



HR Ratings

Credit Ratings Performance Measurement Statistics

Transition/ Default Matrices of NRSRO ratings are composed in the following subclasses:

- I. Financial Institutions, Brokers, or Dealers.
 - a. Banks
 - b. Non-Bank Banks
 - c. Financial Groups
 - d. Brokerage Firms
 - e. Leasing Companies
 - f. Finance Companies
 - g. Mutual Funds
 - h. Decentralized Government Entities
 - i. Credits and securities issued by any of the entities previously mentioned with any additional credit enhancement or subordination to senior debt
- II. Corporate Issuers.
 - a. Corporations
 - b. Decentralized Government Entities
 - c. Credits and securities issued by any of the entities previously mentioned with any additional credit enhancement or subordination to senior debt
- III. Sovereign Issuers.
- IV. U.S. Public Finance.
- V. International Public Finance.

*Percentages may not add to exactly 100% due to rounding of decimal points.



Credit Ratings Performance Measurement Statistics

NRSRO Ratings

- One- Year Financial Institutions, Long Term Local Transition Matrix – 2021-2022

Financial Institutions Long Term Local Issuers - 1 Year Transition and Default Rates
(December 31, 2021 through December 31, 2022)

Credit Ratings as of 12/31/2021		Credit Ratings as of 12/31/2022 (Percent)																			Other Outcomes During 12/31/2021 - 12/31/2022 (Percent)		
Credit Rating Scale	Number of Ratings Outstanding	HR AAA	HR AA +	HR AA	HR AA -	HR A +	HR A	HR A -	HR BBB +	HR BBB	HR BBB -	HR BB +	HR BB	HR BB -	HR B +	HR B	HR B -	HR C +	HR C	HR C -	Default	Paid Off	Withdrawn (Other)
HR AAA	138	83%	-	1%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	13%	4%
HR AA +	13	-	62%	15%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	15%	8%
HR AA	19	5%	32%	53%	-	-	5%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5%
HR AA -	10	-	-	50%	20%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	10%	20%	-
HR A +	30	-	-	-	40%	50%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3%	7%	-
HR A	28	-	-	4%	-	7%	75%	4%	4%	-	-	-	-	-	-	-	-	-	-	-	-	7%	-
HR A -	10	-	-	-	-	-	20%	70%	-	10%	-	-	-	-	-	-	-	-	-	-	-	-	-
HR BBB +	13	-	-	-	-	-	8%	8%	69%	-	8%	-	-	-	-	-	-	-	-	-	-	-	8%
HR BBB	22	-	-	9%	-	-	9%	27%	36%	5%	-	-	5%	-	-	-	-	-	-	-	-	5%	5%
HR BBB -	14	-	-	-	-	-	-	-	14%	29%	29%	14%	-	-	-	-	-	-	-	-	7%	-	7%
HR BB +	9	-	-	-	-	-	-	-	-	22%	44%	33%	-	-	-	-	-	-	-	-	-	-	-
HR BB	10	-	-	-	-	-	-	-	10%	10%	20%	10%	10%	10%	-	-	-	-	-	-	10%	-	20%
HR BB -	1	-	-	-	-	-	-	-	-	-	-	100%	-	-	-	-	-	-	-	-	-	-	-
HR B +	3	-	-	-	-	-	-	-	-	-	-	-	-	33%	33%	-	-	-	-	-	-	-	33%
HR B	3	-	-	-	-	-	-	-	-	-	-	33%	33%	-	-	-	-	-	-	-	-	-	33%
HR B -	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	100%	-	-
HR C +	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HR C	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HR C -	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TOTAL	324																						

Source: HR Ratings



Credit Ratings Performance Measurement Statistics

NRSRO Ratings

- One- Year Financial Institutions, Short Term Local Transition Matrix – 2021-2022

**Financial Institutions Short Term Local Issuers - 1 Year Transition and Default Rates
(December 31, 2021 through December 31, 2022)**

Credit Ratings as of 12/31/2021		Credit Ratings as of 12/31/2022 (Percent)						Other Outcomes During 12/31/2021 - 12/31/2022 (Percent)		
Credit Rating Scale	Number of Ratings Outstanding	HR+1	HR1	HR2	HR3	HR4	HR5	Default	Paid Off	Withdrawn (Other)
HR+1	30	97%	-	-	-	-	-	-	-	3%
HR1	33	3%	91%	-	-	-	-	3%	-	3%
HR2	43	-	14%	77%	9%	-	-	-	-	-
HR3	45	-	-	9%	76%	7%	-	2%	-	7%
HR4	21	-	-	-	52%	33%	-	5%	-	10%
HR5	8	-	-	-	-	38%	25%	13%	-	25%
TOTAL	180									

Source: HR Ratings



Credit Ratings Performance Measurement Statistics

NRSRO Ratings

- One- Year Financial Institutions, Long Term Global Transition Matrix – 2021-2022

Financial Institutions Long Term Global Issuers - 1 Year Transition and Default Rates
(December 31, 2021 through December 31, 2022)

Credit Ratings as of 12/31/201		Credit Ratings as of 12/31/2022 (Percent)																		Other Outcomes During 12/31/2021 - 12/31/2022 (Percent)			
Credit Rating Scale	Number of Ratings Outstanding	HR AAA (G)	HR AA + (G)	HR AA (G)	HR AA - (G)	HR A + (G)	HR A (G)	HR A - (G)	HR BBB + (G)	HR BBB (G)	HR BBB - (G)	HR BB + (G)	HR BB (G)	HR BB - (G)	HR B + (G)	HR B (G)	HR B - (G)	HR C + (G)	HR C (G)	HR C - (G)	Default	Paid Off	Withdrawn (Other)
HR AAA (G)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HR AA + (G)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HR AA (G)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HR AA - (G)	1	-	-	-	100%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HR A + (G)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HR A (G)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HR A - (G)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HR BBB + (G)	5	-	-	-	-	-	-	-	100%	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HR BBB (G)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HR BBB - (G)	1	-	-	-	-	-	-	-	-	100%	-	-	-	-	-	-	-	-	-	-	-	-	-
HR BB + (G)	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	100%	-	-
HR BB (G)	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	100%	-	-
HR BB - (G)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HR B + (G)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HR B (G)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HR B - (G)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HR C + (G)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HR C (G)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HR C - (G)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TOTAL	14	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Source: HR Ratings



- One- Year Financial Institutions, Short Term Global Transition Matrix – 2021-2022

**Financial Institutions Short Term Global Issuers - 1 Year Transition and Default Rates
(December 31, 2021 through December 31, 2022)**

Credit Ratings as of 12/31/2021		Credit Ratings as of 12/31/2022 (Percent)						Other Outcomes During 12/31/2021 - 12/31/2022 (Percent)		
Credit Rating Scale	Number of Ratings Outstanding	HR+1 (G)	HR1 (G)	HR2 (G)	HR3 (G)	HR4 (G)	HR5 (G)	Default	Paid Off	Withdrawn (Other)
HR+1 (G)	-	-	-	-	-	-	-	-	-	-
HR1 (G)	1	-	100%	-	-	-	-	-	-	-
HR2 (G)	-	-	-	-	-	-	-	-	-	-
HR3 (G)	2	-	-	-	100%	-	-	-	-	-
HR4 (G)	-	-	-	-	-	-	-	-	-	-
HR5 (G)	-	-	-	-	-	-	-	-	-	-
TOTAL	3									

Source: HR Ratings



Credit Ratings Performance Measurement Statistics

NRSRO Ratings

- Three- Year Financial Institutions, Long Term Local Transition Matrix – 2019-2022

