S&P Global
Ratings

Research

Criteria | Structured Finance | CDOs:

Global Methodology And Assumptions For CLOs And Corporate CDOs

June 21, 2019

(***Editor's Note:*** *On July 21, 2023, we republished this criteria article to make nonmaterial changes. See the "Revisions And Updates" section for details.)*

OVERVIEW AND SCOPE

1. This criteria article describes S&P Global Ratings' methodologies and assumptions for rating corporate cash flow and synthetic collateralized debt obligations (CDOs).
2. These criteria should be read in conjunction with "Global Framework For Payment Structure And Cash Flow Analysis Of Structured Finance Securities," published Dec. 22, 2020 (the global cash flow criteria), and with the related guidance article (see "Guidance: Global Methodology And Assumptions For CLOs And Corporate CDOs," published June 21, 2019).
3. The criteria apply to all new and existing cash flow CDOs backed by diversified pools of corporate debt (loans and bonds) and synthetic CDOs that reference diversified pools of corporate obligations. They also apply to CDO transactions that are backed by corporate assets consisting of a mix of cash and synthetic instruments. Additionally, they are relevant for synthetic CDOs of corporate CDOs, and CDOs backed by sovereign securities. For ease of reference, we refer to these transactions as "corporate CDOs." These criteria may also be used to analyze other debt instruments where the credit risk is primarily driven by diversified pools of corporate exposures. For pools that have a small number of obligors, we may apply alternative rating methods, such as weak-linking.

Key Publication Dates

- Original publication date: June 21, 2019.
- Effective date: Immediate, except in markets that require prior notification to, or registration by, the local regulator. In these markets, the criteria will become effective when notified by S&P Global Ratings and/or registered by the regulator.
- These criteria address the fundamentals set out in "Principles Of Credit Ratings," published on Feb. 16, 2011.

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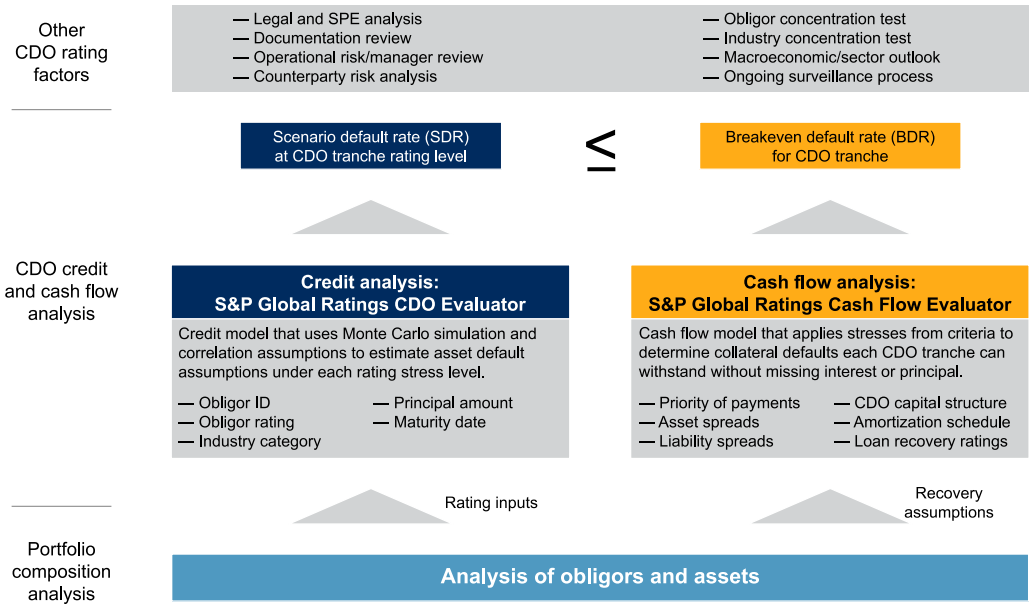
4. Where particular transactions feature novel or unusual characteristics, for example, concentrated or "barbelled" (with two distinct concentrations) asset pools, we may apply these criteria as a starting point for our analysis. We would likely make specific modifications or apply additional stresses, according to our assessment of the structure and the associated credit risks.
5. When analyzing transactions in the 'CCC' category, our assumptions and the ultimate rating outcome considers the "Criteria For Assigning 'CCC+', 'CCC', 'CCC-', And 'CC' Ratings," published Oct. 1, 2012.
6. These criteria do not cover CDOs of structured finance securities; cash flow CDOs of corporate CDOs; CDOs of mixed pools of corporate and structured finance securities that have very small concentrations of corporate debt; CDOs of municipal or public sector debt; or CDOs of project finance, market value CDOs, and structured counterparties (derivative product companies). These criteria also do not apply to the analysis of transactions backed primarily by corporate debt secured by real estate, which we typically analyze using our criteria for rating commercial mortgage-backed securities.
7. Our primary focus is not on any individual input assumption or stress test, but rather on the combination of assumptions and stresses that, in our opinion, would generate an appropriate targeted level of credit protection against future defaults commensurate with our rating definitions.
8. We analyze the credit risk of corporate CDOs using a stochastic methodology by considering target portfolio default rates, which reflect the level of defaults we consider a given portfolio of corporate credits would suffer in various rating scenarios consistent with our rating definitions. These targets are informed by historical data. Key drivers of these scenario default rates (SDRs) are the asset default rate as a function of credit quality and tenor, and the pairwise asset correlation, which reflects industry and geographic concentration.

METHODOLOGY

Chart 1

S&P Global Ratings' CDO Analysis



9. These criteria focus on our analysis of the credit risk and cash flows of CDO transactions.
10. To analyze the credit risk of a diversified portfolio of corporate exposures, we consider the asset's balance and maturity and its issuer's creditworthiness, industry, and country of origin. Where we consider the credit risk of certain assets may be driven by other factors--for example, by the default risk of a third party, as with participations--we would look for additional mitigants to these risks. Using a stochastic modeling approach, we assess the portfolio's SDR, which corresponds to our view of the level of defaults that is likely to affect the portfolio in a given rating stress scenario.
11. As a second step, we analyze the transaction's cash flows and payment profile. To achieve this, we review a transaction's structural characteristics and level of enhancement, together with covenants, including those relating to the spread in the portfolio and recovery rates. We test various scenarios, based on key rating drivers, such as default timing and patterns, to determine the maximum level of defaults that a transaction may sustain while still repaying noteholders in full and on time. This is the break-even default rate (BDR).
12. We then compare the BDR with the portfolio's SDR for the various stress scenarios. To assign a rating at a given level, we look for the SDR commensurate with that rating to be at or lower than the BDR.
13. We also run additional quantitative and qualitative tests (the supplemental tests), which assess the effect of concentrations and subordination levels on the notes' creditworthiness, and address both event risk and model risk that may be present in the transaction. We consider these tests, used in conjunction with the stochastic default modeling, provide a more-robust analysis than using only simulation models.
14. In considering a proposed rating for a particular tranche, we look to see whether it passes (i) the

standard CDO Evaluator tests, and, if applicable, (ii) the cash flow stresses and additional qualitative considerations, and (iii) all applicable supplemental tests commensurate with that rating level. Any of these three analyses may constrain our rating on the tranche.

15. We may also consider qualitative factors when assigning ratings to CDO tranches in addition to the supplemental tests, the CDO Evaluator simulation results, and the associated cash flow modeling. These qualitative factors, and any additional risks as well as risk mitigants, may be considered on a transaction-by-transaction basis. Examples of qualitative factors that we may incorporate in our analysis include:

- Applying cushions above the SDR (or scenario loss rate, as the case may be) generated by CDO Evaluator based on the transaction's risk profile;
- Taking a forward-looking view of the credit quality of the portfolio, for instance, by considering the likelihood that changes to the portfolio composition or the credit profile of the underlying assets may affect the portfolio's credit quality in the near future; and
- Making adjustments to our modeling assumptions for the portfolio's weighted-average spread, recoveries, or other portfolio parameters, depending on various factors such as the collateral manager's ability to make trades that may lower these metrics.

16. Finally, we may modify some of the modeling assumptions or apply stresses for portfolios that show heightened sensitivity to certain assumptions or run additional stresses for portfolios that are skewed or barbelled. For example, we may bias defaults toward a particular subset of the pool or test slightly higher or lower recovery or correlation assumptions.

Credit Analysis And CDO Evaluator Calibration

Background

17. CDO Evaluator is a model we use to quantify/simulate default rates for portfolios under different levels of stress consistent with different rating levels. The model generates a probability distribution of potential default rates for the given portfolio of assets in aggregate. The model derives a set of SDRs. We use this set of SDRs to determine, for each credit rating level, the gross level of asset defaults that we generally expect a CDO tranche with that rating to be able to withstand, according to our rating criteria.

18. Our credit analysis is calibrated to specific targeted stressed default scenarios at each of our rating categories, consistent with our rating definitions. The key parameters we consider relevant in assessing a portfolio's default rate are the asset default rates, pairwise asset correlation, and rating quantiles. The parameters are calibrated to achieve certain target default levels for 'AAA' rated CDO tranches that reflect conditions that we consider to be of extreme stress, such as during the Great Depression. We consider that 'AAA' rated corporate CDO tranches should be able to withstand extreme macroeconomic stress without defaulting. Additionally, the parameters are calibrated such that 'BBB' rated CDO tranches can withstand a moderate stress that is informed by the post-1981 maximum observed corporate default rates.

19. These target portfolio default rates informed by the post-1981 maximum observed corporate default rates are shown in table 1.

