0%
Consumer discretionary	190	2 079	72.4%	0.0%	11.3%	43.9%	91.0%	99.9%	100.0%	100.0%
Consumer staples	248	2 559	69.1%	0.0%	10.9%	38.9%	85.2%	99.1%	100.0%	100.0%
Energy	36	1 490	57.6%	0.0%	1.1%	25.9%	64.5%	97.4%	100.0%	100.0%
Financials	317	4 662	75.9%	0.0%	14.1%	61.8%	94.6%	99.7%	100.0%	100.0%
Healthcare	43	827	74.7%	1.3%	27.4%	50.5%	88.4%	100.0%	100.0%	100.0%
Industrials	141	3 326	67.2%	0.0%	1.4%	35.6%	87.6%	99.5%	100.0%	100.0%
Information technology	10	213	34.0%	0.0%	0.0%	1.4%	16.1%	67.5%	94.5%	99.9%
Materials	190	4 942	72.0%	0.0%	11.9%	45.9%	91.2%	100.0%	100.0%	100.0%
Others	162	1 826	75.3%	0.0%	6.0%	66.5%	90.7%	99.2%	100.0%	100.0%
Real estate	30	621	80.3%	4.2%	55.7%	71.7%	90.6%	96.1%	98.7%	100.0%
Utilities	147	4 553	72.9%	0.0%	20.5%	59.8%	82.3%	97.7%	100.0%	100.0%
<b>Overall, including omitted categories</b>	<b>1 561</b>	<b>28 967</b>	<b>72.2%</b>	<b>0.0%</b>	<b>9.3%</b>	<b>50.9%</b>	<b>89.9%</b>	<b>99.6%</b>	<b>100.0%</b>	<b>100.0%</b>

Figure 25: Dataset composition by sector – private lending

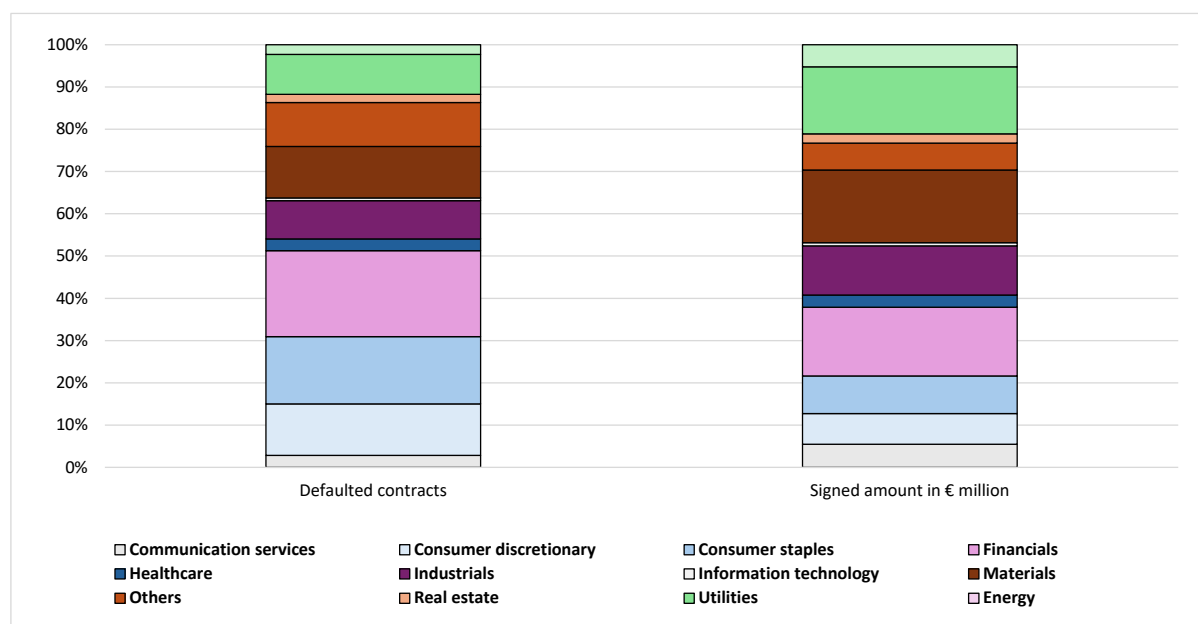
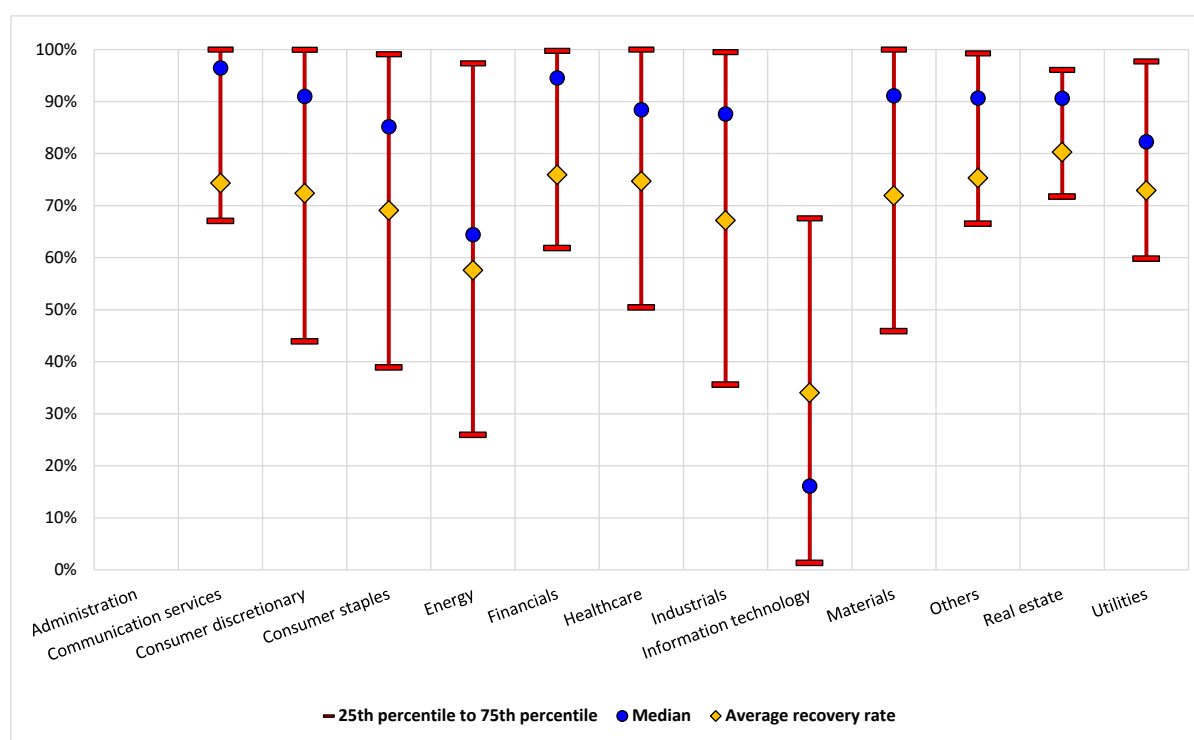


Figure 26: Recovery rates by sector – private lending



#### 4.3.2 Public lending

Among the recovered defaults of public counterparts, more than 70% are in the utilities sector and the “others” category, including types of public lending that cannot be attributed to one of the standard GICS industrial classifications.

Table 19: Recovery rates by sector – public lending

Sector	Defaulted contracts	Signed amount in € million	Average recovery rate	Minimum observation	10th percentile	25th percentile	Median	75th percentile	90th percentile	Maximum observation
Administration										
Communication services										
Consumer discretionary										
Consumer staples										
Energy										
Financials										
Healthcare										
Industrials	32	901	98.4%	82.7%	95.5%	99.1%	99.5%	99.9%	100.0%	100.0%
Information technology										
Materials										
Others	103	1 312	78.3%	0.0%	17.6%	70.4%	94.5%	100.0%	100.0%	100.0%
Real estate										
Utilities	77	1 140	90.4%	5.1%	78.2%	98.0%	99.6%	99.9%	100.0%	100.0%
Overall, including omitted categories	251	3 828	85.9%	0.0%	46.2%	88.9%	99.3%	100.0%	100.0%	100.0%