**Financial Institutions Long Term Local Issuers - 3 Year Transition and Default Rates
(December 31, 2019 through December 31, 2022)**

Credit Ratings as of 12/31/2019		Credit Ratings as of 12/31/2022 (Percent)																			Other Outcomes During 12/31/2019 - 12/31/2022 (Percent)		
Credit Rating Scale	Number of Ratings Outstanding	HR AAA	HR AA +	HR AA	HR AA -	HR A +	HR A	HR A -	HR BBB +	HR BBB	HR BBB -	HR BB +	HR BB	HR BB -	HR B +	HR B	HR B -	HR C +	HR C	HR C -	Default	Paid Off	Withdrawn (Other)
HR AAA	129	61%	-	1%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	29%	9%
HR AA +	7	-	29%	14%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	57%	-
HR AA	19	5%	26%	37%	-	-	16%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	16%	-
HR AA -	14	-	7%	43%	-	-	7%	-	-	-	-	-	-	-	-	-	-	-	-	-	14%	29%	-
HR A +	23	-	-	-	43%	35%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	17%	4%
HR A	25	-	-	4%	-	12%	44%	8%	4%	-	4%	-	-	-	-	-	-	-	-	-	-	20%	4%
HR A -	9	-	-	-	-	11%	33%	22%	11%	-	-	-	-	-	-	-	-	-	-	-	11%	-	11%
HR BBB +	15	7%	7%	-	-	-	-	20%	33%	-	7%	-	-	7%	-	-	-	-	-	-	7%	-	13%
HR BBB	27	-	-	-	-	-	4%	11%	26%	19%	11%	-	-	-	-	-	-	-	-	-	7%	4%	19%
HR BBB -	22	-	-	-	-	-	-	5%	9%	27%	14%	18%	-	-	-	-	-	-	-	-	9%	-	18%
HR BB +	6	-	-	-	-	-	17%	-	-	-	17%	17%	17%	-	-	-	-	-	-	-	-	-	33%
HR BB	13	-	-	-	-	-	-	-	8%	8%	-	8%	-	15%	-	-	-	-	-	-	8%	-	54%
HR BB -	6	-	-	-	-	-	-	-	-	-	33%	-	-	-	-	-	-	-	-	-	-	-	67%
HR B +	4	-	-	-	-	-	-	-	-	-	-	25%	-	25%	25%	-	-	-	-	-	25%	-	-
HR B	3	-	-	-	-	-	-	-	-	-	-	-	33%	-	-	-	-	-	-	-	-	-	67%
HR B -	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HR C +	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HR C	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	100%	-	-
HR C -	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TOTAL	323																						

Source: HR Ratings



Credit Ratings Performance Measurement Statistics

NRSRO Ratings

- Three- Year Financial Institutions, Short Term Local Transition Matrix – 2019-2022

**Financial Institutions Short Term Local Issuers - 3 Year Transition and Default Rates
(December 31, 2019 through December 31, 2022)**

Credit Ratings as of 12/31/2019		Credit Ratings as of 12/31/2022 (Percent)						Other Outcomes During 12/31/2019 - 12/31/2022 (Percent)		
Credit Rating Scale	Number of Ratings Outstanding	HR+1	HR1	HR2	HR3	HR4	HR5	Default	Paid Off	Withdrawn (Other)
HR+1	30	90%	-	-	-	-	-	-	3%	7%
HR1	26	4%	88%	-	-	-	-	8%	-	-
HR2	34	3%	9%	68%	12%	-	-	3%	-	6%
HR3	60	-	2%	13%	50%	8%	-	8%	-	18%
HR4	25	-	-	4%	20%	20%	-	4%	-	52%
HR5	8	-	-	-	-	25%	25%	25%	-	25%
TOTAL	183									

Source: HR Ratings



Credit Ratings Performance Measurement Statistics

NRSRO Ratings

- Three- Year Financial Institutions, Long Term Global Transition Matrix – 2019-2022

Financial Institutions Long Term Global Issuers - 3 Year Transition and Default Rates
(December 31, 2019 through December 31, 2022)

Credit Ratings as of 12/31/2019		Credit Ratings as of 12/31/2022 (Percent)																		Other Outcomes During 12/31/2019 - 12/31/2022 (Percent)			
Credit Rating Scale	Number of Ratings Outstanding	HR AAA (G)	HR AA + (G)	HR AA (G)	HR AA - (G)	HR A + (G)	HR A (G)	HR A - (G)	HR BBB + (G)	HR BBB (G)	HR BBB - (G)	HR BB + (G)	HR BB (G)	HR BB - (G)	HR B + (G)	HR B (G)	HR B - (G)	HR C + (G)	HR C (G)	HR C - (G)	Default	Paid Off	Withdrawn (Other)
HR AAA (G)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HR AA + (G)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HR AA (G)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HR AA - (G)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HR A + (G)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HR A (G)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HR A - (G)	5	-	-	-	-	-	-	-	100%	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HR BBB + (G)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HR BBB (G)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HR BBB - (G)	8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	63%	-	38%
HR BB + (G)	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	50%	-	50%
HR BB (G)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HR BB - (G)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HR B + (G)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HR B (G)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HR B - (G)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HR C + (G)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HR C (G)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HR C - (G)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TOTAL	15	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Source: HR Ratings



Credit Ratings Performance Measurement Statistics

- Three- Year Financial Institutions, Short Term Global Transition Matrix – 2019-2022

**Financial Institutions Short Term Global Issuers - 3 Year Transition and Default Rates
(December 31, 2019 through December 31, 2022)**

Credit Ratings as of 12/31/2019		Credit Ratings as of 12/31/2022 (Percent)						Other Outcomes During 12/31/2019 - 12/31/2022 (Percent)		
Credit Rating Scale	Number of Ratings Outstanding	HR+1 (G)	HR1 (G)	HR2 (G)	HR3 (G)	HR4 (G)	HR5 (G)	Default	Paid Off	Withdrawn (Other)
HR+1 (G)	-	-	-	-	-	-	-	-	-	-
HR1 (G)	-	-	-	-	-	-	-	-	-	-
HR2 (G)	1	-	-	-	100%	-	-	-	-	-
HR3 (G)	-	-	-	-	-	-	-	-	-	-
HR4 (G)	-	-	-	-	-	-	-	-	-	-
HR5 (G)	-	-	-	-	-	-	-	-	-	-
TOTAL	1									

Source: HR Ratings



Credit Ratings Performance Measurement Statistics

NRSRO Ratings

- Ten- Year Financial Institutions, Long Term Local Transition Matrix – 2012-2022

Financial Institutions Long Term Local Issuers - 10 Year Transition and Default Rates
(December 31, 2012 through December 31, 2022)

Credit Ratings as of 12/31/2012		Credit Ratings as of 12/31/2022 (Percent)																		Other Outcomes During 12/31/2012 - 12/31/2022 (Percent)			
Credit Rating Scale	Number of Ratings Outstanding	HR AAA	HR AA +	HR AA	HR AA -	HR A +	HR A	HR A -	HR BBB +	HR BBB	HR BBB -	HR BB +	HR BB	HR BB -	HR B +	HR B	HR B -	HR C +	HR C	HR C -	Default	Paid Off	Withdrawn (Other)
HR AAA	52	33%	-	2%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	10%	56%
HR AA +	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	100%	-
HR AA	12	8%	8%	25%	-	-	25%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	33%
HR AA -	2	-	-	50%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	50%
HR A +	13	15%	-	15%	-	8%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	8%	54%
HR A	26	-	-	4%	8%	19%	8%	-	-	-	-	-	-	-	-	-	-	-	-	-	4%	35%	23%
HR A -	8	-	-	-	-	13%	-	-	13%	-	-	-	-	-	-	-	-	-	-	-	13%	-	63%
HR BBB +	10	-	-	-	-	-	20%	-	10%	-	-	-	-	-	-	-	-	-	-	-	10%	20%	40%
HR BBB	11	-	-	-	9%	-	-	18%	18%	-	-	-	-	-	-	-	-	-	-	-	9%	-	45%
HR BBB -	25	-	-	-	-	4%	-	8%	-	4%	4%	8%	-	-	-	-	-	-	-	-	12%	4%	56%
HR BB +	10	-	-	-	-	-	-	-	-	30%	-	-	-	-	-	-	-	-	-	-	20%	-	50%
HR BB	8	-	-	-	-	-	-	-	-	-	-	-	-	13%	-	-	-	-	-	-	25%	-	63%
HR BB -	4	-	-	-	-	-	-	-	-	25%	-	-	-	-	-	-	-	-	-	-	25%	-	50%
HR B +	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HR B	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	100%
HR B -	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HR C +	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HR C	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HR C -	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TOTAL	183																						

