

Default, Transition, and Recovery:

2019 Annual European Structured Finance Default And Rating Transition Study

September 30, 2020

Key Takeaways

- The default rate in European structured finance rose just slightly, to 0.75%, in 2019.
- Credit quality in the sector improved overall, with the downgrade rate falling to a 20-year low at 1.6% and the upgrade rate rising to its second-highest level on record at 20.2%.
- The average change in credit quality increased to +0.4 notch in December 2019, the highest year-end reading on record.

RATINGS PERFORMANCE ANALYTICS

Nick W Kraemer, FRM

New York

(1) 212-438-1698

nick.kraemer
@spglobal.com**Kirsten R McCabe**

New York

+ 1 (212) 438 3196

kirsten.mccabe
@spglobal.com

RESEARCH CONTRIBUTOR

Sundaram IyerCRISIL Global Analytical Center, an
S&P affiliate, Mumbai

European structured finance credit quality improved overall in 2019. The downgrade rate fell to the lowest since the start of the century at 1.6% (see table 1). The upgrade rate rose to 20.2%, the second-highest annual rate on record after 2017. The default rate increased just slightly in 2019, to 0.75%, remaining below highs seen in the 2009 financial crisis.

S&P Global Ratings had 3,206 ratings outstanding on European structured finance securities at the beginning of 2019. Given the inherent diversity across eurozone financial systems, the performance of the various structured finance sectors was mixed. Sectors reporting defaults in the year included residential mortgage-backed securities (RMBS), structured credit, and commercial mortgage-backed securities (CMBS), with annual default rates in line with respective one-year averages. For the fifth consecutive year, there were no defaults in the asset-backed securities (ABS) sector.

Upgrades were concentrated in the RMBS sector, where the upgrade rate, which expresses the number of upgrades as a portion of the number of ratings outstanding, rose to 37.6% in 2019. Elevated upgrades in the sector were partly due to country risk considerations and related upgrades of sovereigns, specifically Portugal and Spain. At the start of 2019, we also expanded our global RMBS criteria's scope to include the U.K., which produced elevated upgrades of nonconforming RMBS securities in the latter half of the year.

Downgrade rates in 2019, which express the number of downgrades as a portion of the number of ratings outstanding, fell in each sector. The CMBS sector led downgrades at 9% in 2019; however, this was the lowest downgrade rate for the sector in the past 22 years.

Table 1

European Structured Finance Transition And Default Summary

2019 versus one-year average

| | --2019-- | | | | | --One-year average-- | | | | |
|---------------------------|------------------|---------------|-----------------|--------------------|-----------------|----------------------|---------------|-----------------|--------------------|-----------------|
| | Ratings (no.) | Stable (%) | Upgrades (%) | Downgrades (%)* | Defaults (%) | Defaults (no.) | Stable (%) | Upgrades (%) | Downgrades (%)* | Defaults (%) |
| Overall | 3,206 | 78.23 | 20.18 | 1.59 | 0.75 | 24 | 77.26 | 7.94 | 14.79 | 1.03 |
| Sector | | | | | | | | | | |
| RMBS | 1,505 | 62.26 | 37.61 | 0.13 | 0.07 | 1 | 79.70 | 8.22 | 12.09 | 0.33 |
| Structured credit | 1,092 | 95.33 | 2.56 | 2.11 | 1.47 | 16 | 73.36 | 9.63 | 17.01 | 1.36 |
| ABS | 409 | 87.78 | 9.78 | 2.44 | 0.00 | 0 | 88.58 | 4.63 | 6.79 | 0.24 |
| CMBS | 177 | 83.62 | 7.34 | 9.04 | 3.95 | 7 | 74.27 | 3.63 | 22.10 | 2.98 |
| Single-name synthetics | 23 | 100.00 | 0.00 | 0.00 | 0.00 | 0 | 82.07 | 3.73 | 14.20 | 0.46 |
| Collateral country | | | | | | | | | | |
| U.K. | 1,172 | 68.86 | 28.84 | 2.30 | 0.60 | 7 | 79.50 | 7.50 | 13.00 | 0.55 |
| Spain | 301 | 66.11 | 33.55 | 0.33 | 0.00 | 0 | 70.32 | 10.71 | 18.97 | 1.60 |
| Italy | 137 | 62.04 | 35.04 | 2.92 | 0.00 | 0 | 79.01 | 6.13 | 14.85 | 0.37 |
| Netherlands | 236 | 83.90 | 16.10 | 0.00 | 0.00 | 0 | 87.38 | 5.18 | 7.44 | 0.29 |
| Germany | 137 | 85.40 | 13.87 | 0.73 | 0.73 | 1 | 81.89 | 5.12 | 13.00 | 1.78 |
| Portugal | 87 | 41.38 | 58.62 | 0.00 | 0.00 | 0 | 76.27 | 9.56 | 14.18 | 0.05 |
| Multiple | 851 | 95.89 | 2.00 | 2.12 | 1.88 | 16 | 72.22 | 10.13 | 17.65 | 1.49 |
| Other | 285 | 87.72 | 12.28 | 0.00 | 0.00 | 0 | 83.77 | 3.64 | 12.60 | 1.06 |
| Vintage | | | | | | | | | | |
| Pre-2005 | 194 | 70.10 | 24.23 | 5.67 | 1.55 | 3 | 85.79 | 5.82 | 8.39 | 0.30 |
| 2005 | 176 | 65.91 | 32.95 | 1.14 | 0.57 | 1 | 74.63 | 7.83 | 17.54 | 1.12 |
| 2006 | 425 | 67.76 | 29.88 | 2.35 | 0.24 | 1 | 69.70 | 8.95 | 21.35 | 1.82 |
| 2007 | 490 | 63.27 | 34.49 | 2.24 | 1.84 | 9 | 66.28 | 11.03 | 22.69 | 2.07 |
| 2008 | 90 | 68.89 | 18.89 | 12.22 | 11.11 | 10 | 74.90 | 7.06 | 18.04 | 1.09 |
| 2009 | 32 | 71.88 | 28.13 | 0.00 | 0.00 | 0 | 74.98 | 9.79 | 15.23 | 0.61 |
| 2010 | 48 | 93.75 | 6.25 | 0.00 | 0.00 | 0 | 77.06 | 9.81 | 13.13 | 0.32 |
| 2011 | 34 | 76.47 | 23.53 | 0.00 | 0.00 | 0 | 81.29 | 8.04 | 10.67 | 0.00 |
| 2012 | 48 | 85.42 | 14.58 | 0.00 | 0.00 | 0 | 87.12 | 6.14 | 6.74 | 0.09 |
| 2013 | 65 | 90.77 | 4.62 | 4.62 | 0.00 | 0 | 91.10 | 6.28 | 2.62 | 0.14 |
| 2014 | 142 | 88.03 | 9.86 | 2.11 | 0.00 | 0 | 88.66 | 8.44 | 2.90 | 0.00 |
| 2015 | 190 | 79.47 | 20.53 | 0.00 | 0.00 | 0 | 88.00 | 11.14 | 0.86 | 0.09 |
| 2016 | 255 | 85.49 | 14.51 | 0.00 | 0.00 | 0 | 91.48 | 7.86 | 0.66 | 0.00 |
| 2017 | 575 | 88.52 | 11.48 | 0.00 | 0.00 | 0 | 93.82 | 6.18 | 0.00 | 0.00 |
| 2018 | 442 | 90.27 | 9.73 | 0.00 | 0.00 | 0 | 90.27 | 9.73 | 0.00 | 0.00 |

Table 1

European Structured Finance Transition And Default Summary (cont.)

2019 versus one-year average

| | --2019-- | | | | | | --One-year average-- | | | |
|------------------------|------------------|---------------|-----------------|--------------------|-----------------|-------------------|----------------------|-----------------|--------------------|-----------------|
| | Ratings (no.) | Stable (%) | Upgrades (%) | Downgrades (%)* | Defaults (%) | Defaults (no.) | Stable (%) | Upgrades (%) | Downgrades (%)* | Defaults (%) |
| Rating category | | | | | | | | | | |
| AAA | 570 | 100.00 | 0.00 | 0.00 | 0.00 | 0 | 89.91 | 0.00 | 10.09 | 0.12 |
| AA | 611 | 78.89 | 20.95 | 0.16 | 0.00 | 0 | 73.65 | 9.39 | 16.96 | 0.11 |
| A | 855 | 71.70 | 26.78 | 1.52 | 0.00 | 0 | 74.20 | 11.19 | 14.61 | 0.12 |
| BBB | 472 | 67.58 | 30.51 | 1.91 | 0.00 | 0 | 73.86 | 11.42 | 14.72 | 0.26 |
| BB | 281 | 70.46 | 29.18 | 0.36 | 0.00 | 0 | 67.59 | 13.20 | 19.21 | 0.60 |
| B | 271 | 80.81 | 18.82 | 0.37 | 0.00 | 0 | 65.75 | 14.78 | 19.48 | 2.13 |
| CCC | 116 | 74.14 | 10.34 | 15.52 | 13.79 | 16 | 67.18 | 11.48 | 21.33 | 10.77 |
| CC | 30 | 70.00 | 3.33 | 26.67 | 26.67 | 8 | 65.50 | 1.74 | 32.75 | 32.48 |
| Rating grade | | | | | | | | | | |
| Investment-grade | 2,508 | 79.11 | 19.98 | 0.92 | 0.00 | 0 | 79.65 | 6.83 | 13.52 | 0.14 |
| Speculative-grade | 698 | 75.07 | 20.92 | 4.01 | 3.44 | 24 | 66.89 | 12.78 | 20.33 | 4.88 |

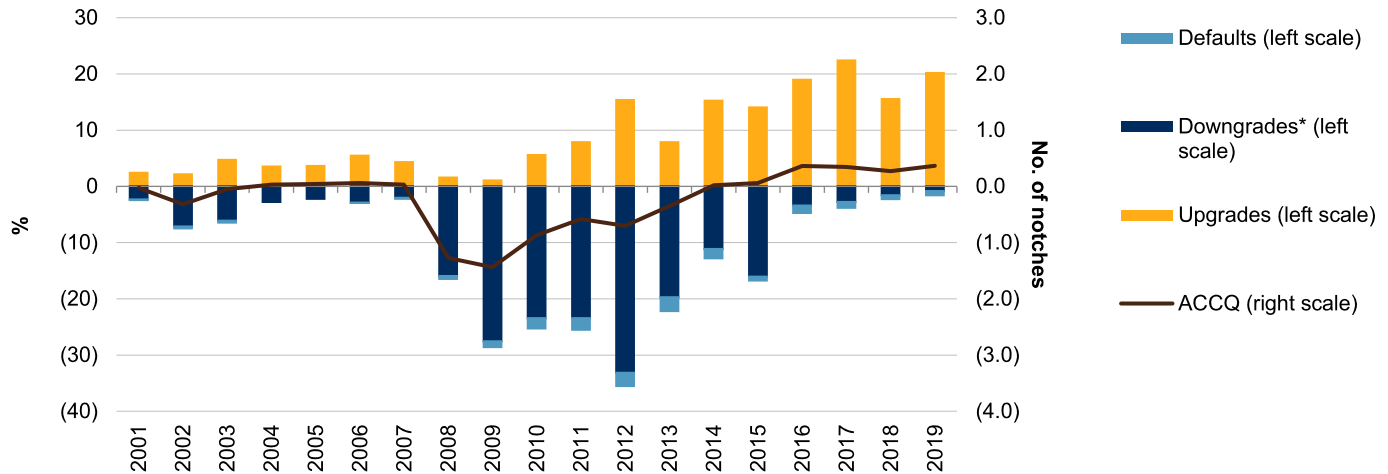
*Including defaults. Securities with ratings that migrated to NR over the period are classified based on the rating prior to NR. Source: S&P Global Ratings Research.

Credit Performance: A Historically Impressive Year

The average change in credit quality (see definition in Appendix I) for European structured finance increased to +0.4 notch by the end of December 2019, the highest year-end reading on record (see chart 1). This metric has remained in positive territory since the end of 2015, indicating that, on average, ratings have been drifting higher since then.

Chart 1

European Structured Finance Transition Rates And Average Change In Credit Quality



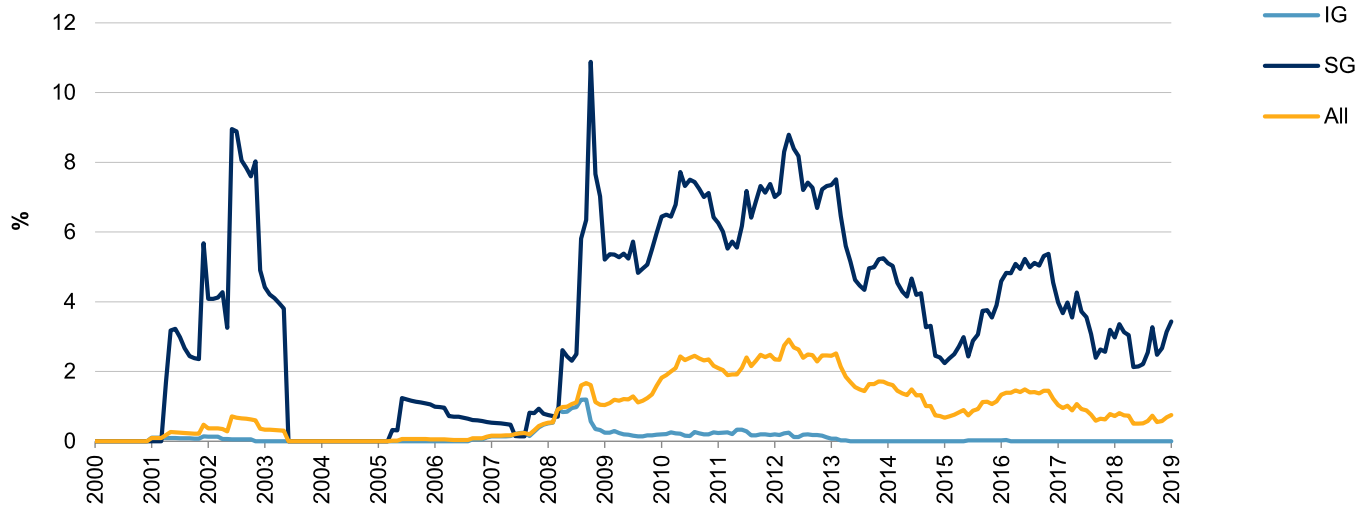
*Excluding defaults. ACCQ--Average change in credit quality. Securities whose ratings migrated to 'NR' over the period are classified based on their rating prior to 'NR'. Source: S&P Global Ratings Research. Copyright © 2020 by Standard & Poor's Financial Services LLC. All rights reserved.

The performance of structured finance securities in Europe continues to differ by sector. The average change in credit quality among ABS and structured credit originations deteriorated slightly in 2019 but remained positive. The credit quality of RMBS transactions improved, while CMBS and structured credit experienced declines in overall credit quality, albeit less markedly than in the previous year.

The 12-month trailing default rate for European structured finance rose slightly in 2019, to 0.75% (see chart 2). The investment-grade segment (rated 'BBB-' or higher) again had no defaults, while defaults among speculative-grade securities (rated 'BB+' or lower) rose to 3.4%.

Chart 2

European Structured Finance 12-Month Trailing Default Rates By rating grade



IG--Investment-grade. SG--Speculative-grade. Source: S&P Global Ratings Research.
Copyright © 2020 by Standard & Poor's Financial Services LLC. All rights reserved.

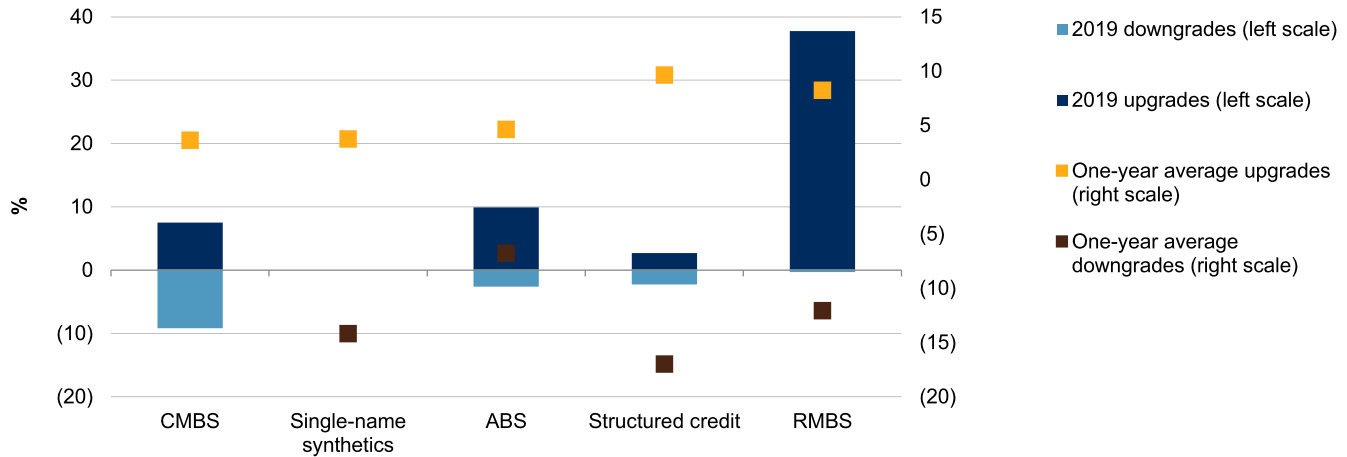
Sector comparisons

RMBS continued to exhibit strong performance compared with other European structured finance sectors in 2019, while accounting for the greatest number of ratings outstanding (see table 1). The sector's upgrade rate hit a historical high of 37.6% (see chart 3), while the default rate fell to its lowest level since 2014 at 0.07% (see chart 4).

There were no defaults in the ABS sector in 2019, which reported an upgrade rate of 9.8%, well above the one-year average. The downgrade rate remained below the one-year average at 2.4%.

Chart 3

European Structured Finance Transition Rates By Sector 2019 versus one-year average



Securities with ratings that migrated to NR over the period are classified based on the rating prior to NR.

Source: S&P Global Ratings Research.

Copyright © 2020 by Standard & Poor's Financial Services LLC. All rights reserved.

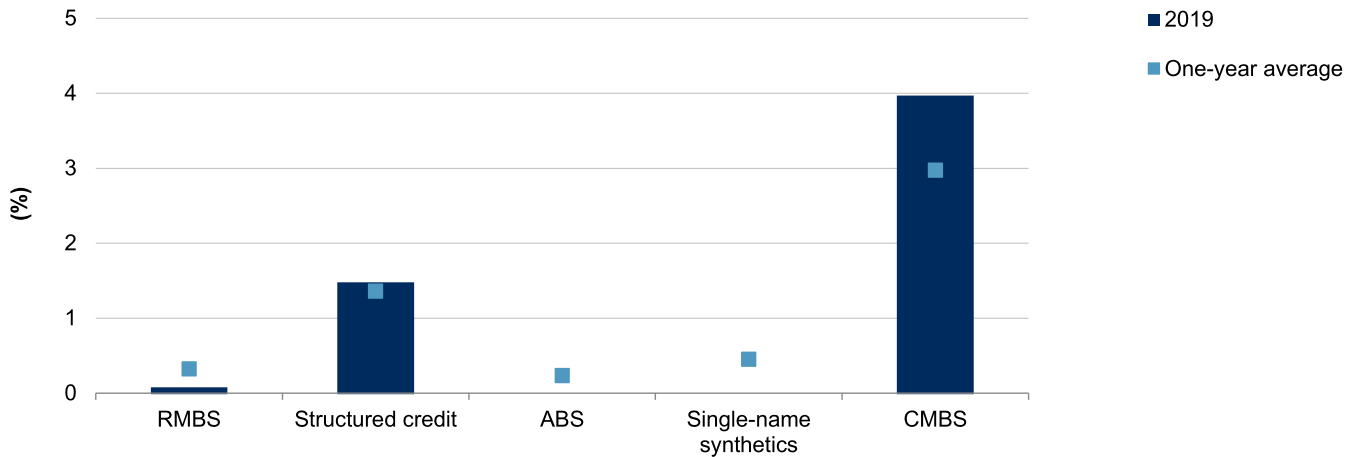
Performance among CMBS securities was mixed. In 2019, the default rate for the sector was 4.0%, above the one-year average of 3.0%. However, the upgrade rate concurrently rose to 7.3%, well above the one-year average of 3.6%. Downgrades were far lower than the one-year average of 22.1%, falling to just 9% in 2019.

The structured credit sector also exhibited mixed performance, with a 2019 default rate of 1.5%, just above the one-year average of 1.4%. The upgrade rate fell well below the one-year average of 9.6%, at just 2.6% in 2019. Meanwhile, the downgrade rate was just 2.6%, one of the lowest downgrade rates for any European structured finance sector in 2019 and well below the one-year average of 17%.

The single-name synthetics sector accounted for the smallest portion of ratings outstanding at the start of 2019. There were no defaults, upgrades, or downgrades to report for the sector in the year. Each measure outperformed respective one-year averages.

Chart 4

European Structured Finance Default Rates By Sector 2019 versus one-year average



Source: S&P Global Ratings Research.

Copyright © 2020 by Standard & Poor's Financial Services LLC. All rights reserved.

Vintages

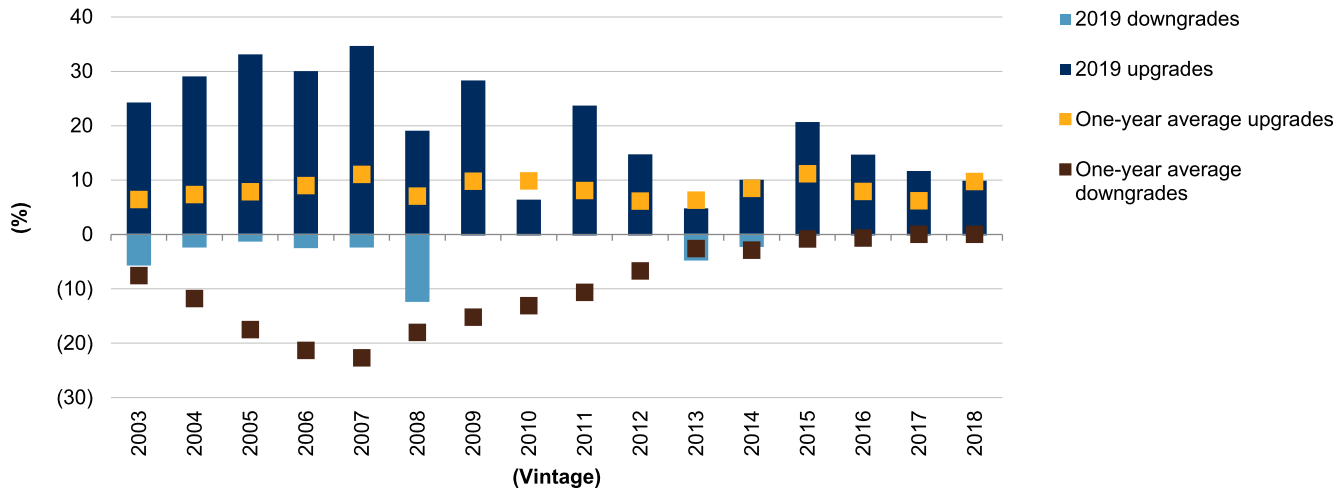
Credit performance continues to vary by the year of issuance--or vintage--of structured finance securities (see charts 5 and 6). The fundamental credit characteristics and economic conditions of a transaction's vintage often influence credit behavior and performance over time.

In 2019, upgrade rates were the highest among the 2005-2007 vintages, with the 2007 vintage recording the highest upgrade rate at 34.5%. Almost all vintages in 2019 reported upgrade rates higher than respective one-year averages, with the exception of 2010 and 2013. In absolute terms, the bulk of upgrades in this pool came from the 2006 and 2007 vintages, which accounted for a larger portion of ratings outstanding at the start of 2019 (see table 1). The majority of upgrades among the 2005-2007 vintages came from RMBS and ABS.

The 2008 vintage had the highest downgrade rate in 2019 at 12.2%, still below the one-year average of 18%. The downgrade rates of vintages issued before the Great Financial Crisis have continued to fall over the past five years. In 2019, downgrade rates were at or below one-year averages for all vintages.

Chart 5

European Structured Finance Transition Rates By Vintage 2019 versus one-year average



Securities with ratings that migrated to NR over the period are classified based on the rating prior to NR.

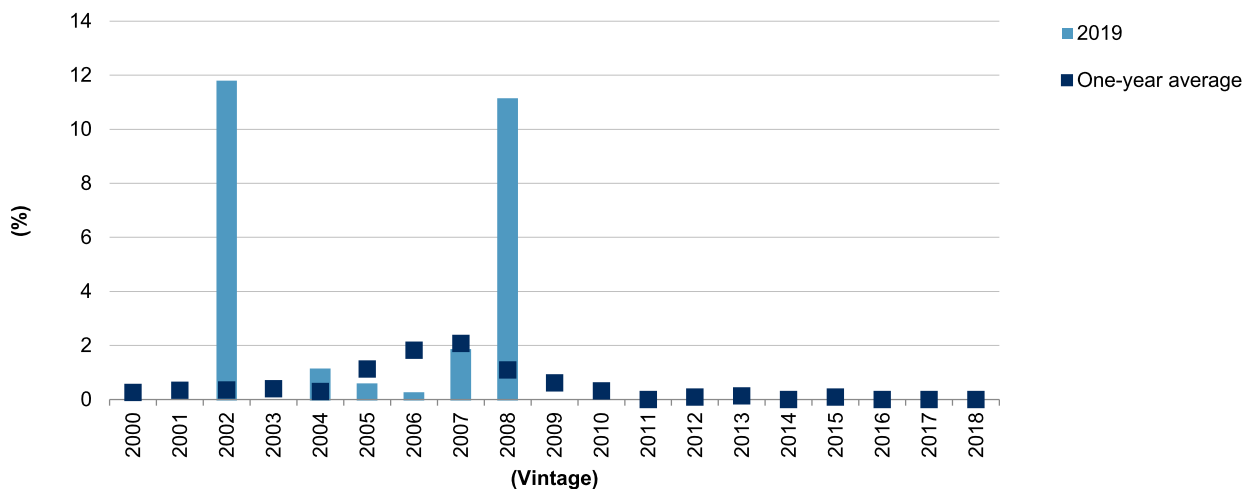
Source: S&P Global Ratings Research.

Copyright © 2020 by Standard & Poor's Financial Services LLC. All rights reserved.

The 2002 vintage reported the highest annual default rate in 2019 at 11.8%, followed by the 2008 vintage at 11.1%. The majority of vintages reported annual default rates at or below their respective one-year averages in 2019.

Chart 6

European Structured Finance Default Rates By Vintage 2019 versus one-year average



Source: S&P Global Ratings Research.

Copyright © 2020 by Standard & Poor's Financial Services LLC. All rights reserved.

Ratings Performance: Ratings Remain Strong Indicators Of Default

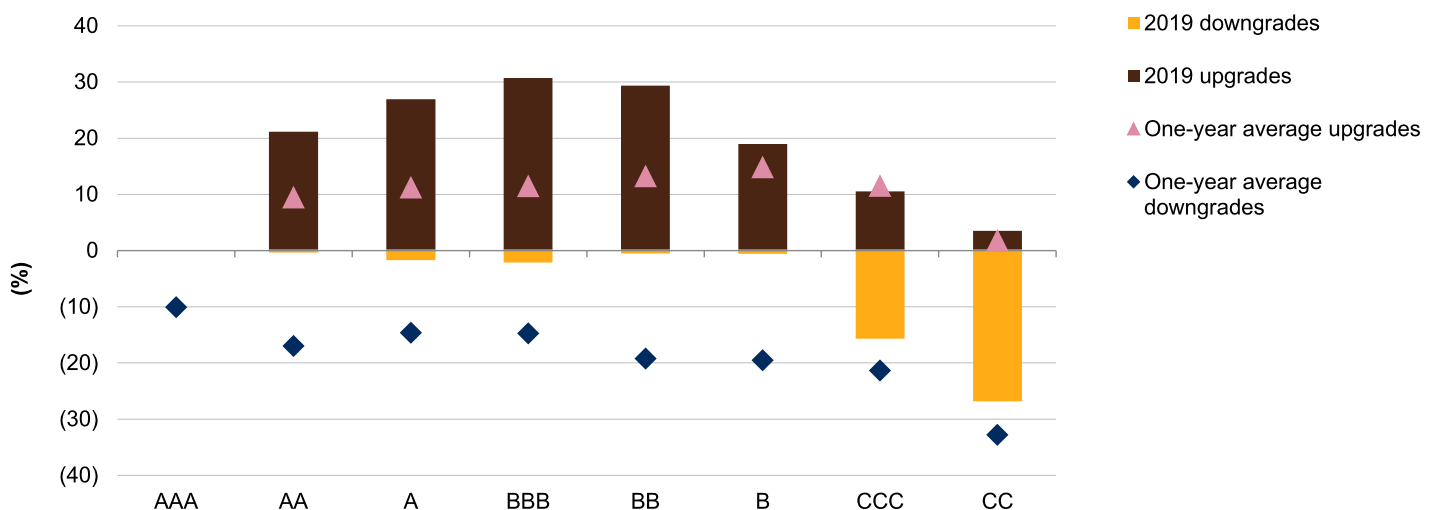
Our structured finance ratings express an opinion of securities' creditworthiness; the centerpiece is an assessment of default likelihood, rather than the likelihood of upgrade or downgrade. That said, our ratings consider credit stability as a secondary factor.

