

ESMA Market Report

# EU Credit Ratings market 2023

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*ESMA Market Report on the EU Credit Ratings market 2023*

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# Editorial

Dear Readers –

With this edition, the European Securities and Markets Authority presents its first market report on EU credit rating markets.

In 2008, G20 leaders identified credit ratings as a source of financial stability risks and made commitments to strengthen the regulation of credit rating agencies. In the EU the Credit Ratings Agencies Regulation (CRAR) was subsequently adopted to reduce the overreliance on credit ratings, to improve the quality of ratings of sovereign debt of Member States, to enhance credit rating agency (CRA) accountability, to reduce conflicts of interest of credit rating agencies related to the ‘issuer-pays’ business model, and to increase the transparency of credit ratings by requiring their publication on a European Rating Platform.<sup>1</sup> Further amendments were later made to CRAR, first in 2011, to take into account the creation of the European Securities and Markets Authority (ESMA) as the supervisor of CRAs registered in the EU, and again in 2013, to reinforce the rules and address weaknesses related to sovereign debt credit ratings.

ESMA is the single EU supervisor for credit rating agencies, responsible for CRA registration, supervision, and the enforcement of CRAR. The regulation also includes provisions for CRAs to report their credit rating actions. As a result, ESMA has built up an extensive dataset on credit ratings and related actions. In addition to facilitating market transparency and the monitoring of CRAs, this provides a rich dataset on the state of credit rating markets in the EU and on the extent of and the trends in credit risk. The latter supports ESMA’s supervisory and risk assessment activities, including on financial stability and other areas, and specifically informs the twice-yearly ESMA Report on Trends, Risks and Vulnerabilities.

This report contains four sections. First, we present a summary of the essential market statistics. Second, we provide a short overview of the market structure and trends in the credit rating markets. Third, we present some of the main credit risk trends among EEA30 debt issuers, as reflected in credit ratings by building on the indicators developed for risk monitoring. Fourth, the statistical methods section provides further details on the data and steps taken in preparing the data and the statistics presented in the report. Finally, the credit ratings market statistics chapter presents an extensive collection of the indicators and metrics developed by ESMA for its risk assessment work. Importantly, the analysis presented here is separate from the supervisory work ESMA on individual CRAs. The indicators presented here also do not include statistics related to individual credit rating agencies.

As this is first edition of the report, we are still at an early point in exploring, analysing and displaying statistics on EU credit ratings markets. The ratings action data used in the report offers unprecedented reach and detail on credit ratings and related actions, and benefits from ongoing ESMA supervision, IT system validations and regular data quality checks. Thus, future editions of this report will aim to include more extensive data coverage, more risk indicators, and possibly further revisions of data and methods. To this end, and to help us improve our reporting, we welcome feedback or suggestions on the report, which should be sent to [risk.analysis@esma.europa.eu](mailto:risk.analysis@esma.europa.eu).

We at ESMA are pleased to share this part of our work with a wider audience, and we hope that our report will contribute to the understanding of the risks related to EU credit rating markets.

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<sup>1</sup> Regulation (EU) No 1060/2009 of the European Parliament and of the Council of 16 September 2009 on credit rating agencies (CRAR).

# Essential statistics

	All			Corporates			Sovereigns			Structured Finance		
	2020	2021	2022	2020	2021	2022	2020	2021	2022	2020	2021	2022
<b>Size</b>												
Ratings outstanding (000s)	830.2	828.2	823.5	297.0	292.6	300.7	400.1	398.1	385.2	132.6	136.9	137.0
EEA30 ratings outstanding (000s)	143.5	137.5	141.6	116.9	109.2	112.5	16.3	16.5	16.5	10.3	11.6	12.4
New in year (000s)	37.7	33.0	28.3	33.0	26.8	24.6	3.0	1.9	1.7	1.7	4.3	2.0
Withdrawn in year (000s)	35.3	39.1	24.1	32.8	34.4	21.3	1.6	1.7	1.7	0.9	3.0	1.1
Non-EEA30 ratings outst. (000s)	686.7	690.8	681.9	180.1	183.4	188.2	383.8	381.6	368.7	122.3	125.3	124.6
<b>Rated debt region</b>												
EEA30 (% of ratings)	17.3	16.6	17.2	39.3	37.3	37.4	4.1	4.2	4.3	7.8	8.5	9.1
United Kingdom (% of ratings)	2.5	2.5	2.6	5.4	5.3	5.3	0.3	0.4	0.5	2.6	2.7	2.7
United States (% of ratings)	69.3	69.7	69.0	36.5	37.9	38.5	88.4	88.1	87.8	85.1	84.2	83.4
Other countries (% of ratings)	10.9	11.2	11.2	18.8	19.4	18.8	7.2	7.3	7.5	4.5	4.6	4.8
<b>EEA30 ratings outstanding</b>												
By horizon												
Long-term (%)	91.5	91.1	91.5	90.5	90.1	90.6	92.1	91.9	92.6	99.7	99.6	99.6
Short-term (%)	8.5	8.9	8.5	9.5	9.9	9.4	7.9	8.1	7.4	0.3	0.4	0.4
By rated object												
Instruments (%)	69.9	69.6	65.1	64.2	63.9	59.1	86.1	86.1	86.3	100.0	100.0	100.0
Issuers (%)	30.1	30.4	34.9	35.8	36.1	40.9	13.9	13.9	13.7	0.0	0.0	0.0
By solicitation status												
Solicited (%)	72.5	73.8	69.2	69.5	71.5	66.3	72.1	71.1	70.9	99.7	99.9	99.9
Unsolicited (%)	27.5	26.2	30.8	30.5	28.5	33.7	27.9	28.9	29.1	0.3	0.1	0.1
Asset class with largest share	Corp	Corp	Corp	Fin	Fin	Fin	Public	Public	Public	CDO	CDO	CDO
Share (%)	79.5	79.5	81.5	59.6	59.5	56.1	39.6	38.5	38.3	61.5	59.2	55.8
<b>EEA30 concentration</b>												
CRAs with a current EEA30 rating												
Number of registered CRAs	25	22	19	23	22	19	12	10	9	8	8	8
Number of certified CRAs	2	2	2	2	2	2	1	1	1	0	0	0
Big 3 CRA share of outst. ratings*												
In EEA30 ratings (%)	66.4	70.5	68.5	62.8	67.4	65.2	76.6	76.6	75.5	91.3	90.1	89.2
In solicited EEA30 ratings (%)	93.1	92.7	92.0	92.6	92.4	91.9	97.4	97.1	95.1	91.3	90.1	89.5
In unsolicited EEA30 ratings (%)	6.6	7.8	6.8	4.2	5.0	4.4	26.1	26.1	24.7	100.0	90.0	21.4
Big 5 CRA share of outst. ratings*												
In EEA30 ratings (%)	75.5	80.4	79.6	70.3	75.8	74.8	98.6	98.7	98.7	98.0	98.1	97.7
In solicited EEA30 ratings (%)	98.3	98.1	97.9	98.1	97.9	97.7	99.6	99.7	99.6	98.0	98.1	97.7
In unsolicited EEA30 ratings (%)	24.2	30.5	31.3	15.5	20.4	22.5	96.0	96.3	96.2	100.0	100.0	100.0
<b>EEA30 credit risk</b>												
Ratings drift in year (%)	-8.5	1.6	1.2	-10.1	-1.2	-1.4	-3.6	3.2	3.6	3.3	27.4	20.7
Fallen angels in year (% of ratings)	0.5	0.1	0.2	0.6	0.1	0.3	0.1	0.0	0.1	0.4	0.1	0.1
Rising stars in year (% of ratings)	0.5	0.4	0.3	0.6	0.4	0.2	0.0	0.2	0.2	0.5	1.1	0.8
Defaults in year (% of ratings)	0.34	0.11	0.10	0.39	0.13	0.12	0.00	0.00	0.00	0.31	0.10	0.03

Note: Includes all ratings reported to ESMA, which includes some ratings for debt issued and issuers outside of the EEA. Given the very small proportion of 'other' ratings (about 500 in total) that do not fall under corporate, sovereign or structured finance categories of debt, statistics for these are not included in the table. Outstanding ratings do not include preliminary ratings or withdrawn ratings. 'EEA30 ratings' refer to ratings of instruments issued by firms domiciled in the EEA30 and to ratings of issuers domiciled in the EEA30. 'Solicited' ratings refers to ratings requested and paid for by the debt issuer while 'unsolicited ratings' refer to those that are not. Ratings drift is a measure of the aggregate net change in rating notches (upgrades or downgrades) as a proportion of outstanding ratings (so a positive rating drift signals a general improvement in the credit ratings and vice versa); '% of ratings' refers to the percentage of outstanding ratings; 'CRAs with a current EEA30 rating' refers to those with one or more ratings of an EEA30 instrument or issuer that were current (i.e. not withdrawn) as of year-end. Outstanding ratings metrics measured at year end. Corp – corporates, Fin – financials, CDO – collateralised debt obligations, outst. – outstanding.

\* Although the values in some columns may appear to suggest otherwise, the three CRA shares (EEA30, solicited and unsolicited) refer to shares in different populations and so do not necessarily sum vertically to 100%.

Source: RADAR, ESMA.

# Market monitoring

# Credit ratings: Market structures

## Summary

At the end of 2022 there were 141,600 credit ratings outstanding on EEA30-issued debt instruments and issuers. These were mostly corporate ratings (79%), followed by sovereigns (12%) and structured finance ratings (9%). Over 90% of ratings had long-term horizons (a year or more), most are ratings of instruments (70%) rather than of issuers, and most were solicited by the debt issuer (73%). The largest three CRAs had issued most of the outstanding ratings (69%), including almost all of the ratings solicited by a debt issuer (92%).

## Market overview

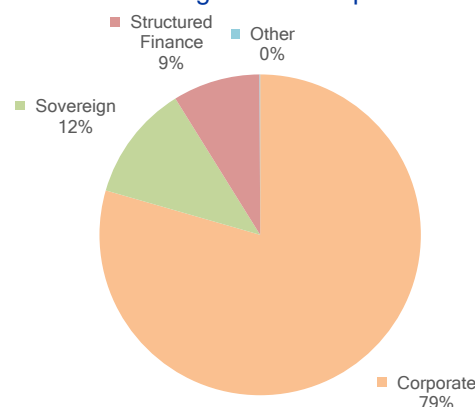
This report presents statistics based on the EU's database of credit rating<sup>2</sup> actions taken by credit rating agencies (CRAs).<sup>3, 4</sup> The focus is primarily on ratings provision to EEA30 issuers and on EEA30 credit risk. However, non-EEA30 ratings data are also presented in places where relevant, for example in some analyses of rating accuracy. The reporting period for this report is 2020 to 2022 with earlier data also presented in some charts for additional context.

**Market size and composition:** The ratings market is extensive. At the end of 2022 there were 823,400 credit ratings outstanding.<sup>5</sup> Most of these were for US-issued debt or issuers (69%), with ratings for EEA30<sup>6</sup> issuers and instruments accounting for 17% of the total (MR-CR-S.2). EEA30 ratings were mainly of issuers and instruments issued by corporates (79%), followed by sovereign ratings (12%) and ratings for structured finance products (9%) (MR-CR.1). The number and composition of outstanding EEA30 ratings has also remained relatively stable in recent years (MR-CR-S.3).

### MR-CR.1

Outstanding ratings split by asset class

Most EEA30 ratings are for corporates



Note: Proportions of total ratings outstanding for debt issued in the EEA30 by asset class at the end of 2022 in percent.  
Sources: RADAR, ESMA.

EEA30 corporate ratings are split into financial (60%), non-financial (39%) and insurance ratings (1%) (MR-CR-S.66). Among EEA30 sovereign ratings, there is a relatively even split among public, regional and state ratings (MR-CR-S.123). In structured finance, CDOs account for 60%, RMBS (22%), ABS (14%) and CMBS (2%) (MR-CR-S.186). Trends in ratings composition by sub-asset class are also relatively stable over the full period of our data, from end-2015 to end-2022 (MR-CR-S.65, MR-CR-S.122, MR-CR-S.185).

<sup>2</sup> A credit rating is an opinion regarding the creditworthiness of an entity, a debt or financial obligation, debt security, preferred share or other financial instrument, or of an issuer of such a debt or financial obligation, debt security, preferred share or other financial instrument, issued using an established and defined ranking system of rating categories. See <https://www.esma.europa.eu/databases-library/interactive-single-rulebook/clone-crar/article-3-1>.

<sup>3</sup> Regulation (EC) No 1060/2009 of the European Parliament and of the Council of 16 September 2009 on credit rating agencies (CRAR) requires registered and certified CRAs to submit rating information to ESMA when issuing a credit rating or a rating outlook. <https://www.esma.europa.eu/databases-library/interactive-single-rulebook/clone-crar/article-10-1n>

[library/interactive-single-rulebook/clone-crar/article-10-1n](https://www.esma.europa.eu/databases-library/interactive-single-rulebook/clone-crar/article-10-1n)

<sup>4</sup> The data cover actions related to ratings endorsed or issued for use in the EEA30 for regulatory purposes. This includes many (though not all) global ratings.

<sup>5</sup> Outstanding ratings exclude preliminary ratings or withdrawn ratings.

<sup>6</sup> In this report 'EEA30 ratings' refers to ratings of EEA30-issued debt or of EEA30 domiciled issuers. To ensure trends are comparable through time, the EEA ratings presented in this report are for the EEA30 (without the United Kingdom) during the pre-Brexit period.

Over 90% of EEA30 ratings across asset classes have a [long-term time horizon](#), meaning that the ratings assess credit risk over a long period (at least one year). Instrument ratings, those of a specific debt instrument (bond or structured finance product) are more numerous than ratings of issuers. The share of ratings for instruments ranges from 64% for corporates to 100% in structured finance.

Most ratings are [solicited](#), meaning the debt issuer contracts the CRA to issue the rating. The share of outstanding EEA30 ratings that were solicited at the end of 2022 was 70% for both sovereigns and corporates and 99% in structured finance (MR-CR-S.7-9). This clearly highlights the continuing dominance of the 'issuer-pays' business model over alternative business models, such as 'investor-pays' where ratings are funded by investor fees.

**Market concentration** metrics are also important. These measure the extent to which ratings are predominantly issued by a few credit rating agencies. [High concentration](#) can be indicative of weak competition and limited pressure on rating agencies to provide well-priced, quality ratings.

Particularly relevant to ESMA's risk monitoring and assessment, high concentration can also be indicative of financial stability risks. Where there is a wide reliance on the ratings of a few CRAs, changes in these can have correspondingly wide impacts. Downgrades can then drive financial instabilities, especially if there is a mechanistic reliance on ratings, such as in some investment mandates or in some methods for determining minimum capital levels for banks and insurers.<sup>7</sup>

A first concentration metric presented here is the [number of CRAs active](#) in the market. At the end of 2022 there were 21 CRAs (19 registered, 2 certified) with current ratings on EEA30 debt (MR-CR-S.18). Also at the end of 2022, there were 21 CRAs with live corporate ratings for EEA30 debt or issuers, 10 in sovereign ratings, and 8 for structured finance ratings. In terms of activity, measured by reporting one or more rating actions, more CRAs were active on

corporates (22 active in non-financials in 2022), with much fewer active on sovereigns and structural finance (MR-CR-S.17). There are also more CRAs rating debt in [larger member states](#) and in states with larger financial sectors (DE, ES, FR, IE, IT, LU, NL). Smaller states as well as regional and supranational authorities often have only the largest CRAs and a few other CRAs active (MR-CR-S.16).

Concentration, measured in terms of [numbers of outstanding ratings](#) held by CRAs, is also significant. As shown in the chart below, the biggest three CRAs<sup>8</sup> account for 69% of outstanding EEA30 ratings (MR-CR.2).<sup>9</sup> The share is even higher for solicited ratings (92%). In contrast, smaller CRAs account for the bulk of unsolicited ratings.

MR-CR.2

Big three CRA share of ratings

Three CRAs account for most ratings



Note: Share of ratings held by the Big 3 CRAs as of the end of 2022 (Fitch Ratings, Moody's Investors, Standard and Poor's) in percent.  
Sources: ESMA, RADAR.

There is a very gradual downward trend in the share of solicited ratings away from the largest three CRAs, most pronounced for structured finance (MR-CR-S.12, MR-CR-S.13). The downward trend may partly reflect Article 8d of CRAR, which requires issuers to consider a smaller CRA when obtaining two or more ratings for an instrument or issuer. Nonetheless, across metrics, [the biggest three CRAs](#) continue to hold by far the largest market share in ratings, indicating continuing high concentration in CRA

<sup>7</sup> In October 2010, the FSB issued [Principles for Reducing Reliance on CRA Ratings](#), which included steps to end the mechanistic reliance on ratings.

<sup>8</sup> The biggest three credit ratings agencies are Fitch Ratings, Moody's Investors and Standard and Poor's.

<sup>9</sup> This share is lowered by the presence of two CRAs which focus respectively on corporate ratings in Italy (Cerved)

and in Greece (ICAP CRIF) and which have a substantial number of ratings. If one calculates the ratings share of the Big 3 CRAs excluding Cerved and ICAP, which is more representative of concentration for debt issuers outside of Italy and Greece, the metric rises to 78%. The Big 3 share among corporates similarly increase if Cerved and ICAP ratings are excluded.

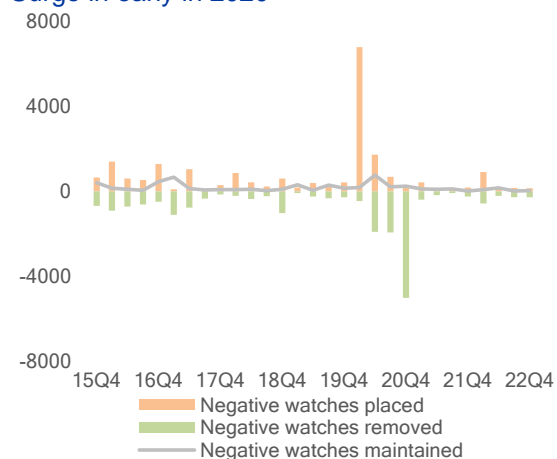


markets, in line with the findings of ESMA's latest annual market share calculation.<sup>10, 11</sup>

**Market monitoring with rating actions:** rating actions data are reported for a wide range of purposes (new ratings, withdrawn ratings, downgrades, upgrades, affirmations, outlooks, watch/reviews, default actions and rating suspensions), these provide rich information that goes well beyond rating levels. For example, a rapid and large jump in **negative watch/reviews** for corporate ratings is visible in Q1 2020 at the start of the COVID-19 pandemic, signalling increased short-term potential for downgrades among affected corporates (MR-CR.3).<sup>12</sup>

MR-CR.3

#### Negative watches EEA30 corporates Surge in early in 2020



Note: Numbers of negative watch reviews placed, removed and maintained for EEA30 corporates.  
Sources: RADAR, ESMA.

In the same quarter, there was also a large increase in positive watches being removed (MR-CR-S.84), and in uncertain and evolving watches being placed (MR-CR-S.86-87). Later in 2020, as the situation became clearer, there was a drop in negative watches. This reflected the rapidly evolving circumstances of the time as some

ratings were downgraded and as credit conditions improved as a result of government measures easing pressures on businesses. **Similar patterns** are visible also in corporate outlook charts (MR-CR-S.80-83), for sovereigns for negative outlooks (MR-CR-S.138) and for structured finance for negative watches (MR-CR-S.201).

MR-CR.4

#### Ratings accuracy and defaults by rating

##### Default patterns vary between asset classes

The purpose of credit ratings is to provide accurate information on credit risk to investors. In this box, we briefly consider one informative measure on their accuracy, the cumulative accuracy profile (CAP).

The CAP plots the cumulative distribution of ratings in increasing order of risk against the cumulative distribution of defaults for these ratings.<sup>13</sup> The slope of CAP represents the inverse rate at which defaults occur for a given rating level. A steep curve (slope > 1) implies that a relatively small share of defaults occurs at the rating level, a shallow curve (slope < 1) that a relatively large share of defaults occurs. Thus, the CAP curve should ideally be concave, i.e. it should start steep (meaning relatively few defaults in the highest ratings) and become shallower (as more defaults occur as ratings worsen). The position of the curve is also important, curves that are closer to the 'northwest' corner have defaults that are more concentrated in the weakest ratings. Curves that are closer to the centre have defaults more evenly spread across ratings, with the 'random rating' curve (slope 1 throughout) representing the case where defaults occur uniformly across rating categories.

The chart below (MR-CR.5) plots the CAP for the three debt categories for all ratings (also including non-EEA ratings because their accuracy is also important to EU investors). The curves are reassuringly all concave, meaning that in all asset classes a higher rating is less likely to experience defaults than a lower rating. The sovereign CAP is at the 'northwest' extreme showing that for these, defaults are entirely concentrated in the riskiest rating category. The structured finance CAP is the least concave, so its defaults are most spread across ratings, with the corporate CAP in-between the other two asset classes.<sup>14</sup>

At sub-asset class level, the sovereign categories all have highly concave profiles (MR-CR-S.179), reflecting very low default rates and the fact that defaults occur only in the weakest ratings. For corporates, financial ratings are the most concave, then insurance, with non-financial ratings having the least concave profile (MR-CR-S.116). Among structured finance products, the RMBS profile is markedly less concave than others, ABS and CDOs are the most, with the CMBS

<sup>10</sup> Article 8d of CRAR requires issuers or related third parties, who intend to appoint two or more CRAs to rate an issuance or entity, to consider appointing at least one CRA with no more than 10% of the total market share in the EU. To this end, ESMA is required to publish every year the [total market share for each registered CRA](#), based on the annual turnover generated from credit rating activities and ancillary services at group level in the EU for that CRA or group of CRAs.

<sup>11</sup> For an analysis of trends in CRA market share over the last ten years, see 'The market for small credit rating agencies in the EU' in [ESMA Trends, Risks and Vulnerabilities Report No.2-21](#).

<sup>12</sup> Some care is needed in interpreting outlook and watch review trends, because their meaning depends on other rating events that may co-occur. For example, the removal of a positive outlook to be replaced by a stable

outlook may not be credit negative if it accompanies a rating upgrade. Thus, actions need to be considered alongside other rating actions. In the case described here, however, after such checks, the 2020 watch review and outlook action trends do reflect credit developments.

<sup>13</sup> A point on a CAP curve, for example 15 on the x-axis and 80 on the y-axis, can be understood as 15% of all realised defaults in the year occurred for ratings that were within the 80% least risky ratings. This means that if defaults were randomly distributed among rating levels, then the CAP curve would be a straight line with slope one (20% of defaults occur in the 20% least risky ratings, 50% of defaults occur in the 50% least risky ratings etc.).

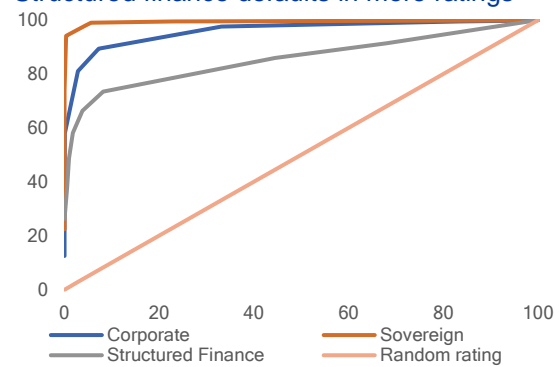
<sup>14</sup> This difference in structured finance ratings is made explicit by CRAs, which typically apply a distinctive label, such as 'SF' to these ratings.

profile lying between the two extremes (MR-CR-S.232). So, RMBS defaults are the most spread out among its rating categories.

Finally, while CAPs are informative on how defaults occur across rating categories, CAPs do not directly measure rating accuracy. This requires an explicit link between a rating category and an observable measure of credit risk, for example, between ratings and realised defaults to check the extent to which realised defaults match expected levels.

MR-CR.5

### Cumulative accuracy profiles by asset class Structured finance defaults in more ratings



Note: Cumulative accuracy profile for Big 5 CRA long term EEA and non-EEA ratings by debt category, weighted average of profile for years 2016-2022, plotting cumulative distribution of defaults in year (x-axis) against cumulative distribution of ratings at year-start in order of increasing risk (y-axis), axes in percent. Random rating shows curve were defaults equally likely in all rating categories.

Sources: ESMA, RADAR.

# Credit ratings: Trends in credit risk

## Summary

Credit risk indicators show the effects of the COVID-19 pandemic as it progressed over the reporting period. Early in 2020 there was a marked increase in rating downgrades across asset classes and particularly for non-financial corporates and commercial mortgage-backed securities. These reflect the pressures faced in certain business sectors from the economic lockdowns and the associated uncertainties. In contrast, there is an improvement in credit risk indicators across asset classes for the period when government business support measures were introduced and took effect, in late 2020 and in 2021. In 2022, there were the negative effects on credit quality of the Russian invasion of Ukraine and tightening monetary policy, though impacts were much less pronounced and widespread than those of the pandemic.

**Credit risk:** Ratings data provides rich information on credit vulnerabilities and acts as a valuable input to our risk monitoring and assessment. Here we present a selection of indicators to illustrate some of the high-level credit risk developments during the reporting period. This complements the more granular analysis presented on the [pandemic's impacts on credit ratings](#) in a recent article in the Trends, Risk and Vulnerabilities report.<sup>15</sup> The indicators presented here are ratings drift, fallen angels, transition matrices and default rates.

Ratings drift is one important metric for assessing credit risk trends. It is defined as the aggregate net change in rating notches (i.e. steps in upgrades or downgrades) as a proportion of outstanding ratings. It thus measures the overall direction and strength of change in ratings.

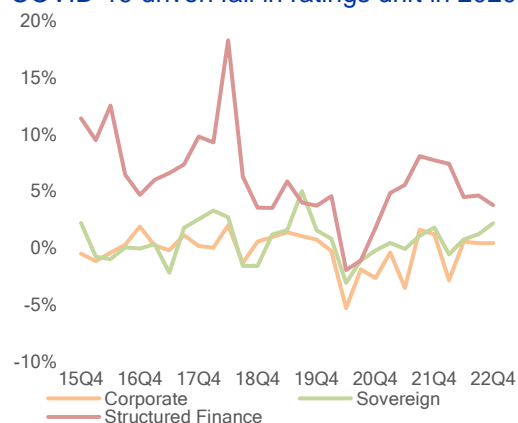
In the reporting period, [quarterly ratings drift fell](#) in all debt categories in early 2020 as the pandemic took hold. There was then a subsequent recovery as conditions improved in 2021, followed by a fall again in early 2022 around the time of the Russian invasion (MR-CR.6). This shows that initially downgrades became more prevalent as the pandemic hit economic activity and expectations, through economic lockdowns and massive increase in uncertainty, before later recovering as government support measures took effect and as economic activity gradually recovered through 2021, before the economic outlook again weakened with the Russian invasion of Ukraine,

increasing inflation and monetary tightening.

MR-CR.6

Ratings drift by asset class

COVID-19 driven fall in ratings drift in 2020



Note: Quarterly ratings drift (net total notch changes as a proportion of outstanding ratings) for EEA30 long term horizon ratings.  
Sources: RADAR, ESMA.

**Corporates:** The strong negative impact of the pandemic on the credit quality of [non-financial corporates](#) is also visible in the 2020 transaction matrix for Big 5 CRA ratings of non-financial corporates (MR-CR-S.115) where there were significant proportions of downgrades in all rating categories except AAA. This contrasts notably with the 2021 and 2022 transition matrices (MR-CR-S.114-15) which show that there were downgrades among investment grade ratings and upgrades among high-yield ratings.

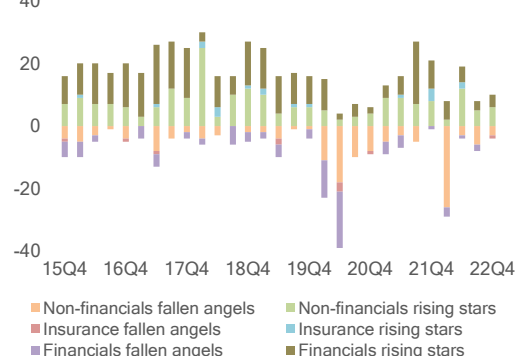
Another relevant indicator is the number of [fallen angels and of rising stars](#). Fallen angels are ratings downgraded from an investment grade

<sup>15</sup> See 'COVID-19 and credit ratings' in [ESMA Trends, Risks and Vulnerabilities Report No.2-21](#).

category (BBB or greater) to a high-yield category (BB or lower), while rising stars are those upgraded from high-yield to investment grade. Fallen angels are important because some investment mandates can limit investments to investment grade debt. Thus, fallen angels could potentially drive divestments in affected debt, which, if widespread, could have destabilising impacts (such as from fire sales). Both non-financial and financial fallen angels were more prevalent than rising stars for corporates in 2020, and vice versa in 2021 (MR-CR.7).

## MR-CR.7

### Corporate rising stars and fallen angels Surge in fallen angels in 2020 and in 2022



Note: Number of EEA30 corporate issuers (at group-level) with a rising star (upgrades to investment grade) or fallen angel (downgrades to high yield) among their debt with a long term corporate rating issued by the Big 5 CRAs (DBRS, Fitch, Moody's, Scope and S&P) by category per quarter.

Sources: RADAR, ESMA.

These patterns reflect again the credit risk deterioration at the start of the pandemic and subsequent improvement as the pandemic receded. In early 2022, there was also a sharp increase in non-financial fallen angels,

associated with the rapid deterioration in circumstances with the Russian invasion

More generally, the [Russian invasion](#) is less visible in our indicators in 2022 than the pandemic is for 2020. This likely reflects the more localised impact of the invasion on credit risk, with Ukrainian and Russian debt issuers much more affected than EEA30 issuers.<sup>16</sup> This is unlike the pandemic where there were widespread EEA30 and global interruptions to economic activity and associated uncertainties, which more widely affected EEA30 credit quality.

The patterns of rating changes in recent years have also led to a marked increase in the share of 'just' investment grade corporate ratings, that is investment grade ratings in the BBB category, in non-financials, alongside with falls in the shares of the other higher investment grade rating categories (MR-CR-S.91), indicating increased potential for fallen angels in non-financials in the future.

**Sovereigns:** substantial downgrades of [public and regional ratings](#) in 2020 are visible in the transition matrices, unlike in 2021 and 2022. Although there was little 2020 impact on state ratings and the other (much smaller) sovereign categories of international and supranational ratings (MR-CR-S.164-178).

**Structured finance ratings:** the impacts of the pandemic on the European credit outlook are particularly visible for commercial mortgage-backed securities, [CMBS](#), as shown in the ratings transition matrix for 2020 below. (MR-CR.8).

## MR-CR.8

### CMBS Ratings transition matrix 2020

#### COVID-19 driven downgrades across many CMBS rating levels in 2020

	AAA	AA	A	BBB	BB	B	CCC	CC	C	SD/D	WD(D)	WD(no D)
NEW	22.2%	22.2%	18.5%	29.6%	7.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
AAA	78.6%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	21.4%
AA	0.0%	73.3%	3.3%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	23.3%
A	0.0%	0.0%	70.7%	7.3%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	22.0%
BBB	0.0%	0.0%	0.0%	60.0%	5.7%	2.9%	0.0%	0.0%	0.0%	0.0%	0.0%	31.4%
BB	0.0%	0.0%	0.0%	0.0%	56.3%	25.0%	0.0%	0.0%	0.0%	0.0%	0.0%	18.8%
B	0.0%	0.0%	0.0%	0.0%	0.0%	55.6%	11.1%	0.0%	0.0%	0.0%	0.0%	33.3%
CCC	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	33.3%	0.0%	0.0%	0.0%	33.3%	33.3%
CC	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%
C	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	25.0%	0.0%	50.0%	25.0%
SD/D	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	40.0%	0.0%	60.0%

Note: Rating transition matrix from Jan 1 2020 to Dec 31 2020 for EEA30 commercial mortgage backed securities rated by the Big 5 CRAs (DBRS, Fitch, Moody's, Scope, S&P), SD – selective default, D – default, NEW – rating first issued in 2020, WD (D) – withdrawn rating preceded by a default, WD (no D) – withdrawn rating not preceded by a default. A blank row signifies that there were no ratings with that rating at the beginning of the period.

Sources: RADAR, ESMA.

<sup>16</sup> It was primarily Ukrainian and Russian debt that were subject to downgrades in 2022 following the invasion. See

CMBS were especially vulnerable, given the difficulties faced by corporate sectors with premises that were not usable during lockdowns. The 2020 transition matrix shows a **significant impact** among CMBS, with downgrades across all but the highest investment grade ratings. The transition matrix also shows high levels of withdrawals in 2020 for CMBS across rating categories, much higher levels than in 2021 and 2022 (MR-CR-S.226-27). In addition, it also shows that for CCC and C rated CMBS a substantial share of the rating withdrawals were preceded by a default.

In contrast, **ABS, CDOs and RMBS** show little systematic ratings impact (MR-CR-S.220-25, MR-CR-S.229-31). Nonetheless, CDOs show particularly substantial rating withdrawals during 2021. In this case, these were replaced by new ratings, reflective of the high levels of CLO reissuance activity in 2021.<sup>17</sup>

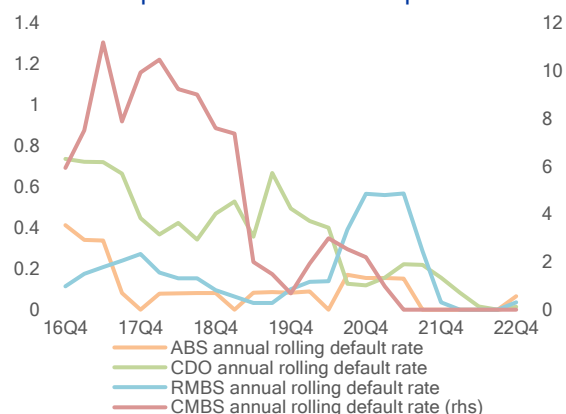
**Defaults** are another very important indicator. They are arguably the most direct measure of credit risk, reflecting realised credit deterioration. The chart below, for example, shows the rolling yearly default rates for EEA30-issued structured finance products (MR-CR.9). It also shows a **peak in defaults** for CMBS, ABS and RMBS early in 2020, around the start or shortly after the start of the pandemic, with the peak particularly marked for RMBS. However, for CDOs the peak

is lower and comes later, reflecting the credit performance of European CLOs – which account for most CDOs – being better than some had anticipated at the beginning of the pandemic.

MR-CR.9

Structured finance default rates

**COVID-19 peaks in defaults except for CDOs**



Note: Number of defaults in previous four quarters as a proportion of outstanding ratings a year earlier for EEA30 long term structured finance ratings in percent.  
Sources: RADAR, ESMA.

Interestingly, the chart also shows the consistently weaker credit quality of CMBS on average, shown by the substantively higher default rate relative to other products throughout the time series. There is also **no sign of defaults** related to the Russian invasion in 2022, as is the case also for corporates and sovereigns (MR-CR-S.47).

<sup>17</sup> Fitch Ratings, [‘European CLO Index - End of January Market Update’](#), 10 Feb 2022.

# Statistical methods



# Data and methodology

## Summary

The rich credit ratings dataset reported by CRAs to ESMA enables a wide range of statistics and charts to be constructed. This section provides an overview of the content of the data submitted by CRAs to ESMA under CRAR and briefly describes the analytics and methods used to develop the indicators used in this report.

## Introduction

This report is based on the data submitted to ESMA by CRAs on credit rating actions since 2015. The indicators in this report have been developed to provide an overview of the structure and key developments in the EEA30 credit ratings market.

This report should not be considered as a substitute for other regulatory and supervisory publications, such as the dissemination of the ratings in the ESMA European Rating Platform,<sup>18</sup> the information displayed in CEREP Statistics<sup>19</sup> or analyses like the External Credit Assessment Institutions (ECAI) performed by EBA.

## Credit ratings data

CRAs ratings data covers rating actions relating to a specific issuer or financial instrument. These include rating actions issued by all registered CRAs and entities certified to issue ratings in the EEA.<sup>20</sup> The report also provides indicators for two subsets of CRAs, the Big 5 and the Big 3 CRAs respectively, based on the largest five and three CRAs in our data.<sup>21</sup> These provide information on structure and concentration of the CRA market.

The indicators in this report are divided into categories that serve different purposes. **Outstanding ratings** display the number of ratings at the end of each quarter, informative on market size and concentration. The **number of CRAs** indicators provide information on CRAs active in rating EEA30 debt and on concentration. **Rating**

**actions** charts provide information on new and withdrawn ratings, and on rating status, based on the data directly submitted by CRAs to ESMA. **Credit risk** indicators aggregate ratings data to inform on credit risk. Finally, **rating accuracy** metrics present patterns of defaults, upgrades, and downgrades by rating categories.