Source: HR Ratings



- Ten- Year Financial Institutions, Short Term Local Transition Matrix – 2012-2022

**Financial Institutions Short Term Local Issuers - 10 Year Transition and Default
(December 31, 2012 through December 31, 2022)**

Credit Ratings as of 12/31/2012		Credit Ratings as of 12/31/2022 (Percent)						Other Outcomes During 12/31/2012 - 12/31/2022 (Percent)		
Credit Rating Scale	Number of Ratings Outstanding	HR+1	HR1	HR2	HR3	HR4	HR5	Default	Paid Off	Withdrawn (Other)
HR+1	17	71%	-	-	-	-	-	-	6%	24%
HR1	7	14%	71%	-	-	-	-	-	-	14%
HR2	24	4%	17%	29%	4%	-	-	8%	-	38%
HR3	42	-	2%	14%	12%	5%	-	7%	-	60%
HR4	23	-	-	-	17%	-	4%	22%	-	57%
HR5	-	-	-	-	-	-	-	-	-	-
TOTAL	113									

Source: HR Ratings



- Ten- Year Financial Institutions, Long Term Global Transition Matrix – 2012-2022

*The ten-year Financial Institutions Long Term Global Transition Matrix cannot be calculated due to the fact that HR Ratings started issuing Long Term Global Financial Institutions ratings as of 2015.



- Ten- Year Financial Institutions, Short Term Global Transition Matrix – 2012-2022

*The ten-year Financial Institutions Short Term Global Transition Matrix cannot be calculated due to the fact that HR Ratings started issuing Short Term Global Financial Institutions ratings as of 2019.



Credit Ratings Performance Measurement Statistics

NRSRO Ratings

- One- Year Corporates, Long Term Local Transition Matrix – 2021-2022

Corporate Long Term Local Issuers - 1 Year Transition and Default Rates
(December 31, 2021 through December 31, 2022)

Credit Ratings as of 12/31/2021		Credit Ratings as of 12/31/2022 (Percent)																			Other Outcomes During 12/31/2021 - 12/31/2022 (Percent)		
Credit Rating Scale	Number of Ratings Outstanding	HR AAA	HR AA +	HR AA	HR AA -	HR A +	HR A	HR A -	HR BBB +	HR BBB	HR BBB -	HR BB +	HR BB	HR BB -	HR B +	HR B	HR B -	HR C +	HR C	HR C -	HR D	Paid Off	Withdrawn (Other)
HR AAA	42	93%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2%	5%
HR AA +	25	36%	44%	12%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	8%
HR AA	17	-	35%	53%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	12%
HR AA -	29	-	3%	14%	45%	10%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3%	24%
HR A +	10	-	-	-	40%	50%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	10%
HR A	10	-	-	-	-	40%	50%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	10%
HR A -	22	-	-	-	-	5%	18%	64%	-	-	-	-	-	-	-	-	-	-	-	-	-	5%	9%
HR BBB +	3	-	-	-	-	-	67%	-	33%	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HR BBB	3	-	-	-	-	-	-	-	-	100%	-	-	-	-	-	-	-	-	-	-	-	-	-
HR BBB -	2	-	-	-	-	-	-	-	-	-	100%	-	-	-	-	-	-	-	-	-	-	-	-
HR BB +	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HR BB	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HR BB -	1	-	-	-	-	-	-	-	-	-	-	-	-	100%	-	-	-	-	-	-	-	-	-
HR B +	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HR B	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HR B -	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	100%	-	-
HR C +	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	100%	-	-	-	-	-
HR C	5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	20%	-	80%	-	-
HR C -	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	67%	-	-	33%
TOTAL	179																						

Source: HR Ratings



Credit Ratings Performance Measurement Statistics

NRSRO Ratings

- One- Year Corporates, Short Term Local Transition Matrix – 2021-2022

**Corporate Issuers - 1 Year Transition and Default Rates
(December 31, 2021 through December 31, 2022)**

Credit Ratings as of 12/31/2021		Credit Ratings as of 12/31/2022 (Percent)						Other Outcomes During 12/31/2021 - 12/31/2022 (Percent)		
Credit Rating Scale	Number of Ratings Outstanding	HR+1	HR1	HR2	HR3	HR4	HR5	Default	Paid Off	Withdrawn (Other)
HR+1	19	100%	-	-	-	-	-	-	-	-
HR1	26	12%	77%	4%	-	-	-	-	-	8%
HR2	21	-	5%	95%	-	-	-	-	-	-
HR3	6	-	-	33%	67%	-	-	-	-	-
HR4	2	-	-	-	-	50%	-	50%	-	-
HR5	3	-	-	-	-	-	67%	33%	-	-
TOTAL	77									

Source: HR Ratings



Credit Ratings Performance Measurement Statistics

NRSRO Ratings

- One- Year Corporates, Long Term Global Transition Matrix – 2021-2022

Corporate Issuers Long Term Global Issuers- 1 Year Transition and Default Rates
(December 31, 2021 through December 31, 2022)

Credit Ratings as of 12/31/2021		Credit Ratings as of 12/31/2022 (Percent)																			Other Outcomes During 12/31/2021 - 12/31/2022 (Percent)		
Credit Rating Scale	Number of Ratings Outstanding	HR AAA (G)	HR AA + (G)	HR AA (G)	HR AA - (G)	HR A + (G)	HR A (G)	HR A - (G)	HR BBB + (G)	HR BBB (G)	HR BBB - (G)	HR BB + (G)	HR BB (G)	HR BB - (G)	HR B + (G)	HR B (G)	HR B - (G)	HR C + (G)	HR C (G)	HR C - (G)	Default	Paid Off	Withdrawn (Other)
HR AAA (G)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HR AA + (G)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HR AA (G)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HR AA - (G)	1	-	-	-	100%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HR A + (G)	7	-	-	-	-	-	57%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	43%
HR A (G)	11	-	-	-	-	-	45%	36%	18%	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HR A - (G)	35	-	-	-	-	-	9%	63%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HR BBB + (G)	61	-	-	-	-	-	-	5%	80%	5%	-	-	-	-	-	-	-	-	-	-	-	-	29%
HR BBB (G)	16	-	-	-	-	-	-	-	44%	38%	-	-	-	-	-	-	-	-	-	-	-	-	10%
HR BBB - (G)	10	-	-	-	-	-	-	-	60%	40%	-	-	-	-	-	-	-	-	-	-	-	-	19%
HR BB + (G)	12	-	-	-	-	-	-	-	17%	-	-	67%	-	-	-	-	-	-	-	-	-	-	17%
HR BB (G)	3	-	-	-	-	-	-	-	-	-	33%	67%	-	-	-	-	-	-	-	-	-	-	-
HR BB - (G)	2	-	-	-	-	-	-	-	-	-	-	100%	-	-	-	-	-	-	-	-	-	-	-
HR B + (G)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HR B (G)	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	100%	-	-	-	-	-	-	-
HR B - (G)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HR C + (G)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HR C (G)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HR C - (G)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TOTAL	159	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Source: HR Ratings



- One- Year Corporates, Short Term Global Transition Matrix – 2021-2022

*The one-year Corporates Short Term Global Transition Matrix cannot be calculated due to the fact that HR Ratings has not been determining credit ratings for the length necessary to produce 1 year Transition/ Default Matrix for 2021-2022.