Across European structured finance, upgrade and downgrade rates in 2019 differed by the ratings at the beginning of the year (see chart 7). Investment-grade ratings, which made up the majority of ratings outstanding in 2019, exhibited higher upgrade rates than speculative-grade ratings. Securities rated 'BBB' reported the highest upgrade rate at 30.5%. Further, securities in every rating category with the exception of 'CCC' reported upgrade rates above respective one-year averages.

Downgrade rates, conversely, were higher in the speculative-grade segment. Structured finance securities rated in the 'CCC' and 'CC' categories had the highest downgrade rates at 15.5% and 26.7%, respectively. There were no downgrades for securities rated 'AAA' at the beginning of the year, leading to a downgrade rate of zero. Every rating category reported downgrade rates well below respective one-year averages in 2019.

Chart 7

European Structured Finance Transition Rates By Rating Category 2019 versus one-year average



Securities with ratings that migrated to NR over the period are classified based on the rating prior to NR.

Source: S&P Global Ratings Research.

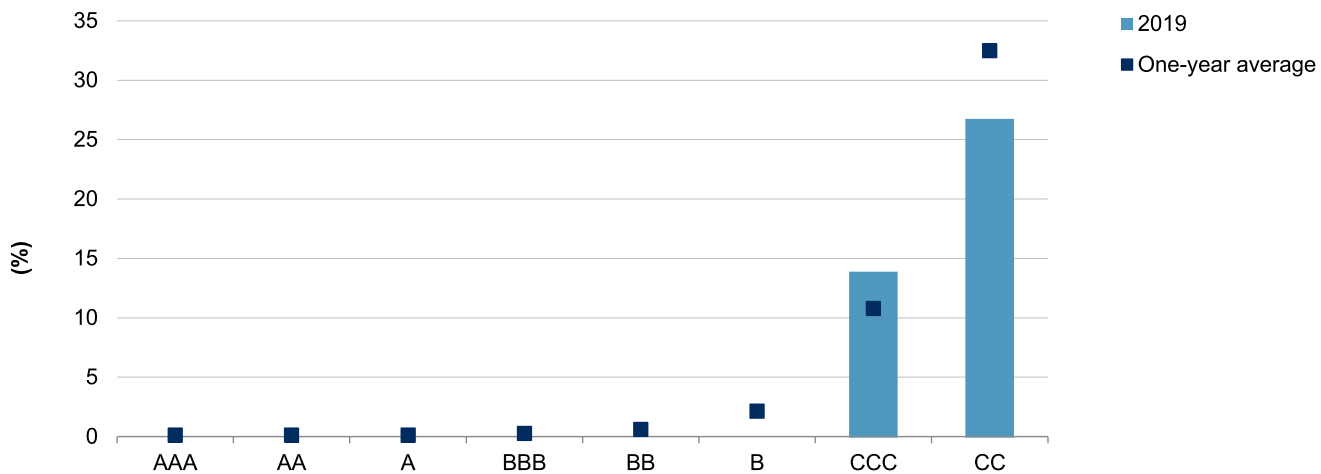
Copyright © 2020 by Standard & Poor's Financial Services LLC. All rights reserved.

Because default likelihood is the primary factor in our assessment of creditworthiness, we would typically expect default rates to be lower for higher-rated securities, provided that observations are made over sufficiently long time horizons and with large samples. Over shorter time frames or with smaller samples, this relationship may not always hold, and default rates can vary over time.

For European structured finance, higher-rated securities have generally been associated with lower one-year weighted average default rates between 1983 and 2019 (see chart 8). Given the limited number of defaults in 2019, this pattern is visible only at the lower rating levels. There were no defaults in 2019 among European structured finance securities that we rated in the 'B' category or higher at the beginning of the year. Meanwhile, the 'CCC' default rate was 13.8% and the 'CC' default rate was 26.7%.

Chart 8

European Structured Finance Default Rates By Rating Category 2019 versus one-year average



Source: S&P Global Ratings Research.

Copyright © 2020 by Standard & Poor's Financial Services LLC. All rights reserved.

To further explore the extent to which our structured finance ratings have successfully rank-ordered securities' creditworthiness over time, we can calculate cumulative default rates by rating category for various time horizons, on the same basis as in our corporate default and transition studies. This approach constructs average multiyear cumulative default rates by first aggregating across static pools the period-to-period one-year marginal default rates that are conditional on the securities' survival (that is, nondefault) in the prior one-year period (see Appendix I for more details). This approach differs from the calculations we use in constructing the weighted average multiyear default and transition rates elsewhere in this study, which are not conditional on survival.

The cumulative default rates (conditional on survival) based on our full data history for European structured finance--from the beginning of 1983 to the end of 2019--show that lower ratings have generally been associated with higher default rates and vice versa (see table 2). In other words, ratings appear to have successfully rank-ordered creditworthiness over each time horizon.

For some time frames, there has been a limited distinction in cumulative default rates between the 'AA' and 'A' rating categories. This is partly due to a different mix of sectors at different rating categories, with sectors that were more adversely affected by the 2009 financial crisis (for example, structured credit) accounting for a larger portion of the 'AA' category than less affected sectors (for example, RMBS).

Table 2

European Structured Finance Cumulative Default Rates, Conditional On Survival, 1983-2019

(%)

| | Time horizon (years) | | | | | | | | | |
|---------|----------------------|------|------|------|------|------|------|------|------|------|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| AAA | 0.1 | 0.3 | 0.5 | 0.8 | 1.1 | 1.4 | 1.5 | 1.6 | 1.7 | 1.8 |
| AA | 0.1 | 0.3 | 0.7 | 1.1 | 1.7 | 2.2 | 2.6 | 2.8 | 3.0 | 3.2 |
| A | 0.1 | 0.4 | 0.7 | 1.1 | 1.7 | 2.3 | 2.8 | 3.2 | 3.4 | 3.7 |
| BBB | 0.3 | 0.8 | 1.5 | 2.4 | 3.6 | 4.7 | 5.6 | 6.3 | 6.9 | 7.5 |
| BB | 0.6 | 1.8 | 3.4 | 4.9 | 6.4 | 7.6 | 8.9 | 9.8 | 10.6 | 11.4 |
| B | 2.1 | 5.1 | 8.1 | 11.1 | 13.7 | 15.2 | 16.2 | 17.1 | 17.6 | 17.9 |
| CCC | 10.8 | 19.5 | 25.6 | 29.8 | 31.5 | 32.7 | 33.5 | 34.2 | 34.8 | 34.9 |
| CC | 32.5 | 50.0 | 61.5 | 63.8 | 64.0 | 64.0 | 64.0 | 64.0 | 64.0 | 64.0 |
| IG | 0.1 | 0.4 | 0.8 | 1.2 | 1.8 | 2.4 | 2.8 | 3.1 | 3.3 | 3.5 |
| SG | 4.9 | 9.2 | 12.7 | 15.5 | 17.2 | 18.4 | 19.5 | 20.3 | 21.0 | 21.5 |
| Overall | 1.0 | 2.0 | 3.0 | 3.9 | 4.7 | 5.3 | 5.8 | 6.2 | 6.5 | 6.7 |

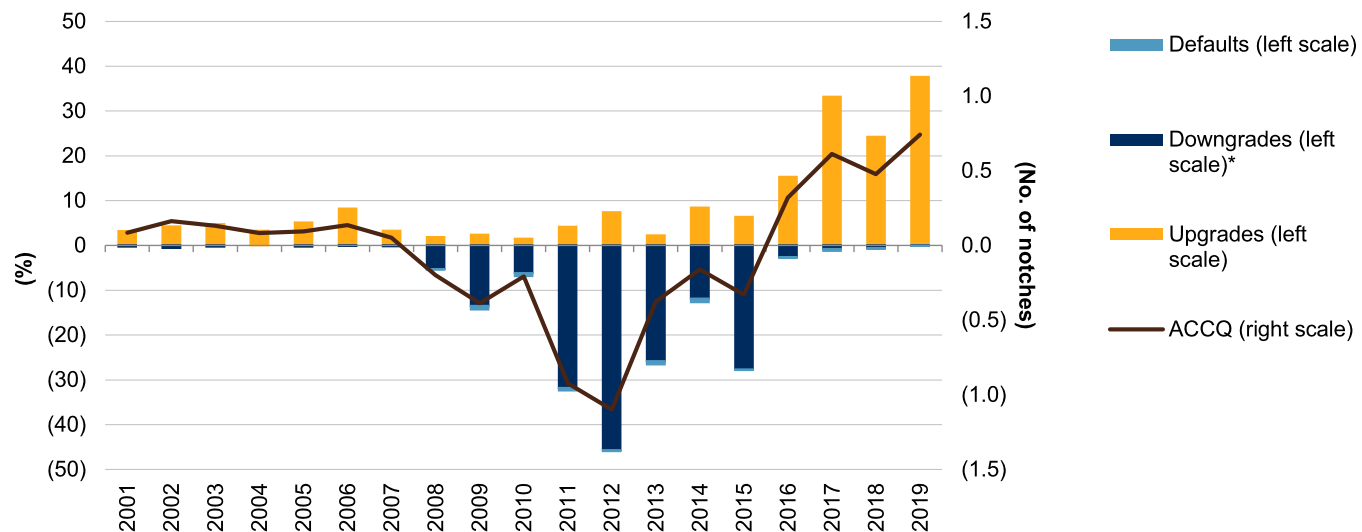
IG--Investment-grade. SG--Speculative-grade. Source: S&P Global Ratings Research.

Sectors In Detail: RMBS Outperforms All Other Sectors**RMBS**

The default rate for European RMBS fell to 0.07% in 2019 from 0.12% in 2018, marking the second-lowest default rate for the sector on record. Another year of active upgrades in the sector gave an upgrade rate of 37.6%, another historical high. The downgrade rate was 0.1%, well below its historical average of 12.1% (see chart 9). The overall average change in credit quality in 2019 for European RMBS was +0.74 notch, the highest historically.

Chart 9

European RMBS Transition Rates And Average Change In Credit Quality



*Excluding defaults. Securities with ratings that migrated to NR over the period are classified based on the rating prior to NR. ACCQ--Average change in credit quality. Source: S&P Global Ratings Research. Copyright © 2020 by Standard & Poor's Financial Services LLC. All rights reserved.

The European RMBS 12-month trailing default rate reached its lowest level of zero and ended the period at 0.07% (see chart 10). Historically, the 12-month trailing default rate for the sector has held below the 12-month trailing default rate for all of European structured finance.

Chart 10

European RMBS 12-Month Trailing Default Rates

Source: S&P Global Ratings Research.

Copyright © 2020 by Standard & Poor's Financial Services LLC. All rights reserved.

Within the RMBS sector, most subsectors had upgrade rates well above the historical averages, with the exception of U.K. prime (see table 3). Many of the upgrades were subsequent to our upgrades of Spain and Portugal. In addition, many of our ratings on RMBS backed by Spanish or Portuguese collateral are constrained by country risk considerations. On March 15, 2019, we raised our sovereign credit ratings on Portugal to 'BBB/A-2' from 'BBB-/A-3', and on Sept. 20, 2019, we raised our sovereign credit ratings on Spain to 'A/A-1' from 'A-/A-2' (see "Related Research"). In each case, this indication of declining country risk meant that we were able to raise a relatively large number of related RMBS ratings by one rating notch. Further, at the start of 2019, we expanded our global RMBS criteria's scope to include the U.K., which resulted in a slew of nonconforming RMBS upgrades in the second half of the year.

In 2019, only two RMBS subsectors reported downgrades. The German subsector had the higher downgrade rate at 5.6% and reported the only default in RMBS in 2019, giving a default rate of 5.6%. The remaining downgrades came from the Spanish subsector, which had a downgrade rate of 0.4%.

Upgrade rates across most European RMBS vintages outperformed respective one-year averages, as did downgrade rates.

By rating category, only the 'CCC' and 'AA' categories reported downgrades, while the only default in 2019 came from the 'CCC' category. Upgrade rates across most rating categories outperformed respective one-year averages.

Table 3

European RMBS Transition And Default Summary

2019 versus one-year average

| | --2019-- | | | | | --One-year average-- | | | | |
|------------------------|------------------|---------------|-----------------|--------------------|-----------------|----------------------|---------------|-----------------|--------------------|-----------------|
| | Ratings (no.) | Stable (%) | Upgrades (%) | Downgrades (%)* | Defaults (%) | Defaults (no.) | Stable (%) | Upgrades (%) | Downgrades (%)* | Defaults (%) |
| Overall | 1,505 | 62.3 | 37.6 | 0.1 | 0.1 | 1 | 79.7 | 8.2 | 12.1 | 0.3 |
| Subsector | | | | | | | | | | |
| Nonconforming | 566 | 57.6 | 42.4 | 0.0 | 0.0 | 0 | 75.1 | 11.2 | 13.7 | 0.1 |
| Spanish | 253 | 62.5 | 37.2 | 0.4 | 0.0 | 0 | 69.4 | 12.0 | 18.6 | 1.6 |
| U.K. prime | 58 | 94.8 | 5.2 | 0.0 | 0.0 | 0 | 89.8 | 2.8 | 7.4 | 0.0 |
| Dutch prime | 161 | 88.2 | 11.8 | 0.0 | 0.0 | 0 | 89.7 | 5.1 | 5.2 | 0.0 |
| Italian | 108 | 61.1 | 38.9 | 0.0 | 0.0 | 0 | 75.3 | 8.6 | 16.1 | 0.4 |
| Portuguese | 85 | 40.0 | 60.0 | 0.0 | 0.0 | 0 | 68.9 | 13.1 | 18.0 | 0.1 |
| German | 18 | 55.6 | 38.9 | 5.6 | 5.6 | 1 | 86.9 | 5.8 | 7.3 | 0.5 |
| Other | 256 | 57.0 | 43.0 | 0.0 | 0.0 | 0 | 81.4 | 7.1 | 11.6 | 0.2 |
| Vintage | | | | | | | | | | |
| Pre-2005 | 120 | 65.0 | 34.2 | 0.8 | 0.0 | 0 | 86.4 | 7.0 | 6.5 | 0.0 |
| 2005 | 123 | 54.5 | 44.7 | 0.8 | 0.8 | 1 | 79.0 | 7.5 | 13.4 | 0.2 |
| 2006 | 313 | 60.7 | 39.3 | 0.0 | 0.0 | 0 | 75.4 | 8.2 | 16.4 | 0.3 |
| 2007 | 350 | 54.6 | 45.4 | 0.0 | 0.0 | 0 | 71.3 | 9.4 | 19.3 | 1.1 |
| 2008 | 59 | 72.9 | 27.1 | 0.0 | 0.0 | 0 | 75.6 | 6.4 | 18.0 | 0.6 |
| 2009 | 10 | 40.0 | 60.0 | 0.0 | 0.0 | 0 | 68.5 | 10.6 | 20.9 | 0.7 |
| 2010 | 17 | 88.2 | 11.8 | 0.0 | 0.0 | 0 | 89.9 | 4.1 | 6.0 | 0.4 |
| 2011 | 28 | 75.0 | 25.0 | 0.0 | 0.0 | 0 | 82.7 | 7.1 | 10.2 | 0.0 |
| 2012 | 17 | 64.7 | 35.3 | 0.0 | 0.0 | 0 | 84.9 | 7.8 | 7.3 | 0.0 |
| 2013 | 25 | 100.0 | 0.0 | 0.0 | 0.0 | 0 | 89.6 | 9.7 | 0.7 | 0.0 |
| 2014 | 73 | 86.3 | 13.7 | 0.0 | 0.0 | 0 | 82.2 | 16.0 | 1.8 | 0.0 |
| 2015 | 72 | 59.7 | 40.3 | 0.0 | 0.0 | 0 | 79.7 | 19.7 | 0.6 | 0.3 |
| 2016 | 103 | 75.7 | 24.3 | 0.0 | 0.0 | 0 | 82.0 | 18.0 | 0.0 | 0.0 |
| 2017 | 94 | 48.9 | 51.1 | 0.0 | 0.0 | 0 | 74.5 | 25.5 | 0.0 | 0.0 |
| 2018 | 101 | 61.4 | 38.6 | 0.0 | 0.0 | 0 | 61.4 | 38.6 | 0.0 | 0.0 |
| Rating category | | | | | | | | | | |
| AAA | 242 | 100.0 | 0.0 | 0.0 | 0.0 | 0 | 93.1 | 0.0 | 6.9 | 0.1 |
| AA | 278 | 60.8 | 38.8 | 0.4 | 0.0 | 0 | 72.4 | 9.3 | 18.2 | 0.0 |
| A | 495 | 59.0 | 41.0 | 0.0 | 0.0 | 0 | 72.9 | 12.5 | 14.6 | 0.0 |
| BBB | 180 | 30.6 | 69.4 | 0.0 | 0.0 | 0 | 76.7 | 13.4 | 9.9 | 0.1 |
| BB | 116 | 40.5 | 59.5 | 0.0 | 0.0 | 0 | 68.4 | 14.0 | 17.6 | 0.4 |
| B | 138 | 65.2 | 34.8 | 0.0 | 0.0 | 0 | 76.3 | 12.5 | 11.2 | 1.1 |
| CCC | 54 | 75.9 | 22.2 | 1.9 | 1.9 | 1 | 74.3 | 10.2 | 15.5 | 10.2 |

Table 3

European RMBS Transition And Default Summary (cont.)

2019 versus one-year average

| | --2019-- | | | | | --One-year average-- | | | | |
|---------------------|------------------|---------------|-----------------|--------------------|-----------------|----------------------|---------------|-----------------|--------------------|-----------------|
| | Ratings (no.) | Stable (%) | Upgrades (%) | Downgrades (%)* | Defaults (%) | Defaults (no.) | Stable (%) | Upgrades (%) | Downgrades (%)* | Defaults (%) |
| CC | 2 | 50.0 | 50.0 | 0.0 | 0.0 | 0 | 50.0 | 14.3 | 35.7 | 28.6 |
| Rating grade | | | | | | | | | | |
| Investment-grade | 1,195 | 63.4 | 36.5 | 0.1 | 0.0 | 0 | 80.9 | 7.4 | 11.6 | 0.0 |
| Speculative-grade | 310 | 57.7 | 41.9 | 0.3 | 0.3 | 1 | 72.2 | 12.9 | 14.9 | 2.0 |

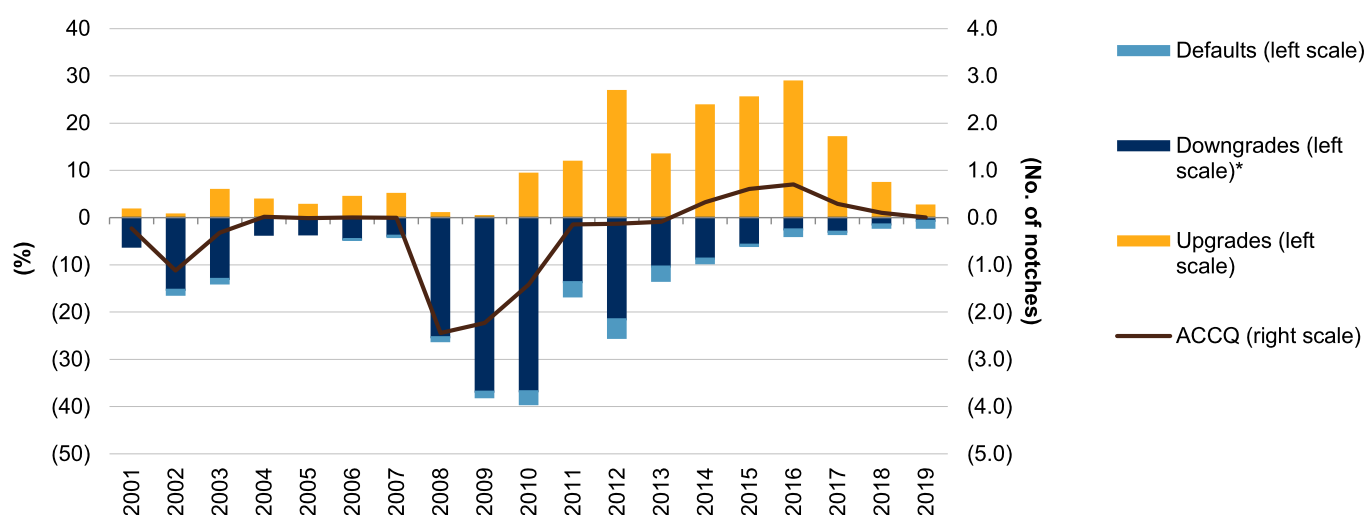
*Including defaults. Securities with ratings that migrated to NR over the period are classified based on the rating prior to NR. Source: S&P Global Ratings Research.

Structured credit

The default rate among European structured credit ratings rose to 1.5% in 2019 from 0.7% in 2018, reaching the highest since 2015. Further, following a five-year expansion through the end of 2016, the average change in credit quality fell to zero from 0.1 notch. The upgrade rate was 2.6%, the lowest in 10 years, a sharp decline from 7.3% in 2018 (see chart 11). However, the European structured credit downgrade rate has been declining annually since 2012.

Chart 11

European Structured Credit Transition Rates And Average Change In Credit Quality



*Excluding defaults. Securities with ratings that migrated to NR over the period are classified based on the rating prior to NR. ACCQ--Average change in credit quality. Source: S&P Global Ratings Research.

Copyright © 2020 by Standard & Poor's Financial Services LLC. All rights reserved.

The 12-month trailing default rate for European structured credit rose to 1.5% at the end of 2019 from 0.7% at the end of 2018 (see chart 12). Historically, the 12-month trailing default rate for structured credit has generally been above the overall European structured finance 12-month trailing default rate.

Chart 12

European Structured Credit 12-Month Trailing Default Rates



Source: S&P Global Ratings Research.

Copyright © 2020 by Standard & Poor's Financial Services LLC. All rights reserved.

Credit performance in the European structured credit sector has historically diverged between collateralized loan obligations (CLOs)--which have performed very well--and other types of structured credit transactions, including structured finance collateralized debt obligations (CDOs), which performed poorly after 2007. Following two years of more uniform credit performance across the structured credit subsectors, in 2019 diverging performance emerged once again.

CLOs accounted for 62% of the European structured credit ratings in 2019 and reported a default rate of 0.1%, the equivalent of one default, with no other downgrades. The structured finance CDO sector, which now accounts for just 9% of ratings, reported the highest default rate of any structured credit subsector at 13.7%, the equivalent of 14 defaults, which was more than half of the defaults from European structured finance. The downgrade rate for structured finance CDOs was 14% (see table 4).

The one-year average default rate for CLOs remained only 0.2%, compared with 3.1% for structured finance CDOs. As CLOs have evolved to become the largest subsector within European structured credit, the aggregate performance statistics for the sector have also improved significantly.

Prior to the 2009 financial crisis, structured finance CDOs were the more commonly issued product within structured credit. Many of these were backed by RMBS that had loose documentation on the underlying subprime mortgage loans. In the fallout of the financial crisis, many borrowers became unable to maintain monthly mortgage payments on loans backing CDOs,

sparking higher default rates. Subsequently, CLOs backed by corporate credit in the form of leveraged loans, which came with the additional security of stricter covenant enforcement, emerged as the more viable option in the structured credit sector.

The 2017 and 2018 vintages alone accounted for more than half of our European structured credit ratings at the beginning of 2019. The 2007 vintage had a relatively high upgrade rate at 8%. CLO transactions in this vintage are now amortizing, increasing the relative credit enhancement for the rated securities and therefore raising their creditworthiness, all else being equal.

All of the 2019 defaults in European structured credit were on securities that we rated in the 'CCC' or 'CC' categories at the beginning of the year, and all came from pre-2009 vintages.

Table 4

European Structured Credit Transition And Default Summary

2019 versus one-year average

| | --2019-- | | | | | | --One-year average-- | | | |
|----------------------------|------------------|---------------|-----------------|--------------------|-----------------|-------------------|----------------------|-----------------|--------------------|-----------------|
| | Ratings (no.) | Stable (%) | Upgrades (%) | Downgrades (%)* | Defaults (%) | Defaults (no.) | Stable (%) | Upgrades (%) | Downgrades (%)* | Defaults (%) |
| Overall | 1,092.0 | 95.3 | 2.6 | 2.1 | 1.5 | 16.0 | 73.4 | 9.6 | 17.0 | 1.4 |
| Subsector | | | | | | | | | | |
| Leveraged loan CLOs | 681.0 | 97.9 | 1.9 | 0.1 | 0.1 | 1.0 | 73.2 | 16.1 | 10.8 | 0.2 |
| Structured finance CDOs | 102.0 | 83.3 | 1.0 | 15.7 | 13.7 | 14.0 | 70.1 | 6.2 | 23.7 | 3.1 |
| SME CLOs | 39.0 | 82.1 | 17.9 | 0.0 | 0.0 | 0.0 | 79.4 | 5.2 | 15.4 | 1.4 |
| Other | 270.0 | 95.2 | 2.6 | 2.2 | 0.4 | 1.0 | 73.5 | 7.3 | 19.2 | 1.5 |
| Vintage | | | | | | | | | | |
| Pre-2005 | 22.0 | 77.3 | 0.0 | 22.7 | 9.1 | 2.0 | 82.7 | 6.2 | 11.1 | 0.6 |
| 2005 | 27.0 | 92.6 | 3.7 | 3.7 | 0.0 | 0.0 | 69.5 | 9.3 | 21.2 | 1.8 |
| 2006 | 70.0 | 94.3 | 2.9 | 2.9 | 1.4 | 1.0 | 65.0 | 11.8 | 23.2 | 2.3 |
| 2007 | 86.0 | 87.2 | 8.1 | 4.7 | 3.5 | 3.0 | 63.6 | 14.8 | 21.6 | 1.9 |
| 2008 | 30.0 | 60.0 | 3.3 | 36.7 | 33.3 | 10.0 | 72.8 | 8.0 | 19.2 | 1.7 |
| 2009 | 19.0 | 100.0 | 0.0 | 0.0 | 0.0 | 0.0 | 79.9 | 11.3 | 8.8 | 0.9 |
| 2010 | 28.0 | 100.0 | 0.0 | 0.0 | 0.0 | 0.0 | 65.7 | 18.2 | 16.1 | 0.0 |
| 2011 | 3.0 | 100.0 | 0.0 | 0.0 | 0.0 | 0.0 | 72.9 | 9.6 | 17.6 | 0.0 |
| 2012 | 15.0 | 100.0 | 0.0 | 0.0 | 0.0 | 0.0 | 81.0 | 7.5 | 11.5 | 0.4 |
| 2013 | 13.0 | 100.0 | 0.0 | 0.0 | 0.0 | 0.0 | 92.9 | 3.4 | 3.7 | 0.3 |
| 2014 | 30.0 | 96.7 | 3.3 | 0.0 | 0.0 | 0.0 | 92.0 | 2.5 | 5.4 | 0.0 |
| 2015 | 41.0 | 97.6 | 2.4 | 0.0 | 0.0 | 0.0 | 94.7 | 4.7 | 0.6 | 0.0 |
| 2016 | 89.0 | 96.6 | 3.4 | 0.0 | 0.0 | 0.0 | 99.4 | 0.6 | 0.0 | 0.0 |
| 2017 | 409.0 | 97.3 | 2.7 | 0.0 | 0.0 | 0.0 | 98.0 | 2.0 | 0.0 | 0.0 |
| 2018 | 210.0 | 99.5 | 0.5 | 0.0 | 0.0 | 0.0 | 99.5 | 0.5 | 0.0 | 0.0 |
| Rating category | | | | | | | | | | |
| AAA | 153.0 | 100.0 | 0.0 | 0.0 | 0.0 | 0.0 | 85.6 | 0.0 | 14.4 | 0.2 |
| AA | 221.0 | 99.1 | 0.9 | 0.0 | 0.0 | 0.0 | 71.7 | 11.1 | 17.2 | 0.2 |

Table 4

European Structured Credit Transition And Default Summary (cont.)

