

A. Financial Institutions, Brokers, or Dealers - 1-Year Transition and Default Rates

(December 31, 2022 through December 31, 2023)

Credit Ratings as of 12/31/2022		Credit ratings as of 12/31/2023 (%)																					Other Outcomes During 12/31/2022 12/31/2023 (%)		
Credit Rating	# of Ratings Outstanding	AAA	AA+	AA	AA-	A+	A	A-	BBB+	BBB	BBB-	BB+	BB	BB-	B+	B	B-	CCC+	CCC	CCC-	CC	C	Default	Paid Off	Withdrawn (other)
AAA	26	69.2%	23.1%																						7.7%
AA+																									
AA	31			100.0%																					
AA-	77				80.5%	16.9%																			2.6%
A+	115				0.9%	96.5%	1.7%																		0.9%
A	169					6.5%	89.9%		1.2%																2.4%
A-	147					1.4%		94.6%	1.4%														0.7%		2.0%
BBB+	181					3.3%		13.3%	75.7%	1.1%	2.2%	0.6%											0.6%		3.3%
BBB	132								6.8%	87.9%															5.3%
BBB-	145								1.4%	11.7%	85.5%														1.4%
BB+	85									9.4%	87.1%	1.2%													2.4%
BB	59									1.7%	22.0%	71.2%	1.7%												3.4%
BB-	94											3.2%	30.9%	56.4%	3.2%	1.1%									5.3%
B+	41											19.5%	4.9%	61.0%	2.4%	9.8%									2.4%
B	54												11.1%	7.4%	55.6%	5.6%	3.7%		1.9%			1.9%			13.0%
B-	96												1.0%		4.2%	80.2%	7.3%	1.0%		1.0%					5.2%
CCC+	11																45.5%		27.3%				18.2%		9.1%
CCC	1																								100.0%
CCC-	17																		88.2%						11.8%
CC	3																	33.3%			33.3%		33.3%		
C																									
TOTAL	1484																								

A. Financial Institutions, Brokers, or Dealers - 3-Year Transition and Default Rates

(December 31, 2020 through December 31, 2023)

Credit Ratings as of 12/31/2020		Credit ratings as of 12/31/2023 (%)																				Other Outcomes During 12/31/2020 12/31/2023 (%)			
Credit Rating	# of Ratings Outstanding	AAA	AA+	AA	AA-	A+	A	A-	BBB+	BBB	BBB-	BB+	BB	BB-	B+	B	B-	CCC+	CCC	CCC-	CC	C	Default	Paid Off	Withdrawn (other)
AAA	22	63.6%	27.3%																						9.1%
AA+	2			100.0%																					
AA	23			82.6%	13.0%																				4.3%
AA-	80			12.5%	65.0%	18.8%																			3.8%
A+	126				2.4%	77.0%	12.7%	0.8%																	7.1%
A	169				0.6%	14.8%	65.7%	8.9%	2.4%		1.2%														6.5%
A-	122					0.8%	9.8%	73.0%	4.9%	1.6%													0.8%		9.0%
BBB+	163						0.6%	23.9%	61.3%	6.7%	0.6%	0.6%											0.6%		5.5%
BBB	138							4.3%	13.8%	56.5%	2.9%												0.7%		21.7%
BBB-	143								0.7%	17.5%	53.1%	13.3%	1.4%										0.7%		13.3%
BB+	86									7.0%	15.1%	48.8%	3.5%										1.2%		24.4%
BB	70										10.0%	17.1%	37.1%	4.3%									1.4%		30.0%
BB-	96											4.2%	22.9%	40.6%	1.0%	4.2%									27.1%
B+	98												8.2%	4.1%	18.4%	7.1%	38.8%	3.1%					1.0%		19.4%
B	65												3.1%	4.6%	1.5%	21.5%	27.7%	1.5%		10.8%			3.1%		24.6%
B-	50												6.0%	2.0%	4.0%	4.0%	36.0%	8.0%		6.0%	2.0%				32.0%
CCC+	6												16.7%					16.7%							50.0%
CCC	16													6.3%							50.0%			25.0%	6.3%
CCC-	1																								100.0%
CC	6																				16.7%		66.7%		16.7%
C																									
TOTAL	1482																								

A. Financial Institutions, Brokers, or Dealers - 10-Year Transition and Default Rates

(December 31, 2013 through December 31, 2023)

Credit Ratings as of 12/31/2013		Credit ratings as of 12/31/2023 (%)																					Other Outcomes During 12/31/2013 12/31/2023 (%)		
Credit Rating	# of Ratings Outstanding	AAA	AA+	AA	AA-	A+	A	A-	BBB+	BBB	BBB-	BB+	BB	BB-	B+	B	B-	CCC+	CCC	CCC-	CC	C	Default	Paid Off	Withdrawn (other)
AAA	12	58.3%	25.0%																					16.7%	
AA+	1			100.0%																					
AA	3			66.7%	33.3%																				
AA-	79			10.1%	36.7%	34.2%	1.3%																	17.7%	
A+	103			3.9%	8.7%	24.3%	17.5%	10.7%	1.0%															34.0%	
A	166			3.6%	1.2%	21.1%	24.1%	17.5%	3.6%		0.6%													27.7%	
A-	130					4.6%	16.9%	34.6%	9.2%	3.1%	1.5%	0.8%	0.8%										0.6%	27.7%	
BBB+	124						0.8%	9.7%	17.7%	14.5%	5.6%	4.0%	4.0%										0.8%	42.7%	
BBB	174							6.3%	21.3%	10.9%	2.3%	4.6%	4.0%	3.4%	1.1%		8.0%						0.6%	37.4%	
BBB-	146							4.1%	2.7%	13.7%	18.5%	4.8%	3.4%	2.7%		0.7%	6.2%						0.7%	42.5%	
BB+	79								1.3%	12.7%	16.5%	15.2%	6.3%	6.3%		1.3%	1.3%						3.8%	35.4%	
BB	62									4.8%	3.2%	6.5%	12.9%		3.2%	1.6%	1.6%						3.2%	62.9%	
BB-	44										15.9%	2.3%	6.8%	4.5%	2.3%	4.5%	4.5%						2.3%	56.8%	
B+	39											5.1%					10.3%				2.6%		7.7%	74.4%	
B	55							1.8%				3.6%	1.8%	7.3%	7.3%	5.5%	10.9%	1.8%					7.3%	52.7%	
B-	56												3.6%	7.1%	1.8%	3.6%	5.4%			7.1%			14.3%	57.1%	
CCC+																									
CCC	5																						40.0%	60.0%	
CCC-																									
CC																									
C	1																						100.0%		
TOTAL	1279																								