Figure 27: Dataset composition by sector – public lending

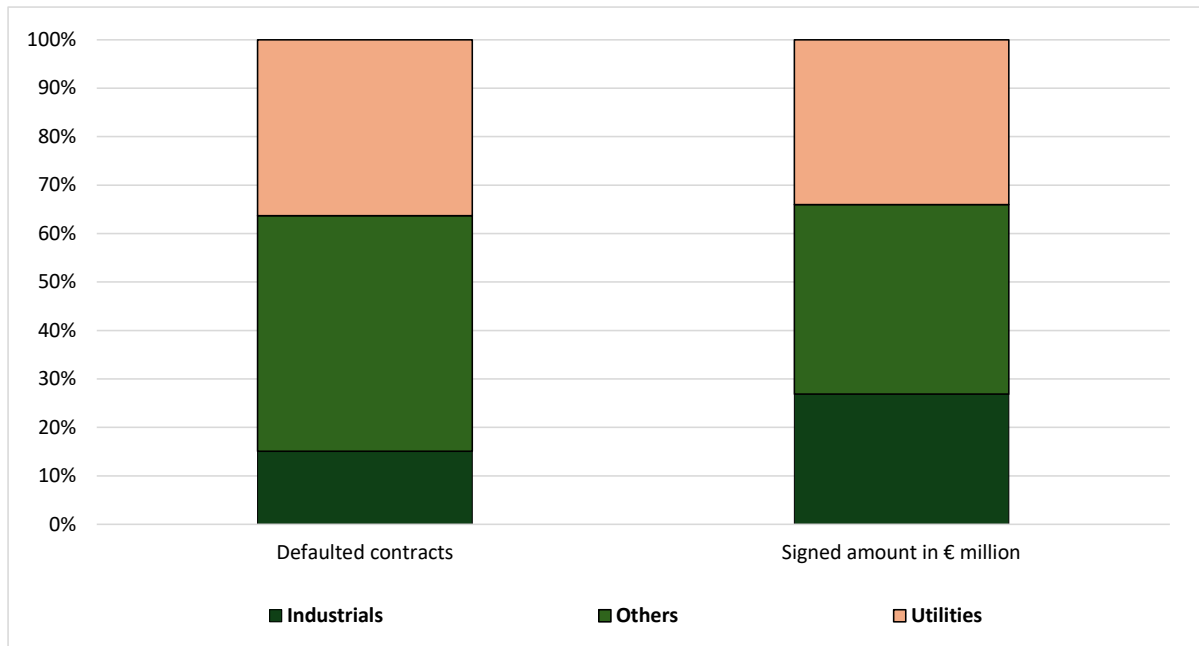
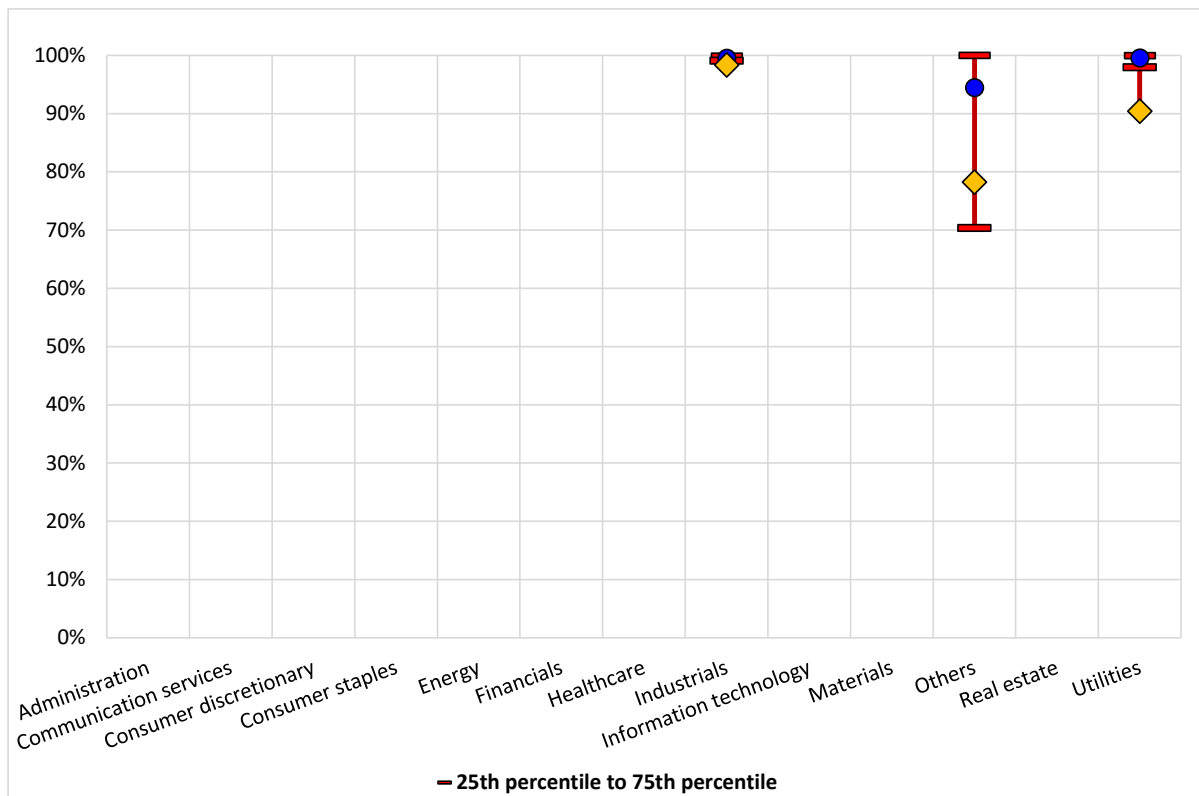


Figure 28: Recovery rates by sector – public lending





## 4.4 Recovery rates by region and sector

The disaggregation by sector and country provides an insight into the sectors that form the default and recovery profile for each region. The energy sector in private lending only features in Europe and Central Asia, while in public lending, utilities account for all observations in the Middle East and North Africa, with a recovery rate just under 100%, and industrials have the highest recovery rate for sub-Saharan Africa.

### 4.4.1 Private lending

Table 20: Recovery rates by region and sector – private lending

	Item	Administration	Communication services	Consumer discretionary	Consumer staples	Energy	Financials	Healthcare	Industrials	Information technology	Materials	Others	Real estate	Utilities
East Asia & Pacific	Weighted average default rate			70.4%	81.8%		66.3%		80.1%		65.1%			
	Minimum observation			0.0%	11.4%		3.0%		44.9%		0.0%			
	10th percentile			22.0%	19.1%		22.5%		54.6%		14.4%			
	25th percentile			40.3%	90.6%		35.5%		65.1%		34.5%			
	Median			84.8%	99.7%		79.2%		88.8%		64.0%			
	75th percentile			98.9%	100.0%		95.6%		93.5%		99.6%			
	90th percentile			100.0%	100.0%		99.8%		99.1%		100.0%			
Maximum observation			100.0%	100.0%		100.0%		100.0%		100.0%				
Europe & Central Asia	Weighted average default rate			69.1%	68.5%	47.9%	74.2%	52.3%	67.1%		73.0%	68.1%	84.4%	57.1%
	Minimum observation			0.0%	0.0%	0.0%	0.0%	1.3%	0.0%		0.0%	0.0%	32.6%	0.0%
	10th percentile			21.6%	11.4%	0.0%	16.9%	5.8%	8.6%		22.1%	1.4%	68.3%	7.3%
	25th percentile			45.4%	44.7%	0.1%	62.2%	32.4%	21.8%		60.0%	44.9%	78.2%	29.3%
	Median			81.6%	80.8%	54.4%	91.3%	49.9%	89.6%		85.4%	84.8%	90.6%	63.0%
	75th percentile			94.5%	96.6%	87.5%	96.6%	73.4%	98.3%		97.2%	96.8%	95.9%	83.7%
	90th percentile			99.9%	100.0%	96.3%	99.6%	97.9%	100.0%		100.0%	100.0%	99.0%	95.8%
Maximum observation			100.0%	100.0%	99.6%	100.0%	100.0%	100.0%		100.0%	100.0%	100.0%	100.0%	
Latin America & Caribbean	Weighted average default rate			65.2%	63.3%		64.1%	90.3%	66.2%		85.3%	82.7%		75.2%
	Minimum observation			0.0%	0.0%		0.0%	54.4%	0.0%		9.4%	21.6%		0.0%
	10th percentile			14.9%	1.3%		10.1%	78.3%	0.6%		34.5%	39.3%		20.1%
	25th percentile			26.7%	27.4%		37.9%	84.6%	36.3%		99.6%	77.8%		61.8%
	Median			83.1%	81.8%		77.1%	98.6%	83.5%		100.0%	95.5%		87.0%
	75th percentile			100.0%	99.4%		96.1%	100.0%	100.0%		100.0%	99.8%		99.7%
	90th percentile			100.0%	100.0%		100.0%	100.0%	100.0%		100.0%	100.0%		100.0%
Maximum observation			100.0%	100.0%		100.0%	100.0%	100.0%		100.0%	100.0%		100.0%	
Middle East & North Africa	Weighted average default rate			71.0%			77.8%				77.2%	57.6%		
	Minimum observation			0.0%			0.0%				2.7%	0.0%		
	10th percentile			18.3%			10.0%				18.1%	0.0%		
	25th percentile			54.0%			78.2%				59.7%	0.2%		
	Median			89.1%			99.8%				99.7%	93.9%		
	75th percentile			100.0%			100.0%				100.0%	99.4%		
	90th percentile			100.0%			100.0%				100.0%	100.0%		
Maximum observation			100.0%			100.0%				100.0%	100.0%			
South Asia	Weighted average default rate			71.7%			79.7%				81.1%			70.9%
	Minimum observation			0.0%			0.0%				0.0%			1.8%
	10th percentile			4.3%			12.7%				48.8%			17.0%
	25th percentile			32.9%			85.4%				69.7%			56.8%
	Median			97.1%			96.4%				99.1%			84.8%
	75th percentile			100.0%			99.9%				100.0%			93.1%
	90th percentile			100.0%			100.0%				100.0%			99.3%
Maximum observation			100.0%			100.0%				100.0%			100.0%	
Sub-Saharan Africa	Weighted average default rate		91.9%	81.1%	70.9%		85.1%		72.2%		61.3%	81.5%		86.0%
	Minimum observation		37.3%	0.0%	0.0%		0.0%		0.0%		0.0%	0.0%		21.9%
	10th percentile		72.1%	11.4%	6.8%		30.6%		0.7%		0.0%	46.3%		68.1%
	25th percentile		96.8%	86.8%	34.4%		93.6%		59.7%		7.1%	73.1%		80.6%
	Median		99.4%	98.6%	94.6%		99.5%		97.3%		83.7%	94.9%		91.3%
	75th percentile		100.0%	100.0%	99.5%		100.0%		100.0%		100.0%	99.6%		99.4%
	90th percentile		100.0%	100.0%	100.0%		100.0%		100.0%		100.0%	100.0%		99.9%
Maximum observation		100.0%	100.0%	100.0%		100.0%		100.0%		100.0%	100.0%		100.0%	