2019 versus one-year average

| | --2019-- | | | | | --One-year average-- | | | | |
|---------------------|------------------|---------------|-----------------|--------------------|-----------------|----------------------|---------------|-----------------|--------------------|-----------------|
| | Ratings (no.) | Stable (%) | Upgrades (%) | Downgrades (%)* | Defaults (%) | Defaults (no.) | Stable (%) | Upgrades (%) | Downgrades (%)* | Defaults (%) |
| A | 236.0 | 94.5 | 3.8 | 1.7 | 0.0 | 0.0 | 71.9 | 12.6 | 15.6 | 0.3 |
| BBB | 190.0 | 93.2 | 6.3 | 0.5 | 0.0 | 0.0 | 68.5 | 12.9 | 18.7 | 0.3 |
| BB | 110.0 | 97.3 | 2.7 | 0.0 | 0.0 | 0.0 | 67.1 | 14.8 | 18.1 | 0.4 |
| B | 108.0 | 98.1 | 1.9 | 0.0 | 0.0 | 0.0 | 59.5 | 21.1 | 19.5 | 0.5 |
| CCC | 52.0 | 71.2 | 0.0 | 28.8 | 25.0 | 13.0 | 68.0 | 12.8 | 19.2 | 8.0 |
| CC | 22.0 | 86.4 | 0.0 | 13.6 | 13.6 | 3.0 | 67.9 | 1.2 | 30.9 | 30.9 |
| Rating grade | | | | | | | | | | |
| Investment-grade | 800.0 | 96.5 | 2.9 | 0.6 | 0.0 | 0.0 | 75.9 | 8.0 | 16.2 | 0.2 |
| Speculative-grade | 292.0 | 92.1 | 1.7 | 6.2 | 5.5 | 16.0 | 65.8 | 14.7 | 19.5 | 4.7 |

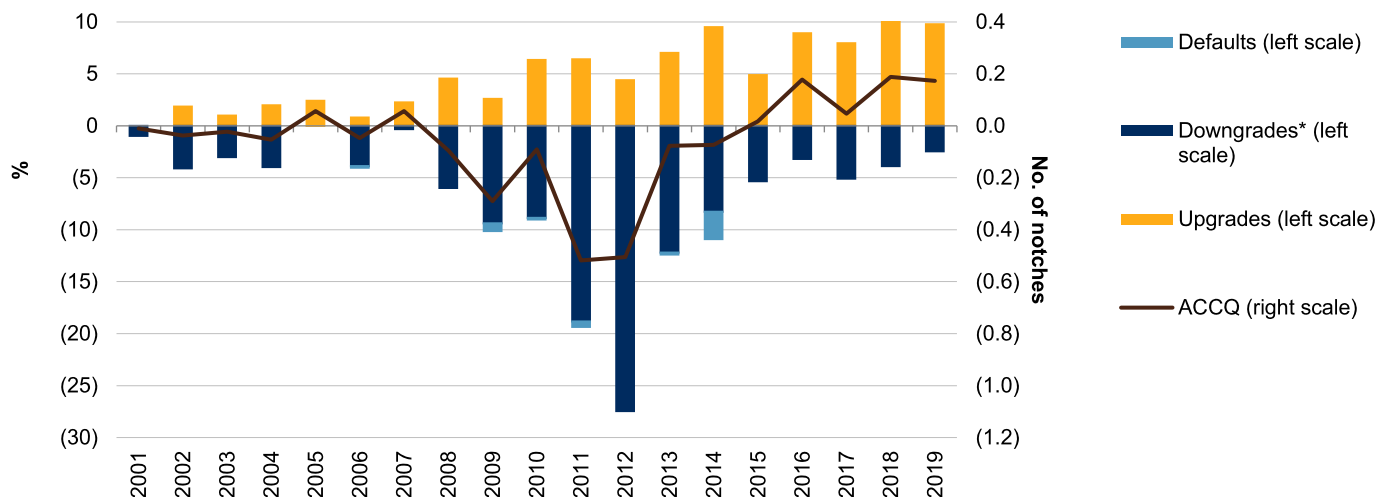
*Including defaults. Securities with ratings that migrated to NR over the period are classified based on the rating prior to NR. Source: S&P Global Ratings Research.

ABS

The European ABS sector's credit performance deteriorated slightly in 2019 but remained historically elevated. The average change in credit quality fell to 0.17 notch from its record high of 0.19 notch in the previous year. Similarly, the upgrade rate fell to 9.8% in 2019 following a peak of 11.6% in 2018. There were no defaults in 2019, while the downgrade rate fell to 2.4% (see chart 13). All the ABS downgrades in 2019 came from a single subsector, corporate securitizations.

Chart 13

European ABS Transition Rates And Average Change In Credit Quality

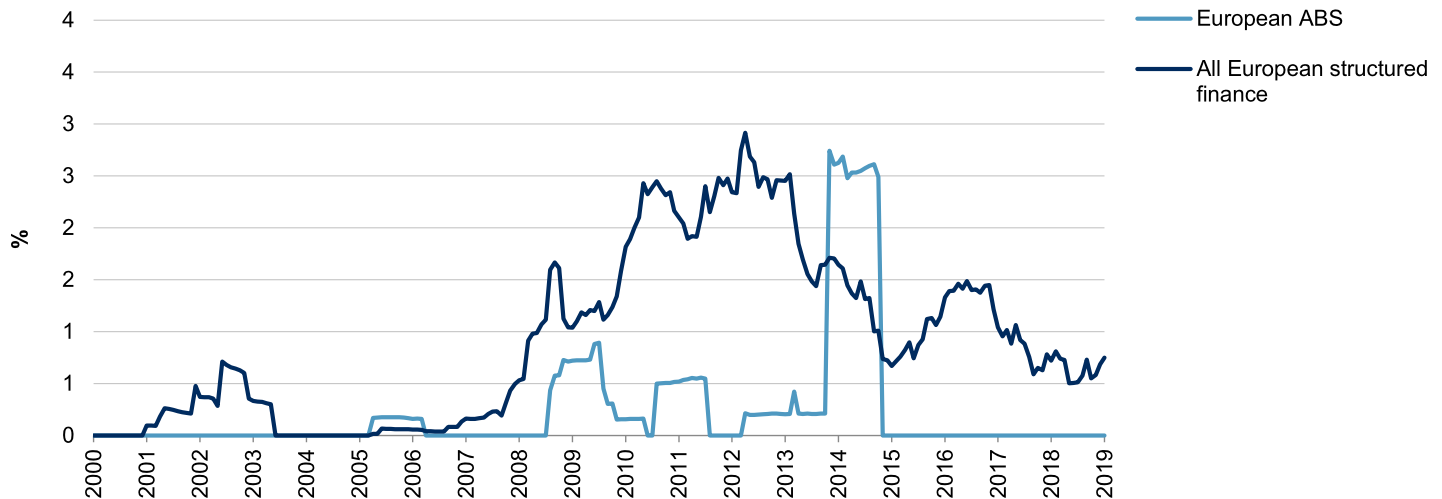


*Excluding defaults. ACCQ--Average change in credit quality. Securities whose ratings migrated to 'NR' over the period are classified based on their rating prior to 'NR'. Source: S&P Global Ratings Research. Copyright © 2020 by Standard & Poor's Financial Services LLC. All rights reserved.

The default rate in European ABS has historically remained lower than that of other sectors in European structured finance. The notable exception was in 2014, when there was a pronounced uptick in defaults for the corporate securitization subsector, leading to an overall European ABS default rate of 2.6% for that year (see chart 14).

Chart 14

European ABS 12-Month Trailing Default Rates



Source: S&P Global Ratings Research.

Copyright © 2020 by Standard & Poor's Financial Services LLC. All rights reserved.

The auto subsector continued to represent the largest segment of European ABS at the start of 2019, accounting for 47% of the total ratings (see table 5). There were no downgrades or defaults within the subsector, while the upgrade rate outperformed its historical average at 6.7%.

The corporate securitizations subsector accounted for all downgrades within European ABS in 2019, with a downgrade rate of 15.4%. However, this was down from 23.9% in 2018. Downgrades in the subsector were due to our lowering of the ratings on 10 tranches to rating corporate securitizations globally (see "Related Criteria").

All remaining subsectors reported no downgrades or defaults in 2019, and each had an upgrade rate higher than its one-year average.

Upgrades in the ABS sector occurred across several vintages. The highest upgrade rates were in the 2009, 2007, and pre-2005 vintages, at 100%, 33.3%, and 15%, respectively. Most later-vintage upgrades were on German and U.K. transactions, while earlier-vintage upgrades were concentrated in the Netherlands.

Just three vintages reported downgrade rates in 2019. The 2006 vintage had the highest downgrade rate at 26.8%, while the pre-2005 vintages had a downgrade rate of 20%. The only recent vintage to report a downgrade rate was 2014 at 6.7%.

European ABS securities rated in the 'AA' category at the start of 2019 had the highest upgrade rate at 26.3%. Most rating categories reported upgrade rates higher than respective one-year averages. Downgrades in the ABS sector came from the 'A', 'BBB', and 'B' rating categories, all of which had downgrade rates below respective one-year averages.

Table 5

European ABS Transition And Default Summary

2019 versus one-year average

| | --2019-- | | | | | --One-year average-- | | | | |
|------------------------------|------------------|---------------|-----------------|--------------------|-----------------|----------------------|---------------|-----------------|--------------------|-----------------|
| | Ratings (no.) | Stable (%) | Upgrades (%) | Downgrades (%)* | Defaults (%) | Defaults (no.) | Stable (%) | Upgrades (%) | Downgrades (%)* | Defaults (%) |
| Overall | 409.0 | 87.8 | 9.8 | 2.4 | 0.0 | 0.0 | 88.6 | 4.6 | 6.8 | 0.2 |
| Subsector | | | | | | | | | | |
| Auto | 193.0 | 93.3 | 6.7 | 0.0 | 0.0 | 0.0 | 90.9 | 6.3 | 2.8 | 0.2 |
| Corporate securitizations | 65.0 | 80.0 | 4.6 | 15.4 | 0.0 | 0.0 | 81.6 | 2.8 | 15.6 | 0.8 |
| Other consumer | 58.0 | 69.0 | 31.0 | 0.0 | 0.0 | 0.0 | 87.2 | 6.5 | 6.2 | 0.1 |
| Credit card | 45.0 | 97.8 | 2.2 | 0.0 | 0.0 | 0.0 | 95.8 | 1.8 | 2.4 | 0.0 |
| Other | 48.0 | 89.6 | 10.4 | 0.0 | 0.0 | 0.0 | 87.1 | 4.4 | 8.4 | 0.0 |
| Vintage | | | | | | | | | | |
| Pre-2005 | 20.0 | 65.0 | 15.0 | 20.0 | 0.0 | 0.0 | 91.9 | 3.2 | 4.9 | 0.2 |
| 2005 | 9.0 | 100.0 | 0.0 | 0.0 | 0.0 | 0.0 | 84.7 | 3.6 | 11.7 | 0.1 |
| 2006 | 14.0 | 57.1 | 14.3 | 28.6 | 0.0 | 0.0 | 80.3 | 5.7 | 14.0 | 0.4 |
| 2007 | 9.0 | 66.7 | 33.3 | 0.0 | 0.0 | 0.0 | 77.4 | 5.6 | 17.0 | 1.5 |
| 2008 | 1.0 | 100.0 | 0.0 | 0.0 | 0.0 | 0.0 | 85.5 | 5.9 | 8.6 | 0.2 |
| 2009 | 1.0 | 0.0 | 100.0 | 0.0 | 0.0 | 0.0 | 83.0 | 5.3 | 11.7 | 0.0 |
| 2010 | 2.0 | 100.0 | 0.0 | 0.0 | 0.0 | 0.0 | 86.1 | 7.2 | 6.7 | 0.0 |
| 2011 | 2.0 | 100.0 | 0.0 | 0.0 | 0.0 | 0.0 | 86.6 | 8.0 | 5.3 | 0.0 |
| 2012 | 15.0 | 100.0 | 0.0 | 0.0 | 0.0 | 0.0 | 95.1 | 2.6 | 2.3 | 0.0 |
| 2013 | 20.0 | 90.0 | 10.0 | 0.0 | 0.0 | 0.0 | 91.3 | 7.2 | 1.4 | 0.0 |
| 2014 | 30.0 | 90.0 | 3.3 | 6.7 | 0.0 | 0.0 | 92.5 | 5.4 | 2.1 | 0.0 |
| 2015 | 66.0 | 86.4 | 13.6 | 0.0 | 0.0 | 0.0 | 88.5 | 10.3 | 1.1 | 0.0 |
| 2016 | 63.0 | 85.7 | 14.3 | 0.0 | 0.0 | 0.0 | 88.8 | 9.6 | 1.7 | 0.0 |
| 2017 | 67.0 | 89.6 | 10.4 | 0.0 | 0.0 | 0.0 | 94.2 | 5.8 | 0.0 | 0.0 |
| 2018 | 90.0 | 96.7 | 3.3 | 0.0 | 0.0 | 0.0 | 96.7 | 3.3 | 0.0 | 0.0 |
| Rating category | | | | | | | | | | |
| AAA | 157.0 | 100.0 | 0.0 | 0.0 | 0.0 | 0.0 | 96.9 | 0.0 | 3.1 | 0.0 |
| AA | 57.0 | 73.7 | 26.3 | 0.0 | 0.0 | 0.0 | 79.5 | 9.1 | 11.4 | 0.0 |
| A | 87.0 | 74.7 | 19.5 | 5.7 | 0.0 | 0.0 | 85.7 | 7.7 | 6.6 | 0.0 |
| BBB | 65.0 | 87.7 | 6.2 | 6.2 | 0.0 | 0.0 | 86.5 | 5.3 | 8.2 | 0.1 |
| BB | 26.0 | 84.6 | 11.5 | 3.8 | 0.0 | 0.0 | 72.5 | 11.0 | 16.5 | 0.3 |
| B | 14.0 | 92.9 | 7.1 | 0.0 | 0.0 | 0.0 | 68.9 | 11.0 | 20.1 | 3.7 |
| CCC | 3.0 | 100.0 | 0.0 | 0.0 | 0.0 | 0.0 | 70.0 | 11.8 | 18.2 | 13.6 |
| CC | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 100.0 | 0.0 | 0.0 | 0.0 |

Table 5

European ABS Transition And Default Summary (cont.)

2019 versus one-year average

| | --2019-- | | | | | --One-year average-- | | | | |
|---------------------|------------------|---------------|-----------------|--------------------|-----------------|----------------------|---------------|-----------------|--------------------|-----------------|
| | Ratings (no.) | Stable (%) | Upgrades (%) | Downgrades (%)* | Defaults (%) | Defaults (no.) | Stable (%) | Upgrades (%) | Downgrades (%)* | Defaults (%) |
| Rating grade | | | | | | | | | | |
| Investment-grade | 366.0 | 87.7 | 9.8 | 2.5 | 0.0 | 0.0 | 89.7 | 4.2 | 6.1 | 0.0 |
| Speculative-grade | 43.0 | 88.4 | 9.3 | 2.3 | 0.0 | 0.0 | 71.2 | 11.1 | 17.7 | 3.5 |

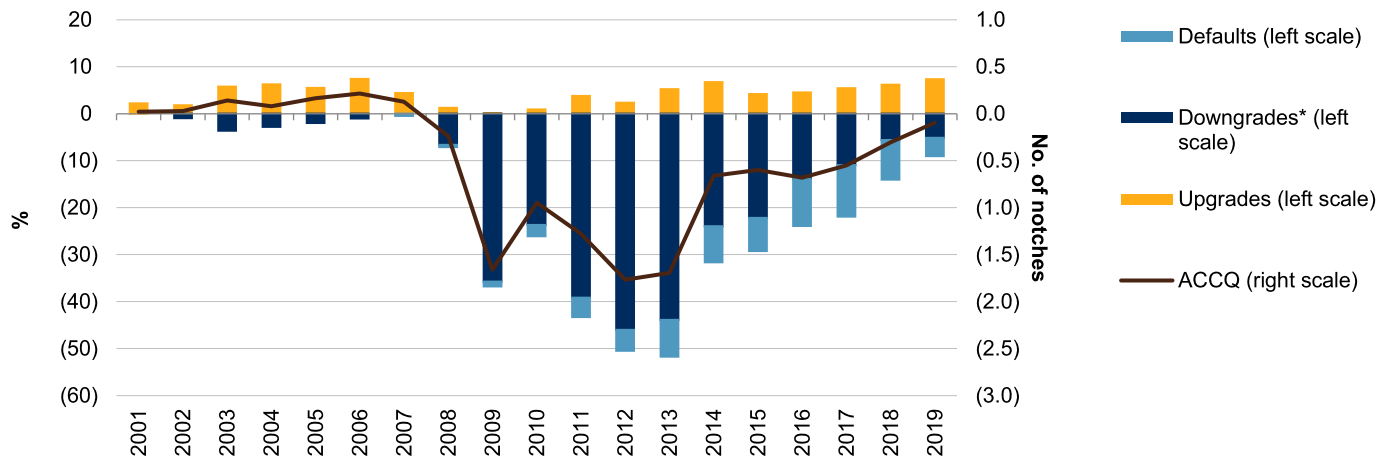
*Including defaults. Securities with ratings that migrated to NR over the period are classified based on the rating prior to NR. Source: S&P Global Ratings Research.

CMBS

European CMBS credit performance continued to improve in 2019 as the default rate fell to 4%, from 8.4% in 2018. The downgrade rate fell to 9.0% in 2019 from 14.0% in 2018, well below the one-year weighted average of 22.1%. The upgrade rate was one of the highest on record since 2006 at 7.3%. The average change in credit quality among European structured finance CMBS transactions became positive for the first time in over a decade in September 2019 and ended the year at -0.1 notch, the best year-end reading since 2008 (see chart 15).

Chart 15

European CMBS Transition Rates And Average Change In Credit Quality



*Excluding defaults. ACCQ--Average change in credit quality. Securities whose ratings migrated to 'NR' over the period are classified based on their rating prior to 'NR'. Source: S&P Global Ratings Research.

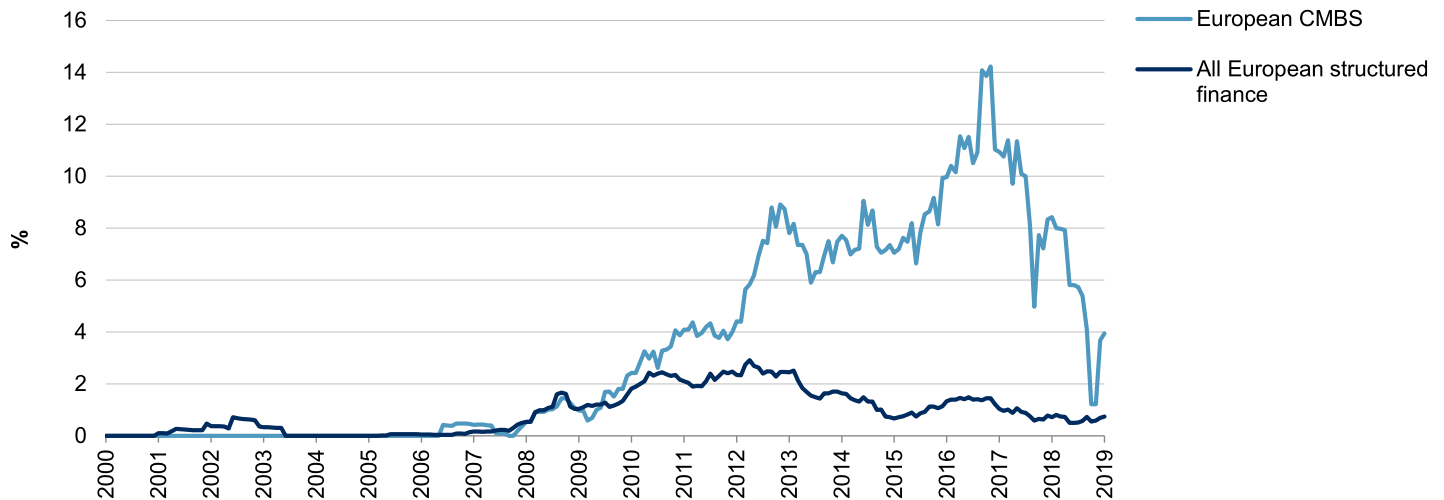
Copyright © 2020 by Standard & Poor's Financial Services LLC. All rights reserved.

The 12-month trailing default rate for European CMBS continued to trend downward, before rebounding in the final quarter of the year but remaining below levels seen in 2018 (see chart 16). Before the Great Financial Crisis, the overall European structured finance and European CMBS

12-month trailing default rates were in line with each other. After the crisis, CMBS defaults rose, bringing the 12-month trailing default rate for the sector above that of European structured finance as a whole.

Chart 16

European CMBS 12-Month Trailing Default Rates



Source: S&P Global Ratings Research.

Copyright © 2020 by Standard & Poor's Financial Services LLC. All rights reserved.

The CMBS sector represents one of the smallest shares of European structured finance, accounting for just 5.5% of total ratings. There were seven defaults in CMBS in 2019, all concentrated in the U.K. subsector. The resulting default rate for U.K. CMBS was 5.5%, triple what was reported in 2018 and above the one-year average of 2.4% (see table 6).

The U.K. and "other" CMBS subsectors were alone in reporting downgrades in 2019, with respective downgrade rates of 9.4% and 10.8%. Conditions in Germany generally improved compared with 2018, and German CMBS had 100% ratings stability in 2019.

Considering only those vintages with a significant number of ratings outstanding, the one-year average downgrade and default rates have been highest in the pre-2008 vintages. These vintages had greater exposure to lower lending standards before the financial crisis and to subsequent falling real estate values, and many loans have now reached maturity with borrowers unable to refinance, leading to loan defaults. By contrast, post-2007 vintages exhibit stronger credit performance, with no defaults for 2019.

All European CMBS defaults in 2019 were from securities that we rated in the 'CCC' and 'CC' categories at the beginning of the year.

Table 6

European CMBS Transition And Default Summary

2019 versus one-year average

| | --2019-- | | | | | --One-year average-- | | | | |
|------------------------|------------------|---------------|-----------------|--------------------|-----------------|----------------------|---------------|-----------------|--------------------|-----------------|
| | Ratings (no.) | Stable (%) | Upgrades (%) | Downgrades (%)* | Defaults (%) | Defaults (no.) | Stable (%) | Upgrades (%) | Downgrades (%)* | Defaults (%) |
| Overall | 177.0 | 83.6 | 7.3 | 9.0 | 4.0 | 7.0 | 74.3 | 3.6 | 22.1 | 3.0 |
| Subsector | | | | | | | | | | |
| U.K. | 128.0 | 80.5 | 10.2 | 9.4 | 5.5 | 7.0 | 75.3 | 4.6 | 20.0 | 2.4 |
| German | 12.0 | 100.0 | 0.0 | 0.0 | 0.0 | 0.0 | 68.2 | 3.4 | 28.4 | 4.8 |
| Multi-country | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 72.7 | 2.4 | 24.9 | 3.5 |
| Other | 37.0 | 89.2 | 0.0 | 10.8 | 0.0 | 0.0 | 77.8 | 2.5 | 19.7 | 2.4 |
| Vintage | | | | | | | | | | |
| Pre-2005 | 32.0 | 87.5 | 9.4 | 3.1 | 3.1 | 1.0 | 89.6 | 5.4 | 5.0 | 0.3 |
| 2005 | 15.0 | 86.7 | 13.3 | 0.0 | 0.0 | 0.0 | 77.2 | 5.0 | 17.7 | 1.8 |
| 2006 | 27.0 | 85.2 | 0.0 | 14.8 | 0.0 | 0.0 | 68.0 | 2.1 | 29.9 | 4.5 |
| 2007 | 25.0 | 72.0 | 0.0 | 28.0 | 24.0 | 6.0 | 58.9 | 1.8 | 39.4 | 6.0 |
| Post-2007 | 78.0 | 84.6 | 10.3 | 5.1 | 0.0 | 0.0 | 75.4 | 4.8 | 19.8 | 0.9 |
| Rating category | | | | | | | | | | |
| AAA | 18.0 | 100.0 | 0.0 | 0.0 | 0.0 | 0.0 | 87.2 | 0.0 | 12.8 | 0.0 |
| AA | 50.0 | 94.0 | 6.0 | 0.0 | 0.0 | 0.0 | 77.9 | 4.7 | 17.4 | 0.1 |
| A | 34.0 | 88.2 | 0.0 | 11.8 | 0.0 | 0.0 | 73.9 | 6.1 | 20.0 | 0.2 |
| BBB | 25.0 | 72.0 | 12.0 | 16.0 | 0.0 | 0.0 | 73.0 | 6.1 | 20.9 | 0.7 |
| BB | 26.0 | 73.1 | 26.9 | 0.0 | 0.0 | 0.0 | 66.4 | 4.6 | 29.0 | 2.1 |
| B | 11.0 | 90.9 | 0.0 | 9.1 | 0.0 | 0.0 | 55.9 | 1.6 | 42.5 | 9.7 |
| CCC | 7.0 | 71.4 | 0.0 | 28.6 | 28.6 | 2.0 | 47.5 | 0.4 | 52.0 | 38.8 |
| CC | 6.0 | 16.7 | 0.0 | 83.3 | 83.3 | 5.0 | 40.0 | 0.0 | 60.0 | 60.0 |
| Rating grade | | | | | | | | | | |
| Investment-grade | 127.0 | 89.0 | 4.7 | 6.3 | 0.0 | 0.0 | 78.7 | 3.9 | 17.4 | 0.2 |
| Speculative-grade | 50.0 | 70.0 | 14.0 | 16.0 | 14.0 | 7.0 | 58.8 | 2.7 | 38.4 | 12.5 |

*Including defaults. Securities with ratings that migrated to NR over the period are classified based on the rating prior to NR. Source: S&P Global Ratings Research.

Appendix I: Terminology, Data Selection, And Calculation Approaches

This appendix explains the terminology, data selection, and calculation approaches we use in this study.

This European structured finance default and rating transition study uses our database of long-term global scale issue credit ratings. We do not include national and regional scale ratings, which are not comparable between countries. The analysis also excludes public information ratings, issuer credit ratings, and short-term issue ratings, such as those on asset-backed

commercial paper conduits.

Our ongoing enhancement of the database used to generate this study occasionally leads to changes in the reported statistics from one edition to the next. However, each study includes statistics for previous years, ensuring that the study is self-consistent and effectively supersedes all previous editions.

Issues included in this study

The study analyzes the rating histories of 3,206 European structured finance instruments that S&P Global Ratings first rated between 1982 and Dec. 31, 2019. The term "structured finance" in this report refers to ABS, CMBS, RMBS, structured credit, and single-name synthetic transactions. For some analyses, we break down these sectors into subsectors.

Sector definitions

ABS includes collateral types such as credit card receivables, auto loans, and leases, as well as corporate securitizations.

RMBS includes transactions backed by residential mortgage loans.

Structured credit includes CLOs, both cash and synthetic CDOs backed by exposures to corporate credit or other structured finance securities, and market-value CDOs and other leveraged funds. We include transactions backed by loans to small and midsize enterprises in structured credit, rather than in the ABS sector.

Single-name synthetic transactions are also referred to as "repackaged transactions" (or "repacks"), especially in Europe. The definition of a repack in this instance is an issue backed by a single credit, where the rating on the note is directly linked to that on the underlying credit.

We no longer include structured covered bonds, which we previously treated as a separate sector.

Region definitions

This study presents rating transitions for European structured finance transactions. In defining a transaction's region, we primarily use the location where we perform surveillance. We may also consider the transaction's issuer country (unless this is a tax haven such as the Cayman Islands) or its domicile of assets. In some cases, the domicile of assets may fail to provide insights into the region, especially when a transaction is backed by assets from more than one country.