Credit Ratings Performance Measurement Statistics

NRSRO Ratings

- Three- Year Corporates, Long Term Local Transition Matrix – 2019-2022

Corporate Long Term Local Issuers - 3 Year Transition and Default Rates
(December 31, 2019 through December 31, 2022)

Credit Ratings as of 12/31/2019		Credit Ratings as of 12/31/2022 (Percent)																			Other Outcomes During 12/31/2019 - 12/31/2022 (Percent)		
Credit Rating Scale	Number of Ratings Outstanding	HR AAA	HR AA +	HR AA	HR AA -	HR A +	HR A	HR A -	HR BBB +	HR BBB	HR BBB -	HR BB +	HR BB	HR BB -	HR B +	HR B	HR B -	HR C +	HR C	HR C -	HR D	Paid Off	Withdrawn (Other)
HR AAA	23	78%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4%	17%
HR AA +	21	19%	14%	5%	19%	-	-	10%	-	-	-	-	-	-	-	-	-	-	-	-	-	10%	24%
HR AA	18	6%	22%	11%	22%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	17%	22%
HR AA -	21	10%	5%	10%	14%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	48%	5%	10%
HR A +	21	-	-	-	19%	24%	-	29%	-	-	-	-	-	-	-	-	-	-	-	-	5%	5%	19%
HR A	20	-	-	-	-	30%	20%	-	-	-	-	-	-	-	-	-	-	-	-	-	5%	25%	20%
HR A -	13	-	-	-	-	-	15%	15%	-	23%	8%	-	-	-	-	-	-	-	-	-	-	-	38%
HR BBB +	3	-	-	-	-	-	33%	-	-	33%	33%	-	-	-	-	-	-	-	-	-	-	-	-
HR BBB	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	100%	-	-	-	-
HR BBB -	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	67%	-	33%
HR BB +	1	-	-	-	-	-	-	-	-	-	100%	-	-	-	-	-	-	-	-	-	-	-	-
HR BB	1	-	-	-	-	-	-	-	-	-	-	-	-	100%	-	-	-	-	-	-	-	-	-
HR BB -	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	100%
HR B +	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HR B	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HR B -	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HR C +	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	100%	-	-	-	-	-
HR C	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HR C -	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	100%	-	-
TOTAL	150																						

Source: HR Ratings



Credit Ratings Performance Measurement Statistics

NRSRO Ratings

- Three- Year Corporates, Short Term Local Transition Matrix – 2019-2022

**Corporate Short Term Local Issuers - 3 Year Transition and Default Rates
(December 31, 2019 through December 31, 2022)**

Credit Ratings as of 12/31/2019		Credit Ratings as of 12/31/2022 (Percent)						Other Outcomes During 12/31/2019 - 12/31/2022 (Percent)		
Credit Rating Scale	Number of Ratings Outstanding	HR+1	HR1	HR2	HR3	HR4	HR5	HR D	Paid Off	Withdrawn (Other)
HR+1	13	85%	8%	8%	-	-	-	-	-	-
HR1	17	18%	59%	-	-	-	-	12%	-	12%
HR2	27	-	7%	56%	7%	-	-	7%	-	22%
HR3	6	-	-	17%	33%	-	17%	33%	-	-
HR4	3	-	-	-	33%	33%	-	-	-	33%
HR5	1	-	-	-	-	-	100%	-	-	-
TOTAL	67									

Source: HR Ratings



Credit Ratings Performance Measurement Statistics

NRSRO Ratings

- Three- Year Corporates, Long Term Global Transition Matrix – 2019-2022

Corporate Long Term Global Issuers - 3 Year Transition and Default Rates
(December 31, 2019 through December 31, 2022)

Credit Ratings as of 12/31/2019		Credit Ratings as of 12/31/2022 (Percent)																		Other Outcomes During 12/31/2019 - 12/31/2022 (Percent)			
Credit Rating Scale	Number of Ratings Outstanding	HR AAA (G)	HR AA + (G)	HR AA (G)	HR AA - (G)	HR A + (G)	HR A (G)	HR A - (G)	HR BBB + (G)	HR BBB (G)	HR BBB - (G)	HR BB + (G)	HR BB (G)	HR BB - (G)	HR B + (G)	HR B (G)	HR B - (G)	HR C + (G)	HR C (G)	HR C - (G)	Default	Paid Off	Withdrawn (Other)
HR AAA (G)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HR AA + (G)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HR AA (G)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HR AA - (G)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HR A + (G)	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HR A (G)	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	100%
HR A - (G)	9	-	-	-	-	-	-	-	-	44%	-	22%	-	-	-	-	-	-	-	-	-	-	100%
HR BBB + (G)	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	33%
HR BBB (G)	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	100%
HR BBB - (G)	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HR BB + (G)	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HR BB (G)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HR BB - (G)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HR B + (G)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HR B (G)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HR B - (G)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HR C + (G)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HR C (G)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HR C - (G)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TOTAL	25	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Source: HR Ratings



Credit Ratings Performance Measurement Statistics

NRSRO Ratings

- Three- Year Corporates, Short Term Global Transition Matrix – 2019-2022

Corporate Short Term Global Issuers - 3 Year Transition and Default Rates
(December 31, 2019 through December 31, 2022)

Credit Ratings as of 12/31/2019		Credit Ratings as of 12/31/2022 (Percent)						Other Outcomes During 12/31/2019 - 12/31/2022 (Percent)		
Credit Rating Scale	Number of Ratings Outstanding	HR+1 (G)	HR1 (G)	HR2 (G)	HR3 (G)	HR4 (G)	HR5 (G)	Default	Paid Off	Withdrawn (Other)
HR+1 (G)	-	-	-	-	-	-	-	-	-	-
HR1 (G)	-	-	-	-	-	-	-	-	-	-
HR2 (G)	1	-	-	-	-	-	-	-	-	100%
HR3 (G)	1	-	-	-	-	-	-	-	-	100%
HR4 (G)	-	-	-	-	-	-	-	-	-	-
HR5 (G)	-	-	-	-	-	-	-	-	-	-
TOTAL	2									

Source: HR Ratings



Credit Ratings Performance Measurement Statistics

NRSRO Ratings

- Ten- Year Corporates, Long Term Local Transition Matrix – 2012-2022

Corporate Long Term Local Issuers - 10 Year Transition and Default Rates
(December 31, 2012 through December 31, 2022)

Credit Ratings as of 12/31/2012		Credit Ratings as of 12/31/2022 (Percent)																			Other Outcomes During 12/31/2012 - 12/31/2022 (Percent)		
Credit Rating Scale	Number of Ratings Outstanding	HR AAA	HR AA +	HR AA	HR AA -	HR A +	HR A	HR A -	HR BBB +	HR BBB	HR BBB -	HR BB +	HR BB	HR BB -	HR B +	HR B	HR B -	HR C +	HR C	HR C -	HR D	Paid Off	Withdrawn (Other)
HR AAA	7	29%	14%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	14%	43%
HR AA +	5	20%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	40%	40%
HR AA	4	-	25%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	50%	25%
HR AA -	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	50%	50%
HR A +	4	-	-	-	-	-	-	25%	-	-	-	-	-	-	-	-	-	-	-	-	-	50%	25%
HR A	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	33%	33%	
HR A -	6	-	-	-	17%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	17%	17%	50%
HR BBB +	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	100%
HR BBB	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	33%	67%
HR BBB -	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HR BB +	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	100%
HR BB	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	100%
HR BB -	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HR B +	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HR B	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HR B -	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HR C +	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HR C	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HR C -	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TOTAL	43																						