## 4.4.2 Public lending

Table 21: Recovery rates by region and sector – public lending

	Item	Administration	Communication services	Consumer discretionary	Consumer staples	Energy	Financials	Healthcare	Industrials	Information technology	Materials	Others	Real estate	Utilities
East Asia & Pacific	Weighted average default rate											85.3%		
	Minimum observation											0.0%		
	10th percentile											61.7%		
	25th percentile											84.3%		
	Median											99.3%		
	75th percentile											100.0%		
	90th percentile											100.0%		
Maximum observation											100.0%			
Europe & Central Asia	Weighted average default rate											64.5%		
	Minimum observation											0.0%		
	10th percentile											3.6%		
	25th percentile											46.3%		
	Median											72.1%		
	75th percentile											93.4%		
	90th percentile											100.0%		
Maximum observation											100.0%			
Latin America & Caribbean	Weighted average default rate													
	Minimum observation													
	10th percentile													
	25th percentile													
	Median													
	75th percentile													
	90th percentile													
Maximum observation														
Middle East & North Africa	Weighted average default rate													97.3%
	Minimum observation													83.4%
	10th percentile													92.2%
	25th percentile													98.2%
	Median													99.9%
	75th percentile													100.0%
	90th percentile													100.0%
Maximum observation													100.0%	
South Asia	Weighted average default rate													
	Minimum observation													
	10th percentile													
	25th percentile													
	Median													
	75th percentile													
	90th percentile													
Maximum observation														
Sub-Saharan Africa	Weighted average default rate								98.5%			82.4%		88.4%
	Minimum observation								82.7%			0.0%		5.1%
	10th percentile								96.1%			29.6%		60.2%
	25th percentile								99.2%			74.3%		98.4%
	Median								99.5%			98.4%		99.5%
	75th percentile								99.9%			100.0%		99.9%
	90th percentile								100.0%			100.0%		100.0%
Maximum observation								100.0%			100.0%		100.0%	

## 4.5 Recovery rates by country

Table 22: Recovery rates by country – private lending

Country	Defaulted contracts	Signed amount in € million	Average recovery rate	Minimum observation	10th percentile	25th percentile	Median	75th percentile	90th percentile	Maximum observation
Albania	11	179	81.1%	46.8%	50.0%	72.1%	89.1%	94.1%	97.0%	100.0%
Argentina	53	1 406	76.1%	0.0%	17.5%	65.2%	88.2%	99.7%	100.0%	100.0%
Azerbaijan	35	385	61.8%	0.0%	7.8%	32.9%	73.6%	93.0%	96.6%	100.0%
Belarus	11	193	75.1%	0.0%	9.8%	62.2%	97.7%	100.0%	100.0%	100.0%
Benin	10	42	80.1%	26.9%	36.3%	72.3%	97.0%	98.9%	100.0%	100.0%
Bosnia and Herzegovina	15	93	69.8%	12.3%	25.4%	40.7%	84.1%	95.4%	98.8%	100.0%
Brazil	32	1 478	69.9%	0.0%	14.8%	31.3%	95.3%	100.0%	100.0%	100.0%
Burkina Faso	12	70	93.9%	53.0%	91.1%	95.1%	98.7%	99.8%	100.0%	100.0%
Cameroon	10	146	84.7%	20.0%	36.9%	91.3%	100.0%	100.0%	100.0%	100.0%
Chile	10	1 153	52.9%	5.1%	18.5%	24.4%	44.0%	85.2%	89.8%	100.0%
China	24	630	74.4%	0.0%	38.9%	47.3%	91.2%	99.1%	100.0%	100.0%
Côte d'Ivoire	35	222	94.3%	48.6%	84.8%	95.6%	98.7%	100.0%	100.0%	100.0%
Dominican Republic	11	145	89.3%	0.0%	93.8%	95.0%	99.4%	100.0%	100.0%	100.0%
Egypt	22	793	70.4%	0.0%	7.7%	57.4%	87.4%	99.9%	100.0%	100.0%
Georgia	31	239	75.1%	0.0%	34.3%	55.3%	87.5%	98.8%	100.0%	100.0%
Ghana	21	184	76.9%	0.0%	27.2%	62.9%	90.8%	100.0%	100.0%	100.0%
Haiti	10	86	90.1%	41.9%	77.7%	91.4%	96.5%	99.8%	100.0%	100.0%
India	58	1 194	65.1%	0.0%	2.1%	35.8%	81.4%	95.9%	100.0%	100.0%
Indonesia	27	521	68.5%	9.3%	14.2%	42.1%	90.8%	98.9%	99.8%	100.0%
Jordan	13	363	83.1%	27.7%	36.8%	82.6%	99.4%	100.0%	100.0%	100.0%
Kazakhstan	13	278	72.8%	0.0%	27.7%	51.6%	94.7%	98.9%	99.9%	100.0%
Kenya	17	244	68.5%	0.0%	0.0%	28.7%	96.1%	100.0%	100.0%	100.0%
Lebanon	25	344	65.6%	0.0%	1.0%	23.3%	98.2%	100.0%	100.0%	100.0%
Mali	18	80	80.6%	0.5%	23.0%	79.7%	99.2%	100.0%	100.0%	100.0%
Mauritania	12	46	86.3%	27.7%	34.5%	93.5%	99.0%	100.0%	100.0%	100.0%
Mexico	37	1 431	74.5%	0.4%	17.1%	53.0%	91.5%	99.6%	100.0%	100.0%
Moldova	11	107	76.8%	25.4%	53.5%	72.3%	81.2%	91.7%	97.5%	99.8%
Mongolia	12	386	82.5%	34.5%	55.5%	66.0%	92.6%	99.7%	100.0%	100.0%
Mozambique	22	282	59.3%	0.0%	0.0%	3.8%	85.3%	97.7%	100.0%	100.0%
Nicaragua	19	198	76.9%	7.6%	36.2%	68.2%	82.4%	100.0%	100.0%	100.0%
Niger	11	87	98.8%	91.7%	97.8%	99.0%	100.0%	100.0%	100.0%	100.0%
Nigeria	24	433	77.6%	0.0%	9.6%	79.6%	95.0%	100.0%	100.0%	100.0%
Other	32	616	74.2%	0.0%	7.8%	73.9%	82.2%	94.4%	100.0%	100.0%
Pakistan	30	539	85.2%	4.5%	48.4%	92.0%	100.0%	100.0%	100.0%	100.0%
Panama	10	172	65.2%	0.0%	0.0%	59.6%	66.8%	98.8%	100.0%	100.0%
Peru	11	113	57.3%	0.0%	0.0%	6.6%	82.7%	99.8%	100.0%	100.0%
Philippines	23	493	66.5%	0.0%	6.9%	30.8%	87.5%	97.4%	99.9%	100.0%
Regional	32	822	58.2%	0.0%	0.1%	22.1%	69.2%	99.1%	100.0%	100.0%
Russia	70	1 565	68.6%	0.0%	0.0%	30.6%	87.6%	97.0%	99.9%	100.0%
Senegal	32	324	84.7%	0.0%	30.7%	83.5%	99.5%	100.0%	100.0%	100.0%
Serbia	18	411	56.4%	11.5%	17.5%	29.7%	60.8%	79.5%	93.7%	97.4%
South Africa	12	362	74.5%	3.8%	38.2%	63.7%	85.6%	96.4%	99.6%	100.0%
Sri Lanka	12	286	97.1%	91.9%	94.6%	95.3%	97.3%	99.8%	100.0%	100.0%
Tajikistan	17	72	48.9%	0.0%	0.4%	1.4%	65.0%	97.6%	99.6%	100.0%
Tanzania	23	150	83.6%	26.7%	53.9%	75.5%	95.1%	99.7%	100.0%	100.0%
Thailand	10	410	75.0%	35.5%	41.1%	52.1%	79.9%	99.9%	100.0%	100.0%
Türkiye	38	1 674	70.5%	0.6%	11.6%	50.5%	87.9%	97.1%	100.0%	100.0%
Turkmenistan	29	66	74.0%	9.8%	38.7%	53.3%	81.6%	96.1%	97.2%	99.1%
Uganda	16	198	87.7%	0.0%	70.4%	86.9%	98.4%	100.0%	100.0%	100.0%
Ukraine	79	1 893	62.1%	0.0%	3.3%	28.9%	75.1%	95.2%	98.3%	100.0%
Uzbekistan	17	86	62.7%	0.0%	6.2%	29.7%	80.5%	89.5%	99.1%	100.0%
Vietnam	15	259	78.4%	44.9%	51.0%	62.2%	81.0%	93.7%	100.0%	100.0%
Zambia	30	338	71.3%	0.0%	15.5%	53.9%	83.5%	98.4%	100.0%	100.0%
Overall, including omitted categories	1 561	28 967	72.2%	0.0%	9.3%	50.9%	89.9%	99.6%	100.0%	100.0%