MR-CR.10

Rating mapping for long term ratings<sup>22</sup>

Assigning generic ratings to Big 5 CRA ratings

	General	DBRS	Fitch	Moody's	Scope	S&P
Investment grade	AAA	AAA	AAA	Aaa	AAA	AAA
	AA	AA	AA	Aa	AA	AA
	A	A	A	A	A	A
	BBB	BBB	BBB	Baa	BBB	BBB
High yield	BB	BB	BB	Ba*	BB	BB
	B	B	B	B*	B	B
	CCC	CCC	CCC	Caa*	CCC	CCC
	CC	CC	CC	Ca*	CC	CC
	C	C	C	C*	C	C
Default	SD/D	D	D, RD	D-PD	D	D, SD, R

Note: This table applies a general rating category according to the specific rating categories of the 5 largest CRAs. Rows in white (AAA to BBB) are investment grade, pale grey are high-yield (BB to C) and dark grey (SD/D) are considered as being in default. \* Moody's can also suffix high-yield ratings with '-PD' to indicate these are at substantial risk of default. Here the generic default category (SD/D) is only applied to a Moody's rating where that rating is flagged as in default or it is rated 'D-PD', otherwise it is assigned the generic category that corresponds with rating label without the '-PD' suffix.

Source: RADAR, ECAI, ESMA.

In order to aggregate credit risk across CRAs, we also construct a generic rating map for the Big 5 CRAs for ratings with a long-term horizon (MR-CR.10). This map is similar to mappings in the

<sup>18</sup> See ESMA European Rating Platform in [ESMA Website section on Registers and Data](#).

<sup>19</sup> See ESMA CEREP Statistics in [ESMA Website section on Registers and Data](#).

<sup>20</sup> Currently registered and certified CRAs are listed here: <https://www.esma.europa.eu/supervision/credit-rating-agencies/risk>

<sup>21</sup> The Big 3 CRAs are Fitch Ratings, Moody's Investor Service, and Standard and Poors Global Ratings. The Big 5 CRAs also include DBRS and Scope Ratings. These are identified from their numbers of outstanding EEA30

ratings in 2020-22, excluding Cerved S.P.A., which though large by this metric, is focused purely on Italian corporates and so has no substantive ratings presence in the other member states. The big 3 and 5 CRAs identified here also align with the largest CRAs listed in [ESMA's 2022 annual market share calculation](#).

<sup>22</sup> Please note that this mapping is not intended for use in comparing CRAs with each other or to assess accuracy or quality of ratings between CRAs.

public domain and is consistent with the ECAI mapping.<sup>23</sup>

## Rating actions

CRAs report their individual credit rating actions to ESMA, as required by CRAR.<sup>24</sup> <sup>25</sup> Those actions include the introduction of ratings, the withdrawal of the outstanding ratings, the actual rating category and rating notch <sup>26</sup> and the relevant default status.

In addition to the rating values and their changes, CRAs also report information with updates on rating outlooks,<sup>27</sup> including whether outlooks are positive, negative or stable; and whether they are subject to a watch/review. These are all covered under 'rating actions'.

Among the rating values, special attention is given to defaults. The default status for a rating is communicated by the CRA based on the insolvency of the firm, an on-going debt restructuring or the CRA's specific definition of default. Furthermore, it is important to note that the default status is reversible.

Information on rating values, outlooks and watches is provided through different indicators, in the section credit risk trends. Among these indicators are the distribution of the values at particular points of time, their drift or evolution across quarters and the annual changes as summarised in transition matrices.

Specific indicators are also provided for cases that describe substantive changes in the credit assessment. Those include 'fallen angels', i.e. ratings downgraded from investment grade to high-yield (see MR-CR.7) and 'rising stars' upgraded from high-yield to investment grade. Further indicators focus on the change to default

status, including rating accuracy metrics that assess how defaults are distributed among ratings and whether defaults are, as expected, increasingly concentrated in weaker ratings (see MR-CR.4).

## Further details

The statistics above are also split into further dimensions depending on the indicators and on additional information on the issuers and instruments provided by CRAs. Dimensions include the country of the issuer, the asset, and sub-asset class, the solicitation status<sup>28</sup> of the rating and the time horizon for the rating.<sup>29</sup>

In some cases, we do not present indicators where the sample size is too small to present a meaningful indicator, for example, certain sovereign watch review and default indicators, or where the rating actions are almost exclusively issued by one CRA, as is the case with structured finance outlooks.

## Data preparation

CRAs started reporting supervisory data to ESMA through the RADAR in 2016 but including relevant data after 1 July 2015. This report includes all of the data ranging back to Q4 2015.

In terms of data quality, this report benefits of the ongoing ESMA supervision, IT system validations and regular data quality checks. Therefore, this report has not required major interventions on the underlying data to solve quality issues. An important step was the consolidation of all the actions reported on the same issuer or instruments by different CRAs that are part of the same group. Thus, references to CRAs in this report should be interpreted as referring to the CRA groups.<sup>30</sup> The resulting dataset consists of

<sup>23</sup> See the External Credit Assessment Institutions (ECAI) Technical Standards, Guidelines and Recommendations available here: <https://www.eba.europa.eu/regulation-and-policy/external-credit-assessment-institutions-ecai>

<sup>24</sup> CRAR requires credit rating agencies to monitor and review their credit ratings and methodologies on an ongoing basis, at least annually, in particular where material changes occur that could have an impact on a credit rating, including changes in the macroeconomic or financial markets conditions.

<sup>25</sup> Annex I, part 2, table 2: Data about the individual credit rating actions of the [Commission Delegated Regulation \(EU\) 2015/2 of 30 September 2014 supplementing Regulation \(EC\) No 1060/2009](#).

<sup>26</sup> Rating notches refer to the more granular ratings levels e.g. AA+, where a higher notch is associated with a weaker credit rating. Thus, a rating downgrade (using Fitch or S&P rating scales) from AA+ to AA would amount to an increase in one notch, an AA+ to AA- downgrade

would be an increase of two notches, an AA+ to A+ downgrade would be an increase of three notches etc..

<sup>27</sup> According to CRAR a rating outlook is "an opinion regarding the likely direction of a credit rating over the short term, the medium term or both".

<sup>28</sup> "Unsolicited credit rating" and "unsolicited sovereign rating" mean, respectively, a credit rating or a sovereign rating assigned by a credit rating agency other than upon request as defined by Article 3 (1) (x) of the CRA Regulation.

<sup>29</sup> The detailed information on these information and their possible values is provided in Annex I, part 2, table 1: Data describing the rated entity/ instrument of the [Commission Delegated Regulation \(EU\) 2015/2 of 30 September 2014 supplementing Regulation \(EC\) No 1060/2009](#).

<sup>30</sup> This consolidation of data into groups implies that the information on number of CRA in this report is by



9.9 million consolidated rating actions, with latest actions referring to 31 December 2022.

Additional data preparation was also carried out, in particular to create regular time series indicators, given that rating actions can be issued at any time, whenever there is a material change.

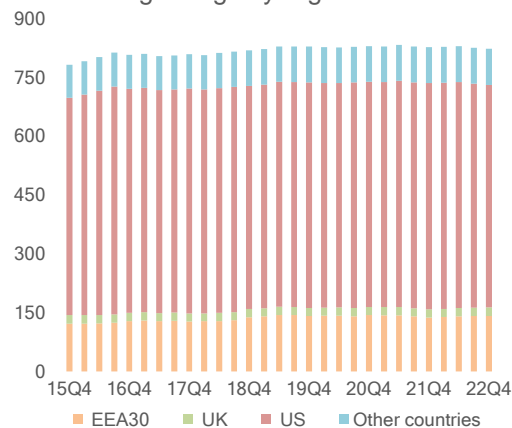
# Statistics

# Market overview

## Outstanding ratings

MR-CR-S.1

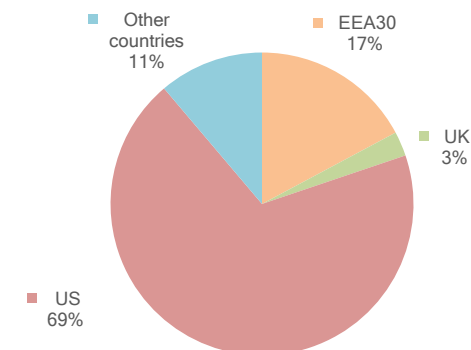
Outstanding ratings by region



Note: Total outstanding ratings in thousands split by region of the rated issuer or instrument.  
Sources: RADAR, ESMA.

MR-CR-S.2

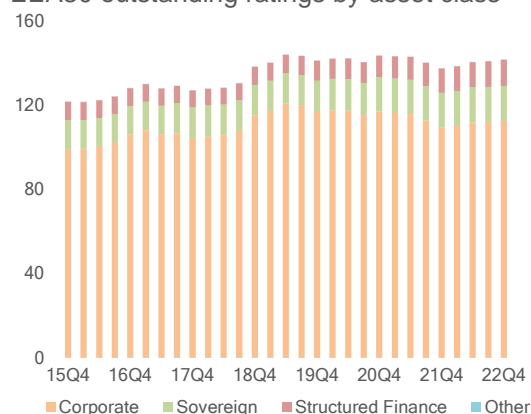
Outstanding ratings by region end 2022



Note: Proportions of total outstanding ratings by region of the rated issuer or instrument as of the end of 2022 in percent.  
Sources: RADAR, ESMA.

MR-CR-S.3

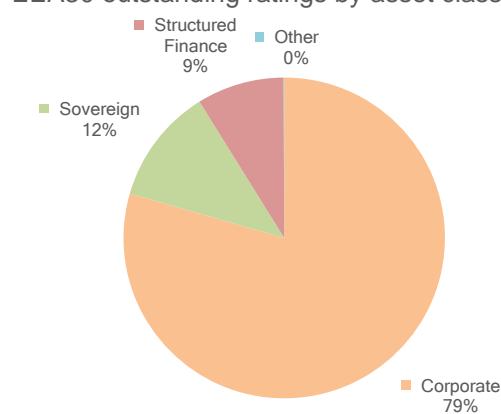
EEA30 outstanding ratings by asset class



Note: Total number of outstanding ratings for debt issued in the EEA30 in thousands by asset class.  
Sources: RADAR, ESMA.

MR-CR-S.4

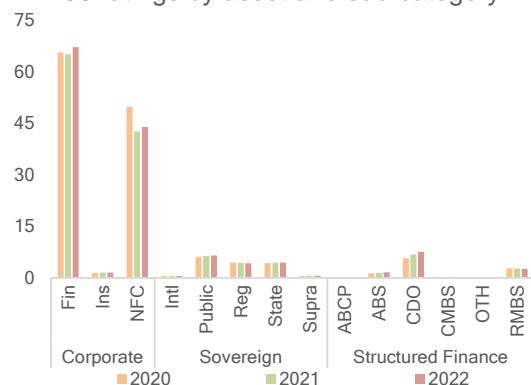
EEA30 outstanding ratings by asset class



Note: Proportions of total ratings outstanding for debt issued in the EEA30 by asset class at the end of 2022 in percent.  
Sources: RADAR, ESMA.

MR-CR-S.5

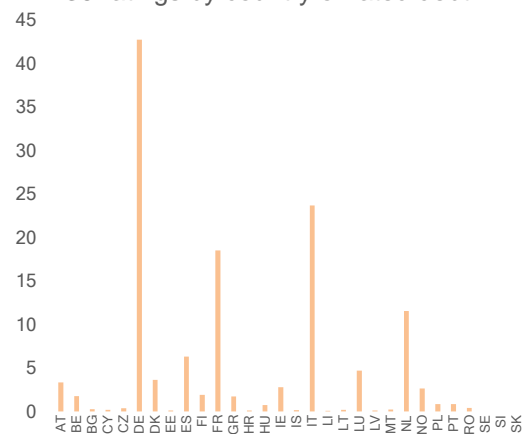
EEA30 ratings by asset and sub-category



Note: Number of outstanding ratings for debt issued in the EEA30 in thousands by asset class and sub-type at the ends of 2020 and 2021. Fin - financial, Ins - Insurance, NFC - non financial corporates, Intl - international, Reg - regional, Supra - supranational, OTH - other structured finance ratings.  
Sources: RADAR, ESMA.

MR-CR-S.6

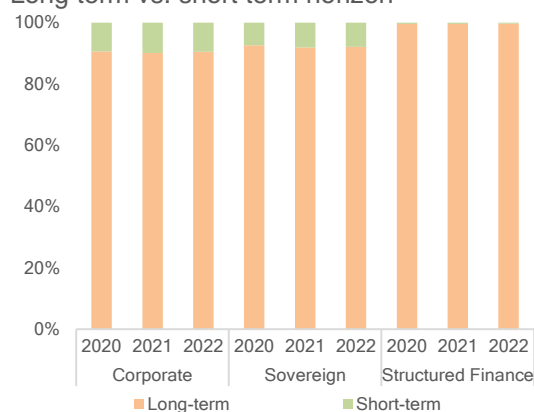
EEA30 ratings by country of rated debt



Note: Total number of outstanding ratings in EEA30 in thousands by member state of debt issuance as of the end of 2022.  
Sources: RADAR, ESMA.

MR-CR-S.7

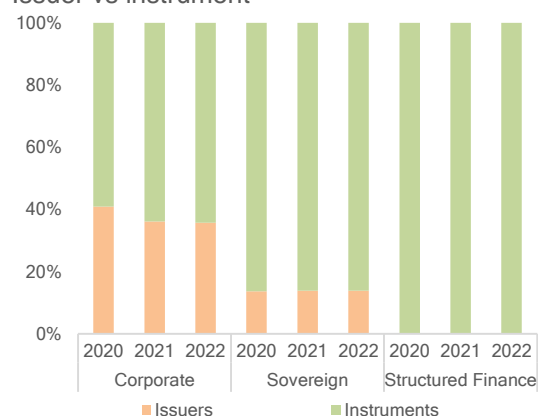
## Long term vs. short term horizon



Note: Proportions of outstanding ratings of EEA30-issued debt by horizon by asset class, at the ends of 2020, 2021 and 2022 in percent.  
Sources: RADAR, ESMA.

MR-CR-S.8

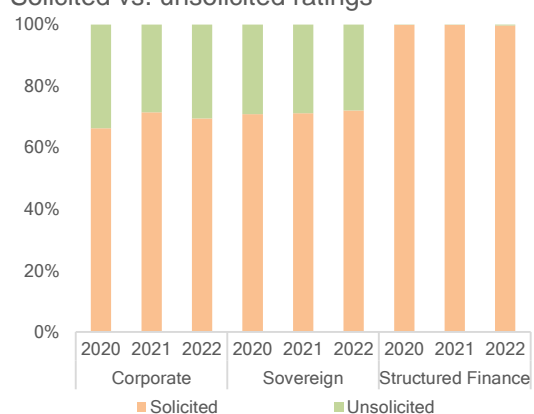
## Issuer vs instrument



Note: Proportions of outstanding ratings of EEA30-issued debt by solicitation status, by asset class, at the ends of 2020, 2021 and 2022 in percent.  
Sources: RADAR, ESMA.

MR-CR-S.9

## Solicited vs. unsolicited ratings



Note: Proportions of outstanding ratings of EEA30-issued debt by solicitation status, by asset class, at the ends of 2020, 2021 and 2022 in percent.  
Sources: RADAR, ESMA.

MR-CR-S.10

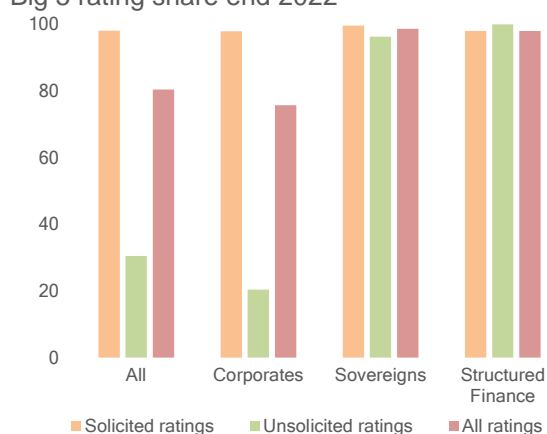
## Big 3 rating share end 2022



Note: Share of ratings held by the Big 3 CRAs as of the end of 2022 (Fitch Ratings, Moody's Investors, Standard and Poors) in percent.  
Sources: ESMA, RADAR.

MR-CR-S.11

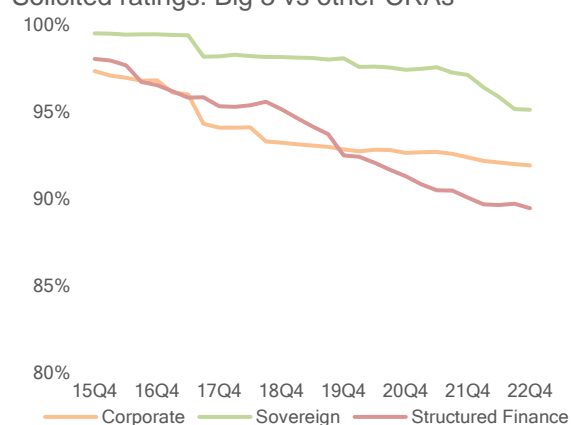
## Big 5 rating share end 2022



Note: Share of ratings held by the Big 5 CRAs as of the end of 2022 (DBRS, Fitch Ratings, Moody's Investors, Scope, and Standard and Poors) in percent.  
Sources: ESMA, RADAR.

MR-CR-S.12

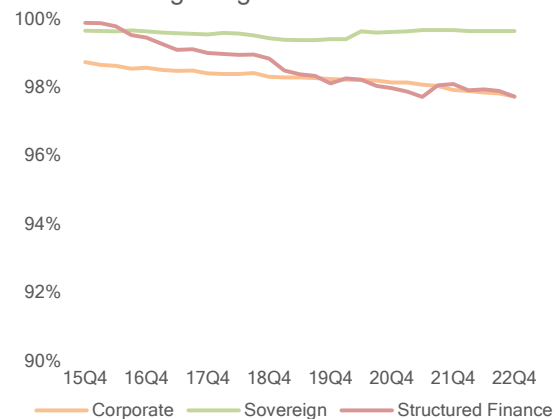
## Solicited ratings: Big 3 vs other CRAs



Note: Share of outstanding solicited ratings for EEA30 issued debt issued by the Big 3 CRAs (Fitch Ratings Ltd, Moody's Investors Service and Standard and Poors Ltd) by asset class.  
Sources: RADAR, ESMA.

## MR-CR-S.13

## Solicited ratings: Big 5 vs other CRAs

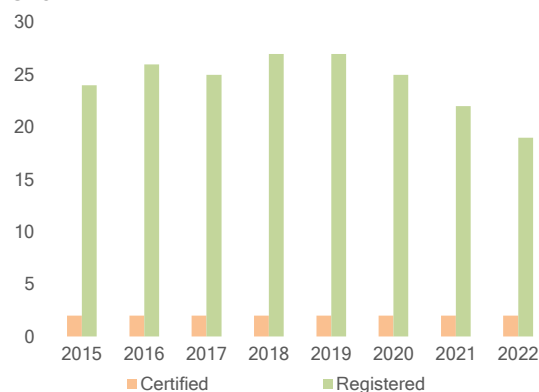


Note: Share of outstanding solicited ratings for EEA30-issued debt, issued by the Big 5 CRAs (DBRS, Fitch, Moody's, S&P and Scope) by asset class. Sources: RADAR, ESMA.

## Number of CRAs reporting

## MR-CR-S.14

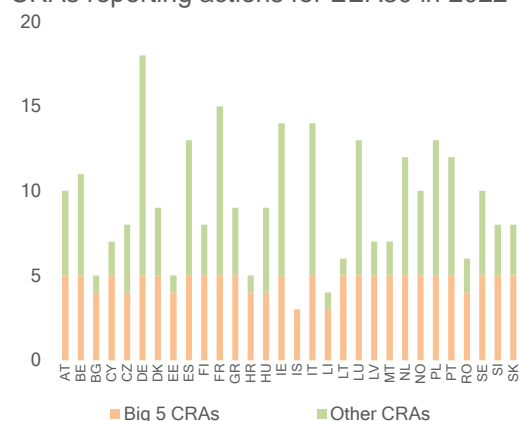
## CRAs with outstanding EEA30 ratings at year end



Note: Number of CRAs with a live EEA30 rating in RADAR at the end of each year, split by registered (group has an EU office) and certified (group is based outside EU) CRAs. Where a CRA group has both a registered and a certified entry the CRA is counted as registered. Sources: RADAR, ESMA.

## MR-CR-S.16

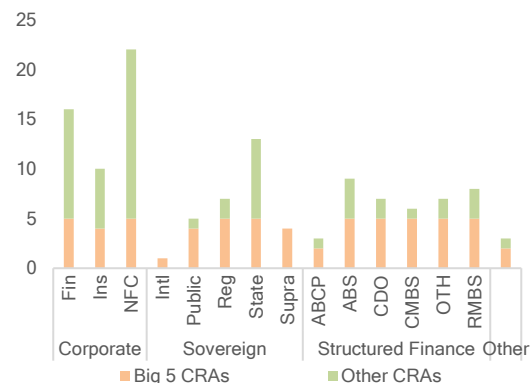
## CRAs reporting actions for EEA30 in 2022



Note: Number of Big 5 CRAs (DBRS, Fitch, Moody's, Scope and S&P) and other CRAs reporting actions for EEA30 issuers or instruments in 2022. Sources: RADAR, ESMA.

## MR-CR-S.15

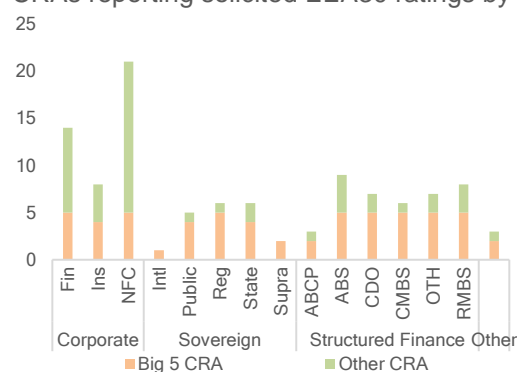
## CRAs reporting in 2022 for EEA30 debt by asset



Note: Number of Big 5 CRAs (DBRS, Fitch, Moody's, Scope and S&P) and other CRAs reporting actions for different asset classes of EEA30 debt in 2022. Fin - Financial, Ins - Insurance, NFC - Non-financials, Intl - International, Reg - Regional, Supra - Supranational, OTH - other structured finance products. Sources: RADAR, ESMA.

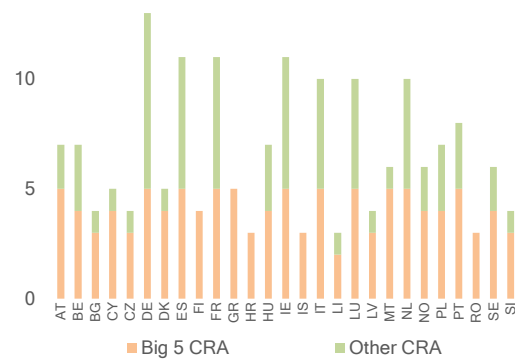
## MR-CR-S.17

## CRAs reporting solicited EEA30 ratings by asset



Note: Number of Big 5 CRAs (DBRS, Fitch, Moody's, Scope and S&P) and other CRAs reporting actions for different asset class of EEA30 debt in 2022 for solicited ratings. Fin - Financial, Ins - Insurance, NFC - Non-financials, Intl - International, Reg - Regional, Supra - Supranational, OTH - other structured finance products. Sources: RADAR, ESMA.

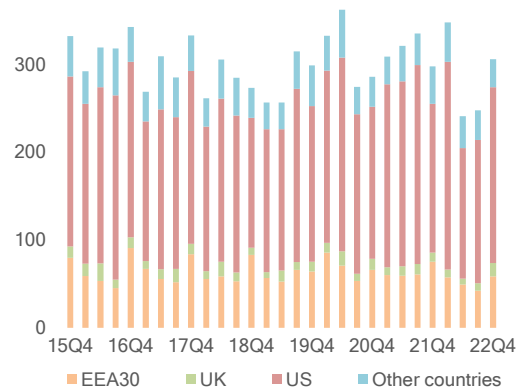
## MR-CR-S.18

CRAs reporting solicited ratings by EEA30 state  
15

Note: Number of Big 5 CRAs (DBRS, Fitch, Moody's, Scope and S&P) and other CRAs reporting actions for solicited ratings for EEA30 issuers or instruments, by member state in 2022.  
Sources: RADAR, ESMA.

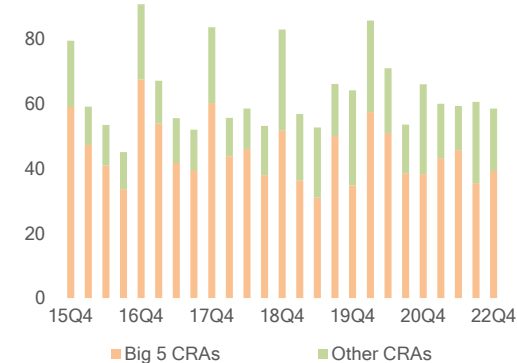
## Rating action trends

## MR-CR-S.19

Reported actions by region by year  
400

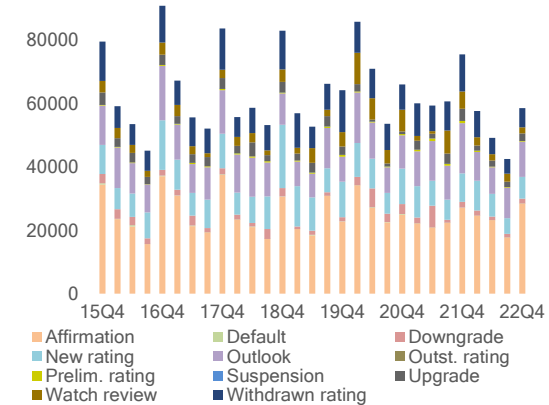
Note: Number of rating actions reported by region/country of debt issuance per quarter in thousands.  
Sources: RADAR, ESMA.

## MR-CR-S.21

Reported actions for Big 5 CRAs vs others  
100

Note: Number of rating actions for EEA30 issued debt reported per quarter by Big 5 CRAs (DBRS, Fitch, Moody's, Scope and S&P) and other CRAs in thousands.  
Sources: RADAR, ESMA.

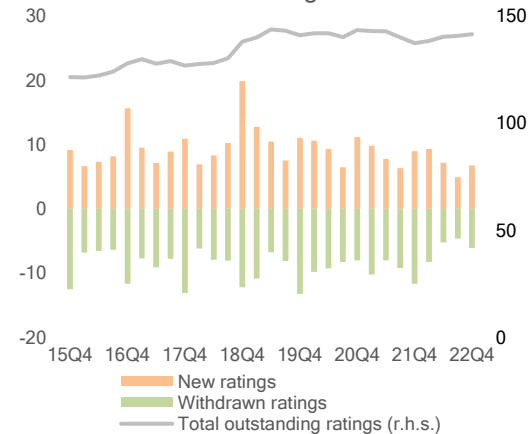
## MR-CR-S.20

Reported actions for EEA30 issuers by type  
100000

Note: Number of rating actions for EEA30 issued debt by action type.  
Sources: RADAR, ESMA.

## MR-CR-S.22

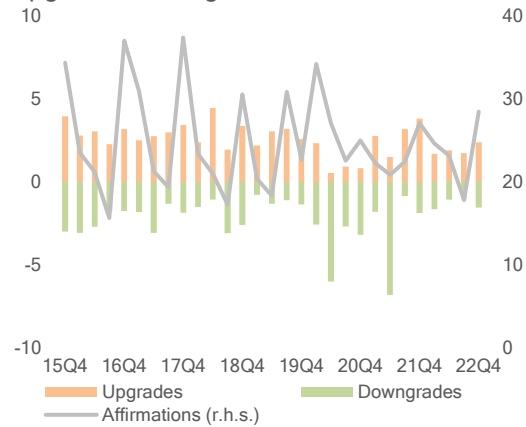
## New and withdrawn ratings



Note: Quarterly number of new ratings, withdrawn ratings and total ratings outstanding for EEA30 issued debt in thousands.  
Sources: RADAR, ESMA.

MR-CR-S.23

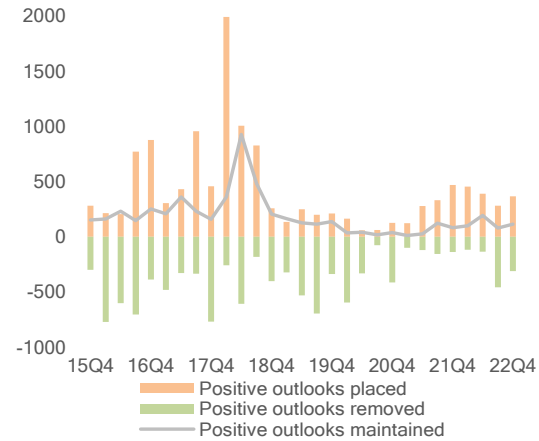
## Upgrades, downgrades and affirmations



Note: Quarterly number of upgrades, downgrades and affirmations for EEA30 issued debt in thousands. Downgrades multiplied by -1.  
Sources: RADAR, ESMA

MR-CR-S.24

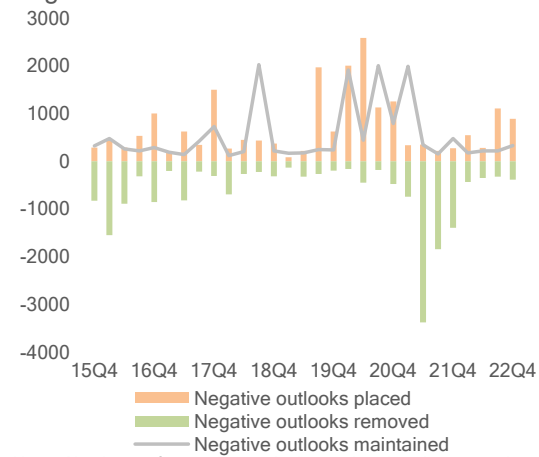
## Positive outlook trend actions



Note: Numbers of positive outlook trends placed, removed and maintained for EEA30 issued debt.  
Sources: RADAR, ESMA.

MR-CR-S.25

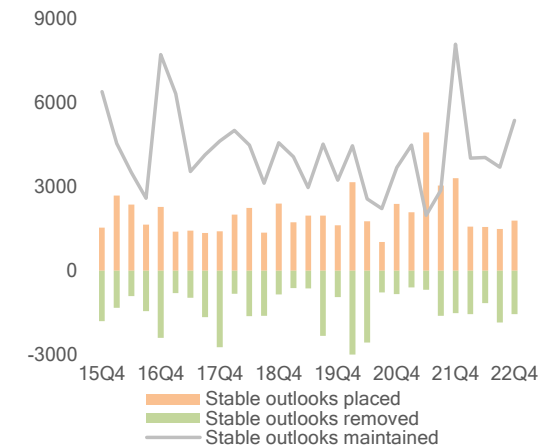
## Negative outlook trend actions



Note: Numbers of negative outlook trends placed, removed and maintained for EEA30 issued debt.  
Sources: RADAR, ESMA.

MR-CR-S.26

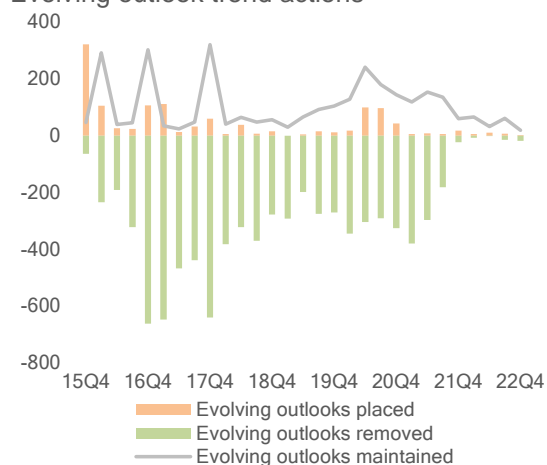
## Stable outlook trend actions



Note: Numbers of stable outlook trends placed, removed and maintained for EEA30 issued debt.  
Sources: RADAR, ESMA.

MR-CR-S.27

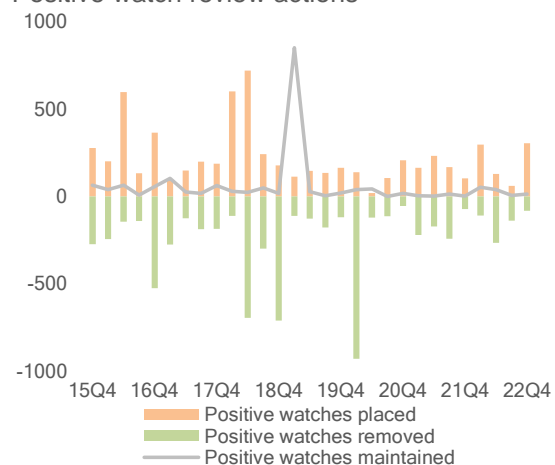
## Evolving outlook trend actions



Note: Numbers of evolving outlook trends placed, removed and maintained for EEA30 issued debt.  
Sources: RADAR, ESMA.

MR-CR-S.28

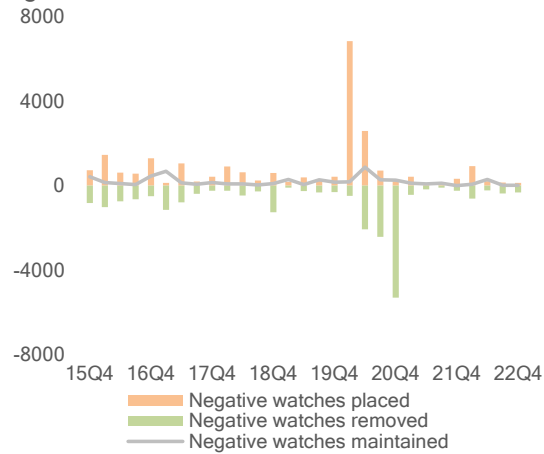
## Positive watch review actions



Note: Numbers of positive watch reviews placed, removed and maintained for EEA30 issued debt.  
Sources: RADAR, ESMA.

MR-CR-S.29

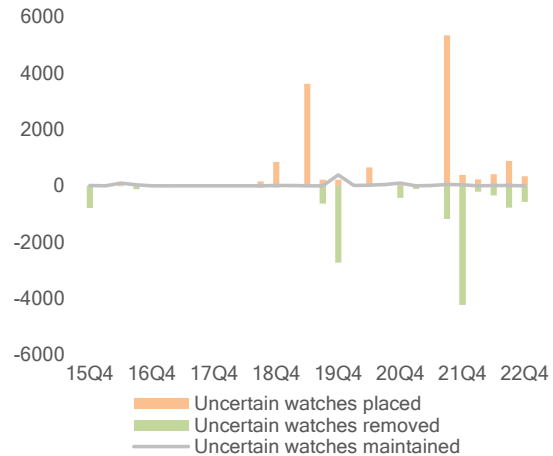
## Negative watch review actions



Note: Numbers of negative watch reviews placed, removed and maintained for EEA30 issued debt.  
Sources: RADAR, ESMA.

MR-CR-S.30

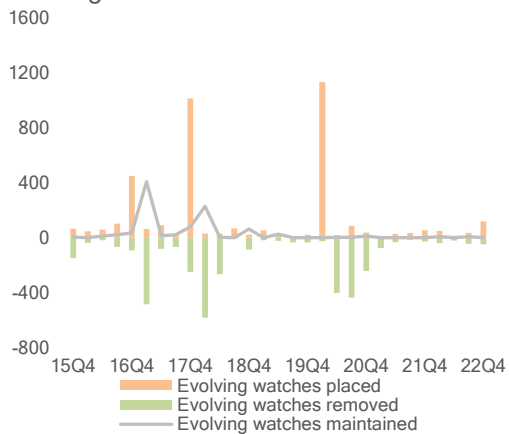
## Uncertain watch review actions



Note: Numbers of uncertain watch reviews placed, removed and maintained for EEA30 issued debt.  
Sources: RADAR, ESMA.

MR-CR-S.31

## Evolving watch review actions

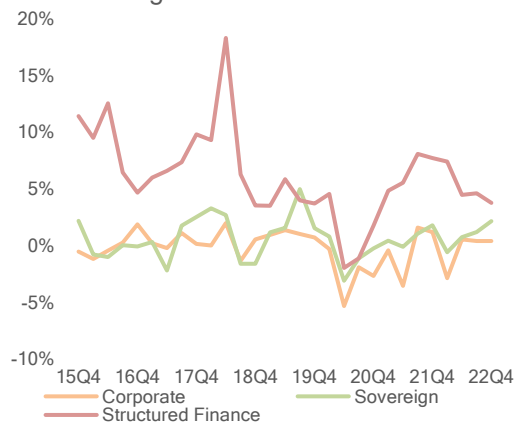


Note: Numbers of evolving watch reviews placed, removed and maintained for EEA30 issued debt.  
Sources: RADAR, ESMA.

## Credit risk trends

MR-CR-S.32

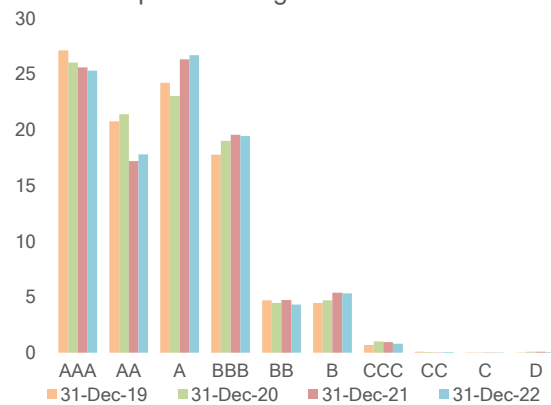
## EEA30 ratings drift



Note: Quarterly ratings drift (net total notch changes as a proportion of outstanding ratings) for EEA30 long term horizon ratings.  
Sources: RADAR, ESMA.