Table 1

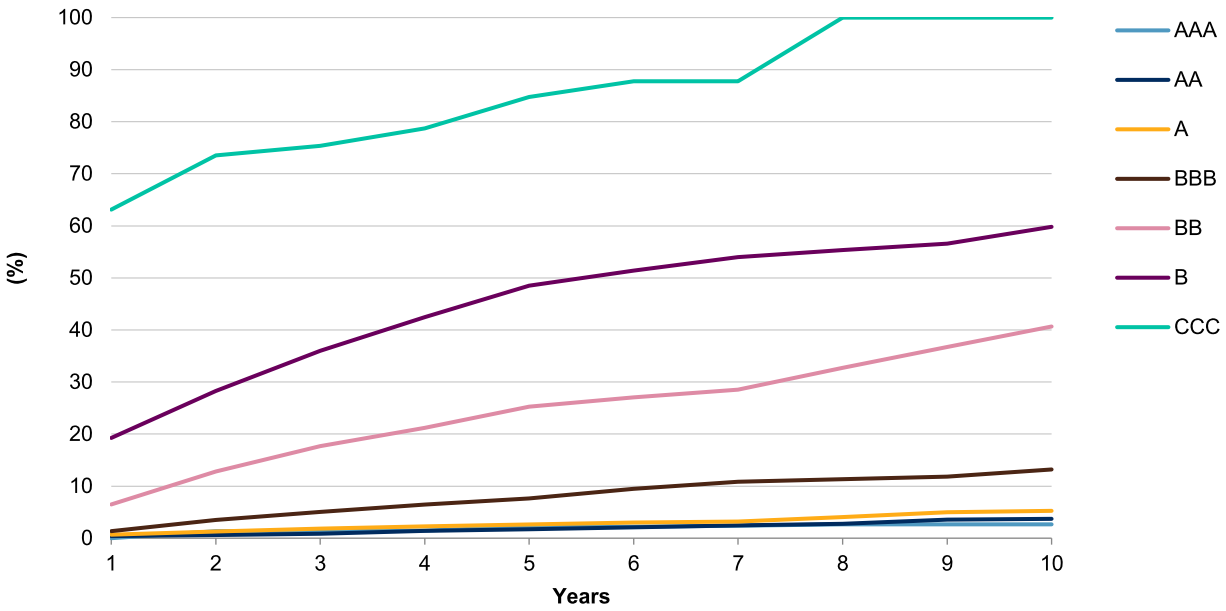
Post-1981 Maximum Observed Corporate Default Rates (%)*

	CreditPro asset pool ratings						
Year	AAA	AA	A	BBB	BB	B	CCC
1	0.0	0.4	0.7	1.4	6.5	19.3	63.1
2	1.4	0.6	1.3	3.5	12.8	28.3	73.5
3	1.4	0.8	1.8	5.0	17.7	36.0	75.4
4	1.5	1.4	2.3	6.4	21.2	42.5	78.7
5	2.2	1.7	2.7	7.7	25.3	48.5	84.7
6	2.2	2.1	3.0	9.5	27.1	51.4	87.8
7	2.4	2.5	3.2	10.8	28.5	54.0	87.8
8	2.7	2.8	4.1	11.3	32.7	55.3	100.0
9	2.7	3.5	5.0	11.8	36.7	56.6	100.0
10	2.7	3.7	5.3	13.2	40.7	59.8	100.0

*From S&P Global Ratings' CreditPro database. Some of the historical default rates do not exhibit a monotonic behavior. The maximum observed default rate in table 1 was derived across all cohorts, irrespective of their starting date. As such, this is a conservative assumption because the default rates in the table may reflect different periods. Additionally, the multiyear default rates were computed from marginal one-year default rates.

Chart 2

Post-1981 Maximum Observed Corporate Default Rates From S&P Global Ratings' CreditPro Database



20.

We expect the CDO tranches to withstand considerably higher levels of defaults in a 'AAA' scenario. For an extreme level of stress, the target portfolio default rates that 'AAA' rated CDO tranches should withstand are informed by periods of extreme stress, such as during the Great Depression.

21. Table 2 shows our targeted default rates for corporate assets for 'AAA' rated CDO tranches.

Table 2

Targeted Portfolio Default Rates For 'AAA' Rated CDO Tranches (%)*

	Asset ratings						
Weighted-average life of assets (years)	**AAA**	**AA**	**A**	**BBB**	**BB**	**B**	**CCC**
1	0.1	1.0	3.0	5.0	20.0	30.0	65.0
2	0.5	2.0	5.0	9.0	27.0	45.0	80.0
3	1.0	3.0	7.0	13.0	35.0	60.0	90.0
4	1.5	4.0	9.0	17.0	39.0	64.0	90.0
5	2.0	5.0	11.0	20.0	43.0	68.0	90.0
6	2.5	6.0	13.0	23.0	47.0	71.0	90.0
7	3.0	7.0	15.0	26.0	51.0	74.0	90.0
8	3.5	8.0	17.0	29.0	54.0	76.0	90.0
9	4.0	9.0	19.0	31.0	57.0	78.0	90.0
10	4.5	10.0	20.0	33.0	60.0	80.0	90.0

*The value in each cell reflects the targeted default rate for rating a 'AAA' CDO tranche for an archetypal portfolio of assets with the same maturity and rating. For example, we require a 'AAA' CDO tranche of an archetypal portfolio consisting of five-year assets rated 'B' to withstand a 68% portfolio default rate. There are important relationships among all the cells in the table: The value in each cell is greater than the value in the cell above, lower than the value in the cell below, greater than the value in the cell to the left, and lower than the value in the cell to the right.

22. Appendix A provides more insight into our derivation of the targeted portfolio default rates for 'AAA' rated CDO tranches.

23. We use the targeted portfolio default rates that 'AAA' rated CDO tranches should be able to withstand to create modeling parameters for the CDO Evaluator simulation model. Those parameters include (i) asset default rates for pool assets, (ii) correlation factors to address the interdependency of defaults of separate credits within an asset pool, and (iii) rating quantile points to relate defaults to CDO tranche ratings.

Asset default rates

24. The modeling parameters for asset default rates are shown in table 3. Appendix B presents the full 30-year asset default table for all the ratings without ratings modifiers.

25. We produce starting values for table 3 based on a methodology similar to the one we use to produce our annual default studies. The values are further adjusted to create an idealized term structure of asset default rates, such that the portfolio default rates approach the targets in tables 1 and 2.

Table 3

Asset Default Rate Inputs For CDO Evaluator Simulation Model (%)

	Rating						
Tenor (years)	**AAA**	**AA**	**A**	**BBB**	**BB**	**B**	**CCC**
1	0.003	0.016	0.179	0.415	1.899	7.063	18.445
2	0.014	0.066	0.407	0.983	4.185	13.357	31.488
3	0.037	0.155	0.694	1.708	6.751	18.998	40.816
4	0.076	0.286	1.044	2.588	9.496	24.057	47.693
5	0.135	0.464	1.463	3.612	12.336	28.595	52.930
6	0.217	0.690	1.954	4.764	15.206	32.671	57.043
7	0.326	0.967	2.516	6.027	18.055	36.340	60.365
8	0.465	1.298	3.150	7.383	20.847	39.652	63.114
9	0.638	1.684	3.855	8.815	23.558	42.652	65.438
10	0.846	2.125	4.627	10.306	26.171	45.381	67.440

Note: The above percentages are rounded to three decimal places.

26. We assume that rating transitions generally follow a homogeneous Markov process. In this framework, we derive the cumulative transition probabilities by raising the one-year transition matrix to iterative powers. We adjusted the one-year transition matrix further to ensure monotonicity across rating levels to obtain proper and coherent behavior of the transition probabilities as a function of the 19 refined rating categories. We further adjusted it to better fit observed empirical cumulative default rates.

Correlation

27. Correlation parameters are key assumptions in portfolio default simulation models. For the limited purposes of using CDO Evaluator, we make certain assumptions about correlation, including the assumption that correlation is likely to remain constant over time, as well as being uniform across many industries within our classification system. Although these assumptions are, by their nature, qualitative, we think that they are a reasonable way to reduce the complexity of the modeling process and enhance its transparency.

28. The correlation parameters under these criteria are 0.20 for two firms in the same corporate industry and 0.075 for two firms in different corporate industries. In addition, the criteria provide for correlation of 0.05 between assets from different industries in different geographic regions. Correlation parameters fatten the tails of the simulated default distribution and move the expected level of defaults closer to the CDO Evaluator default targets. Appendix C shows the correlation assumptions by asset type.

Ratings quantiles and results calibration

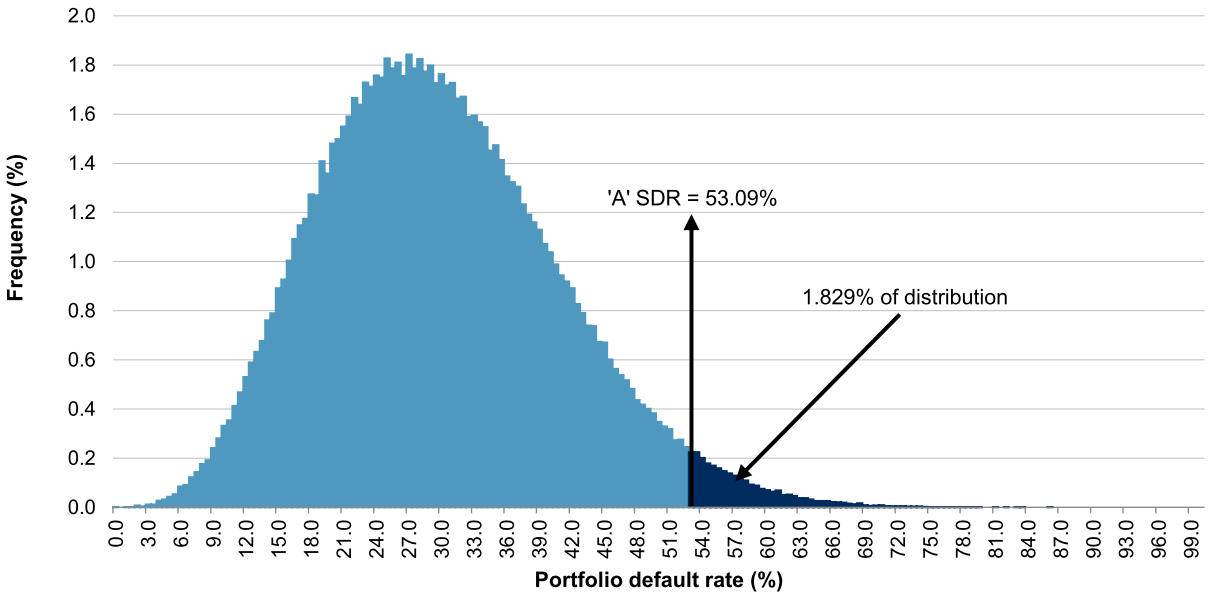
29. The model uses rating quantiles (cut-off points) associated with each rating level so that the simulated level of asset defaults can be related to a CDO tranche rating.

30. CDO Evaluator first runs a Monte Carlo simulation of defaults, which produces a simulated distribution of asset defaults, as shown in chart 3. This distribution, however, does not automatically relate to the specific creditworthiness of a CDO tranche. To do this, one must relate

portfolio defaults to CDO tranche ratings.

Chart 3

Simulated Distribution Of Portfolio Defaults



31. To achieve this, the criteria adjust the rating quantiles so that the model reflects the targeted benchmarks given in table 2. In other words, we set the rating quantiles for 'AAA' rated tranches at a level where the tranches can withstand the gross asset simulated defaults specified in table 2. Accordingly, the rating quantiles are a principal device for calibrating the CDO Evaluator model.

32. As chart 3 shows, given a rating quantile of 1.829%, we identify the level of gross defaults (SDRs)--53.09% in this example--such that the modeled probability of having defaults exceed that level of gross defaults is 1.829%. Appendix D presents the rating quantiles table.