B. Insurance Companies - 1-Year Transition and Default Rates

(December 31, 2022 through December 31, 2023)

Credit Ratings as of 12/31/2022		Credit ratings as of 12/31/2023 (%)																				Other Outcomes During 12/31/2022 12/31/2023 (%)			
Credit Rating	# of Ratings Outstanding	AAA	AA+	AA	AA-	A+	A	A-	BBB+	BBB	BBB-	BB+	BB	BB-	B+	B	B-	CCC+	CCC	CCC-	CC	C	Default	Paid Off	Withdrawn (other)
AAA																									
AA+	8		100.0%																						
AA	15			100.0%																					
AA-	160				99.4%																			0.6%	
A+	190				7.9%	91.1%																		1.1%	
A	192					0.5%	90.1%	5.7%																3.6%	
A-	160						12.5%	69.4%	7.5%															10.6%	
BBB+	105							13.3%	81.0%	2.9%														2.9%	
BBB	53							1.9%	9.4%	79.2%														9.4%	
BBB-	11									27.3%	72.7%														
BB+	8											75.0%												25.0%	
BB	7										14.3%		71.4%	14.3%											
BB-	5												20.0%	40.0%										40.0%	
B+	9														55.6%									44.4%	
B	7															71.4%								28.6%	
B-	3																100.0%								
CCC+																									
CCC																									
CCC-																									
CC	2																				50.0%			50.0%	
C																									
TOTAL	935																								

B. Insurance Companies - 3-Year Transition and Default Rates

(December 31, 2020 through December 31, 2023)

Credit Ratings as of 12/31/2020		Credit ratings as of 12/31/2023 (%)																				Other Outcomes During 12/31/2020 12/31/2023 (%)			
Credit Rating	# of Ratings Outstanding	AAA	AA+	AA	AA-	A+	A	A-	BBB+	BBB	BBB-	BB+	BB	BB-	B+	B	B-	CCC+	CCC	CCC-	CC	C	Default	Paid Off	Withdrawn (other)
AAA																									
AA+	6		100.0%																						
AA	19			78.9%																				21.1%	
AA-	157				99.4%																			0.6%	
A+	134				11.9%	73.9%	6.7%			0.7%														6.7%	
A	231				0.4%	22.5%	59.7%	7.8%	0.4%															9.1%	
A-	154		1.3%				18.8%	53.9%	8.4%															17.5%	
BBB+	161						4.3%	9.9%	37.9%	1.2%														46.6%	
BBB	53							13.2%	26.4%	45.3%														15.1%	
BBB-	13								23.1%	38.5%	23.1%													15.4%	
BB+	10								10.0%	10.0%	20.0%	20.0%												40.0%	
BB	11									9.1%	9.1%	9.1%	45.5%	9.1%										18.2%	
BB-	7												14.3%											71.4%	
B+	7														14.3%									71.4%	
B	8														28.6%									50.0%	
B-	1														12.5%	25.0%	12.5%							100.0%	
CCC+	1																							100.0%	
CCC	2																50.0%				50.0%				
CCC-	2																							100.0%	
CC																									
C																									
TOTAL	977																								

B. Insurance Companies - 10-Year Transition and Default Rates

(December 31, 2013 through December 31, 2023)

Credit Ratings as of 12/31/2013		Credit ratings as of 12/31/2023 (%)																				Other Outcomes During 12/31/2013 12/31/2023 (%)			
Credit Rating	# of Ratings Outstanding	AAA	AA+	AA	AA-	A+	A	A-	BBB+	BBB	BBB-	BB+	BB	BB-	B+	B	B-	CCC+	CCC	CCC-	CC	C	Default	Paid Off	Withdrawn (other)
AAA	8		12.5%																						87.5%
AA+	6		83.3%																						16.7%
AA	17			82.4%																					17.6%
AA-	175				75.4%	5.7%	0.6%	1.1%																	17.1%
A+	179				9.5%	20.7%	19.6%	2.2%	0.6%																47.5%
A	188				2.1%	28.2%	30.9%	6.9%	4.8%	1.1%															26.1%
A-	175		1.1%		1.1%	6.3%	18.9%	21.1%	9.7%	0.6%															41.1%
BBB+	173					0.6%	6.4%	9.2%	8.1%	0.6%															75.1%
BBB	44						2.3%	9.1%	22.7%	9.1%															56.8%
BBB-	21							28.6%	14.3%	9.5%				4.8%											42.9%
BB+	11					9.1%	27.3%			9.1%		9.1%													45.5%
BB	9								11.1%	11.1%			22.2%												55.6%
BB-	2								50.0%												50.0%				
B+	4														50.0%										50.0%
B	9															11.1%						11.1%			77.8%
B-	2																								100.0%
CCC+																									
CCC																									
CCC-																									
CC																									
C																									
TOTAL	1023																								

### C. Corporate issuers - 1-Year Transition and Default Rates

(December 31, 2022 through December 31, 2023)