Vintage definition

We classify securities' vintages based on the date on which we first assigned a rating. Usually this is close to the security's original issuance date. However, in some cases we may first assign a rating to a security some time after closing.

Rating transitions

Our rating transition statistics use a "static pool" approach. To calculate the transition statistics over a given period (or "transition window"), we consider the static pool of ratings outstanding at the beginning of that period. The transition statistics for that static pool of ratings are then based

on the movements in ratings between the start and end of the transition window.

For instance, we calculate the 2019 transition rates by determining the ratings on each security at the start of 2019 and determining the ratings on those same securities at the end of 2019. We then calculate statistics such as upgrade, downgrade, and stability rates, equivalent to the proportion of securities in the static pool with ratings that moved up, down, or remained the same, respectively, over the transition window. During this process, we count each security only once, even if the security experienced more than one rating change during the transition window being observed. In other words, we use the ratings on a security at the start and end of the transition window to calculate the transition rates, disregarding any interim rating changes.

Rating modifiers

We use rating modifiers ('+' and '-') to calculate the upgrade, downgrade, and stability rates in the text, tables, and charts throughout this study. However, the transition matrices in Appendix II show only the full rating categories for practical reasons. In other words, in general we count transitions such as to 'AA+' from 'AA' as an upgrade and to 'BBB-' from 'BBB+' as a downgrade. However, in the corresponding transition matrices, these transitions would appear in the cells corresponding to a stable rating category classification, such as to 'AA' from 'AA' or to 'BBB' from 'BBB'.

Rating discontinuance or withdrawal

We may discontinue ratings when, for example, a rated obligation's payments have been made in full in accordance with its terms or when a rated issue matures. Ratings may also be withdrawn because of insufficient information of satisfactory quality or at the issuer's request. In these cases, the rating may change to not rated (NR).

When we withdraw or discontinue ratings within the transition window under consideration, we may derive our reported statistics either by classifying the rating transition as a move to not rated (the "NR-included" approach) or--for some other analyses--classify the transition as a move to the last non-NR rating before withdrawal or discontinuance (the "NR-adjusted" approach). In the text of this study, when we refer to upgrade and downgrade rates, for example, we use the latter approach. In the tables and charts, we clarify the approach used in the footnotes. We do not include a security with a withdrawn rating at the beginning of a transition window in the transition and default rate calculations for that period.

Treatment of 'AAA' ratings

We include the ratings history of all securities with original ratings of 'AAA', which we term the "uncollapsed" approach. This represents a change in methodology from editions of the study prior to 2018. In previous editions, for each structured finance transaction, we generally included only one of the securities that we originally rated 'AAA', terming this the "collapsed" approach. This was because historically some transactions had a disproportionate number of 'AAA' rated tranches that were likely to exhibit similar or identical credit performance. By including only one such security per transaction, we aimed to avoid overweighting their behavior in aggregate performance statistics.

However, we now include all securities' rating histories, regardless of the original ratings, for completeness and consistency with our other reporting on ratings performance in regulatory submissions. Appendix III shows the effects on some example summary statistics of altering the

treatment of 'AAA' ratings.

Treatment of 'D' ratings

Counts of defaults and default rate statistics are based on securities we downgraded to 'D' (default). For the purposes of this study, when the rating on a security has moved to 'D', we consider this a terminal state and do not include such a security in any transition windows that start on a subsequent date.

In practice, however, some securities downgraded to 'D' may later be assigned different ratings. This can occur, for example, if the defaulted security is subsequently restructured to different terms, such as a lower coupon. In these cases, we treat the security's postdefault ratings history as if it were for a new security, beginning from the date that the rating changed from 'D'. Where we segment statistics by vintage, however, we continue to base the vintage on the date we originally assigned a rating to the security.

Average change in credit quality calculation

Certain analyses in this study refer to the "average change in credit quality" of a set of structured finance securities over a given transition window. We define the average change in credit quality as the average number of rating notches by which ratings changed during the stated transition window, where we take the average across all ratings in the set under consideration (for example, a particular sector). In this averaging, we count downgrades as a negative number of notches and upgrades as a positive number. We consider stable ratings to have undergone a transition of zero notches. We believe this measure is a useful summary of the credit performance of a given sector, since it combines the relative number of ratings undergoing transition with the severity of that transition.

Weighted average transition and default rate calculation

For weighted average transition rates (including default rates), we calculate the individual transition rates for different static pools. We then calculate a single averaged transition rate, weighted by the number of ratings in each static pool. We use this technique, for example, to determine the five-year weighted average transition rates, by analyzing static pools over different five-year periods and aggregating.

Average cumulative default rate calculation

In this study, we also calculate and present average cumulative default rates for different time horizons. For example, table 2 shows that the one-year average cumulative default rate for 'BBB' rated European structured finance is 0.26% and the three-year average is 1.49%.

We first consider the static pool of ratings at the beginning of each calendar year. For each static pool, we calculate the marginal default rates for each calendar year after the static pool's formation. These one-year marginal default rates are "conditional on survival." The marginal default rate for the third year is the number of defaults during the third year divided by the number of ratings from the static pool that had "survived" (that is, not moved to 'D') by the beginning of the third year.

We then average the marginal default rates for each time horizon across static pools, weighting by

the number of surviving ratings at the beginning of each time horizon, to give an average marginal default rate per time horizon, as well as average marginal survival rates (equal to one minus the average marginal default rate). Finally, the average cumulative default rate of each time horizon is calculated as one minus the product of marginal survival rates up to that time horizon.

This approach differs from the calculations we use in constructing the weighted average multiyear default and transition rates included elsewhere in this study (described above), where default rates are not conditional on survival.

Appendix II: Detailed Default And Transition Statistics

Tables 7-26 provide various default and transition rate statistics for European structured finance and its major sectors.

European structured finance

Table 7

European Structured Finance Cumulative Default Rates, Conditional On Survival, 1983-2019

(%)

| | Time horizon (years) | | | | | | | | | |
|---------|----------------------|------|------|------|------|------|------|------|------|------|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| AAA | 0.1 | 0.3 | 0.5 | 0.8 | 1.1 | 1.4 | 1.5 | 1.6 | 1.7 | 1.8 |
| AA | 0.1 | 0.3 | 0.7 | 1.1 | 1.7 | 2.2 | 2.6 | 2.8 | 3.0 | 3.2 |
| A | 0.1 | 0.4 | 0.7 | 1.1 | 1.7 | 2.3 | 2.8 | 3.2 | 3.4 | 3.7 |
| BBB | 0.3 | 0.8 | 1.5 | 2.4 | 3.6 | 4.7 | 5.6 | 6.3 | 6.9 | 7.5 |
| BB | 0.6 | 1.8 | 3.4 | 4.9 | 6.4 | 7.6 | 8.9 | 9.8 | 10.6 | 11.4 |
| B | 2.1 | 5.1 | 8.1 | 11.1 | 13.7 | 15.2 | 16.2 | 17.1 | 17.6 | 17.9 |
| CCC | 10.8 | 19.5 | 25.6 | 29.8 | 31.5 | 32.7 | 33.5 | 34.2 | 34.8 | 34.9 |
| CC | 32.5 | 50.0 | 61.5 | 63.8 | 64.0 | 64.0 | 64.0 | 64.0 | 64.0 | 64.0 |
| IG | 0.1 | 0.4 | 0.8 | 1.2 | 1.8 | 2.4 | 2.8 | 3.1 | 3.3 | 3.5 |
| SG | 4.9 | 9.2 | 12.7 | 15.5 | 17.2 | 18.4 | 19.5 | 20.3 | 21.0 | 21.5 |
| Overall | 1.0 | 2.0 | 3.0 | 3.9 | 4.7 | 5.3 | 5.8 | 6.2 | 6.5 | 6.7 |

IG--Investment-grade. SG--Speculative-grade. Source: S&P Global Ratings Research.

Table 8

European Structured Finance One-Year Default Rates, 1983-2019

(%)

| Year | Overall | IG | SG | AAA | AA | A | BBB | BB | B | CCC | CC |
|------|---------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 1983 | 0.0 | 0.0 | N/A | 0.0 | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| 1984 | 0.0 | 0.0 | N/A | 0.0 | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| 1985 | 0.0 | 0.0 | N/A | 0.0 | N/A | N/A | N/A | N/A | N/A | N/A | N/A |

Table 8

European Structured Finance One-Year Default Rates, 1983-2019 (cont.)

(%)

| Year | Overall | IG | SG | AAA | AA | A | BBB | BB | B | CCC | CC |
|------------------|---------|-----|------|-----|-----|-----|-----|------|------|------|-------|
| 1986 | 0.0 | 0.0 | N/A | 0.0 | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| 1987 | 0.0 | 0.0 | N/A | 0.0 | 0.0 | N/A | N/A | N/A | N/A | N/A | N/A |
| 1988 | 0.0 | 0.0 | N/A | 0.0 | 0.0 | N/A | N/A | N/A | N/A | N/A | N/A |
| 1989 | 0.0 | 0.0 | N/A | 0.0 | 0.0 | N/A | N/A | N/A | N/A | N/A | N/A |
| 1990 | 0.0 | 0.0 | N/A | 0.0 | 0.0 | 0.0 | N/A | N/A | N/A | N/A | N/A |
| 1991 | 0.0 | 0.0 | N/A | 0.0 | 0.0 | N/A | 0.0 | N/A | N/A | N/A | N/A |
| 1992 | 0.0 | 0.0 | N/A | 0.0 | 0.0 | 0.0 | 0.0 | N/A | N/A | N/A | N/A |
| 1993 | 0.0 | 0.0 | N/A | 0.0 | 0.0 | 0.0 | N/A | N/A | N/A | N/A | N/A |
| 1994 | 0.0 | 0.0 | N/A | 0.0 | 0.0 | 0.0 | 0.0 | N/A | N/A | N/A | N/A |
| 1995 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | N/A | 0.0 | N/A | N/A |
| 1996 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | N/A | 0.0 | N/A | N/A |
| 1997 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | N/A | N/A |
| 1998 | 0.2 | 0.0 | 16.7 | 0.0 | 0.0 | 0.0 | 0.0 | 33.3 | 0.0 | N/A | N/A |
| 1999 | 0.2 | 0.0 | 9.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | N/A | 100.0 |
| 2000 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | N/A | N/A |
| 2001 | 0.1 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.7 | 0.0 | 0.0 | N/A | N/A |
| 2002 | 0.4 | 0.1 | 4.1 | 0.0 | 0.0 | 0.0 | 0.8 | 2.2 | 50.0 | 33.3 | N/A |
| 2003 | 0.3 | 0.0 | 4.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 30.0 | 66.7 |
| 2004 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 2005 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 2006 | 0.1 | 0.0 | 1.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 8.3 | 100.0 |
| 2007 | 0.2 | 0.1 | 0.5 | 0.1 | 0.3 | 0.0 | 0.2 | 0.0 | 6.3 | 0.0 | N/A |
| 2008 | 0.5 | 0.5 | 0.8 | 0.5 | 0.3 | 0.5 | 0.7 | 0.1 | 2.7 | 6.3 | 0.0 |
| 2009 | 1.0 | 0.2 | 5.2 | 0.1 | 0.3 | 0.6 | 0.2 | 0.6 | 3.8 | 13.7 | 11.1 |
| 2010 | 1.8 | 0.2 | 6.4 | 0.0 | 0.2 | 0.3 | 0.5 | 1.6 | 3.3 | 11.4 | 16.5 |
| 2011 | 2.1 | 0.2 | 6.3 | 0.3 | 0.1 | 0.0 | 0.6 | 1.4 | 2.9 | 11.4 | 21.1 |
| 2012 | 2.3 | 0.2 | 7.0 | 0.1 | 0.1 | 0.1 | 0.6 | 1.1 | 2.7 | 7.7 | 54.8 |
| 2013 | 2.5 | 0.1 | 7.4 | 0.0 | 0.0 | 0.1 | 0.1 | 0.9 | 2.5 | 13.1 | 48.6 |
| 2014 | 1.6 | 0.0 | 5.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 2.9 | 9.8 | 45.8 |
| 2015 | 0.7 | 0.0 | 2.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.5 | 4.5 | 17.1 |
| 2016 | 1.3 | 0.0 | 4.6 | 0.0 | 0.0 | 0.0 | 0.1 | 0.2 | 1.0 | 11.8 | 31.7 |
| 2017 | 1.0 | 0.0 | 4.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.3 | 0.7 | 14.1 | 10.8 |
| 2018 | 0.7 | 0.0 | 3.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 12.6 | 8.6 |
| 2019 | 0.7 | 0.0 | 3.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 13.8 | 26.7 |
| Weighted-average | 1.0 | 0.1 | 4.9 | 0.1 | 0.1 | 0.1 | 0.3 | 0.6 | 2.1 | 10.8 | 32.5 |

Table 8

European Structured Finance One-Year Default Rates, 1983-2019 (cont.)

(%)

| Year | Overall | IG | SG | AAA | AA | A | BBB | BB | B | CCC | CC |
|-----------|---------|-----|------|-----|-----|-----|-----|------|------|------|-------|
| Median | 0.1 | 0.0 | 3.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 11.4 | 21.1 |
| Std. dev. | 0.7 | 0.1 | 3.9 | 0.1 | 0.1 | 0.1 | 0.3 | 6.9 | 9.9 | 8.9 | 32.2 |
| Minimum | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Maximum | 2.5 | 0.5 | 16.7 | 0.5 | 0.3 | 0.6 | 0.8 | 33.3 | 50.0 | 33.3 | 100.0 |

IG--Investment-grade. SG--Speculative-grade. N/A--Not applicable. Std. dev.--Standard deviation. Source: S&P Global Ratings Research.

Table 9

European Structured Finance Rating Transitions, 2019 And Multi-Year Averages, NR Adjusted

(%)

| From/to | AAA | AA | A | BBB | BB | B | CCC | CC | C | D |
|----------------------------------|-------|------|------|------|------|------|------|------|-----|------|
| 2019 | | | | | | | | | | |
| AAA | 100.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| AA | 7.7 | 92.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| A | 0.4 | 14.9 | 83.4 | 1.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| BBB | 0.0 | 2.1 | 21.6 | 74.8 | 1.5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| BB | 0.0 | 0.0 | 1.1 | 21.4 | 77.6 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| B | 0.0 | 0.0 | 0.0 | 0.7 | 10.7 | 88.2 | 0.0 | 0.4 | 0.0 | 0.0 |
| CCC | 0.0 | 0.0 | 0.0 | 0.0 | 0.9 | 4.3 | 79.3 | 1.7 | 0.0 | 13.8 |
| CC | 0.0 | 0.0 | 0.0 | 0.0 | 3.3 | 0.0 | 0.0 | 70.0 | 0.0 | 26.7 |
| C | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| One-year weighted-average | | | | | | | | | | |
| AAA | 89.9 | 5.6 | 2.4 | 0.9 | 0.4 | 0.3 | 0.4 | 0.0 | 0.0 | 0.1 |
| AA | 5.2 | 81.9 | 7.7 | 2.6 | 1.0 | 0.6 | 0.9 | 0.0 | 0.0 | 0.1 |
| A | 0.9 | 5.5 | 85.1 | 5.0 | 2.0 | 0.6 | 0.7 | 0.1 | 0.0 | 0.1 |
| BBB | 0.2 | 1.2 | 6.4 | 80.1 | 6.2 | 3.0 | 2.6 | 0.1 | 0.0 | 0.3 |
| BB | 0.2 | 0.2 | 1.1 | 8.2 | 73.1 | 10.0 | 6.3 | 0.2 | 0.0 | 0.6 |
| B | 0.1 | 0.1 | 0.1 | 1.7 | 9.0 | 74.6 | 11.8 | 0.5 | 0.0 | 2.1 |
| CCC | 0.0 | 0.0 | 0.0 | 0.3 | 1.2 | 6.5 | 76.3 | 4.9 | 0.0 | 10.8 |
| CC | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 0.7 | 0.9 | 65.5 | 0.3 | 32.5 |
| C | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Two-year weighted-average | | | | | | | | | | |
| AAA | 81.2 | 9.0 | 5.1 | 1.7 | 0.8 | 0.5 | 1.4 | 0.1 | 0.0 | 0.3 |
| AA | 9.1 | 69.3 | 12.0 | 4.2 | 1.7 | 0.9 | 2.3 | 0.2 | 0.0 | 0.3 |
| A | 2.2 | 9.0 | 74.3 | 7.4 | 3.7 | 1.5 | 1.5 | 0.2 | 0.0 | 0.4 |

Table 9

European Structured Finance Rating Transitions, 2019 And Multi-Year Averages, NR Adjusted (cont.)

(%)

| From/to | AAA | AA | A | BBB | BB | B | CCC | CC | C | D |
|------------------------------------|------|------|------|------|------|------|------|------|-----|------|
| BBB | 0.6 | 2.5 | 10.2 | 66.2 | 9.4 | 5.5 | 4.3 | 0.4 | 0.0 | 0.8 |
| BB | 0.6 | 0.6 | 2.9 | 12.9 | 55.5 | 15.1 | 10.3 | 0.4 | 0.0 | 1.8 |
| B | 0.1 | 0.2 | 0.6 | 4.2 | 14.0 | 58.9 | 15.9 | 1.0 | 0.0 | 5.2 |
| CCC | 0.0 | 0.0 | 0.0 | 0.8 | 2.7 | 10.2 | 60.5 | 6.3 | 0.0 | 19.4 |
| CC | 0.0 | 0.0 | 0.0 | 0.1 | 0.1 | 1.5 | 1.1 | 46.6 | 0.3 | 50.2 |
| C | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Three-year weighted-average | | | | | | | | | | |
| AAA | 74.1 | 11.6 | 7.5 | 2.3 | 1.2 | 0.7 | 1.9 | 0.1 | 0.0 | 0.5 |
| AA | 11.4 | 60.6 | 15.0 | 5.2 | 2.2 | 1.4 | 3.2 | 0.3 | 0.0 | 0.7 |
| A | 3.7 | 10.3 | 66.9 | 8.9 | 4.8 | 2.2 | 2.1 | 0.3 | 0.0 | 0.7 |
| BBB | 1.2 | 3.8 | 11.8 | 57.1 | 10.9 | 7.4 | 5.8 | 0.6 | 0.0 | 1.5 |
| BB | 0.8 | 1.4 | 4.6 | 14.5 | 44.6 | 17.1 | 12.7 | 0.8 | 0.0 | 3.4 |
| B | 0.1 | 0.4 | 1.4 | 6.5 | 15.6 | 49.4 | 16.7 | 1.3 | 0.0 | 8.6 |
| CCC | 0.0 | 0.1 | 0.3 | 1.3 | 3.9 | 10.8 | 52.3 | 6.0 | 0.0 | 25.5 |
| CC | 0.0 | 0.0 | 0.1 | 0.1 | 0.3 | 1.5 | 0.7 | 34.4 | 0.3 | 62.5 |
| C | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Four-year weighted-average | | | | | | | | | | |
| AAA | 68.9 | 13.1 | 9.5 | 2.8 | 1.6 | 1.0 | 2.0 | 0.2 | 0.0 | 0.9 |
| AA | 12.7 | 54.7 | 17.2 | 5.6 | 2.6 | 2.0 | 3.6 | 0.4 | 0.0 | 1.1 |
| A | 4.9 | 11.0 | 61.9 | 9.8 | 5.3 | 2.9 | 2.6 | 0.4 | 0.0 | 1.2 |
| BBB | 2.0 | 4.5 | 12.2 | 51.4 | 11.3 | 8.4 | 6.9 | 0.8 | 0.0 | 2.5 |
| BB | 1.2 | 1.9 | 6.1 | 14.8 | 38.1 | 17.7 | 13.8 | 1.3 | 0.1 | 5.2 |
| B | 0.3 | 0.8 | 2.2 | 8.1 | 16.0 | 43.1 | 16.1 | 1.3 | 0.0 | 12.1 |
| CCC | 0.0 | 0.1 | 0.5 | 1.8 | 5.0 | 11.1 | 47.7 | 4.4 | 0.0 | 29.5 |
| CC | 0.0 | 0.0 | 0.3 | 0.0 | 0.6 | 1.6 | 0.5 | 30.3 | 0.3 | 66.4 |
| C | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Five-year weighted-average | | | | | | | | | | |
| AAA | 65.8 | 13.5 | 10.8 | 3.3 | 1.9 | 1.2 | 2.1 | 0.2 | 0.0 | 1.2 |
| AA | 13.0 | 51.6 | 18.7 | 5.5 | 3.0 | 2.4 | 3.7 | 0.3 | 0.0 | 1.8 |
| A | 5.9 | 11.1 | 58.6 | 10.4 | 5.3 | 3.4 | 3.0 | 0.5 | 0.0 | 1.8 |
| BBB | 2.7 | 4.7 | 12.0 | 48.5 | 10.9 | 8.9 | 7.6 | 0.8 | 0.0 | 3.8 |
| BB | 1.6 | 2.4 | 6.7 | 13.8 | 34.9 | 17.6 | 14.4 | 1.5 | 0.1 | 6.8 |
| B | 0.4 | 1.1 | 2.9 | 8.8 | 16.2 | 38.6 | 15.5 | 1.2 | 0.0 | 15.4 |
| CCC | 0.0 | 0.1 | 0.6 | 2.4 | 5.8 | 11.1 | 44.7 | 4.2 | 0.0 | 31.1 |

Table 9

European Structured Finance Rating Transitions, 2019 And Multi-Year Averages, NR Adjusted (cont.)

(%)

| From/to | AAA | AA | A | BBB | BB | B | CCC | CC | C | D |
|---------------------------------|------|------|------|------|------|------|------|------|-----|------|
| CC | 0.0 | 0.0 | 0.3 | 0.0 | 1.0 | 1.3 | 0.2 | 28.4 | 0.3 | 68.4 |
| C | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| 10-year weighted-average | | | | | | | | | | |
| AAA | 64.7 | 11.7 | 12.0 | 3.7 | 2.0 | 1.3 | 2.4 | 0.1 | 0.0 | 2.1 |
| AA | 11.5 | 50.6 | 17.3 | 5.6 | 3.4 | 2.7 | 4.7 | 0.2 | 0.0 | 4.2 |
| A | 6.1 | 12.1 | 53.7 | 9.4 | 4.7 | 4.2 | 4.2 | 0.7 | 0.0 | 5.0 |
| BBB | 1.8 | 3.2 | 11.8 | 48.3 | 8.6 | 7.8 | 8.4 | 1.2 | 0.1 | 8.9 |
| BB | 1.5 | 0.4 | 2.5 | 10.1 | 37.2 | 17.9 | 14.9 | 2.1 | 0.2 | 13.1 |
| B | 1.4 | 0.8 | 1.9 | 4.6 | 11.9 | 33.1 | 18.6 | 1.5 | 0.1 | 25.9 |
| CCC | 0.1 | 0.2 | 0.9 | 1.4 | 3.7 | 6.6 | 38.6 | 6.7 | 0.0 | 41.8 |
| CC | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 25.2 | 0.0 | 74.8 |
| C | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |

N/A--Not applicable. Securities whose ratings migrated to 'NR' over the period are classified based on their rating prior to 'NR'. Source: S&P Global Ratings Research.

Table 10

European Structured Finance Rating Transitions, 2019 And Multi-Year Averages, NR Included

(%)

| From/to | AAA | AA | A | BBB | BB | B | CCC | CC | C | D | NR |
|----------------------------------|------|------|------|------|------|------|------|------|-----|------|------|
| 2019 | | | | | | | | | | | |
| AAA | 73.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 27.0 |
| AA | 7.4 | 71.7 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 20.9 |
| A | 0.4 | 12.4 | 74.2 | 1.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 11.7 |
| BBB | 0.0 | 1.9 | 21.0 | 63.1 | 1.5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 12.5 |
| BB | 0.0 | 0.0 | 1.1 | 21.4 | 61.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 16.4 |
| B | 0.0 | 0.0 | 0.0 | 0.7 | 10.7 | 72.7 | 0.0 | 0.4 | 0.0 | 0.0 | 15.5 |
| CCC | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 4.3 | 63.8 | 1.7 | 0.0 | 13.8 | 16.4 |
| CC | 0.0 | 0.0 | 0.0 | 0.0 | 3.3 | 0.0 | 0.0 | 70.0 | 0.0 | 26.7 | 0.0 |
| C | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| One-year weighted-average | | | | | | | | | | | |
| AAA | 74.2 | 5.2 | 2.2 | 0.8 | 0.4 | 0.3 | 0.4 | 0.0 | 0.0 | 0.1 | 16.5 |
| AA | 4.5 | 69.4 | 7.1 | 2.4 | 0.9 | 0.5 | 0.8 | 0.0 | 0.0 | 0.1 | 14.2 |
| A | 0.7 | 5.0 | 73.8 | 4.7 | 2.0 | 0.6 | 0.6 | 0.0 | 0.0 | 0.1 | 12.4 |
| BBB | 0.1 | 1.0 | 5.8 | 69.7 | 5.8 | 2.8 | 2.4 | 0.1 | 0.0 | 0.3 | 11.8 |

Table 10

European Structured Finance Rating Transitions, 2019 And Multi-Year Averages, NR Included (cont.)

(%)

| From/to | AAA | AA | A | BBB | BB | B | CCC | CC | C | D | NR |
|------------------------------------|------|------|------|------|------|------|------|------|-----|------|------|
| BB | 0.2 | 0.1 | 0.9 | 7.6 | 63.6 | 9.7 | 6.0 | 0.2 | 0.0 | 0.6 | 11.2 |
| B | 0.1 | 0.1 | 0.1 | 1.4 | 8.2 | 64.8 | 11.0 | 0.5 | 0.0 | 2.1 | 11.8 |
| CCC | 0.0 | 0.0 | 0.0 | 0.3 | 1.0 | 5.9 | 63.3 | 4.4 | 0.0 | 10.8 | 14.3 |
| CC | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 0.4 | 0.9 | 57.3 | 0.0 | 32.5 | 8.7 |
| C | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Two-year weighted-average | | | | | | | | | | | |
| AAA | 52.1 | 7.8 | 4.3 | 1.4 | 0.6 | 0.4 | 1.1 | 0.1 | 0.0 | 0.3 | 31.9 |
| AA | 5.9 | 47.2 | 10.4 | 3.7 | 1.4 | 0.7 | 1.9 | 0.2 | 0.0 | 0.3 | 28.3 |
| A | 1.4 | 7.1 | 53.5 | 6.5 | 3.5 | 1.4 | 1.4 | 0.1 | 0.0 | 0.4 | 24.9 |
| BBB | 0.3 | 1.7 | 8.3 | 47.4 | 8.5 | 5.1 | 3.7 | 0.3 | 0.0 | 0.8 | 24.0 |
| BB | 0.3 | 0.3 | 2.1 | 10.6 | 39.2 | 13.7 | 9.0 | 0.3 | 0.0 | 1.8 | 22.7 |
| B | 0.1 | 0.2 | 0.4 | 3.1 | 10.9 | 42.6 | 13.6 | 0.9 | 0.0 | 5.2 | 23.1 |
| CCC | 0.0 | 0.0 | 0.0 | 0.6 | 1.9 | 8.2 | 39.4 | 5.4 | 0.0 | 19.4 | 25.2 |
| CC | 0.0 | 0.0 | 0.0 | 0.1 | 0.1 | 1.0 | 1.0 | 33.1 | 0.0 | 50.2 | 14.4 |
| C | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Three-year weighted-average | | | | | | | | | | | |
| AAA | 34.3 | 9.2 | 5.9 | 1.6 | 0.9 | 0.5 | 1.4 | 0.1 | 0.0 | 0.5 | 45.5 |
| AA | 5.3 | 31.0 | 12.0 | 4.1 | 1.7 | 1.1 | 2.3 | 0.2 | 0.0 | 0.7 | 41.6 |
| A | 1.8 | 6.7 | 38.6 | 7.3 | 4.3 | 1.9 | 1.7 | 0.2 | 0.0 | 0.7 | 36.8 |
| BBB | 0.5 | 2.3 | 8.2 | 31.7 | 9.1 | 6.6 | 4.5 | 0.5 | 0.0 | 1.5 | 35.1 |
| BB | 0.3 | 0.8 | 3.1 | 10.2 | 23.9 | 14.4 | 10.4 | 0.6 | 0.0 | 3.4 | 32.9 |
| B | 0.1 | 0.3 | 0.9 | 4.4 | 10.1 | 29.2 | 12.5 | 1.2 | 0.0 | 8.6 | 32.6 |
| CCC | 0.0 | 0.0 | 0.2 | 0.7 | 2.3 | 7.0 | 25.6 | 4.5 | 0.0 | 25.5 | 34.2 |
| CC | 0.0 | 0.0 | 0.0 | 0.1 | 0.3 | 0.9 | 0.6 | 17.9 | 0.0 | 62.5 | 17.6 |
| C | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Four-year weighted-average | | | | | | | | | | | |
| AAA | 21.7 | 9.3 | 6.9 | 1.7 | 1.1 | 0.7 | 1.1 | 0.2 | 0.0 | 0.9 | 56.4 |
| AA | 4.3 | 19.9 | 12.6 | 3.8 | 1.8 | 1.4 | 2.1 | 0.3 | 0.0 | 1.1 | 52.7 |
| A | 1.7 | 5.7 | 28.0 | 7.3 | 4.4 | 2.3 | 1.8 | 0.4 | 0.0 | 1.2 | 47.2 |
| BBB | 0.7 | 2.2 | 7.0 | 21.5 | 8.7 | 7.0 | 5.0 | 0.6 | 0.0 | 2.5 | 44.7 |
| BB | 0.3 | 1.0 | 3.7 | 8.7 | 15.1 | 13.7 | 10.5 | 1.0 | 0.0 | 5.2 | 40.8 |
| B | 0.2 | 0.5 | 1.3 | 4.8 | 8.2 | 21.0 | 10.3 | 1.2 | 0.0 | 12.1 | 40.4 |
| CCC | 0.0 | 0.0 | 0.2 | 0.7 | 2.5 | 5.6 | 17.1 | 2.2 | 0.0 | 29.5 | 42.2 |
| CC | 0.0 | 0.0 | 0.0 | 0.0 | 0.3 | 0.9 | 0.3 | 12.0 | 0.0 | 66.4 | 20.1 |

Table 10

European Structured Finance Rating Transitions, 2019 And Multi-Year Averages, NR Included (cont.)