Source: HR Ratings



Credit Ratings Performance Measurement Statistics

NRSRO Ratings

- Ten- Year Corporates, Short Term Local Transition Matrix – 2012-2022

**Corporate Short Term Local Issuers - 10 Year Transition and Default Rates
(December 31, 2012 through December 31, 2022)**

Credit Ratings as of 12/31/2012		Credit Ratings as of 12/31/2022 (Percent)						Other Outcomes During 12/31/2012 - 12/31/2022 (Percent)		
Credit Rating Scale	Number of Ratings Outstanding	HR+1	HR1	HR2	HR3	HR4	HR5	HR D	Paid Off	Withdrawn (Other)
HR+1	6	-	-	-	-	-	-	-	17%	83%
HR1	4	-	25%	-	-	-	-	-	-	75%
HR2	1	-	-	-	-	-	-	-	-	100%
HR3	3	-	-	-	-	-	-	-	-	100%
HR4	-	-	-	-	-	-	-	-	-	-
HR5	-	-	-	-	-	-	-	-	-	-
TOTAL	14									

Source: HR Ratings



- Ten- Year Corporates, Long Term Global Transition Matrix – 2012-2022

*The ten-year Corporates Long Term Global Transition Matrix cannot be calculated due to the fact that HR Ratings started issuing Long Term Global Corporate ratings as of 2015.



- Ten- Year Corporates, Short Term Global Transition Matrix – 2012-2022

*The ten-year Corporates Short Term Global Transition Matrix cannot be calculated due to the fact that HR Ratings started issuing Short Term Global Financial Institutions ratings as of 2018.



Credit Ratings Performance Measurement Statistics

NRSRO Ratings

- One- Year Sovereign Issuers, Long Term Global Transition Matrix – 2021-2022

Sovereign Issuers - 1 Year Transition and Default Rates
(December 31, 2021 through December 31, 2022)

Credit Ratings as of 12/31/2021		Credit Ratings as of 12/31/2022 (Percent)																			Other Outcomes During 12/31/2021 - 12/31/2022 (Percent)		
Credit Rating Scale	Number of Ratings Outstanding	HR AAA (G)	HR AA + (G)	HR AA (G)	HR AA - (G)	HR A + (G)	HR A (G)	HR A - (G)	HR BBB + (G)	HR BBB (G)	HR BBB - (G)	HR BB + (G)	HR BB (G)	HR BB - (G)	HR B + (G)	HR B (G)	HR B - (G)	HR C + (G)	HR C (G)	HR C - (G)	Default	Paid Off	Withdraw (Other)
HR AAA (G)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HR AA + (G)	1	-	100%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HR AA (G)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HR AA - (G)	1	-	-	-	100%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HR A + (G)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HR A (G)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HR A - (G)	1	-	-	-	-	-	-	100%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HR BBB + (G)	1	-	-	-	-	-	-	-	100%	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HR BBB (G)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HR BBB - (G)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HR BB + (G)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HR BB (G)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HR BB - (G)	1	-	-	-	-	-	-	-	-	-	-	-	-	100%	-	-	-	-	-	-	-	-	-
HR B + (G)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HR B (G)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HR B - (G)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HR C + (G)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HR C (G)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HR C - (G)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TOTAL	5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Source : HR Ratings

- One- Year Sovereign Issuers, Short Term Global Transition Matrix – 2021-2022

**Sovereign Issuers - 1 Year Transition and Default Rates
(December 31, 2021 through December 31, 2022)**

Credit Ratings as of 12/31/2021		Credit Ratings as of 12/31/2022 (Percent)						Other Outcomes During 12/31/2021 - 12/31/2022 (Percent)		
Credit Rating Scale	Number of Ratings Outstanding	HR +1 (G)	HR1 (G)	HR2 (G)	HR3 (G)	HR4 (G)	HR5 (G)	Default	Paid Off	Withdrawn (Other)
HR+1 (G)	1	100%	-	-	-	-	-	-	-	-
HR1 (G)	1	-	100%	-	-	-	-	-	-	-
HR2 (G)	1	-	-	100%	-	-	-	-	-	-
HR3 (G)	1	-	-	-	100%	-	-	-	-	-
HR4 (G)	1	-	-	-	-	100%	-	-	-	-
HR5 (G)	-	-	-	-	-	-	-	-	-	-
TOTAL	5									

Source : HR Ratings



Credit Ratings Performance Measurement Statistics

NRSRO Ratings

- Three- Year Sovereign Issuers, Long Term Global Transition Matrix – 2019-2022

Sovereign Issuers - 3 Year Transition and Default Rates
(December 31, 2019 through December 31, 2022)

Credit Ratings as of 12/31/2019		Credit Ratings as of 12/31/2022 (Percent)																		Other Outcomes During 12/31/2019 - 12/31/2022 (Percent)			
Credit Rating Scale	Number of Ratings Outstanding	HR AAA (G)	HR AA + (G)	HR AA (G)	HR AA - (G)	HR A + (G)	HR A (G)	HR A - (G)	HR BBB + (G)	HR BBB (G)	HR BBB - (G)	HR BB + (G)	HR BB (G)	HR BB - (G)	HR B + (G)	HR B (G)	HR B - (G)	HR C + (G)	HR C (G)	HR C - (G)	Default	Paid Off	Withdrawn (Other)
HR AAA (G)	1	-	100%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HR AA + (G)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HR AA (G)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HR AA - (G)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HR A + (G)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HR A (G)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HR A - (G)	2	-	-	-	-	-	-	50%	50%	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HR BBB + (G)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HR BBB (G)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HR BBB - (G)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HR BB + (G)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HR BB (G)	1	-	-	-	-	-	-	-	-	-	-	-	-	100%	-	-	-	-	-	-	-	-	-
HR BB - (G)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HR B + (G)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HR B (G)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HR B - (G)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HR C + (G)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HR C (G)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HR C - (G)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TOTAL	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Source : HR Ratings

- Three- Year Sovereign Issuers, Short Term Global Transition Matrix – 2019-2022

**Sovereign Issuers - 3 Year Transition and Default Rates
(December 31, 2019 through December 31, 2022)**

Credit Ratings as of 12/31/2019		Credit Ratings as of 12/31/2022 (Percent)						Other Outcomes During 12/31/2019 - 12/31/2022 (Percent)		
Credit Rating Scale	Number of Ratings Outstanding	HR +1 (G)	HR1 (G)	HR2 (G)	HR3 (G)	HR4 (G)	HR5 (G)	Default	Paid Off	Withdrawn (Other)
HR+1 (G)	1	100%	-	-	-	-	-	-	-	-
HR1 (G)	-	-	-	-	-	-	-	-	-	-
HR2 (G)	2	-	-	50%	50%	-	-	-	-	-
HR3 (G)	-	-	-	-	-	-	-	-	-	-
HR4 (G)	1	-	-	-	-	100%	-	-	-	-
HR5 (G)	-	-	-	-	-	-	-	-	-	-
TOTAL	4									