Credit Ratings as of 12/31/2022		Credit ratings as of 12/31/2023 (%)																				Other Outcomes During 12/31/2022 12/31/2023 (%)			
Credit Rating	# of Ratings Outstanding	AAA	AA+	AA	AA-	A+	A	A-	BBB+	BBB	BBB-	BB+	BB	BB-	B+	B	B-	CCC+	CCC	CCC-	CC	C	Default	Paid Off	Withdrawn (other)
AAA	2	50.0%																							50.0%
AA+	3		100.0%																						
AA	7			100.0%																					
AA-	18				100.0%																				
A+	41					90.2%		2.4%																	7.3%
A	106					9.4%	84.0%	1.9%																	4.7%
A-	158						3.2%	88.0%	7.6%																1.3%
BBB+	269							4.5%	87.4%	3.3%	0.7%					0.4%									3.7%
BBB	360							0.6%	5.0%	86.7%	3.3%	0.6%	0.3%			0.3%									3.3%
BBB-	363								1.1%	7.2%	82.1%	3.6%	0.8%		0.3%			0.3%							4.7%
BB+	153										8.5%	81.0%	3.9%	1.3%	0.7%								0.7%		3.9%
BB	188										1.1%	25.0%	58.5%	4.3%	0.5%		0.5%	1.6%		1.6%		0.5%	1.1%		5.3%
BB-	221											1.8%	11.3%	64.3%	6.3%	1.4%				0.5%			2.3%		12.2%
B+	156												0.6%	9.6%	62.2%	11.5%	1.3%	0.6%	0.6%						13.5%
B	341													0.3%	5.3%	65.4%	4.4%	1.2%	1.8%	0.3%					21.4%
B-	413														0.5%	4.1%	64.4%	8.5%	0.7%	0.5%	0.2%	1.2%	1.2%		18.6%
CCC+	80																10.0%	51.3%	10.0%	1.3%			8.8%		18.8%
CCC	50																	6.0%	18.0%	18.0%	6.0%		34.0%		18.0%
CCC-	46																		2.2%	13.0%	45.7%	4.3%	2.2%	19.6%	6.5%
CC	18																		5.6%		11.1%	22.2%		61.1%	
C	3																				66.7%		33.3%		
TOTAL	2996																								

### C. Corporate issuers - 3-Year Transition and Default Rates

(December 31, 2020 through December 31, 2023)

Credit Ratings as of 12/31/2020		Credit ratings as of 12/31/2023 (%)																					Other Outcomes During 12/31/2020 12/31/2023 (%)		
Credit Rating	# of Ratings Outstanding	AAA	AA+	AA	AA-	A+	A	A-	BBB+	BBB	BBB-	BB+	BB	BB-	B+	B	B-	CCC+	CCC	CCC-	CC	C	Default	Paid Off	Withdrawn (other)
AAA																									
AA+	1																								100.0%
AA	8		37.5%	62.5%																					
AA-	15			6.7%	93.3%																				
A+	39				2.6%	79.5%		2.6%																	15.4%
A	105					13.3%	73.3%	3.8%																	9.5%
A-	176						5.1%	61.4%	21.0%	2.3%	0.6%														9.7%
BBB+	240						0.8%	9.6%	65.4%	8.8%	1.7%	0.4%	0.4%			0.4%									12.5%
BBB	321							0.9%	10.3%	58.6%	5.6%	1.9%	0.6%	0.6%	0.3%	0.3%							0.3%	0.3%	20.6%
BBB-	345								3.2%	25.2%	48.7%	4.3%	0.6%	0.3%			0.3%	0.3%				0.3%	0.3%		16.5%
BB+	155								3.2%	6.5%	21.9%	38.1%	5.8%	1.3%	0.6%								0.6%		21.9%
BB	177										7.9%	25.4%	24.9%	5.1%	1.1%	3.4%	1.1%	1.7%		1.7%			2.3%		25.4%
BB-	173										0.6%	6.9%	10.4%	28.3%	5.2%	5.8%	1.2%	0.6%	0.6%	1.2%	0.6%	0.6%	4.6%		33.5%
B+	131										0.8%	1.5%	4.6%	15.3%	26.7%	5.3%	2.3%	0.8%	0.8%				10.7%		31.3%
B	273											0.4%	1.1%	4.4%	6.6%	24.2%	7.3%	0.7%	1.8%	1.5%			3.3%		48.7%
B-	313												0.3%		1.9%	6.1%	24.9%	5.1%	1.6%	2.9%		0.3%	3.8%		52.4%
CCC+	110													1.8%	15.5%	7.3%	1.8%	0.9%	0.9%				19.1%		50.9%
CCC	65															1.5%	15.4%	7.7%	3.1%	3.1%			23.1%		46.2%
CCC-	26																	3.8%		3.8%	3.8%		65.4%		23.1%
CC	22																						59.1%		40.9%
C	10																	10.0%				20.0%	60.0%		10.0%
TOTAL	2705																								

### C. Corporate issuers - 10-Year Transition and Default Rates

(December 31, 2013 through December 31, 2023)