(%)

| From/to | AAA | AA | A | BBB | BB | B | CCC | CC | C | D | NR |
|-----------------------------------|------|------|------|------|------|------|------|-----|-----|------|------|
| C | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Five-year weighted-average | | | | | | | | | | | |
| AAA | 13.0 | 8.4 | 7.1 | 1.7 | 1.1 | 0.8 | 0.8 | 0.1 | 0.0 | 1.2 | 65.9 |
| AA | 3.0 | 12.3 | 12.4 | 3.0 | 1.8 | 1.5 | 1.6 | 0.2 | 0.0 | 1.8 | 62.4 |
| A | 1.6 | 4.5 | 20.5 | 7.1 | 3.9 | 2.4 | 1.6 | 0.4 | 0.0 | 1.8 | 56.2 |
| BBB | 0.7 | 1.7 | 5.7 | 15.4 | 7.6 | 6.9 | 5.0 | 0.6 | 0.0 | 3.8 | 52.5 |
| BB | 0.3 | 1.3 | 3.5 | 6.0 | 10.0 | 12.7 | 10.0 | 1.1 | 0.0 | 6.8 | 48.3 |
| B | 0.3 | 0.4 | 1.5 | 4.3 | 6.8 | 15.0 | 7.7 | 1.0 | 0.0 | 15.4 | 47.6 |
| CCC | 0.0 | 0.1 | 0.2 | 0.8 | 2.2 | 4.2 | 11.3 | 1.6 | 0.0 | 31.1 | 48.5 |
| CC | 0.0 | 0.0 | 0.0 | 0.0 | 0.3 | 0.7 | 0.0 | 9.5 | 0.0 | 68.4 | 21.1 |
| C | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| 10-year weighted-average | | | | | | | | | | | |
| AAA | 2.1 | 2.5 | 3.9 | 0.7 | 0.3 | 0.2 | 0.1 | 0.0 | 0.0 | 2.1 | 88.0 |
| AA | 0.7 | 2.3 | 5.7 | 1.2 | 0.6 | 0.3 | 0.5 | 0.1 | 0.0 | 4.2 | 84.3 |
| A | 0.3 | 1.6 | 6.3 | 3.2 | 1.4 | 1.3 | 0.9 | 0.2 | 0.0 | 5.0 | 79.8 |
| BBB | 0.0 | 0.4 | 3.2 | 4.7 | 2.9 | 2.9 | 2.3 | 0.4 | 0.0 | 8.9 | 74.3 |
| BB | 0.0 | 0.0 | 0.7 | 1.7 | 2.1 | 6.7 | 4.0 | 0.8 | 0.0 | 13.1 | 70.7 |
| B | 0.6 | 0.3 | 0.3 | 0.8 | 1.8 | 5.6 | 2.4 | 0.2 | 0.0 | 25.9 | 62.2 |
| CCC | 0.0 | 0.0 | 0.0 | 0.0 | 0.4 | 0.8 | 0.8 | 0.6 | 0.0 | 41.8 | 55.6 |
| CC | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 5.3 | 0.0 | 74.8 | 19.8 |
| C | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |

N/A--Not applicable. NR--Not rated. Source: S&P Global Ratings Research.

European RMBS

Table 11

European RMBS Cumulative Default Rates, Conditional On Survival, 1988-2019

(%)

| | Time horizon (years) | | | | | | | | | |
|-----|----------------------|------|------|------|------|------|------|------|------|------|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| AAA | 0.06 | 0.10 | 0.11 | 0.11 | 0.11 | 0.11 | 0.12 | 0.12 | 0.12 | 0.12 |
| AA | 0.02 | 0.05 | 0.10 | 0.12 | 0.14 | 0.18 | 0.27 | 0.29 | 0.32 | 0.35 |
| A | 0.01 | 0.06 | 0.13 | 0.18 | 0.26 | 0.42 | 0.58 | 0.69 | 0.82 | 0.91 |
| BBB | 0.07 | 0.20 | 0.48 | 0.80 | 1.10 | 1.46 | 1.84 | 2.05 | 2.28 | 2.43 |

Table 11

European RMBS Cumulative Default Rates, Conditional On Survival, 1988-2019 (cont.)

(%)

| | Time horizon (years) | | | | | | | | | |
|---------|----------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| BB | 0.38 | 1.10 | 2.03 | 2.71 | 3.45 | 4.00 | 4.60 | 5.22 | 5.39 | 5.39 |
| B | 1.14 | 2.50 | 3.93 | 5.33 | 6.87 | 8.39 | 8.88 | 9.07 | 9.35 | 9.80 |
| CCC | 10.16 | 18.41 | 22.56 | 24.68 | 25.73 | 26.38 | 26.38 | 26.38 | 26.38 | 26.38 |
| CC | 28.57 | 44.44 | 54.55 | 54.55 | 54.55 | 54.55 | 54.55 | 54.55 | 54.55 | 54.55 |
| IG | 0.04 | 0.09 | 0.18 | 0.25 | 0.32 | 0.42 | 0.54 | 0.60 | 0.67 | 0.72 |
| SG | 2.03 | 3.98 | 5.51 | 6.61 | 7.67 | 8.55 | 9.06 | 9.52 | 9.69 | 9.77 |
| Overall | 0.33 | 0.64 | 0.92 | 1.13 | 1.32 | 1.51 | 1.67 | 1.76 | 1.83 | 1.89 |

IG--Investment-grade. SG--Speculative-grade. Source: S&P Global Ratings Research.

Table 12

European RMBS One-Year Default Rates, 1988-2019

(%)

| Year | Overall | IG | SG | AAA | AA | A | BBB | BB | B | CCC | CC |
|------|---------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 1988 | 0.0 | 0.0 | N/A | 0.0 | 0.0 | N/A | N/A | N/A | N/A | N/A | N/A |
| 1989 | 0.0 | 0.0 | N/A | 0.0 | 0.0 | N/A | N/A | N/A | N/A | N/A | N/A |
| 1990 | 0.0 | 0.0 | N/A | 0.0 | 0.0 | 0.0 | N/A | N/A | N/A | N/A | N/A |
| 1991 | 0.0 | 0.0 | N/A | 0.0 | 0.0 | N/A | 0.0 | N/A | N/A | N/A | N/A |
| 1992 | 0.0 | 0.0 | N/A | 0.0 | 0.0 | 0.0 | 0.0 | N/A | N/A | N/A | N/A |
| 1993 | 0.0 | 0.0 | N/A | 0.0 | 0.0 | 0.0 | N/A | N/A | N/A | N/A | N/A |
| 1994 | 0.0 | 0.0 | N/A | 0.0 | 0.0 | 0.0 | N/A | N/A | N/A | N/A | N/A |
| 1995 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | N/A | 0.0 | N/A | N/A |
| 1996 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | N/A | 0.0 | N/A | N/A |
| 1997 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | N/A | N/A |
| 1998 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | N/A | N/A |
| 1999 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | N/A | N/A |
| 2000 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | N/A | N/A |
| 2001 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | N/A | N/A |
| 2002 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | N/A | N/A |
| 2003 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | N/A | N/A | N/A |
| 2004 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | N/A | N/A | N/A |
| 2005 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | N/A | N/A | N/A |
| 2006 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | N/A |
| 2007 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | N/A |

Table 12

European RMBS One-Year Default Rates, 1988-2019 (cont.)

(%)

| Year | Overall | IG | SG | AAA | AA | A | BBB | BB | B | CCC | CC |
|------------------|---------|-----|-----|-----|-----|-----|-----|-----|-----|------|------|
| 2008 | 0.1 | 0.1 | 0.0 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | N/A |
| 2009 | 0.9 | 0.0 | 8.1 | 0.0 | 0.0 | 0.0 | 0.2 | 0.9 | 6.4 | 47.6 | N/A |
| 2010 | 0.7 | 0.2 | 3.6 | 0.0 | 0.2 | 0.2 | 0.7 | 1.3 | 3.1 | 13.6 | N/A |
| 2011 | 0.6 | 0.2 | 2.7 | 0.5 | 0.0 | 0.0 | 0.0 | 0.8 | 1.3 | 14.3 | N/A |
| 2012 | 0.2 | 0.0 | 1.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.4 | 0.6 | 9.8 | 0.0 |
| 2013 | 0.8 | 0.0 | 3.2 | 0.0 | 0.0 | 0.0 | 0.0 | 1.0 | 1.7 | 15.2 | 33.3 |
| 2014 | 0.8 | 0.0 | 3.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 2.0 | 15.6 | 60.0 |
| 2015 | 0.1 | 0.0 | 0.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.3 | 1.6 | 0.0 |
| 2016 | 0.2 | 0.0 | 0.8 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 2.5 | 40.0 |
| 2017 | 0.4 | 0.0 | 1.7 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.9 | 6.8 | 33.3 |
| 2018 | 0.1 | 0.0 | 0.5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.6 | 25.0 |
| 2019 | 0.1 | 0.0 | 0.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.9 | 0.0 |
| Weighted-average | 0.3 | 0.0 | 2.0 | 0.1 | 0.0 | 0.0 | 0.1 | 0.4 | 1.1 | 10.2 | 28.6 |
| Median | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 4.7 | 29.2 |
| Std. dev. | 0.3 | 0.1 | 1.9 | 0.1 | 0.0 | 0.0 | 0.1 | 0.4 | 1.5 | 12.6 | 22.2 |
| Minimum | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Maximum | 0.9 | 0.2 | 8.1 | 0.5 | 0.2 | 0.2 | 0.7 | 1.3 | 6.4 | 47.6 | 60.0 |

IG--Investment-grade. SG--Speculative-grade. N/A--Not applicable. Std. dev.--Standard deviation. Source: S&P Global Ratings Research.

Table 13

European RMBS Rating Transitions, 2019 And Multi-Year Averages, NR Adjusted

(%)

| From/to | AAA | AA | A | BBB | BB | B | CCC | CC | C | D |
|----------------------------------|-------|------|------|------|------|------|------|------|-----|-----|
| 2019 | | | | | | | | | | |
| AAA | 100.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| AA | 12.2 | 87.8 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| A | 0.4 | 22.4 | 77.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| BBB | 0.0 | 3.9 | 47.8 | 48.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| BB | 0.0 | 0.0 | 2.6 | 43.1 | 54.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| B | 0.0 | 0.0 | 0.0 | 1.4 | 20.3 | 78.3 | 0.0 | 0.0 | 0.0 | 0.0 |
| CCC | 0.0 | 0.0 | 0.0 | 0.0 | 1.9 | 9.3 | 87.0 | 0.0 | 0.0 | 1.9 |
| CC | 0.0 | 0.0 | 0.0 | 0.0 | 50.0 | 0.0 | 0.0 | 50.0 | 0.0 | 0.0 |
| C | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| One-year weighted-average | | | | | | | | | | |
| AAA | 93.1 | 4.6 | 1.9 | 0.2 | 0.1 | 0.1 | 0.0 | 0.0 | 0.0 | 0.1 |

Table 13

European RMBS Rating Transitions, 2019 And Multi-Year Averages, NR Adjusted (cont.)

(%)

| From/to | AAA | AA | A | BBB | BB | B | CCC | CC | C | D |
|------------------------------------|------|------|------|------|------|------|------|------|-----|------|
| AA | 3.7 | 84.4 | 10.4 | 1.0 | 0.3 | 0.2 | 0.1 | 0.0 | 0.0 | 0.0 |
| A | 0.4 | 5.1 | 89.6 | 3.5 | 1.1 | 0.2 | 0.0 | 0.0 | 0.0 | 0.0 |
| BBB | 0.1 | 0.8 | 8.9 | 82.4 | 6.0 | 1.8 | 0.1 | 0.0 | 0.0 | 0.1 |
| BB | 0.2 | 0.0 | 1.0 | 9.7 | 74.0 | 12.8 | 1.8 | 0.1 | 0.0 | 0.4 |
| B | 0.1 | 0.1 | 0.0 | 1.8 | 7.0 | 84.1 | 5.4 | 0.3 | 0.0 | 1.1 |
| CCC | 0.0 | 0.0 | 0.0 | 0.6 | 1.0 | 7.0 | 80.4 | 0.9 | 0.0 | 10.2 |
| CC | 0.0 | 0.0 | 0.0 | 0.0 | 3.6 | 7.1 | 3.6 | 50.0 | 7.1 | 28.6 |
| C | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Two-year weighted-average | | | | | | | | | | |
| AAA | 86.8 | 7.1 | 5.0 | 0.6 | 0.2 | 0.2 | 0.0 | 0.0 | 0.0 | 0.1 |
| AA | 6.2 | 73.5 | 16.6 | 2.4 | 0.8 | 0.3 | 0.2 | 0.0 | 0.0 | 0.1 |
| A | 1.1 | 8.2 | 82.2 | 5.6 | 2.0 | 0.8 | 0.1 | 0.0 | 0.0 | 0.1 |
| BBB | 0.2 | 2.0 | 14.4 | 68.9 | 10.0 | 3.8 | 0.4 | 0.0 | 0.0 | 0.2 |
| BB | 0.5 | 0.6 | 3.4 | 14.6 | 54.5 | 21.2 | 4.0 | 0.2 | 0.0 | 1.1 |
| B | 0.2 | 0.2 | 0.2 | 5.1 | 11.5 | 71.2 | 8.4 | 0.5 | 0.0 | 2.6 |
| CCC | 0.0 | 0.0 | 0.0 | 1.3 | 1.9 | 12.9 | 63.8 | 0.9 | 0.2 | 19.1 |
| CC | 0.0 | 0.0 | 0.0 | 0.0 | 3.8 | 11.5 | 7.7 | 23.1 | 7.7 | 46.2 |
| C | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Three-year weighted-average | | | | | | | | | | |
| AAA | 81.1 | 8.5 | 8.5 | 1.1 | 0.3 | 0.4 | 0.1 | 0.0 | 0.0 | 0.1 |
| AA | 7.2 | 65.6 | 21.4 | 3.6 | 1.2 | 0.7 | 0.2 | 0.0 | 0.0 | 0.1 |
| A | 1.9 | 10.1 | 76.3 | 6.8 | 3.2 | 1.4 | 0.2 | 0.0 | 0.0 | 0.1 |
| BBB | 0.5 | 2.9 | 17.9 | 59.4 | 11.7 | 6.0 | 0.9 | 0.0 | 0.0 | 0.5 |
| BB | 0.7 | 1.4 | 5.3 | 16.8 | 41.5 | 26.5 | 5.2 | 0.3 | 0.1 | 2.1 |
| B | 0.4 | 0.4 | 1.2 | 8.3 | 13.9 | 60.3 | 10.7 | 0.7 | 0.0 | 4.2 |
| CCC | 0.0 | 0.0 | 0.2 | 1.4 | 2.6 | 15.9 | 53.8 | 0.9 | 0.3 | 24.8 |
| CC | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 13.6 | 9.1 | 9.1 | 9.1 | 59.1 |
| C | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Four-year weighted-average | | | | | | | | | | |
| AAA | 76.3 | 9.0 | 11.8 | 1.6 | 0.4 | 0.6 | 0.2 | 0.0 | 0.0 | 0.1 |
| AA | 7.9 | 59.3 | 25.1 | 4.4 | 1.9 | 1.0 | 0.2 | 0.0 | 0.0 | 0.1 |
| A | 2.5 | 11.6 | 72.1 | 7.2 | 4.0 | 2.2 | 0.3 | 0.0 | 0.0 | 0.2 |
| BBB | 0.8 | 3.5 | 19.4 | 54.3 | 11.7 | 8.2 | 1.3 | 0.0 | 0.0 | 0.8 |
| BB | 1.0 | 1.4 | 7.0 | 17.1 | 35.0 | 28.2 | 6.8 | 0.5 | 0.2 | 2.9 |

Table 13

European RMBS Rating Transitions, 2019 And Multi-Year Averages, NR Adjusted (cont.)

(%)

| From/to | AAA | AA | A | BBB | BB | B | CCC | CC | C | D |
|-----------------------------------|------|------|------|------|------|------|------|-----|------|------|
| B | 0.6 | 0.7 | 2.1 | 10.4 | 14.8 | 53.0 | 11.8 | 0.6 | 0.0 | 6.1 |
| CCC | 0.0 | 0.0 | 0.2 | 0.8 | 3.4 | 18.0 | 47.5 | 0.8 | 0.4 | 28.9 |
| CC | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 15.8 | 10.5 | 0.0 | 10.5 | 63.2 |
| C | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Five-year weighted-average | | | | | | | | | | |
| AAA | 72.5 | 9.0 | 14.6 | 2.2 | 0.6 | 0.7 | 0.3 | 0.0 | 0.0 | 0.1 |
| AA | 8.1 | 54.4 | 28.5 | 4.6 | 2.6 | 1.3 | 0.3 | 0.0 | 0.0 | 0.2 |
| A | 2.9 | 12.8 | 68.2 | 7.6 | 4.5 | 3.0 | 0.7 | 0.0 | 0.0 | 0.3 |
| BBB | 0.9 | 3.5 | 20.2 | 51.6 | 10.6 | 10.1 | 1.9 | 0.0 | 0.0 | 1.2 |
| BB | 1.0 | 1.0 | 7.0 | 17.5 | 32.5 | 28.2 | 7.9 | 0.7 | 0.3 | 3.9 |
| B | 1.0 | 0.9 | 2.6 | 10.4 | 15.1 | 48.5 | 12.4 | 0.5 | 0.0 | 8.6 |
| CCC | 0.0 | 0.0 | 0.2 | 0.0 | 3.8 | 19.1 | 43.2 | 0.2 | 0.5 | 32.9 |
| CC | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 14.3 | 7.1 | 0.0 | 14.3 | 64.3 |
| C | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| 10-year weighted-average | | | | | | | | | | |
| AAA | 68.8 | 8.7 | 18.4 | 2.2 | 0.7 | 0.6 | 0.6 | 0.0 | 0.0 | 0.1 |
| AA | 8.3 | 53.4 | 31.0 | 3.4 | 1.9 | 0.9 | 0.7 | 0.1 | 0.0 | 0.5 |
| A | 5.0 | 16.0 | 60.0 | 8.4 | 3.1 | 4.4 | 1.8 | 0.1 | 0.0 | 1.3 |
| BBB | 0.7 | 3.1 | 21.5 | 51.6 | 8.8 | 8.4 | 2.8 | 0.1 | 0.0 | 3.0 |
| BB | 0.5 | 0.2 | 3.7 | 15.6 | 32.9 | 30.4 | 7.7 | 0.2 | 0.8 | 8.0 |
| B | 5.4 | 1.2 | 1.2 | 5.1 | 10.9 | 47.1 | 7.8 | 0.0 | 0.0 | 21.4 |
| CCC | 0.0 | 0.0 | 0.0 | 0.0 | 7.7 | 17.7 | 23.1 | 0.0 | 0.0 | 51.5 |
| CC | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| C | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |

N/A--Not applicable. Securities with ratings that migrated to NR over the period are classified based on the rating prior to NR. Source: S&P Global Ratings Research.

Table 14

European RMBS Rating Transitions, 2019 And Multi-Year Averages, NR Included

(%)

| From/to | AAA | AA | A | BBB | BB | B | CCC | CC | C | D | NR |
|-------------|------|------|------|-----|-----|-----|-----|-----|-----|-----|------|
| 2019 | | | | | | | | | | | |
| AAA | 75.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 24.8 |
| AA | 11.9 | 65.5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 22.7 |
| A | 0.4 | 18.6 | 71.7 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 9.3 |

Table 14

European RMBS Rating Transitions, 2019 And Multi-Year Averages, NR Included (cont.)

(%)

| From/to | AAA | AA | A | BBB | BB | B | CCC | CC | C | D | NR |
|------------------------------------|------|------|------|------|------|------|------|------|-----|------|------|
| BBB | 0.0 | 3.3 | 46.1 | 37.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 13.3 |
| BB | 0.0 | 0.0 | 2.6 | 43.1 | 42.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 12.1 |
| B | 0.0 | 0.0 | 0.0 | 1.4 | 20.3 | 65.2 | 0.0 | 0.0 | 0.0 | 0.0 | 13.0 |
| CCC | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 9.3 | 83.3 | 0.0 | 0.0 | 1.9 | 5.6 |
| CC | 0.0 | 0.0 | 0.0 | 0.0 | 50.0 | 0.0 | 0.0 | 50.0 | 0.0 | 0.0 | 0.0 |
| C | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| One-year weighted-average | | | | | | | | | | | |
| AAA | 77.4 | 4.2 | 1.7 | 0.1 | 0.1 | 0.1 | 0.0 | 0.0 | 0.0 | 0.1 | 16.3 |
| AA | 3.4 | 73.9 | 9.8 | 0.9 | 0.3 | 0.2 | 0.0 | 0.0 | 0.0 | 0.0 | 11.5 |
| A | 0.4 | 4.8 | 80.5 | 3.3 | 1.1 | 0.2 | 0.0 | 0.0 | 0.0 | 0.0 | 9.8 |
| BBB | 0.1 | 0.7 | 8.5 | 74.0 | 5.7 | 1.7 | 0.1 | 0.0 | 0.0 | 0.1 | 9.2 |
| BB | 0.2 | 0.0 | 1.0 | 9.7 | 68.9 | 12.5 | 1.7 | 0.0 | 0.0 | 0.4 | 5.5 |
| B | 0.1 | 0.1 | 0.0 | 1.7 | 6.9 | 79.7 | 4.8 | 0.3 | 0.0 | 1.1 | 5.3 |
| CCC | 0.0 | 0.0 | 0.0 | 0.6 | 0.9 | 6.8 | 76.9 | 0.9 | 0.0 | 10.2 | 3.8 |
| CC | 0.0 | 0.0 | 0.0 | 0.0 | 3.6 | 7.1 | 3.6 | 50.0 | 0.0 | 28.6 | 7.1 |
| C | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Two-year weighted-average | | | | | | | | | | | |
| AAA | 56.6 | 6.2 | 4.3 | 0.4 | 0.2 | 0.2 | 0.0 | 0.0 | 0.0 | 0.1 | 32.1 |
| AA | 5.1 | 54.4 | 15.5 | 2.1 | 0.7 | 0.3 | 0.0 | 0.0 | 0.0 | 0.1 | 21.8 |
| A | 0.9 | 7.0 | 64.4 | 5.1 | 1.9 | 0.8 | 0.0 | 0.0 | 0.0 | 0.1 | 19.8 |
| BBB | 0.2 | 1.6 | 13.0 | 53.1 | 9.3 | 3.7 | 0.4 | 0.0 | 0.0 | 0.2 | 18.6 |
| BB | 0.3 | 0.5 | 3.2 | 13.8 | 45.8 | 20.3 | 3.9 | 0.1 | 0.0 | 1.1 | 11.0 |
| B | 0.2 | 0.2 | 0.2 | 4.6 | 10.3 | 63.4 | 7.4 | 0.5 | 0.0 | 2.6 | 10.7 |
| CCC | 0.0 | 0.0 | 0.0 | 1.1 | 1.4 | 12.0 | 57.2 | 0.9 | 0.0 | 19.1 | 8.3 |
| CC | 0.0 | 0.0 | 0.0 | 0.0 | 3.8 | 11.5 | 3.8 | 23.1 | 0.0 | 46.2 | 11.5 |
| C | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Three-year weighted-average | | | | | | | | | | | |
| AAA | 38.8 | 7.0 | 7.1 | 0.7 | 0.3 | 0.3 | 0.0 | 0.0 | 0.0 | 0.1 | 45.6 |
| AA | 5.1 | 39.1 | 19.2 | 3.2 | 1.0 | 0.7 | 0.0 | 0.0 | 0.0 | 0.1 | 31.6 |
| A | 1.4 | 7.7 | 51.1 | 5.9 | 3.0 | 1.3 | 0.1 | 0.0 | 0.0 | 0.1 | 29.3 |
| BBB | 0.4 | 2.2 | 14.7 | 37.3 | 10.4 | 5.8 | 0.8 | 0.0 | 0.0 | 0.5 | 27.8 |
| BB | 0.3 | 1.2 | 5.0 | 15.1 | 30.1 | 24.6 | 5.0 | 0.2 | 0.0 | 2.1 | 16.5 |
| B | 0.3 | 0.4 | 1.0 | 6.5 | 11.7 | 50.0 | 9.1 | 0.7 | 0.0 | 4.2 | 16.1 |
| CCC | 0.0 | 0.0 | 0.2 | 1.2 | 1.7 | 14.0 | 44.6 | 0.9 | 0.0 | 24.8 | 12.6 |

Table 14

European RMBS Rating Transitions, 2019 And Multi-Year Averages, NR Included (cont.)