MR-CR-S.33

## EEA30 corporate ratings distribution

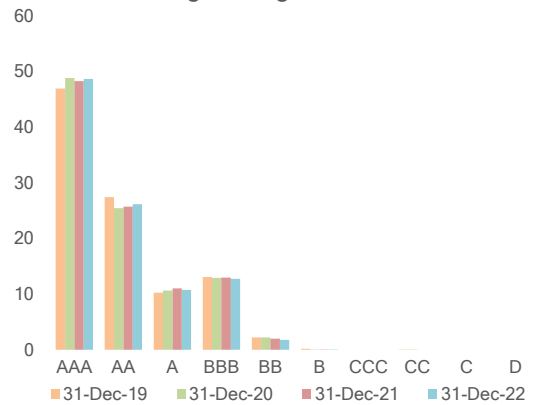


Note: Proportions of ratings in percent for long term EEA30 corporate ratings rated by the Big 5 CRAs (Fitch ratings, Moody's, S&P, Scope, DBRS) at the end of 2019, 2020, 2021 and 2022.  
Sources: RADAR, ESMA.



MR-CR-S.34

## EEA30 sovereign ratings distribution

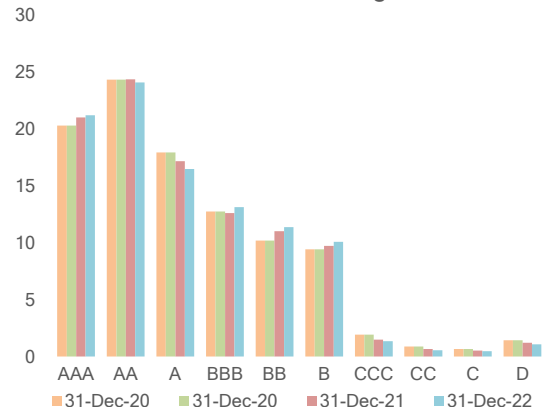


Note: Proportions of ratings in percent for long term EEA30 sovereign ratings rated by the Big 5 CRAs (Fitch ratings, Moody's, S&P, Scope, DBRS) at the end of 2019, 2020, 2021 and 2022.

Sources: RADAR, ESMA.

MR-CR-S.35

## EEA30 structured finance ratings distribution

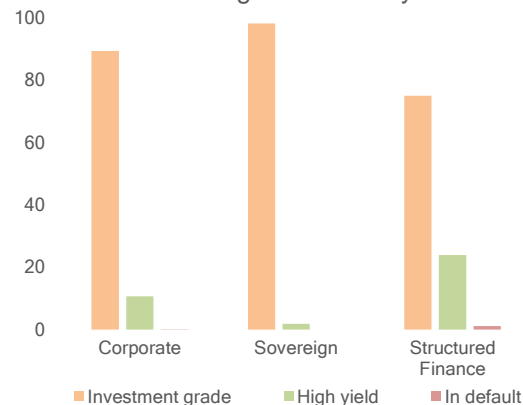


Note: Proportions of ratings in percent for long term EEA30 structured finance ratings rated by the Big 5 CRAs (Fitch ratings, Moody's, S&P, Scope, DBRS) at the end of 2019, 2020, 2021 and 2022.

Sources: RADAR, ESMA.

MR-CR-S.36

## EEA30 investment grade share by asset class

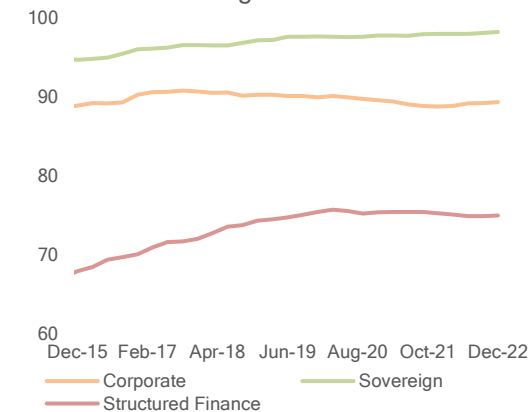


Note: Proportions of ratings in investment grade, high yield and in default by asset class for EEA30 long-term ratings issued by Big 5 CRAs (Fitch ratings, Moody's, S&P, Scope, DBRS) as of 31 December 2022, in percent.

Sources: RADAR, ESMA.

MR-CR-S.37

## EEA30 investment grade share over time

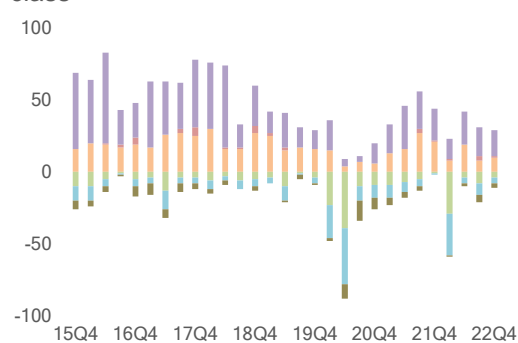


Note: Percentage of EEA30 outstanding ratings issued by the Big 5 CRAs (DBRS, Fitch, Moody's, Scope, S&P) that are investment grade by asset class.

Sources: RADAR, ESMA.

MR-CR-S.38

## EEA30 rising stars and fallen angels by asset class

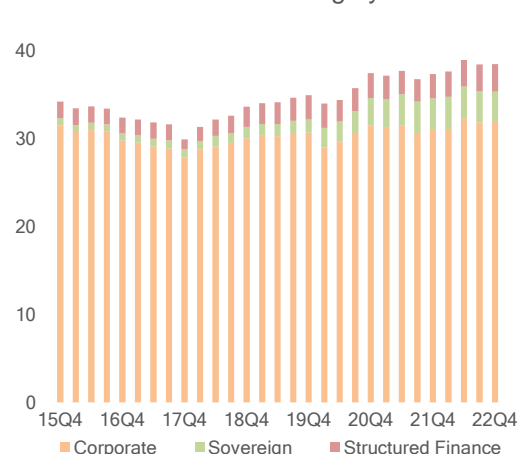


Note: Number of EEA30 issuers (at group-level) with a rising star (upgrades to investment grade) or fallen angel (downgrades to high yield) among their debt with a long term rating issued by the Big 5 CRAs (DBRS, Fitch, Moody's, Scope and S&P) by asset class per quarter.

Sources: RADAR, ESMA.

MR-CR-S.39

## EEA30 outlooks outstanding by asset class

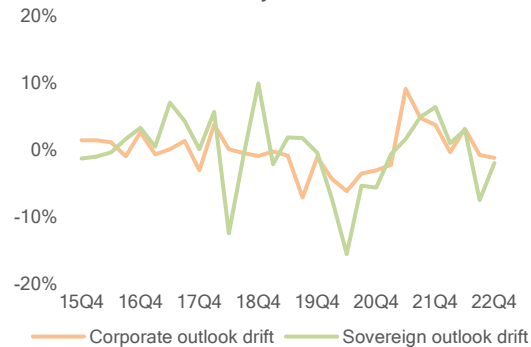


Note: EEA30 long term ratings with outlooks at quarter end by asset class in thousands.

Sources: RADAR, ESMA.

MR-CR-S.40

## EEA30 outlook drift by asset class

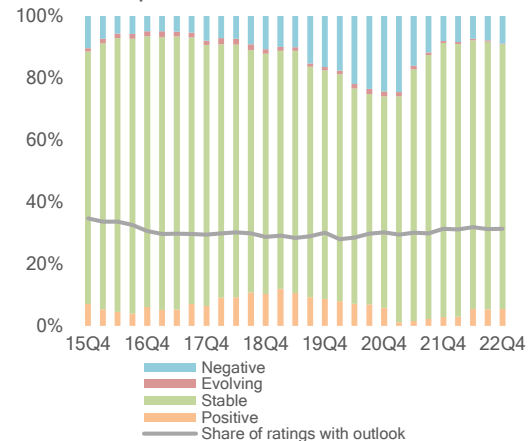


Note: EEA30 quarterly outlook drift for long term ratings in percent (net changes in outlooks in quarter (excluding where upgrade or downgrade in opposite direction to outlook change took place) divided by number of outstanding outlooks at start of quarter) by debt category. Structured finance outlook omitted because one CRA issues almost all structured finance outlooks.

Sources: RADAR, ESMA.

MR-CR-S.41

## EEA30 corporate outlooks over time

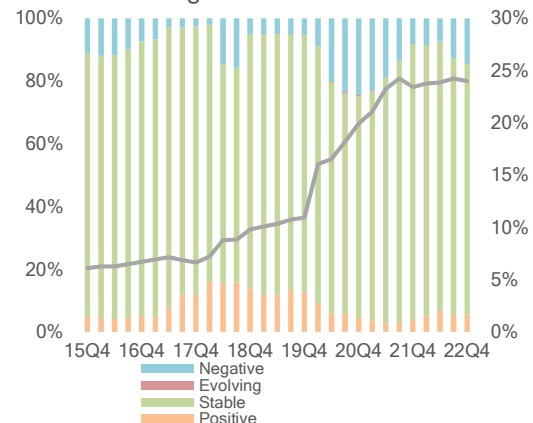


Note: Share of outlooks outstanding on long term EEA30 corporate ratings, and total number of outstanding outlooks in thousands.

Sources: RADAR, ESMA.

MR-CR-S.42

## EEA30 sovereign outlooks over time

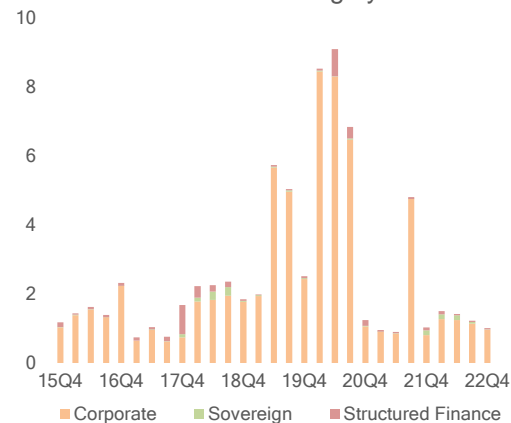


Note: Share of outlooks outstanding on long term EEA30 sovereign ratings, and total number of outstanding outlooks in thousands.

Sources: RADAR, ESMA.

MR-CR-S.43

## EEA30 watches outstanding by asset class

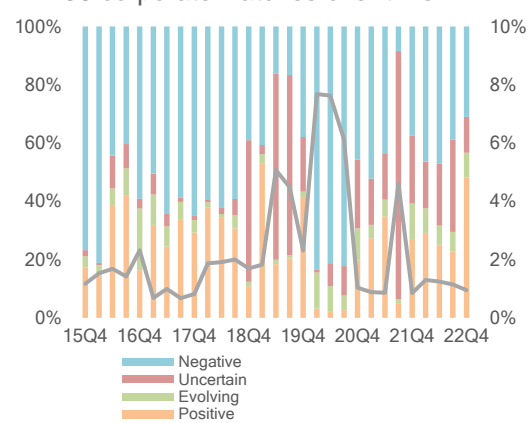


Note: EEA30 long term ratings with watches at quarter end by asset class in thousands.

Sources: RADAR, ESMA.

MR-CR-S.44

## EEA30 corporate watches over time

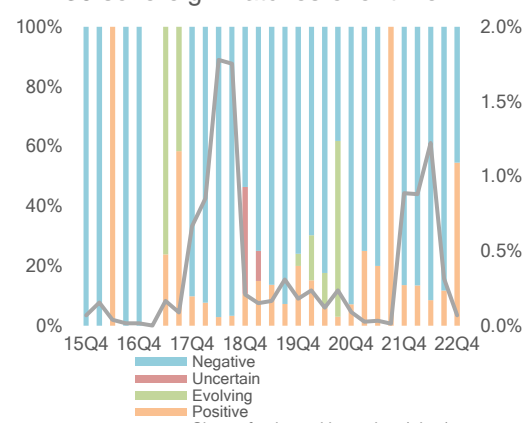


Note: Share of watches outstanding on long term EEA30 corporate ratings, and total number of outstanding outlooks in thousands.

Sources: RADAR, ESMA.

MR-CR-S.45

## EEA30 sovereign watches over time

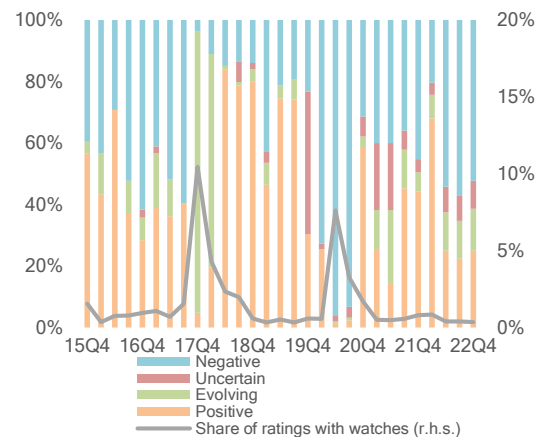


Note: Share of watches outstanding on long term EEA30 sovereign ratings, and total number of outstanding outlooks in thousands.

Sources: RADAR, ESMA.

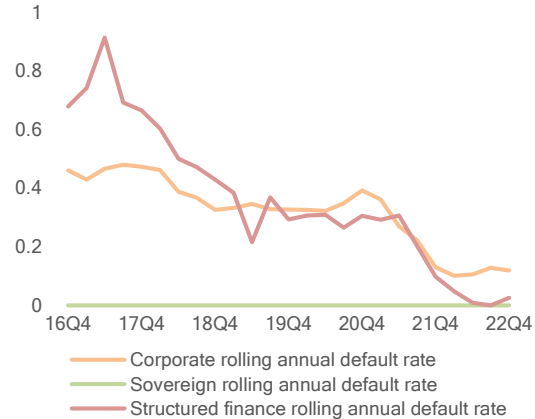
MR-CR-S.46

## EEA30 structured finance watches over time



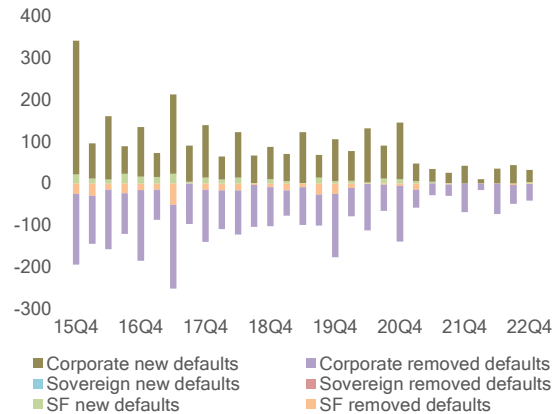
MR-CR-S.47

## EEA30 rolling annual default rates by asset class



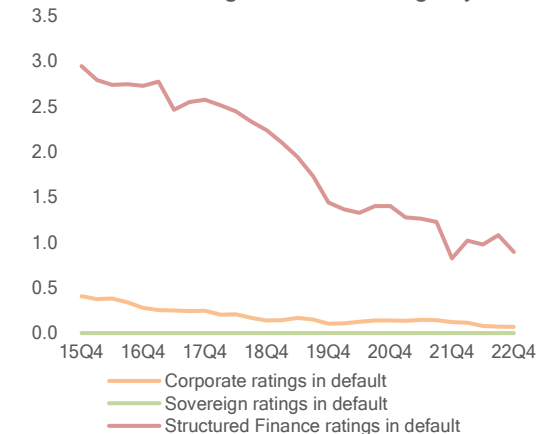
MR-CR-S.48

## EEA30 New and removed defaults



MR-CR-S.49

## EEA30 outstanding defaulted ratings by asset class



## Rating accuracy metrics

MR-CR-S.50

## EEA30 corporates transition matrix 2022

	AAA	AA	A	BBB	BB	B	CCC	CC	C	SD/D	WD(D)	WD(no D)
NEW	20.0%	20.0%	29.4%	18.8%	2.8%	6.2%	0.6%	0.0%	0.0%	0.0%	0.0%	2.2%
AAA	90.3%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	9.7%
AA	0.0%	88.0%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	11.6%
A	0.0%	1.1%	86.6%	1.3%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	11.0%
BBB	0.0%	0.2%	1.9%	85.7%	0.3%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	12.0%
BB	0.0%	0.0%	0.0%	4.1%	78.7%	3.8%	0.1%	0.2%	0.1%	0.1%	0.0%	12.9%
B	0.0%	0.0%	0.0%	0.0%	4.8%	79.2%	2.9%	0.3%	0.2%	0.3%	0.2%	12.1%
CCC	0.0%	0.0%	0.0%	0.0%	0.0%	15.6%	63.1%	1.6%	0.1%	0.6%	1.9%	17.2%
CC	0.0%	0.0%	0.0%	0.0%	0.0%	3.0%	36.4%	0.0%	0.0%	3.0%	12.1%	42.4%
C	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	89.7%	0.0%	3.4%	6.9%
SD/D	0.0%	0.0%	0.0%	0.0%	0.0%	8.7%	0.0%	0.0%	0.0%	49.3%	0.0%	42.0%

Note: Rating transition matrix from Jan 1 2022 to Dec 31 2022 for EEA30 issuer and instrument corporate ratings by the Big 5 CRAs (DBRS, Fitch, Moody's, Scope, S&P). SD – selective default, D – default, NEW – rating first issued in 2022, WD (D) – withdrawn rating preceded by a default, WD (no D) – withdrawn rating not preceded by a default. A blank row signifies that there were no ratings with that rating at the beginning of the period.  
Sources: RADAR, ESMA.

## MR-CR-S.51

## EEA30 corporates transition matrix 2021

	AAA	AA	A	BBB	BB	B	CCC	CC	C	SD/D	WD(D)	WD(no D)
NEW	17.5%	12.7%	21.9%	24.5%	7.4%	13.1%	1.3%	0.0%	0.0%	0.0%	0.0%	1.5%
AAA	90.2%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	9.8%
AA	0.6%	73.0%	15.7%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	10.7%
A	0.0%	0.4%	85.4%	2.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	12.0%
BBB	0.0%	0.0%	3.7%	82.9%	0.6%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	12.8%
BB	0.0%	0.0%	0.2%	7.0%	78.3%	1.5%	0.0%	0.0%	0.0%	0.0%	0.0%	13.0%
B	0.0%	0.0%	0.0%	0.0%	4.1%	75.7%	1.4%	0.2%	0.0%	0.3%	0.0%	18.4%
CCC	0.0%	0.0%	0.0%	0.0%	0.1%	9.7%	68.8%	0.7%	0.3%	1.2%	1.1%	18.1%
CC	0.0%	0.0%	0.0%	0.0%	0.0%	3.8%	23.1%	36.5%	0.0%	5.8%	13.5%	17.3%
C	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	5.3%	0.0%	71.1%	0.0%	5.3%	18.4%
SD/D	0.0%	0.0%	0.0%	0.0%	1.3%	0.0%	8.0%	1.3%	0.0%	61.3%	0.0%	28.0%

Note: Rating transition matrix from Jan 1 2021 to Dec 31 2021 for EEA30 issuer and instrument corporate ratings by the Big 5 CRAs (DBRS, Fitch, Moody's, Scope, S&P), SD – selective default, D – default, NEW – rating first issued in 2021 WD (D) – withdrawn rating preceded by a default, WD (no D) – withdrawn rating not preceded by a default. A blank row signifies that there were no ratings with that rating at the beginning of the period.  
Sources: RADAR, ESMA.

## MR-CR-S.52

## EEA30 corporates transition matrix 2020

	AAA	AA	A	BBB	BB	B	CCC	CC	C	SD/D	WD(D)	WD(no D)
NEW	17.8%	20.5%	22.4%	22.8%	5.4%	7.8%	1.4%	0.0%	0.0%	0.0%	0.0%	2.0%
AAA	88.1%	0.6%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	11.3%
AA	0.0%	87.3%	1.5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	11.2%
A	0.0%	2.4%	80.7%	4.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	12.8%
BBB	0.0%	0.0%	2.2%	82.7%	2.8%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	12.2%
BB	0.0%	0.0%	0.0%	9.8%	68.7%	5.6%	0.7%	0.1%	0.0%	0.2%	0.2%	14.8%
B	0.0%	0.0%	0.0%	0.0%	1.2%	75.9%	9.1%	0.6%	0.1%	0.8%	1.3%	11.0%
CCC	0.0%	0.0%	0.0%	0.0%	0.2%	2.4%	57.5%	2.8%	0.4%	4.3%	11.4%	20.9%
CC	0.0%	0.0%	0.0%	0.0%	0.0%	4.9%	4.9%	19.7%	6.6%	8.2%	34.4%	21.3%
C	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	5.6%	0.0%	77.8%	2.8%	2.8%	11.1%
SD/D	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	48.4%	0.0%	51.6%

Note: Rating transition matrix from Jan 1 2020 to Dec 31 2020 for EEA30 issuer and instrument corporates ratings by the Big 5 CRAs (DBRS, Fitch, Moody's, Scope, S&P), SD – selective default, D – default, NR, NEW – rating first issued in 2020, WD (D) – withdrawn rating preceded by a default, WD (no D) – withdrawn rating not preceded by a default. A blank row signifies that there were no ratings with that rating at the beginning of the period.  
Sources: RADAR, ESMA.

## MR-CR-S.53

## EEA30 sovereigns transition matrix 2022

	AAA	AA	A	BBB	BB	B	CCC	CC	C	SD/D	WD(D)	WD(no D)
NEW	53.4%	24.8%	8.7%	11.8%	0.7%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.6%
AAA	90.8%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	9.2%
AA	0.0%	90.7%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	9.3%
A	0.0%	4.8%	86.3%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	8.5%
BBB	0.0%	0.0%	3.3%	88.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	8.7%
BB	0.0%	0.0%	0.0%	9.3%	86.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	4.7%
B	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
CCC	—	—	—	—	—	—	—	—	—	—	—	—
CC	—	—	—	—	—	—	—	—	—	—	—	—
C	—	—	—	—	—	—	—	—	—	—	—	—
SD/D	—	—	—	—	—	—	—	—	—	—	—	—

Note: Rating transition matrix from Jan 1 2022 to Dec 31 2022 for EEA30 issuer and instrument sovereign ratings by the Big 5 CRAs (DBRS, Fitch, Moody's, Scope, S&P), SD – selective default, D – default, NEW – rating first issued in 2022, WD (D) – withdrawn rating preceded by a default, WD (no D) – withdrawn rating not preceded by a default. A blank row signifies that there were no ratings with that rating at the beginning of the period.  
Sources: RADAR, ESMA.

MR-CR-S.54

## EEA30 sovereigns transition matrix 2021

	AAA	AA	A	BBB	BB	B	CCC	CC	C	SD/D	WD(D)	WD(no D)
NEW	46.1%	24.7%	14.6%	12.9%	1.3%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.5%
AAA	90.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	10.0%
AA	0.0%	90.9%	0.2%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	8.9%
A	0.0%	3.2%	87.2%	0.3%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	9.4%
BBB	0.0%	0.0%	2.3%	89.6%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	8.1%
BB	0.0%	0.0%	0.0%	8.2%	85.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	6.4%
B	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
CCC	—	—	—	—	—	—	—	—	—	—	—	—
CC	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%
C	—	—	—	—	—	—	—	—	—	—	—	—
SD/D	—	—	—	—	—	—	—	—	—	—	—	—

Note: Rating transition matrix from Jan 1 2021 to Dec 31 2021 for EEA30 issuer and instrument sovereigns ratings by the Big 5 CRAs (DBRS, Fitch, Moody's, Scope, S&P), SD – selective default, D – default, NEW – rating first issued in 2021, WD (D) – withdrawn rating preceded by a default, WD (no D) – withdrawn rating not preceded by a default. A blank row signifies that there were no ratings with that rating at the beginning of the period.

Sources: RADAR, ESMA.

MR-CR-S.55

## EEA30 sovereigns transition matrix 2020

	AAA	AA	A	BBB	BB	B	CCC	CC	C	SD/D	WD(D)	WD(no D)
NEW	58.0%	18.0%	8.9%	12.5%	0.7%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	2.0%
AAA	88.9%	0.6%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	10.5%
AA	0.0%	87.0%	2.2%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	10.8%
A	0.0%	0.8%	88.5%	1.9%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	8.8%
BBB	0.0%	0.0%	1.4%	87.6%	0.8%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	10.2%
BB	0.0%	0.0%	0.0%	0.0%	92.3%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	7.7%
B	0.0%	0.0%	0.0%	0.0%	80.0%	20.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
CCC	—	—	—	—	—	—	—	—	—	—	—	—
CC	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%
C	—	—	—	—	—	—	—	—	—	—	—	—
SD/D	—	—	—	—	—	—	—	—	—	—	—	—

Note: Rating transition matrix from Jan 1 2020 to Dec 31 2020 for EEA30 issuer and instrument sovereigns ratings by the Big 5 CRAs (DBRS, Fitch, Moody's, Scope, S&P), SD – selective default, D – default, NEW – rating first issued in 2020, WD (D) – withdrawn rating preceded by a default, WD (no D) – withdrawn rating not preceded by a default. A blank row signifies that there were no ratings with that rating at the beginning of the period.

Sources: RADAR, ESMA.

MR-CR-S.56

## EEA30 structured finance transition matrix 2022

	AAA	AA	A	BBB	BB	B	CCC	CC	C	SD/D	WD(D)	WD(no D)
NEW	21.4%	23.3%	14.9%	15.8%	11.6%	10.0%	0.4%	0.1%	0.0%	0.0%	0.0%	2.5%
AAA	84.1%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	15.8%
AA	5.5%	83.0%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	11.4%
A	0.3%	8.7%	81.8%	0.3%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%	8.8%
BBB	0.1%	0.9%	7.7%	85.0%	0.5%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	5.7%
BB	0.0%	0.0%	0.4%	5.2%	88.4%	0.9%	0.1%	0.0%	0.0%	0.0%	0.0%	5.0%
B	0.0%	0.1%	0.2%	0.3%	4.1%	91.6%	0.4%	0.1%	0.0%	0.0%	0.0%	3.3%
CCC	0.0%	0.0%	0.0%	0.6%	1.8%	5.8%	84.2%	1.2%	0.0%	0.0%	0.0%	6.4%
CC	0.0%	0.0%	0.0%	1.2%	0.0%	0.0%	8.6%	80.2%	0.0%	4.9%	1.2%	3.7%
C	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	89.2%	6.2%	0.0%	4.6%
SD/D	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	1.6%	0.0%	0.0%	96.9%	0.0%	1.6%

Note: Rating transition matrix from Jan 1 2022 to Dec 31 2022 for EEA30 structured finance ratings by the Big 5 CRAs (DBRS, Fitch, Moody's, Scope, S&P), SD – selective default, D – default, NR – not rated, NEW – rating first issued in 2022, WD (D) – withdrawn rating preceded by a default, WD (no D) – withdrawn rating not preceded by a default. A blank row signifies that there were no ratings with that rating at the beginning of the period.

Sources: RADAR, ESMA.

MR-CR-S.57

## EEA30 structured finance transition matrix 2021

	AAA	AA	A	BBB	BB	B	CCC	CC	C	SD/D	WD(D)	WD(no D)
NEW	22.8%	24.5%	15.3%	14.5%	11.5%	10.0%	0.2%	0.0%	0.0%	0.0%	0.0%	1.2%
AAA	62.1%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	37.8%
AA	5.2%	63.3%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	31.5%
A	1.5%	9.4%	62.8%	0.2%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	26.1%
BBB	0.2%	1.1%	12.3%	57.3%	0.9%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	28.2%
BB	0.0%	0.0%	1.1%	7.3%	67.3%	0.6%	0.0%	0.0%	0.0%	0.0%	0.0%	23.8%
B	0.0%	0.0%	0.3%	0.5%	6.2%	69.8%	0.6%	0.0%	0.0%	0.0%	0.0%	22.5%
CCC	0.0%	0.0%	0.0%	0.5%	2.6%	8.7%	77.9%	1.0%	0.0%	0.5%	0.5%	8.2%
CC	0.0%	0.0%	0.0%	0.0%	1.1%	0.0%	4.3%	78.7%	2.1%	6.4%	2.1%	5.3%
C	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	83.1%	9.9%	1.4%	5.6%
SD/D	0.0%	0.0%	0.0%	0.0%	0.0%	0.7%	0.0%	0.0%	0.0%	90.5%	0.0%	8.8%

Note: Rating transition matrix from Jan 1 2021 to Dec 31 2021 for EEA30 structured finance ratings by the Big 5 CRAs (DBRS, Fitch, Moody's, Scope, S&P), SD – selective default, D – default, NR – not rated, NEW – rating first issued in 2021, WD (D) – withdrawn rating preceded by a default, WD (no D) – withdrawn rating not preceded by a default. A blank row signifies that there were no ratings with that rating at the beginning of the period.

Sources: RADAR, ESMA.

MR-CR-S.58

## EEA30 structured finance transition matrix 2020

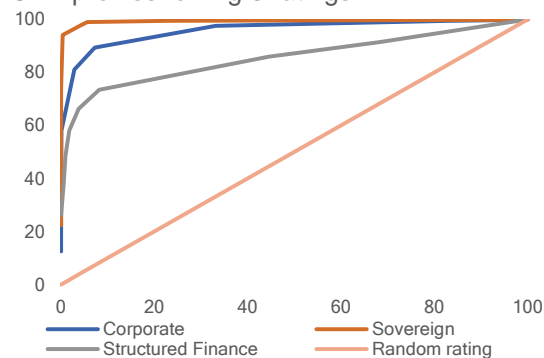
	AAA	AA	A	BBB	BB	B	CCC	CC	C	SD/D	WD(D)	WD(no D)
NEW	22.7%	25.0%	16.3%	14.7%	10.7%	7.8%	0.7%	0.3%	0.0%	0.0%	0.0%	1.8%
AAA	84.5%	0.0%	0.2%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	15.3%
AA	1.5%	88.3%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	9.7%
A	0.4%	3.3%	88.4%	0.7%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	7.1%
BBB	0.0%	0.5%	5.6%	85.9%	2.3%	0.2%	0.0%	0.0%	0.0%	0.0%	0.0%	5.6%
BB	0.0%	0.1%	0.4%	3.5%	88.4%	2.9%	0.1%	0.0%	0.0%	0.0%	0.0%	4.6%
B	0.0%	0.1%	0.0%	0.9%	2.7%	91.7%	1.6%	0.4%	0.0%	0.0%	0.1%	2.5%
CCC	0.0%	0.0%	0.0%	0.0%	0.5%	6.1%	84.7%	2.6%	0.0%	0.0%	1.5%	4.6%
CC	0.0%	0.0%	0.0%	0.0%	1.1%	1.1%	1.1%	81.1%	0.0%	11.6%	2.1%	2.1%
C	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	75.3%	7.9%	4.5%	12.4%
SD/D	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	1.4%	0.0%	0.0%	91.4%	0.0%	7.1%

Note: Rating transition matrix from Jan 1 2020 to Dec 31 2020 for EEA30 structured finance ratings by the Big 5 CRAs (DBRS, Fitch, Moody's, Scope, S&P), SD – selective default, D – default, NR – not rated, NEW – rating first issued in 2020, WD (D) – withdrawn rating preceded by a default, WD (no D) – withdrawn rating not preceded by a default rating. A blank row signifies that there were no ratings with that rating at the beginning of the period.

Sources: RADAR, ESMA.

MR-CR-S.59

## CAP profiles for Big 5 ratings

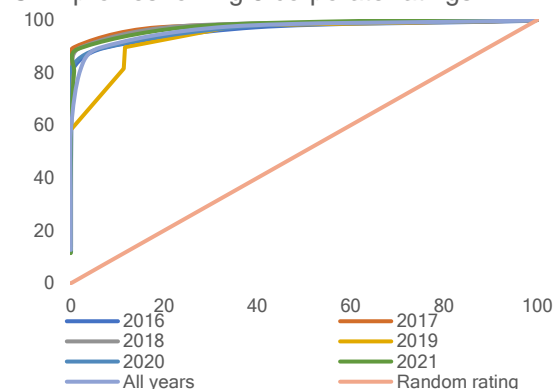


Note: Cumulative accuracy profile for Big 5 CRA long term EEA and non-EEA ratings by asset class, weighted average of profile for years 2016-2022, plotting cumulative distribution of defaults in year (x-axis) against cumulative distribution of ratings at year-start in order of increasing risk (y-axis), axes in percent. Random rating shows curve were defaults equally likely in all rating categories.

Sources: ESMA, RADAR.

MR-CR-S.60

## CAP profiles for Big 5 corporate ratings

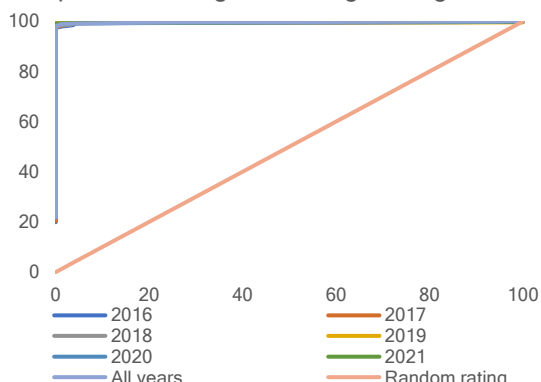


Note: Cumulative accuracy profile for Big 5 CRA long term EEA and non-EEA corporate ratings by year, plotting cumulative distribution of defaults in year (x-axis) against cumulative distribution of ratings at year-start in order of increasing risk (y-axis), axes in percent. Random rating shows curve were defaults equally likely in all rating categories.

Sources: ESMA, RADAR.

MR-CR-S.61

## CAP profiles for Big 5 sovereign ratings

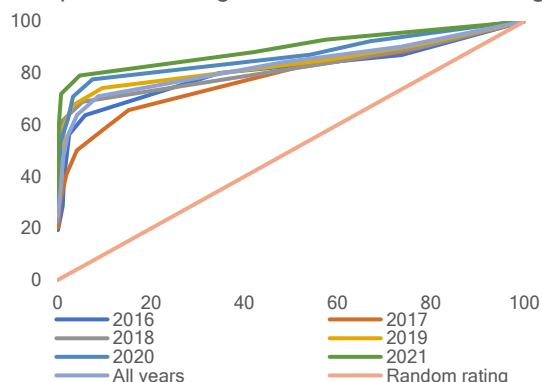


Note: Cumulative accuracy profile for for Big 5 CRA long term EEA and non-EEA sovereign ratings by year, plotting cumulative distribution of defaults in year (x-axis) against cumulative distribution of ratings at year-start in order of increasing risk (y-axis), axes in percent. Random rating shows curve were defaults equally likely in all rating categories.

Sources: ESMA, RADAR.

MR-CR-S.62

## CAP profiles for Big 5 structured finance ratings



Note: Cumulative accuracy profile for for Big 5 CRA long term EEA and non-EEA structured finance ratings by year, plotting cumulative distribution of defaults in year (x-axis) against cumulative distribution of ratings at year-start in order of increasing risk (y-axis), axes in percent. Random rating shows curve were defaults equally likely in all rating categories.

Sources: ESMA, RADAR.

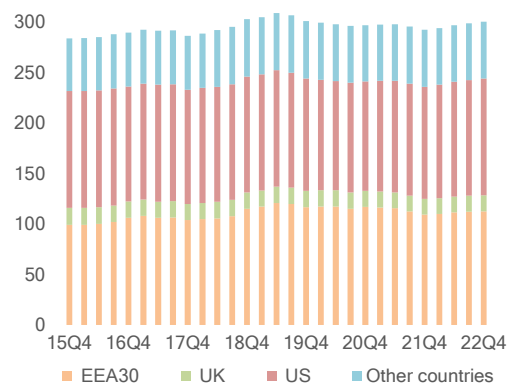
# Corporates

## Outstanding ratings

MR-CR-S.63

### All corporate ratings by region

350

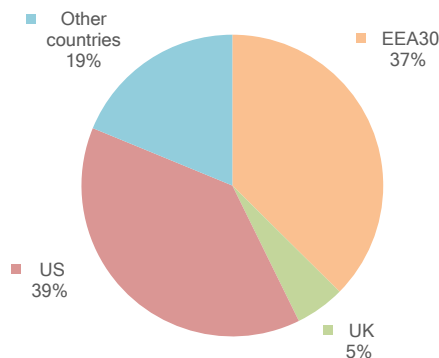


Note: Total outstanding corporate ratings in thousands split by region of the rated issuer or instrument.

Sources: RADAR, ESMA.

MR-CR-S.64

### All corporate ratings by region end 2022



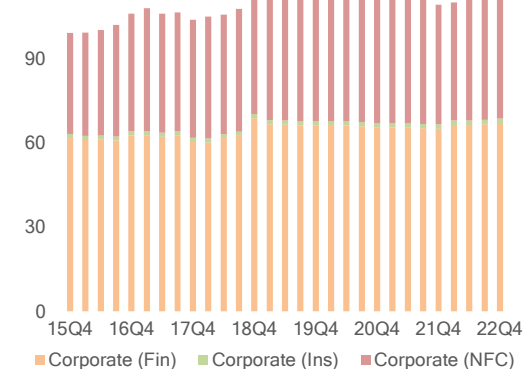
Note: Proportions of total outstanding corporate ratings by region of the rated issuer or instrument as of the end of 2022 in percent.