Credit Ratings as of 12/31/2013		Credit ratings as of 12/31/2023 (%)																					Other Outcomes During 12/31/2013 12/31/2023 (%)		
Credit Rating	# of Ratings Outstanding	AAA	AA+	AA	AA-	A+	A	A-	BBB+	BBB	BBB-	BB+	BB	BB-	B+	B	B-	CCC+	CCC	CCC-	CC	C	Default	Paid Off	Withdrawn (other)
AAA	1																								100.0%
AA+	3					33.3%																			66.7%
AA	14		7.1%	21.4%	21.4%																				50.0%
AA-	16				37.5%		12.5%	6.3%		6.3%															37.5%
A+	52			1.9%	1.9%	21.2%	17.3%	9.6%	3.8%	3.8%															40.4%
A	102					6.9%	28.4%	8.8%	19.6%	1.0%	2.0%														33.3%
A-	136					2.9%	5.9%	25.0%	18.4%	6.6%		0.7%											2.2%		38.2%
BBB+	249						0.8%	12.4%	28.5%	7.6%	4.0%	1.2%	0.4%	0.8%	0.4%								1.2%		42.6%
BBB	267						0.7%	3.7%	10.9%	24.7%	6.7%	4.5%	0.4%	0.4%	0.4%								1.1%		46.4%
BBB-	259							1.2%	5.4%	18.9%	15.4%	6.6%	1.5%	1.5%	0.8%	0.4%	0.4%						1.5%		46.3%
BB+	147								0.7%	8.2%	8.2%	10.2%	3.4%	2.7%									2.0%		60.5%
BB	132								1.5%	1.5%	4.5%	3.8%	5.3%	2.3%	0.8%	1.5%		0.7%	2.0%		0.7%		1.5%		68.9%
BB-	111							0.9%	0.9%	3.6%	5.4%	5.4%	4.5%	2.7%	3.6%	0.9%		0.9%	0.9%				11.7%		58.6%
B+	112								1.8%		1.8%	1.8%	1.8%	4.5%	4.5%	0.9%		0.9%					20.5%		61.6%
B	108											0.9%		3.7%	3.7%	1.9%	1.9%			1.9%			22.2%		63.9%
B-	65														1.5%	3.1%		1.5%			1.5%		30.8%		61.5%
CCC+																									
CCC	24																						50.0%		50.0%
CCC-																									
CC	7																						57.1%		42.9%
C	4																						100.0%		
TOTAL	1809																								

### D(i) Residential mortgage backed securities ("RMBS") - 1- Year Transition and Default Rates

(December 31, 2022 through December 31, 2023)

Credit Ratings as of 12/31/2022		Credit ratings as of 12/31/2023 (%)																				Other Outcomes During 12/31/2022 12/31/2023 (%)			
Credit Rating	# of Ratings Outstanding	AAA	AA+	AA	AA-	A+	A	A-	BBB+	BBB	BBB-	BB+	BB	BB-	B+	B	B-	CCC+	CCC	CCC-	CC	C	Default	Paid Off	Withdrawn (other)
AAA	7785	93.3%	1.6%				0.1%			0.01%														4.9%	0.1%
AA+	463	9.5%	85.5%																					5.0%	
AA	837	41.9%	3.7%	45.3%			2.2%			0.1%														3.7%	3.1%
AA-	303	0.7%	49.5%	29.7%	13.2%		1.0%																	5.9%	
A+	436	3.2%	36.0%	8.3%	1.6%	42.4%	0.5%																	8.0%	
A	1541	6.6%	4.4%	24.5%	0.1%	1.7%	55.5%			0.3%	0.1%		0.3%											2.9%	3.6%
A-	256		11.3%	10.5%	15.6%	2.3%	40.6%	17.2%																2.3%	
BBB+	113					46.9%	10.6%	6.2%	33.6%															1.8%	0.9%
BBB	1187	1.2%		3.9%		0.2%	42.9%	0.7%	0.8%	37.7%			0.5%			0.2%			0.3%					0.8%	11.0%
BBB-	147							1.4%	4.8%	61.9%	29.3%													2.7%	
BB+	141					0.7%	2.1%	11.3%	9.9%	5.0%	15.6%	48.9%												5.7%	0.7%
BB	841						9.0%		0.2%	25.2%	0.5%	4.4%	42.0%			3.6%		0.5%						1.3%	13.3%
BB-	72										4.2%	5.6%	55.6%	34.7%											
B+	39								5.1%	2.6%		2.6%		87.2%										2.6%	
B	568									8.3%		23.1%		0.4%	55.1%	0.4%		3.7%						2.3%	6.9%
B-	101											1.0%	1.0%	3.0%	41.6%	48.5%	3.0%	2.0%							
CCC+																									
CCC	312									0.3%		1.0%	1.3%		0.3%	11.5%	0.3%		74.0%		1.0%	0.6%	0.6%	1.9%	7.1%
CCC-																									
CC	271												0.4%			0.4%		7.0%			84.1%	4.1%	0.7%	0.4%	3.0%
C	358																				0.3%	96.4%	1.4%		2.0%
TOTAL	15771																								

### D(i) Residential mortgage backed securities ("RMBS") - 3-Year Transition and Default Rates

(December 31, 2020 through December 31, 2023)