(%)

| From/to | AAA | AA | A | BBB | BB | B | CCC | CC | C | D | NR |
|-----------------------------------|------|------|------|------|------|------|------|-----|-----|------|------|
| CC | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 13.6 | 4.5 | 9.1 | 0.0 | 59.1 | 13.6 |
| C | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Four-year weighted-average | | | | | | | | | | | |
| AAA | 25.2 | 7.2 | 9.9 | 1.1 | 0.3 | 0.5 | 0.0 | 0.0 | 0.0 | 0.1 | 55.6 |
| AA | 4.6 | 27.0 | 21.6 | 3.7 | 1.7 | 1.0 | 0.0 | 0.0 | 0.0 | 0.1 | 40.2 |
| A | 1.5 | 7.9 | 40.3 | 5.8 | 3.8 | 2.1 | 0.2 | 0.0 | 0.0 | 0.2 | 38.3 |
| BBB | 0.5 | 2.2 | 14.4 | 26.6 | 9.8 | 7.6 | 1.2 | 0.0 | 0.0 | 0.8 | 36.8 |
| BB | 0.3 | 1.2 | 6.3 | 14.6 | 21.3 | 25.2 | 6.1 | 0.4 | 0.0 | 2.9 | 21.6 |
| B | 0.5 | 0.6 | 1.9 | 7.6 | 12.1 | 41.0 | 9.6 | 0.6 | 0.0 | 6.1 | 20.0 |
| CCC | 0.0 | 0.0 | 0.2 | 0.6 | 1.8 | 15.0 | 35.5 | 0.8 | 0.0 | 28.9 | 17.2 |
| CC | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 15.8 | 5.3 | 0.0 | 0.0 | 63.2 | 15.8 |
| C | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Five-year weighted-average | | | | | | | | | | | |
| AAA | 15.1 | 6.7 | 12.2 | 1.5 | 0.4 | 0.6 | 0.0 | 0.0 | 0.0 | 0.1 | 63.2 |
| AA | 3.8 | 17.2 | 23.4 | 3.8 | 2.4 | 1.2 | 0.1 | 0.0 | 0.0 | 0.2 | 48.0 |
| A | 1.4 | 7.7 | 31.6 | 5.6 | 4.2 | 2.8 | 0.4 | 0.0 | 0.0 | 0.3 | 45.9 |
| BBB | 0.6 | 2.0 | 13.3 | 20.0 | 8.2 | 9.2 | 1.6 | 0.0 | 0.0 | 1.2 | 43.9 |
| BB | 0.2 | 0.8 | 6.0 | 12.6 | 16.1 | 24.4 | 6.8 | 0.6 | 0.0 | 3.9 | 28.4 |
| B | 0.9 | 0.8 | 2.3 | 6.9 | 12.0 | 34.6 | 9.5 | 0.5 | 0.0 | 8.6 | 23.8 |
| CCC | 0.0 | 0.0 | 0.2 | 0.0 | 1.4 | 14.8 | 28.2 | 0.2 | 0.0 | 32.9 | 22.2 |
| CC | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 14.3 | 0.0 | 0.0 | 0.0 | 64.3 | 21.4 |
| C | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| 10-year weighted-average | | | | | | | | | | | |
| AAA | 2.7 | 4.7 | 9.2 | 1.0 | 0.3 | 0.4 | 0.1 | 0.0 | 0.0 | 0.1 | 81.6 |
| AA | 0.7 | 3.4 | 15.9 | 2.5 | 1.4 | 0.6 | 0.4 | 0.0 | 0.0 | 0.5 | 74.6 |
| A | 0.2 | 3.4 | 15.1 | 5.1 | 2.6 | 2.9 | 1.1 | 0.1 | 0.0 | 1.3 | 68.2 |
| BBB | 0.0 | 0.7 | 8.5 | 7.6 | 5.7 | 6.2 | 2.1 | 0.1 | 0.0 | 3.0 | 66.3 |
| BB | 0.1 | 0.1 | 2.7 | 5.0 | 4.8 | 22.4 | 6.1 | 0.1 | 0.0 | 8.0 | 50.7 |
| B | 2.3 | 1.2 | 1.2 | 3.5 | 6.2 | 22.6 | 4.7 | 0.0 | 0.0 | 21.4 | 37.0 |
| CCC | 0.0 | 0.0 | 0.0 | 0.0 | 4.6 | 9.2 | 7.7 | 0.0 | 0.0 | 51.5 | 26.9 |
| CC | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| C | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |

N/A--Not applicable. Source: S&P Global Ratings Research.

European structured credit

Table 15

European Structured Credit Cumulative Default Rates, Conditional On Survival, 1987-2019

(%)

| | Time horizon (years) | | | | | | | | | |
|---------|----------------------|------|------|------|------|------|------|------|------|------|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| AAA | 0.2 | 0.6 | 1.1 | 1.8 | 2.4 | 2.8 | 3.1 | 3.2 | 3.3 | 3.3 |
| AA | 0.2 | 0.5 | 1.2 | 1.8 | 2.9 | 3.6 | 4.0 | 4.2 | 4.3 | 4.4 |
| A | 0.3 | 0.8 | 1.4 | 2.0 | 2.9 | 3.5 | 4.1 | 4.4 | 4.4 | 4.5 |
| BBB | 0.3 | 0.8 | 1.4 | 2.3 | 3.5 | 4.4 | 5.1 | 5.6 | 6.0 | 6.6 |
| BB | 0.4 | 0.9 | 1.7 | 2.6 | 3.3 | 3.9 | 4.7 | 5.5 | 6.3 | 7.2 |
| B | 0.5 | 1.7 | 3.0 | 4.3 | 5.8 | 6.2 | 6.6 | 6.9 | 7.3 | 7.6 |
| CCC | 8.0 | 15.4 | 21.1 | 25.4 | 27.2 | 28.4 | 29.4 | 30.1 | 30.8 | 31.0 |
| CC | 30.9 | 48.6 | 60.4 | 63.0 | 63.2 | 63.2 | 63.2 | 63.2 | 63.2 | 63.2 |
| IG | 0.2 | 0.6 | 1.2 | 1.9 | 2.8 | 3.4 | 3.9 | 4.1 | 4.3 | 4.4 |
| SG | 4.7 | 8.8 | 12.0 | 14.4 | 15.6 | 16.4 | 17.1 | 17.8 | 18.4 | 19.0 |
| Overall | 1.4 | 2.7 | 3.9 | 5.0 | 6.0 | 6.7 | 7.2 | 7.5 | 7.7 | 7.9 |

IG--Investment-grade. SG--Speculative-grade. Source: S&P Global Ratings Research.

Table 16

European Structured Credit One-Year Default Rates, 1987-2019

(%)

| Year | Overall | IG | SG | AAA | AA | A | BBB | BB | B | CCC | CC |
|------|---------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 1987 | 0.0 | 0.0 | N/A | N/A | 0.0 | N/A | N/A | N/A | N/A | N/A | N/A |
| 1988 | 0.0 | 0.0 | N/A | 0.0 | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| 1989 | 0.0 | 0.0 | N/A | 0.0 | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| 1990 | 0.0 | 0.0 | N/A | 0.0 | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| 1991 | 0.0 | 0.0 | N/A | 0.0 | 0.0 | N/A | N/A | N/A | N/A | N/A | N/A |
| 1992 | 0.0 | 0.0 | N/A | 0.0 | 0.0 | N/A | N/A | N/A | N/A | N/A | N/A |
| 1993 | 0.0 | 0.0 | N/A | 0.0 | 0.0 | N/A | N/A | N/A | N/A | N/A | N/A |
| 1994 | 0.0 | 0.0 | N/A | 0.0 | 0.0 | N/A | N/A | N/A | N/A | N/A | N/A |
| 1995 | 0.0 | 0.0 | N/A | 0.0 | 0.0 | N/A | N/A | N/A | N/A | N/A | N/A |
| 1996 | 0.0 | 0.0 | N/A | 0.0 | 0.0 | N/A | N/A | N/A | N/A | N/A | N/A |
| 1997 | 0.0 | 0.0 | N/A | 0.0 | 0.0 | N/A | 0.0 | N/A | N/A | N/A | N/A |
| 1998 | 0.0 | 0.0 | N/A | 0.0 | 0.0 | 0.0 | 0.0 | N/A | N/A | N/A | N/A |
| 1999 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | N/A | N/A |
| 2000 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | N/A | N/A |

Table 16

European Structured Credit One-Year Default Rates, 1987-2019 (cont.)

(%)

| Year | Overall | IG | SG | AAA | AA | A | BBB | BB | B | CCC | CC |
|------------------|---------|-----|-----|-----|-----|-----|-----|-----|-------|------|-------|
| 2001 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | N/A | N/A |
| 2002 | 1.1 | 0.3 | 6.0 | 0.0 | 0.0 | 0.0 | 1.2 | 3.2 | 100.0 | 33.3 | N/A |
| 2003 | 1.0 | 0.0 | 6.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 31.6 | 66.7 |
| 2004 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 2005 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 2006 | 0.1 | 0.0 | 1.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 4.8 | 100.0 |
| 2007 | 0.2 | 0.3 | 0.0 | 0.2 | 0.4 | 0.0 | 0.3 | 0.0 | 0.0 | 0.0 | N/A |
| 2008 | 0.8 | 0.8 | 0.7 | 1.0 | 0.5 | 1.0 | 0.7 | 0.0 | 0.0 | 13.6 | 0.0 |
| 2009 | 1.2 | 0.4 | 3.9 | 0.1 | 0.5 | 1.3 | 0.1 | 0.4 | 0.9 | 9.4 | 5.9 |
| 2010 | 2.7 | 0.1 | 7.0 | 0.0 | 0.2 | 0.1 | 0.3 | 1.4 | 0.7 | 10.9 | 16.7 |
| 2011 | 3.0 | 0.2 | 6.2 | 0.0 | 0.0 | 0.0 | 0.9 | 0.6 | 0.5 | 9.8 | 20.5 |
| 2012 | 3.9 | 0.3 | 8.3 | 0.3 | 0.4 | 0.2 | 0.5 | 0.5 | 0.6 | 6.0 | 56.8 |
| 2013 | 3.0 | 0.1 | 7.1 | 0.0 | 0.0 | 0.2 | 0.3 | 0.3 | 1.0 | 7.2 | 49.5 |
| 2014 | 1.0 | 0.0 | 2.5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.8 | 2.1 | 37.8 |
| 2015 | 0.3 | 0.0 | 0.8 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.7 | 4.2 |
| 2016 | 1.4 | 0.0 | 4.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 10.4 | 14.3 |
| 2017 | 0.4 | 0.0 | 1.5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.5 | 0.0 | 3.4 | 7.7 |
| 2018 | 0.7 | 0.0 | 2.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 9.3 | 4.0 |
| 2019 | 1.5 | 0.0 | 5.5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 25.0 | 13.6 |
| Weighted-average | 1.4 | 0.2 | 4.7 | 0.2 | 0.2 | 0.3 | 0.3 | 0.4 | 0.5 | 8.0 | 30.9 |
| Median | 0.0 | 0.0 | 2.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 8.2 | 14.0 |
| Std. dev. | 1.1 | 0.2 | 2.9 | 0.2 | 0.2 | 0.3 | 0.3 | 0.7 | 21.8 | 10.2 | 29.3 |
| Minimum | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Maximum | 3.9 | 0.8 | 8.3 | 1.0 | 0.5 | 1.3 | 1.2 | 3.2 | 100.0 | 33.3 | 100.0 |

IG--Investment-grade. SG--Speculative-grade. N/A--Not applicable. Std. dev.--Standard deviation. Source: S&P Global Ratings Research.

Table 17

European Structured Credit Rating Transitions, 2019 And Multi-Year Averages, NR Adjusted

(%)

| From/to | AAA | AA | A | BBB | BB | B | CCC | CC | C | D |
|-------------|-------|------|------|-----|-----|-----|-----|-----|-----|-----|
| 2019 | | | | | | | | | | |
| AAA | 100.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| AA | 0.9 | 99.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| A | 0.4 | 1.7 | 96.2 | 1.7 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

Table 17

European Structured Credit Rating Transitions, 2019 And Multi-Year Averages, NR Adjusted (cont.)

(%)

| From/to | AAA | AA | A | BBB | BB | B | CCC | CC | C | D |
|------------------------------------|------|------|------|------|------|-------|------|------|-----|------|
| BBB | 0.0 | 0.5 | 5.8 | 93.2 | 0.5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| BB | 0.0 | 0.0 | 0.0 | 0.9 | 99.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| B | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 100.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| CCC | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 71.2 | 3.8 | 0.0 | 25.0 |
| CC | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 86.4 | 0.0 | 13.6 |
| C | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| One-year weighted-average | | | | | | | | | | |
| AAA | 85.6 | 6.8 | 3.0 | 1.8 | 1.0 | 0.6 | 1.0 | 0.0 | 0.0 | 0.2 |
| AA | 7.0 | 78.3 | 6.1 | 4.0 | 1.6 | 1.1 | 1.7 | 0.1 | 0.0 | 0.2 |
| A | 1.4 | 7.2 | 78.5 | 6.1 | 3.4 | 1.2 | 1.9 | 0.2 | 0.0 | 0.3 |
| BBB | 0.3 | 1.8 | 6.5 | 75.5 | 5.7 | 3.8 | 5.8 | 0.2 | 0.0 | 0.3 |
| BB | 0.2 | 0.3 | 1.4 | 8.7 | 72.6 | 6.5 | 9.7 | 0.3 | 0.0 | 0.4 |
| B | 0.0 | 0.1 | 0.2 | 2.0 | 13.2 | 68.7 | 14.7 | 0.5 | 0.0 | 0.5 |
| CCC | 0.0 | 0.0 | 0.0 | 0.3 | 1.4 | 7.0 | 77.6 | 5.6 | 0.0 | 8.0 |
| CC | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.3 | 0.9 | 67.9 | 0.0 | 30.9 |
| C | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Two-year weighted-average | | | | | | | | | | |
| AAA | 73.8 | 10.9 | 5.4 | 3.2 | 1.6 | 1.0 | 3.3 | 0.1 | 0.0 | 0.6 |
| AA | 12.4 | 63.3 | 9.3 | 5.7 | 2.5 | 1.4 | 4.4 | 0.3 | 0.0 | 0.6 |
| A | 3.4 | 11.5 | 63.4 | 8.7 | 5.7 | 2.2 | 3.9 | 0.4 | 0.0 | 0.8 |
| BBB | 0.9 | 3.7 | 10.0 | 59.9 | 8.6 | 6.4 | 9.0 | 0.8 | 0.0 | 0.8 |
| BB | 0.5 | 0.8 | 3.3 | 14.3 | 55.4 | 9.7 | 14.5 | 0.5 | 0.0 | 0.9 |
| B | 0.0 | 0.2 | 0.9 | 4.5 | 20.6 | 52.1 | 19.0 | 1.0 | 0.0 | 1.7 |
| CCC | 0.0 | 0.0 | 0.0 | 0.7 | 3.0 | 10.8 | 62.9 | 7.3 | 0.0 | 15.2 |
| CC | 0.0 | 0.0 | 0.0 | 0.2 | 0.0 | 0.9 | 0.9 | 48.9 | 0.0 | 49.1 |
| C | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Three-year weighted-average | | | | | | | | | | |
| AAA | 65.0 | 14.5 | 6.8 | 4.0 | 2.4 | 1.4 | 4.6 | 0.3 | 0.0 | 1.1 |
| AA | 15.8 | 53.2 | 11.8 | 6.5 | 3.1 | 1.9 | 6.1 | 0.5 | 0.0 | 1.2 |
| A | 6.2 | 12.1 | 54.1 | 10.8 | 6.6 | 3.0 | 5.2 | 0.7 | 0.0 | 1.4 |
| BBB | 1.9 | 5.8 | 10.4 | 49.4 | 10.5 | 8.0 | 11.2 | 1.4 | 0.0 | 1.4 |
| BB | 0.7 | 1.7 | 5.3 | 16.1 | 45.0 | 11.1 | 17.3 | 1.0 | 0.0 | 1.8 |
| B | 0.0 | 0.5 | 2.1 | 7.2 | 21.9 | 45.0 | 18.9 | 1.4 | 0.0 | 3.1 |
| CCC | 0.0 | 0.0 | 0.2 | 1.3 | 4.4 | 11.2 | 55.2 | 6.9 | 0.0 | 20.7 |

Table 17

European Structured Credit Rating Transitions, 2019 And Multi-Year Averages, NR Adjusted (cont.)

(%)

| From/to | AAA | AA | A | BBB | BB | B | CCC | CC | C | D |
|-----------------------------------|------|------|------|------|------|------|------|------|-----|------|
| CC | 0.0 | 0.0 | 0.2 | 0.2 | 0.3 | 0.8 | 0.5 | 36.2 | 0.0 | 61.9 |
| C | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Four-year weighted-average | | | | | | | | | | |
| AAA | 59.1 | 16.9 | 7.5 | 4.6 | 3.0 | 1.8 | 4.8 | 0.5 | 0.0 | 1.8 |
| AA | 18.0 | 46.8 | 13.5 | 6.6 | 3.1 | 2.6 | 6.8 | 0.8 | 0.0 | 1.9 |
| A | 8.5 | 11.7 | 48.3 | 12.3 | 7.0 | 3.2 | 5.9 | 1.1 | 0.0 | 2.1 |
| BBB | 3.4 | 7.1 | 9.9 | 42.5 | 11.7 | 8.6 | 12.6 | 1.8 | 0.0 | 2.4 |
| BB | 1.2 | 2.7 | 7.1 | 16.5 | 37.8 | 12.1 | 18.2 | 1.6 | 0.0 | 2.7 |
| B | 0.1 | 0.9 | 3.1 | 9.2 | 22.0 | 40.3 | 18.3 | 1.5 | 0.0 | 4.6 |
| CCC | 0.0 | 0.0 | 0.4 | 2.0 | 5.6 | 11.2 | 50.7 | 5.0 | 0.0 | 25.0 |
| CC | 0.0 | 0.0 | 0.3 | 0.0 | 0.7 | 0.9 | 0.2 | 31.6 | 0.0 | 66.3 |
| C | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Five-year weighted-average | | | | | | | | | | |
| AAA | 56.8 | 17.5 | 7.7 | 5.1 | 3.3 | 1.9 | 4.8 | 0.4 | 0.0 | 2.4 |
| AA | 18.6 | 44.3 | 14.1 | 6.4 | 3.3 | 2.9 | 6.8 | 0.6 | 0.0 | 3.0 |
| A | 10.4 | 10.6 | 45.6 | 13.1 | 6.7 | 3.5 | 6.0 | 1.1 | 0.0 | 3.1 |
| BBB | 4.8 | 7.4 | 8.6 | 39.6 | 12.3 | 8.6 | 13.4 | 1.6 | 0.0 | 3.7 |
| BB | 1.9 | 3.9 | 8.3 | 14.8 | 33.9 | 12.9 | 19.0 | 1.8 | 0.0 | 3.5 |
| B | 0.2 | 1.4 | 4.1 | 10.7 | 21.8 | 36.5 | 17.8 | 1.2 | 0.0 | 6.4 |
| CCC | 0.0 | 0.0 | 0.6 | 2.7 | 6.4 | 11.0 | 47.6 | 4.8 | 0.0 | 26.8 |
| CC | 0.0 | 0.0 | 0.4 | 0.0 | 1.1 | 0.7 | 0.0 | 29.1 | 0.0 | 68.8 |
| C | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| 10-year weighted-average | | | | | | | | | | |
| AAA | 60.3 | 12.2 | 7.8 | 5.8 | 3.2 | 1.9 | 4.8 | 0.3 | 0.0 | 3.8 |
| AA | 15.1 | 43.4 | 11.4 | 7.1 | 4.5 | 3.8 | 8.3 | 0.3 | 0.0 | 6.1 |
| A | 7.9 | 12.1 | 42.4 | 9.9 | 6.7 | 4.7 | 8.0 | 1.4 | 0.0 | 7.0 |
| BBB | 2.4 | 4.1 | 7.6 | 40.0 | 10.1 | 8.8 | 16.1 | 2.2 | 0.0 | 8.7 |
| BB | 1.7 | 0.6 | 2.2 | 9.1 | 36.4 | 16.1 | 21.1 | 3.2 | 0.0 | 9.6 |
| B | 0.2 | 0.5 | 2.9 | 5.6 | 13.8 | 31.7 | 28.0 | 2.1 | 0.0 | 15.1 |
| CCC | 0.1 | 0.2 | 0.9 | 1.6 | 3.4 | 5.6 | 40.6 | 7.4 | 0.0 | 40.2 |
| CC | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 24.6 | 0.0 | 75.4 |
| C | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |

N/A--Not applicable. Securities with ratings that migrated to NR over the period are classified based on the rating prior to NR. Source: S&P Global Ratings Research.

Table 18

European Structured Credit Rating Transitions, 2019 And Multi-Year Averages, NR Included

(%)

| From/to | AAA | AA | A | BBB | BB | B | CCC | CC | C | D | NR |
|------------------------------------|------|------|------|------|------|------|------|------|-----|------|------|
| 2019 | | | | | | | | | | | |
| AAA | 68.6 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 31.4 |
| AA | 0.9 | 76.9 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 22.2 |
| A | 0.4 | 1.7 | 80.1 | 1.7 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 16.1 |
| BBB | 0.0 | 0.5 | 5.8 | 76.3 | 0.5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 16.8 |
| BB | 0.0 | 0.0 | 0.0 | 0.9 | 79.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 20.0 |
| B | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 85.2 | 0.0 | 0.0 | 0.0 | 0.0 | 14.8 |
| CCC | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 42.3 | 3.8 | 0.0 | 25.0 | 28.8 |
| CC | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 86.4 | 0.0 | 13.6 | 0.0 |
| C | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| One-year weighted-average | | | | | | | | | | | |
| AAA | 70.2 | 6.5 | 2.9 | 1.8 | 0.9 | 0.6 | 0.9 | 0.0 | 0.0 | 0.2 | 16.1 |
| AA | 5.9 | 65.7 | 5.7 | 3.7 | 1.5 | 1.0 | 1.6 | 0.1 | 0.0 | 0.2 | 14.6 |
| A | 1.1 | 6.7 | 66.3 | 5.8 | 3.3 | 1.1 | 1.8 | 0.1 | 0.0 | 0.3 | 13.7 |
| BBB | 0.2 | 1.6 | 5.8 | 64.3 | 5.5 | 3.6 | 5.5 | 0.2 | 0.0 | 0.3 | 13.2 |
| BB | 0.1 | 0.1 | 1.0 | 7.8 | 61.4 | 6.3 | 9.3 | 0.2 | 0.0 | 0.4 | 13.5 |
| B | 0.0 | 0.0 | 0.2 | 1.5 | 11.5 | 54.5 | 13.8 | 0.5 | 0.0 | 0.5 | 17.4 |
| CCC | 0.0 | 0.0 | 0.0 | 0.2 | 1.2 | 6.4 | 62.3 | 4.9 | 0.0 | 8.0 | 16.9 |
| CC | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.2 | 0.9 | 59.6 | 0.0 | 30.9 | 8.5 |
| C | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Two-year weighted-average | | | | | | | | | | | |
| AAA | 46.7 | 9.7 | 4.8 | 2.6 | 1.3 | 0.8 | 2.8 | 0.1 | 0.0 | 0.6 | 30.5 |
| AA | 7.5 | 41.6 | 7.7 | 4.8 | 2.1 | 1.1 | 3.9 | 0.3 | 0.0 | 0.6 | 30.4 |
| A | 2.2 | 9.3 | 42.4 | 7.5 | 5.4 | 1.9 | 3.5 | 0.3 | 0.0 | 0.8 | 26.7 |
| BBB | 0.4 | 2.4 | 7.7 | 40.7 | 7.5 | 5.7 | 7.6 | 0.6 | 0.0 | 0.8 | 26.6 |
| BB | 0.2 | 0.3 | 2.1 | 10.9 | 36.7 | 8.5 | 12.5 | 0.4 | 0.0 | 0.9 | 27.4 |
| B | 0.0 | 0.2 | 0.5 | 2.8 | 14.8 | 28.6 | 15.8 | 0.9 | 0.0 | 1.7 | 34.7 |
| CCC | 0.0 | 0.0 | 0.0 | 0.4 | 2.2 | 8.5 | 38.2 | 6.2 | 0.0 | 15.2 | 29.3 |
| CC | 0.0 | 0.0 | 0.0 | 0.2 | 0.0 | 0.6 | 0.9 | 35.4 | 0.0 | 49.1 | 13.8 |
| C | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Three-year weighted-average | | | | | | | | | | | |
| AAA | 29.3 | 12.0 | 5.4 | 2.8 | 1.6 | 1.0 | 3.4 | 0.3 | 0.0 | 1.1 | 43.1 |
| AA | 6.3 | 24.9 | 8.9 | 4.7 | 2.2 | 1.3 | 4.5 | 0.4 | 0.0 | 1.2 | 45.6 |
| A | 2.9 | 7.7 | 27.1 | 8.7 | 5.8 | 2.3 | 4.2 | 0.6 | 0.0 | 1.4 | 39.3 |

Table 18

European Structured Credit Rating Transitions, 2019 And Multi-Year Averages, NR Included (cont.)

(%)

| From/to | AAA | AA | A | BBB | BB | B | CCC | CC | C | D | NR |
|-----------------------------------|------|------|------|------|------|------|------|------|-----|------|------|
| BBB | 0.7 | 3.3 | 6.1 | 25.0 | 8.5 | 6.7 | 8.6 | 1.1 | 0.0 | 1.4 | 38.6 |
| BB | 0.2 | 0.8 | 3.0 | 9.7 | 21.7 | 8.6 | 14.0 | 0.8 | 0.0 | 1.8 | 39.4 |
| B | 0.0 | 0.2 | 1.0 | 4.1 | 12.1 | 17.0 | 12.7 | 1.3 | 0.0 | 3.1 | 48.3 |
| CCC | 0.0 | 0.0 | 0.1 | 0.5 | 2.6 | 6.9 | 24.6 | 5.1 | 0.0 | 20.7 | 39.4 |
| CC | 0.0 | 0.0 | 0.0 | 0.2 | 0.3 | 0.5 | 0.5 | 19.6 | 0.0 | 61.9 | 17.0 |
| C | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Four-year weighted-average | | | | | | | | | | | |
| AAA | 17.3 | 12.8 | 5.2 | 2.5 | 1.8 | 1.1 | 2.7 | 0.4 | 0.0 | 1.8 | 54.3 |
| AA | 5.0 | 14.2 | 9.0 | 3.9 | 1.8 | 1.6 | 3.9 | 0.7 | 0.0 | 1.9 | 58.0 |
| A | 2.7 | 5.3 | 18.0 | 9.1 | 5.3 | 2.0 | 3.9 | 0.9 | 0.0 | 2.1 | 50.7 |
| BBB | 1.0 | 3.2 | 4.0 | 15.3 | 8.9 | 6.5 | 8.6 | 1.4 | 0.0 | 2.4 | 48.8 |
| BB | 0.3 | 1.2 | 3.3 | 7.6 | 13.1 | 8.7 | 13.6 | 1.3 | 0.0 | 2.7 | 48.1 |
| B | 0.0 | 0.4 | 1.3 | 4.3 | 8.1 | 10.8 | 9.5 | 1.4 | 0.0 | 4.6 | 59.6 |
| CCC | 0.0 | 0.0 | 0.1 | 0.6 | 2.8 | 5.1 | 15.9 | 2.5 | 0.0 | 25.0 | 47.9 |
| CC | 0.0 | 0.0 | 0.0 | 0.0 | 0.3 | 0.5 | 0.2 | 13.2 | 0.0 | 66.3 | 19.5 |
| C | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Five-year weighted-average | | | | | | | | | | | |
| AAA | 10.0 | 11.8 | 4.0 | 2.1 | 1.6 | 0.9 | 1.9 | 0.3 | 0.0 | 2.4 | 65.1 |
| AA | 3.2 | 7.9 | 8.2 | 2.7 | 1.4 | 1.4 | 2.7 | 0.5 | 0.0 | 3.0 | 69.0 |
| A | 2.4 | 2.9 | 12.9 | 8.9 | 4.1 | 1.8 | 2.8 | 0.8 | 0.0 | 3.1 | 60.3 |
| BBB | 1.1 | 2.4 | 2.0 | 10.2 | 8.5 | 5.9 | 8.0 | 1.1 | 0.0 | 3.7 | 57.0 |
| BB | 0.4 | 1.8 | 3.2 | 4.2 | 7.7 | 8.5 | 12.8 | 1.3 | 0.0 | 3.5 | 56.5 |
| B | 0.0 | 0.3 | 1.4 | 4.1 | 5.5 | 5.9 | 6.0 | 0.9 | 0.0 | 6.4 | 69.6 |
| CCC | 0.0 | 0.0 | 0.1 | 0.8 | 2.5 | 3.4 | 10.2 | 1.8 | 0.0 | 26.8 | 54.4 |
| CC | 0.0 | 0.0 | 0.0 | 0.0 | 0.4 | 0.4 | 0.0 | 10.2 | 0.0 | 68.8 | 20.3 |
| C | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| 10-year weighted-average | | | | | | | | | | | |
| AAA | 1.3 | 1.1 | 0.8 | 0.6 | 0.2 | 0.1 | 0.2 | 0.1 | 0.0 | 3.8 | 91.8 |
| AA | 1.0 | 0.7 | 2.1 | 0.6 | 0.2 | 0.3 | 0.6 | 0.1 | 0.0 | 6.1 | 88.2 |
| A | 0.6 | 1.3 | 2.1 | 1.7 | 0.6 | 0.6 | 0.9 | 0.4 | 0.0 | 7.0 | 84.9 |
| BBB | 0.0 | 0.2 | 0.6 | 2.7 | 1.5 | 1.4 | 3.1 | 0.8 | 0.0 | 8.7 | 81.0 |
| BB | 0.0 | 0.0 | 0.0 | 0.8 | 1.5 | 2.2 | 3.8 | 1.3 | 0.0 | 9.6 | 80.7 |
| B | 0.0 | 0.0 | 0.0 | 0.0 | 0.5 | 0.3 | 1.8 | 0.3 | 0.0 | 15.1 | 82.0 |
| CCC | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 0.2 | 0.7 | 0.0 | 40.2 | 58.8 |

Table 18

European Structured Credit Rating Transitions, 2019 And Multi-Year Averages, NR Included (cont.)