Sources: RADAR, ESMA.

MR-CR-S.65

### EEA30 corporate ratings by asset class

120

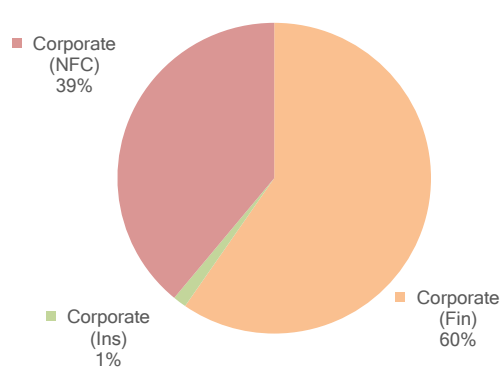


Note: Total number of outstanding corporate ratings for debt issued in the EEA30 in thousands by asset class. Fin - financials, Ins - insurance, NFC - non-financials.

Sources: RADAR, ESMA.

MR-CR-S.66

### EEA30 corporate ratings by asset class end 2022



Note: Proportions of corporate ratings outstanding for debt issued in the EEA30 by asset class at the end of 2022 in percent. Fin - financials, Ins - insurance, NFC - non-financials.

Sources: RADAR, ESMA.

MR-CR-S.67

### EEA30 corporate ratings by country

40

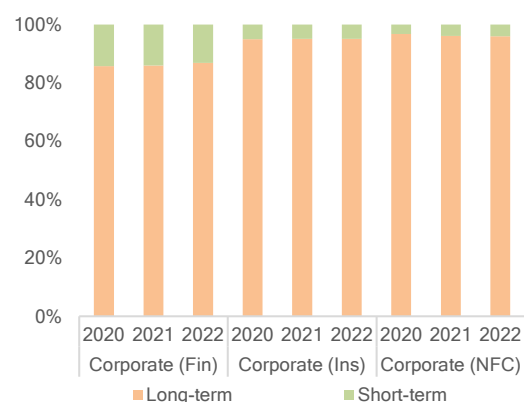


Note: Total number of outstanding corporate ratings in EEA30 in thousands by member state of debt issuance as of the end of 2022.

Sources: RADAR, ESMA.

MR-CR-S.68

### Long vs. short term corporate ratings



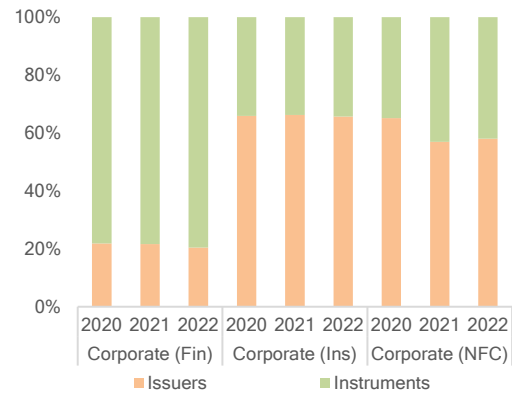
Note: Proportions of outstanding corporate ratings of EEA30-issued debt by horizon, by asset class, at the ends of 2020, 2021 and 2022 in percent. Fin - financials, Ins - Insurance, NFC - non-financials.

Sources: RADAR, ESMA.



MR-CR-S.69

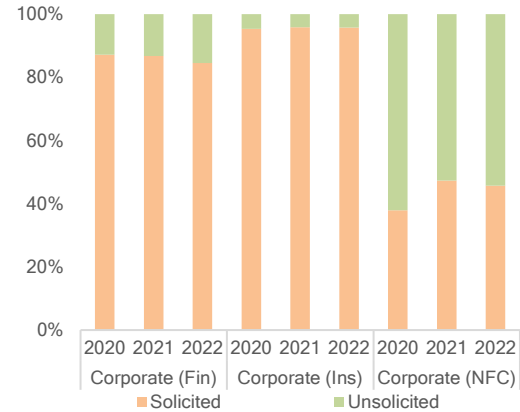
## Issuer vs instruments corporate ratings



Note: Proportions of outstanding corporate ratings of EEA30-issued debt by issuer or instrument rating, by asset class, at the ends of 2020, 2021 and 2022 in percent. Fin - financials, Ins - Insurance, NFC - non-financials. Sources: RADAR, ESMA.

MR-CR-S.70

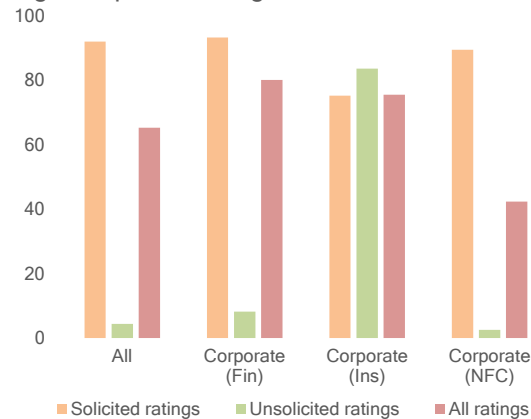
## Solicited vs. unsolicited corporate ratings



Note: Proportions of outstanding corporate ratings of EEA30-issued debt by solicitation status, by asset class, at the ends of 2020, 2021 and 2022 in percent. Fin - financials, Ins - Insurance, NFC - non-financials. Sources: RADAR, ESMA.

MR-CR-S.71

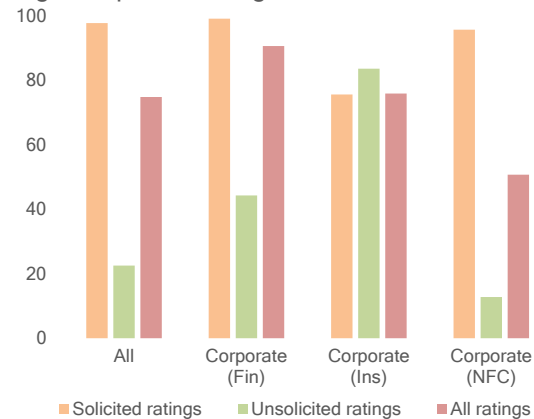
## Big 3 corporate ratings share end-2022



Note: Share of ratings held by the Big 3 CRAs as of the end of 2022 (DBRS, Fitch Ratings, Moody's Investors, Scope and Standard and Poors) in percent. Sources: ESMA, RADAR.

MR-CR-S.72

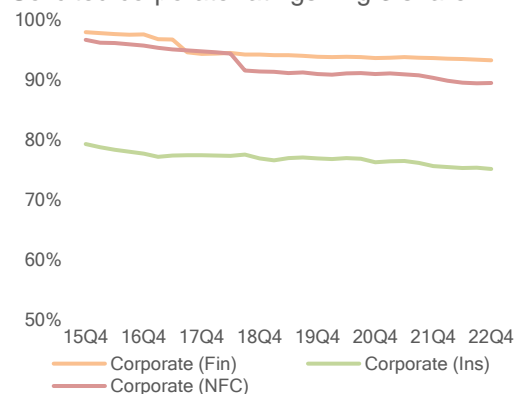
## Big 5 corporate ratings share end-2022



Note: Share of ratings held by the Big 5 CRAs as of the end of 2022 (DBRS, Fitch Ratings, Moody's Investors, Scope and Standard and Poors) in percent. Sources: ESMA, RADAR.

MR-CR-S.73

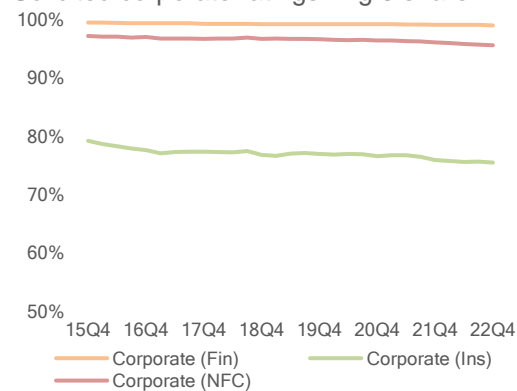
## Solicited corporate ratings: Big 3 share



Note: Share of outstanding solicited corporate ratings for EEA30 issued debt issued by the Big 3 CRAs (Fitch Ratings Ltd, Moody's Investors Service and Standard and Poors Ltd) by asset class. Fin - financials, Ins - insurance, NFC - non-financial corporates. Sources: RADAR, ESMA.

MR-CR-S.74

## Solicited corporate ratings: Big 5 share

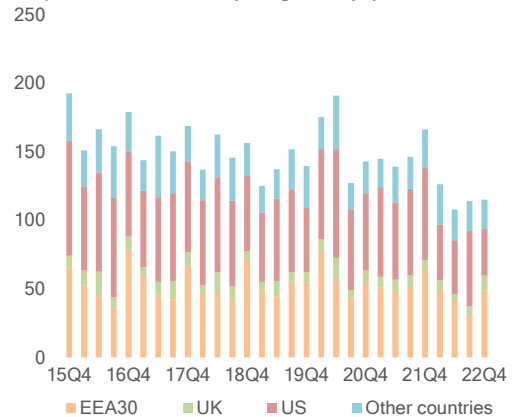


Note: Share of outstanding solicited corporate ratings for EEA30-issued debt, issued by the Big 5 CRAs (DBRS, Fitch, Moody's, S&P and Scope) by asset class. Fin - financials, Ins - insurance, NFC - non-financial corporates. Sources: RADAR, ESMA.

## Rating action trends

MR-CR-S.75

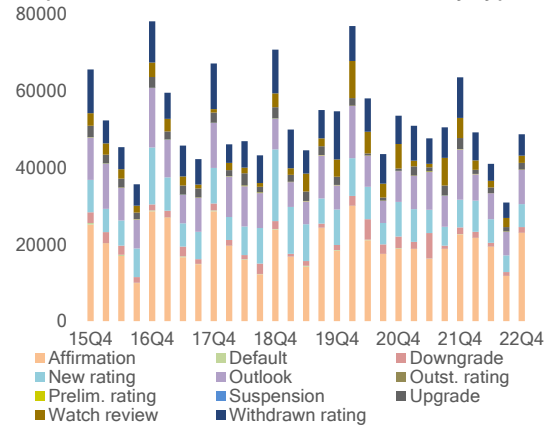
### Reported actions by region by year



Note: Number of corporate rating actions reported by region/country of debt issuance per quarter in thousands.  
Sources: RADAR, ESMA.

MR-CR-S.76

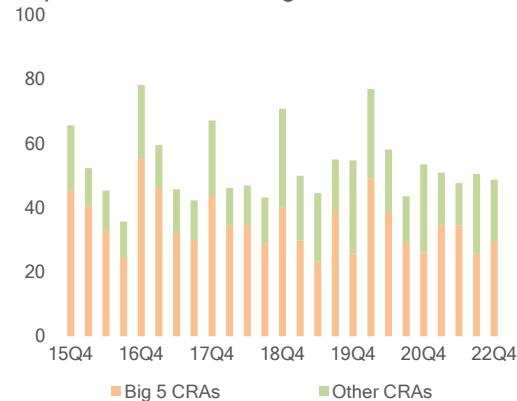
### Reported actions for EEA30 issuers by type



Note: Number of corporate rating actions for EEA30 issued debt by action type.  
Sources: RADAR, ESMA.

MR-CR-S.77

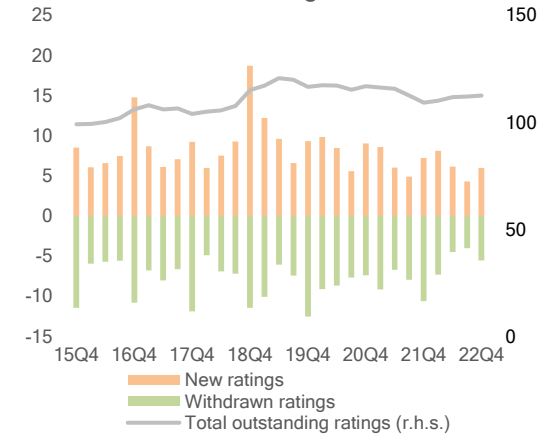
### Reported actions for Big 5 CRAs vs others



Note: Number of rating actions for EEA30 corporates reported per quarter by Big 5 CRAs (DBRS, Fitch, Moody's, Scope and S&P) and other CRAs in thousands.  
Sources: RADAR, ESMA.

MR-CR-S.78

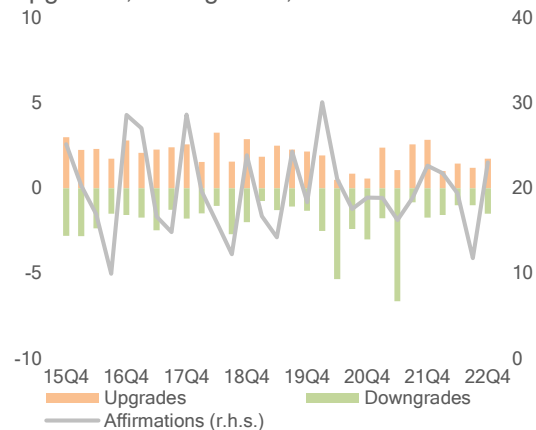
### New and withdrawn ratings



Note: Quarterly number of new ratings, withdrawn ratings and total ratings outstanding for EEA30 issued corporates in thousands.  
Sources: RADAR, ESMA.

MR-CR-S.79

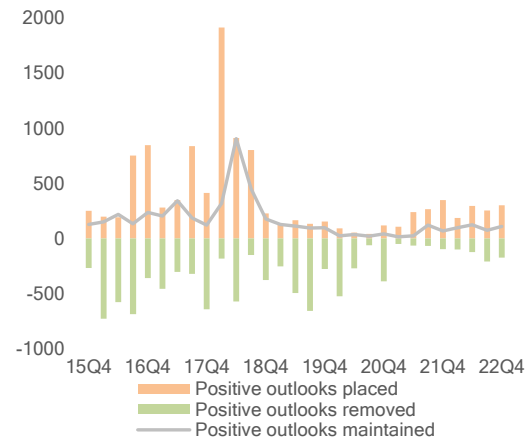
### Upgrades, downgrades, and affirmations



Note: Quarterly number of upgrades, downgrades and affirmations for EEA30 corporates in thousands. Downgrades multiplied by -1.  
Sources: RADAR, ESMA

MR-CR-S.80

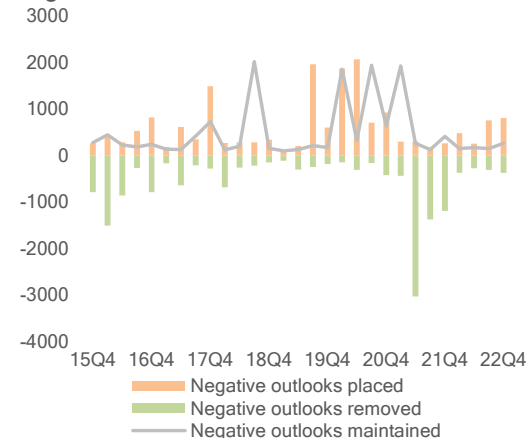
### Positive outlook trend actions



Note: Numbers of positive outlook trends placed, removed and maintained for EEA30 corporates.  
Sources: RADAR, ESMA.

MR-CR-S.81

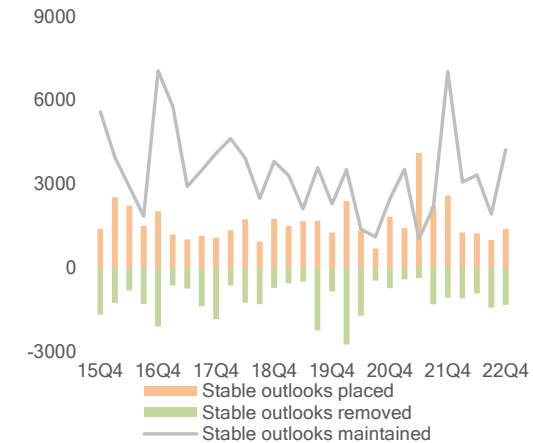
## Negative outlook trend actions



Note: Numbers of negative outlook trends placed, removed and maintained for EEA30 corporates.  
Sources: RADAR, ESMA.

MR-CR-S.82

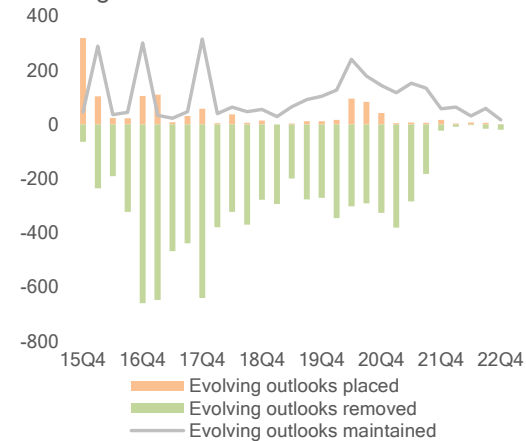
## Stable outlook trend actions



Note: Numbers of stable outlook trends placed, removed and maintained for EEA30 corporates.  
Sources: RADAR, ESMA.

MR-CR-S.83

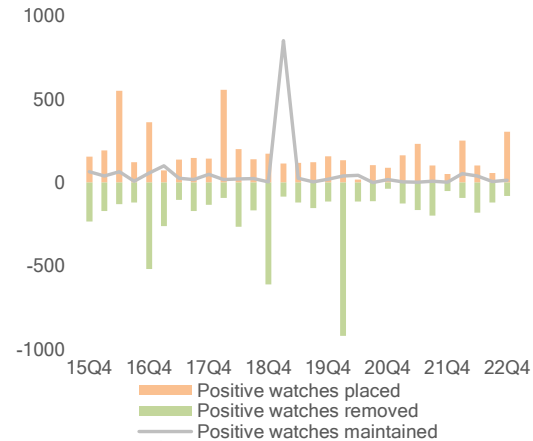
## Evolving outlook trend actions



Note: Numbers of evolving outlook trends placed, removed and maintained for EEA30 corporates.  
Sources: RADAR, ESMA.

MR-CR-S.84

## Positive watch review actions



Note: Numbers of positive watch reviews placed, removed and maintained for EEA30 corporates.  
Sources: RADAR, ESMA.

MR-CR-S.85

## Negative watch review actions



Note: Numbers of negative watch reviews placed, removed and maintained for EEA30 corporates.  
Sources: RADAR, ESMA.

MR-CR-S.86

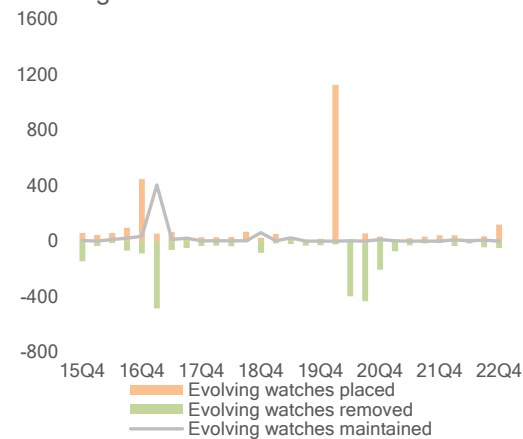
## Uncertain watch review actions



Note: Numbers of uncertain watch reviews placed, removed and maintained for EEA30 corporates.  
Sources: RADAR, ESMA.

MR-CR-S.87

## Evolving watch review actions

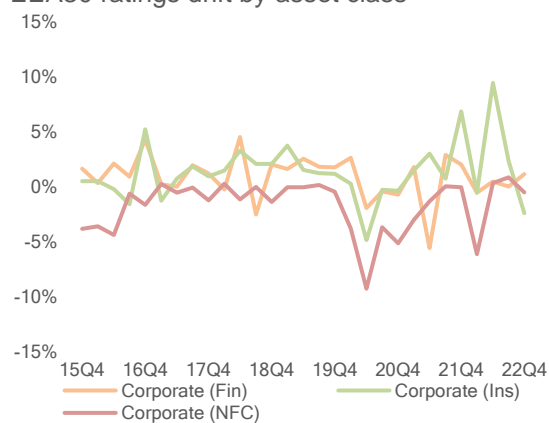


Note: Numbers of evolving watch reviews placed, removed and maintained for EEA30 corporates.  
Sources: RADAR, ESMA.

## Credit risk trends

MR-CR-S.88

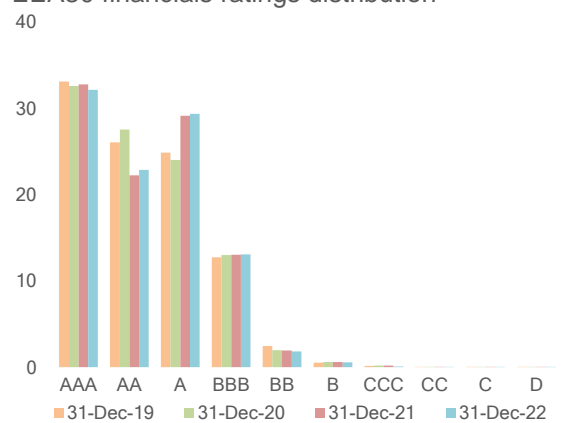
## EEA30 ratings drift by asset class



Note: Corporate quarterly ratings drift (net total notch changes as a proportion of outstanding ratings) for EEA30 long term horizon ratings. Fin - financials, Ins - Insurance and NFC - non-financials.  
Sources: RADAR, ESMA.

MR-CR-S.89

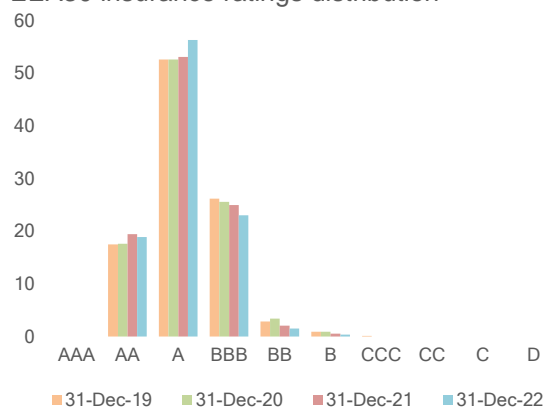
## EEA30 financials ratings distribution



Note: Proportion of ratings for long term EEA30 corporate financial ratings rated by the Big 5 CRAs (Fitch ratings, Moody's, S&P, Scope, DBRS) at the end of 2019, 2020, 2021 and 2022.  
Sources: RADAR, ESMA.

MR-CR-S.90

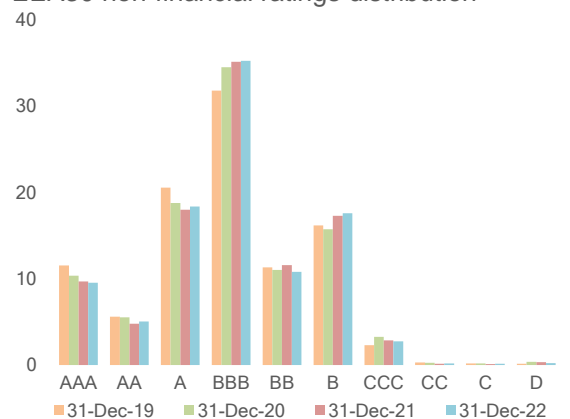
## EEA30 insurance ratings distribution



Note: Proportion of ratings for long term EEA30 corporate insurance ratings rated by the Big 5 CRAs (Fitch ratings, Moody's, S&P, Scope, DBRS) at the end of 2019, 2020, 2021 and 2022.  
Sources: RADAR, ESMA.

MR-CR-S.91

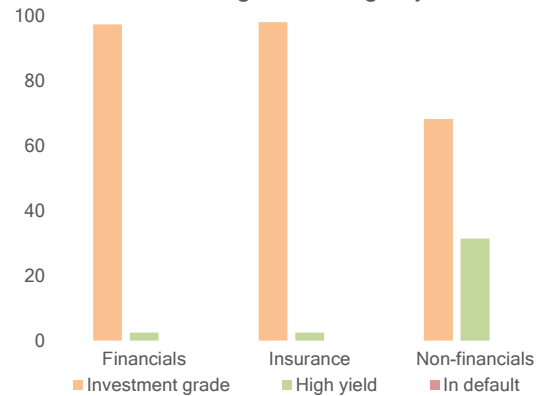
## EEA30 non-financial ratings distribution



Note: Proportion of ratings for long term EEA30 corporate non-financial ratings rated by the Big 5 CRAs (Fitch ratings, Moody's, S&P, Scope, DBRS) at the end of 2019, 2020, 2021 and 2022.  
Sources: RADAR, ESMA.

MR-CR-S.92

## EEA30 investment grade ratings by asset class

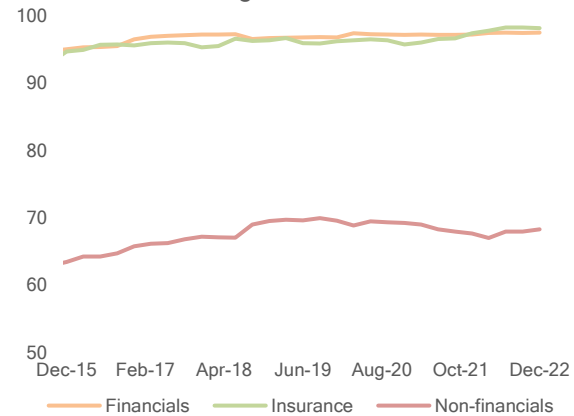


Note: Proportions of EEA30 corporate ratings in investment grade, high yield and in default by asset class for long-term ratings issued by Big 5 CRAs (DBRS, Fitch, Moody's, Scope and S&P) as of 31 December 2022, in percent.

Sources: RADAR, ESMA.

MR-CR-S.93

## EEA30 investment grade share over time

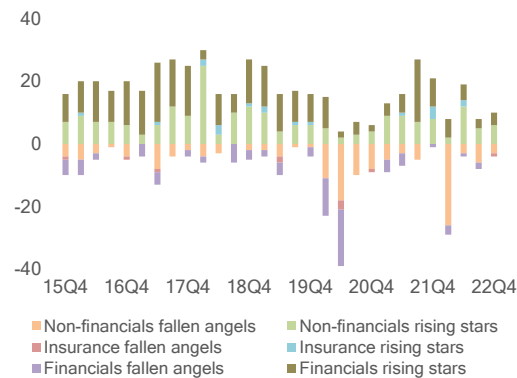


Note: Percentage of outstanding EEA30 corporate ratings issued by the Big 5 CRAs (DBRS, Fitch, Moody's, Scope, S&P) that are investment grade by asset class.

Sources: RADAR, ESMA.

MR-CR-S.94

## EEA30 rising stars and fallen angels by asset class

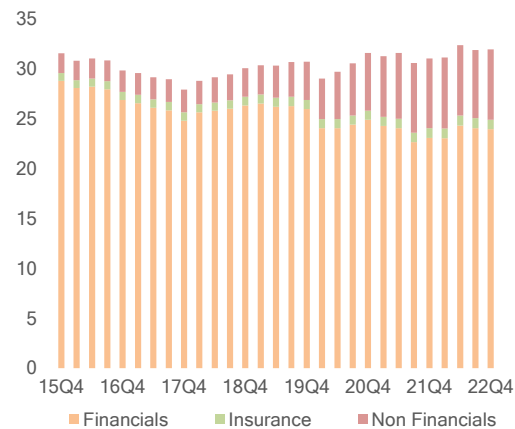


Note: Number of EEA30 corporate issuers (at group-level) with a rising star (upgrades to investment grade) or fallen angel (downgrades to high yield) among their debt with a long term corporate rating issued by the Big 5 CRAs (DBRS, Fitch, Moody's, Scope and S&P) by asset class per quarter.

Sources: RADAR, ESMA.

MR-CR-S.95

## EEA30 outlooks outstanding by asset class

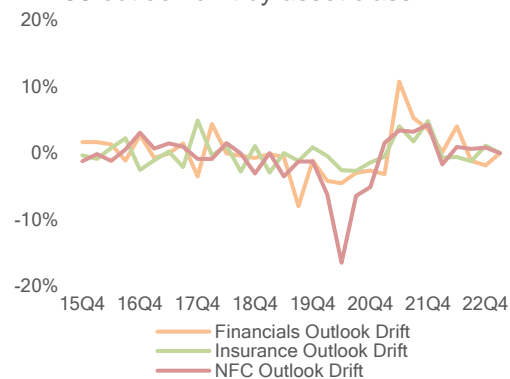


Note: EEA30 long term corporate ratings with outlooks at quarter end by asset class in thousands.

Sources: RADAR, ESMA.

MR-CR-S.96

## EEA30 outlook drift by asset class



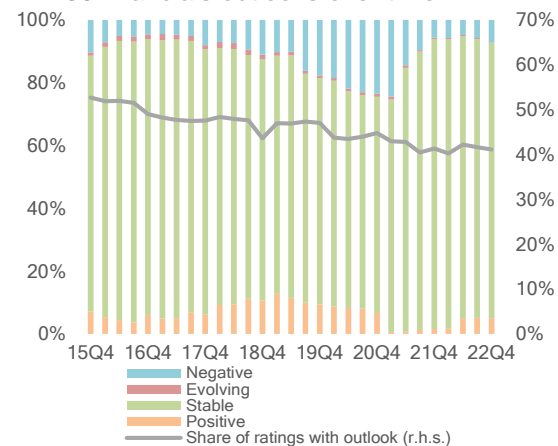
Note: EEA30 quarterly outlook drift for long term ratings in percent (quarterly net changes in outlooks, excluding where upgrade or downgrade in opposite direction to outlook change took place, divided by the number of outstanding outlooks at start of quarter) by asset class.

NFC - Non-financial corporates

Sources: RADAR, ESMA.

MR-CR-S.97

## EEA30 financials outlooks over time

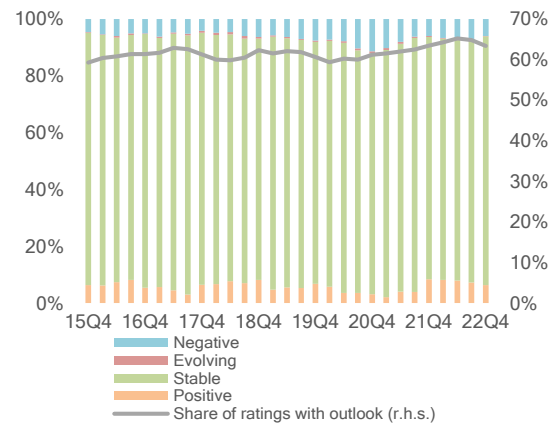


Note: Share of outlooks outstanding on long term EEA30 corporate non-financial ratings, and total number of outstanding outlooks in thousands.

Sources: RADAR, ESMA.

MR-CR-S.98

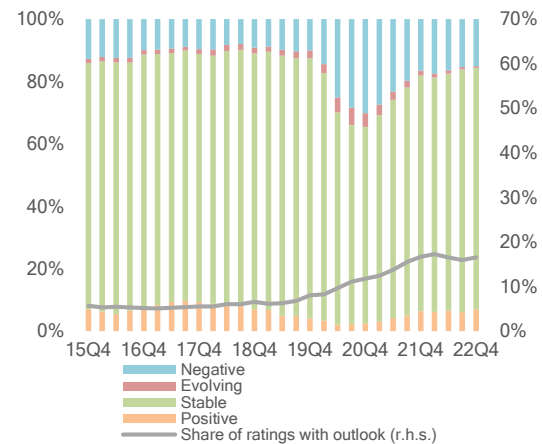
## EEA30 insurance outlooks over time



Note: Share of outlooks outstanding on long term EEA30 corporate insurance ratings, and total number of outstanding outlooks in thousands.  
Sources: RADAR, ESMA.

MR-CR-S.99

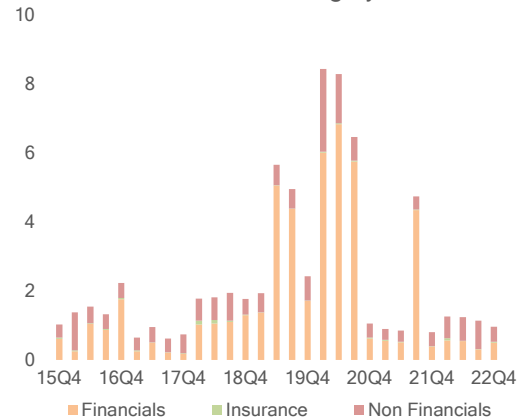
## EEA30 non-financials outlooks over time



Note: Share of outlooks outstanding on long term EEA30 corporate non-financial ratings, and total number of outstanding outlooks in thousands.  
Sources: RADAR, ESMA.

MR-CR-S.100

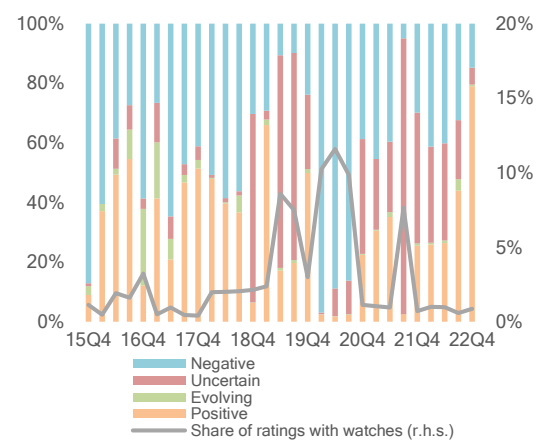
## EEA30 watches outstanding by asset class



Note: EEA30 long term corporate ratings with watches at quarter end by asset class in thousands.  
Sources: RADAR, ESMA.

MR-CR-S.101

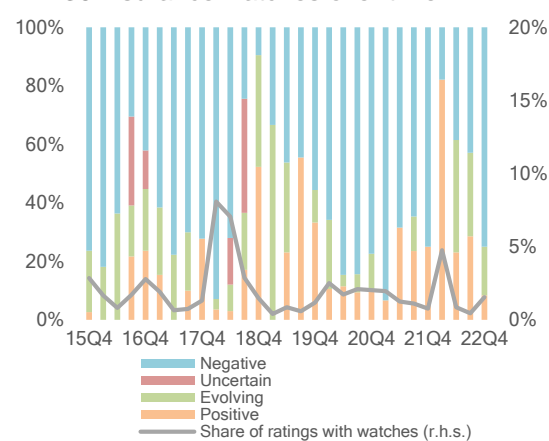
## EEA30 financials watches over time



Note: Share of watches outstanding on long term EEA30 corporate non-financial ratings, and total number of outstanding outlooks in thousands.  
Sources: RADAR, ESMA.

MR-CR-S.102

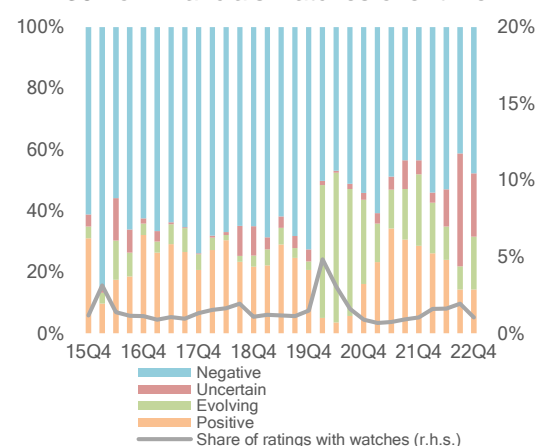
## EEA30 insurance watches over time



Note: Share of watches outstanding on long term EEA30 corporate insurance ratings, and total number of outstanding outlooks in thousands.  
Sources: RADAR, ESMA.

MR-CR-S.103

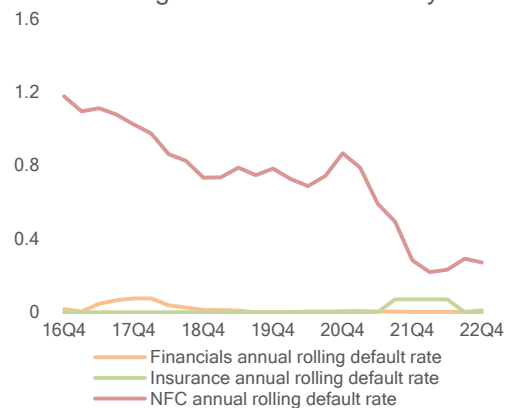
## EEA30 non-financials watches over time



Note: Share of watches outstanding on long term EEA30 corporate non-financial ratings, and total number of outstanding outlooks in thousands.  
Sources: RADAR, ESMA.