CDO Evaluator output: Calibration results

33. To calibrate CDO Evaluator to the targeted portfolio default rates in table 2, we use archetypal portfolios of corporate credits. We ran these pools of assets using the CDO Evaluator assumptions--as given in this section--to produce the projected SDRs shown in table 7 for 'AAA' rated corporate CDO liabilities (see Appendix A).

34. For the calibration, the pools were composed of 105 homogeneous obligors in 23 industry categories. All the assets had the same credit rating (without plus or minus ratings qualifiers). The composition of the pools was informed by analyzing the average and median of the effective number of obligors and industries in the underlying portfolios securitized in the decade following the 2008 recession. The effective number of obligors and industries was computed using the Herfindahl index. In this way, our analysis incorporates the varying sizes of obligors and

industries.

35. As a result, under our approach, we expect CDO portfolios that have a higher number of effective obligors and industries than the archetype will generally have lower SDRs than our targets, while portfolios that have a smaller number of effective obligors and industries will generally have higher SDRs than our targets.

Asset Recovery Assumptions

36. Our recovery rate assumptions are a function of the information available to us. Specifically, we use different recovery rates, depending on whether a relevant recovery rating is available or not. In forming an opinion, we consider relevant available historical recovery data from recession periods and how those relate to our ratings definitions, to inform our forward-looking view of recovery assumptions at various stress levels.

37. Our recovery methodology tiers recoveries, based on the rating scenario considered for the CDO tranche. This reflects empirical evidence that recovery rates are inversely related to default rates. For both cash flow CDOs and synthetic CDOs, our recovery assumptions reflect a downward adjustment in expected recoveries under more-stressful scenarios that senior rated tranches of CDOs should withstand. The lower recoveries are in line with the expectations for the credit cycle, where higher defaults and a lack of liquidity will likely increase the number of businesses that liquidate, rather than restructure, thus putting a stress on recoveries.

Recoveries based on recovery ratings

38. When a recovery rating is available for the asset in the portfolio, we use recovery rate assumptions that are informed by that recovery rating and its related point estimate, if any. Where a recovery rating is available for an asset that is senior to the one in the portfolio, we also use this information to determine our recovery assumption for the asset in the pool.

Recoveries based on asset type

39. If the asset does not have a recovery rating and no more-senior-ranking asset carries a recovery rating, we use an analytical framework that differentiates corporate recoveries based on asset type (loans versus bonds), on the priority/seniority of the asset (senior secured, senior unsecured, or subordinated) in an insolvency of the company and its country grouping.

40. For different asset types' recoveries, we generally group different countries based on our analysis of their insolvency legal frameworks. We consider this framework is a good indication of the varying rights creditors have to secure their claims and realize a recovery.

41. For more information regarding each group's insolvency framework, please see "Methodology: Jurisdiction Ranking Assessments," published Jan. 20, 2016. For countries that do not have a jurisdictional ranking assessment, the criteria assume recoveries in the lowest ranking group.

42. In addition, for our analysis of synthetic CDOs, our recovery framework considers both a mean recovery rate and a standard deviation to achieve appropriate rating differentiation.

43. Our detailed recovery assumptions by rating level are presented in "Guidance: Global Methodology And Assumptions For CLOs And Corporate CDOs," published on June 21, 2019.

Cash Flow Modeling

44. A cash flow analysis and the associated cash flow stresses are key components of our approach for rating CDO securities and combination notes that may be issued as part of a CDO transaction. For this purpose, we apply our global cash flow criteria alongside these criteria.

45. The key variables we consider as part of our analysis of CDOs are:

- The portfolio amortization profile;
- Default patterns and timing;
- Recovery levels and timing;
- Interest rate stresses;
- Foreign exchange risk stresses, where relevant;
- Management fees;
- Small interest shortfalls and payment timing mismatch; and
- Deferrable obligations.

46. Generally, our analysis of combination notes uses the same approach as for the underlying components, as described in these criteria. However, when our analysis of combination notes partly relies on cash flows to an equity note, we also consider additional risk factors that may affect the distribution of payments to these notes. These would depend on a transaction's structure and payment waterfall, but may include, for example, uncapped junior expenses, subordinated termination payments, and the higher sensitivity of equity cash flows to the availability of excess spread in the transaction.

47. Our detailed assumptions for assessing the cash flows of corporate CDO transactions are set out in "Guidance: Global Methodology And Assumptions For CLOs And Corporate CDOs," published June 21, 2019.

Foreign exchange risk analysis

48. Where a CDO transaction is exposed to foreign exchange currency risk, we reflect this in our cash flow analysis. We typically do this by biasing defaults toward each currency bucket and testing the devaluation of each currency against the other. Our forward-looking analysis takes into account the characteristics of the transaction and any potential partial hedging strategy that may be in place for all or part of the transaction's life. Where we consider the exposure is minimal, we may look to contractual mitigants as an alternative to cash flow modeling.

49. To determine the magnitude of the bias, we assess the potential sensitivity of a transaction to foreign exchange risk. We consider factors such as the magnitude of the currency exposure, the effectiveness of coverage tests in addressing this additional risk, and the manager's reinvestment strategy, as per the reinvestment guidelines, and specifically the extent to which we consider it has the potential to expand or the commitment to contain the transaction's exposure to unhedged foreign exchange risk.

50. In combination with the biased defaults, we run currency devaluation factors in accordance with our foreign exchange stress criteria (see "Foreign Exchange Risk In Structured Finance – Methodology And Assumptions," published April 21, 2017).

Break-even result analysis for cash flow CDOs

51. Under our criteria, a key part of the cash flow analysis is the consideration of a tranche's minimum BDR. This is a measure of the maximum level of gross defaults that a tranche can withstand and still fully repay the noteholders, given the transaction structure, asset characteristics, payment mechanics, and proposed credit enhancement. To analyze a tranche, we run a number of cash flow scenarios that incorporate different key variables.

52. To assign a tranche a given rating, we generally expect that tranche's minimum BDR to be equal to or higher than the SDR, considering stresses commensurate with that rating level.

Supplemental Stress Tests

53. The criteria include supplemental tests intended to address both event risk and model risk that may be present in rated transactions. These supplemental tests are the largest obligor default test and the largest industry default test.

Applicability of the supplemental tests

54. Typically, we run all applicable tests when assessing the rating on a CDO tranche. For example, in considering a proposed 'AAA' rating, we assess whether the CDO tranche has sufficient credit enhancement to pass the supplemental tests and meet the standards associated with CDO Evaluator and the relevant cash flow stresses.

55. Exceptional circumstances may warrant an adjustment of these supplemental tests. For example, it is possible that small CDO tranche balances or short exposure periods may call for adjustments to the supplemental tests. For these tests, we use the same obligor ratings that we use in CDO Evaluator. We may also reassess the suitability of certain supplemental tests depending on the pool composition and may use an alternative supplemental test that better addresses a transaction's specific risk profile.

56. For transactions that employ excess spread, we may apply this test by running our cash flow model using the forward interest rate curve or other consideration of interest rate expectations, including the highest of the losses from the largest obligor default test and/or industry default test, net of their respective recoveries. We deem the test to have passed if cash flows show that the tranche that is subject to the test receives timely interest (or full interest, if the tranche is deferrable) and ultimate principal payments.

57. Because this test specifically attempts to capture event risk not addressed by the Monte Carlo default simulation in CDO Evaluator, we have deliberately included defaults of obligors rated higher than the rating on a CDO tranche and use a low flat recovery rate assumption. The larger the numbers of obligors, the more likely it is that defaults of highly rated obligors may occur.

Largest obligor default test

58. This test assesses whether a CDO tranche has sufficient credit enhancement to withstand specified combinations of underlying obligor defaults, based on the ratings on the underlying obligors, with a flat recovery rate assumption that generally reflects the potential for very low recoveries, as observed under stressful conditions.

Table 4

Largest Obligor Default Test

Event risk test: Survive a number of defaults with a flat recovery rate assumption

	CDO liability rating*						
Obligor rating	**AAA**	**AA**	**A**	**BBB**	**BB**	**B**	**CCC**
'AAA' to 'CCC-'	2	1	-	-	-	-	-
'AA+' to 'CCC-'	3	2	1	-	-	-	-
'A+' to 'CCC-'	4	3	2	1	-	-	-
'BBB+' to 'CCC-'	6	4	3	2	1	-	-
'BB+' to 'CCC-'	8	6	4	3	2	1	-
'B+' to 'CCC-'	10	8	6	4	3	2	1
'CCC+' to 'CCC-'	12	10	8	6	4	3	2

*In this table, CDO tranche or liability rating categories below 'AAA' include rating subcategories, for example, the 'AA' column also applies to CDO tranches rated 'AA+' and 'AA-'.

Largest industry default test

59. This test consists of two parts: the "primary largest industry default test" and the "alternative largest industry default test." Together, these assess whether a CDO tranche rated 'AAA', 'AA+', 'AA', or 'AA-' has sufficient credit enhancement to withstand the default of all obligors in the transaction's largest industry, with a flat recovery rate, or otherwise meet an alternative largest industry default test. Either of the tests may be a limiting factor for our rating on a CDO tranche. The largest industry default test does not apply to sovereign assets.

60. Corporate CDO tranches rated 'AAA' or in the 'AA' rating category should be able to withstand the default of all obligors in the largest single industry in the asset pool with a flat recovery rate. For this test we use the same industry classification as used in CDO Evaluator.

61. The flat recovery rate assumption is the same recovery we assign to senior secured debt from the lowest-ranking country group (see the "Recoveries based on asset type" section). This test applies a higher recovery assumption than the largest obligor default test because recoveries across a whole industry imply an averaging effect. Therefore, industrywide recoveries are necessarily higher than the lowest recovery within the group.

62. Although defaults of all companies in a given industry would be extremely unlikely, that is not relevant for the test in CDOs. It is important to highlight that actual CDO transactions do not have exposures to all the companies from any given industry, but rather just to a more-concentrated subset of companies from each industry. Thus, it is within the realm of possibility that when an industry experiences stress, all the members of that industry represented in a given CDO may face higher stresses.

63. The mechanics of this analysis are the same as for the largest obligor default test. We consider whether there are sufficient assets remaining to support the rated tranches once we apply the largest industry default test and recoveries from this test.

64. That said, we may still rate a tranche 'AA-' or above even if it fails the primary largest industry test, if it passes the following alternative largest industry default test. A 'AAA' rated tranche should have sufficient credit enhancement to survive the highest level of losses associated with the defaults of each of the following combinations of underlying obligors within each industry,

assuming the same flat recovery rate as under the largest obligor default test:

- The four largest obligors rated between 'AAA' and 'CCC-';
- The six largest obligors rated between 'AA+' and 'CCC-';
- The eight largest obligors rated between 'A+' and 'CCC-';
- The 12 largest obligors rated between 'BBB+' and 'CCC-';
- The 16 largest obligors rated between 'BB+' and 'CCC-';
- The 20 largest obligors rated between 'B+' and 'CCC-'; and
- The 24 largest obligors rated between 'CCC+' and 'CCC-'.