Table 23: Recovery rates by country – public lending

Country	Defaulted contracts	Signed amount in € million	Average recovery rate	Minimum observation	10th percentile	25th percentile	Median	75th percentile	90th percentile	Maximum observation
Burkina Faso	10	109	96.7%	81.0%	93.7%	96.2%	99.4%	99.6%	99.6%	99.7%
Regional	23	557	83.0%	0.0%	48.6%	70.4%	98.3%	100.0%	100.0%	100.0%
Senegal	18	222	99.7%	98.5%	99.1%	99.5%	99.9%	100.0%	100.0%	100.0%
Togo	11	136	99.6%	98.7%	99.1%	99.5%	99.7%	100.0%	100.0%	100.0%
Zimbabwe	11	150	21.6%	0.0%	5.1%	6.3%	11.4%	19.8%	45.2%	98.3%
Overall, including omitted categories	251	3 828	85.9%	0.0%	46.2%	88.9%	99.3%	100.0%	100.0%	100.0%

## 4.6 Recovery rates by historic income group

The World Bank Group database on historic income groups is used for assigning each counterpart country to a group for the year of each default.

In private lending, the highest average recovery rate occurs in low-income countries, whereas the lowest number of defaulted cases is in high-income countries. This observation could be explained by special loan covenants. More active government support and pre-emptive restructurings improve the chances of a full repayment. The results are more contrasted in the public lending, where recoveries are of similar magnitude across the historic income groups.

### 4.6.1 Private lending

Table 24: Recovery rates by historic income group – private lending

Historic income group	Defaulted contracts	Signed amount in € million	Average recovery rate	Minimum observation	10th percentile	25th percentile	Median	75th percentile	90th percentile	Maximum observation
High income	52	1 979	62.1%	0.0%	0.0%	21.0%	75.6%	94.8%	100.0%	100.0%
Upper middle income	508	12 003	71.8%	0.0%	12.4%	49.9%	87.7%	99.4%	100.0%	100.0%
Lower middle income	568	9 686	72.8%	0.0%	10.3%	52.1%	89.8%	99.7%	100.0%	100.0%
Low income	367	3 856	74.0%	0.0%	6.3%	53.4%	95.4%	100.0%	100.0%	100.0%
Multiple	66	1 442	67.2%	0.0%	0.4%	40.6%	81.7%	98.8%	100.0%	100.0%
<b>Overall, including omitted categories</b>	<b>1 561</b>	<b>28 967</b>	<b>72.2%</b>	<b>0.0%</b>	<b>9.3%</b>	<b>50.9%</b>	<b>89.9%</b>	<b>99.6%</b>	<b>100.0%</b>	<b>100.0%</b>

Note: The historic income group is defined as of default date.

Figure 29: Dataset composition by historic income group – private lending

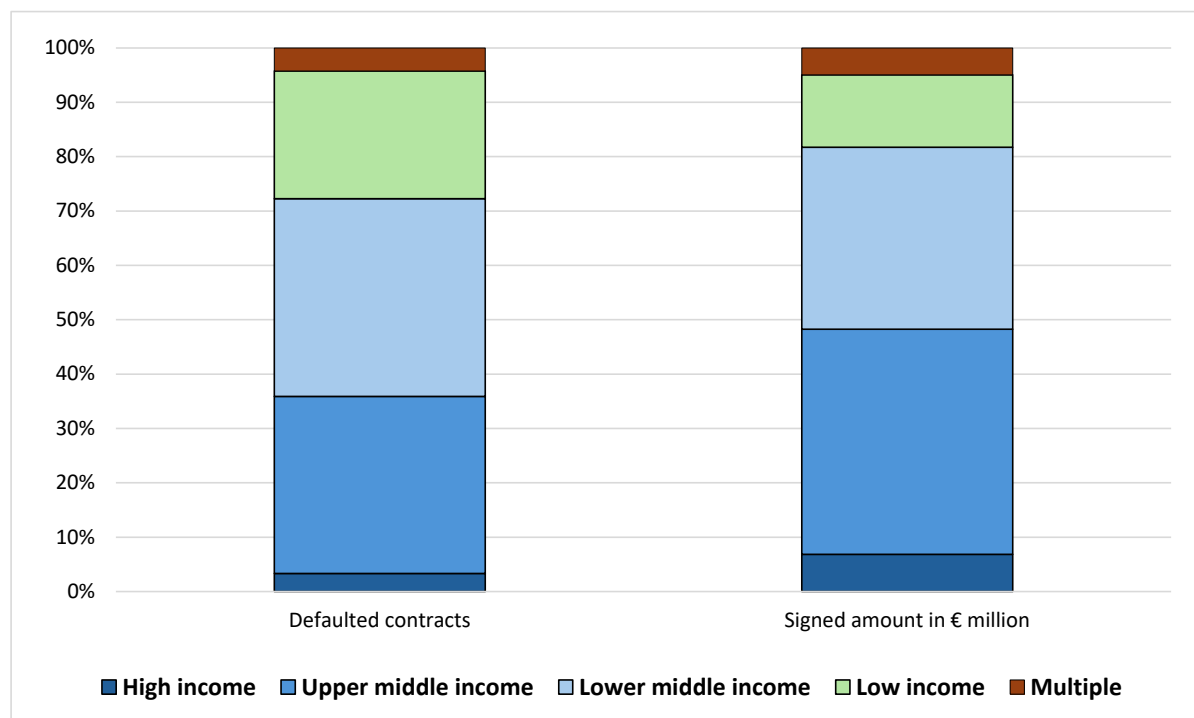
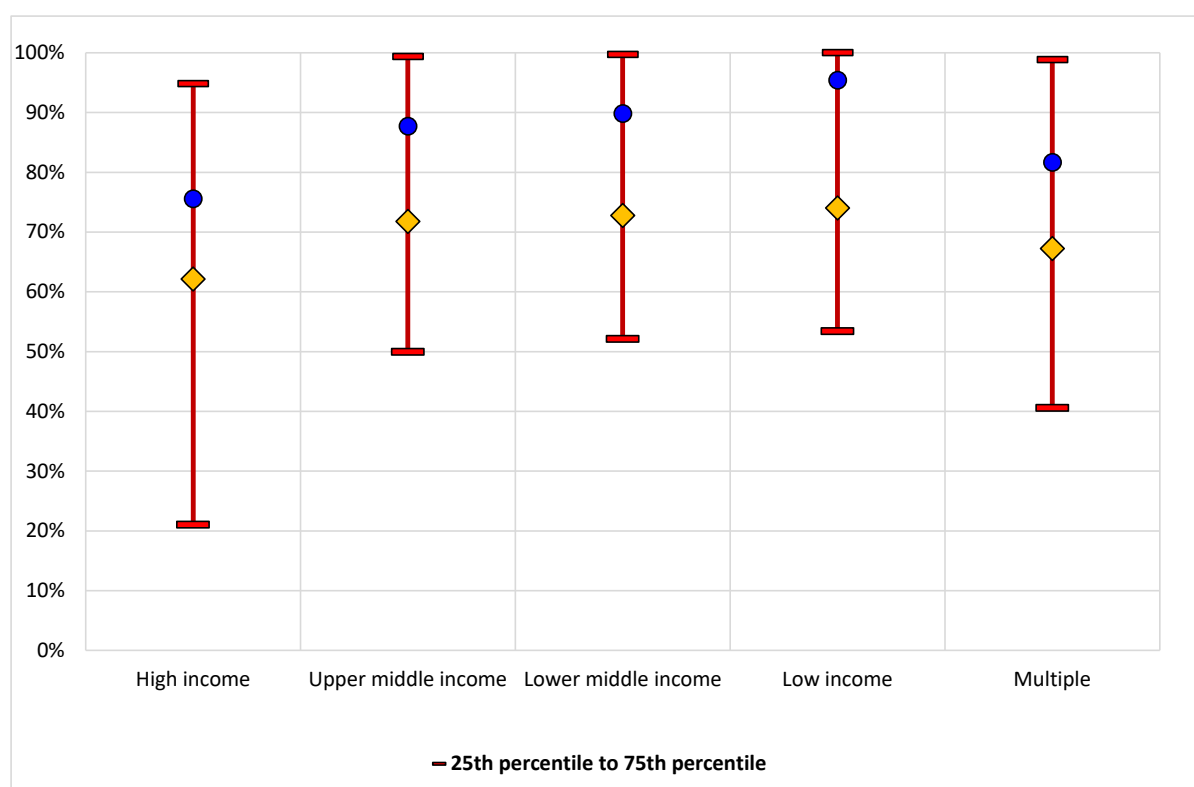