MR-CR-S.104

## EEA30 rolling annual default rates by asset class

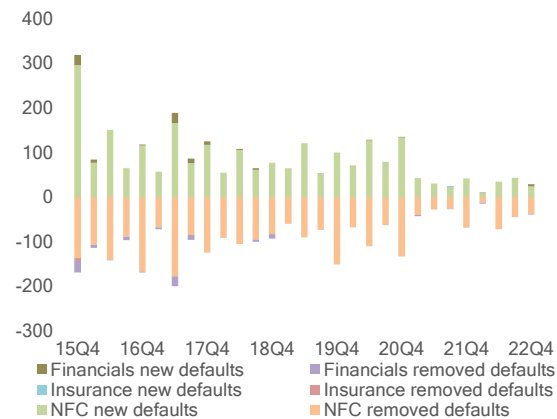


Note: Number of defaults in previous four quarters as a proportion of outstanding ratings a year earlier for EEA30 long term corporate ratings in percent. NFC - non-financial corporates.

Sources: RADAR, ESMA.

MR-CR-S.105

## EEA30 new and removed defaults

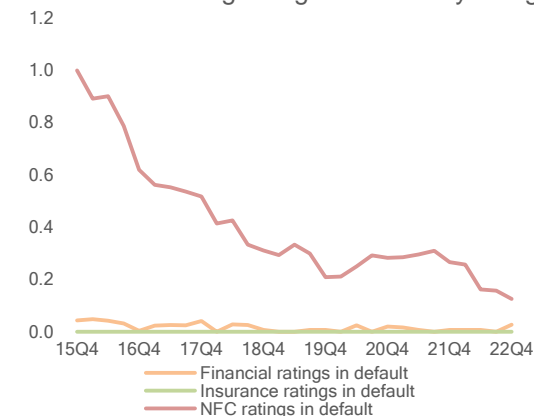


Note: Numbers of new and removed corporate defaults by quarter split by asset class for EEA30 long term ratings. Removed defaults include those removed because rating was withdrawn. NFC = non-financial corporates.

Sources: RADAR, ESMA.

MR-CR-S.106

## EEA30 outstanding ratings in default by category



Note: Proportion of outstanding EEA30 long-term corporate ratings in default by asset class in percent. NFC - Non-financial corporates.

Sources: RADAR, ESMA.

## Rating accuracy metrics

MR-CR-S.107

## EEA30 financials transition matrix 2022

	AAA	AA	A	BBB	BB	B	CCC	CC	C	SD/D	WD(D)	WD(no D)
NEW	25.5%	25.6%	31.1%	14.0%	1.3%	0.5%	0.1%	0.0%	0.0%	0.0%	0.0%	1.9%
AAA	89.9%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	10.1%
AA	0.0%	87.6%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	12.0%
A	0.0%	1.1%	87.6%	0.3%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	10.9%
BBB	0.0%	0.1%	0.8%	86.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	12.8%
BB	0.0%	0.0%	0.0%	5.9%	81.0%	0.4%	0.0%	0.0%	0.0%	0.4%	0.0%	12.4%
B	0.0%	0.0%	0.0%	0.0%	15.4%	66.9%	1.3%	0.0%	0.0%	0.0%	0.0%	16.4%
CCC	0.0%	0.0%	0.0%	0.0%	0.0%	53.2%	37.2%	0.0%	0.0%	0.0%	0.0%	9.6%
CC	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	14.3%	71.4%	0.0%	0.0%	0.0%	14.3%
C	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	83.3%	0.0%	0.0%	16.7%
SD/D	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	0.0%	0.0%

Note: Rating transition matrix from Jan 1 2022 to Dec 31 2022 for EEA30 issuer and instrument financial ratings by the Big 5 CRAs (DBRS, Fitch, Moody's, Scope, S&P). SD – selective default, D – default, NEW – rating first issued in 2022, WD (D) – withdrawn rating preceded by a default, WD (no D) – withdrawn rating not preceded by a default. A blank row signifies that there were no ratings with that rating at the beginning of the period.

Sources: RADAR, ESMA.

## MR-CR-S.108

## EEA30 financials transition matrix 2021

	AAA	AA	A	BBB	BB	B	CCC	CC	C	SD/D	WD(D)	WD(no D)
NEW	27.9%	19.0%	30.0%	18.1%	1.9%	1.4%	0.3%	0.0%	0.0%	0.0%	0.0%	1.3%
AAA	89.8%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	10.2%
AA	0.6%	72.0%	16.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	11.0%
A	0.0%	0.5%	85.5%	1.5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	12.5%
BBB	0.0%	0.0%	4.5%	80.2%	0.6%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	14.7%
BB	0.0%	0.0%	0.5%	9.2%	77.4%	0.2%	0.0%	0.0%	0.0%	0.0%	0.0%	12.7%
B	0.0%	0.0%	0.0%	0.3%	17.9%	69.2%	1.3%	0.0%	0.0%	0.0%	0.0%	11.4%
CCC	0.0%	0.0%	0.0%	0.0%	1.0%	12.0%	73.0%	0.0%	0.0%	0.0%	0.0%	14.0%
CC	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	16.7%	83.3%	0.0%	0.0%	0.0%	0.0%
C	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	0.0%	0.0%	0.0%
SD/D	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	16.7%	0.0%	66.7%	0.0%	16.7%

Note: Rating transition matrix from Jan 1 2021 to Dec 31 2021 for EEA30 issuer and instrument financial ratings by the Big 5 CRAs (DBRS, Fitch, Moody's, Scope, S&P), SD – selective default, D – default, NEW – rating first issued in 2021, WD (D) – withdrawn rating preceded by a default, WD (no D) – withdrawn rating not preceded by a default. A blank row signifies that there were no ratings with that rating at the beginning of the period.

Sources: RADAR, ESMA.

## MR-CR-S.109

## EEA30 financials transition matrix 2020

	AAA	AA	A	BBB	BB	B	CCC	CC	C	SD/D	WD(D)	WD(no D)
NEW	28.1%	30.3%	22.7%	13.7%	2.1%	1.1%	0.3%	0.0%	0.0%	0.0%	0.0%	1.6%
AAA	87.5%	0.6%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	11.8%
AA	0.0%	87.4%	1.2%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	11.4%
A	0.0%	3.1%	81.7%	1.9%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	13.3%
BBB	0.0%	0.0%	4.1%	80.2%	2.2%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	13.5%
BB	0.0%	0.0%	0.0%	23.8%	57.2%	2.0%	0.2%	0.0%	0.0%	0.0%	0.0%	16.9%
B	0.0%	0.0%	0.0%	0.0%	8.4%	78.2%	4.4%	0.0%	0.0%	0.4%	0.0%	8.7%
CCC	0.0%	0.0%	0.0%	0.0%	0.0%	2.5%	82.7%	2.5%	0.0%	1.2%	0.0%	11.1%
CC	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	28.6%	57.1%	0.0%	0.0%	0.0%	14.3%
C	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	0.0%	0.0%	0.0%
SD/D	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	0.0%	0.0%

Note: Rating transition matrix from Jan 1 2020 to Dec 31 2020 for EEA30 issuer and instrument financial ratings by the Big 5 CRAs (DBRS, Fitch, Moody's, Scope, S&P), SD – selective default, D – default, NEW – rating first issued in 2020, WD (D) – withdrawn rating preceded by a default, WD (no D) – withdrawn rating not preceded by a default. A blank row signifies that there were no ratings with that rating at the beginning of the period.

Sources: RADAR, ESMA.

## MR-CR-S.110

## EEA30 insurance transition matrix 2022

	AAA	AA	A	BBB	BB	B	CCC	CC	C	SD/D	WD(D)	WD(no D)
NEW	0.0%	6.8%	61.0%	30.5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	1.7%
AAA	—	—	—	—	—	—	—	—	—	—	—	—
AA	0.0%	92.0%	4.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	4.0%
A	0.0%	0.8%	89.4%	2.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	7.3%
BBB	0.0%	0.0%	17.0%	78.8%	0.3%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	3.8%
BB	0.0%	0.0%	0.0%	8.3%	62.5%	12.5%	0.0%	0.0%	0.0%	0.0%	0.0%	16.7%
B	0.0%	0.0%	0.0%	0.0%	16.7%	16.7%	0.0%	0.0%	0.0%	0.0%	0.0%	66.7%
CCC	—	—	—	—	—	—	—	—	—	—	—	—
CC	—	—	—	—	—	—	—	—	—	—	—	—
C	—	—	—	—	—	—	—	—	—	—	—	—
SD/D	—	—	—	—	—	—	—	—	—	—	—	—

Note: Rating transition matrix from Jan 1 2022 to Dec 31 2022 for EEA30 issuer and instrument insurance ratings by the Big 5 CRAs (DBRS, Fitch, Moody's, Scope, S&P), SD – selective default, D – default, NEW – rating first issued in 2022, WD (D) – withdrawn rating preceded by a default, WD (no D) – withdrawn rating not preceded by a default. A blank row signifies that there were no ratings with that rating at the beginning of the period.

Sources: RADAR, ESMA.



## MR-CR-S.111

## EEA30 insurance transition matrix 2021

	AAA	AA	A	BBB	BB	B	CCC	CC	C	SD/D	WD(D)	WD(no D)
NEW	0.0%	25.6%	37.8%	28.9%	2.2%	3.3%	0.0%	0.0%	0.0%	0.0%	0.0%	2.2%
AAA	—	—	—	—	—	—	—	—	—	—	—	—
AA	0.0%	98.0%	2.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
A	0.0%	1.0%	91.8%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	7.2%
BBB	0.0%	0.0%	10.0%	86.9%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	3.1%
BB	0.0%	0.0%	0.0%	28.9%	55.3%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	15.8%
B	0.0%	0.0%	0.0%	0.0%	10.0%	30.0%	0.0%	0.0%	0.0%	0.0%	0.0%	60.0%
CCC	—	—	—	—	—	—	—	—	—	—	—	—
CC	—	—	—	—	—	—	—	—	—	—	—	—
C	—	—	—	—	—	—	—	—	—	—	—	—
SD/D	—	—	—	—	—	—	—	—	—	—	—	—

Note: Rating transition matrix from Jan 1 2021 to Dec 31 2021 for EEA30 issuer and instrument insurance ratings by the Big 5 CRAs (DBRS, Fitch, Moody's, Scope, S&P), SD – selective default, D – default, NEW – rating first issued in 2021, WD (D) – withdrawn rating preceded by a default, WD (no D) – withdrawn rating not preceded by a default. A blank row signifies that there were no ratings with that rating at the beginning of the period.

Sources: RADAR, ESMA.

## MR-CR-S.112

## EEA30 insurance transition matrix 2020

	AAA	AA	A	BBB	BB	B	CCC	CC	C	SD/D	WD(D)	WD(no D)
NEW	0.0%	15.8%	42.1%	27.6%	7.9%	6.6%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
AAA	—	—	—	—	—	—	—	—	—	—	—	—
AA	0.0%	89.4%	5.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	5.6%
A	0.0%	1.7%	91.8%	1.7%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	4.9%
BBB	0.0%	0.0%	2.0%	86.9%	2.7%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	8.4%
BB	0.0%	0.0%	0.0%	0.0%	75.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	25.0%
B	0.0%	0.0%	0.0%	0.0%	0.0%	50.0%	0.0%	0.0%	0.0%	0.0%	0.0%	50.0%
CCC	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%
CC	—	—	—	—	—	—	—	—	—	—	—	—
C	—	—	—	—	—	—	—	—	—	—	—	—
SD/D	—	—	—	—	—	—	—	—	—	—	—	—

Note: Rating transition matrix from Jan 1 2020 to Dec 31 2020 for EEA30 issuer and instrument insurance ratings by the Big 5 CRAs (DBRS, Fitch, Moody's, Scope, S&P), SD – selective default, D – default, NEW – rating first issued in 2020, WD (D) – withdrawn rating preceded by a default, WD (no D) – withdrawn rating not preceded by a default. A blank row signifies that there were no ratings with that rating at the beginning of the period.

Sources: RADAR, ESMA.

## MR-CR-S.113

## EEA30 non-financials transition matrix 2022

	AAA	AA	A	BBB	BB	B	CCC	CC	C	SD/D	WD(D)	WD(no D)
NEW	3.8%	3.5%	23.5%	33.1%	7.4%	23.3%	2.3%	0.0%	0.0%	0.0%	0.0%	3.2%
AAA	93.9%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	6.1%
AA	0.0%	91.2%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	8.8%
A	0.0%	1.1%	82.3%	4.7%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	11.9%
BBB	0.0%	0.2%	2.2%	85.5%	0.6%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	11.5%
BB	0.0%	0.0%	0.0%	3.4%	77.9%	5.0%	0.2%	0.3%	0.1%	0.0%	0.0%	13.0%
B	0.0%	0.0%	0.0%	0.0%	3.9%	80.4%	3.0%	0.3%	0.3%	0.3%	0.3%	11.6%
CCC	0.0%	0.0%	0.0%	0.0%	0.0%	9.6%	67.2%	1.9%	0.2%	0.7%	2.2%	18.4%
CC	0.0%	0.0%	0.0%	0.0%	0.0%	3.8%	0.0%	26.9%	0.0%	3.8%	15.4%	50.0%
C	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	91.3%	0.0%	4.3%	4.3%
SD/D	0.0%	0.0%	0.0%	0.0%	0.0%	9.2%	0.0%	0.0%	0.0%	46.2%	0.0%	44.6%

Note: Rating transition matrix from Jan 1 2022 to Dec 31 2022 for EEA30 issuer and instrument non-financial ratings by the Big 5 CRAs (DBRS, Fitch, Moody's, Scope, S&P), SD – selective default, D – default, NEW – rating first issued in 2022, WD (D) – withdrawn rating preceded by a default, WD (no D) – withdrawn rating not preceded by a default. A blank row signifies that there were no ratings with that rating at the beginning of the period.

Sources: RADAR, ESMA.

MR-CR-S.114

## EEA30 non-financials transition matrix 2021

	AAA	AA	A	BBB	BB	B	CCC	CC	C	SD/D	WD(D)	WD(no D)
NEW	3.1%	3.3%	10.1%	33.6%	15.3%	30.0%	2.7%	0.0%	0.0%	0.0%	0.0%	1.8%
AAA	93.9%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	6.1%
AA	0.2%	81.2%	9.6%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	9.1%
A	0.0%	0.1%	84.2%	4.6%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	11.1%
BBB	0.0%	0.0%	2.6%	85.4%	0.6%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	11.4%
BB	0.0%	0.0%	0.0%	5.6%	79.2%	2.1%	0.0%	0.0%	0.0%	0.0%	0.0%	13.1%
B	0.0%	0.0%	0.0%	0.0%	2.7%	76.5%	1.4%	0.2%	0.0%	0.3%	0.0%	18.9%
CCC	0.0%	0.0%	0.0%	0.0%	0.0%	9.4%	68.1%	0.8%	0.3%	1.4%	1.3%	18.7%
CC	0.0%	0.0%	0.0%	0.0%	0.0%	4.3%	23.9%	30.4%	0.0%	6.5%	15.2%	19.6%
C	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	6.3%	0.0%	65.6%	0.0%	6.3%	21.9%
SD/D	0.0%	0.0%	0.0%	0.0%	1.4%	0.0%	8.7%	0.0%	0.0%	60.9%	0.0%	29.0%

Note: Rating transition matrix from Jan 1 2021 to Dec 31 2021 for EEA30 issuer and instrument non-financial ratings by the Big 5 CRAs (DBRS, Fitch, Moody's, Scope, S&P), SD – selective default, D – default, NEW – rating first issued in 2021, WD (D) – withdrawn rating preceded by a default, WD (no D) – withdrawn rating not preceded by a default. A blank row signifies that there were no ratings with that rating at the beginning of the period.

Sources: RADAR, ESMA.

MR-CR-S.115

## EEA30 non-financials transition matrix 2020

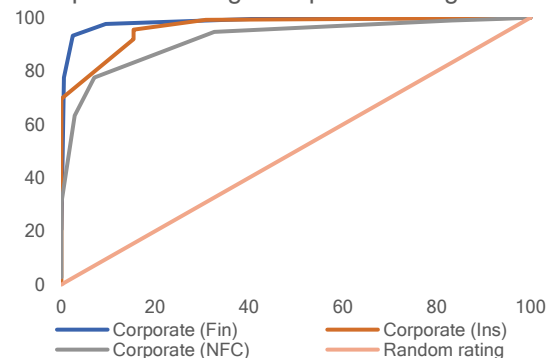
	AAA	AA	A	BBB	BB	B	CCC	CC	C	SD/D	WD(D)	WD(no D)
NEW	2.5%	5.6%	21.4%	36.6%	10.3%	17.9%	3.0%	0.1%	0.0%	0.1%	0.0%	2.6%
AAA	92.9%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	7.1%
AA	0.0%	85.8%	5.5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	8.6%
A	0.0%	0.0%	75.5%	12.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	12.4%
BBB	0.0%	0.0%	0.1%	85.3%	3.6%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	10.9%
BB	0.0%	0.0%	0.0%	1.1%	75.8%	8.0%	1.0%	0.2%	0.0%	0.3%	0.3%	13.3%
B	0.0%	0.0%	0.0%	0.0%	0.5%	75.8%	9.6%	0.7%	0.1%	0.8%	1.4%	11.0%
CCC	0.0%	0.0%	0.0%	0.0%	0.2%	2.4%	52.7%	2.9%	0.5%	4.9%	13.7%	22.7%
CC	0.0%	0.0%	0.0%	0.0%	0.0%	5.6%	1.9%	14.8%	7.4%	9.3%	38.9%	22.2%
C	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	6.7%	0.0%	73.3%	3.3%	3.3%	13.3%
SD/D	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	40.7%	0.0%	59.3%

Note: Rating transition matrix from Jan 1 2021 to Dec 31 2021 for EEA30 issuer and instrument non-financial ratings by the Big 5 CRAs (DBRS, Fitch, Moody's, Scope, S&P), SD – selective default, D – default, NEW – rating first issued in 2020, WD (D) – withdrawn rating preceded by a default, WD (no D) – withdrawn rating not preceded by a default. A blank row signifies that there were no ratings with that rating at the beginning of the period.

Sources: RADAR, ESMA.

MR-CR-S.116

## CAP profiles for Big 5 corporate ratings

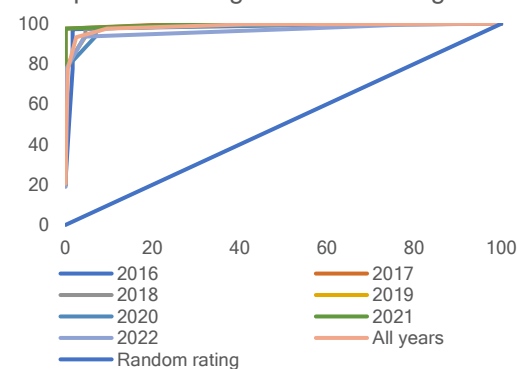


Note: Cumulative accuracy profile for Big 5 CRA long term EEA and non-EEA corporate ratings by asset class, weighted average of profile for years 2016-2022, plotting cumulative distribution of defaults in year (x-axis) against cumulative distribution of ratings at year-start in order of increasing risk (y-axis), axes in percent. Random rating shows curve were defaults equally likely in all rating categories.

Sources: ESMA, RADAR.

MR-CR-S.117

## CAP profiles for Big 5 financial ratings

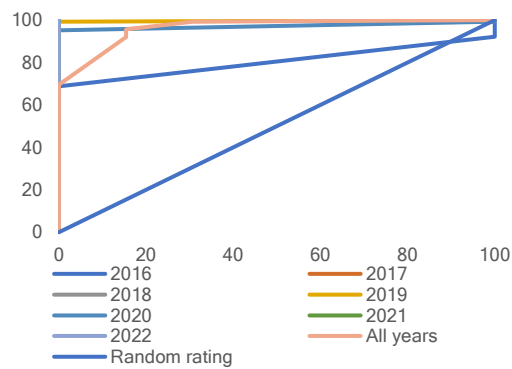


Note: Cumulative accuracy profile for Big 5 CRA long term EEA and non-EEA corporate financial ratings by year, plotting cumulative distribution of defaults in year (x-axis) against cumulative distribution of ratings at year-start in order of increasing risk (y-axis), axes in percent. Random rating shows curve were defaults equally likely in all rating categories.

Sources: ESMA, RADAR.

MR-CR-S.118

## CAP profiles for Big 5 insurance ratings

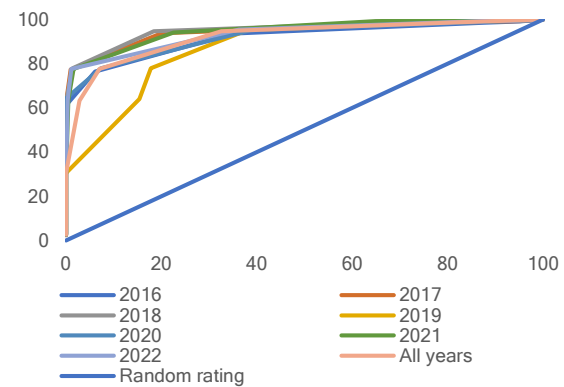


Note: Cumulative accuracy profile for Big 5 CRA long term EEA and non-EEA corporate insurance ratings by year, plotting cumulative distribution of defaults in year (x-axis) against cumulative distribution of ratings at year-start in order of increasing risk (y-axis), axes in percent. Random rating shows curve were defaults equally likely in all rating categories.

Sources: ESMA,RADAR.

MR-CR-S.119

## CAP profiles for Big 5 non-financial ratings



Note: Cumulative accuracy profile for Big 5 CRA long term EEA and non-EEA corporate non-financial ratings by year, plotting cumulative distribution of defaults in year (x-axis) against cumulative distribution of ratings at year-start in order of increasing risk (y-axis), axes in percent. Random rating shows curve were defaults equally likely in all rating categories.

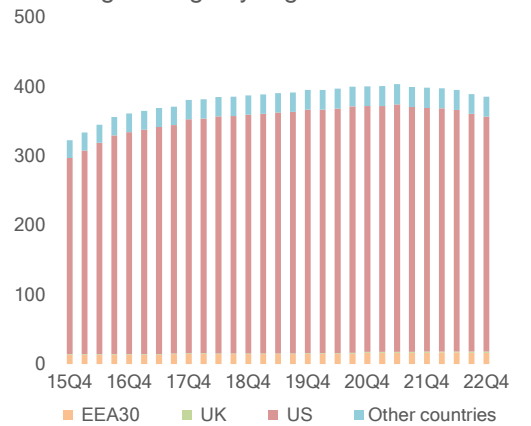
Sources: ESMA,RADAR.

# Sovereigns

## Outstanding ratings

MR-CR-S.120

### Sovereign ratings by region

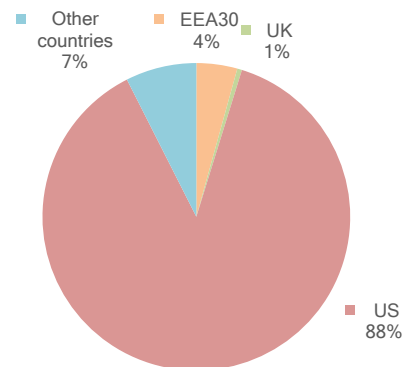


Note: Total outstanding sovereign ratings in thousands split by region of the rated issuer or instrument.

Sources: RADAR, ESMA.

MR-CR-S.121

### Sovereign ratings by region end 2022

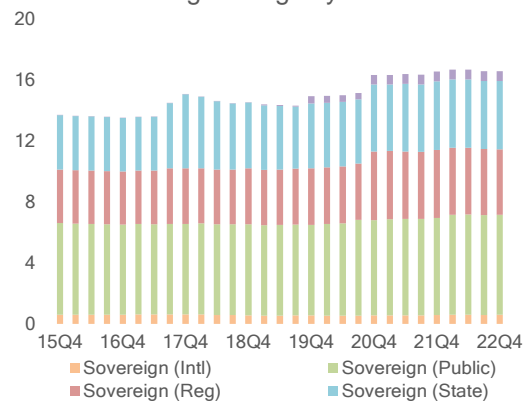


Note: Proportions of total outstanding sovereign ratings by region of the rated issuer or instrument as of the end of 2022 in percent.

Sources: RADAR, ESMA.

MR-CR-S.122

### EEA30 sovereign ratings by asset class

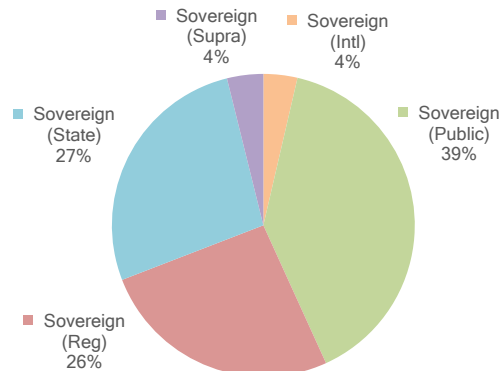


Note: Total outstanding sovereign ratings for EEA30 issued debt in thousands split by asset class. Intl - International, Reg - Regional, Supra - Supranational.

Sources: RADAR, ESMA.

MR-CR-S.123

### EEA30 sovereign ratings by asset class



Note: Proportions of outstanding sovereign ratings for EEA30 issued debt by asset class as of the end of 2022 in percent. Intl - International, Reg - Regional, Supra - Supranational.

Sources: RADAR, ESMA.

MR-CR-S.124

### EEA30 sovereign ratings by country of issuance

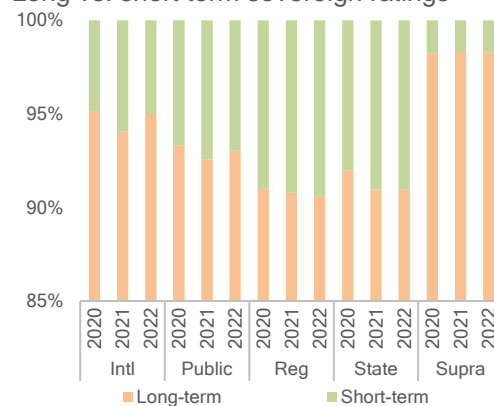


Note: Total number of outstanding sovereign ratings in EEA30 in thousands by member state of debt issuance as of the end of 2022.

Sources: RADAR, ESMA.

MR-CR-S.125

### Long vs. short term sovereign ratings

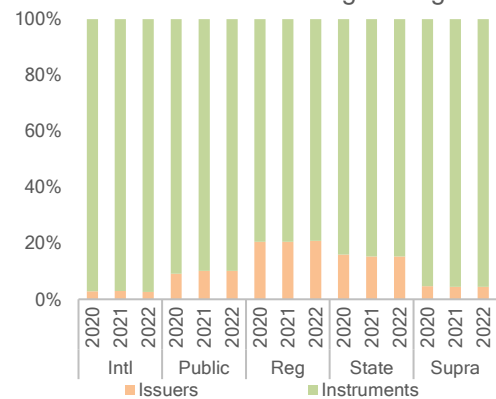


Note: Proportions of outstanding sovereign ratings of EEA30-issued debt by horizon of rating, by asset class, at the ends of 2020, 2021 and 2022 in percent. Intl - international, Reg - regional, Supra - supranational.

Sources: RADAR, ESMA.

MR-CR-S.126

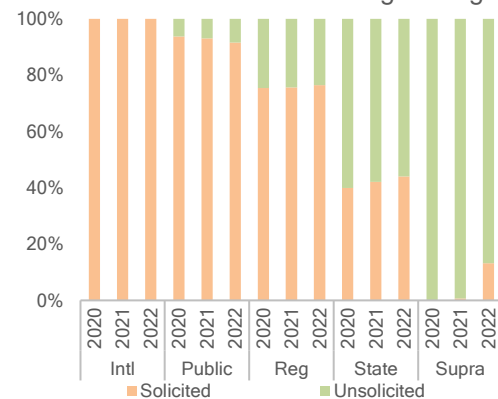
## Issuer vs instrument sovereign ratings



Note: Proportions of outstanding sovereign ratings of EEA30-issued debt by type of rated object, by asset class, at the ends of 2020, 2021 and 2022 in percent. Intl - international, Reg - regional, Supra - supranational.  
Sources: RADAR, ESMA.

MR-CR-S.127

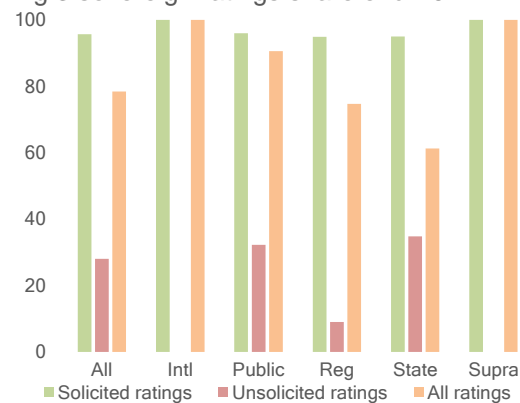
## Solicited vs. unsolicited sovereign ratings



Note: Proportions of outstanding sovereign ratings of EEA30-issued debt by solicitation status of rating, by asset class, at the ends of 2020, 2021 and 2022 in percent. Intl - international, Reg - regional, Supra - supranational.  
Sources: RADAR, ESMA.

MR-CR-S.128

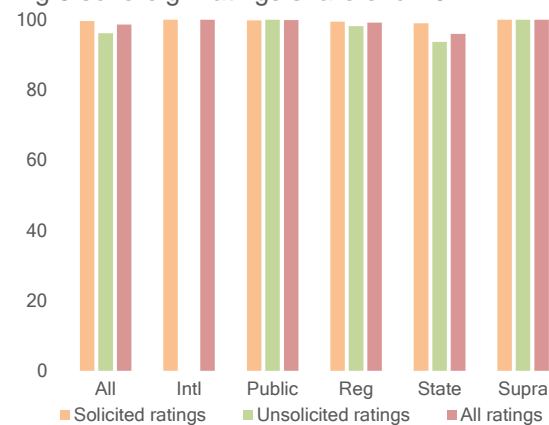
## Big 3 sovereign ratings share end-2022



Note: Share of sovereign EEA30 ratings held by the Big 3 CRAs (Fitch Ratings, Moody's Investors and Standard and Poors) as of the end of 2022 in percent. Intl - international, Reg - regional, Supra - supranational.  
Sources: ESMA, RADAR.

MR-CR-S.129

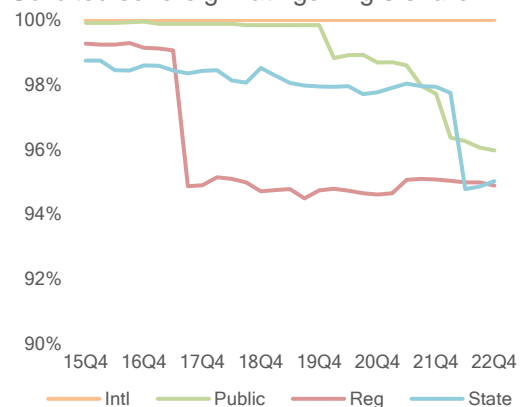
## Big 5 sovereign ratings share end-2022



Note: Share of sovereign EEA30 ratings held by the Big 5 CRAs (DBRS, Fitch Ratings, Moody's Investors, Scope and Standard and Poors) as of the end of 2022 in percent. Intl - international, Reg - regional, Supra - supranational.  
Sources: ESMA, RADAR.

MR-CR-S.130

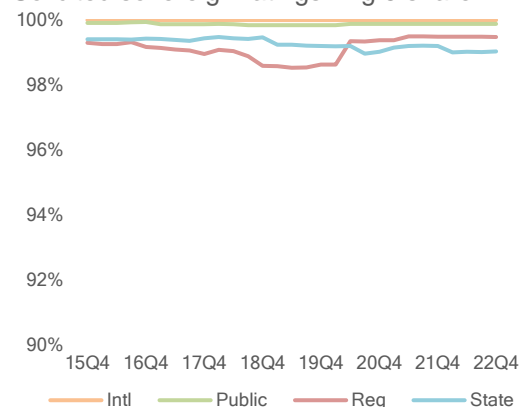
## Solicited sovereign ratings: Big 3 share



Note: Share of outstanding solicited EEA30 ratings issued by the Big 3 CRAs by asset class. Supranational omitted due to very small sample size. Intl - International, Reg - Regional.  
Sources: RADAR, ESMA.

MR-CR-S.131

## Solicited sovereign ratings: Big 5 share

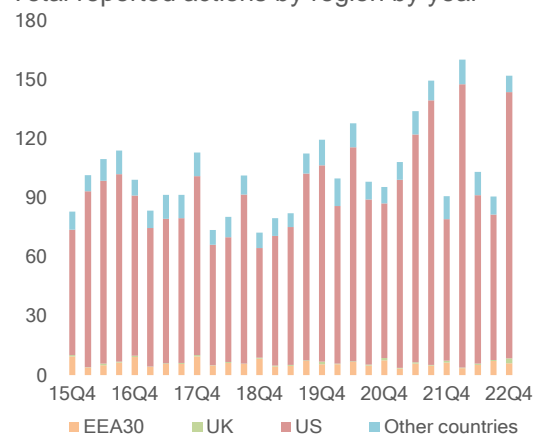


Note: Share of outstanding solicited EEA30 ratings issued by the Big 5 CRAs by asset class. Supranational omitted due to very small sample size. Intl - International, Reg - Regional.  
Sources: RADAR, ESMA.

## Sovereign rating action trends<sup>31</sup>

MR-CR-S.132

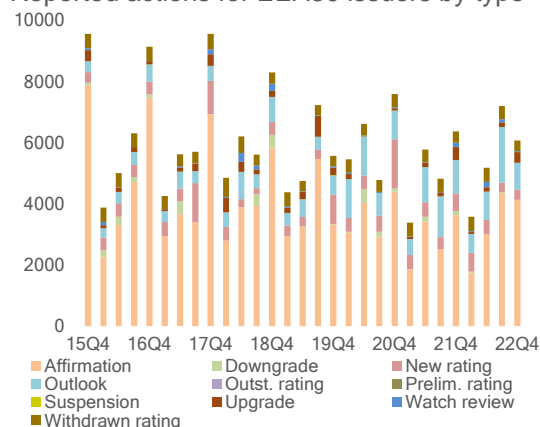
Total reported actions by region by year



Note: Number of sovereign rating actions reported by region/country of debt issuance per quarter in thousands.  
Sources: RADAR, ESMA.

MR-CR-S.133

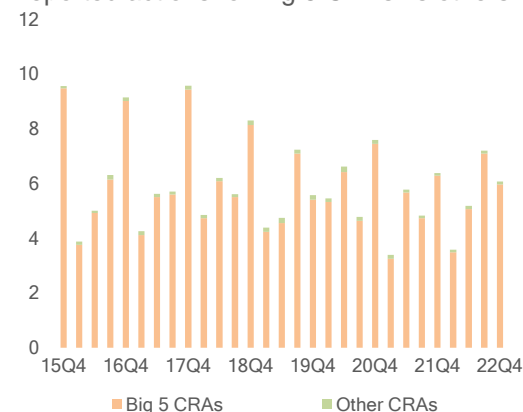
Reported actions for EEA30 issuers by type



Note: Number of sovereign rating actions for EEA30 issued debt by action type.  
Sources: RADAR, ESMA.

MR-CR-S.134

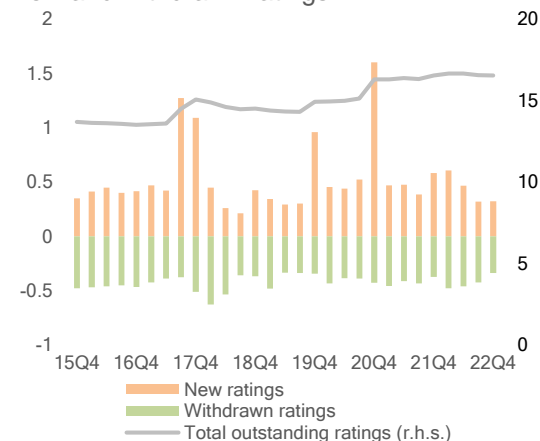
Reported actions for Big 5 CRAs vs others



Note: Number of rating actions for EEA30 sovereigns reported per quarter by Big 5 CRAs (DBRS, Fitch, Moody's, Scope and S&P) and other CRAs in thousands.  
Sources: RADAR, ESMA.

MR-CR-S.135

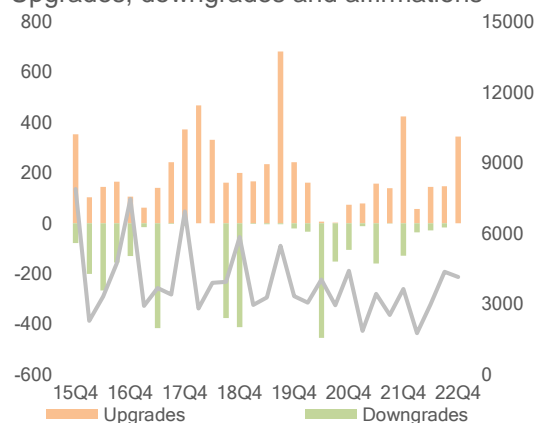
New and withdrawn ratings



Note: Quarterly number of new ratings, withdrawn ratings and total ratings outstanding for EEA30 sovereigns in thousands.  
Sources: RADAR, ESMA.