65. A 'AA' category rated tranche should have sufficient credit enhancement to survive the highest level of losses associated with the defaults of each of the following combinations of underlying obligors within each industry, assuming the same flat recovery rate as under the largest obligor default test:

- The two largest obligors rated between 'AAA' and 'CCC-';
- The four largest obligors rated between 'AA+' and 'CCC-';
- The six largest obligors rated between 'A+' and 'CCC-';
- The eight largest obligors rated between 'BBB+' and 'CCC-';
- The 12 largest obligors rated between 'BB+' and 'CCC-';
- The 16 largest obligors rated between 'B+' and 'CCC-'; and
- The 20 largest obligors rated between 'CCC+' and 'CCC-'.

66. The alternative industry test is an adaptation of the largest obligor default test. It is intended to capture gradations of obligor credit quality, while applying somewhat higher default intensity than the largest obligor test.

Additional Rating Considerations

67. We consider the transaction's structural features and documentation and, to the extent possible, we seek to reflect those in our analysis of cash flows. Among the transaction characteristics that are key to our cash flow analysis are the par amount of collateral, credit enhancement, and coverage tests. We also view certain collateral characteristics as key to mitigating the risks to the transaction's ability to pay the rated debt. Therefore, as part of our analysis, we pay particular attention to features that have the potential to deteriorate par coverage and credit enhancement, such as:

- The allocation of proceeds from the assets as principal or interest proceeds, such as proceeds from trading gains; the treatment of certain principal funds as interest proceeds; or conditions for using funds to exercise warrants, and how this may affect our view of the collateralization levels;
- The covenants and parameters driving reinvestment, such as conditions for the reinvestment of sale or payment proceeds during and after the reinvestment period; coverage tests and portfolio credit quality maintenance; and rules governing trading plans, and the extent to which they enable preservation of collateral principal or contain risk factors that may erode credit enhancement; and

- The way coverage tests are calculated and the way in which they take into account assets with specific risk factors--particularly assets that are defaulted, 'CCC' rated, current-pay, long-dated, debtor-in-possession loans, and discounted or distressed exchange obligations.

Stable quality versus stressed portfolio approach

68. Most cash flow CLOs and some synthetic CDO transactions allow for reinvestments and asset trading. These transactions have asset eligibility criteria and contractual provisions that govern the type of trading allowed and the requirements for maintaining the asset portfolio within certain boundaries. Often, however, sponsors or asset managers may select an initial portfolio for a transaction that has stronger characteristics than the minimum requirements given in the governing documents, and will make certain commitments toward maintaining a specific portfolio credit quality.

69. In particular, we may rate a CDO transaction based on the manager's documented commitment to generally maintain or improve the consistency of the proposed portfolio's credit quality with the notes' original rating as a condition of reinvesting (the "stable quality" approach), for example, using S&P Global Ratings' CDO Monitor. In this case, we reflect this ongoing commitment by focusing our credit analysis primarily on the characteristics of the actual portfolio.

70. Alternatively, where we believe the transaction documents do not include a sufficiently robust test to ensure the portfolio's credit quality is maintained or improved during reinvestment, we apply a "stressed portfolio" approach in our rating analysis, even though the initial portfolio may be stronger. In this approach, we would analyze the transaction according to the covenants in the transaction documents, such as asset eligibility, pool concentration, and reinvestment guidelines.

71. If sponsors and managers structure a transaction based on the hypothetical stressed portfolio approach, and we rate it on that basis, we expect the sponsor, trustee, or manager to confirm on the "effective date" that the trades and portfolio ramp-up meet the asset eligibility, quality, and reinvestment guidelines specified in the applicable transaction documents.

Debt issuance relative to asset value

72. When we analyze transactions securitizing distressed debt assets, we expect the issuance of rated CDO liabilities to be limited to what we consider to be the arm's-length purchase price of the assets, or to the amount of a third-party valuation.

73. For such transactions, we may consider the sources and uses for funds to better understand the economic benefit to all investors. If such information is not provided, or if there is more than a moderate difference between the proposed purchase price of the assets plus the money retained in the transaction relative to the proposed amount of rated debt, then we would likely cap (barring other mitigating factors) the amount of rated note issuance to the economic value retained in the transaction. This analysis factors in the payment priorities of the transaction and the manner in which interest and principal proceeds can be recharacterized.

Note redemption, amendments, refinancing, and repricing

74. We typically review provisions relating to note redemption, amendments, refinancing, and repricing to assess the likelihood that the rated notes would be repaid in full under the rating scenario considered. According to our rating definitions, we assess the likelihood that securities receive full principal payment by their legal final maturity date. This drives the way we analyze the contractual terms governing CDO notes, in particular the provisions relating to the redemption,

refinancing, and repricing of notes or amendments to their terms. In reviewing the documentation, we assess whether the conditions under which these events may occur are likely to affect the full repayment of the notes or if approval of 100% of noteholders of each affected class is required otherwise.

75. These considerations also apply to our analysis of combination notes. In particular:

- We also rate combination notes to the repayment of their full principal amount and would therefore withdraw our rating upon full payment of that amount. We consider that this promise to pay may also be met through the physical delivery at no cost of the combination notes' underlying components.
- Our ratings do not address a "rated balance" that differs from that due under the terms of these notes.
- Similar to other notes, we review the terms and conditions leading to early redemption or refinancing to assess the likelihood that combination notes would be fully repaid.

Analysis of events of default

76. When analyzing the effect of note events of default on the rating on a CDO, we apply our general criteria "Global Framework For Payment Structure And Cash Flow Analysis Of Structured Finance Securities," published Dec. 22, 2020.

77. In particular, these criteria apply to our analysis of events of default that are related to the failure to meet certain overcollateralization tests (event of default overcollateralization tests).

78. If, over the life of a CDO transaction, an event of default does occur, we seek to reflect this in our rating. One of the key factors we review in this situation is the voting requirement associated with effecting an acceleration or a liquidation. If we view an acceleration or liquidation as likely, our ratings would reflect our forward-looking view of the potential risk that the various classes of notes may suffer a loss as a result of such an event, considering the characteristics of the market and transaction at that time.

APPENDIXES

APPENDIX A: CDO Evaluator Calibration

79. The criteria drive a calibration of the Monte Carlo default simulation in CDO Evaluator, which is intended to reduce the limitations associated with calibrating the model based solely on historical data. We consider that the model reflects our views of the expected defaults under different levels of stress, commensurate with our ratings definitions. Models may not fully capture real-world dynamics as they transform input variables into outputs, especially since individual CDOs contain only a subset of the obligors from the rated corporate universe. In the process of moving from inputs to outputs, a model can lose some realism because of its imperfect ability to reproduce the nuance of the real world. As such, we focused on recalibrating the CDO Evaluator model to produce output results as close as possible to our view of what the real-world results would likely be at each rating stress level.

80. The process of calibrating CDO Evaluator starts with the table of targeted portfolio default rates that 'AAA' rated CDO tranches should, in our opinion, be able to withstand over various time horizons, supported by underlying pools of assets of uniform credit quality and having a level of

diversification commensurate with the portfolios securitized in the past decade. We built the archetypal pools based on the average effective number of obligors and industries observed in the securitized portfolios. As opposed to using the widest possible diversification for the archetypal pool, using pools with average levels of diversification to calibrate our targets means that some of the more diversified securitized CDO pools will exhibit lower projected portfolio default rates than our targets. Meanwhile, more-concentrated CDO pools will have higher projected portfolio default rates. The table of targeted portfolio default rates functions as the desired output of the model. As such, it also influences some level of adjustment to the model inputs beyond the historically observed parameters. By allowing us to adjust input values that produce the targeted results through the Gaussian copula framework, we reduce the dependence of our analysis on the modeled inputs. The output expresses our view of the likely outcome, regardless of the modeling framework. Before discussing the calibration, it is important to highlight that we do not ascribe "default probabilities" to each rating category. Rather, our credit ratings express a relative ranking of creditworthiness and may encompass not only relative likelihood of default but also payment priorities, recoveries, credit stability, and additional stress factors.

81. The first consideration in establishing the targeted default table was an analysis of S&P Global Ratings' CreditPro database of corporate defaults since 1981. From the CreditPro global database, we extracted the maximum observed default rates for different rating categories over varying time horizons (see table 1). We noted two distinct waves of default of 'BBB' rated corporate credits, one in the wake of the 1982 recession and one in the wake of the early 2000s tech bubble and corporate governance scandals. Generally, the 2008 recession had lower peak default rates than the previous recessions. Accordingly, we concluded that for corporate credits, the worst observed performance since 1981 generally represents a 'BBB' level of stress for the purposes of our CDO criteria, meaning that, in general, we expect 'BBB' rated CDO issues to withstand this stress without defaulting. The post-1981 maximum observed corporate default rates used to inform the 'BBB' target portfolio default rates may change over time, as we include data from more countries in our CreditPro database.

82. This is consistent with our view of corresponding stress levels across different recessions and financial crises. Since the early 1980s, there have been the 1982 recession in the U.S., the 1989 Japanese bubble, the early 1990s U.K. recession, and the early 1990s Nordic banking crisis, each of which, in our view, is generally commensurate with a 'BBB' stress level (see our ratings definitions for additional details). Therefore, our targeted default table for the 'A' stress would have to reflect somewhat higher default rates, the one for the 'AA' stress would have to reflect substantially higher default rates, and the one for the 'AAA' stress would have to reflect still higher default rates than those observed since 1981. Although for corporate CDOs we view the worst observed corporate default levels as representing a 'BBB' stress, other asset classes may have experienced different levels of stress during the same time frame.

83. Next, as additional points of reference, we considered historical studies of bond defaults from earlier periods. These studies naturally reported higher default rates during earlier times of greater stress, such as during the Great Depression and around the time of World War I. For example, Hickman (1958) reported four-year default rates for bonds rated in each of the top four rating categories (see table 5).

Table 5

Four-Year Default Rates For Corporate Bonds Rated In The Top Four Rating Categories (%)

Category	I	II	III	IV
1912-15	3.8	2.7	15.8	13.1

Table 5

Four-Year Default Rates For Corporate Bonds Rated In The Top Four Rating Categories (%) (cont.)