Figure 30: Recovery rates by historic income group – private lending



#### 4.6.2 Public lending

Table 25: Recovery rates by historic income group – public lending

Historic income group	Defaulted contracts	Signed amount in € million	Average recovery rate	Minimum observation	10th percentile	25th percentile	Median	75th percentile	90th percentile	Maximum observation
High income										
Upper middle income	40	629	86.8%	0.0%	43.7%	90.3%	99.2%	100.0%	100.0%	100.0%
Lower middle income	64	1 361	88.1%	0.0%	58.7%	89.0%	99.5%	100.0%	100.0%	100.0%
Low income	116	1 236	85.0%	0.0%	19.8%	89.1%	99.3%	100.0%	100.0%	100.0%
Multiple	25	558	80.3%	0.0%	43.0%	70.4%	98.3%	100.0%	100.0%	100.0%
Overall, including omitted categories	251	3 828	85.9%	0.0%	46.2%	88.9%	99.3%	100.0%	100.0%	100.0%

Note: The historic income group is defined as of default date.

Figure 31: Dataset composition by historic income group – public lending

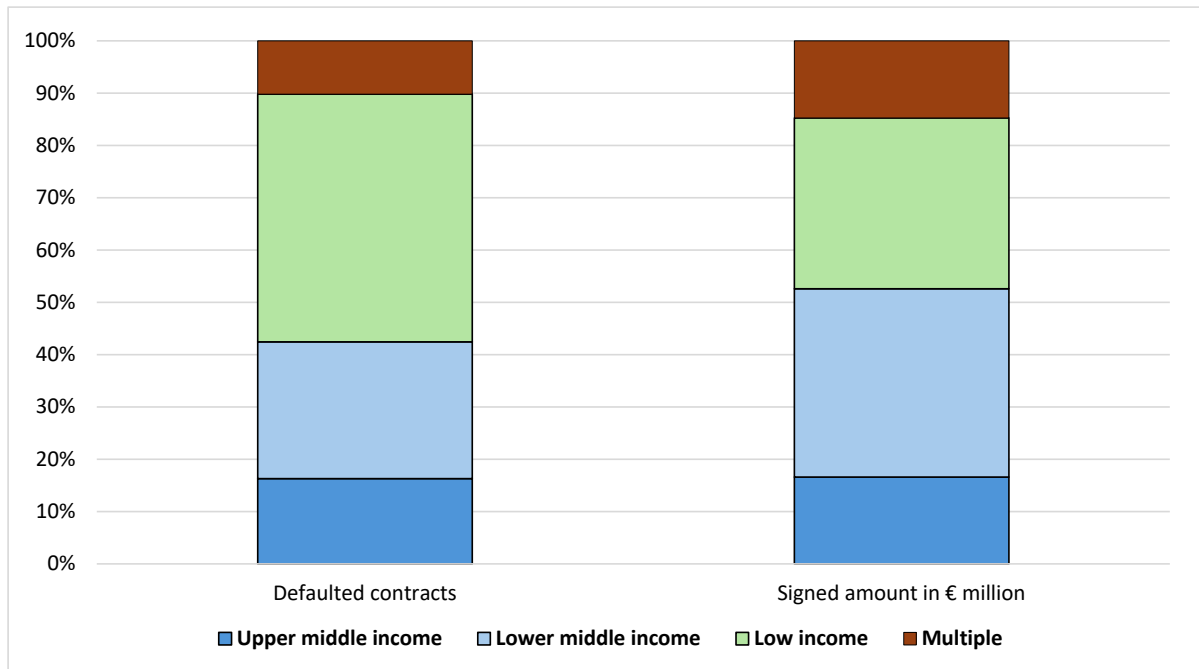
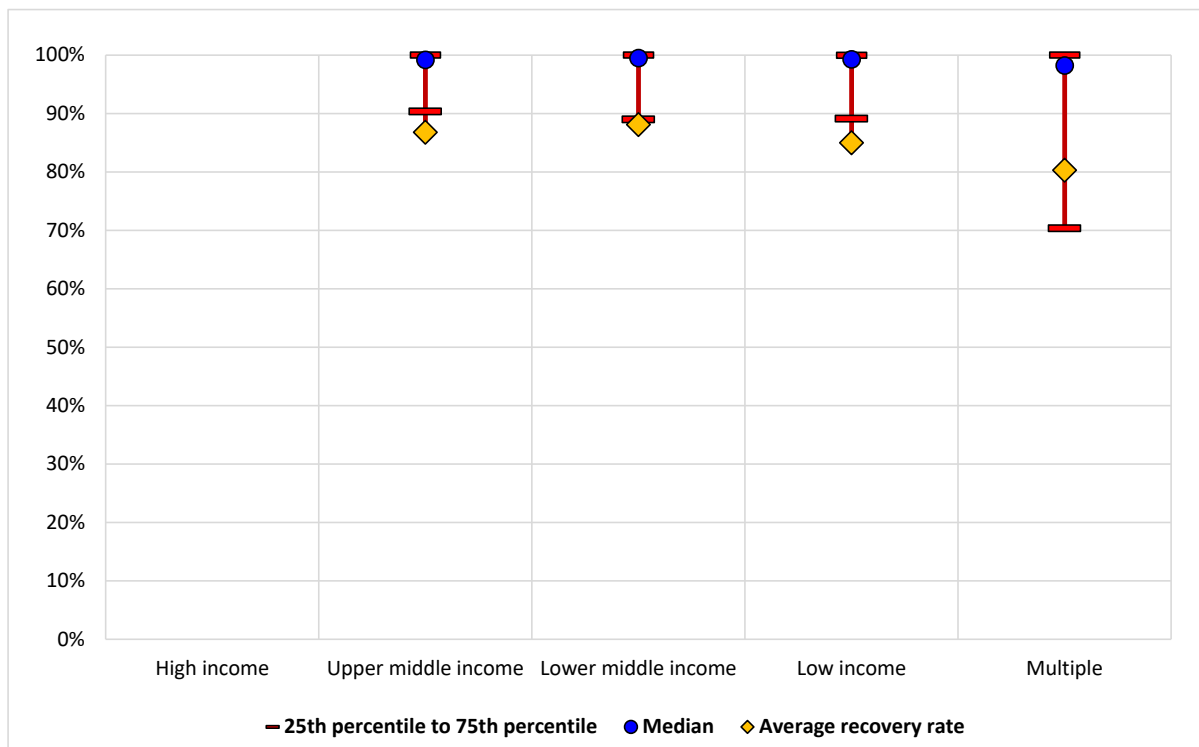


Figure 32: Recovery rates by sector – public lending



## 4.7 Recovery rates by currency type

Analysis of the recovery rates by currency type shows that local currency lending performs better than foreign or mixed currency lending, as local currency lending is less exposed to exchange rate fluctuations and external monetary policy actions. Nevertheless, the largest share of observations (83% of contracts with private counterparts and 48% of contracts with public counterparts) is in foreign currency.

### 4.7.1 Private lending

Table 26: Recovery rates by currency type – private lending

Currency type	Defaulted contracts	Signed amount in € million	Average recovery rate	Minimum observation	10th percentile	25th percentile	Median	75th percentile	90th percentile	Maximum observation
Local currency	182	2 746	78.2%	0.0%	14.3%	69.9%	97.3%	100.0%	100.0%	100.0%
Foreign currency	1 288	24 658	71.0%	0.0%	8.6%	48.0%	87.5%	99.6%	100.0%	100.0%
Mixed currency	91	1 563	76.6%	0.0%	12.3%	74.5%	95.5%	99.7%	100.0%	100.0%
<b>Overall, including omitted categories</b>	<b>1 561</b>	<b>28 967</b>	<b>72.2%</b>	<b>0.0%</b>	<b>9.3%</b>	<b>50.9%</b>	<b>89.9%</b>	<b>99.6%</b>	<b>100.0%</b>	<b>100.0%</b>

Note: The historic income group is defined as of default date.