MR-CR-S.136

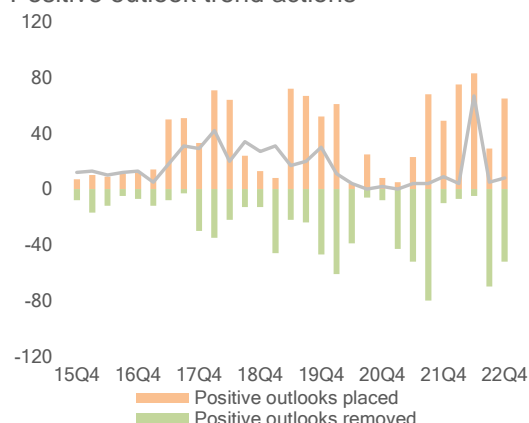
Upgrades, downgrades and affirmations



Note: Quarterly number of upgrades, downgrades and affirmations for EEA30 sovereigns. Downgrades multiplied by -1.  
Sources: RADAR, ESMA.

MR-CR-S.137

Positive outlook trend actions

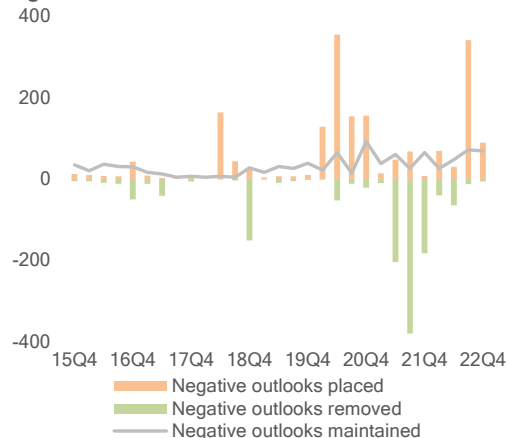


Note: Numbers of positive outlook trends placed, removed and maintained for EEA30 sovereigns.  
Sources: RADAR, ESMA.

<sup>31</sup> We do not include default charts for sovereigns because of the lack of defaults in this category for EEA30 ratings.

MR-CR-S.138

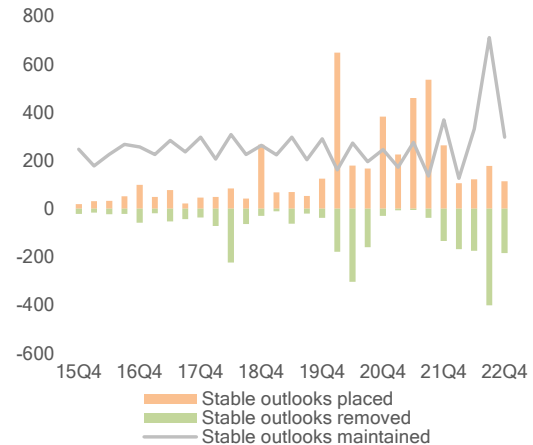
## Negative outlook trend actions



Note: Numbers of negative outlook trends placed, removed and maintained for EEA30 sovereigns.  
Sources: RADAR, ESMA.

MR-CR-S.139

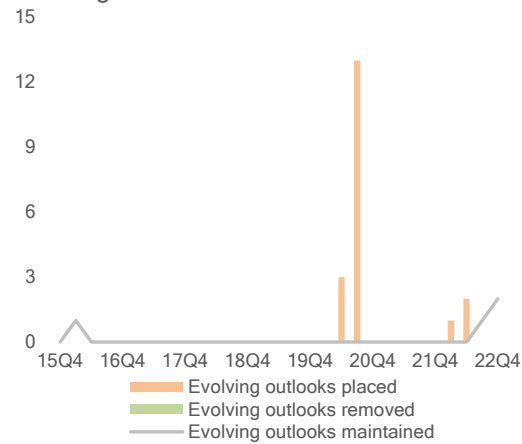
## Stable outlook trend actions



Note: Numbers of stable outlook trends placed, removed and maintained for EEA30 sovereigns.  
Sources: RADAR, ESMA.

MR-CR-S.140

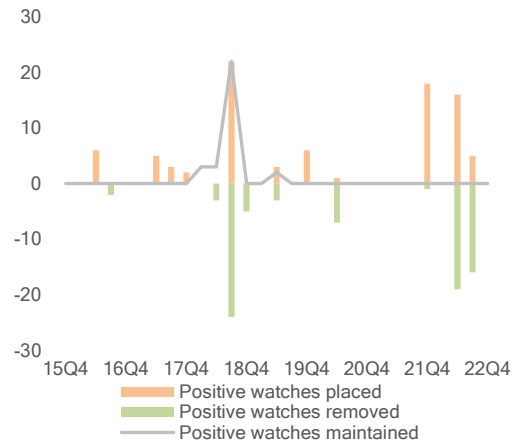
## Evolving outlook trend actions



Note: Numbers of evolving outlook trends placed, removed and maintained for EEA30 sovereigns.  
Sources: RADAR, ESMA.

MR-CR-S.141

## Positive watch review actions



Note: Numbers of positive watch reviews placed, removed and maintained for EEA30 sovereigns.  
Sources: RADAR, ESMA.

MR-CR-S.142

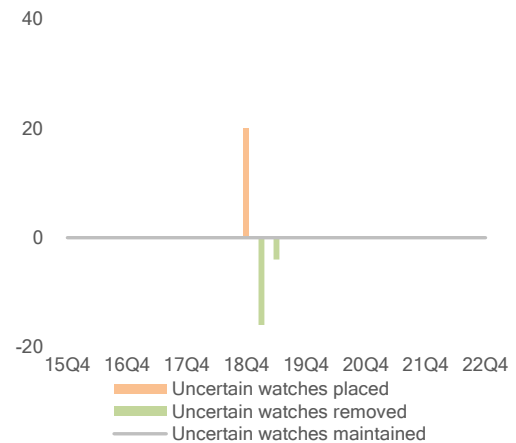
## Negative watch review actions



Note: Numbers of negative watch reviews placed, removed and maintained for EEA30 sovereigns.  
Sources: RADAR, ESMA.

MR-CR-S.143

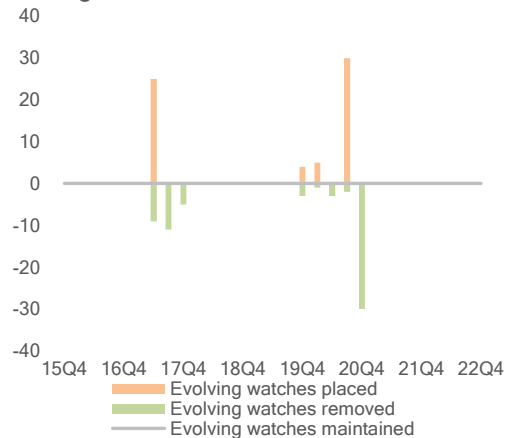
## Uncertain watch review actions



Note: Numbers of uncertain watch reviews placed, removed and maintained for EEA30 sovereigns.  
Sources: RADAR, ESMA.

MR-CR-S.144

## Evolving watch review actions

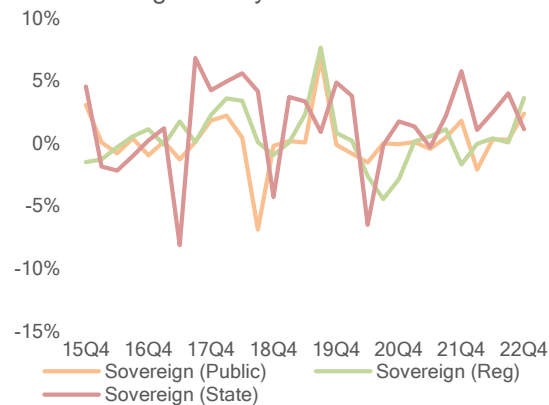


Note: Numbers of evolving watch reviews placed, removed and maintained for EEA30 sovereigns.  
Sources: RADAR, ESMA.

## Credit risk trends

MR-CR-S.145

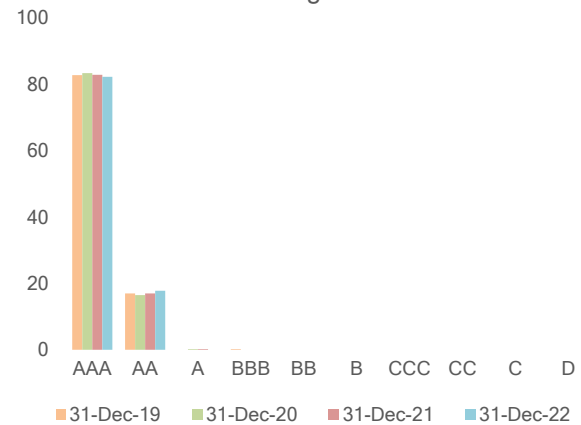
## EEA30 ratings drift by asset class



Note: Sovereign quarterly ratings drift (net total notch changes as a proportion of outstanding ratings) for EEA30 long term horizon ratings. Reg - regional. Supranational and international ratings omitted because these have very small sample sizes.  
Sources: RADAR, ESMA.

MR-CR-S.146

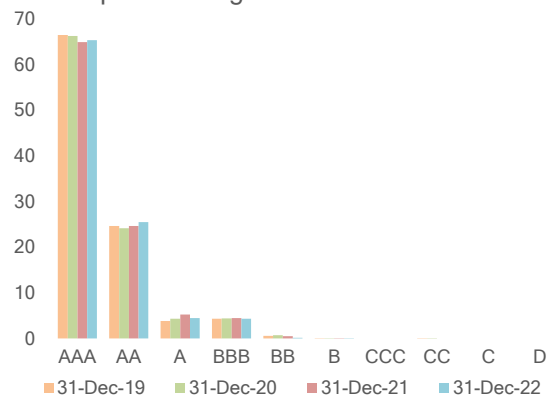
## EEA30 international ratings distribution



Note: Proportion of ratings for long term EEA30 sovereign international ratings rated by the Big 5 CRAs (Fitch ratings, Moody's, S&P, Scope, DBRS) at the end of 2019, 2020, 2021 and 2022.  
Sources: RADAR, ESMA.

MR-CR-S.147

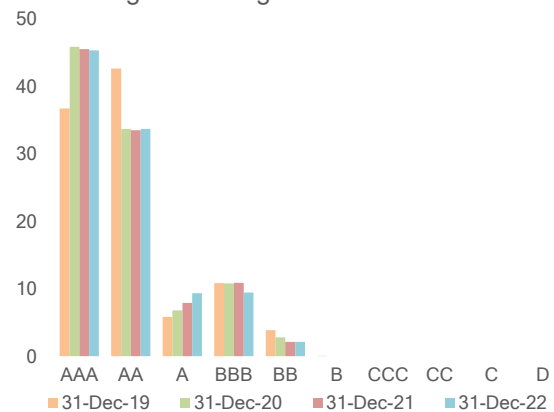
## EEA30 public ratings distribution



Note: Proportion of ratings for long term EEA30 sovereign public ratings rated by the Big 5 CRAs (Fitch ratings, Moody's, S&P, Scope, DBRS) at the end of 2019, 2020, 2021 and 2022.  
Sources: RADAR, ESMA.

MR-CR-S.148

## EEA30 regional ratings distribution

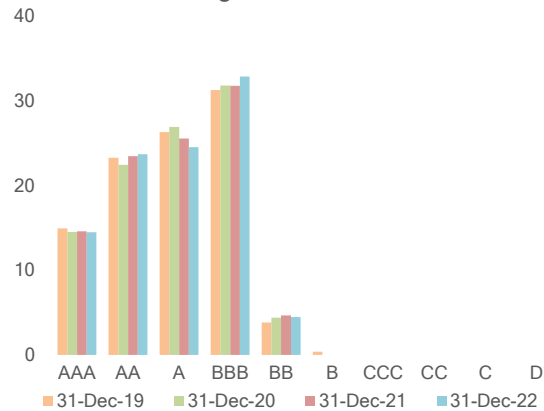


Note: Proportion of ratings for long term EEA30 sovereign regional ratings rated by the Big 5 CRAs (Fitch ratings, Moody's, S&P, Scope, DBRS) at the end of 2019, 2020, 2021 and 2022.  
Sources: RADAR, ESMA.



MR-CR-S.149

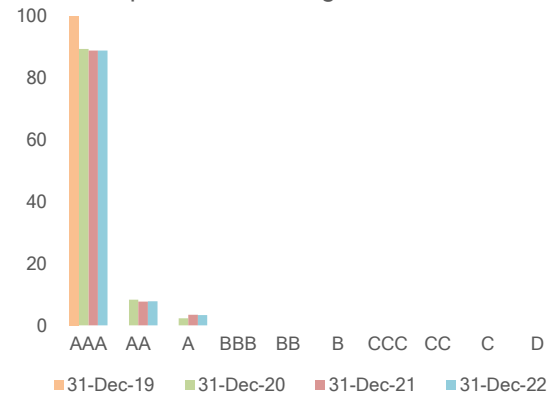
## EEA30 state ratings distribution



Note: Proportion of ratings for long term EEA30 sovereign state ratings rated by the Big 5 CRAs (Fitch ratings, Moody's, S&P, Scope, DBRS) at the end of 2019, 2020, 2021 and 2022.  
Sources: RADAR, ESMA.

MR-CR-S.150

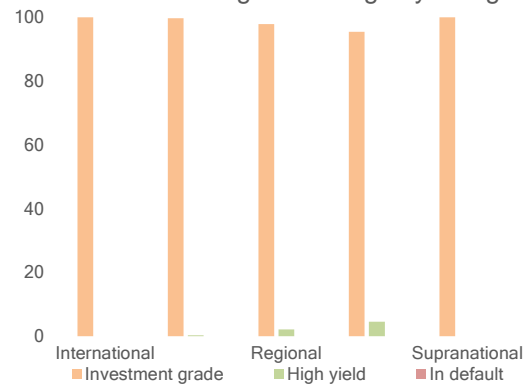
## EEA30 supranational ratings distribution



Note: Proportion of ratings for long term EEA30 sovereign supranational ratings rated by the Big 5 CRAs (Fitch ratings, Moody's, S&P, Scope, DBRS) at the end of 2019, 2020, 2021 and 2022.  
Sources: RADAR, ESMA.

MR-CR-S.151

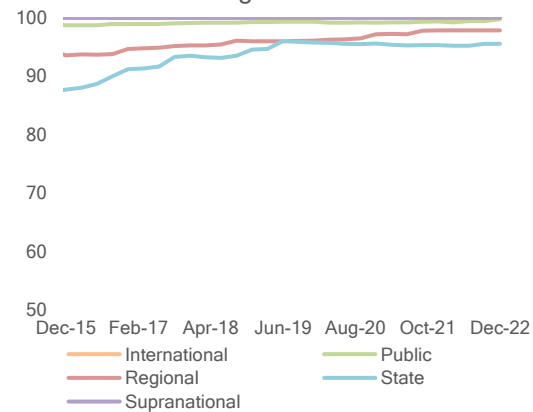
## EEA30 investment grade ratings by category



Note: Proportions of EEA30 sovereign ratings in investment grade, high yield and in default by asset class for long-term ratings issued by Big 5 CRAs (DBRS, Fitch, Moody's, Scope and S&P) as of 31 December 2022, in percent.  
Sources: RADAR, ESMA.

MR-CR-S.152

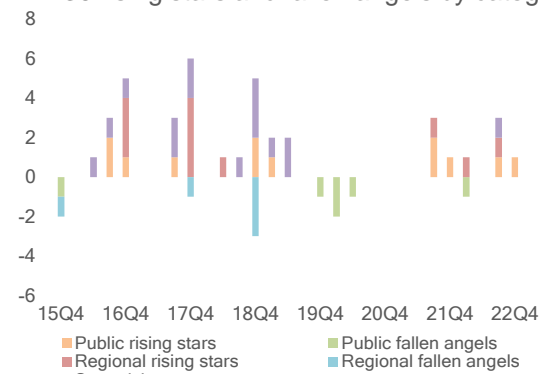
## EEA30 investment grade share over time



Note: Percentage of outstanding EEA30 sovereign ratings issued by the Big 5 CRAs (DBRS, Fitch, Moody's, Scope, S&P) that are investment grade by asset class.  
Sources: RADAR, ESMA.

MR-CR-S.153

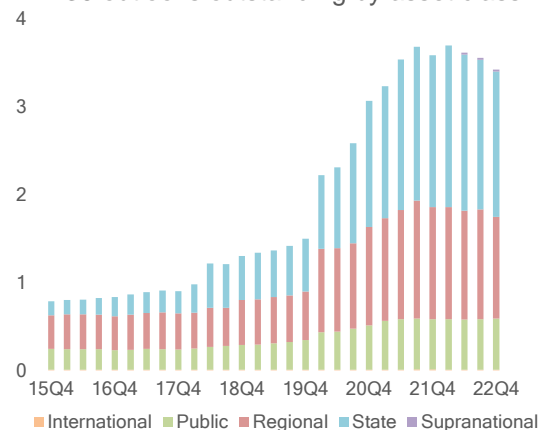
## EEA30 rising stars and fallen angels by category



Note: Number of EEA30 sovereign issuers (at group-level) with a rising star (upgrades to investment grade) or fallen angel (downgrades to high yield) among their debt with a long term sovereign rating issued by the Big 5 CRAs (DBRS, Fitch, Moody's, Scope and S&P) by asset class per quarter.  
Sources: RADAR, ESMA.

MR-CR-S.154

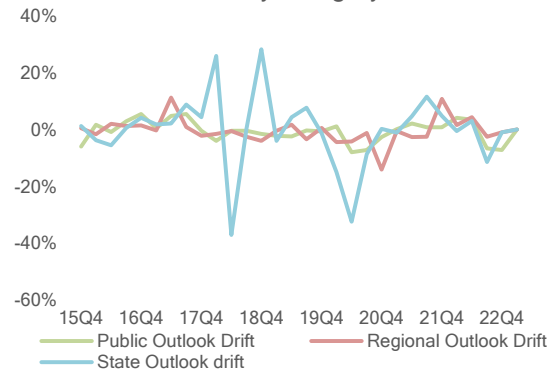
## EEA30 outlooks outstanding by asset class



Note: EEA30 long term sovereign ratings with outlooks at quarter end by asset class in thousands.  
Sources: RADAR, ESMA.

MR-CR-S.155

## EEA30 outlook drift by category

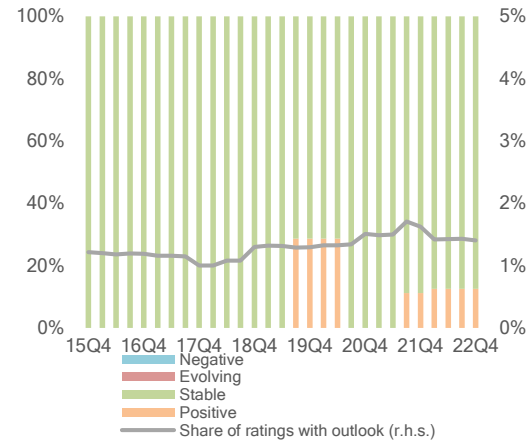


Note: EEA30 quarterly outlook drift for long term ratings in percent (quarterly net changes in outlooks, excluding where upgrade or downgrade in opposite direction to outlook change took place, divided by the number of outstanding outlooks) by asset class. International and supranational omitted because few/no outlooks for these categories..

Sources: RADAR, ESMA.

MR-CR-S.156

## EEA30 international outlooks over time

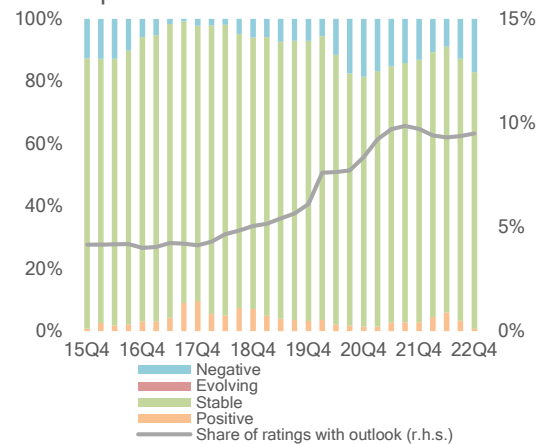


Note: Distribution of outlooks outstanding on long term EEA30 sovereign international ratings and share of ratings with an outlook assigned.

Sources: RADAR, ESMA.

MR-CR-S.157

## EEA30 public outlooks over time

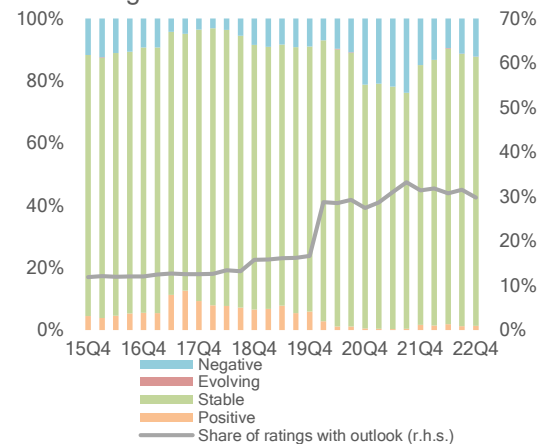


Note: Distribution of outlooks outstanding on long term EEA30 sovereign public ratings and share of ratings with an outlook assigned.

Sources: RADAR, ESMA.

MR-CR-S.158

## EEA30 regional outlooks over time

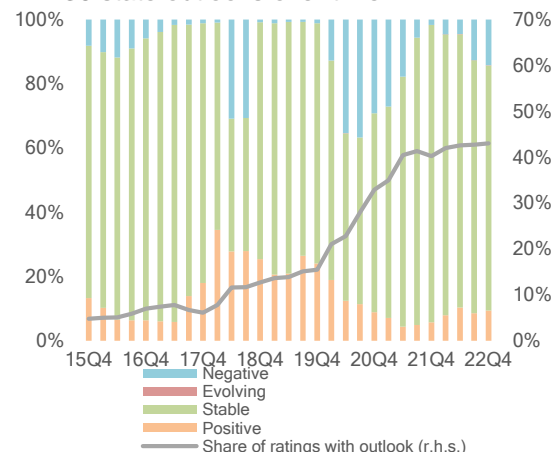


Note: Distribution of outlooks outstanding on long term EEA30 sovereign regional ratings and share of ratings with an outlook assigned.

Sources: RADAR, ESMA.

MR-CR-S.159

## EEA30 state outlooks over time

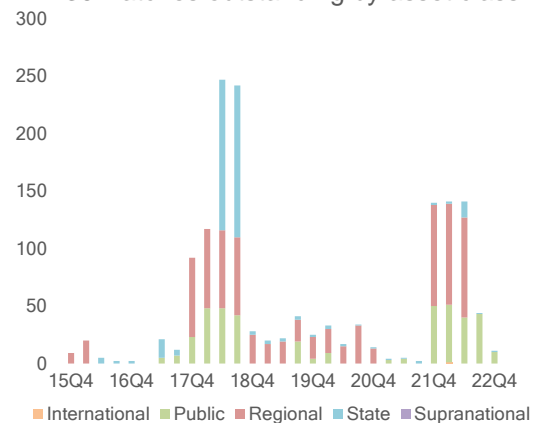


Note: Distribution of outlooks outstanding on long term EEA30 sovereign state ratings and share of ratings with an outlook assigned.

Sources: RADAR, ESMA.

MR-CR-S.160

## EEA30 watches outstanding by asset class

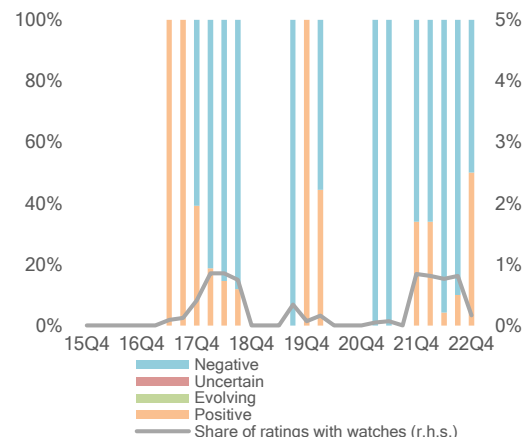


Note: EEA30 long term sovereign ratings with watches by asset class.

Sources: RADAR, ESMA.

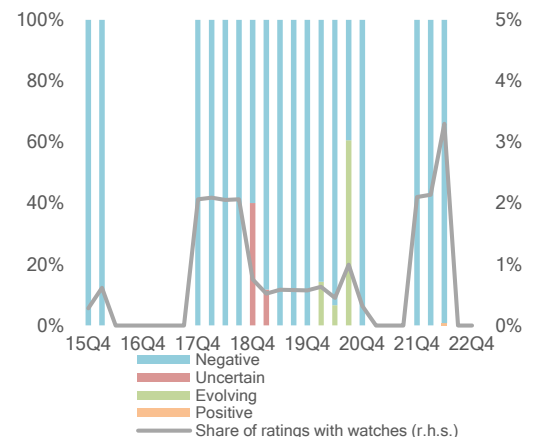
MR-CR-S.161

## EEA30 public watches over time



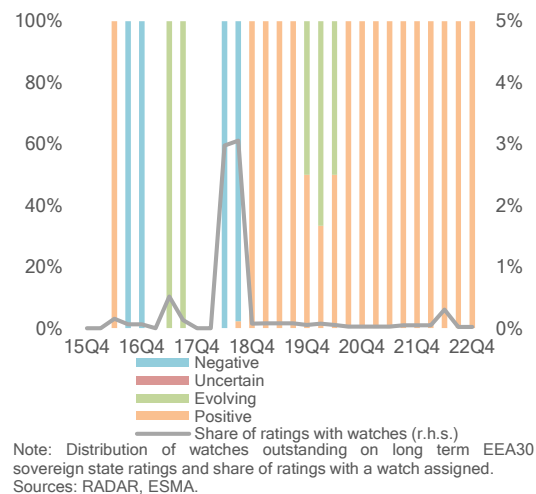
MR-CR-S.162

## EEA30 regional watches over time



MR-CR-S.163

## EEA30 state watches over time



## Rating accuracy metrics

MR-CR-S.164

## EEA30 International sovereigns transition matrix 2022

	AAA	AA	A	BBB	BB	B	CCC	CC	C	SD/D	WD(D)	WD(no D)
NEW	78.5%	21.5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
AAA	88.5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	11.5%
AA	0.0%	89.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	10.6%
A	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%
BBB	—	—	—	—	—	—	—	—	—	—	—	—
BB	—	—	—	—	—	—	—	—	—	—	—	—
B	—	—	—	—	—	—	—	—	—	—	—	—
CCC	—	—	—	—	—	—	—	—	—	—	—	—
CC	—	—	—	—	—	—	—	—	—	—	—	—
C	—	—	—	—	—	—	—	—	—	—	—	—
SD/D	—	—	—	—	—	—	—	—	—	—	—	—

Note: Rating transition matrix from Jan 1 2022 to Dec 31 2022 for EEA30 issuer and instrument international ratings by the Big 5 CRAs (DBRS, Fitch, Moody's, Scope, S&P). SD – selective default, D – default, NEW – rating first issued in 2022, WD (D) – withdrawn rating preceded by a default, WD (no D) – withdrawn rating not preceded by a default. A blank row signifies that there were no ratings with that rating at the beginning of the period.

Sources: RADAR, ESMA.

MR-CR-S.165

## EEA30 International sovereigns transition matrix 2021

	AAA	AA	A	BBB	BB	B	CCC	CC	C	SD/D	WD(D)	WD(no D)
NEW	83.9%	16.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
AAA	86.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	13.6%
AA	0.0%	90.8%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	9.2%
A	0.0%	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
BBB	—	—	—	—	—	—	—	—	—	—	—	—
BB	—	—	—	—	—	—	—	—	—	—	—	—
B	—	—	—	—	—	—	—	—	—	—	—	—
CCC	—	—	—	—	—	—	—	—	—	—	—	—
CC	—	—	—	—	—	—	—	—	—	—	—	—
C	—	—	—	—	—	—	—	—	—	—	—	—
SD/D	—	—	—	—	—	—	—	—	—	—	—	—

Note: Rating transition matrix from Jan 1 2021 to Dec 31 2021 for EEA30 issuer and instrument international ratings by the Big 5 CRAs (DBRS, Fitch, Moody's, Scope, S&P), SD – selective default, D – default, NEW – rating first issued in 2021, WD (D) – withdrawn rating preceded by a default, WD (no D) – withdrawn rating not preceded by a default. A blank row signifies that there were no ratings with that rating at the beginning of the period.

Sources: RADAR, ESMA.

MR-CR-S.166

## EEA30 International sovereigns transition matrix 2020

	AAA	AA	A	BBB	BB	B	CCC	CC	C	SD/D	WD(D)	WD(no D)
NEW	78.2%	21.8%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
AAA	83.5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	16.5%
AA	0.0%	73.9%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	26.1%
A	—	—	—	—	—	—	—	—	—	—	—	—
BBB	0.0%	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
BB	—	—	—	—	—	—	—	—	—	—	—	—
B	—	—	—	—	—	—	—	—	—	—	—	—
CCC	—	—	—	—	—	—	—	—	—	—	—	—
CC	—	—	—	—	—	—	—	—	—	—	—	—
C	—	—	—	—	—	—	—	—	—	—	—	—
SD/D	—	—	—	—	—	—	—	—	—	—	—	—

Note: Rating transition matrix from Jan 1 2020 to Dec 31 2020 for EEA30 issuer and instrument international ratings by the Big 5 CRAs (DBRS, Fitch, Moody's, Scope, S&P), SD – selective default, D – default, NEW – rating first issued in 2020, WD (D) – withdrawn rating preceded by a default, WD (no D) – withdrawn rating not preceded by a default. A blank row signifies that there were no ratings with that rating at the beginning of the period.

Sources: RADAR, ESMA.

MR-CR-S.167

## EEA30 Regional sovereigns transition matrix 2022

	AAA	AA	A	BBB	BB	B	CCC	CC	C	SD/D	WD(D)	WD(no D)
NEW	54.2%	37.3%	4.6%	3.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.8%
AAA	87.9%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	12.1%
AA	0.0%	89.5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	10.5%
A	0.0%	0.0%	91.5%	1.9%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	6.6%
BBB	0.0%	0.0%	13.5%	79.7%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	6.8%
BB	0.0%	0.0%	0.0%	2.3%	95.3%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	2.3%
B	—	—	—	—	—	—	—	—	—	—	—	—
CCC	—	—	—	—	—	—	—	—	—	—	—	—
CC	—	—	—	—	—	—	—	—	—	—	—	—
C	—	—	—	—	—	—	—	—	—	—	—	—
SD/D	—	—	—	—	—	—	—	—	—	—	—	—

Note: Rating transition matrix from Jan 1 2022 to Dec 31 2022 for EEA30 issuer and instrument regional ratings by the Big 5 CRAs (DBRS, Fitch, Moody's, Scope, S&P), SD – selective default, D – default, NEW – rating first issued in 2022, WD (D) – withdrawn rating preceded by a default, WD (no D) – withdrawn rating not preceded by a default. A blank row signifies that there were no ratings with that rating at the beginning of the period.

Sources: RADAR, ESMA.

MR-CR-S.168

## EEA30 Regional sovereigns transition matrix 2021

	AAA	AA	A	BBB	BB	B	CCC	CC	C	SD/D	WD(D)	WD(no D)
NEW	58.5%	26.5%	7.4%	7.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.3%
AAA	86.7%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	13.3%
AA	0.0%	91.2%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	8.8%
A	0.0%	0.0%	95.7%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	4.3%
BBB	0.0%	0.0%	5.7%	88.8%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	5.5%
BB	0.0%	0.0%	0.0%	19.1%	74.8%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	6.1%
B	—	—	—	—	—	—	—	—	—	—	—	—
CCC	—	—	—	—	—	—	—	—	—	—	—	—
CC	—	—	—	—	—	—	—	—	—	—	—	—
C	—	—	—	—	—	—	—	—	—	—	—	—
SD/D	—	—	—	—	—	—	—	—	—	—	—	—

Note: Rating transition matrix from Jan 1 2021 to Dec 31 2021 for EEA30 issuer and instrument regional ratings by the Big 5 CRAs (DBRS, Fitch, Moody's, Scope, S&P). SD – selective default, D – default, NEW – rating first issued in 2021, WD (D) – withdrawn rating preceded by a default, WD (no D) – withdrawn rating not preceded by a default. A blank row signifies that there were no ratings with that rating at the beginning of the period. Sources: RADAR, ESMA.

MR-CR-S.169

## EEA30 Regional sovereigns transition matrix 2020

	AAA	AA	A	BBB	BB	B	CCC	CC	C	SD/D	WD(D)	WD(no D)
NEW	73.0%	12.6%	2.7%	9.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	2.2%
AAA	82.2%	3.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	14.7%
AA	0.0%	84.7%	5.9%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	9.3%
A	0.0%	3.7%	85.3%	4.2%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	6.8%
BBB	0.0%	0.0%	0.0%	90.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	10.0%
BB	0.0%	0.0%	0.0%	0.0%	90.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	9.6%
B	0.0%	0.0%	0.0%	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
CCC	—	—	—	—	—	—	—	—	—	—	—	—
CC	—	—	—	—	—	—	—	—	—	—	—	—
C	—	—	—	—	—	—	—	—	—	—	—	—
SD/D	—	—	—	—	—	—	—	—	—	—	—	—

Note: Rating transition matrix from Jan 1 2020 to Dec 31 2020 for EEA30 issuer and instrument regional ratings by the Big 5 CRAs (DBRS, Fitch, Moody's, Scope, S&P). SD – selective default, D – default, NEW – rating first issued in 2020, WD (D) – withdrawn rating preceded by a default, WD (no D) – withdrawn rating not preceded by a default. A blank row signifies that there were no ratings with that rating at the beginning of the period. Sources: RADAR, ESMA.

MR-CR-S.170

## EEA30 Public sovereigns transition matrix 2022

	AAA	AA	A	BBB	BB	B	CCC	CC	C	SD/D	WD(D)	WD(no D)
NEW	65.8%	26.4%	3.6%	3.3%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.9%
AAA	92.8%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	7.2%
AA	0.0%	91.9%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	8.1%
A	0.0%	13.8%	79.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	6.8%
BBB	0.0%	0.0%	0.8%	86.8%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	12.5%
BB	0.0%	0.0%	0.0%	45.2%	35.5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	19.4%
B	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
CCC	—	—	—	—	—	—	—	—	—	—	—	—
CC	—	—	—	—	—	—	—	—	—	—	—	—
C	—	—	—	—	—	—	—	—	—	—	—	—
SD/D	—	—	—	—	—	—	—	—	—	—	—	—

Note: Rating transition matrix from Jan 1 2022 to Dec 31 2022 for EEA30 issuer and instrument public ratings by the Big 5 CRAs (DBRS, Fitch, Moody's, Scope, S&P). SD – selective default, D – default, NEW – rating first issued in 2022, WD (D) – withdrawn rating preceded by a default, WD (no D) – withdrawn rating not preceded by a default. A blank row signifies that there were no ratings with that rating at the beginning of the period. Sources: RADAR, ESMA.

MR-CR-S.171

## EEA30 Public sovereigns transition matrix 2021

	AAA	AA	A	BBB	BB	B	CCC	CC	C	SD/D	WD(D)	WD(no D)
NEW	46.3%	33.9%	11.3%	7.1%	0.9%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.5%
AAA	92.2%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	7.8%
AA	0.0%	89.6%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	10.0%
A	0.0%	0.0%	87.7%	1.6%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	10.7%
BBB	0.0%	0.0%	7.8%	84.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	7.8%
BB	0.0%	0.0%	0.0%	11.6%	60.5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	27.9%
B	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
CCC	—	—	—	—	—	—	—	—	—	—	—	—
CC	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%
C	—	—	—	—	—	—	—	—	—	—	—	—
SD/D	—	—	—	—	—	—	—	—	—	—	—	—

Note: Rating transition matrix from Jan 1 2021 to Dec 31 2021 for EEA30 issuer and instrument public ratings by the Big 5 CRAs (DBRS, Fitch, Moody's, Scope, S&P), SD – selective default, D – default, NEW – rating first issued in 2021, WD (D) – withdrawn rating preceded by a default, WD (no D) – withdrawn rating not preceded by a default. A blank row signifies that there were no ratings with that rating at the beginning of the period. Sources: RADAR, ESMA.

MR-CR-S.172

## EEA30 Public sovereigns transition matrix 2020

	AAA	AA	A	BBB	BB	B	CCC	CC	C	SD/D	WD(D)	WD(no D)
NEW	59.5%	23.5%	9.3%	4.2%	0.3%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	3.4%
AAA	92.5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	7.5%
AA	0.0%	90.2%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	9.8%
A	0.0%	0.0%	85.8%	8.5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	5.7%
BBB	0.0%	0.0%	0.0%	85.8%	5.8%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	8.3%
BB	0.0%	0.0%	0.0%	0.0%	87.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	12.9%
B	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
CCC	—	—	—	—	—	—	—	—	—	—	—	—
CC	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%
C	—	—	—	—	—	—	—	—	—	—	—	—
SD/D	—	—	—	—	—	—	—	—	—	—	—	—

Note: Rating transition matrix from Jan 1 2020 to Dec 31 2020 for EEA30 issuer and instrument public ratings by the Big 5 CRAs (DBRS, Fitch, Moody's, Scope, S&P), SD – selective default, D – default, NEW – rating first issued in 2020, WD (D) – withdrawn rating preceded by a default, WD (no D) – withdrawn rating not preceded by a default. A blank row signifies that there were no ratings with that rating at the beginning of the period. Sources: RADAR, ESMA.