1916-19	0.0	1.7	1.9	9.7
1920-23	0.0	0.0	4.0	0.0
1924-27	1.7	0.0	0.0	1.8
1928-31	0.0	0.2	0.3	3.6
1932-35	0.5	0.1	8.4	10.5
1936-39	0.0	2.2	4.6	5.1
1940-43	0.0	0.0	0.0	0.7
-	-	-	-	-
1920-27	0.9	0.0	3.7	6.3
1920-31	0.0	0.1	2.6	4.7
1920-39	2.3	2.0	8.0	8.8
1924-39	2.0	2.8	4.3	4.7
1928-39	2.7	4.1	6.1	8.6
1932-39	0.2	1.4	6.8	10.6

Categories I through IV correspond to median agency ratings coded as follows

Category	Standard Statistics	Poor's	Moody's	Fitch
I	A1+	A**	Aaa	AAA
II	A1	A*	Aa	AA
III	A	A	A	A
IV	B1+	B**	Baa	BBB

Sources: Hickman, B.W., Corporate Bond Quality and Investor Experience, National Bureau of Economic Research, Princeton U. Press, p. 190 (1958) (http://www.nber.org/books/hick58-1). Note: From special tabulations of the National Bureau of Economic Research: par amount data for large issuers in the periodic experience sample. Default rates for other than four-year periods are reduced to quadrennial basis; e.g., one-half of the default rates from 1920-1927 was entered for that period.

84. Because our default studies are based on issuer counts, while Hickman's calculations are based on par amounts, there are inherent limits on how precisely one can compare the two when evaluating performance over time. In addition, for much of the period that Hickman's study covers, the asset mix was quite different from in the current market, with railroad bonds comprising a large share of the subject population in the Hickman study. The concentration in railroads was a reflection of that industry's prominence in the overall national economy, and not an accident of adverse selection. Nevertheless, Hickman's study provides, in our opinion, an important view of corporate credit default performance during the first half of the 20th century, and serves as one of our reference points in calibrating CDO Evaluator.

85. Hickman also compared four-year default rates of investment-grade and speculative-grade corporate bonds. Years later, Moody's reported analogous findings based on its own data (see table 6). Equipped with the post-1981 CreditPro data and studies of defaults from earlier periods to serve as reference points, we started to construct an initial table of targeted portfolio default rates that 'AAA' rated CDO tranches should, in our view, be able to withstand.

Table 6

Four-Year Default Rates: Hickman Versus Moody's

(%)

	Investment-grade		Speculative-grade	
Year	Hickman	Moody's	Hickman	Moody's
1912-15	7.0	N/A	49.3	N/A
1916-19	3.4	N/A	21.6	N/A
1920-23	1.0	1.5	18.2	7.9
1924-27	1.1	1.9	23.5	11.6
1928-31	1.4	2.0	22.6	13.6
1932-35	6.2	11.3	48.9	33.9
1936-39	3.3	2.8	21.7	9.9
1940-43	0.4	0.6	8.9	5.4

Sources: Hickman, B.W., Corporate Bond Quality and Investor Experience, National Bureau of Economic Research, Princeton U. Press, p. 189 (1958) (http://www.nber.org/books/hick58-1); Carty, L. and Lieberman, D., Historical Default Rates of Corporate Bond Issuers, 1920-1996, Moody's research report, p. 10 (Jan 1997). N/A--Not available.

86. In constructing our targeted default table, we applied a few basic guidelines, or conditions, that are consistent with our rating framework. We required that cumulative default rates increase as a function of the time horizon because bonds that have defaulted in earlier periods continue to be counted in the default rate over longer time horizons. Also, we wanted the progression of default rates from one rating category to the next to follow a sensible progression, with meaningful differences between adjacent rating categories. The target portfolio default rates for a 'AAA' liability rating (Table 2) should be higher than the post-1981 maximum observed corporate default rates from S&P Global Ratings' CreditPro database (Table 1).

87. We preserved the approximate geometric progression across the rating categories displayed in the CreditPro data (subject, of course, to an upper limit of 100%). However, we imposed increased differentiation among the rating categories at the higher end of the rating scale. Table 2 shows the results of our targeted default rates for corporate assets for 'AAA' rated CDO tranches.

88. We also analyzed the impact of economic variables on corporate bond defaults for assets rated 'BB' and 'B'. These are also the most common assets in the securitized pools. We use our framework to forecast potential default rates for assets in these rating categories conditional upon certain realizations of specific macroeconomic factors commensurate with levels of extreme stress. For our 'AAA' targets, we used scenarios for the macroeconomic variables from the Great Depression. Our analysis shows that there is variability around the level of default rates that might be expected under a 'AAA' level of stress. For example, when using GDP growth, Treasury yield slope, 'Aaa' to 'Baa' credit spreads, and S&P 500 monthly volatility for 10-year periods between 1928 and 1941, we get projected levels of default for 'B' rated assets in the range of 61%-72% for a 10-year horizon and 45%-60% for a five-year horizon. These projections should be compared with our targeted level of default in a 'AAA' scenario for 'B' rated pools over 10-year and five-year horizons of 80% and 68%, respectively.

89. Similarly, we get projected levels of default for 'BB' rated assets of 46%-62% for a 10-year horizon and 31%-51% for a five-year horizon. These projections should be compared with our targeted level of default in a 'AAA' scenario for 'BB' rated pools over 10-year and five-year horizons of 60% and 43%, respectively.

90. The projections indicate that our targets are generally in line with the macroeconomic analysis

and, given the range of outcomes, we do not treat these targets as minimum SDR thresholds in our calibration. We assume that they represent our targets for portfolios that are closer to the securitized pools than to theoretical highly diversified pools.

CDO Evaluator calibration

91. To test our credit analysis calibration, we run our credit analysis on the archetypal pool in a 'AAA' rating scenario, using the rating inputs we are proposing: asset default rates, pairwise asset correlation, and quantiles (see table 7), to compare these outputs with the targeted portfolio default rates that we have defined as commensurate with a 'AAA' rating scenario (see table 2).

Table 7

'AAA' Scenario Default Rates For Different Asset Pools (%)

	Asset rating						
Tenor (years)	**AAA**	**AA**	**A**	**BBB**	**BB**	**B**	**CCC**
1	1.90	2.86	7.62	8.57	21.90	41.90	70.48
3	1.90	4.76	9.52	15.24	33.33	59.05	81.90
5	3.81	5.71	11.43	20.00	43.81	66.67	87.62
7	4.76	8.57	14.29	25.71	49.52	72.38	90.48
9	5.71	10.48	17.14	30.48	56.19	77.14	91.43

92. Table 8 shows the ratio of the modeled SDR in table 7 to the corresponding targeted portfolio default rate in table 2. This shows a "coverage ratio" of model results relative to the targets.

Table 8

New 'AAA' CDO Evaluator SDR Divided By Targeted 'AAA' Output (%)

	Asset rating						
Tenor (years)	**AAA**	**AA**	**A**	**BBB**	**BB**	**B**	**CCC**
1	1,904.76	285.71	253.97	171.43	109.52	139.68	108.42
3	190.48	158.73	136.05	117.22	95.24	98.41	91.01
5	190.48	114.29	103.90	100.00	101.88	98.04	97.35
7	158.73	122.45	95.24	98.90	97.11	97.81	100.53
9	142.86	116.40	90.23	98.31	98.58	98.90	101.59

SDR--Scenario default rate.

93. Table 8 shows that, in some cases, CDO Evaluator results diverge slightly from the targeted portfolio default rates. This is a result primarily of (i) the complexities related to optimizing a multivariate problem across different parameters, (ii) the requirement that cumulative default curves for different rating levels do not intersect (that is, cumulative defaults regardless of tenor should always be higher as ratings decrease), and (iii) the requirement that multiyear default rates be derivable from one-year default rates.

Appendix B: Asset Default Rate Inputs For CDO Evaluator Default Simulation Model

Table 9

30-Year Corporate Defaults (%)

Tenor (years)	Asset rating						
	AAA	AA	A	BBB	BB	B	CCC
1	0.003	0.016	0.179	0.415	1.899	7.063	18.445
2	0.014	0.066	0.407	0.983	4.185	13.357	31.488
3	0.037	0.155	0.694	1.708	6.751	18.998	40.816
4	0.076	0.286	1.044	2.588	9.496	24.057	47.693
5	0.135	0.464	1.463	3.612	12.336	28.595	52.93
6	0.217	0.69	1.954	4.764	15.206	32.671	57.043
7	0.326	0.967	2.516	6.027	18.055	36.34	60.365
8	0.465	1.298	3.15	7.383	20.847	39.652	63.114
9	0.638	1.684	3.855	8.815	23.558	42.652	65.438
10	0.846	2.125	4.627	10.306	26.171	45.381	67.44
11	1.093	2.621	5.462	11.842	28.679	47.872	69.191
12	1.381	3.172	6.358	13.409	31.077	50.156	70.743
13	1.711	3.777	7.308	14.995	33.365	52.257	72.133
14	2.084	4.435	8.309	16.592	35.543	54.196	73.389
15	2.502	5.144	9.355	18.19	37.616	55.993	74.533
16	2.965	5.901	10.441	19.783	39.588	57.663	75.582
17	3.473	6.705	11.563	21.365	41.464	59.22	76.548
18	4.026	7.552	12.716	22.932	43.248	60.675	77.442
19	4.623	8.44	13.894	24.48	44.947	62.037	78.273
20	5.263	9.367	15.094	26.007	46.566	63.317	79.049
21	5.946	10.329	16.313	27.51	48.109	64.522	79.774
22	6.67	11.323	17.545	28.988	49.581	65.658	80.454
23	7.434	12.346	18.789	30.439	50.987	66.731	81.094
24	8.235	13.396	20.04	31.862	52.331	67.747	81.698
25	9.072	14.469	21.296	33.258	53.618	68.711	82.268
26	9.943	15.563	22.554	34.626	54.85	69.626	82.807
27	10.847	16.675	23.811	35.966	56.031	70.497	83.319
28	11.779	17.803	25.067	37.277	57.165	71.327	83.805
29	12.739	18.943	26.318	38.561	58.254	72.118	84.267
30	13.725	20.094	27.564	39.818	59.301	72.874	84.707

Appendix C: Correlation Assumptions For CDO Evaluator Default Simulation Model

Table 10

Correlation Assumptions

Correlation between assets with the same asset type

	Corp (local)	Corp (regional)	Corp (global)	SF (excluding CDO)	CDO	Project finance	IPF	Muni	Sovereign
Assets in the same country	0.200	0.200	0.200	0.700	0.700	0.200	0.150	0.150	1.000
Assets in the same region	0.200	0.200	0.200	0.600	0.700	0.200	0.100	0.150	0.200
Assets in different regions	0.050	0.050	0.200	0.500	0.700	0.050	0.050	0.050	0.050

Correlation between assets with different asset types in the same country

	Corp (local)	Corp (regional)	Corp (global)	SF (excluding CDO)	CDO	Project finance	IPF	Muni	Sovereign
Corp (local)	0.075	0.075	0.075	0.075	0.075	0.075	0.050	0.050	0.200
Corp (regional)		0.075	0.075	0.075	0.075	0.075	0.050	0.050	0.200
Corp (global)			0.075	0.075	0.075	0.075	0.050	0.050	0.200
SF (excluding CDO)				0.400	0.300	0.075	0.050	0.050	0.200
CDO					0.300	0.075	0.050	0.050	0.200
Project finance						0.075	0.050	0.050	0.200
International public finance (IPF)							0.150	0.150	0.200
Muni								0.050	0.200
Sovereign									

Correlation between assets with different asset types in the same region

	Corp (local)	Corp (regional)	Corp (global)	SF (excluding CDO)	CDO	Project finance	IPF	Muni	Sovereign
Corp (local)	0.075	0.075	0.075	0.050	0.075	0.075	0.050	0.050	0.100
Corp (regional)		0.075	0.075	0.050	0.075	0.075	0.050	0.050	0.100
Corp (global)			0.075	0.050	0.075	0.075	0.050	0.050	0.100
SF (excluding CDO)				0.300	0.300	0.050	0.050	0.050	0.100
CDO					0.300	0.075	0.050	0.050	0.100
Project finance						0.075	0.050	0.050	0.100
International public finance (IPF)							0.100	0.050	0.100

Table 10

Correlation Assumptions (cont.)