Source : HR Ratings



- Ten- Year Sovereign Issuers, Long Term Global Transition Matrix – 2012-2022

Sovereign Issuers - 10 Years Transition and Default Rates
(December 31, 2012 through December 31, 2022)

Credit Ratings as of 12/31/2012		Credit Ratings as of 12/31/2022 (Percent)																		Other Outcomes During 12/31/2012 - 12/31/2022 (Percent)			
Credit Rating Scale	Number of Ratings Outstanding	HR AAA (G)	HR AA + (G)	HR AA (G)	HR AA - (G)	HR A + (G)	HR A (G)	HR A - (G)	HR BBB + (G)	HR BBB (G)	HR BBB - (G)	HR BB + (G)	HR BB (G)	HR BB - (G)	HR B + (G)	HR B (G)	HR B - (G)	HR C + (G)	HR C (G)	HR C - (G)	Default	Paid Off	Withdrawn (Other)
HR AAA (G)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HR AA + (G)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HR AA (G)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HR AA - (G)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HR A + (G)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HR A (G)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HR A - (G)	1	-	-	-	-	-	-	-	100%	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HR BBB + (G)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HR BBB (G)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HR BBB - (G)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HR BB + (G)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HR BB (G)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HR BB - (G)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HR B + (G)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HR B (G)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HR B - (G)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HR C + (G)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HR C (G)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HR C - (G)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TOTAL	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Source : HR Ratings

- Ten- Year Sovereign Issuers, Short Term Global Transition Matrix – 2012-2022

**Sovereign Issuers - 10 Years Transition and Default Rates
(December 31, 2012 through December 31, 2022)**

Credit Ratings as of 12/31/2012		Credit Ratings as of 12/31/2022 (Percent)						Other Outcomes During 12/31/2012 - 12/31/2022 (Percent)		
Credit Rating Scale	Number of Ratings Outstanding	HR +1 (G)	HR1 (G)	HR2 (G)	HR3 (G)	HR4 (G)	HR5 (G)	Default	Paid Off	Withdrawn (Other)
HR+1 (G)	-	-	-	-	-	-	-	-	-	-
HR1 (G)	1	-	-	-	100%	-	-	-	-	-
HR2 (G)	-	-	-	-	-	-	-	-	-	-
HR3 (G)	-	-	-	-	-	-	-	-	-	-
HR4 (G)	-	-	-	-	-	-	-	-	-	-
HR5 (G)	-	-	-	-	-	-	-	-	-	-
TOTAL	1									

Source : HR Ratings



Credit Ratings Performance Measurement Statistics

NRSRO Ratings

- One- Year U.S. Public Finance, Long Term Global Transition Matrix – 2021-2022

U.S Public Finance Global- 1 Year Transition and Default Rates
(December 31, 2021 through December 31, 2022)

Credit Ratings as of 12/31/2021		Credit Ratings as of 12/31/2022 (Percent)																		Other Outcomes During 12/31/2021 - 12/31/2022 (Percent)			
Credit Rating Scale	Number of Ratings Outstanding	HR AAA (G)	HR AA + (G)	HR AA (G)	HR AA - (G)	HR A + (G)	HR A (G)	HR A - (G)	HR BBB + (G)	HR BBB (G)	HR BBB - (G)	HR BB + (G)	HR BB (G)	HR BB - (G)	HR B + (G)	HR B (G)	HR B - (G)	HR C + (G)	HR C (G)	HR C - (G)	Default	Paid Off	Withdrawn (Other)
HR AAA (G)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HR AA + (G)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HR AA (G)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HR AA - (G)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HR A + (G)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HR A (G)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HR A - (G)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HR BBB + (G)	1	-	-	-	-	-	-	-	100%	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HR BBB (G)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HR BBB - (G)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HR BB + (G)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HR BB (G)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HR BB - (G)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HR B + (G)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HR B (G)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HR B - (G)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HR C + (G)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HR C (G)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HR C - (G)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TOTAL	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Source: HR Ratings



- One- Year U.S. Public Finance, Short Term Global Transition Matrix – 2021-2022

*The one-year U.S. Public Finance Short Term Global Transition Matrix cannot be calculated due to the fact that HR Ratings hasn't issued Short Term Global U.S Public Finance ratings.



Credit Ratings Performance Measurement Statistics

NRSRO Ratings

-Three- Year U.S. Public Finance, Long Term Global Transition Matrix – 2019-2022

U.S Public Finance - 3 Year Transition and Default Rates
(December 31, 2019 through December 31, 2022)

Credit Ratings as of 12/31/2019		Credit Ratings as of 12/31/2022 (Percent)																			Other Outcomes During 12/31/2019 - 12/31/2022 (Percent)		
Credit Rating Scale	Number of Ratings Outstanding	HR AAA (G)	HR AA + (G)	HR AA (G)	HR AA - (G)	HR A + (G)	HR A (G)	HR A - (G)	HR BBB + (G)	HR BBB (G)	HR BBB - (G)	HR BB + (G)	HR BB (G)	HR BB - (G)	HR B + (G)	HR B (G)	HR B - (G)	HR C + (G)	HR C (G)	HR C - (G)	Default	Paid Off	Withdrawn (Other)
HR AAA (G)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HR AA + (G)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HR AA (G)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HR AA - (G)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HR A + (G)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HR A (G)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HR A - (G)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HR BBB + (G)	1	-	-	-	-	-	-	-	100%	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HR BBB (G)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HR BBB - (G)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HR BB + (G)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HR BB (G)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HR BB - (G)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HR B + (G)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HR B (G)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HR B - (G)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HR C + (G)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HR C (G)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HR C - (G)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TOTAL	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Source: HR Ratings



-Three- Year U.S. Public Finance, Short Term Global Transition Matrix – 2019-2022

*The three-year U.S. Public Finance Short Term Global Transition Matrix cannot be calculated due to the fact that HR Ratings hasn't issued Short Term Global U.S Public Finance ratings.



- Ten- Year U.S. Public Finance, Long Term Global Transition Matrix – 2012-2022

*The ten-year U.S. Public Finance Long Term Global Transition Matrix cannot be calculated due to the fact that HR Ratings started issuing Long Term Global U.S. Public Finance ratings as of 2014.



- Ten- Year U.S. Public Finance, Short Term Global Transition Matrix – 2012-2022

*The ten-year U.S. Public Finance Short Term Global Transition Matrix cannot be calculated due to the fact that HR Ratings hasn't issued Short Term Global U.S Public Finance ratings.



Credit Ratings Performance Measurement Statistics

NRSRO Ratings

- One- Year International Public Finance, Long Term Local Transition Matrix – 2021-2022

International Public Finance Issuers - 1 Year Transition and Default Rates
(December 31, 2021 through December 31, 2022)

Credit Ratings as of 12/31/2021		Credit Ratings as of 12/31/2022 (Percent)																			Other Outcomes During 12/31/2021 - 12/31/2022 (Percent)		
Credit Rating Scale	Number of Ratings Outstanding	HR AAA	HR AA +	HR AA	HR AA -	HR A +	HR A	HR A -	HR BBB +	HR BBB	HR BBB -	HR BB +	HR BB	HR BB -	HR B +	HR B	HR B -	HR C +	HR C	HR C -	HR D	Paid Off	Withdrawn (Other)
HR AAA	195	98%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2%	-
HR AA +	79	14%	77%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4%	5%
HR AA	43	-	9%	84%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5%	2%
HR AA -	18	-	6%	22%	72%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HR A +	15	-	-	-	20%	67%	7%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	7%	-
HR A	23	-	-	-	-	30%	57%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	9%	4%
HR A -	14	-	-	-	-	-	29%	57%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	14%
HR BBB +	17	-	-	-	-	-	-	18%	76%	6%	-	-	-	-	-	-	-	-	-	-	-	-	-
HR BBB	12	-	-	-	-	-	-	-	-	100%	-	-	-	-	-	-	-	-	-	-	-	-	-
HR BBB -	7	-	-	-	-	-	-	-	-	29%	29%	-	-	-	-	-	-	-	-	-	14%	-	29%
HR BB +	6	-	-	-	-	-	-	-	-	-	33%	50%	-	-	17%	-	-	-	-	-	-	-	-
HR BB	4	-	-	-	-	-	-	-	-	-	-	50%	50%	-	-	-	-	-	-	-	-	-	-
HR BB -	2	-	-	-	-	-	-	-	-	-	-	-	50%	50%	-	-	-	-	-	-	-	-	-
HR B +	1	-	-	-	-	-	-	-	-	-	-	-	-	-	100%	-	-	-	-	-	-	-	-
HR B	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HR B -	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	100%	-	-	-	-	-	-	-
HR C +	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HR C	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HR C -	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TOTAL	437																						