MR-CR-S.173

## EEA30 State sovereigns transition matrix 2022

	AAA	AA	A	BBB	BB	B	CCC	CC	C	SD/D	WD(D)	WD(no D)
NEW	15.2%	15.8%	25.5%	40.6%	3.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
AAA	90.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	10.0%
AA	0.0%	90.8%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	9.2%
A	0.0%	3.7%	86.8%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	9.5%
BBB	0.0%	0.0%	0.2%	91.3%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	8.5%
BB	0.0%	0.0%	0.0%	6.6%	90.2%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	3.3%
B	—	—	—	—	—	—	—	—	—	—	—	—
CCC	—	—	—	—	—	—	—	—	—	—	—	—
CC	—	—	—	—	—	—	—	—	—	—	—	—
C	—	—	—	—	—	—	—	—	—	—	—	—
SD/D	—	—	—	—	—	—	—	—	—	—	—	—

Note: Rating transition matrix from Jan 1 2022 to Dec 31 2022 for EEA30 issuer and instrument state ratings by the Big 5 CRAs (DBRS, Fitch, Moody's, Scope, S&P), SD – selective default, D – default, NEW – rating first issued in 2022, WD (D) – withdrawn rating preceded by a default, WD (no D) – withdrawn rating not preceded by a default. A blank row signifies that there were no ratings with that rating at the beginning of the period. Sources: RADAR, ESMA.

MR-CR-S.174

## EEA30 State sovereigns transition matrix 2021

	AAA	AA	A	BBB	BB	B	CCC	CC	C	SD/D	WD(D)	WD(no D)
NEW	15.1%	17.4%	30.2%	32.7%	3.8%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.8%
AAA	91.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	8.6%
AA	0.0%	92.6%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	7.4%
A	0.0%	4.8%	85.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	10.2%
BBB	0.0%	0.0%	0.0%	91.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	9.0%
BB	0.0%	0.0%	0.0%	0.0%	98.8%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	1.2%
B	—	—	—	—	—	—	—	—	—	—	—	—
CCC	—	—	—	—	—	—	—	—	—	—	—	—
CC	—	—	—	—	—	—	—	—	—	—	—	—
C	—	—	—	—	—	—	—	—	—	—	—	—
SD/D	—	—	—	—	—	—	—	—	—	—	—	—

Note: Rating transition matrix from Jan 1 2021 to Dec 31 2021 for for EEA30 issuer and instrument state ratings by the Big 5 CRAs (DBRS, Fitch, Moody's, Scope, S&P), SD – selective default, D – default, NEW – rating first issued in 2021, WD (D) – withdrawn rating preceded by a default, WD (no D) – withdrawn rating not preceded by a default. A blank row signifies that there were no ratings with that rating at the beginning of the period. Sources: RADAR, ESMA.

MR-CR-S.175

## EEA30 State sovereigns transition matrix 2020

	AAA	AA	A	BBB	BB	B	CCC	CC	C	SD/D	WD(D)	WD(no D)
NEW	13.8%	19.2%	24.7%	38.7%	3.6%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
AAA	87.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	12.9%
AA	0.0%	87.2%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	12.8%
A	0.0%	0.4%	89.8%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	9.8%
BBB	0.0%	0.0%	2.0%	87.3%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	10.7%
BB	0.0%	0.0%	0.0%	0.0%	95.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	4.9%
B	0.0%	0.0%	0.0%	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
CCC	—	—	—	—	—	—	—	—	—	—	—	—
CC	—	—	—	—	—	—	—	—	—	—	—	—
C	—	—	—	—	—	—	—	—	—	—	—	—
SD/D	—	—	—	—	—	—	—	—	—	—	—	—

Note: Rating transition matrix from Jan 1 2020 to Dec 31 2020 for EEA30 issuer and instrument state ratings by the Big 5 CRAs (DBRS, Fitch, Moody's, Scope, S&P), SD – selective default, D – default, NEW – rating first issued in 2020, WD (D) – withdrawn rating preceded by a default, WD (no D) – withdrawn rating not preceded by a default. A blank row signifies that there were no ratings with that rating at the beginning of the period. Sources: RADAR, ESMA.

MR-CR-S.176

## EEA30 Supranational sovereigns transition matrix 2022

	AAA	AA	A	BBB	BB	B	CCC	CC	C	SD/D	WD(D)	WD(no D)
NEW	90.2%	8.2%	1.6%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
AAA	89.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	11.0%
AA	0.0%	89.8%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	10.2%
A	0.0%	0.0%	90.9%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	9.1%
BBB	—	—	—	—	—	—	—	—	—	—	—	—
BB	—	—	—	—	—	—	—	—	—	—	—	—
B	—	—	—	—	—	—	—	—	—	—	—	—
CCC	—	—	—	—	—	—	—	—	—	—	—	—
CC	—	—	—	—	—	—	—	—	—	—	—	—
C	—	—	—	—	—	—	—	—	—	—	—	—
SD/D	—	—	—	—	—	—	—	—	—	—	—	—

Note: Rating transition matrix from Jan 1 2022 to Dec 31 2022 for EEA30 issuer and instrument supranational ratings by the Big 5 CRAs (DBRS, Fitch, Moody's, Scope, S&P), SD – selective default, D – default, NEW – rating first issued in 2022, WD (D) – withdrawn rating preceded by a default, WD (no D) – withdrawn rating not preceded by a default. A blank row signifies that there were no ratings with that rating at the beginning of the period. Sources: RADAR, ESMA.

MR-CR-S.177

## EEA30 Supranational sovereigns transition matrix 2021

	AAA	AA	A	BBB	BB	B	CCC	CC	C	SD/D	WD(D)	WD(no D)
NEW	90.2%	8.2%	1.6%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
AAA	89.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	11.0%
AA	0.0%	89.8%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	10.2%
A	0.0%	0.0%	90.9%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	9.1%
BBB	—	—	—	—	—	—	—	—	—	—	—	—
BB	—	—	—	—	—	—	—	—	—	—	—	—
B	—	—	—	—	—	—	—	—	—	—	—	—
CCC	—	—	—	—	—	—	—	—	—	—	—	—
CC	—	—	—	—	—	—	—	—	—	—	—	—
C	—	—	—	—	—	—	—	—	—	—	—	—
SD/D	—	—	—	—	—	—	—	—	—	—	—	—

Note: Rating transition matrix from Jan 1 2021 to Dec 31 2021 for EEA30 issuer and instrument supranational ratings by the Big 5 CRAs (DBRS, Fitch, Moody's, Scope, S&P), SD – selective default, D – default, NEW – rating first issued in 2021, WD (D) – withdrawn rating preceded by a default, WD (no D) – withdrawn rating not preceded by a default. A blank row signifies that there were no ratings with that rating at the beginning of the period.

Sources: RADAR, ESMA.

MR-CR-S.178

## EEA30 Supranational sovereigns transition matrix 2020

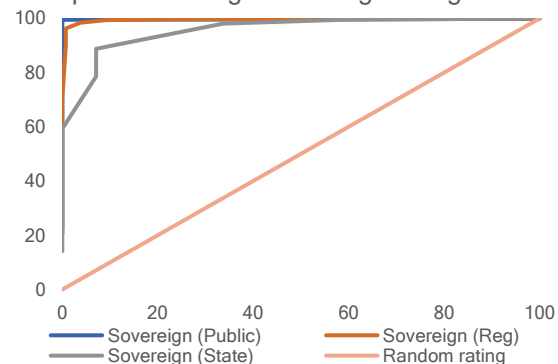
	AAA	AA	A	BBB	BB	B	CCC	CC	C	SD/D	WD(D)	WD(no D)
NEW	68.5%	23.6%	6.5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	1.4%
AAA	84.7%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	15.3%
AA	—	—	—	—	—	—	—	—	—	—	—	—
A	—	—	—	—	—	—	—	—	—	—	—	—
BBB	—	—	—	—	—	—	—	—	—	—	—	—
BB	—	—	—	—	—	—	—	—	—	—	—	—
B	—	—	—	—	—	—	—	—	—	—	—	—
CCC	—	—	—	—	—	—	—	—	—	—	—	—
CC	—	—	—	—	—	—	—	—	—	—	—	—
C	—	—	—	—	—	—	—	—	—	—	—	—
SD/D	—	—	—	—	—	—	—	—	—	—	—	—

Note: Rating transition matrix from Jan 1 2020 to Dec 31 2020 for EEA30 issuer and instrument supranational ratings by the Big 5 CRAs (DBRS, Fitch, Moody's, Scope, S&P), SD – selective default, D – default, NEW – rating first issued in 2020, WD (D) – withdrawn rating preceded by a default, WD (no D) – withdrawn rating not preceded by a default. A blank row signifies that there were no ratings with that rating at the beginning of the period.

Sources: RADAR, ESMA.

MR-CR-S.179

## CAP profiles for Big 5 sovereign ratings

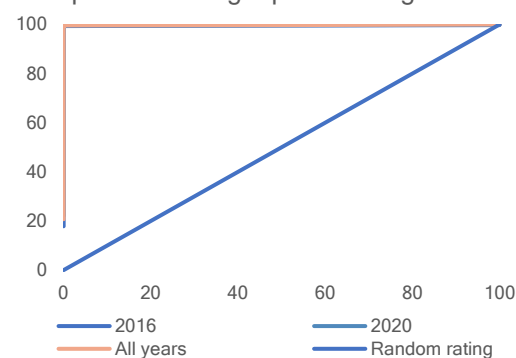


Note: Cumulative accuracy profile for Big 5 CRA long term EEA and non-EEA sovereign ratings by asset class, weighted average of profile for years 2016-2022, plotting cumulative distribution of defaults in year (x-axis) against cumulative distribution of ratings at year-start in order of increasing risk (y-axis), axes in percent. Random rating shows curve were defaults equally likely in all rating categories.

Sources: ESMA, RADAR.

MR-CR-S.180

## CAP profiles for Big 5 public ratings



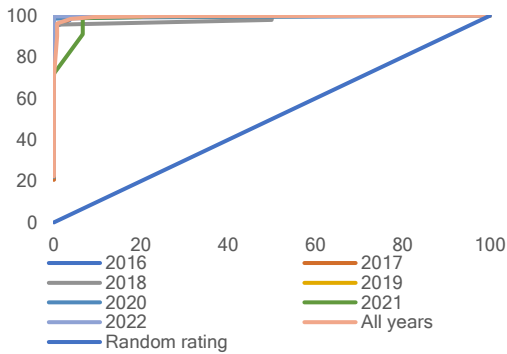
Note: Cumulative accuracy profile for Big 5 CRA long term EEA and non-EEA sovereign public ratings by year, plotting cumulative distribution of defaults in year (x-axis) against cumulative distribution of ratings at year-start in order of increasing risk (y-axis), axes in percent. Random rating shows curve were defaults equally likely in all rating categories. Years without defaults are omitted.

Sources: ESMA, RADAR.



MR-CR-S.181

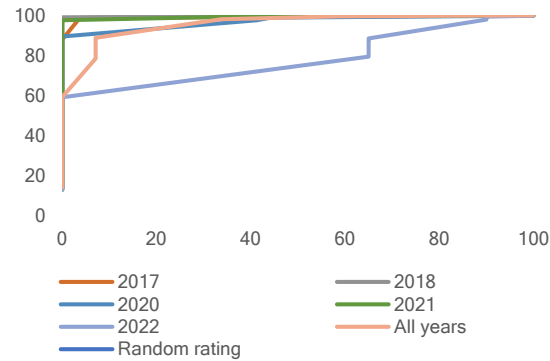
CAP profiles for Big 5 regional ratings



Note: Cumulative accuracy profile for Big 5 CRA long term EEA and non-EEA sovereign regional ratings by year, plotting cumulative distribution of defaults in year (x-axis) against cumulative distribution of ratings at year-start in order of increasing risk (y-axis), axes in percent. Random rating shows curve were defaults equally likely in all rating categories.  
Sources: ESMA.RADAR.

MR-CR-S.182

CAP profiles for Big 5 state ratings



Note: Cumulative accuracy profile for Big 5 CRA long term EEA and non-EEA sovereign state ratings by year, plotting cumulative distribution of defaults in year (x-axis) against cumulative distribution of ratings at year-start in order of increasing risk (y-axis), axes in percent. Random rating shows curve were defaults equally likely in all rating categories. Years without defaults are omitted.  
Sources: ESMA.RADAR.

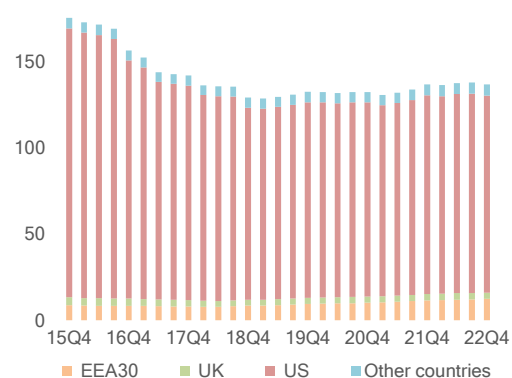
# Structured finance

## Outstanding ratings

MR-CR-S.183

### Structured finance ratings by region

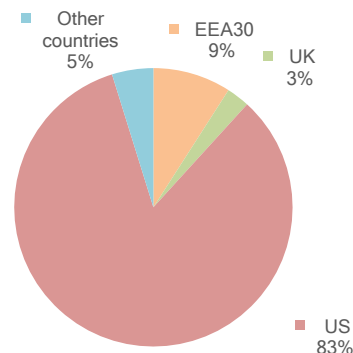
200



Note: Total outstanding structured finance ratings in thousands split by region of the rated issuer or instrument.  
Sources: RADAR, ESMA.

MR-CR-S.184

### Structured finance ratings by region end 2022

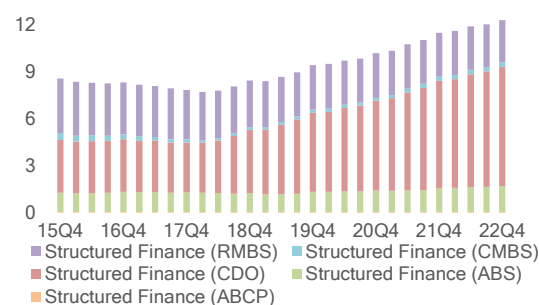


Note: Proportions of total outstanding structured finance ratings by region of the rated issuer or instrument as of the end of 2022 in percent.  
Sources: RADAR, ESMA.

MR-CR-S.185

### EEA30 structured finance ratings by asset class

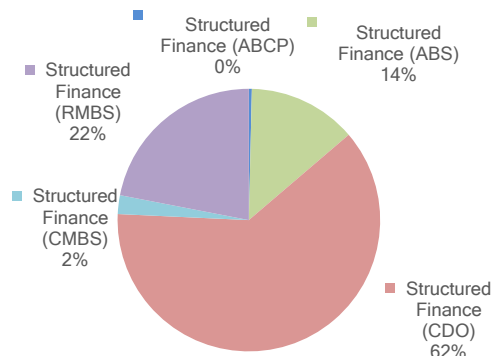
15



Note: Total outstanding structured finance ratings for EEA30 issued debt in thousands split by asset class. ABCP - asset backed commercial paper, ABCP - asset backed commercial paper, ABS - asset backed security, CDO - collateralised debt obligation, CMBS - commercial mortgage backed security, RMBS - residential mortgage backed security.  
Sources: RADAR, ESMA.

MR-CR-S.186

### EEA30 structured finance ratings by type end 2022

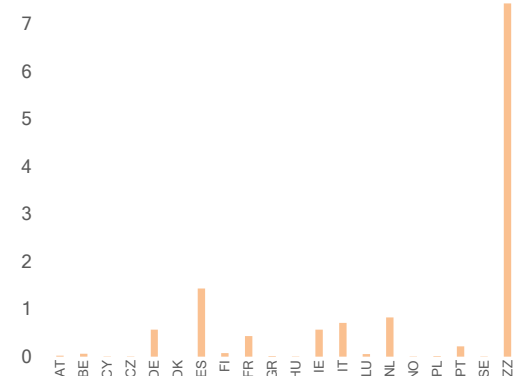


Note: Proportions of outstanding structured finance ratings by asset class as of the end of 2022 in percent. ABCP - Asset backed commercial paper, ABS - Asset Backed Securities, CDO - Collateral Debt Obligations, CMBS - Commercial Mortgage Backed Securities, RMBS - Residential Mortgage Backed Securities.  
Sources: RADAR, ESMA.

MR-CR-S.187

### EEA30 structured finance by country of debt

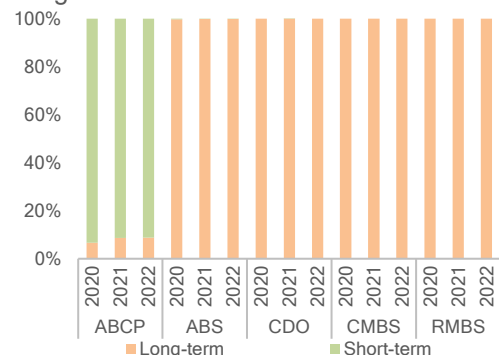
8



Note: Total number of outstanding structured finance ratings in EEA30 in thousands by member state of debt issuance as of the end of 2022. ZZ - combination of countries.  
Sources: RADAR, ESMA.

MR-CR-S.188

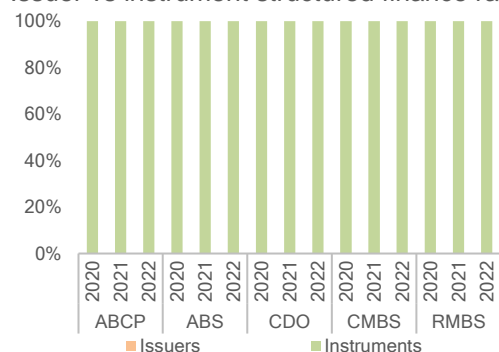
### Long vs. short term structured finance ratings



Note: Proportions of outstanding structured finance ratings of EEA30-issued debt by horizon of rating, by asset class, at the ends of 2020, 2021 and 2022 in percent. ABCP - asset backed commercial paper, ABS - asset backed security, CDO - collateralised debt obligation, CMBS - commercial mortgage backed security, RMBS - residential mortgage backed security.  
Sources: RADAR, ESMA.

MR-CR-S.189

## Issuer vs instrument structured finance ratings



Note: Proportions of outstanding structured finance ratings of EEA30-issued debt by type of rated object, by asset class, at the ends of 2020, 2021 and 2022 in percent. ABCP - asset backed commercial paper, ABCP - asset backed commercial paper, ABS - asset backed security, CDO - collateralised debt obligation, CMBS - commercial mortgage backed security, RMBS - residential mortgage backed security.

Sources: RADAR, ESMA.

MR-CR-S.190

## Solicited vs. unsolicited structured finance ratings

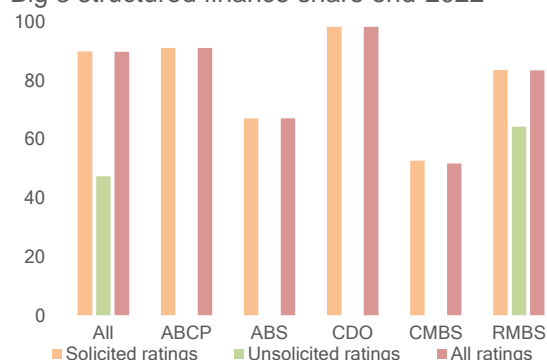


Note: Proportions of outstanding structured finance ratings of EEA30-issued debt by solication status of rating, by asset class, at the ends of 2020, 2021 and 2022 in percent. ABCP - asset backed commercial paper, ABS - asset backed security, CDO - collateralised debt obligation, CMBS - commercial mortgage backed security, RMBS - residential mortgage backed security.

Sources: RADAR, ESMA.

MR-CR-S.191

## Big 3 structured finance share end-2022

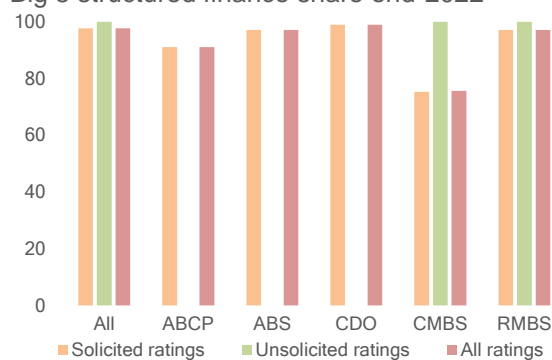


Note: Share of structured finance EEA30 ratings held by the Big 3 CRAs (Fitch Ratings, Moody's Investors and Standard and Poors) as of the end of 2022 in percent. ABCP - asset backed commercial paper, ABCP - asset backed commercial paper, ABS - asset backed security, CDO - collateralised debt obligation, CMBS - commercial mortgage backed security, RMBS - residential mortgage backed security..

Sources: ESMA. RADAR.

MR-CR-S.192

## Big 5 structured finance share end-2022

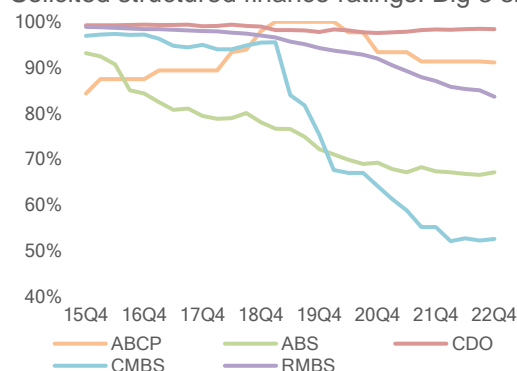


Note: Share of structured finance EEA30 ratings held by the Big 5 CRAs (DBRS, Fitch Ratings, Moody's Investors, Scope and Standard and Poors) as of the end of 2022 in percent. ABCP - asset backed commercial paper, ABCP - asset backed commercial paper, ABS - asset backed security, CDO - collateralised debt obligation, CMBS - commercial mortgage backed security, RMBS - residential mortgage backed security..

Sources: ESMA. RADAR.

MR-CR-S.193

## Solicited structured finance ratings: Big 3 share

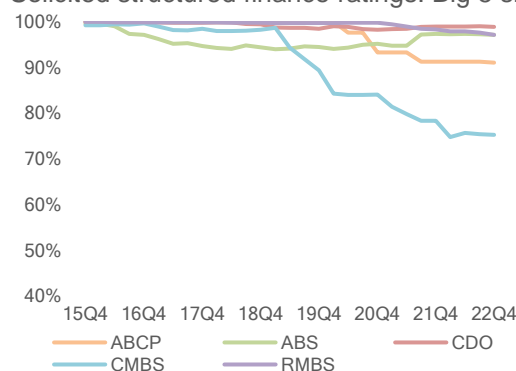


Note: Share of outstanding solicited EEA30 structured finance ratings issued by the Big 3 CRAs by asset class. ABCP - asset backed commercial paper, ABCP - asset backed commercial paper, ABS - asset backed security, CDO - collateralised debt obligation, CMBS - commercial mortgage backed security, RMBS - residential mortgage backed security.

Sources: RADAR, ESMA.

MR-CR-S.194

## Solicited structured finance ratings: Big 5 share



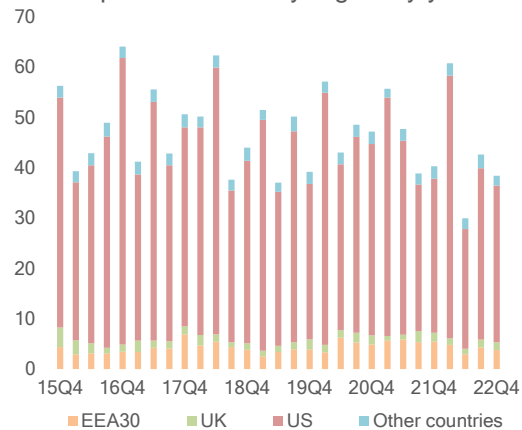
Note: Share of outstanding solicited EEA30 structured finance ratings issued by the Big 5 CRAs by asset class. ABCP - asset backed commercial paper, ABCP - asset backed commercial paper, ABS - asset backed security, CDO - collateralised debt obligation, CMBS - commercial mortgage backed security, RMBS - residential mortgage backed security.

Sources: RADAR, ESMA.

## Rating action trends

MR-CR-S.195

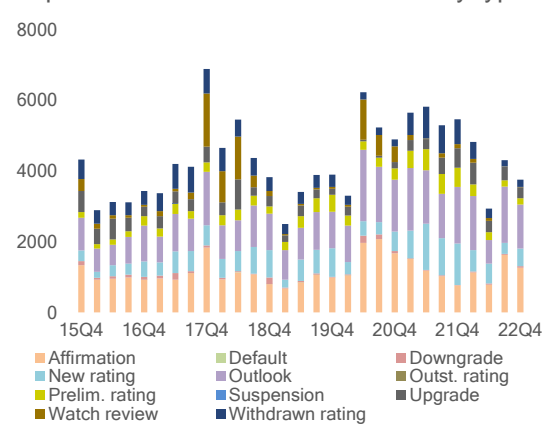
### Total reported actions by region by year



Note: Number of structured finance rating actions reported per quarter by region/country of debt issuance in thousands.  
Sources: RADAR, ESMA.

MR-CR-S.196

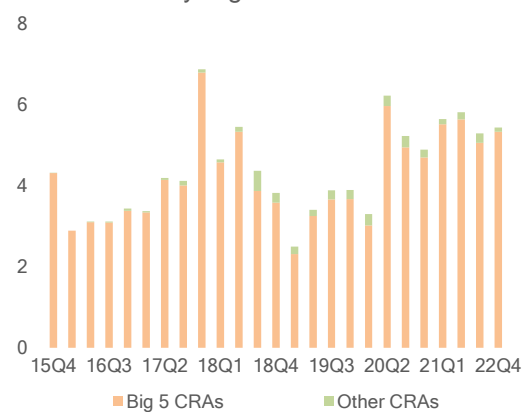
### Reported actions for EEA30 issuers by type



Note: Number of structured finance rating actions for EEA30 issued debt by action type.  
Sources: RADAR, ESMA.

MR-CR-S.197

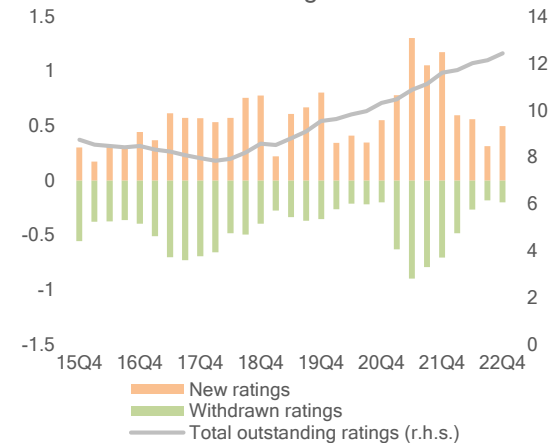
### Total actions by Big 5 CRAs vs others



Note: Number of rating actions for EEA30 structured finance reported per quarter by Big 5 CRAs (DBRS, Fitch, Moody's, Scope and S&P) and other CRAs in thousands.  
Sources: RADAR, ESMA.

MR-CR-S.198

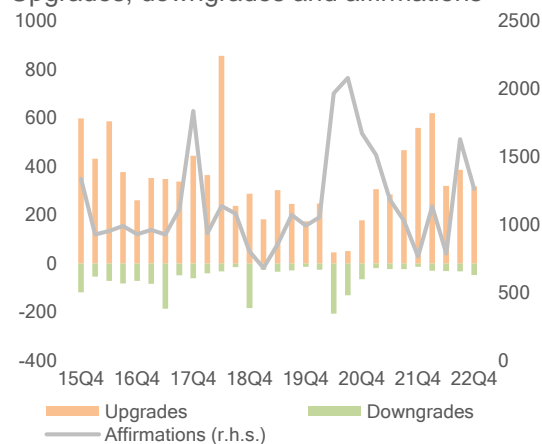
### New and withdrawn ratings



Note: Quarterly number of new, withdrawn and total number of outstanding ratings for EEA30 structured finance in thousands.  
Sources: RADAR, ESMA.

MR-CR-S.199

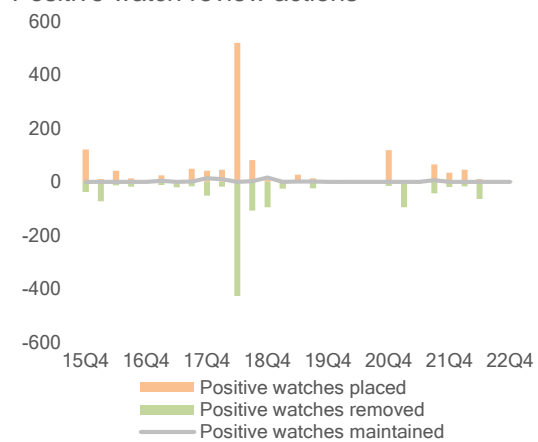
### Upgrades, downgrades and affirmations



Note: Quarterly number of upgrades, downgrades and affirmations for ratings of EEA30 structured finance.  
Sources: RADAR, ESMA.

MR-CR-S.200

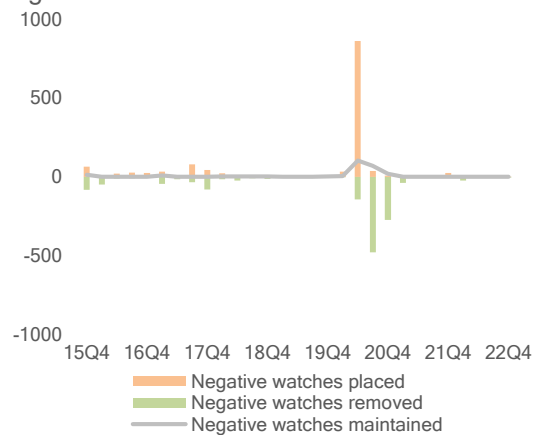
### Positive watch review actions



Note: Number of positive watch reviews placed, removed and maintained for ratings of EEA30 structured finances.  
Sources: RADAR, ESMA.

MR-CR-S.201

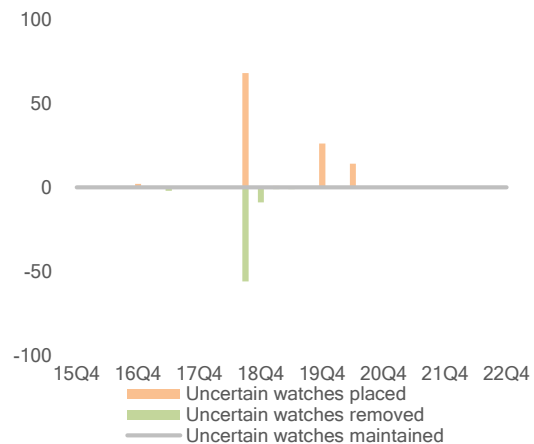
## Negative watch review actions



Note: Number of negative watch reviews placed, removed and maintained for ratings of EEA30 structured finance.  
Sources: RADAR, ESMA.

MR-CR-S.202

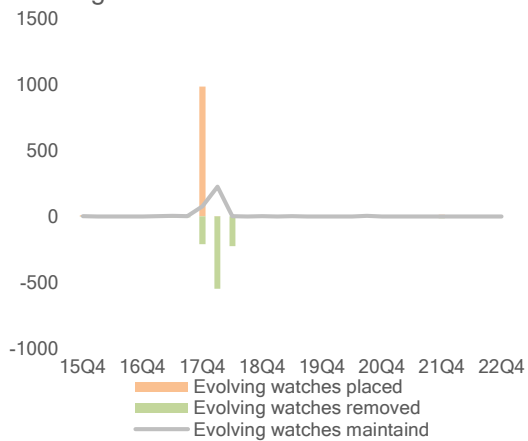
## Uncertain watch review actions



Note: Number of uncertain watch reviews placed, removed and maintained for ratings of EEA30 structured finance.  
Sources: RADAR, ESMA.

MR-CR-S.203

## Evolving watch review actions

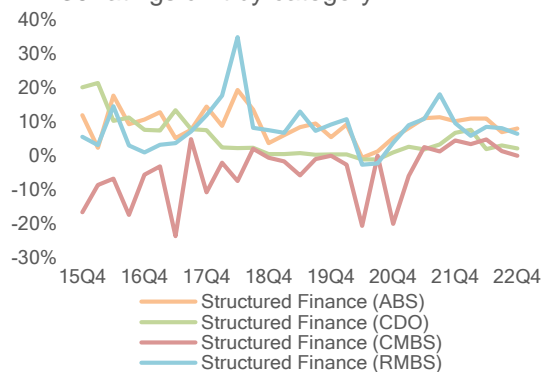


Note: Number of evolving watch reviews placed, removed and maintained for EEA30 structured finance ratings.  
Sources: RADAR, ESMA.

## Credit risk trends

MR-CR-S.204

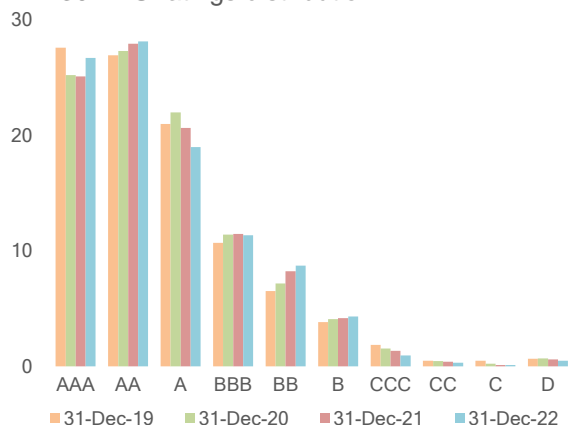
## EEA30 ratings drift by category



Note: Structured finance quarterly ratings drift (net total notch changes as proportion of outstanding ratings) for EEA30 long term horizon ratings. ABS - asset backed securities, CDO - collateralised debt obligation, CMBS - commercial mortgage backed securities, RMBS - retail mortgage backed securities. Asset backed commercial paper omitted due to very small sample size.  
Sources: RADAR, ESMA.

MR-CR-S.205

## EEA30 ABS ratings distribution

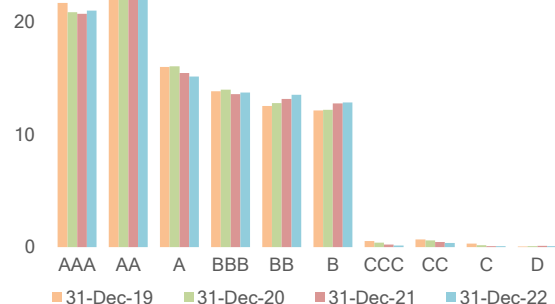


Note: Proportion of ratings for long term EEA30 structured finance ABS ratings rated by the Big 5 CRAs (Fitch ratings, Moody's, S&P, Scope, DBRS) at the end of 2019, 2020, 2021 and 2022.  
Sources: RADAR, ESMA.

MR-CR-S.206

## EEA30 CDO ratings distribution

30

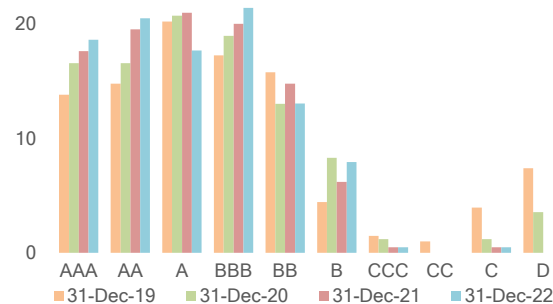


Note: Proportion of ratings for long term EEA30 structured finance CDO ratings rated by the Big 5 CRAs (Fitch ratings, Moody's, S&P, Scope, DBRS) at the end of 2019, 2020, 2021 and 2022.  
Sources: RADAR, ESMA.

MR-CR-S.207

## EEA30 CMBS ratings distribution

30

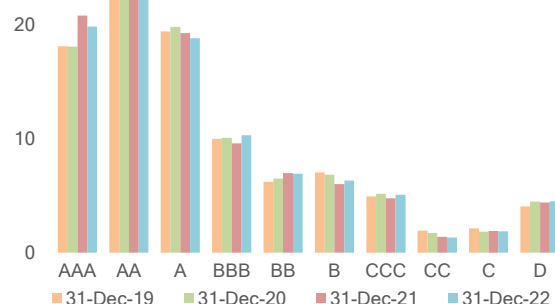


Note: Proportion of ratings for long term EEA30 structured finance CMBS ratings rated by the Big 5 CRAs (Fitch ratings, Moody's, S&P, Scope, DBRS) at the end of 2019, 2020, 2021 and 2022.  
Sources: RADAR, ESMA.

MR-CR-S.208

## EEA30 RMBS ratings distribution

30

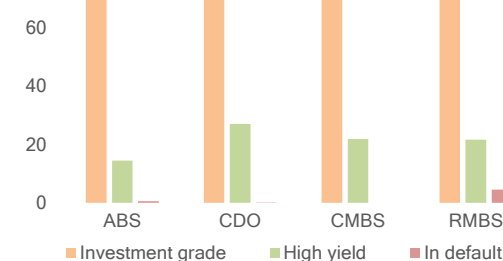


Note: Proportion of ratings for long term EEA30 structured finance RMBS ratings rated by the Big 5 CRAs (Fitch ratings, Moody's, S&P, Scope, DBRS) at the end of 2019, 2020, 2021 and 2022.  
Sources: RADAR, ESMA.