(%)

| From/to | AAA | AA | A | BBB | BB | B | CCC | CC | C | D | NR |
|---------|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|------|
| CC | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 5.6 | 0.0 | 75.4 | 19.0 |
| C | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |

N/A--Not applicable. Source: S&P Global Ratings Research.

European ABS

Table 19

European ABS Cumulative Default Rates, Conditional On Survival, 1987-2019

(%)

| | Time horizon (years) | | | | | | | | | |
|---------|----------------------|------|------|------|------|------|------|------|------|------|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| AAA | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 0.1 | 0.1 | 0.1 |
| AA | 0.0 | 0.0 | 0.0 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 |
| A | 0.0 | 0.0 | 0.1 | 0.1 | 0.3 | 0.6 | 0.7 | 0.9 | 1.0 | 1.2 |
| BBB | 0.1 | 0.3 | 0.5 | 1.0 | 1.7 | 2.3 | 3.0 | 3.5 | 4.0 | 4.5 |
| BB | 0.3 | 0.6 | 3.6 | 6.1 | 6.4 | 6.4 | 6.4 | 6.4 | 6.4 | 6.4 |
| B | 3.7 | 7.0 | 10.7 | 12.2 | 12.2 | 12.2 | 12.2 | 12.2 | 12.2 | 12.2 |
| CCC | 13.6 | 26.8 | 30.8 | 30.8 | 30.8 | 30.8 | 30.8 | 30.8 | 30.8 | 30.8 |
| CC | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| IG | 0.0 | 0.1 | 0.1 | 0.2 | 0.4 | 0.6 | 0.8 | 0.9 | 1.1 | 1.2 |
| SG | 3.5 | 7.0 | 10.4 | 12.1 | 12.4 | 12.4 | 12.4 | 12.4 | 12.4 | 12.4 |
| Overall | 0.2 | 0.5 | 0.7 | 0.9 | 1.1 | 1.3 | 1.5 | 1.6 | 1.7 | 1.9 |

IG--Investment-grade. SG--Speculative-grade. Source: S&P Global Ratings Research.

Table 20

European ABS One-Year Default Rates, 1987-2019

(%)

| Year | Overall | IG | SG | AAA | AA | A | BBB | BB | B | CCC | CC |
|------|---------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 1987 | 0.0 | 0.0 | N/A | N/A | 0.0 | N/A | N/A | N/A | N/A | N/A | N/A |
| 1988 | 0.0 | 0.0 | N/A | N/A | 0.0 | N/A | N/A | N/A | N/A | N/A | N/A |
| 1989 | 0.0 | 0.0 | N/A | 0.0 | 0.0 | N/A | N/A | N/A | N/A | N/A | N/A |
| 1990 | 0.0 | 0.0 | N/A | 0.0 | 0.0 | N/A | N/A | N/A | N/A | N/A | N/A |
| 1991 | 0.0 | 0.0 | N/A | 0.0 | 0.0 | N/A | N/A | N/A | N/A | N/A | N/A |
| 1992 | 0.0 | 0.0 | N/A | 0.0 | 0.0 | 0.0 | N/A | N/A | N/A | N/A | N/A |

Table 20

European ABS One-Year Default Rates, 1987-2019 (cont.)

(%)

| Year | Overall | IG | SG | AAA | AA | A | BBB | BB | B | CCC | CC |
|------------------|---------|-----|------|-----|-----|-----|-----|-----|------|-------|-----|
| 1993 | 0.0 | 0.0 | N/A | 0.0 | 0.0 | 0.0 | N/A | N/A | N/A | N/A | N/A |
| 1994 | 0.0 | 0.0 | N/A | 0.0 | 0.0 | 0.0 | 0.0 | N/A | N/A | N/A | N/A |
| 1995 | 0.0 | 0.0 | N/A | 0.0 | 0.0 | 0.0 | 0.0 | N/A | N/A | N/A | N/A |
| 1996 | 0.0 | 0.0 | N/A | 0.0 | 0.0 | 0.0 | 0.0 | N/A | N/A | N/A | N/A |
| 1997 | 0.0 | 0.0 | N/A | 0.0 | 0.0 | 0.0 | 0.0 | N/A | N/A | N/A | N/A |
| 1998 | 0.0 | 0.0 | N/A | 0.0 | 0.0 | 0.0 | 0.0 | N/A | N/A | N/A | N/A |
| 1999 | 0.0 | 0.0 | N/A | 0.0 | 0.0 | 0.0 | 0.0 | N/A | N/A | N/A | N/A |
| 2000 | 0.0 | 0.0 | N/A | 0.0 | 0.0 | 0.0 | 0.0 | N/A | N/A | N/A | N/A |
| 2001 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | N/A | N/A | N/A |
| 2002 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | N/A | N/A | N/A |
| 2003 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | N/A | N/A | N/A |
| 2004 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | N/A | N/A |
| 2005 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | N/A |
| 2006 | 0.2 | 0.0 | 11.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | N/A | 100.0 | N/A |
| 2007 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | N/A |
| 2008 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | N/A |
| 2009 | 0.7 | 0.2 | 10.8 | 0.0 | 0.0 | 0.0 | 0.6 | 0.0 | 25.0 | 60.0 | N/A |
| 2010 | 0.2 | 0.0 | 2.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 50.0 | N/A |
| 2011 | 0.5 | 0.2 | 4.0 | 0.0 | 0.0 | 0.0 | 1.1 | 3.2 | 0.0 | 50.0 | N/A |
| 2012 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | N/A |
| 2013 | 0.2 | 0.0 | 1.5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 3.7 | 0.0 | 0.0 |
| 2014 | 2.6 | 0.0 | 20.6 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 21.1 | 40.9 | N/A |
| 2015 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | N/A |
| 2016 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | N/A |
| 2017 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 2018 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | N/A |
| 2019 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | N/A |
| Weighted-average | 0.2 | 0.0 | 3.5 | 0.0 | 0.0 | 0.0 | 0.1 | 0.3 | 3.7 | 13.6 | 0.0 |
| Median | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Std. dev. | 0.5 | 0.0 | 5.6 | 0.0 | 0.0 | 0.0 | 0.2 | 0.7 | 8.1 | 31.9 | 0.0 |
| Minimum | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Maximum | 2.6 | 0.2 | 20.6 | 0.0 | 0.0 | 0.0 | 1.1 | 3.2 | 25.0 | 100.0 | 0.0 |

IG--Investment-grade. SG--Speculative-grade. N/A--Not applicable. Std. dev.--Standard deviation. Source: S&P Global Ratings Research.

Table 21

European ABS Rating Transitions, 2019 And Multi-Year Averages, NR Adjusted

(%)

| From/to | AAA | AA | A | BBB | BB | B | CCC | CC | C | D |
|------------------------------------|-------|------|------|------|------|------|-------|-------|-----|------|
| 2019 | | | | | | | | | | |
| AAA | 100.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| AA | 19.3 | 80.7 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| A | 0.0 | 13.8 | 81.6 | 4.6 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| BBB | 0.0 | 3.1 | 3.1 | 90.8 | 3.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| BB | 0.0 | 0.0 | 0.0 | 7.7 | 92.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| B | 0.0 | 0.0 | 0.0 | 0.0 | 7.1 | 92.9 | 0.0 | 0.0 | 0.0 | 0.0 |
| CCC | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 100.0 | 0.0 | 0.0 | 0.0 |
| CC | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| C | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| One-year weighted-average | | | | | | | | | | |
| AAA | 96.9 | 2.4 | 0.6 | 0.1 | 0.0 | 0.0 | 0.1 | 0.0 | 0.0 | 0.0 |
| AA | 5.6 | 88.3 | 5.4 | 0.4 | 0.1 | 0.0 | 0.2 | 0.0 | 0.0 | 0.0 |
| A | 1.1 | 5.2 | 89.9 | 3.4 | 0.3 | 0.2 | 0.1 | 0.0 | 0.0 | 0.0 |
| BBB | 0.2 | 0.4 | 2.8 | 91.2 | 4.0 | 1.0 | 0.2 | 0.1 | 0.0 | 0.1 |
| BB | 0.0 | 0.0 | 0.0 | 6.4 | 81.4 | 9.6 | 2.3 | 0.0 | 0.0 | 0.3 |
| B | 0.0 | 0.0 | 0.6 | 3.0 | 6.1 | 78.0 | 7.9 | 0.0 | 0.6 | 3.7 |
| CCC | 0.0 | 0.0 | 0.0 | 1.8 | 0.9 | 3.6 | 79.1 | 0.9 | 0.0 | 13.6 |
| CC | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 100.0 | 0.0 | 0.0 |
| C | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Two-year weighted-average | | | | | | | | | | |
| AAA | 93.8 | 4.2 | 1.4 | 0.3 | 0.1 | 0.1 | 0.1 | 0.0 | 0.0 | 0.0 |
| AA | 10.0 | 81.1 | 7.5 | 0.9 | 0.2 | 0.0 | 0.3 | 0.0 | 0.0 | 0.0 |
| A | 2.3 | 9.2 | 81.5 | 5.2 | 1.1 | 0.4 | 0.2 | 0.0 | 0.0 | 0.0 |
| BBB | 0.4 | 0.8 | 4.7 | 84.9 | 5.7 | 2.4 | 0.6 | 0.2 | 0.0 | 0.3 |
| BB | 0.0 | 0.0 | 0.3 | 7.8 | 71.8 | 13.2 | 6.0 | 0.0 | 0.3 | 0.6 |
| B | 0.0 | 0.7 | 2.7 | 7.3 | 4.0 | 65.3 | 12.0 | 0.0 | 0.7 | 7.3 |
| CCC | 0.0 | 0.0 | 0.0 | 5.6 | 2.8 | 4.7 | 57.9 | 1.9 | 0.0 | 27.1 |
| CC | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 100.0 | 0.0 | 0.0 |
| C | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Three-year weighted-average | | | | | | | | | | |
| AAA | 91.2 | 5.8 | 2.0 | 0.5 | 0.2 | 0.1 | 0.2 | 0.0 | 0.0 | 0.0 |
| AA | 12.4 | 76.6 | 8.5 | 1.3 | 0.6 | 0.1 | 0.5 | 0.0 | 0.0 | 0.0 |
| A | 3.2 | 12.0 | 75.7 | 6.3 | 1.5 | 0.8 | 0.4 | 0.1 | 0.0 | 0.1 |
| BBB | 0.7 | 1.2 | 5.8 | 80.8 | 6.2 | 2.9 | 1.5 | 0.2 | 0.1 | 0.6 |

Table 21

European ABS Rating Transitions, 2019 And Multi-Year Averages, NR Adjusted (cont.)

(%)

| From/to | AAA | AA | A | BBB | BB | B | CCC | CC | C | D |
|-----------------------------------|------|------|------|------|------|------|------|-------|-----|------|
| BB | 0.0 | 0.0 | 0.3 | 9.0 | 66.3 | 14.7 | 5.7 | 0.0 | 0.3 | 3.7 |
| B | 0.0 | 1.4 | 2.2 | 8.7 | 5.8 | 58.0 | 11.6 | 0.0 | 0.7 | 11.6 |
| CCC | 0.0 | 1.0 | 2.9 | 5.9 | 3.9 | 4.9 | 46.1 | 2.9 | 0.0 | 32.4 |
| CC | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 100.0 | 0.0 | 0.0 |
| C | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Four-year weighted-average | | | | | | | | | | |
| AAA | 89.1 | 7.0 | 2.3 | 0.6 | 0.5 | 0.2 | 0.2 | 0.0 | 0.0 | 0.0 |
| AA | 12.0 | 75.0 | 9.6 | 1.2 | 1.0 | 0.4 | 0.8 | 0.0 | 0.0 | 0.1 |
| A | 4.0 | 13.2 | 71.7 | 7.3 | 1.7 | 1.1 | 0.7 | 0.1 | 0.0 | 0.1 |
| BBB | 0.9 | 1.5 | 6.4 | 77.7 | 6.6 | 3.1 | 2.3 | 0.3 | 0.1 | 1.0 |
| BB | 0.0 | 0.0 | 0.0 | 9.8 | 64.3 | 15.7 | 3.5 | 0.0 | 0.3 | 6.3 |
| B | 0.0 | 3.1 | 2.3 | 9.2 | 7.7 | 51.5 | 11.5 | 0.0 | 0.8 | 13.8 |
| CCC | 0.0 | 2.1 | 4.2 | 6.3 | 4.2 | 5.3 | 38.9 | 4.2 | 0.0 | 34.7 |
| CC | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 100.0 | 0.0 | 0.0 |
| C | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Five-year weighted-average | | | | | | | | | | |
| AAA | 87.2 | 8.3 | 2.5 | 0.8 | 0.6 | 0.3 | 0.3 | 0.0 | 0.0 | 0.0 |
| AA | 11.2 | 74.7 | 10.2 | 1.3 | 1.2 | 0.4 | 0.9 | 0.0 | 0.0 | 0.1 |
| A | 4.4 | 13.6 | 69.2 | 8.4 | 1.7 | 1.2 | 1.0 | 0.1 | 0.0 | 0.3 |
| BBB | 1.0 | 1.8 | 7.0 | 74.8 | 7.3 | 3.3 | 2.4 | 0.4 | 0.2 | 1.8 |
| BB | 0.0 | 0.0 | 0.4 | 9.6 | 63.0 | 15.9 | 3.7 | 0.0 | 0.4 | 7.0 |
| B | 0.0 | 3.3 | 2.5 | 10.0 | 9.2 | 47.5 | 11.7 | 0.0 | 0.8 | 15.0 |
| CCC | 0.0 | 2.4 | 4.7 | 7.1 | 4.7 | 5.9 | 31.8 | 4.7 | 0.0 | 38.8 |
| CC | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 100.0 | 0.0 | 0.0 |
| C | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| 10-year weighted-average | | | | | | | | | | |
| AAA | 85.6 | 8.9 | 2.7 | 0.9 | 1.1 | 0.4 | 0.4 | 0.0 | 0.0 | 0.1 |
| AA | 12.3 | 73.8 | 5.8 | 4.7 | 1.7 | 0.9 | 0.6 | 0.0 | 0.0 | 0.2 |
| A | 5.0 | 13.1 | 66.5 | 8.2 | 2.4 | 1.6 | 1.6 | 0.1 | 0.0 | 1.5 |
| BBB | 1.2 | 1.7 | 7.4 | 71.1 | 6.5 | 4.0 | 1.8 | 0.8 | 0.5 | 5.0 |
| BB | 0.0 | 0.0 | 1.3 | 9.7 | 67.7 | 12.3 | 5.8 | 0.0 | 0.6 | 2.6 |
| B | 0.0 | 0.0 | 0.0 | 3.8 | 15.4 | 53.8 | 11.5 | 3.8 | 3.8 | 7.7 |
| CCC | 0.0 | 0.0 | 6.7 | 0.0 | 0.0 | 0.0 | 6.7 | 0.0 | 0.0 | 86.7 |
| CC | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |

Table 21

European ABS Rating Transitions, 2019 And Multi-Year Averages, NR Adjusted (cont.)

(%)

| From/to | AAA | AA | A | BBB | BB | B | CCC | CC | C | D |
|---------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| C | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |

N/A--Not applicable. Securities with ratings that migrated to NR over the period are classified based on the rating prior to NR. Source: S&P Global Ratings Research.

Table 22

European ABS Rating Transitions, 2019 And Multi-Year Averages, NR Included

(%)

| From/to | AAA | AA | A | BBB | BB | B | CCC | CC | C | D | NR |
|----------------------------------|------|------|------|------|------|------|-------|-----|-----|------|-------|
| 2019 | | | | | | | | | | | |
| AAA | 72.6 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 27.4 |
| AA | 17.5 | 57.9 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 24.6 |
| A | 0.0 | 11.5 | 70.1 | 4.6 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 13.8 |
| BBB | 0.0 | 3.1 | 3.1 | 87.7 | 3.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 3.1 |
| BB | 0.0 | 0.0 | 0.0 | 7.7 | 80.8 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 11.5 |
| B | 0.0 | 0.0 | 0.0 | 0.0 | 7.1 | 85.7 | 0.0 | 0.0 | 0.0 | 0.0 | 7.1 |
| CCC | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 100.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| CC | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| C | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| One-year weighted-average | | | | | | | | | | | |
| AAA | 76.1 | 2.1 | 0.6 | 0.0 | 0.0 | 0.0 | 0.1 | 0.0 | 0.0 | 0.0 | 21.2 |
| AA | 4.3 | 67.5 | 5.0 | 0.4 | 0.1 | 0.0 | 0.2 | 0.0 | 0.0 | 0.0 | 22.5 |
| A | 0.7 | 3.9 | 76.3 | 3.2 | 0.2 | 0.1 | 0.1 | 0.0 | 0.0 | 0.0 | 15.6 |
| BBB | 0.0 | 0.3 | 2.1 | 77.5 | 3.7 | 0.9 | 0.2 | 0.1 | 0.0 | 0.1 | 15.0 |
| BB | 0.0 | 0.0 | 0.0 | 5.5 | 66.4 | 9.3 | 1.4 | 0.0 | 0.0 | 0.3 | 17.1 |
| B | 0.0 | 0.0 | 0.6 | 2.4 | 6.1 | 64.0 | 7.3 | 0.0 | 0.0 | 3.7 | 15.9 |
| CCC | 0.0 | 0.0 | 0.0 | 1.8 | 0.9 | 2.7 | 74.5 | 0.9 | 0.0 | 13.6 | 5.5 |
| CC | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 100.0 |
| C | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Two-year weighted-average | | | | | | | | | | | |
| AAA | 54.3 | 2.9 | 1.2 | 0.2 | 0.1 | 0.1 | 0.1 | 0.0 | 0.0 | 0.0 | 41.2 |
| AA | 5.2 | 45.1 | 6.8 | 0.7 | 0.2 | 0.0 | 0.3 | 0.0 | 0.0 | 0.0 | 41.7 |
| A | 1.0 | 4.9 | 55.4 | 4.8 | 0.7 | 0.2 | 0.2 | 0.0 | 0.0 | 0.0 | 32.7 |
| BBB | 0.1 | 0.5 | 2.5 | 57.6 | 5.2 | 2.1 | 0.4 | 0.1 | 0.0 | 0.3 | 31.2 |
| BB | 0.0 | 0.0 | 0.0 | 5.6 | 42.9 | 11.9 | 4.7 | 0.0 | 0.0 | 0.6 | 34.2 |
| B | 0.0 | 0.7 | 2.7 | 5.3 | 2.7 | 38.7 | 10.0 | 0.0 | 0.0 | 7.3 | 32.7 |

Table 22

European ABS Rating Transitions, 2019 And Multi-Year Averages, NR Included (cont.)

(%)

| From/to | AAA | AA | A | BBB | BB | B | CCC | CC | C | D | NR |
|------------------------------------|------|------|------|------|------|------|------|-----|-----|------|-------|
| CCC | 0.0 | 0.0 | 0.0 | 5.6 | 1.9 | 2.8 | 51.4 | 0.9 | 0.0 | 27.1 | 10.3 |
| CC | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 100.0 |
| C | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Three-year weighted-average | | | | | | | | | | | |
| AAA | 35.6 | 3.3 | 1.6 | 0.3 | 0.2 | 0.1 | 0.1 | 0.0 | 0.0 | 0.0 | 58.8 |
| AA | 4.6 | 28.8 | 6.8 | 0.8 | 0.5 | 0.1 | 0.5 | 0.0 | 0.0 | 0.0 | 57.9 |
| A | 0.8 | 4.2 | 38.4 | 5.5 | 1.0 | 0.6 | 0.3 | 0.0 | 0.0 | 0.1 | 49.2 |
| BBB | 0.1 | 0.5 | 2.1 | 41.4 | 5.2 | 2.4 | 1.3 | 0.1 | 0.0 | 0.6 | 46.4 |
| BB | 0.0 | 0.0 | 0.0 | 5.7 | 28.0 | 11.7 | 3.7 | 0.0 | 0.0 | 3.7 | 47.3 |
| B | 0.0 | 1.4 | 2.2 | 5.8 | 2.9 | 23.2 | 9.4 | 0.0 | 0.0 | 11.6 | 43.5 |
| CCC | 0.0 | 1.0 | 2.9 | 5.9 | 2.0 | 2.9 | 37.3 | 1.0 | 0.0 | 32.4 | 14.7 |
| CC | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 100.0 |
| C | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Four-year weighted-average | | | | | | | | | | | |
| AAA | 23.2 | 3.1 | 1.5 | 0.4 | 0.4 | 0.2 | 0.1 | 0.0 | 0.0 | 0.0 | 71.1 |
| AA | 2.9 | 18.3 | 6.5 | 0.2 | 0.3 | 0.4 | 0.8 | 0.0 | 0.0 | 0.1 | 70.6 |
| A | 0.7 | 2.8 | 26.2 | 6.3 | 1.1 | 0.7 | 0.4 | 0.0 | 0.0 | 0.1 | 61.6 |
| BBB | 0.1 | 0.4 | 1.5 | 29.9 | 5.0 | 2.2 | 2.0 | 0.1 | 0.0 | 1.0 | 57.7 |
| BB | 0.0 | 0.0 | 0.0 | 2.4 | 19.2 | 10.8 | 0.7 | 0.0 | 0.0 | 6.3 | 60.5 |
| B | 0.0 | 2.3 | 2.3 | 6.2 | 3.8 | 13.1 | 9.2 | 0.0 | 0.0 | 13.8 | 49.2 |
| CCC | 0.0 | 2.1 | 3.2 | 6.3 | 1.1 | 3.2 | 29.5 | 1.1 | 0.0 | 34.7 | 18.9 |
| CC | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 100.0 |
| C | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Five-year weighted-average | | | | | | | | | | | |
| AAA | 14.6 | 2.7 | 1.1 | 0.5 | 0.5 | 0.3 | 0.2 | 0.0 | 0.0 | 0.0 | 80.2 |
| AA | 1.6 | 12.0 | 6.0 | 0.0 | 0.1 | 0.4 | 0.9 | 0.0 | 0.0 | 0.1 | 78.9 |
| A | 0.6 | 1.8 | 16.8 | 7.1 | 1.1 | 0.5 | 0.5 | 0.0 | 0.0 | 0.3 | 71.3 |
| BBB | 0.1 | 0.3 | 1.1 | 20.7 | 5.3 | 2.1 | 2.0 | 0.1 | 0.0 | 1.8 | 66.4 |
| BB | 0.0 | 0.0 | 0.4 | 1.1 | 13.7 | 9.6 | 0.7 | 0.0 | 0.0 | 7.0 | 67.4 |
| B | 0.0 | 2.5 | 2.5 | 2.5 | 3.3 | 6.7 | 9.2 | 0.0 | 0.0 | 15.0 | 58.3 |
| CCC | 0.0 | 2.4 | 3.5 | 7.1 | 1.2 | 3.5 | 21.2 | 1.2 | 0.0 | 38.8 | 21.2 |
| CC | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 100.0 |
| C | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |

Table 22

European ABS Rating Transitions, 2019 And Multi-Year Averages, NR Included (cont.)

(%)

| From/to | AAA | AA | A | BBB | BB | B | CCC | CC | C | D | NR |
|---------------------------------|-----|-----|-----|-----|-----|-----|------|-----|-----|------|------|
| 10-year weighted-average | | | | | | | | | | | |
| AAA | 2.6 | 1.4 | 0.9 | 0.2 | 0.5 | 0.1 | 0.0 | 0.0 | 0.0 | 0.1 | 94.2 |
| AA | 0.0 | 2.8 | 0.8 | 2.9 | 0.0 | 0.3 | 0.6 | 0.0 | 0.0 | 0.2 | 92.5 |
| A | 0.0 | 0.0 | 2.5 | 3.9 | 1.6 | 0.6 | 0.5 | 0.0 | 0.0 | 1.5 | 89.4 |
| BBB | 0.0 | 0.0 | 0.5 | 3.5 | 3.6 | 1.9 | 1.1 | 0.0 | 0.0 | 5.0 | 84.5 |
| BB | 0.0 | 0.0 | 0.6 | 1.3 | 1.3 | 0.0 | 1.9 | 0.0 | 0.0 | 2.6 | 92.3 |
| B | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 11.5 | 0.0 | 0.0 | 7.7 | 80.8 |
| CCC | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 86.7 | 13.3 |
| CC | | | | | | | | | | | |
| C | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |

N/A--Not applicable. Source: S&P Global Ratings Research.

European CMBS

Table 23

European CMBS Cumulative Default Rates, Conditional On Survival, 1990-2019

(%)

| | Time horizon (years) | | | | | | | | | |
|---------|----------------------|------|------|------|------|------|------|------|------|------|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| AAA | 0.0 | 0.2 | 0.5 | 1.0 | 1.6 | 2.3 | 2.9 | 3.3 | 4.0 | 4.5 |
| AA | 0.1 | 0.1 | 0.4 | 1.4 | 2.7 | 4.1 | 5.4 | 6.5 | 7.6 | 8.7 |
| A | 0.2 | 0.7 | 1.8 | 3.3 | 5.1 | 7.1 | 9.3 | 11.1 | 12.9 | 14.4 |
| BBB | 0.7 | 2.6 | 5.3 | 8.6 | 12.6 | 16.9 | 20.4 | 23.4 | 25.5 | 27.1 |
| BB | 2.1 | 7.6 | 13.5 | 19.7 | 26.0 | 31.9 | 36.6 | 39.5 | 41.9 | 43.9 |
| B | 9.7 | 22.0 | 34.5 | 46.4 | 54.9 | 60.0 | 65.0 | 70.9 | 72.8 | 72.8 |
| CCC | 38.8 | 60.9 | 75.2 | 82.3 | 85.2 | 86.9 | 86.9 | 86.9 | 86.9 | 86.9 |
| CC | 60.0 | 78.8 | 90.6 | 90.6 | 90.6 | 90.6 | 90.6 | 90.6 | 90.6 | 90.6 |
| IG | 0.2 | 0.8 | 1.9 | 3.4 | 5.2 | 7.1 | 8.8 | 10.3 | 11.6 | 12.6 |
| SG | 12.5 | 23.7 | 33.4 | 41.5 | 47.7 | 52.4 | 56.2 | 59.0 | 60.7 | 61.9 |
| Overall | 3.0 | 6.0 | 8.9 | 11.8 | 14.6 | 17.0 | 19.1 | 20.7 | 21.9 | 22.9 |

IG--Investment-grade. SG--Speculative-grade. Source: S&P Global Ratings Research.