Figure 33: Dataset composition by currency type – private lending

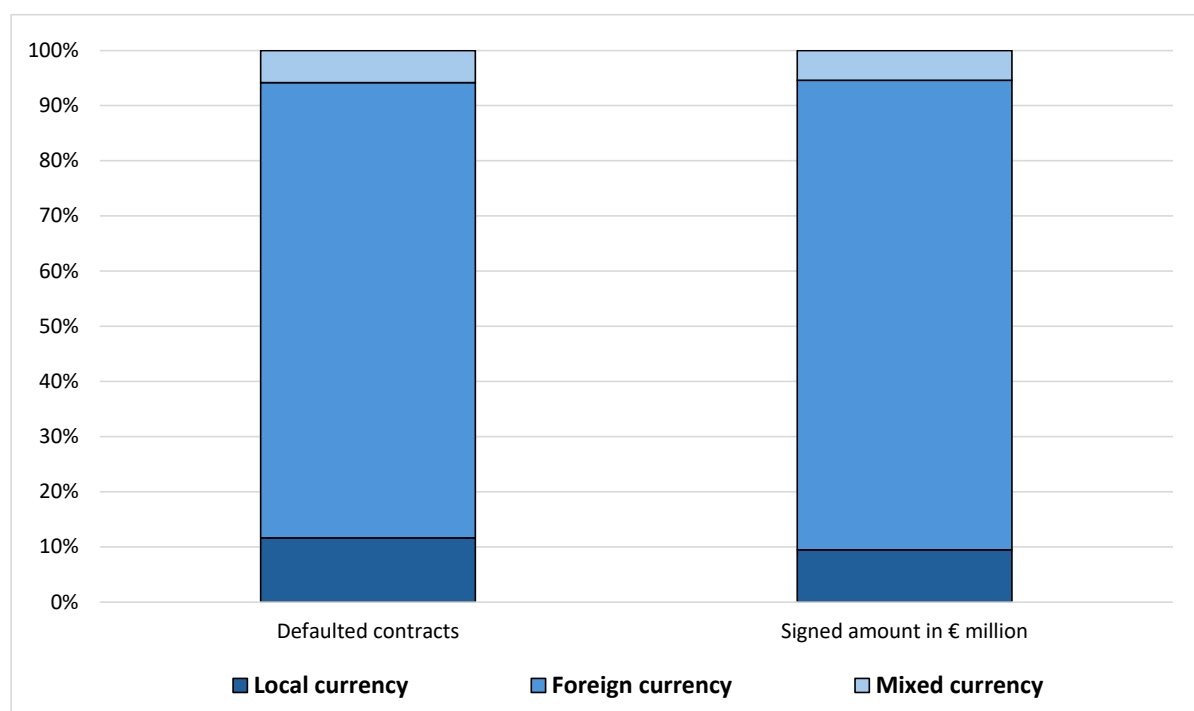
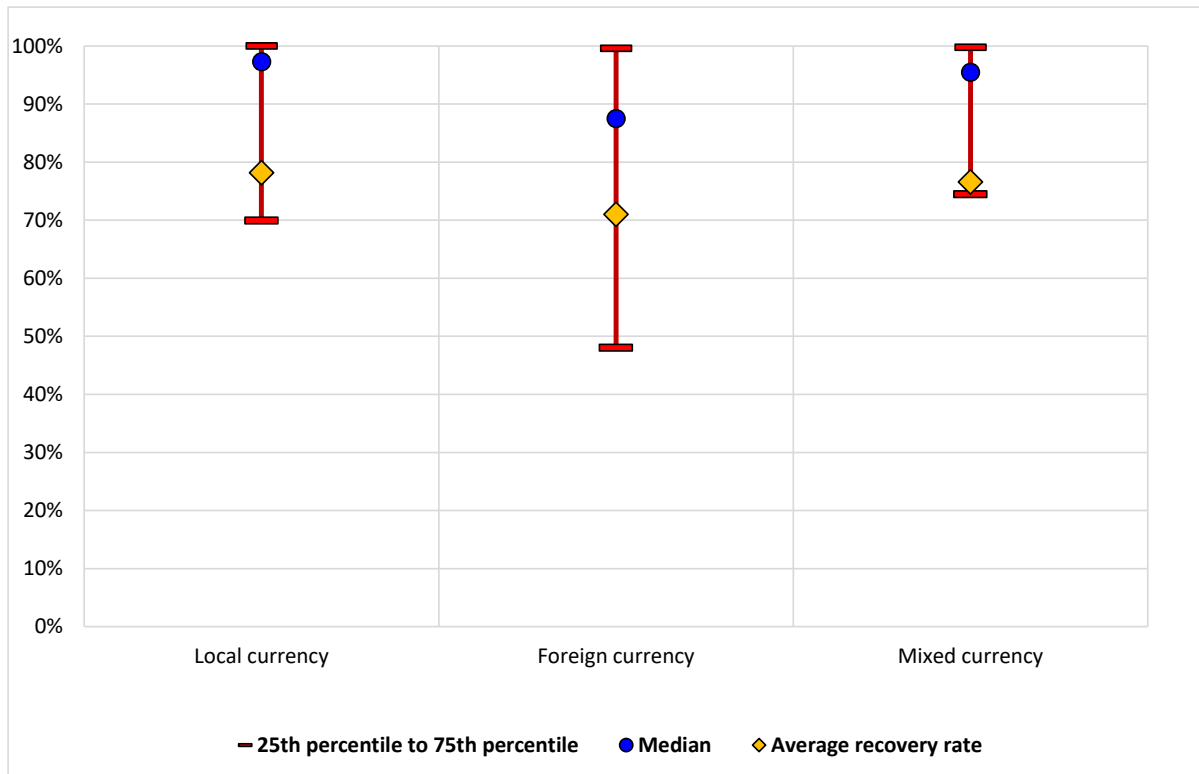




Figure 34: Recovery rates by currency type – private lending



#### 4.7.2 Public lending

Table 27: Recovery rates by currency type – public lending

Currency type	Defaulted contracts	Signed amount in € million	Average recovery rate	Minimum observation	10th percentile	25th percentile	Median	75th percentile	90th percentile	Maximum observation
Local currency	71	1 148	97.0%	46.7%	93.8%	98.8%	99.5%	99.9%	100.0%	100.0%
Foreign currency	122	1 457	83.0%	0.0%	17.2%	84.8%	99.2%	100.0%	100.0%	100.0%
Mixed currency	58	1 223	78.2%	0.0%	13.7%	70.5%	97.3%	100.0%	100.0%	100.0%
Overall, including omitted categories	251	3 828	85.9%	0.0%	46.2%	88.9%	99.3%	100.0%	100.0%	100.0%