Muni								0.050	0.100
Sovereign									

Correlation between assets with different asset types in different regions

	Corp (local)	Corp (regional)	Corp (global)	SF (excluding CDO)	CDO	Project finance	IPF	Muni	Sovereign
Corp (local)	0.050	0.050	0.050	0.050	0.075	0.050	0.050	0.050	0.050
Corp (regional)		0.050	0.050	0.050	0.075	0.050	0.050	0.050	0.050
Corp (global)			0.050	0.050	0.075	0.050	0.050	0.050	0.050
SF (excluding CDO)				0.200	0.300	0.050	0.050	0.050	0.050
CDO					0.300	0.075	0.050	0.050	0.050
Project finance						0.050	0.050	0.050	0.050
International public finance (IPF)							0.050	0.050	0.050
Muni								0.050	0.050
Sovereign									

Correlation Override Table 1

Asset type	Asset type*	Within country correlation	Within region correlation	Between regions correlation
Corp	50	0.100	0.100	0.100
Project finance	50	0.100	0.100	0.100
Project finance	50C	0.100	0.100	0.100
International public finance	50C	0.100	0.100	0.100
Muni	50C	0.100	0.100	0.100
Sovereign	50C	0.700	0.600	0.500
Corp	63	0.075	0.075	0.050
Project finance	63	0.075	0.075	0.050
Project finance	50D	0.100	0.100	0.100
International public finance	50D	0.100	0.100	0.100
Muni	50D	0.100	0.100	0.100
Sovereign	50D	0.700	0.600	0.500

Correlation Override Table 2

Asset type*	Asset type*	Within country correlation	Within region correlation	Between regions correlation
7011000	1033403	0.100	0.075	0.075
7011000	7011000	0.250	0.250	0.200

Table 10

Correlation Assumptions (cont.)

7011000	7110000	0.250	0.250	0.200
7011000	7120000	0.250	0.250	0.200
7011000	7130000	0.250	0.250	0.200
7011000	7311000	0.100	0.075	0.075
7011000	7210000	0.250	0.200	0.150
7011000	50	0.100	0.100	0.100
7011000	50A	0.100	0.100	0.100
7011000	50B	0.100	0.100	0.100
7011000	50C	0.250	0.250	0.200
7011000	50D	0.100	0.100	0.100
7011000	51	0.100	0.075	0.075
7011000	52	0.100	0.075	0.075
7011000	53	0.100	0.075	0.075
7011000	56	0.100	0.075	0.075
7011000	59	0.100	0.075	0.075
7011000	60	0.100	0.075	0.075
7011000	62	0.100	0.075	0.075
7011000	63	0.250	0.250	0.200
7110000	1033403	0.100	0.075	0.075
7110000	7110000	0.250	0.250	0.200
7110000	7120000	0.250	0.250	0.200
7110000	7130000	0.250	0.250	0.200
7110000	7311000	0.100	0.075	0.075
7110000	7210000	0.250	0.200	0.150
7110000	50	0.100	0.100	0.100
7110000	50A	0.100	0.100	0.100
7110000	50B	0.100	0.100	0.100
7110000	50C	0.250	0.250	0.200
7110000	50D	0.100	0.100	0.100
7110000	51	0.100	0.075	0.075
7110000	52	0.100	0.075	0.075
7110000	53	0.100	0.075	0.075
7110000	56	0.100	0.075	0.075
7110000	59	0.100	0.075	0.075
7110000	60	0.100	0.075	0.075
7110000	62	0.100	0.075	0.075
7110000	63	0.250	0.250	0.200

Table 10

Correlation Assumptions (cont.)

7120000	1033403	0.100	0.075	0.075
7120000	7120000	0.250	0.250	0.200
7120000	7130000	0.250	0.250	0.200
7120000	7311000	0.100	0.075	0.075
7120000	7210000	0.250	0.200	0.150
7120000	50	0.100	0.100	0.100
7120000	50A	0.100	0.100	0.100
7120000	50B	0.100	0.100	0.100
7120000	50C	0.250	0.250	0.200
7120000	50D	0.100	0.100	0.100
7120000	51	0.100	0.075	0.075
7120000	52	0.100	0.075	0.075
7120000	53	0.100	0.075	0.075
7120000	56	0.100	0.075	0.075
7120000	59	0.100	0.075	0.075
7120000	60	0.100	0.075	0.075
7120000	62	0.100	0.075	0.075
7120000	63	0.250	0.250	0.200
7130000	1033403	0.100	0.075	0.075
7130000	7130000	0.250	0.250	0.200
7130000	7311000	0.100	0.075	0.075
7130000	7210000	0.250	0.200	0.150
7130000	50	0.100	0.100	0.100
7130000	50A	0.100	0.100	0.100
7130000	50B	0.100	0.100	0.100
7130000	50C	0.250	0.250	0.200
7130000	50D	0.100	0.100	0.100
7130000	51	0.100	0.075	0.075
7130000	52	0.100	0.075	0.075
7130000	53	0.100	0.075	0.075
7130000	56	0.100	0.075	0.075
7130000	59	0.100	0.075	0.075
7130000	60	0.100	0.075	0.075
7130000	62	0.100	0.075	0.075
7130000	63	0.250	0.250	0.200
7311000	7311000	0.700	0.550	0.450
7311000	7210000	0.100	0.075	0.050

Table 10

Correlation Assumptions (cont.)

7311000	50	0.300	0.300	0.300
7311000	50A	0.400	0.400	0.400
7311000	50B	0.300	0.300	0.300
7311000	50C	0.300	0.300	0.300
7311000	50D	0.300	0.300	0.300
7311000	51	0.400	0.300	0.200
7311000	52	0.400	0.300	0.200
7311000	53	0.400	0.300	0.200
7311000	56	0.400	0.300	0.200
7311000	59	0.300	0.050	0.050
7311000	60	0.150	0.100	0.100
7311000	62	0.150	0.100	0.100
7311000	63	0.400	0.300	0.200
1033403	1033403	0.700	0.550	0.450
1033403	7210000	0.100	0.075	0.050
1033403	50	0.300	0.300	0.300
1033403	50A	0.400	0.400	0.400
1033403	50B	0.300	0.300	0.300
1033403	50C	0.300	0.300	0.300
1033403	50D	0.300	0.300	0.300
1033403	51	0.400	0.300	0.200
1033403	52	0.400	0.300	0.200
1033403	53	0.400	0.300	0.200
1033403	56	0.400	0.300	0.200
1033403	59	0.300	0.050	0.050
1033403	60	0.150	0.100	0.100
1033403	62	0.150	0.100	0.100
1033403	63	0.400	0.300	0.200
1033403	7311000	0.700	0.550	0.450
7210000	7210000	0.250	0.200	0.175
7210000	50	0.100	0.100	0.100
7210000	50A	0.075	0.075	0.075
7210000	50B	0.075	0.075	0.075
7210000	50C	0.250	0.200	0.150
7210000	50D	0.100	0.100	0.100
7210000	60	0.100	0.100	0.100
9622292	9622292	0.700	0.550	0.450

Table 10

Correlation Assumptions (cont.)

9622292	9622294	0.700	0.550	0.450
9622292	9622295	0.700	0.550	0.450
9622292	9622296	0.700	0.550	0.450
9622292	9622297	0.700	0.550	0.450
9622292	9622298	0.700	0.550	0.450
9622292	9622299	0.700	0.550	0.450
9622294	9622294	0.700	0.550	0.450
9622294	9622295	0.700	0.550	0.450
9622294	9622296	0.700	0.550	0.450
9622294	9622297	0.700	0.550	0.450
9622294	9622298	0.700	0.550	0.450
9622294	9622299	0.700	0.550	0.450
9622295	9622295	0.700	0.550	0.450
9622295	9622296	0.700	0.550	0.450
9622295	9622297	0.700	0.550	0.450
9622295	9622298	0.700	0.550	0.450
9622295	9622299	0.700	0.550	0.450
9622296	9622296	0.700	0.550	0.450
9622296	9622297	0.700	0.550	0.450
9622296	9622298	0.700	0.550	0.450
9622296	9622299	0.700	0.550	0.450
9622297	9622297	0.700	0.550	0.450
9622297	9622298	0.700	0.550	0.450
9622297	9622299	0.700	0.550	0.450
9622298	9622298	0.700	0.550	0.450
9622298	9622299	0.700	0.550	0.450
9622299	9622299	0.700	0.550	0.450
9622292	50	0.300	0.300	0.300
9622292	51	0.400	0.300	0.200
9622292	52	0.400	0.300	0.200
9622292	53	0.400	0.300	0.200
9622292	56	0.400	0.300	0.200
9622292	59	0.300	0.050	0.050
9622292	60	0.150	0.100	0.100
9622292	62	0.150	0.100	0.100
9622292	63	0.400	0.300	0.200
9622292	50A	0.400	0.400	0.400

Table 10

Correlation Assumptions (cont.)