MR-CR-S.209

## EEA30 investment grade ratings by asset class

100

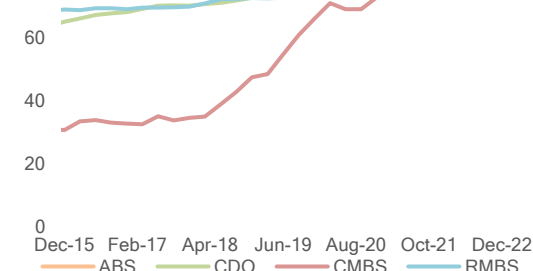


Note: Proportions of EEA30 structured finance ratings in investment grade, high yield and in default by asset class for long-term ratings issued by Big 5 CRAs DBRS, (Fitch, Moody's, Scope and S&P) as of 31 December 2022, in percent. ABCP omitted due to small sample size.  
Sources: RADAR, ESMA.

MR-CR-S.210

## EEA30 investment grade share over time

100

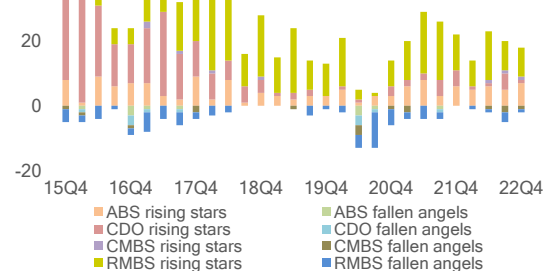


Note: Percentage of outstanding EEA30 structured finance ratings issued by the Big 5 CRAs (DBRS, Fitch, Moody's, Scope, S&P) that are investment grade by asset class. ABCP omitted due to small sample size.  
Sources: RADAR, ESMA.

MR-CR-S.211

## EEA30 rising stars and fallen angels by asset class

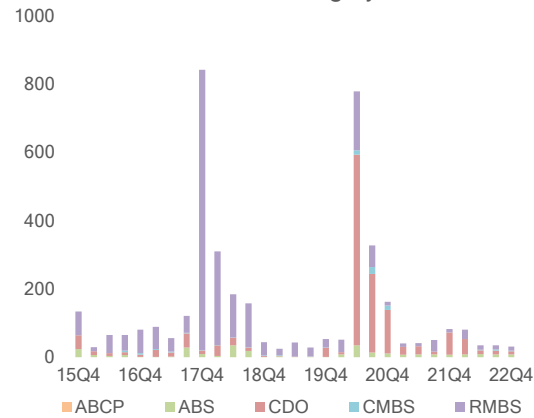
100



Note: Number of EEA30 structured finance issuers (at group-level) with a rising star (upgrades to investment grade) or fallen angel (downgrades to high yield) among their debt with a long term structured finance rating issued by the Big 5 CRAs (DBRS, Fitch, Moody's, Scope and S&P) by asset class per quarter.  
Sources: RADAR, ESMA.

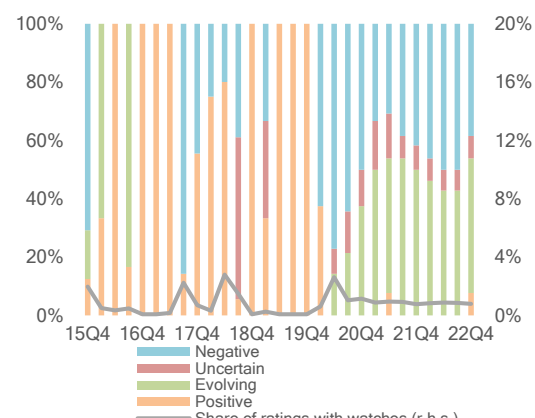
MR-CR-S.212

## EEA30 watches outstanding by asset class



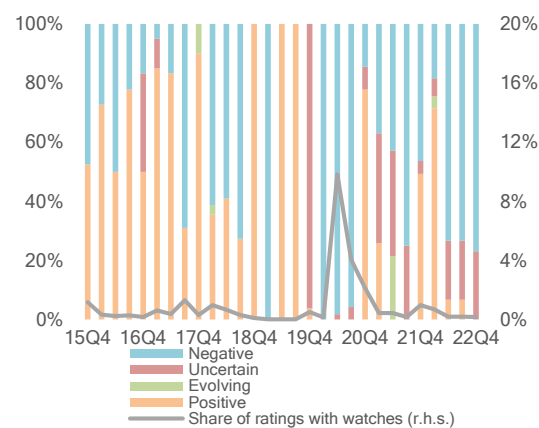
MR-CR-S.213

## EEA30 ABS watches over time



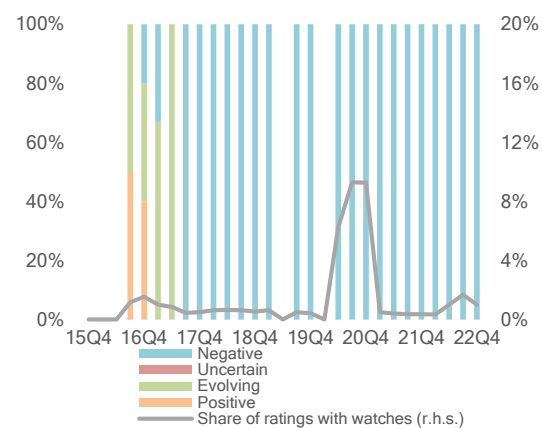
MR-CR-S.214

## EEA30 CDO watches over time



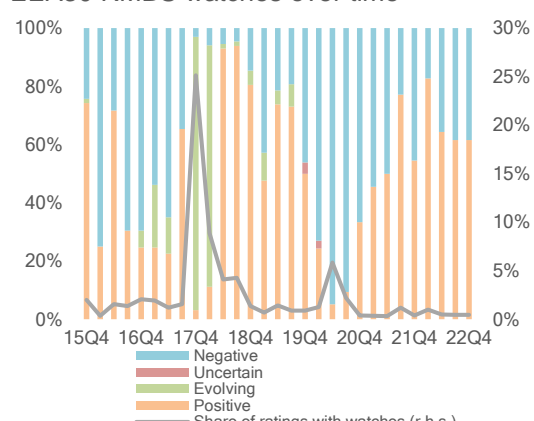
MR-CR-S.215

## EEA30 CMBS watches over time



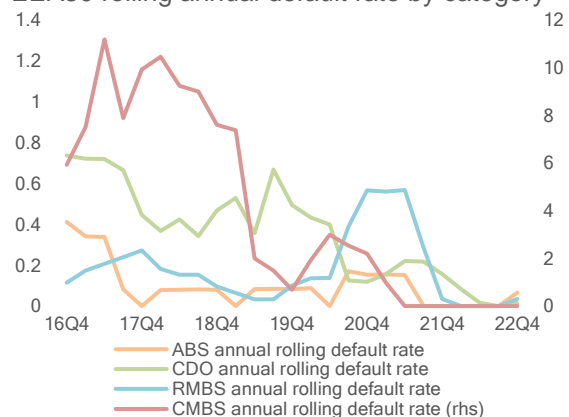
MR-CR-S.216

## EEA30 RMBS watches over time



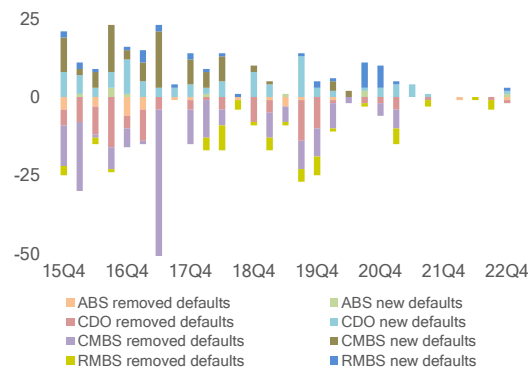
MR-CR-S.217

## EEA30 rolling annual default rate by category



MR-CR-S.218

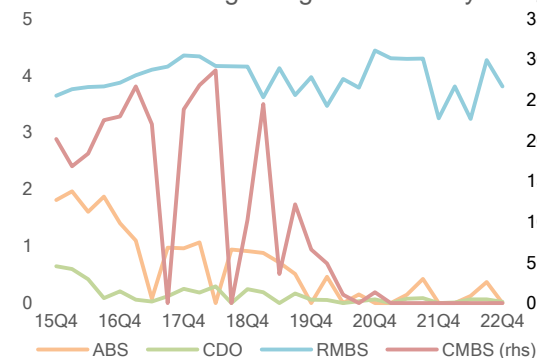
## EEA30 new and removed defaults



Note: Numbers of new and removed structured finance defaults by quarter split by asset class for EEA30 long term ratings. Removed defaults include those removed because rating was withdrawn. ABS - Asset-backed securities, CDO - collateralised debt obligations, CMBS - commercial mortgage-backed securities, RMBS - residential mortgage backed securities. Sources: RADAR, ESMA.

MR-CR-S.219

## EEA30 outstanding ratings in default by category



Note: Proportion of outstanding EEA30 long-term structured finance ratings in default by asset class in percent. ABS - Asset-backed securities, CDO - collateralised debt obligations, CMBS - commercial mortgage-backed securities, RMBS - residential mortgage backed securities. Large oscillations largely associated with the withdrawal of ratings that are in default. Sources: RADAR, ESMA.

## Rating accuracy metrics

MR-CR-S.220

## EEA30 ABS transition matrix 2022

	AAA	AA	A	BBB	BB	B	CCC	CC	C	SD/D	WD(D)	WD(no D)
NEW	25.2%	25.7%	13.7%	11.0%	7.6%	4.4%	0.5%	0.0%	0.0%	0.0%	0.0%	11.8%
AAA	77.2%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	22.8%
AA	7.2%	70.3%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	22.5%
A	1.3%	14.7%	69.6%	0.3%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.3%	13.7%
BBB	1.2%	4.1%	19.4%	69.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	5.9%
BB	0.0%	0.0%	0.8%	13.9%	77.9%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	7.4%
B	0.0%	1.6%	0.0%	0.0%	21.0%	77.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
CCC	0.0%	0.0%	0.0%	0.0%	0.0%	15.0%	60.0%	0.0%	0.0%	0.0%	0.0%	25.0%
CC	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	16.7%	83.3%	0.0%	0.0%	0.0%	0.0%
C	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	0.0%	0.0%	0.0%
SD/D	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	88.9%	0.0%	11.1%

Note: Rating transition matrix from Jan 1 2021 to Dec 31 2022 for EEA30 asset backed securities rated by the Big 5 CRAs (DBRS, Fitch, Moody's, Scope, S&P), SD – selective default, D – default, NEW – rating first issued in 2022, WD (D) – withdrawn rating preceded by a default, WD (no D) – withdrawn rating not preceded by a default. A blank row signifies that there were no ratings with that rating at the beginning of the period. Sources: RADAR, ESMA.

MR-CR-S.221

## EEA30 ABS transition matrix 2021

	AAA	AA	A	BBB	BB	B	CCC	CC	C	SD/D	WD(D)	WD(no D)
NEW	23.7%	22.5%	15.1%	14.5%	9.8%	5.1%	0.8%	0.0%	0.0%	0.0%	0.0%	8.4%
AAA	69.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	30.6%
AA	7.1%	71.5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	21.5%
A	1.4%	15.8%	67.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	15.4%
BBB	0.0%	4.1%	22.3%	55.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	18.2%
BB	0.0%	0.0%	4.3%	17.2%	72.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	6.5%
B	0.0%	0.0%	5.7%	1.9%	13.2%	67.9%	0.0%	0.0%	0.0%	0.0%	0.0%	11.3%
CCC	0.0%	0.0%	0.0%	0.0%	0.0%	5.0%	80.0%	0.0%	0.0%	0.0%	0.0%	15.0%
CC	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%
C	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	66.7%	0.0%	0.0%	33.3%
SD/D	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	0.0%	0.0%

Note: Rating transition matrix from Jan 1 2021 to Dec 31 2021 for EEA30 asset backed securities rated by the Big 5 CRAs (DBRS, Fitch, Moody's, Scope, S&P), SD – selective default, D – default, NEW – rating first issued in 2021, WD (D) – withdrawn rating preceded by a default, WD (no D) – withdrawn rating not preceded by a default. A blank row signifies that there were no ratings with that rating at the beginning of the period. Sources: RADAR, ESMA.



## MR-CR-S.222

## EEA30 ABS transition matrix 2020

	AAA	AA	A	BBB	BB	B	CCC	CC	C	SD/D	WD(D)	WD(no D)
NEW	24.5%	28.5%	17.2%	10.8%	7.3%	4.0%	0.5%	0.3%	0.0%	0.0%	0.0%	7.0%
AAA	66.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	34.0%
AA	3.6%	68.2%	1.8%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	26.4%
A	0.4%	7.8%	74.7%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	16.7%
BBB	0.0%	1.5%	16.0%	72.5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	9.9%
BB	0.0%	1.3%	2.5%	10.0%	77.5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	8.8%
B	0.0%	0.0%	0.0%	8.5%	8.5%	76.6%	2.1%	0.0%	0.0%	0.0%	0.0%	4.3%
CCC	0.0%	0.0%	0.0%	0.0%	0.0%	8.7%	73.9%	0.0%	0.0%	0.0%	0.0%	17.4%
CC	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	83.3%	0.0%	16.7%	0.0%	0.0%
C	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	50.0%	16.7%	0.0%	33.3%
SD/D	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	87.5%	0.0%	12.5%

Note: Rating transition matrix from Jan 1 2020 to Dec 31 2020 for EEA30 asset backed securities rated by the Big 5 CRAs (DBRS, Fitch, Moody's, Scope, S&P), SD – selective default, D – default, NEW – rating first issued in 2020, WD (D) – withdrawn rating preceded by a default, WD (no D) – withdrawn rating not preceded by a default. A blank row signifies that there were no ratings with that rating at the beginning of the period.

Sources: RADAR, ESMA.

## MR-CR-S.223

## EEA30 CDO transition matrix 2022

	AAA	AA	A	BBB	BB	B	CCC	CC	C	SD/D	WD(D)	WD(no D)
NEW	20.7%	23.4%	14.8%	15.0%	13.7%	12.3%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%
AAA	88.7%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	11.3%
AA	6.0%	89.6%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	4.4%
A	0.0%	4.1%	90.3%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	5.6%
BBB	0.0%	0.0%	2.5%	92.7%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	4.8%
BB	0.0%	0.0%	0.0%	0.7%	95.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	4.3%
B	0.0%	0.0%	0.0%	0.0%	1.3%	94.8%	0.1%	0.0%	0.0%	0.0%	0.0%	3.8%
CCC	0.0%	0.0%	0.0%	0.0%	0.0%	26.7%	53.3%	6.7%	0.0%	0.0%	0.0%	13.3%
CC	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	3.2%	87.1%	0.0%	0.0%	3.2%	6.5%
C	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	0.0%	0.0%	0.0%
SD/D	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	87.5%	0.0%	12.5%

Note: Rating transition matrix from Jan 1 2021 to Dec 31 2022 for EEA30 collateralised debt obligations rated by the Big 5 CRAs (DBRS, Fitch, Moody's, Scope, S&P), SD – selective default, D – default, NEW – rating first issued in 2022, WD (D) – withdrawn rating preceded by a default, WD (no D) – withdrawn rating not preceded by a default. A blank row signifies that there were no ratings with that rating at the beginning of the period.

Sources: RADAR, ESMA.

## MR-CR-S.224

## EEA30 CDO transition matrix 2021

	AAA	AA	A	BBB	BB	B	CCC	CC	C	SD/D	WD(D)	WD(no D)
NEW	22.6%	25.5%	14.9%	13.9%	11.7%	11.0%	0.1%	0.0%	0.0%	0.0%	0.0%	0.3%
AAA	50.9%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	49.0%
AA	3.3%	55.9%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	40.8%
A	0.9%	1.4%	57.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	40.3%
BBB	0.1%	0.4%	3.7%	56.8%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	38.9%
BB	0.0%	0.0%	0.1%	1.1%	68.0%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	30.6%
B	0.0%	0.0%	0.0%	0.0%	1.6%	71.7%	0.1%	0.0%	0.0%	0.0%	0.0%	26.5%
CCC	0.0%	0.0%	0.0%	0.0%	0.0%	13.6%	54.5%	4.5%	0.0%	0.0%	4.5%	22.7%
CC	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	90.9%	0.0%	3.0%	6.1%	0.0%
C	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	60.0%	30.0%	10.0%	0.0%
SD/D	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	0.0%	0.0%

Note: Rating transition matrix from Jan 1 2021 to Dec 31 2021 for EEA30 collateralised debt obligations rated by the Big 5 CRAs (DBRS, Fitch, Moody's, Scope, S&P), SD – selective default, D – default, NEW – rating first issued in 2021, WD (D) – withdrawn rating preceded by a default, WD (no D) – withdrawn rating not preceded by a default. A blank row signifies that there were no ratings with that rating at the beginning of the period.

Sources: RADAR, ESMA.

MR-CR-S.225

## EEA30 CDO transition matrix 2020

	AAA	AA	A	BBB	BB	B	CCC	CC	C	SD/D	WD(D)	WD(no D)
NEW	21.0%	25.3%	15.8%	13.7%	13.3%	10.9%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%
AAA	90.2%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	9.8%
AA	1.1%	95.5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	3.4%
A	0.3%	0.6%	95.1%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	3.7%
BBB	0.0%	0.1%	1.0%	95.6%	0.3%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	2.9%
BB	0.0%	0.0%	0.0%	0.6%	95.3%	1.0%	0.0%	0.0%	0.0%	0.0%	0.0%	3.1%
B	0.0%	0.0%	0.0%	0.0%	0.7%	96.5%	0.7%	0.0%	0.0%	0.0%	0.2%	2.0%
CCC	0.0%	0.0%	0.0%	0.0%	0.0%	3.8%	65.4%	11.5%	0.0%	0.0%	7.7%	11.5%
CC	0.0%	0.0%	0.0%	0.0%	3.0%	0.0%	0.0%	90.9%	0.0%	0.0%	6.1%	0.0%
C	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	66.7%	6.7%	0.0%	26.7%
SD/D	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	0.0%	0.0%

Note: Rating transition matrix from Jan 1 2020 to Dec 31 2020 for EEA30 collateralised debt obligations rated by the Big 5 CRAs (DBRS, Fitch, Moody's, Scope, S&P), SD – selective default, D – default, NEW – rating first issued in 2020, WD (D) – withdrawn rating preceded by a default, WD (no D) – withdrawn rating not preceded by a default. A blank row signifies that there were no ratings with that rating at the beginning of the period.  
Sources: RADAR, ESMA.

MR-CR-S.226

## EEA30 CMBS transition matrix 2022

	AAA	AA	A	BBB	BB	B	CCC	CC	C	SD/D	WD(D)	WD(no D)
NEW	11.1%	14.8%	14.8%	33.3%	18.5%	7.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
AAA	91.9%	2.7%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	5.4%
AA	7.3%	85.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	7.3%
A	0.0%	6.8%	75.0%	4.5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	13.6%
BBB	0.0%	2.4%	0.0%	78.6%	4.8%	2.4%	0.0%	0.0%	0.0%	0.0%	0.0%	11.9%
BB	0.0%	0.0%	3.2%	6.5%	64.5%	9.7%	0.0%	0.0%	0.0%	0.0%	0.0%	16.1%
B	0.0%	0.0%	0.0%	0.0%	7.7%	84.6%	0.0%	0.0%	0.0%	0.0%	0.0%	7.7%
CCC	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%
CC	—	—	—	—	—	—	—	—	—	—	—	—
C	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	0.0%	0.0%	0.0%
SD/D	—	—	—	—	—	—	—	—	—	—	—	—

Note: Rating transition matrix from Jan 1 2021 to Dec 31 2022 for EEA30 commercial mortgage backed securities rated by the Big 5 CRAs (DBRS, Fitch, Moody's, Scope, S&P), SD – selective default, D – default, NEW – rating first issued in 2022, WD (D) – withdrawn rating preceded by a default, WD (no D) – withdrawn rating not preceded by a default. A blank row signifies that there were no ratings with that rating at the beginning of the period.  
Sources: RADAR, ESMA.

MR-CR-S.227

## EEA30 CMBS transition matrix 2021

	AAA	AA	A	BBB	BB	B	CCC	CC	C	SD/D	WD(D)	WD(no D)
NEW	18.3%	23.3%	18.3%	20.0%	13.3%	6.7%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
AAA	92.9%	3.6%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	3.6%
AA	0.0%	85.7%	7.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	7.1%
A	0.0%	5.7%	85.7%	5.7%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	2.9%
BBB	0.0%	0.0%	3.1%	87.5%	6.3%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	3.1%
BB	0.0%	0.0%	0.0%	0.0%	90.9%	4.5%	0.0%	0.0%	0.0%	0.0%	0.0%	4.5%
B	0.0%	0.0%	0.0%	0.0%	7.1%	57.1%	0.0%	0.0%	0.0%	0.0%	0.0%	35.7%
CCC	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	50.0%	0.0%	0.0%	0.0%	0.0%	50.0%
CC	—	—	—	—	—	—	—	—	—	—	—	—
C	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	50.0%	0.0%	0.0%	50.0%
SD/D	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%

Note: Rating transition matrix from Jan 1 2021 to Dec 31 2021 for EEA30 commercial mortgage backed securities rated by the Big 5 CRAs (DBRS, Fitch, Moody's, Scope, S&P), SD – selective default, D – default, NEW – rating first issued in 2021, WD (D) – withdrawn rating preceded by a default, WD (no D) – withdrawn rating not preceded by a default. A blank row signifies that there were no ratings with that rating at the beginning of the period.  
Sources: RADAR, ESMA.

## MR-CR-S.228

## EEA30 CMBS transition matrix 2020

	AAA	AA	A	BBB	BB	B	CCC	CC	C	SD/D	WD(D)	WD(no D)
NEW	22.2%	22.2%	18.5%	29.6%	7.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
AAA	78.6%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	21.4%
AA	0.0%	73.3%	3.3%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	23.3%
A	0.0%	0.0%	70.7%	7.3%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	22.0%
BBB	0.0%	0.0%	0.0%	60.0%	5.7%	2.9%	0.0%	0.0%	0.0%	0.0%	0.0%	31.4%
BB	0.0%	0.0%	0.0%	0.0%	56.3%	25.0%	0.0%	0.0%	0.0%	0.0%	0.0%	18.8%
B	0.0%	0.0%	0.0%	0.0%	0.0%	55.6%	11.1%	0.0%	0.0%	0.0%	0.0%	33.3%
CCC	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	33.3%	0.0%	0.0%	0.0%	33.3%	33.3%
CC	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%
C	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	25.0%	0.0%	50.0%	25.0%
SD/D	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	40.0%	0.0%	60.0%

Note: Rating transition matrix from Jan 1 2020 to Dec 31 2020 for EEA30 commercial mortgage backed securities rated by the Big 5 CRAs (DBRS, Fitch, Moody's, Scope, S&P), SD – selective default, D – default, NEW – rating first issued in 2020, WD (D) – withdrawn rating preceded by a default, WD (no D) – withdrawn rating not preceded by a default. A blank row signifies that there were no ratings with that rating at the beginning of the period.

Sources: RADAR, ESMA.

## MR-CR-S.229

## EEA30 RMBS transition matrix 2022

	AAA	AA	A	BBB	BB	B	CCC	CC	C	SD/D	WD(D)	WD(no D)
NEW	22.9%	23.3%	16.7%	16.7%	9.0%	9.4%	1.6%	0.4%	0.0%	0.0%	0.0%	0.0%
AAA	76.7%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	23.3%
AA	3.7%	75.4%	0.3%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	20.6%
A	0.2%	14.7%	74.3%	0.6%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	10.2%
BBB	0.0%	1.9%	19.7%	68.6%	1.9%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	8.0%
BB	0.0%	0.0%	1.6%	20.8%	68.8%	3.6%	0.0%	0.0%	0.0%	0.0%	0.0%	5.2%
B	0.0%	0.0%	1.2%	1.8%	12.1%	80.6%	1.8%	0.6%	0.0%	0.0%	0.0%	1.8%
CCC	0.0%	0.0%	0.0%	0.8%	2.3%	2.3%	90.8%	0.8%	0.0%	0.0%	0.0%	3.1%
CC	0.0%	0.0%	0.0%	2.3%	0.0%	0.0%	11.6%	74.4%	0.0%	9.3%	0.0%	2.3%
C	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	87.5%	7.1%	0.0%	5.4%
SD/D	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	1.8%	0.0%	0.0%	98.2%	0.0%	0.0%

Note: Rating transition matrix from Jan 1 2021 to Dec 31 2022 for EEA30 residential mortgage backed securities rated by the Big 5 CRAs (DBRS, Fitch, Moody's, Scope, S&P), SD – selective default, D – default, NEW – rating first issued in 2022, WD (D) – withdrawn rating preceded by a default, WD (no D) – withdrawn rating not preceded by a default. A blank row signifies that there were no ratings with that rating at the beginning of the period.

Sources: RADAR, ESMA.

## MR-CR-S.230

## EEA30 RMBS transition matrix 2021

	AAA	AA	A	BBB	BB	B	CCC	CC	C	SD/D	WD(D)	WD(no D)
NEW	27.0%	18.8%	18.4%	17.1%	10.9%	6.9%	1.0%	0.0%	0.0%	0.0%	0.0%	0.0%
AAA	81.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	18.9%
AA	8.2%	70.9%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	20.9%
A	2.7%	19.6%	66.5%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	10.9%
BBB	0.4%	1.8%	33.3%	54.4%	2.8%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	7.4%
BB	0.0%	0.0%	3.3%	27.7%	57.6%	2.2%	0.0%	0.0%	0.0%	0.0%	0.0%	9.2%
B	0.0%	0.0%	0.0%	2.1%	20.1%	64.9%	2.6%	0.0%	0.0%	0.0%	0.0%	10.3%
CCC	0.0%	0.0%	0.0%	0.0%	3.4%	8.9%	81.5%	0.7%	0.0%	0.7%	0.0%	4.8%
CC	0.0%	0.0%	0.0%	0.0%	1.9%	0.0%	7.4%	68.5%	3.7%	9.3%	0.0%	9.3%
C	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	89.3%	7.1%	0.0%	3.6%
SD/D	0.0%	0.0%	0.0%	0.0%	0.0%	0.8%	0.0%	0.0%	0.0%	94.1%	0.0%	5.1%

Note: Rating transition matrix from Jan 1 2021 to Dec 31 2021 for EEA30 residential mortgage backed securities rated by the Big 5 CRAs (DBRS, Fitch, Moody's, Scope, S&P), SD – selective default, D – default, NEW – rating first issued in 2021, WD (D) – withdrawn rating preceded by a default, WD (no D) – withdrawn rating not preceded by a default. A blank row signifies that there were no ratings with that rating at the beginning of the period.

Sources: RADAR, ESMA.

MR-CR-S.231

## EEA30 RMBS transition matrix 2020

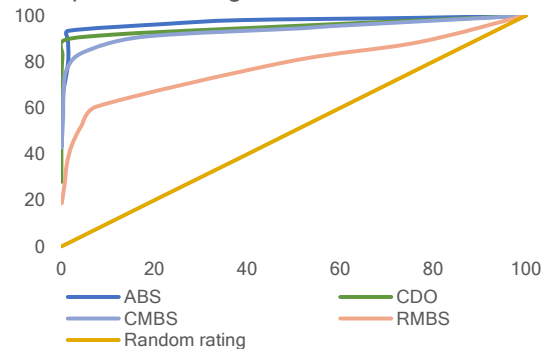
	AAA	AA	A	BBB	BB	B	CCC	CC	C	SD/D	WD(D)	WD(no D)
NEW	27.6%	20.1%	17.2%	20.5%	7.1%	3.3%	2.9%	1.3%	0.0%	0.0%	0.0%	0.0%
AAA	85.1%	0.0%	0.8%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	14.1%
AA	1.4%	86.9%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	11.3%
A	0.5%	5.5%	86.8%	0.9%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	6.2%
BBB	0.0%	1.1%	13.2%	73.7%	7.1%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	4.6%
BB	0.0%	0.0%	1.1%	11.4%	74.9%	6.9%	0.6%	0.0%	0.0%	0.0%	0.0%	5.1%
B	0.0%	0.5%	0.0%	2.0%	7.6%	82.3%	4.0%	1.5%	0.0%	0.0%	0.0%	2.0%
CCC	0.0%	0.0%	0.0%	0.0%	0.7%	6.5%	91.4%	0.7%	0.0%	0.0%	0.0%	0.7%
CC	0.0%	0.0%	0.0%	0.0%	0.0%	1.9%	1.9%	77.8%	0.0%	18.5%	0.0%	0.0%
C	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	86.7%	8.3%	0.0%	5.0%
SD/D	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	1.8%	0.0%	0.0%	98.2%	0.0%	0.0%

Note: Rating transition matrix from Jan 1 2020 to Dec 31 2020 for EEA30 residential mortgage backed securities rated by the Big 5 CRAs (DBRS, Fitch, Moody's, Scope, S&P), SD – selective default, D – default, NEW – rating first issued in 2020, WD (D) – withdrawn rating preceded by a default, WD (no D) – withdrawn rating not preceded by a default. A blank row signifies that there were no ratings with that rating at the beginning of the period.

Sources: RADAR, ESMA.

MR-CR-S.232

## CAP profiles for Big 5 structured finance ratings

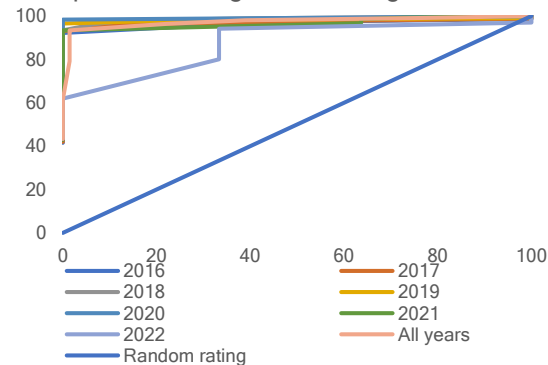


Note: Cumulative accuracy profile for Big 5 CRA long term EEA and non-EEA structured finance ratings by asset class, weighted average of profile for years 2016-2022, plotting cumulative distribution of defaults in year (x-axis) against cumulative distribution of ratings at year-start in order of increasing risk (y-axis), axes in percent. Random rating shows curve were defaults equally likely in all rating categories.

Sources: ESMA, RADAR.

MR-CR-S.233

## CAP profiles for Big 5 ABS ratings

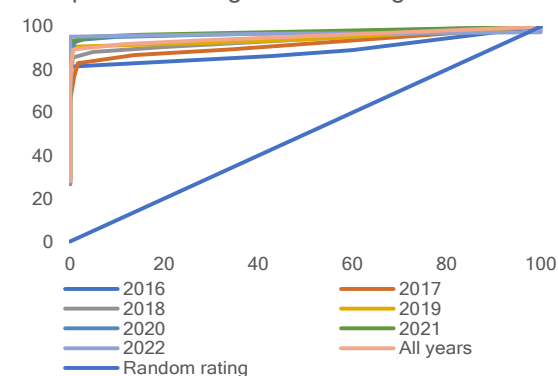


Note: Cumulative accuracy profile for Big 5 CRA long term EEA and non-EEA structured finance ABS ratings by year, plotting cumulative distribution of defaults in year (x-axis) against cumulative distribution of ratings at year-start in order of increasing risk (y-axis), axes in percent. Random rating shows curve were defaults equally likely in all rating categories.

Sources: ESMA, RADAR.

MR-CR-S.234

## CAP profiles for Big 5 CDO ratings

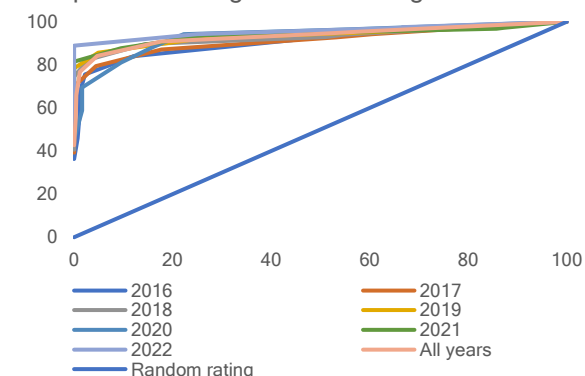


Note: Cumulative accuracy profile for Big 5 CRA long term EEA and non-EEA structured finance CDO ratings by year, plotting cumulative distribution of defaults in year (x-axis) against cumulative distribution of ratings at year-start in order of increasing risk (y-axis), axes in percent. Random rating shows curve were defaults equally likely in all rating categories.

Sources: ESMA, RADAR.

MR-CR-S.235

## CAP profiles for Big 5 CMBS ratings

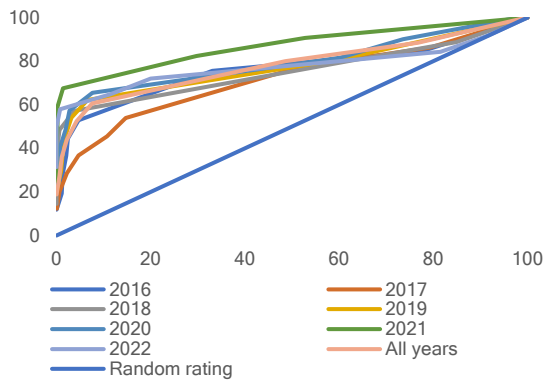


Note: Cumulative accuracy profile for Big 5 CRA long term EEA and non-EEA structured finance CMBS ratings by year, plotting cumulative distribution of defaults in year (x-axis) against cumulative distribution of ratings at year-start in order of increasing risk (y-axis), axes in percent. Random rating shows curve were defaults equally likely in all rating categories.

Sources: ESMA, RADAR.

MR-CR-S.236

## CAP profiles for Big 5 RMBS ratings



Note: Cumulative accuracy profile for Big 5 CRA long term EEA and non-EEA structured finance RMBS ratings by year, plotting cumulative distribution of defaults in year (x-axis) against cumulative distribution of ratings at year-start in order of increasing risk (y-axis), axes in percent. Random rating shows curve were defaults equally likely in all rating categories.

Sources: ESMA.RADAR.

# Annexes

# Glossary

**Credit rating (or rating):** an opinion regarding the creditworthiness of an entity, a debt or financial obligation, debt security, preferred share or other financial instrument, or of an issuer of such a debt or financial obligation, debt security, preferred share or other financial instrument, issued using an established and defined ranking system of rating categories.

**Credit rating agency:** a legal person whose occupation includes the issuing of credit ratings on a professional basis.

**Default:** the rating has been withdrawn due to insolvency of the rated entity or due to debt restructuring, or any other instance where the credit rating agency considers a rated entity or rated instrument as defaulted, materially impaired, or equivalent. Whether a default is called depends on the credit rating agency's definition of default.

**Fallen angel:** a rating experiencing a downgrade from investment grade to high-yield.

**High yield:** ratings typically considered to be higher risk (here BB or lower on our generic rating scale).

**Investment grade:** ratings typically considered to be lower risk (rating from AAA to BBB on our generic rating scale).

**Rating action:** an action introducing a rating or affecting the status of an existing rating.

**Rating notch (or notch):** the smaller increment in a rating scale, for example, a downgrade from AA to AA- is a decrease of one notch.

**Rating outlook (or outlook):** an opinion regarding the likely direction of a credit rating over the short term, the medium term or both

**Rating watch (or watch, or watch review):** an opinion on the likely direction of a credit rating in the near-term, due to a recent change in circumstances.

**Ratings drift:** the number of changes in rating notches over a given period as a proportion of the number of outstanding ratings.

**Rising star:** a rating subject to an upgrade from high-yield to investment grade.

**Solicited rating:** a rating assigned by a credit rating agency upon request.

**Transition matrix:** A matrix showing the proportions of transitions between different rating categories over a specified time period.

**Unsolicited rating:** a rating assigned by a credit rating agency other than upon request.

# List of abbreviations

ABCP	Asset backed commercial paper
ABS	Asset backed security
Big 3 CRAs	Fitch Ratings, Moody's Investor Service, and Standard and Poors
Big 5 CRAs	DBRS, Fitch Ratings, Moody's Investor Service, Scope Ratings, and Standard and Poors
CAP	Cumulative accuracy profile
CDO	Collateralised debt obligation
CLO	Collateralised loan obligation
CMBS	Commercial mortgage-backed security
CRA	Credit rating agency
EEA30	European Economic Area members excluding the United Kingdom when it was a member of the European Union
Fin	Financial corporate rating
Ins	Insurance corporate rating
Intl	International sovereign rating
NFC	Non-financial corporate rating
RADAR	Framework through which CRAs report regulatory data related to credit rating activities
Reg	Regional sovereign rating
RMBS	Residential mortgage-backed security
Supra	Supranational sovereign rating

Countries abbreviated according to ISO standards