- One- Year International Public Finance, Short Term Local Transition Matrix – 2021-2022

*The one-year International Public Finance Short Term Transition Matrix cannot be calculated due to the fact that HR Ratings hasn't issued Short Term International Public Finance ratings.



Credit Ratings Performance Measurement Statistics

NRSRO Ratings

- Three- Year International Public Finance, Long Term Local Transition Matrix – 2019-2022

International Public Finance Long Term Local Issuers - 3 Year Transition and Default Rates
(December 31, 2019 through December 31, 2022)

Credit Ratings as of 12/31/2019		Credit Ratings as of 12/31/2022 (Percent)																			Other Outcomes During 12/31/2019 - 12/31/2022 (Percent)		
Credit Rating Scale	Number of Ratings Outstanding	HR AAA	HR AA +	HR AA	HR AA -	HR A +	HR A	HR A -	HR BBB +	HR BBB	HR BBB -	HR BB +	HR BB	HR BB -	HR B +	HR B	HR B -	HR C +	HR C	HR C -	HR D	Paid Off	Withdrawn (Other)
HR AAA	120	68%	5%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	24%	3%
HR AA +	89	39%	24%	1%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	27%	9%
HR AA	33	3%	21%	42%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	27%	6%
HR AA -	16	-	19%	44%	38%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HR A +	12	-	-	25%	42%	8%	8%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	17%	-
HR A	16	-	-	-	6%	44%	19%	-	-	-	-	-	-	-	-	-	-	-	-	-	6%	-	25%
HR A -	22	-	-	-	5%	14%	41%	14%	5%	-	-	-	-	-	-	-	-	-	-	-	5%	14%	5%
HR BBB +	21	-	-	-	-	-	14%	19%	33%	29%	-	-	-	-	-	-	-	-	-	-	5%	-	-
HR BBB	17	-	-	-	-	-	6%	24%	24%	12%	-	6%	-	-	-	-	-	-	-	-	-	-	6%
HR BBB -	11	-	-	-	-	-	-	-	9%	36%	-	9%	-	-	-	-	-	-	-	-	9%	-	36%
HR BB +	4	-	-	-	-	-	-	-	-	25%	-	-	25%	25%	-	-	-	-	-	-	25%	-	-
HR BB	6	-	-	-	-	-	-	-	-	-	17%	50%	-	-	-	-	-	-	-	-	-	-	33%
HR BB -	3	-	-	-	-	-	-	-	-	-	-	33%	33%	-	-	-	33%	-	-	-	-	-	-
HR B +	2	-	-	-	-	-	-	-	-	-	-	-	-	50%	50%	-	-	-	-	-	-	-	-
HR B	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HR B -	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HR C +	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HR C	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HR C -	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TOTAL	372																						

Source: HR Ratings



- Three- Year International Public Finance, Short Term Local Transition Matrix – 2019-2022

*The three-year International Public Finance Short Term Transition Matrix cannot be calculated due to the fact that HR Ratings hasn't issued Short Term International Public Finance ratings.



Credit Ratings Performance Measurement Statistics

NRSRO Ratings

- Ten- Year International Public Finance, Long Term Transition Matrix – 2012-2022

International Public Finance Long Term Local Issuers - 10 Year Transition and Default Rates
(December 31, 2012 through December 31, 2022)

Credit Ratings as of 12/31/2012		Credit Ratings as of 12/31/2022 (Percent)																			Other Outcomes During 12/31/2012 - 12/31/2022 (Percent)		
Credit Rating Scale	Number of Ratings Outstanding	HR AAA	HR AA +	HR AA	HR AA -	HR A +	HR A	HR A -	HR BBB +	HR BBB	HR BBB -	HR BB +	HR BB	HR BB -	HR B +	HR B	HR B -	HR C +	HR C	HR C -	HR D	Paid Off	Withdrawn (Other)
HR AAA	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	100%
HR AA +	11	18%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	82%	-
HR AA	12	17%	8%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	50%	25%
HR AA -	13	15%	-	15%	8%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	31%	31%
HR A +	13	15%	8%	-	-	-	-	8%	-	-	-	-	-	-	-	-	-	-	-	-	-	62%	8%
HR A	23	-	4%	-	9%	4%	4%	-	4%	4%	-	-	-	-	-	-	-	-	-	-	4%	43%	22%
HR A -	9	-	-	-	11%	22%	-	-	11%	-	-	-	-	-	11%	-	-	-	-	-	-	33%	11%
HR BBB +	10	-	10%	-	10%	-	-	-	10%	30%	-	10%	-	-	-	-	-	-	-	-	-	-	30%
HR BBB	14	-	-	-	-	7%	7%	7%	14%	7%	7%	-	-	-	-	-	-	-	-	-	7%	21%	21%
HR BBB -	11	-	-	-	9%	-	-	9%	-	-	-	-	-	-	-	-	-	-	-	-	27%	-	55%
HR BB +	5	-	-	-	-	-	-	-	-	20%	-	20%	-	-	-	-	-	-	-	-	-	-	60%
HR BB	2	-	-	-	-	-	-	50%	-	-	-	-	-	50%	-	-	-	-	-	-	-	-	-
HR BB -	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HR B +	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HR B	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	100%
HR B -	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HR C +	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HR C	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HR C -	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TOTAL	125																						

Source: HR Ratings



- Ten- Year International Public Finance, Short Term Transition Matrix – 2012-2022

*The ten-year International Public Finance Short Term Transition Matrix cannot be calculated due to the fact that HR Ratings hasn't issued Short Term International Public Finance ratings.



Long Term Local Rating Scale

Symbol	Definition of the Rating
HR AAA	The issuer or issue with this rating is considered to have the highest credit quality, offering high safety for timely payment of debt obligations. Maintains minimum credit risk.
HR AA	The issuer or issue with this rating is considered to have high credit quality and offers high safety for timely payment of debt obligations. Maintains very low credit risk under adverse economic scenarios.
HR A	The issuer or issue with this rating offers acceptable safety for timely payment of debt obligations. Maintains low credit risk.
HR BBB	The issuer or issue with this rating provides moderate safety for timely payment of debt obligations. Maintains moderate credit risk, with weakness in the ability to pay in adverse economic scenarios.
HR BB	The issuer or issue with this rating provides inadequate safety for timely payment of debt obligations. Maintains high credit risk.
HR B	The issuer or issue with this rating provides low safety for timely payment of debt obligations and maintains a high credit risk. The issue or issuer is susceptible to falling into default.
HR C	The issuer or issue with this rating exhibits high probability of falling into default in debt obligation payments.
HR D	The issuer or issue with this rating has the lowest rating. The issue is already in, or is highly likely to fall into, default in the short term.