Figure 35: Dataset composition by currency type – public lending

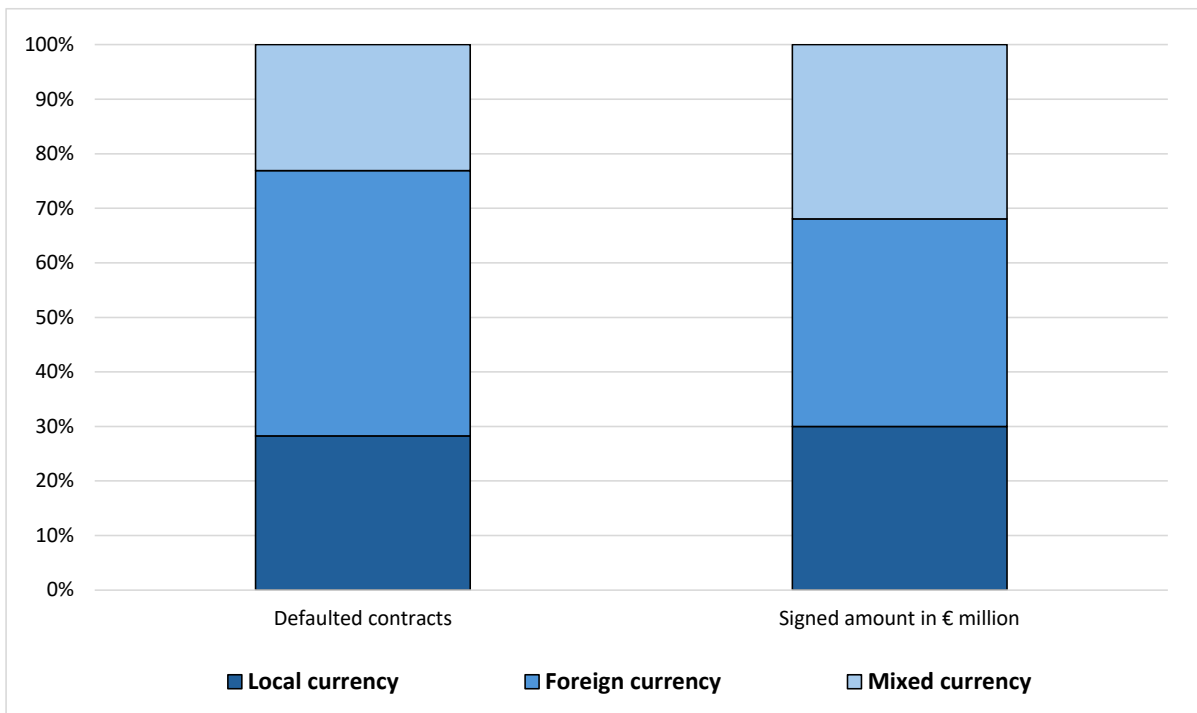
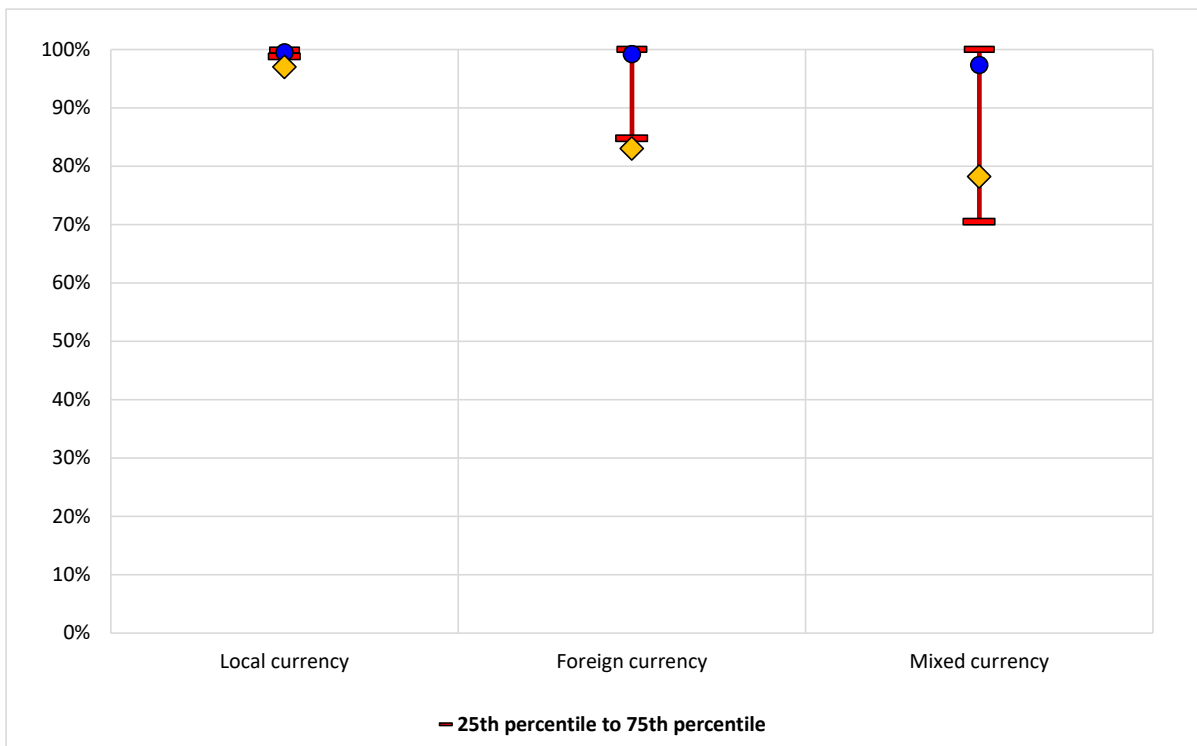


Figure 36: Recovery rates by currency type – public lending



## 4.8 Recovery rates by contract size

Contract size refers to the amount of each obligation at the signature date. The distribution of recovery rates following separation by contract size is quite uniform for both counterparty types, therefore the size of the contract does not affect recoveries.

### 4.8.1 Private lending

Table 28: Recovery rates by contract size – private lending

Signed amount per contract	Defaulted contracts	Signed amount in € million	Average recovery rate	Minimum observation	10th percentile	25th percentile	Median	75th percentile	90th percentile	Maximum observation
Up to €1m	118	70	66.6%	0.0%	0.0%	22.6%	90.7%	99.3%	100.0%	100.0%
€1m to €2m	121	193	69.9%	0.0%	0.0%	39.3%	91.0%	99.6%	100.0%	100.0%
€2m to €5m	291	1 024	66.5%	0.0%	4.7%	35.1%	81.4%	97.5%	100.0%	100.0%
€5m to €10m	310	2 322	76.4%	0.0%	13.7%	62.2%	93.1%	99.8%	100.0%	100.0%
€10m to €25m	405	6 575	77.5%	0.0%	22.0%	64.6%	93.4%	99.9%	100.0%	100.0%
Over €25m	316	18 784	69.3%	0.0%	12.0%	39.0%	87.6%	99.9%	100.0%	100.0%
Overall, including omitted categories	1 561	28 967	72.2%	0.0%	9.3%	50.9%	89.9%	99.6%	100.0%	100.0%

Figure 37: Dataset composition by contract size – private lending

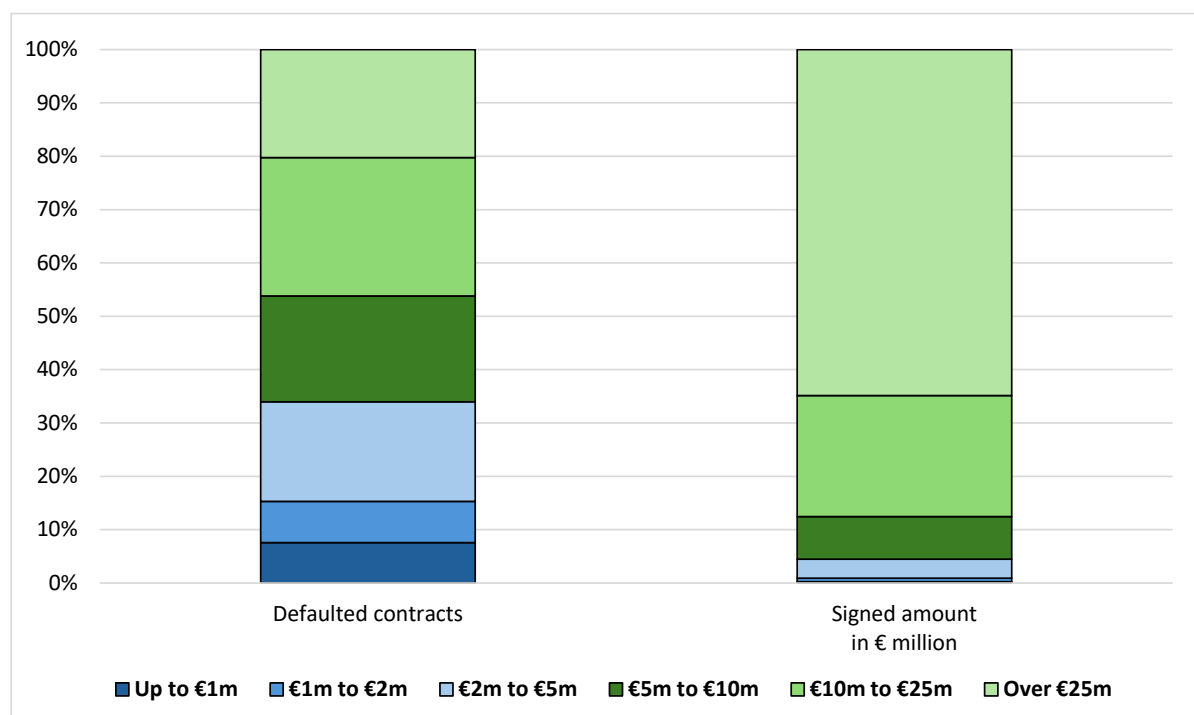
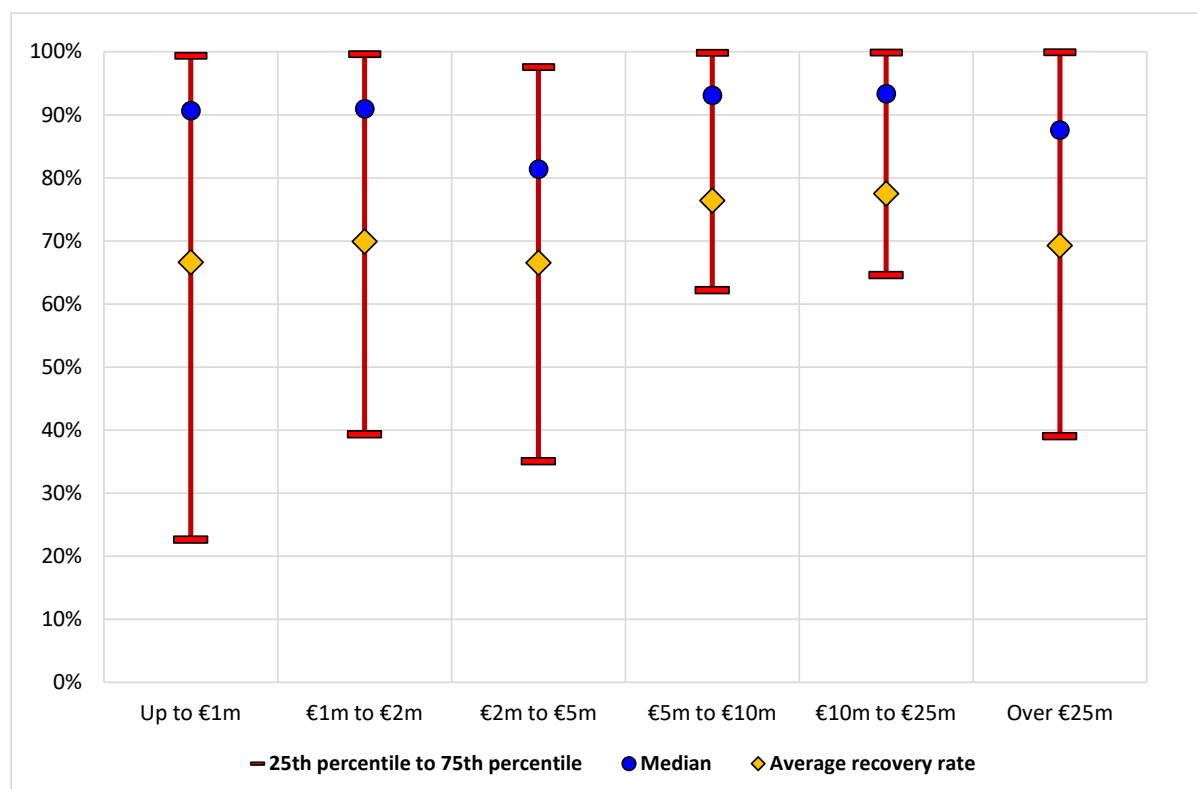


