Article Title: General Criteria: Methodology And Assumptions For Stressed Reinvestment Rates For Fixed-Rate U.S. Debt Obligations Data: (EDITOR'S NOTE: —On Feb. 4, 2022, we republished this criteria article to make nonmaterial changes. See the "Revisions And Updates" section for details.) These criteria address the fundamental principles covered in "Principles Of Credit Ratings" (see Related Criteria section). 1. This article presents S&P; Global Ratings' methodology and assumptions for stressed reinvestment rates for fixed-rate U.S. debt obligations in which the investment income on reinvested periodic cash flows and transaction accounts contribute toward debt service coverage. This usually applies to U.S. structured finance and U.S. municipal housing bonds. 2. In a typical transaction, cash flows, borrower payments, prepayments, and other sources of funds that are collected periodically, i.e. monthly, are generally deposited into a transaction account and held until the bond payment is due. The bond payment may be due at a different time period from when collections are received, such as quarterly, semiannually, or annually. The transaction may also include other cash accounts, such as a debt service reserve account, that earn investment income. Assumed investment earnings in these accounts are generally included as income and are used, along with the other sources of available funds, to pay expenses and bond debt service. 3. These criteria update and unify S&P; Global Ratings' existing reinvestment rate assumptions for fixed-rate U.S. debt obligations under a common methodology. 4. This paragraph has been deleted. SCOPE OF THE CRITERIA 5. These criteria apply to fixed-rate U.S. structured finance and municipal housing bonds that rely on income generated from reinvesting periodic cash flows and cash within transaction accounts to meet debt service payments and that have at least a portion of the reinvestment income derived from investment vehicles that do not have a stated interest rate. These criteria may also be used for transactions where there is a mix of fixed-rate and floating-rate bonds. 6. Where a stated interest rate is in place, such as with a guaranteed investment contract, S&P; Global Ratings will give credit to the stated interest rate when analyzing the transaction if the investment contract satisfies the applicable criteria, such as the criteria for direct support obligations as outlined in its counterparty criteria (see Related Criteria section). SUMMARY OF THE CRITERIA 7. S&P; Global Ratings uses stressed reinvestment rate assumptions to determine the amount of reinvestment income to use in its cash flow analysis of a transaction. 8. We derive these stressed reinvestment rate assumptions by analyzing historical three-month U.S. Treasury bill rates, which we use as a proxy for expected short-term rates. We also considered other short-term indices, which tend to be highly correlated with three-month U.S. Treasury bill rates. 9. We apply stress assumptions to the historical three-month U.S. Treasury bill rates and assume a flat reinvestment rate assumption for the life of the transaction by rating category. 10. This paragraph has been deleted. 11. This paragraph has been deleted. METHODOLOGY 12. Our assumptions for reinvestment rates are based on our analysis of historical three-month U.S. Treasury bill rates (see appendix). In our analysis, we focused specifically on the low interest rate environment when deriving the reinvestment rate assumptions. 13. As shown in table 1, each rating category has a maximum reinvestment rate that we assume when analyzing a particular transaction to consider a rating within the associated rating category. The final rating takes into account not only the reinvestment rate assumptions in these criteria but also any other applicable criteria, such as the relevant sector-specific criteria. Table 1 Assumed Stressed Reinvestment Rates RATING CATEGORY REINVESTMENT RATE (%) AAA 0.00 AA 0.05 A 0.10 BBB 0.15 Speculative-grade 0.25 14. In a 'AAA' rating scenario, we assume no reinvestment earnings. Many fixed-rate U.S. debt obligations have long legal final maturities that range from 15 to 30 years where it is possible to have low interest rates for a prolonged period of time. As seen in the historical data for three-month U.S. Treasury bill rates since 1954, rates have been close to 0.00% since 2008 (see appendix). 15. Furthermore, a sustained environment of low interest rates can put credit pressure on transactions that rely on assumed investment earnings to pay debt service. As a result, in line with our view of stress scenarios in "S&P; Global Ratings Definitions" (see Related Publications), we assume no investment earnings for transactions rated 'AAA'. 16. For each rating category, the reinvestment rate assumption is intended to be a flat rate that is applied for the transaction's entire life. Because the assumptions are stressed and capture a range of market conditions, we do not anticipate updating the reinvestment rate assumptions often. APPENDIX: HISTORICAL THREE-MONTH U.S. TREASURY BILL RATES AND PERCENTILES 17. The chart below shows the historical three-month U.S. Treasury bill rates from June 1954 through

May 2016. Chart 1 18. In our analysis of historical interest rates, we considered percentiles within the historical data. The table below shows the distribution of the historical data by percentile for three-month Treasury bill rates from June 1954 through May 2016 and from June 1980 through May 2016. Table 2 Three-Month Treasury Bill Rates PERCENTILE (%) JUNE 1954-MAY 2016 (%) JUNE 1980-MAY 2016 (%) 1 0.02 0.01 2 0.02 0.02 3 0.03 0.02 4 0.04 0.02 5 0.05 0.03 6 0.07 0.04 7 0.09 0.04 8 0.10 0.05 9 0.13 0.06 10 0.16 0.07 11 0.19 0.08 12 0.31 0.09 13 0.87 0.10 14 0.93 0.11 15 1.01 0.13 16 1.15 0.14 17 1.28 0.15 18 1.47 0.17 19 1.65 0.19 20 1.72 0.24 21 1.91 0.34 22 2.19 0.90 23 2.27 0.94 24 2.33 1.02 25 2.44 1.16 19. Stressed reinvestment rates applied in 'AA', 'A', 'BBB', and speculative-grade scenarios roughly correspond to the fifth, 10th, 15th, and 20th percentiles, on a rounded basis, for the 1980-2016 data set, respectively. For example, 0.03% for the fifth percentile has been rounded up to 0.05% for the 'AA' reinvestment rate assumption. REVISIONS AND UPDATES This article was originally published on Dec. 22, 2016. The criteria became effective as of the publishing date. Changes introduced after original publication: Following our periodic review completed on Dec. 22, 2017, we updated the contact information and deleted text related to the original publication of the article. On Feb. 14, 2019, we republished this criteria article to make nonmaterial changes. We updated the contact information and deleted paragraph 4 and other text that was related to the original publication of the article. On Feb. 11, 2021, we republished this criteria article to make nonmaterial changes to update criteria and research references. On Feb. 4, 2022, we republished this criteria article to make nonmaterial changes to the contact information. RELATED PUBLICATIONS Related Criteria U.S. Federally Enhanced Housing Bonds Rating Methodology, Nov. 12, 2019 Counterparty Risk Framework: Methodology And Assumptions, March 8, 2019 Principles Of Credit Ratings, Feb. 16, 2011 Related Research S&P; Global Ratings Definitions, Jan. 5, 2021