**Our ratings range from HR AAA to HR D, a plus or minus sign may be included in the range from HR AA to HR C, to indicate strength or weakness within a general rating category.*

Short Term Local Rating Scale

Symbol	Definition of the Rating
HR1	The issuer or issue with this rating exhibits high capacity for timely payment of debt obligations in the short term and maintains the lowest credit risk. Within this category, debt instruments and or issuers with features showing relative superiority in terms of credit characteristics may be rated as HR+1.
HR2	The issuer or issue with this rating exhibits an acceptable capacity for timely payment of debt obligations in the short term and maintains a higher credit risk compared with higher credit rating debt instruments.
HR3	The issuer or issue with this rating exhibits a moderate capacity for timely payment of debt obligations in the short term and maintains a higher credit risk compared with higher credit rating debt instruments.
HR4	The issuer or issue with this rating exhibits an insufficient capacity for timely payment of debt obligations in the short term and maintains a very high credit risk. These instruments are susceptible to falling into default.
HR5	The issuer or offering is highly probable they will fall into default on the payment of debt obligations.
HR D	The issuer or offering given this rating has the lowest credit rating and they are already in default.

Long Term Global Rating Scale

Symbol	Definition of the Rating
HR AAA (G)	The issuer or issue with this rating is considered to have the highest credit quality, offering high safety for timely payment of debt obligations. Maintains minimum credit risk on a global scale basis.
HR AA (G)	The issuer or issue with this rating is considered to have high credit quality and offers high safety for timely payment of debt obligations. Maintains very low credit risk on a global scale basis, under adverse economic scenarios.
HR A (G)	The issuer or issue with this rating offers acceptable safety for timely payment of debt obligations. Maintains low credit risk on a global scale basis.
HR BBB (G)	The issuer or issue with this rating provides moderate safety for timely payment of debt obligations. Maintains moderate credit risk on a global scale, with weakness in the ability to pay in adverse economic scenarios.
HR BB (G)	The issuer or issue with this rating provides inadequate safety for timely payment of debt obligations. Maintains high credit risk on a global scale basis.
HR B (G)	The issuer or issue with this rating provides low safety for timely payment of debt obligations and maintains a high credit risk on a global scale. The issue or issuer is susceptible to falling into default.
HR C (G)	The issuer or issue with this rating exhibits high probability of falling into default in debt obligation payments.
HR D (G)	The issuer or issue with this rating has the lowest rating on a global scale basis. The issue is already in, or is highly likely to fall into, default in the short term.

**Our ratings range from HR AAA (G) to HR D (G), a plus or minus sign may be included in the range from HR AA (G) to HR C (G), to indicate strength or weakness within a general rating category.*

Short Term Global Rating Scale

Symbol	Definition of the Rating
HR1 (G)	The issuer or issue with this rating exhibits high capacity for timely payment of debt obligations in the short term and maintains the lowest credit risk on a global scale basis. Within this category, debt instruments and or issuers with features showing relative superiority in terms of credit characteristics may be rated as HR+1 (G).
HR2 (G)	The issuer or issue with this rating exhibits an acceptable capacity for timely payment of debt obligations in the short term and maintains a higher credit risk compared with higher credit rating debt instruments on a global scale basis.
HR3 (G)	The issuer or issue with this rating exhibits a moderate capacity for timely payment of debt obligations in the short term and maintains a higher credit risk compared with higher credit rating debt instruments on a global scale basis.
HR4 (G)	The issuer or issue with this rating exhibits an insufficient capacity for timely payment of debt obligations in the short term and maintains a very high credit risk on a global scale basis. These instruments are susceptible to falling into default.
HR5 (G)	The issuer or offering is highly probable they will fall into default on the payment of debt obligations.
HR D (G)	The issuer or offering given this rating has the lowest credit rating and they are already in default.

Structured Finance Rating Scale

Symbol	Definition of the Rating
HR AAA (E)*	The issue with this rating is considered to have the highest credit quality, offering high safety for timely payment of debt obligations. Maintains minimum credit risk.
HR AA (E)*	The issue with this rating is considered to have high credit quality and offers high safety for timely payment of debt obligations. Maintains very low credit risk under adverse economic scenarios.
HR A (E)*	The issue with this rating offers acceptable safety for timely payment of debt obligations. Maintains low credit risk.
HR BBB (E)*	The issue with this rating provides moderate safety for timely payment of debt obligations. Maintains moderate credit risk, with weakness in the ability to pay in adverse economic scenarios.
HR BB (E)*	The issue with this rating provides inadequate safety for timely payment of debt obligations. Maintains high credit risk.
HR B (E)*	The issue with this rating provides low safety for timely payment of debt obligations and maintains a high credit risk. The issue is susceptible to falling into default.
HR C (E)*	The issue with this rating exhibits high probability of falling into default in debt obligation payments.
HR D (E)*	The issue with this rating has the lowest rating. The issue is already in, or is highly likely to fall into, default in the short term.

*Our ratings range from HR AAA (E) to HR D (E), a plus or minus sign may be included in the range from HR AA (E) to HR C (E), to indicate strength or weakness within a general rating category.

Long-Term Market Risk Rating Scale (Investment Funds)

Symbol	Definition of the Rating
1LP	The asset portfolio has extremely low sensitivity to changes in market conditions.
2LP	The asset portfolio has low sensitivity to changes in market conditions.
3LP	The asset portfolio has low to moderate sensitivity to changes in market conditions.
4LP	The asset portfolio is moderately sensitive to changes in market conditions.
5LP	The asset portfolio has moderate to high sensitivity to changes in market conditions.
6LP	The asset portfolio is highly sensitive to changes in market conditions.
7LP	The asset portfolio is extremely sensitive to changes in market conditions.



Short-Term Market Risk Rating Scale (Investment Funds)

Symbol	Definition of the Rating
1CP	The asset portfolio has extremely low sensitivity to changes in market conditions.
2CP	The asset portfolio has low sensitivity to changes in market conditions.
3CP	The asset portfolio has low to moderate sensitivity to changes in market conditions.
4CP	The asset portfolio is moderately sensitive to changes in market conditions.
5CP	The asset portfolio has moderate to high sensitivity to changes in market conditions.
6CP	The asset portfolio is highly sensitive to changes in market conditions.
7CP	The asset portfolio is extremely sensitive to changes in market conditions.

Default Criteria

HR Ratings' Default Criteria is as follows:

- a) HR Ratings defines "default" as the failure to comply with the obligatory interest and principal payments according to the original agreed terms. In the context of the responsible entity of complying with the payment, the determination of the credit rating depends on the degree of compliance of its set payment obligations. When the default of an entity covers the "predominant" part of its debt, the rating would be HR D.
- b) When the default extends to a "significant" part of its debt, but it is not necessarily predominant, the rating would be HR DS (selective default).
- c) In several cases, an entity may be in difficult conditions that damage its will and/or capacity of complying with its payment obligations according to the original agreed conditions. This may result in a renegotiation of the payment terms between the entity and its creditors. HR Ratings considers a restructure in which the creditors agree to accept the new payment terms knowing that the alternative is to receive inferior payments to the ones originally agreed (or no payment whatsoever), as a "forced restructure". This restructure may represent a "technical default" due to the fact that the entity wouldn't be complying with the original agreed payment terms. The result would be the assignment of a rating of HR DT (technical default) for the instrument(s) in matter, in the moment in which the determined payment is made in the forced restructure.

For further reference please consult the General Methodological Criteria published on HR Ratings website.

URL

HR Ratings Uniform Resource Locator (URL) of its corporate Internet website where the credit rating histories are disclosed is the following:

- <https://www.hrratings.com/ratings/>