Figure 38: Recovery rates by contract size – private lending



#### 4.8.2 Public lending

Table 29: Recovery rates by contract size – public lending

Signed amount per contract	Defaulted contracts	Signed amount in € million	Average recovery rate	Minimum observation	10th percentile	25th percentile	Median	75th percentile	90th percentile	Maximum observation
Up to €1m	23	16	88.4%	0.0%	85.8%	90.8%	100.0%	100.0%	100.0%	100.0%
€1m to €2m	27	44	87.4%	0.0%	67.3%	87.5%	99.8%	100.0%	100.0%	100.0%
€2m to €5m	52	181	83.6%	0.0%	47.3%	82.4%	98.2%	99.9%	100.0%	100.0%
€5m to €10m	54	426	85.0%	0.0%	36.0%	88.4%	99.0%	99.7%	100.0%	100.0%
€10m to €25m	55	879	89.7%	5.1%	61.2%	98.6%	99.6%	100.0%	100.0%	100.0%
Over €25m	40	2 282	82.2%	0.0%	45.8%	72.0%	99.0%	99.8%	100.0%	100.0%
Overall, including omitted categories	251	3 828	85.9%	0.0%	46.2%	88.9%	99.3%	100.0%	100.0%	100.0%

Figure 39: Dataset Composition by Contract Size - Public Lending

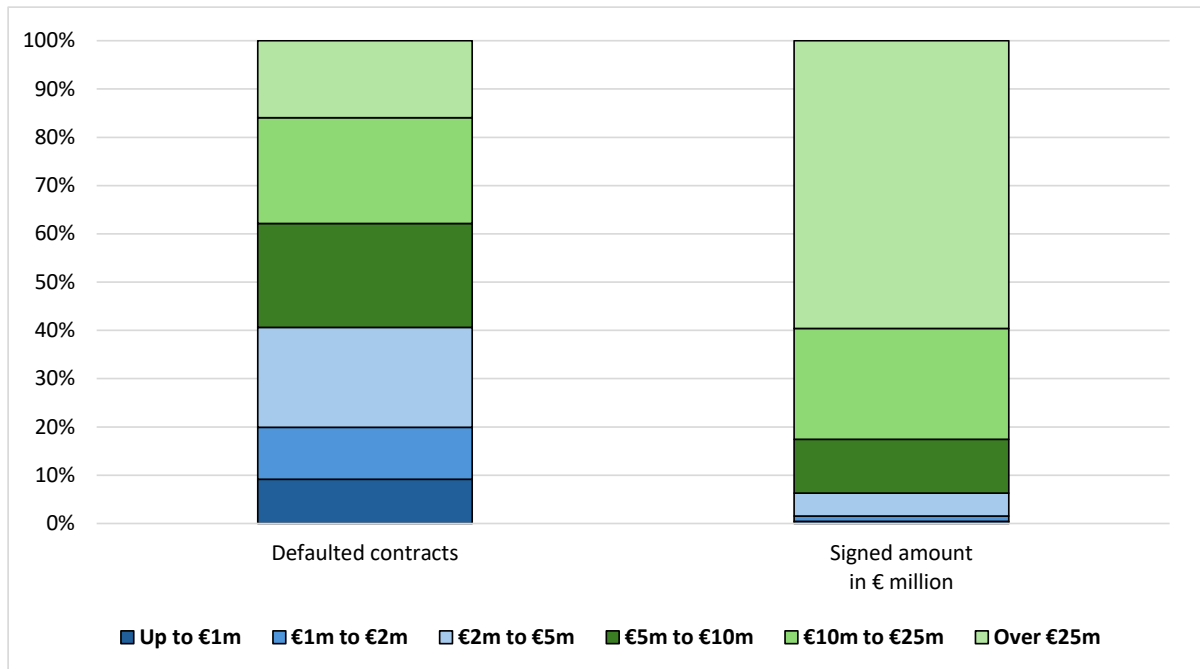
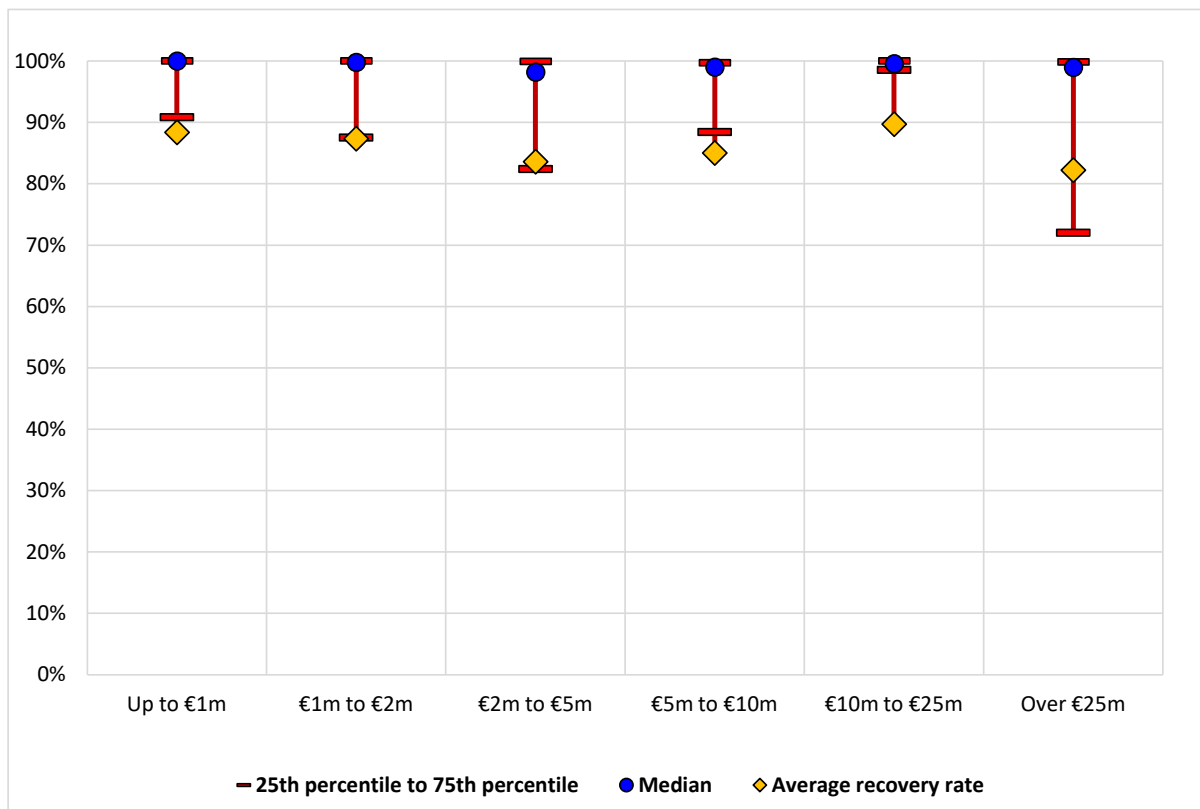


Figure 40: Recovery rates by contract size – public lending

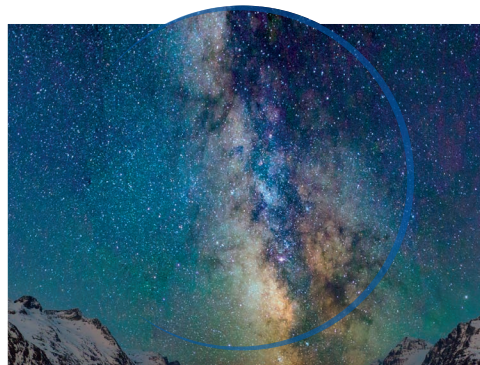






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# DEFAULT AND RECOVERY STATISTICS



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