Credit Ratings as of 12/31/2020		Credit ratings as of 12/31/2023 (%)																					Other Outcomes During 12/31/2020 12/31/2023 (%)		
Credit Rating	# of Ratings Outstanding	AAA	AA+	AA	AA-	A+	A	A-	BBB+	BBB	BBB-	BB+	BB	BB-	B+	B	B-	CCC+	CCC	CCC-	CC	C	Default	Paid Off	Withdrawn (other)
AAA	4646	63.6%	0.2%				0.02%																	35.1%	1.1%
AA+	177	72.9%	4.5%																					22.6%	
AA	622	55.1%	3.1%	4.7%			1.3%			1.0%														27.7%	7.2%
AA-	132	28.8%	4.5%	3.8%	5.3%	1.5%																		53.0%	3.0%
A+	266	18.8%	7.1%	8.6%	1.1%	31.2%	0.8%																	32.3%	
A	1336	25.3%	2.7%	11.5%	0.1%	1.8%	11.9%			0.7%	0.1%		0.6%			0.1%								31.7%	13.5%
A-	166	9.0%	15.1%	9.0%	2.4%	9.0%	7.2%	5.4%																42.8%	
BBB+	120	3.3%	12.5%	7.5%	0.8%	15.8%	14.2%	4.2%	9.2%															30.8%	1.7%
BBB	1553	11.9%	9.1%	9.6%	0.1%	1.2%	23.1%	0.1%	0.3%	4.6%	0.1%		0.5%			0.6%		0.4%						14.0%	24.5%
BBB-	181	4.4%	53.0%	6.1%		4.4%	9.4%	1.1%	1.7%	1.1%	1.7%		0.6%											16.0%	0.6%
BB+	232		42.7%		0.4%	2.2%	2.2%	1.3%	2.6%	4.3%		6.9%												37.1%	0.4%
BB	2012	1.2%	5.2%	7.9%	0.0%	0.1%	20.5%	0.1%	0.2%	9.0%	0.0%	0.2%	4.9%			1.8%		1.2%				0.1%	0.05%	12.5%	34.8%
BB-	238		42.0%	8.4%	5.0%	0.8%	7.6%	0.4%	1.3%	0.4%	0.4%	1.3%	1.3%			0.8%								29.8%	0.4%
B+	157	0.6%	36.9%	10.8%	17.2%	12.1%		0.6%	3.2%	0.6%		3.2%	5.1%	1.9%	3.2%		1.3%							1.9%	1.3%
B	933	0.3%	5.6%	0.8%		3.2%	14.3%	2.0%	1.0%	12.8%	0.6%	0.4%	7.1%	0.1%	0.3%	10.1%	2.3%		2.5%			0.5%	2.0%	15.5%	18.6%
B-	30						20.0%		3.3%	16.7%	3.3%	10.0%	10.0%		6.7%	3.3%	16.7%		6.7%					3.3%	
CCC+																									
CCC	490					0.2%	6.5%			10.2%	0.2%	0.8%	10.6%	0.2%	0.2%	4.9%	0.8%		16.5%		0.6%	2.2%	5.5%	17.8%	22.7%
CCC-																									
CC	359			0.3%	0.6%		0.6%			6.4%		0.3%	6.7%			9.5%	0.3%		8.9%		22.6%	3.1%	13.9%	7.2%	19.8%
C	1185						0.1%			0.2%			2.0%			4.3%			8.9%		12.3%	27.8%	8.3%	6.0%	30.2%
TOTAL	14835																								

### D(i) Residential mortgage backed securities ("RMBS") - 10-Year Transition and Default Rates

(December 31, 2013 through December 31, 2023)

Credit Ratings as of 12/31/2013		Credit ratings as of 12/31/2023 (%)																					Other Outcomes During 12/31/2013 12/31/2023 (%)		
Credit Rating	# of Ratings Outstanding	AAA	AA+	AA	AA-	A+	A	A-	BBB+	BBB	BBB-	BB+	BB	BB-	B+	B	B-	CCC+	CCC	CCC-	CC	C	Default	Paid Off	Withdrawn (other)
AAA	2611	6.1%		0.1%		0.3%	0.1%	0.04%									0.2%							88.5%	4.7%
AA+	183	4.4%			0.5%	1.1%	0.5%			0.5%							0.5%							90.2%	2.2%
AA	1350	4.5%	0.5%	0.4%	0.1%	0.2%	0.7%	0.1%	0.1%	0.8%						0.1%						0.8%	69.9%	21.9%	
AA-	144	17.4%	2.8%	0.7%	1.4%	5.6%	0.7%		0.7%								2.1%							68.8%	
A+	77	14.3%	1.3%	1.3%		6.5%	2.6%	1.3%																67.5%	5.2%
A	1910	4.2%	0.1%	2.0%	0.3%	1.2%	4.1%	0.1%		0.2%			0.1%			0.1%			0.1%			0.2%	0.8%	71.3%	15.3%
A-	53	22.6%	3.8%	1.9%	1.9%	5.7%	1.9%										5.7%							52.8%	3.8%
BBB+	86	1.2%	3.5%		1.2%	8.1%	3.5%	2.3%																76.7%	3.5%
BBB	1725	2.7%	0.2%	1.7%	0.1%	1.0%	2.7%		0.1%	2.6%		0.1%	0.9%			0.3%	0.1%		0.2%				2.0%	57.0%	28.3%
BBB-	71	16.9%			1.4%	12.7%	5.6%	4.2%			1.4%						1.4%		2.8%					49.3%	4.2%
BB+	32	9.4%		3.1%		9.4%	9.4%				3.1%					3.1%			3.1%					59.4%	
BB	1440	1.9%	0.6%	3.1%	0.3%	1.6%	5.2%	0.2%	0.3%	2.4%		0.1%	1.5%		0.1%	1.0%			0.8%			0.1%	3.2%	52.8%	24.9%
BB-	20					10.0%	5.0%		15.0%			5.0%												60.0%	5.0%
B+	29						3.4%	3.4%			3.4%								3.4%					86.2%	
B	1961	1.7%	0.2%	1.6%	0.1%	0.7%	5.6%	0.4%	0.4%	1.7%	0.1%	0.5%	1.2%	0.1%	0.2%	1.6%	0.4%		0.8%		0.3%	0.5%	9.1%	46.1%	26.9%
B-	11							9.1%																81.8%	
CCC+																									
CCC	2611	3.7%	0.1%	2.0%		0.2%	8.0%	0.04%	0.4%	2.5%	0.2%	0.5%	1.5%	0.0%	0.1%	1.1%	0.2%		1.9%		0.7%	1.6%	18.2%	36.9%	20.1%
CCC-																									
CC	2637	3.5%		1.5%			7.6%		0.1%	2.6%		0.1%	2.2%	0.04%		2.2%	0.1%		3.6%		3.0%	2.8%	30.5%	26.5%	13.7%
C	4277	0.4%		0.3%			3.2%	0.05%		2.5%		0.02%	1.9%		0.02%	1.7%			2.1%		2.9%	5.3%	49.0%	11.3%	19.3%
TOTAL	21228																								