9622292	50B	0.300	0.300	0.300
9622292	50C	0.300	0.300	0.300
9622292	50D	0.300	0.300	0.300
9622292	1033403	0.700	0.550	0.450
9622292	7011000	0.100	0.075	0.075
9622292	7110000	0.100	0.075	0.075
9622292	7120000	0.100	0.075	0.075
9622292	7130000	0.100	0.075	0.075
9622292	7210000	0.100	0.075	0.050
9622292	7311000	0.700	0.550	0.450
9622294	50	0.300	0.300	0.300
9622294	51	0.400	0.300	0.200
9622294	52	0.400	0.300	0.200
9622294	53	0.400	0.300	0.200
9622294	56	0.400	0.300	0.200
9622294	59	0.300	0.050	0.050
9622294	60	0.150	0.100	0.100
9622294	62	0.150	0.100	0.100
9622294	63	0.400	0.300	0.200
9622294	50A	0.400	0.400	0.400
9622294	50B	0.300	0.300	0.300
9622294	50C	0.300	0.300	0.300
9622294	50D	0.300	0.300	0.300
9622294	1033403	0.700	0.550	0.450
9622294	7011000	0.100	0.075	0.075
9622294	7110000	0.100	0.075	0.075
9622294	7120000	0.100	0.075	0.075
9622294	7130000	0.100	0.075	0.075
9622294	7210000	0.100	0.075	0.050
9622294	7311000	0.700	0.550	0.450
9622295	50	0.300	0.300	0.300
9622295	51	0.400	0.300	0.200
9622295	52	0.400	0.300	0.200
9622295	53	0.400	0.300	0.200
9622295	56	0.400	0.300	0.200
9622295	59	0.300	0.050	0.050
9622295	60	0.150	0.100	0.100

Table 10

Correlation Assumptions (cont.)

9622295	62	0.150	0.100	0.100
9622295	63	0.400	0.300	0.200
9622295	50A	0.400	0.400	0.400
9622295	50B	0.300	0.300	0.300
9622295	50C	0.300	0.300	0.300
9622295	50D	0.300	0.300	0.300
9622295	1033403	0.700	0.550	0.450
9622295	7011000	0.100	0.075	0.075
9622295	7110000	0.100	0.075	0.075
9622295	7120000	0.100	0.075	0.075
9622295	7130000	0.100	0.075	0.075
9622295	7210000	0.100	0.075	0.050
9622295	7311000	0.700	0.550	0.450
9622296	50	0.300	0.300	0.300
9622296	51	0.400	0.300	0.200
9622296	52	0.400	0.300	0.200
9622296	53	0.400	0.300	0.200
9622296	56	0.400	0.300	0.200
9622296	59	0.300	0.050	0.050
9622296	60	0.150	0.100	0.100
9622296	62	0.150	0.100	0.100
9622296	63	0.400	0.300	0.200
9622296	50A	0.400	0.400	0.400
9622296	50B	0.300	0.300	0.300
9622296	50C	0.300	0.300	0.300
9622296	50D	0.300	0.300	0.300
9622296	1033403	0.700	0.550	0.450
9622296	7011000	0.100	0.075	0.075
9622296	7110000	0.100	0.075	0.075
9622296	7120000	0.100	0.075	0.075
9622296	7130000	0.100	0.075	0.075
9622296	7210000	0.100	0.075	0.050
9622296	7311000	0.700	0.550	0.450
9622297	50	0.300	0.300	0.300
9622297	51	0.400	0.300	0.200
9622297	52	0.400	0.300	0.200
9622297	53	0.400	0.300	0.200

Table 10

Correlation Assumptions (cont.)

9622297	56	0.400	0.300	0.200
9622297	59	0.300	0.050	0.050
9622297	60	0.150	0.100	0.100
9622297	62	0.150	0.100	0.100
9622297	63	0.400	0.300	0.200
9622297	50A	0.400	0.400	0.400
9622297	50B	0.300	0.300	0.300
9622297	50C	0.300	0.300	0.300
9622297	50D	0.300	0.300	0.300
9622297	1033403	0.700	0.550	0.450
9622297	7011000	0.100	0.075	0.075
9622297	7110000	0.100	0.075	0.075
9622297	7120000	0.100	0.075	0.075
9622297	7130000	0.100	0.075	0.075
9622297	7210000	0.100	0.075	0.050
9622297	7311000	0.700	0.550	0.450
9622298	50	0.300	0.300	0.300
9622298	51	0.400	0.300	0.200
9622298	52	0.400	0.300	0.200
9622298	53	0.400	0.300	0.200
9622298	56	0.400	0.300	0.200
9622298	59	0.300	0.050	0.050
9622298	60	0.150	0.100	0.100
9622298	62	0.150	0.100	0.100
9622298	63	0.400	0.300	0.200
9622298	50A	0.400	0.400	0.400
9622298	50B	0.300	0.300	0.300
9622298	50C	0.300	0.300	0.300
9622298	50D	0.300	0.300	0.300
9622298	1033403	0.700	0.550	0.450
9622298	7011000	0.100	0.075	0.075
9622298	7110000	0.100	0.075	0.075
9622298	7120000	0.100	0.075	0.075
9622298	7130000	0.100	0.075	0.075
9622298	7210000	0.100	0.075	0.050
9622298	7311000	0.700	0.550	0.450
9622299	50	0.300	0.300	0.300

Table 10

Correlation Assumptions (cont.)

9622299	51	0.400	0.300	0.200
9622299	52	0.400	0.300	0.200
9622299	53	0.400	0.300	0.200
9622299	56	0.400	0.300	0.200
9622299	59	0.300	0.050	0.050
9622299	60	0.150	0.100	0.100
9622299	62	0.150	0.100	0.100
9622299	63	0.400	0.300	0.200
9622299	50A	0.400	0.400	0.400
9622299	50B	0.300	0.300	0.300
9622299	50C	0.300	0.300	0.300
9622299	50D	0.300	0.300	0.300
9622299	1033403	0.700	0.550	0.450
9622299	7011000	0.100	0.075	0.075
9622299	7110000	0.100	0.075	0.075
9622299	7120000	0.100	0.075	0.075
9622299	7130000	0.100	0.075	0.075
9622299	7210000	0.100	0.075	0.050
9622299	7311000	0.700	0.550	0.450
7210000	63	0.250	0.200	0.150
USM2	6030000	0.200	0.200	0.050
USM5	9520000	0.200	0.200	0.050
USM5	9530000	0.200	0.200	0.050
USM5	9540000	0.200	0.200	0.050
USM5	9550000	0.200	0.200	0.050
USM5	9551702	0.200	0.200	0.050
PF1	3070000	0.200	0.200	0.050
PF2	4120000	0.200	0.200	0.050
PF3	2050000	0.200	0.200	0.200
PF4	1020000	0.200	0.200	0.200
PF4	1030000	0.200	0.200	0.200
PF5	1020000	0.200	0.200	0.050
PF5	1030000	0.200	0.200	0.050
PF5	9520000	0.200	0.200	0.050
PF5	9530000	0.200	0.200	0.050
PF5	9540000	0.200	0.200	0.050
PF5	9550000	0.200	0.200	0.050

Table 10

Correlation Assumptions (cont.)

PF5	9551702	0.200	0.200	0.050
PF7	8110000	0.200	0.200	0.200
PF7	9030000	0.200	0.200	0.200
PF8	3240000	0.200	0.200	0.050
PF8	3250000	0.200	0.200	0.050
USM2	USM2	0.200	0.200	0.050
USM5	USM5	0.200	0.200	0.050
50	59	0.200	0.200	0.200
50	60	0.150	0.150	0.150
50	62	0.100	0.100	0.100
50A	50A	0.800	0.800	0.800
50A	51	0.450	0.450	0.450
50A	52	0.450	0.450	0.450
50A	53	0.450	0.450	0.450
50A	56	0.450	0.450	0.450
50A	60	0.200	0.200	0.200
50A	62	0.200	0.200	0.200
50B	59	0.200	0.200	0.200
50B	60	0.150	0.150	0.150
50B	62	0.200	0.200	0.200
51	59	0.200	0.050	0.050
51	60	0.150	0.100	0.075
51	62	0.200	0.050	0.050
52	59	0.200	0.050	0.050
52	60	0.150	0.100	0.075
52	62	0.200	0.050	0.050
53	59	0.200	0.050	0.050
53	60	0.150	0.100	0.075
53	62	0.200	0.050	0.050
56	59	0.300	0.100	0.050
56	60	0.150	0.100	0.075
56	62	0.200	0.050	0.050
59	59	0.700	0.400	0.350
59	60	0.200	0.100	0.075
59	62	0.300	0.050	0.050
60	62	0.200	0.050	0.050
62	62	0.700	0.500	0.450

Table 10

Correlation Assumptions (cont.)

PF6	USM3	0.200	0.200	0.050
PF4	PF4	0.200	0.200	0.200
PF4	PF5	0.200	0.200	0.050
PF3	PF3	0.200	0.200	0.200
PF7	PF7	0.200	0.200	0.200
63	63	0.700	0.600	0.500
50A	63	0.450	0.450	0.450
53	63	0.700	0.600	0.500
56	63	0.700	0.600	0.500
59	63	0.300	0.100	0.075
60	63	0.250	0.250	0.200
62	63	0.200	0.075	0.075
50C	50C	0.700	0.700	0.700
59	50C	0.700	0.600	0.500
60	50C	0.250	0.250	0.200
62	50C	0.700	0.600	0.500
50D	50D	0.700	0.700	0.700
50C	50D	0.700	0.700	0.700
59	50D	0.700	0.600	0.500
60	50D	0.150	0.150	0.150
62	50D	0.700	0.600	0.500

*The seven-digit asset type codes represent global industry classification standard (GICS) codes for corporates, and they may be updated from time to time. The other codes reflect S&P Global Ratings' codes for other industries. The full description of these asset type codes can be found in Appendix A of "Guidance: Global Methodology And Assumptions For CLOs And Corporate CDOs."

Appendix D: Tranche Rating Quantile for CDO Evaluator Default Simulation Model

Table 11

Tranche Rating Quantile For CDO Evaluator Simulation Model (%)

	Rating						
Tenor (year)	**AAA**	**AA**	**A**	**BBB**	**BB**	**B**	**CCC**
1	0.001	0.016	0.223	0.623	3.038	10.242	22.135
2	0.005	0.066	0.509	1.474	6.696	19.368	37.786
3	0.014	0.155	0.867	2.562	10.801	27.546	48.98
4	0.029	0.286	1.306	3.882	15.193	34.882	57.231
5	0.051	0.464	1.829	5.418	19.738	41.463	63.516

Table 11

Tranche Rating Quantile For CDO Evaluator Simulation Model (%) (cont.)