Table 24

European CMBS One-Year Default Rates, 1990-2019

(%)

| Year | Overall | IG | SG | AAA | AA | A | BBB | BB | B | CCC | CC |
|------------------|---------|-----|------|-----|-----|-----|-----|-----|------|-------|-------|
| 1990 | 0.0 | 0.0 | N/A | 0.0 | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| 1991 | 0.0 | 0.0 | N/A | 0.0 | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| 1992 | 0.0 | 0.0 | N/A | 0.0 | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| 1993 | 0.0 | 0.0 | N/A | 0.0 | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| 1994 | 0.0 | 0.0 | N/A | 0.0 | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| 1995 | 0.0 | 0.0 | N/A | 0.0 | N/A | 0.0 | 0.0 | N/A | N/A | N/A | N/A |
| 1996 | 0.0 | 0.0 | N/A | 0.0 | N/A | 0.0 | 0.0 | N/A | N/A | N/A | N/A |
| 1997 | 0.0 | 0.0 | N/A | 0.0 | N/A | 0.0 | 0.0 | N/A | N/A | N/A | N/A |
| 1998 | 0.0 | 0.0 | N/A | 0.0 | 0.0 | 0.0 | 0.0 | N/A | N/A | N/A | N/A |
| 1999 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | N/A | N/A | N/A |
| 2000 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | N/A | N/A | N/A |
| 2001 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | N/A | N/A | N/A |
| 2002 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | N/A | N/A | N/A |
| 2003 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | N/A | N/A | N/A |
| 2004 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | N/A | 0.0 |
| 2005 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | N/A | 0.0 |
| 2006 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | N/A | N/A |
| 2007 | 0.4 | 0.1 | 4.3 | 0.0 | 0.0 | 0.0 | 0.5 | 0.0 | 30.0 | 0.0 | N/A |
| 2008 | 0.5 | 0.3 | 3.6 | 0.0 | 0.0 | 0.0 | 1.3 | 1.4 | 16.7 | N/A | N/A |
| 2009 | 1.0 | 0.1 | 9.6 | 0.0 | 0.0 | 0.0 | 0.5 | 1.5 | 17.4 | 100.0 | N/A |
| 2010 | 2.4 | 0.7 | 8.4 | 0.0 | 0.6 | 1.3 | 1.1 | 3.3 | 11.7 | 36.4 | N/A |
| 2011 | 4.1 | 0.3 | 12.7 | 0.0 | 0.0 | 0.0 | 1.4 | 4.8 | 13.5 | 46.9 | N/A |
| 2012 | 4.4 | 0.7 | 11.4 | 0.0 | 0.0 | 0.5 | 2.5 | 4.2 | 12.6 | 44.4 | N/A |
| 2013 | 7.8 | 0.3 | 17.3 | 0.0 | 0.0 | 0.5 | 0.0 | 3.2 | 7.4 | 50.7 | 100.0 |
| 2014 | 7.7 | 0.0 | 14.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 6.2 | 33.8 | 100.0 |
| 2015 | 7.0 | 0.0 | 13.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 8.9 | 19.7 | 62.5 |
| 2016 | 10.0 | 0.6 | 19.4 | 0.0 | 0.0 | 0.0 | 1.9 | 2.6 | 8.9 | 30.2 | 87.5 |
| 2017 | 10.9 | 0.0 | 23.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 3.4 | 50.0 | 14.3 |
| 2018 | 8.4 | 0.0 | 21.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 50.0 | 16.7 |
| 2019 | 4.0 | 0.0 | 14.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 28.6 | 83.3 |
| Weighted-average | 3.0 | 0.2 | 12.5 | 0.0 | 0.1 | 0.2 | 0.7 | 2.1 | 9.7 | 38.8 | 60.0 |
| Median | 0.0 | 0.0 | 8.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 8.1 | 40.4 | 62.5 |
| Std. dev. | 3.5 | 0.2 | 8.1 | 0.0 | 0.1 | 0.3 | 0.7 | 1.6 | 8.4 | 23.9 | 43.4 |
| Minimum | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Maximum | 10.9 | 0.7 | 23.3 | 0.0 | 0.6 | 1.3 | 2.5 | 4.8 | 30.0 | 100.0 | 100.0 |

IG--Investment-grade. SG--Speculative-grade. N/A--Not applicable. Std. dev.--Standard deviation. Source: S&P Global Ratings Research.

Table 25

European CMBS Rating Transitions, 2019 And Multi-Year Averages, NR Adjusted

(%)

| From/to | AAA | AA | A | BBB | BB | B | CCC | CC | C | D |
|------------------------------------|-------|-------|------|------|------|------|------|------|-----|------|
| 2019 | | | | | | | | | | |
| AAA | 100.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| AA | 0.0 | 100.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| A | 0.0 | 0.0 | 88.2 | 11.8 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| BBB | 0.0 | 0.0 | 12.0 | 72.0 | 16.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| BB | 0.0 | 0.0 | 0.0 | 26.9 | 73.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| B | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 90.9 | 0.0 | 9.1 | 0.0 | 0.0 |
| CCC | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 71.4 | 0.0 | 0.0 | 28.6 |
| CC | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 16.7 | 0.0 | 83.3 |
| C | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| One-year weighted-average | | | | | | | | | | |
| AAA | 87.2 | 6.7 | 5.2 | 0.7 | 0.1 | 0.0 | 0.1 | 0.0 | 0.0 | 0.0 |
| AA | 3.7 | 81.3 | 10.9 | 3.2 | 0.6 | 0.2 | 0.1 | 0.0 | 0.0 | 0.1 |
| A | 1.0 | 2.8 | 81.9 | 8.8 | 3.9 | 1.2 | 0.1 | 0.0 | 0.0 | 0.2 |
| BBB | 0.5 | 1.1 | 2.6 | 78.3 | 10.7 | 5.6 | 0.6 | 0.0 | 0.0 | 0.7 |
| BB | 0.5 | 0.1 | 0.7 | 2.2 | 70.9 | 19.2 | 4.2 | 0.2 | 0.0 | 2.1 |
| B | 0.0 | 0.0 | 0.0 | 0.0 | 1.1 | 66.4 | 21.9 | 1.0 | 0.0 | 9.7 |
| CCC | 0.0 | 0.2 | 0.0 | 0.0 | 0.0 | 0.2 | 55.8 | 4.9 | 0.0 | 38.8 |
| CC | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 40.0 | 0.0 | 60.0 |
| C | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Two-year weighted-average | | | | | | | | | | |
| AAA | 74.7 | 11.1 | 11.6 | 1.7 | 0.4 | 0.0 | 0.2 | 0.0 | 0.0 | 0.2 |
| AA | 6.2 | 66.9 | 16.7 | 6.7 | 2.3 | 0.9 | 0.3 | 0.0 | 0.0 | 0.1 |
| A | 2.2 | 5.0 | 68.0 | 12.3 | 7.2 | 3.8 | 0.7 | 0.0 | 0.0 | 0.7 |
| BBB | 1.1 | 1.5 | 4.8 | 61.8 | 15.1 | 10.9 | 2.3 | 0.0 | 0.0 | 2.6 |
| BB | 0.9 | 0.1 | 0.8 | 3.5 | 52.6 | 25.1 | 8.8 | 0.5 | 0.0 | 7.6 |
| B | 0.0 | 0.1 | 0.0 | 0.1 | 1.3 | 46.4 | 27.8 | 2.1 | 0.0 | 22.2 |
| CCC | 0.0 | 0.2 | 0.0 | 0.0 | 0.0 | 0.2 | 33.5 | 5.0 | 0.0 | 61.0 |
| CC | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 23.1 | 0.0 | 76.9 |
| C | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Three-year weighted-average | | | | | | | | | | |
| AAA | 64.4 | 13.5 | 17.2 | 2.5 | 1.2 | 0.3 | 0.3 | 0.0 | 0.0 | 0.5 |
| AA | 7.3 | 57.7 | 18.9 | 8.8 | 3.4 | 2.7 | 0.8 | 0.0 | 0.0 | 0.4 |
| A | 3.0 | 5.7 | 59.8 | 12.9 | 9.5 | 5.5 | 1.8 | 0.0 | 0.0 | 1.8 |
| BBB | 1.4 | 1.6 | 5.6 | 52.6 | 15.0 | 13.9 | 4.4 | 0.2 | 0.0 | 5.4 |

Table 25

European CMBS Rating Transitions, 2019 And Multi-Year Averages, NR Adjusted (cont.)

(%)

| From/to | AAA | AA | A | BBB | BB | B | CCC | CC | C | D |
|-----------------------------------|------|------|------|------|------|------|------|-------|-----|------|
| BB | 1.2 | 0.1 | 1.2 | 3.6 | 42.8 | 23.3 | 13.0 | 1.0 | 0.0 | 13.6 |
| B | 0.0 | 0.2 | 0.0 | 0.0 | 1.9 | 33.8 | 26.3 | 2.7 | 0.0 | 35.0 |
| CCC | 0.0 | 0.2 | 0.0 | 0.0 | 0.0 | 0.2 | 20.4 | 3.6 | 0.0 | 75.4 |
| CC | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 12.1 | 0.0 | 87.9 |
| C | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Four-year weighted-average | | | | | | | | | | |
| AAA | 56.6 | 14.3 | 21.6 | 3.1 | 2.1 | 1.0 | 0.4 | 0.0 | 0.0 | 1.0 |
| AA | 8.1 | 51.2 | 20.5 | 9.2 | 4.3 | 3.8 | 1.5 | 0.0 | 0.0 | 1.4 |
| A | 3.5 | 6.4 | 54.2 | 12.5 | 9.8 | 7.5 | 2.6 | 0.1 | 0.0 | 3.4 |
| BBB | 1.6 | 1.6 | 6.2 | 47.2 | 13.2 | 14.0 | 7.1 | 0.3 | 0.0 | 8.7 |
| BB | 1.5 | 0.1 | 1.7 | 3.5 | 37.7 | 19.5 | 14.3 | 1.7 | 0.0 | 20.1 |
| B | 0.0 | 0.4 | 0.0 | 0.0 | 1.8 | 27.1 | 20.9 | 2.5 | 0.0 | 47.4 |
| CCC | 0.0 | 0.3 | 0.0 | 0.0 | 0.0 | 0.3 | 14.2 | 2.5 | 0.0 | 82.7 |
| CC | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 15.4 | 0.0 | 84.6 |
| C | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Five-year weighted-average | | | | | | | | | | |
| AAA | 51.7 | 14.3 | 23.4 | 3.6 | 3.1 | 1.6 | 0.7 | 0.0 | 0.0 | 1.6 |
| AA | 8.2 | 47.0 | 21.6 | 8.4 | 4.8 | 5.3 | 1.9 | 0.1 | 0.0 | 2.7 |
| A | 3.9 | 6.8 | 50.9 | 12.1 | 8.3 | 8.5 | 4.0 | 0.2 | 0.0 | 5.3 |
| BBB | 1.8 | 1.4 | 7.0 | 44.6 | 10.9 | 12.4 | 8.4 | 0.6 | 0.0 | 12.9 |
| BB | 1.5 | 0.2 | 1.8 | 2.8 | 35.3 | 16.8 | 12.9 | 1.6 | 0.0 | 27.0 |
| B | 0.0 | 0.4 | 0.0 | 0.0 | 2.0 | 22.3 | 16.3 | 2.7 | 0.0 | 56.3 |
| CCC | 0.0 | 0.3 | 0.0 | 0.0 | 0.0 | 0.3 | 11.5 | 1.7 | 0.0 | 86.1 |
| CC | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 16.7 | 0.0 | 83.3 |
| C | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| 10-year weighted-average | | | | | | | | | | |
| AAA | 49.6 | 13.6 | 22.1 | 3.4 | 2.8 | 2.2 | 1.5 | 0.1 | 0.0 | 4.6 |
| AA | 10.5 | 43.1 | 18.2 | 6.4 | 5.3 | 4.6 | 2.2 | 0.2 | 0.0 | 9.4 |
| A | 6.9 | 4.6 | 48.0 | 10.3 | 5.7 | 6.6 | 2.9 | 0.2 | 0.0 | 14.8 |
| BBB | 2.6 | 1.9 | 6.6 | 44.0 | 4.8 | 6.9 | 3.7 | 0.9 | 0.0 | 28.6 |
| BB | 3.0 | 0.4 | 2.0 | 2.6 | 39.1 | 4.8 | 3.6 | 1.0 | 0.0 | 43.7 |
| B | 0.0 | 2.0 | 0.0 | 0.0 | 2.7 | 6.1 | 2.7 | 0.7 | 0.0 | 85.7 |
| CCC | 0.0 | 6.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 93.8 |
| CC | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 100.0 | 0.0 | 0.0 |

Table 25

European CMBS Rating Transitions, 2019 And Multi-Year Averages, NR Adjusted (cont.)

(%)

| From/to | AAA | AA | A | BBB | BB | B | CCC | CC | C | D |
|---------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| C | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |

N/A--Not applicable. Securities with ratings that migrated to NR over the period are classified based on the rating prior to NR. Source: S&P Global Ratings Research.

Table 26

European CMBS Rating Transitions, 2019 And Multi-Year Averages, NR Included

(%)

| From/to | AAA | AA | A | BBB | BB | B | CCC | CC | C | D | NR |
|----------------------------------|------|------|------|------|------|------|------|------|-----|------|------|
| 2019 | | | | | | | | | | | |
| AAA | 83.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 16.7 |
| AA | 0.0 | 96.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 4.0 |
| A | 0.0 | 0.0 | 76.5 | 11.8 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 11.8 |
| BBB | 0.0 | 0.0 | 12.0 | 68.0 | 16.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 4.0 |
| BB | 0.0 | 0.0 | 0.0 | 26.9 | 53.8 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 19.2 |
| B | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 27.3 | 0.0 | 9.1 | 0.0 | 0.0 | 63.6 |
| CCC | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 57.1 | 0.0 | 0.0 | 28.6 | 14.3 |
| CC | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 16.7 | 0.0 | 83.3 | 0.0 |
| C | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| One-year weighted-average | | | | | | | | | | | |
| AAA | 74.9 | 6.5 | 4.1 | 0.7 | 0.1 | 0.0 | 0.1 | 0.0 | 0.0 | 0.0 | 13.7 |
| AA | 2.8 | 71.5 | 9.1 | 3.2 | 0.6 | 0.2 | 0.1 | 0.0 | 0.0 | 0.1 | 12.6 |
| A | 0.7 | 2.4 | 69.8 | 8.5 | 3.9 | 1.1 | 0.1 | 0.0 | 0.0 | 0.2 | 13.3 |
| BBB | 0.3 | 0.7 | 2.1 | 68.8 | 10.3 | 5.6 | 0.6 | 0.0 | 0.0 | 0.7 | 10.9 |
| BB | 0.2 | 0.0 | 0.5 | 2.2 | 60.9 | 18.3 | 4.0 | 0.2 | 0.0 | 2.1 | 11.7 |
| B | 0.0 | 0.0 | 0.0 | 0.0 | 1.0 | 58.0 | 19.8 | 1.0 | 0.0 | 9.7 | 10.6 |
| CCC | 0.0 | 0.2 | 0.0 | 0.0 | 0.0 | 0.0 | 49.8 | 4.7 | 0.0 | 38.8 | 6.5 |
| CC | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 35.6 | 0.0 | 60.0 | 4.4 |
| C | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Two-year weighted-average | | | | | | | | | | | |
| AAA | 52.2 | 9.8 | 8.1 | 1.7 | 0.4 | 0.0 | 0.2 | 0.0 | 0.0 | 0.2 | 27.4 |
| AA | 3.6 | 49.4 | 12.9 | 6.5 | 2.1 | 0.7 | 0.2 | 0.0 | 0.0 | 0.1 | 24.5 |
| A | 1.1 | 3.6 | 45.9 | 11.2 | 7.0 | 3.7 | 0.7 | 0.0 | 0.0 | 0.7 | 26.0 |
| BBB | 0.4 | 0.7 | 3.3 | 43.9 | 13.6 | 10.5 | 2.1 | 0.0 | 0.0 | 2.6 | 22.9 |
| BB | 0.3 | 0.0 | 0.1 | 3.2 | 34.0 | 22.0 | 7.3 | 0.5 | 0.0 | 7.6 | 25.0 |
| B | 0.0 | 0.1 | 0.0 | 0.1 | 1.0 | 32.8 | 24.5 | 2.0 | 0.0 | 22.2 | 17.4 |

Table 26

European CMBS Rating Transitions, 2019 And Multi-Year Averages, NR Included (cont.)

(%)

| From/to | AAA | AA | A | BBB | BB | B | CCC | CC | C | D | NR |
|------------------------------------|------|------|------|------|------|------|------|------|-----|------|------|
| CCC | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 23.5 | 4.8 | 0.0 | 61.0 | 10.7 |
| CC | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 12.8 | 0.0 | 76.9 | 10.3 |
| C | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Three-year weighted-average | | | | | | | | | | | |
| AAA | 34.2 | 10.4 | 10.6 | 2.4 | 1.2 | 0.3 | 0.3 | 0.0 | 0.0 | 0.5 | 40.2 |
| AA | 3.4 | 34.7 | 12.4 | 7.9 | 3.2 | 2.4 | 0.6 | 0.0 | 0.0 | 0.4 | 35.0 |
| A | 1.2 | 3.4 | 30.5 | 10.5 | 8.7 | 5.2 | 1.6 | 0.0 | 0.0 | 1.8 | 36.9 |
| BBB | 0.4 | 0.6 | 3.1 | 28.8 | 12.2 | 12.9 | 4.0 | 0.2 | 0.0 | 5.4 | 32.4 |
| BB | 0.3 | 0.0 | 0.3 | 2.6 | 18.6 | 17.7 | 9.9 | 0.9 | 0.0 | 13.6 | 36.2 |
| B | 0.0 | 0.1 | 0.0 | 0.0 | 1.1 | 16.9 | 21.6 | 2.5 | 0.0 | 35.0 | 22.8 |
| CCC | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 8.5 | 3.4 | 0.0 | 75.4 | 12.7 |
| CC | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 87.9 | 12.1 |
| C | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Four-year weighted-average | | | | | | | | | | | |
| AAA | 20.3 | 9.0 | 11.4 | 2.8 | 1.8 | 1.0 | 0.3 | 0.0 | 0.0 | 1.0 | 52.5 |
| AA | 2.9 | 24.3 | 11.2 | 7.6 | 3.9 | 3.3 | 1.4 | 0.0 | 0.0 | 1.4 | 43.9 |
| A | 1.0 | 3.3 | 19.9 | 8.8 | 8.3 | 6.6 | 2.3 | 0.1 | 0.0 | 3.4 | 46.2 |
| BBB | 0.4 | 0.6 | 2.5 | 19.3 | 9.3 | 12.1 | 6.4 | 0.3 | 0.0 | 8.7 | 40.4 |
| BB | 0.2 | 0.0 | 0.6 | 1.9 | 9.8 | 11.7 | 10.3 | 1.3 | 0.0 | 20.1 | 44.2 |
| B | 0.0 | 0.1 | 0.0 | 0.0 | 0.6 | 8.7 | 14.8 | 2.2 | 0.0 | 47.4 | 26.2 |
| CCC | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 2.2 | 2.2 | 0.0 | 82.7 | 12.8 |
| CC | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 84.6 | 15.4 |
| C | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Five-year weighted-average | | | | | | | | | | | |
| AAA | 11.2 | 6.6 | 9.6 | 2.9 | 2.5 | 1.5 | 0.5 | 0.0 | 0.0 | 1.6 | 63.5 |
| AA | 1.8 | 17.5 | 9.4 | 5.7 | 3.8 | 4.5 | 1.7 | 0.1 | 0.0 | 2.7 | 52.8 |
| A | 0.8 | 3.1 | 12.8 | 7.1 | 5.8 | 6.5 | 3.5 | 0.2 | 0.0 | 5.3 | 54.9 |
| BBB | 0.3 | 0.3 | 2.4 | 13.9 | 5.8 | 9.5 | 7.2 | 0.5 | 0.0 | 12.9 | 47.3 |
| BB | 0.1 | 0.1 | 0.6 | 0.6 | 5.9 | 7.9 | 8.4 | 1.1 | 0.0 | 27.0 | 48.2 |
| B | 0.0 | 0.0 | 0.0 | 0.0 | 0.4 | 4.1 | 9.4 | 2.4 | 0.0 | 56.3 | 27.5 |
| CCC | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.3 | 1.4 | 0.0 | 86.1 | 12.2 |
| CC | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 83.3 | 16.7 |
| C | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |

Table 26

European CMBS Rating Transitions, 2019 And Multi-Year Averages, NR Included (cont.)

(%)

| From/to | AAA | AA | A | BBB | BB | B | CCC | CC | C | D | NR |
|---------------------------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|-------|
| 10-year weighted-average | | | | | | | | | | | |
| AAA | 2.3 | 2.1 | 2.1 | 0.6 | 0.4 | 0.5 | 0.4 | 0.1 | 0.0 | 4.6 | 86.9 |
| AA | 0.0 | 8.9 | 3.1 | 1.1 | 1.2 | 0.3 | 0.9 | 0.2 | 0.0 | 9.4 | 74.8 |
| A | 0.0 | 0.3 | 3.0 | 2.8 | 1.2 | 1.1 | 0.9 | 0.2 | 0.0 | 14.8 | 75.8 |
| BBB | 0.0 | 0.6 | 1.4 | 4.3 | 0.3 | 1.0 | 1.5 | 0.5 | 0.0 | 28.6 | 61.7 |
| BB | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.4 | 2.0 | 0.4 | 0.0 | 43.7 | 53.6 |
| B | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 85.7 | 14.3 |
| CCC | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 93.8 | 6.3 |
| CC | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 100.0 |
| C | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |

N/A--Not applicable. Source: S&P Global Ratings Research.

Appendix III: Comparison Of Alternative Treatments Of 'AAA' Ratings

This and last year's edition of our European structured finance default and rating transition study adopt a new approach to the treatment of securities with original ratings of 'AAA'. As detailed in Appendix I, this study uses the "uncollapsed" approach, rather than the "collapsed" approach of previous studies. Charts 17-19 illustrate the resulting changes.

Chart 17

European Structured Finance 12-Month Trailing Default Rate
By 'AAA' treatment



Source: S&P Global Ratings Research.
Copyright © 2020 by Standard & Poor's Financial Services LLC. All rights reserved.

Chart 18

European Structured Finance 12-Month Average Change In Credit Quality By 'AAA' treatment

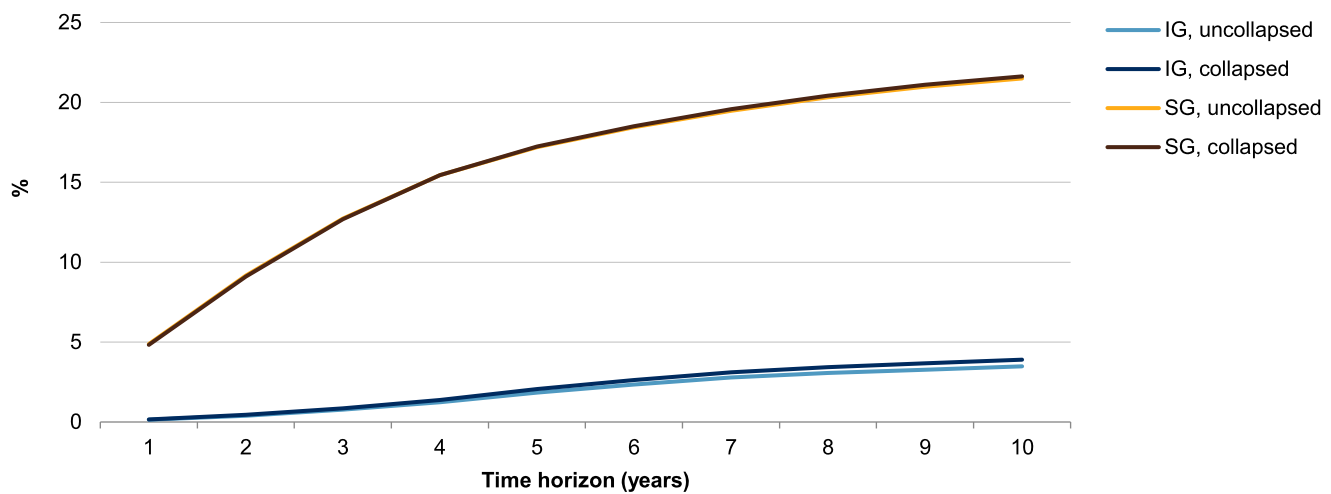


Source: S&P Global Ratings Research.

Copyright © 2020 by Standard & Poor's Financial Services LLC. All rights reserved.

Chart 19

European Structured Finance Cumulative Default Rates, Conditional On Survival, 1983-2019 By rating grade and 'AAA' treatment



IG--Investment-grade. SG--Speculative-grade. Source: S&P Global Ratings Research.

Copyright © 2020 by Standard & Poor's Financial Services LLC. All rights reserved.

Related Criteria

- Counterparty Risk Framework: Methodology And Assumptions, March 8, 2019
- Global Methodology And Assumptions: Assessing Pools Of Residential Loans, Jan. 25, 2019
- Methodology And Assumptions: Assessing Pools Of European Residential Loans, Aug. 4, 2017
- Global Methodology And Assumptions For Corporate Securitizations, June 22, 2017
- Global Methodology And Assumptions For Assessing The Credit Quality Of Securitized Consumer Receivables, Oct. 9, 2014
- Global Framework For Cash Flow Analysis Of Structured Finance Securities, Oct. 9, 2014
- Credit Stability Criteria, May 3, 2010
- Understanding S&P Global Ratings' Rating Definitions, June 3, 2009

Related Research

- Default, Transition, and Recovery: 2019 Annual Global Structured Finance Default And Rating Transition Study, June 9, 2020
- Credit Conditions EMEA: Low Growth, Lower Rates, Dec. 3, 2019
- Research Update: Spain Ratings Raised To 'A/A-1' From 'A-/A-2' On Economic Resilience; Outlook Stable, Sept. 20, 2019
- CLO Spotlight: Closing The Low European CLO 1.0 Default Chapter, Onto The Next, Sept. 4, 2019
- CLO Spotlight: Twenty-Five Years Strong: Update On CLO 1.0 Defaults, Aug. 12, 2019
- Research Update: Portugal Upgraded To 'BBB/A-2' From 'BBB-/A-3' On Declining Debt And Balanced Growth; Outlook Stable, March 15, 2019

This report does not constitute a rating action.

The use of the term "methodology" in this article refers to data aggregation and calculation methods used in conducting the research. It does not relate to S&P Global Ratings' methodologies, which are publicly available criteria used to determine credit ratings.

Copyright © 2021 by Standard & Poor's Financial Services LLC. All rights reserved.

No content (including ratings, credit-related analyses and data, valuations, model, software or other application or output therefrom) or any part thereof (Content) may be modified, reverse engineered, reproduced or distributed in any form by any means, or stored in a database or retrieval system, without the prior written permission of Standard & Poor's Financial Services LLC or its affiliates (collectively, S&P). The Content shall not be used for any unlawful or unauthorized purposes. S&P and any third-party providers, as well as their directors, officers, shareholders, employees or agents (collectively S&P Parties) do not guarantee the accuracy, completeness, timeliness or availability of the Content. S&P Parties are not responsible for any errors or omissions (negligent or otherwise), regardless of the cause, for the results obtained from the use of the Content, or for the security or maintenance of any data input by the user. The Content is provided on an "as is" basis. S&P PARTIES DISCLAIM ANY AND ALL EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, ANY WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE OR USE, FREEDOM FROM BUGS, SOFTWARE ERRORS OR DEFECTS, THAT THE CONTENT'S FUNCTIONING WILL BE UNINTERRUPTED OR THAT THE CONTENT WILL OPERATE WITH ANY SOFTWARE OR HARDWARE CONFIGURATION. In no event shall S&P Parties be liable to any party for any direct, indirect, incidental, exemplary, compensatory, punitive, special or consequential damages, costs, expenses, legal fees, or losses (including, without limitation, lost income or lost profits and opportunity costs or losses caused by negligence) in connection with any use of the Content even if advised of the possibility of such damages.

Credit-related and other analyses, including ratings, and statements in the Content are statements of opinion as of the date they are expressed and not statements of fact. S&P's opinions, analyses and rating acknowledgment decisions (described below) are not recommendations to purchase, hold, or sell any securities or to make any investment decisions, and do not address the suitability of any security. S&P assumes no obligation to update the Content following publication in any form or format. The Content should not be relied on and is not a substitute for the skill, judgment and experience of the user, its management, employees, advisors and/or clients when making investment and other business decisions. S&P does not act as a fiduciary or an investment advisor except where registered as such. While S&P has obtained information from sources it believes to be reliable, S&P does not perform an audit and undertakes no duty of due diligence or independent verification of any information it receives. Rating-related publications may be published for a variety of reasons that are not necessarily dependent on action by rating committees, including, but not limited to, the publication of a periodic update on a credit rating and related analyses.

To the extent that regulatory authorities allow a rating agency to acknowledge in one jurisdiction a rating issued in another jurisdiction for certain regulatory purposes, S&P reserves the right to assign, withdraw or suspend such acknowledgment at any time and in its sole discretion. S&P Parties disclaim any duty whatsoever arising out of the assignment, withdrawal or suspension of an acknowledgment as well as any liability for any damage alleged to have been suffered on account thereof.

S&P keeps certain activities of its business units separate from each other in order to preserve the independence and objectivity of their respective activities. As a result, certain business units of S&P may have information that is not available to other S&P business units. S&P has established policies and procedures to maintain the confidentiality of certain non-public information received in connection with each analytical process.

S&P may receive compensation for its ratings and certain analyses, normally from issuers or underwriters of securities or from obligors. S&P reserves the right to disseminate its opinions and analyses. S&P's public ratings and analyses are made available on its Web sites, www.standardandpoors.com (free of charge), and www.ratingsdirect.com (subscription), and may be distributed through other means, including via S&P publications and third-party redistributors. Additional information about our ratings fees is available at www.standardandpoors.com/usratingsfees.

STANDARD & POOR'S, S&P and RATINGSDIRECT are registered trademarks of Standard & Poor's Financial Services LLC.