### D(ii) Commercial mortgage backed securities ("CMBS") - 1-Year Transition and Default Rates

(December 31, 2022 through December 31, 2023)

Credit Ratings as of 12/31/2022		Credit ratings as of 12/31/2023 (%)																				Other Outcomes During 12/31/2022-12/31/2023 (%)			
Credit Rating	# of Ratings Outstanding	AAA	AA+	AA	AA-	A+	A	A-	BBB+	BBB	BBB-	BB+	BB	BB-	B+	B	B-	CCC+	CCC	CCC-	CC	C	Default	Paid Off	Withdrawn (other)
AAA	3970	89.3%	3.9%	0.2%	0.2%		0.1%				0.1%													6.0%	0.4%
AA+	14		78.6%			7.1%																		14.3%	
AA	111	18.0%	3.6%	54.1%		2.7%	2.7%																	18.9%	
AA-	682	0.9%	3.5%	3.8%	87.1%	0.6%	1.0%	2.2%																0.9%	
A+	9					77.8%																		22.2%	
A	149	6.0%	1.3%	6.0%	1.3%	1.3%	63.1%	0.7%	2.7%	4.0%				0.7%										12.8%	
A-	707	0.3%			0.8%	1.7%	3.3%	85.9%	0.3%	3.5%	2.7%			0.1%										1.4%	
BBB+	75	13.3%	9.3%	10.7%	4.0%	10.7%	8.0%	2.7%	32.0%	2.7%	1.3%		1.3%											4.0%	
BBB	298	0.7%	2.3%	0.3%	0.3%	1.7%	0.7%	1.0%	1.3%	78.9%	2.7%	3.0%	5.0%	0.3%										1.7%	
BBB-	774	0.6%	0.6%	0.4%	0.6%	0.9%	0.9%	1.3%	1.9%	0.9%	75.1%	1.2%	9.2%	2.8%	0.6%	0.6%	0.4%							1.8%	
BB+	80			1.3%	1.3%							70.0%	15.0%	2.5%	7.5%	1.3%	1.3%								
BB	141						0.7%		0.7%	0.7%	0.7%		58.9%	1.4%	6.4%	12.1%	5.7%	5.0%						7.8%	
BB-	375								0.7%	0.7%	0.3%		0.8%	74.4%	8.5%	6.1%	6.1%	2.7%						1.1%	
B+	5														80.0%	20.0%									
B	101											2.0%	2.0%		2.0%	50.5%	11.9%		24.8%		3.0%	1.0%		3.0%	
B-	378													0.5%		0.5%	79.1%		17.5%		1.3%			1.1%	
CCC+																									
CCC	255															0.8%	2.0%		64.3%		24.3%	6.7%		2.0%	
CCC-																									
CC	105												1.0%						2.9%		51.4%	43.8%		1.0%	
C	118																		0.8%			88.1%	10.2%	0.8%	
TOTAL	8347																								

### D(ii) Commercial mortgage backed securities ("CMBS") - 3-Year Transition and Default Rates

(December 31, 2020 through December 31, 2023)

Credit Ratings as of 12/31/2020		Credit ratings as of 12/31/2023 (%)																				Other Outcomes During 12/31/2020-12/31/2023 (%)			
Credit Rating	# of Ratings Outstanding	AAA	AA+	AA	AA-	A+	A	A-	BBB+	BBB	BBB-	BB+	BB	BB-	B+	B	B-	CCC+	CCC	CCC-	CC	C	Default	Paid Off	Withdrawn (other)
AAA	3536	72.2%	4.4%	0.5%	0.3%	0.03%	0.3%			0.1%	0.1%													21.9%	
AA+	10		80.0%				10.0%																	10.0%	
AA	107	17.8%		24.3%		2.8%	2.8%	0.9%			2.8%		0.9%											45.8%	1.9%
AA-	574	3.0%	4.0%	6.4%	70.2%	0.7%	5.6%	3.7%	0.3%	0.5%			0.2%	0.2%										5.2%	
A+	12		8.3%			33.3%	8.3%			16.7%														33.3%	
A	143	6.3%	2.8%	7.0%	0.7%	0.7%	25.2%	0.7%	1.4%	2.8%			2.1%	1.4%		3.5%		2.8%						42.7%	
A-	573	0.9%		0.7%	1.0%	2.4%	4.7%	67.9%	0.3%	7.5%	4.4%	0.2%	2.3%				0.2%				0.2%			7.3%	
BBB+	84	11.9%	8.3%	9.5%	3.6%	9.5%	7.1%	2.4%	23.8%	2.4%	1.2%	1.2%	6.0%											13.1%	
BBB	233	1.7%	3.4%	0.4%	0.9%	1.7%	1.3%	0.9%	1.7%	61.4%	0.9%	3.4%	3.0%	0.4%	1.3%	0.4%		1.7%			1.3%	0.4%		13.7%	
BBB-	726	1.4%	0.7%	0.6%	0.7%	1.1%	1.1%	1.5%	2.1%	1.1%	57.7%	1.5%	11.8%	4.4%	0.7%	2.2%	1.7%	2.5%			1.0%	0.4%		5.9%	
BB+	56			1.8%	1.8%							57.1%	10.7%	3.6%	12.5%	3.6%	5.4%	1.8%						1.8%	
BB	155					0.6%	1.9%		0.6%	1.9%	1.9%		30.3%		2.6%	8.4%	7.1%	16.8%			6.5%	5.8%		15.5%	
BB-	349										0.3%		1.1%	53.3%	3.7%	7.2%	17.5%	10.3%			0.9%	0.3%	0.6%	4.9%	
B+	7														42.9%			42.9%						14.3%	
B	145											1.4%	1.4%		0.7%	22.8%	11.7%	22.8%			9.7%	14.5%	2.1%	13.1%	
B-	309													0.3%		1.0%	48.9%	34.6%			10.7%	1.6%	1.0%	1.9%	
CCC+																									
CCC	176												1.1%			1.1%	2.3%		24.4%		24.4%	29.5%	5.7%	10.8%	0.6%
CCC-																									
CC	52																		1.9%		21.2%	50.0%	15.4%	11.5%	
C	112																					43.8%	44.6%	11.6%	
TOTAL	7359																								