	Rating						
Tenor (year)	AAA	AA	A	BBB	BB	B	CCC
6	0.083	0.69	2.442	7.145	24.329	47.373	68.452
7	0.124	0.967	3.145	9.04	28.888	52.693	72.437
8	0.177	1.298	3.938	11.075	33.355	57.495	75.736
9	0.242	1.684	4.818	13.223	37.692	61.845	78.526
10	0.322	2.125	5.783	15.46	41.874	65.802	80.928
11	0.415	2.621	6.828	17.763	45.887	69.414	83.03
12	0.525	3.172	7.947	20.113	49.724	72.726	84.892
13	0.65	3.777	9.135	22.493	53.383	75.772	86.56
14	0.792	4.435	10.386	24.887	56.869	78.585	88.067
15	0.951	5.144	11.694	27.284	60.186	81.191	89.44
16	1.127	5.901	13.052	29.674	63.341	83.612	90.698
17	1.32	6.705	14.454	32.047	66.342	85.869	91.857
18	1.53	7.552	15.894	34.398	69.197	87.978	92.931
19	1.757	8.44	17.368	36.72	71.916	89.954	93.928
20	2	9.367	18.868	39.011	74.505	91.81	94.858
21	2.26	10.329	20.391	41.265	76.974	93.557	95.729
22	2.535	11.323	21.932	43.481	79.33	95.204	96.545
23	2.825	12.346	23.486	45.658	81.58	96.76	97.313
24	3.129	13.396	25.05	47.793	83.73	98.234	98.234
25	3.447	14.469	26.619	49.887	85.788	99.631	99.631
26	3.779	15.563	28.192	51.939	87.76	99.9	99.9
27	4.122	16.675	29.764	53.949	89.65	99.9	99.9
28	4.476	17.803	31.334	55.916	91.464	99.9	99.9
29	4.841	18.943	32.898	57.842	93.206	99.9	99.9
30	5.215	20.094	34.455	59.727	94.881	99.9	99.9

94. This paragraph has been deleted.

95. This paragraph has been deleted.

96. This paragraph has been deleted.

CHANGES TO AFFILIATED CRITERIA

97. There are a number of existing distinct criteria articles that S&P Global Ratings published for other areas of structured finance and other analytical practices apart from structured finance that currently incorporate elements of the previous version of our corporate CDO criteria as part of their rating methodology ("affiliated criteria"). During the RFC period, we identified affiliated

criteria and determined whether to extend any of the proposed changes from the corporate CDO criteria to these other criteria.

98. Accordingly, we have decided to incorporate certain elements of this revised corporate CDO criteria into the following listed affiliated criteria articles:

- Global Methodology For Solar ABS Transactions, May 16, 2019
- U.S. Structured Settlement Securitizations: Methodology And Assumptions, July 11, 2016
- Methodology And Assumptions For Rating North American Single-Tenant Real Estate Triple-Net Lease-Backed Securitizations, March 31, 2016
- Covered Bond Ratings Framework: Methodology And Assumptions, June 30, 2015
- Global Container Lease-Backed ABS Methodology And Assumptions, June 5, 2015
- Methodology And Assumptions For Assessing Portfolios Of International Public Sector And Other Debt Obligations Backing Covered Bonds And Structured Finance Securities, Dec. 9, 2014
- Mapping A Third Party's Internal Credit Scoring System To S&P Global Ratings' Global Rating Scale, May 8, 2014
- CDOs Of Project Finance Debt: Global Methodology And Assumptions, March 19, 2014
- Global Rating Methodology For Credit-Tenant Lease Transactions, July 22, 2013
- Derivative Product Companies Rating Methodology And Assumptions, March 22, 2013
- European SME CLO Methodology And Assumptions, Jan. 10, 2013
- CDOs And Pooled TOBs Backed By U.S. Municipal Debt; Methodology And Assumptions, April 3, 2012
- U.S. Public Finance Long-Term Municipal Pools: Methodology And Assumptions, March 19, 2012
- Global CDOs Of Pooled Structured Finance Assets: Methodology And Assumptions, Feb. 21, 2012
- Revised Cash Flow Assumptions And Stresses For Global Aircraft And Aircraft Engine Lease Securitizations, Aug. 26, 2010
- Global Methodology And Assumptions For Rating Retranchings Of Corporate Cash Flow CDOs, Oct. 15, 2009
- Methodology And Assumptions For Rating Brazilian Trade Receivables Securitizations, May 13, 2009

99. We have determined that the changes to the above listed affiliated criteria articles to incorporate elements of these revised corporate CDO criteria are nonmaterial changes.

100. For information regarding the changes we made to these individual affiliated criteria to incorporate certain elements of this revised corporate CDO criteria, please review the Revisions and Updates sections of the above-listed affiliated criteria articles.

101. The effective date of the changes to these affiliated criteria articles is June 21, 2019.

102. In addition, we are making nonmaterial changes to "Methodology And Assumptions For U.S. Small Business Loan-Backed Securitizations," published March 28, 2014 (U.S. SBL criteria), which is a criteria article that also incorporates elements of the previous version of the corporate CDO criteria. The changes to the U.S. SBL criteria will not enable the adoption of elements from the

revised corporate CDO criteria; instead they will ensure the U.S. SBL criteria can continue to be applied in their current form. The U.S. SBL criteria take a distinct approach from that followed in this revised corporate CDO criteria. For more information regarding the changes to the U.S. SBL criteria, please see the article's Revisions and Updates section.

103. Going forward, S&P Global Ratings may determine that it is appropriate to make additional changes to affiliated criteria articles, including changes (i) to implement further elements of the revised corporate CDO criteria or (ii) to support the use of methodological approaches that are distinct from those described in this revised corporate CDO criteria.

REVISIONS AND UPDATES

This article was originally published on June 21, 2019. These criteria became effective immediately, except in markets that require prior notification to, or registration by, the local regulator. In these markets, the criteria will become effective when notified by S&P Global Ratings and/or registered by the regulator.

Changes introduced after original publication:

- On June 27, 2019, we republished this criteria article to make a nonmaterial change. Specifically, we updated the Related Research section to reference a more recent publication (see "Credit FAQ: Understanding S&P Global Ratings' Updated CLO And Corporate CDO Criteria," June 26, 2019).
- On Dec. 5, 2019, we republished this criteria article to make a nonmaterial change. Specifically, we deleted an outdated reference in "Related Research."
- On Aug. 7, 2020, we republished this criteria article to correct a publication error and make certain nonmaterial changes. We replaced the "less than" symbol with a "less than or equal to" symbol in our illustrative Chart 1, to make it consistent with the text of the criteria in paragraphs 12 and 52, which states that in order to assign a tranche rating at a given level, we look for the SDR commensurate with that rating level to be at or lower than the tranche's BDR, not strictly lower. This correction had no rating impact. In addition, we updated related criteria references and the contact list, and removed outdated language pertaining to the criteria's initial publication, including the Impact On Outstanding Ratings section.
- On Aug. 2, 2021, we republished this criteria article to make nonmaterial changes to the contacts and references to related criteria and research articles.
- On Dec. 20, 2021, we republished this criteria article to make nonmaterial changes. Specifically, we updated our approach in paragraph 56 for analyzing interest rate expectations to address the global transition from LIBOR and related indices. Additionally, we updated contact details and references to related research.
- On July 21, 2023, we republished this criteria article to make nonmaterial changes, following updates to the global industry classification standard (GICS) codes for corporates that we use to inform our corporate asset type classifications--two codes deleted, seven codes created. As a result of these updates, we deleted the correlation assumptions for 21 asset type pairs that will no longer exist and added the correlation assumptions for 168 asset type pairs resulting from the creation of new GICS codes (see Appendix C, table 10, correlation override table 2). The new correlation assumptions reflect the same logic underlying the existing assumptions, and as a result they do not result in any impact on the calibration or CLO ratings. We also updated references to related research.

RELATED CRITERIA AND RESEARCH

Retired/Superseded Criteria

Once effective, these criteria supersede the following criteria articles:

- Global Methodologies And Assumptions For Corporate Cash Flow and Synthetic CDOs, Aug. 8, 2016
- Revised CDO Current-Pay Criteria Assumptions For Corporate Debt When Issuers Announce A Distressed Exchange Or Buyback, May 18, 2009
- The Use of Ratings-Based Haircuts In Event Of Default Overcollateralization Tests For CDOs, March 19, 2008
- Qualification And Treatment Of Current-Pay Obligations In Global Cash Flow CLOs, July 11, 2007
- CDOs: CDO Spotlight: 'A-1' Short-Term Rating Required for Investors in CDO Variable Funding Notes, May 24, 2004

Related Criteria

- Global Framework For Payment Structure And Cash Flow Analysis Of Structured Finance Securities, Dec. 22, 2020
- Counterparty Risk Framework: Methodology And Assumptions, March 8, 2019
- Incorporating Sovereign Risk In Rating Structured Finance Securities: Methodology And Assumptions, Jan. 30, 2019
- Foreign Exchange Risk In Structured Finance: Methodology And Assumptions, April 21, 2017
- Structured Finance: Asset Isolation And Special-Purpose Entity Methodology, March 29, 2017
- Recovery Rating Criteria For Speculative-Grade Corporate Issuers, Dec. 7, 2016
- Guarantee Criteria, Oct. 21, 2016
- Methodology: Jurisdiction Ranking Assessments, Jan. 20, 2016
- Criteria For Assigning 'CCC+', 'CCC', 'CCC-' And 'CC' Ratings, Oct. 1, 2012
- Global Investment Criteria For Temporary Investments In Transaction Accounts, May 31, 2012
- Principles Of Credit Ratings, Feb. 16, 2011
- Surveillance Methodology For Global Cash Flow And Hybrid CDOs Subject To Acceleration Or Liquidation After An EOD, Sept. 2, 2009

Related Research

- S&P Global Ratings Definitions, June 9, 2023
- Credit FAQ: Understanding S&P Global Ratings' Updated CLO And Corporate CDO Criteria, June 26, 2019

- Guidance: Global Methodology And Assumptions For CLOs And Corporate CDOs, June 21, 2019
- Criteria And Guidance: Understanding The Difference, Dec. 15, 2017

This article is a Criteria article. Criteria are the published analytic framework for determining Credit Ratings. Criteria include fundamental factors, analytical principles, methodologies, and /or key assumptions that we use in the ratings process to produce our Credit Ratings. Criteria, like our Credit Ratings, are forward-looking in nature. Criteria are intended to help users of our Credit Ratings understand how S&P Global Ratings analysts generally approach the analysis of Issuers or Issues in a given sector. Criteria include those material methodological elements identified by S&P Global Ratings as being relevant to credit analysis. However, S&P Global Ratings recognizes that there are many unique factors / facts and circumstances that may potentially apply to the analysis of a given Issuer or Issue. Accordingly, S&P Global Ratings Criteria is not designed to provide an exhaustive list of all factors applied in our rating analyses. Analysts exercise analytic judgement in the application of Criteria through the Rating Committee process to arrive at rating determinations.

This report does not constitute a rating action.

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