### D(ii) Commercial mortgage backed securities ("CMBS") - 10-Year Transition and Default Rates

(December 31, 2013 through December 31, 2023)

Credit Ratings as of 12/31/2013		Credit ratings as of 12/31/2023 (%)																				Other Outcomes During 12/31/2013 12/31/2023 (%)			
Credit Rating	# of Ratings Outstanding	AAA	AA+	AA	AA-	A+	A	A-	BBB+	BBB	BBB-	BB+	BB	BB-	B+	B	B-	CCC+	CCC	CCC-	CC	C	Default	Paid Off	Withdrawn (other)
AAA	1658	2.7%		0.2%	0.1%	0.1%	0.6%			0.2%	0.3%					0.1%								95.7%	
AA+	23																							100.0%	
AA	214	0.9%		2.8%	2.8%	1.4%	0.5%				0.9%		1.4%			0.5%					0.5%			86.4%	1.9%
AA-	84	3.6%		10.7%	6.0%		7.1%	1.2%		2.4%			3.6%	1.2%		1.2%			1.2%		1.2%			59.5%	
A+	18			5.6%			5.6%																	88.9%	
A	336	0.3%	0.3%	0.3%			2.1%		0.6%	0.3%				0.3%		0.6%			1.2%		0.3%		0.9%	92.0%	0.9%
A-	128			0.8%			9.4%	7.8%		3.1%	0.8%		5.5%	0.8%			0.8%				4.7%	4.7%		60.9%	0.8%
BBB+	56									1.8%	10.7%		3.6%			1.8%			3.6%			1.8%	73.2%	3.6%	
BBB	252	0.4%					0.4%			3.6%			0.8%		0.4%				0.8%		0.4%	1.2%	3.6%	87.3%	1.2%
BBB-	214					0.5%				0.5%	5.1%		3.7%			1.9%	0.9%		5.6%		4.7%	6.5%	4.7%	64.5%	1.4%
BB+	34											2.9%				5.9%			5.9%		2.9%	8.8%		67.6%	5.9%
BB	326									0.6%	0.6%		2.1%			0.9%	1.2%		1.8%		2.1%	6.7%	6.4%	76.1%	1.2%
BB-	25													4.0%					4.0%		4.0%			84.0%	
B+	12																						8.3%	91.7%	
B	291												0.3%			1.0%	0.7%		3.4%		1.4%	10.0%	13.4%	67.4%	2.4%
B-	51						2.0%												2.0%			11.8%	9.8%	74.5%	
CCC+																									
CCC	465																		0.6%		0.6%	2.8%	24.9%	66.5%	4.5%
CCC-																									
CC	362						0.3%						0.3%									3.6%	63.0%	30.4%	2.5%
C	682	0.1%					0.1%						0.1%				0.1%		0.1%			2.5%	84.0%	6.9%	5.9%
TOTAL	5231																								

### D(iii) Collateralized loan obligations ("CLOs") - 1-Year Transition and Default Rates

(December 31, 2022 through December 31, 2023)

Credit Ratings as of 12/31/2022		Credit ratings as of 12/31/2023 (%)																				Other Outcomes During 12/31/2022 12/31/2023 (%)			
Credit Rating	# of Ratings Outstanding	AAA	AA+	AA	AA-	A+	A	A-	BBB+	BBB	BBB-	BB+	BB	BB-	B+	B	B-	CCC+	CCC	CCC-	CC	C	Default	Paid Off	Withdrawn (other)
AAA	1500	94.3%																						5.7%	
AA+	184	0.5%	94.0%																					5.4%	
AA	549		12.6%	81.6%																				5.8%	
AA-	4			25.0%	25.0%																			50.0%	
A+	159		0.6%		0.6%	89.3%																		9.4%	
A	347					13.8%	78.4%																	7.8%	
A-	13							100.0%																	
BBB+	118								89.0%																11.0%
BBB	97								41.2%	51.5%															7.2%
BBB-	267								1.9%	6.0%	82.8%														9.4%
BB+	107										0.9%	88.8%		0.9%											9.3%
BB	92											30.4%	67.4%	1.1%											1.1%
BB-	215											0.9%	1.9%	85.6%		0.5%									11.2%
B+	67													1.5%	89.6%		1.5%								7.5%
B	41														29.3%	63.4%	4.9%								2.4%
B-	176														2.3%	4.5%	90.9%								2.3%
CCC+																									
CCC																									
CCC-																									
CC																									
C																									
TOTAL	3936																								



## (December 31, 2020 through December 31, 2023)

### D(iii) Collateralized loan obligations ("CLOs") - 10-Year Transition and Default Rates

(December 31, 2013 through December 31, 2023)

[www.fitchratings.com](http://www.fitchratings.com)

D(iv) Collateralized debt obligations ("CDOs") - 1-Year Transition and Default Rates

(December 31, 2022 through December 31, 2023)

Credit Ratings as of 12/31/2022		Credit ratings as of 12/31/2023 (%)																					Other Outcomes During 12/31/2022 12/31/2023 (%)		
Credit Rating	# of Ratings Outstanding	AAA	AA+	AA	AA-	A+	A	A-	BBB+	BBB	BBB-	BB+	BB	BB-	B+	B	B-	CCC+	CCC	CCC-	CC	C	Default	Paid Off	Withdrawn (other)
AAA	46	56.5%	37.0%																				2.2%	4.3%	
AA+	2		50.0%																					50.0%	
AA	24			95.8%																					4.2%
AA-	23				95.7%																			4.3%	
A+	25			4.0%	12.0%	68.0%																		16.0%	
A	16						93.8%			6.3%															
A-	12						8.3%	75.0%	8.3%															8.3%	
BBB+	18							22.2%	72.2%	5.6%															
BBB	35	5.7%					5.7%	2.9%	14.3%	34.3%	5.7%													31.4%	
BBB-	17								5.9%	5.9%	76.5%	11.8%													
BB+	18								5.6%		11.1%	77.8%												5.6%	
BB	14									7.1%			71.4%	7.1%										14.3%	
BB-	5												60.0%											40.0%	
B+	9												11.1%		88.9%										
B	1												100.0%												
B-	6																66.7%	16.7%						16.7%	
CCC+																									
CCC	14												14.3%			14.3%	14.3%		57.1%						
CCC-																									
CC	17																				100.0%				
C	119																					89.9%			10.1%
TOTAL	421																								

D(iv) Collateralized debt obligations ("CDOs") - 3-Year Transition and Default Rates

(December 31, 2020 through December 31, 2023)

Credit Ratings as of 12/31/2020		Credit ratings as of 12/31/2023 (%)																					Other Outcomes During 12/31/2020 12/31/2023 (%)			
Credit Rating	# of Ratings Outstanding	AAA	AA+	AA	AA-	A+	A	A-	BBB+	BBB	BBB-	BB+	BB	BB-	B+	B	B-	CCC+	CCC	CCC-	CC	C	Default	Paid Off	Withdrawn (other)	
AAA	38	36.8%	42.1%																					18.4%	2.6%	
AA+	2		50.0%																					50.0%		
AA	38			13.2%																				21.1%	65.8%	
AA-	21				66.7%																			28.6%	4.8%	
A+	18				5.6%	27.8%																		61.1%	5.6%	
A	50	4.0%		12.0%	4.0%	12.0%	10.0%			2.0%														10.0%	46.0%	
A-	8				12.5%		12.5%	62.5%																12.5%		
BBB+	18	11.1%			11.1%			16.7%	5.6%	44.4%														11.1%		
BBB	80			2.5%	1.3%	1.3%	7.5%	2.5%	5.0%	1.3%	15.0%													23.8%	40.0%	
BBB-	19								5.3%	5.3%	10.5%													42.1%	36.8%	
BB+	9			11.1%					11.1%		33.3%	33.3%													11.1%	
BB	40						2.5%		5.0%	10.0%		5.0%		5.0%	2.5%								2.5%	15.0%	52.5%	
BB-	5																							100.0%		
B+	5												20.0%		60.0%									20.0%		
B	28											17.9%	21.4%	3.6%	3.6%									3.6%	50.0%	
B-	1																	100.0%								
CCC+																										
CCC	50								2.0%				10.0%	4.0%	8.0%		12.0%		16.0%					2.0%	46.0%	
CCC-																										
CC	41															4.9%					36.6%			12.2%	46.3%	
C	273																				0.7%	39.2%	6.2%	2.9%	50.9%	
TOTAL	744																									

D(iv) Collateralized debt obligations ("CDOs") - 10-Year Transition and Default Rates

(December 31, 2013 through December 31, 2023)

Credit Ratings as of 12/31/2013		Credit ratings as of 12/31/2023 (%)																				Other Outcomes During 12/31/2013 12/31/2023 (%)			
Credit Rating	# of Ratings Outstanding	AAA	AA+	AA	AA-	A+	A	A-	BBB+	BBB	BBB-	BB+	BB	BB-	B+	B	B-	CCC+	CCC	CCC-	CC	C	Default	Paid Off	Withdrawn (other)
AAA	67	10.4%	14.9%										3.0%											64.2%	7.5%
AA+	20																							90.0%	10.0%
AA	35																							94.3%	5.7%
AA-	38																							94.7%	5.3%
A+	31																							87.1%	12.9%
A	125			4.8%																				72.8%	22.4%
A-	16	12.5%						6.3%																68.8%	12.5%
BBB+	26									26.9%	3.8%													65.4%	3.8%
BBB	129	0.8%		3.1%	0.8%					0.8%		0.8%												67.4%	26.4%
BBB-	32									3.1%	6.3%	12.5%												68.8%	9.4%
BB+	18																							94.4%	5.6%
BB	107	0.9%		2.8%		0.9%	0.9%		0.9%														0.9%	63.6%	29.0%
BB-	3																							100.0%	
B+	6																							100.0%	
B	120				0.8%	2.5%	0.8%		0.8%	1.7%													0.8%	75.0%	17.5%
B-	13																						7.7%	84.6%	7.7%
CCC+																									
CCC	161						0.6%	0.6%	1.2%	0.6%		2.5%	2.5%						0.6%				3.7%	65.8%	21.7%
CCC-																									
CC	165						0.6%		0.6%			1.2%	2.4%	1.8%	0.6%		1.2%		2.4%		0.6%		12.1%	51.5%	24.8%
C	1176												0.3%		0.3%	0.2%	0.2%		0.3%		1.4%	9.1%	21.5%	8.1%	58.8%
TOTAL	2288																								

D(v) Asset-backed commercial paper ("ABCP") - 1-Year Transition and Default Rates

(December 31, 2022 through December 31, 2023)

Credit Ratings as of 12/31/2022		Credit ratings as of 12/31/2023 (%)						Other Outcomes During 12/31/2022 12/31/2023 (%)		
Credit Rating	# of Ratings Outstanding	F1+	F1	F2	F3	B	C	Defaults	Paid Off	Withdrawn (other)
F1+	14	100.0%								
F1	40		72.5%						25.0%	2.5%
F2										
F3										
B										
C										
TOTAL	54									

### D(v) Asset-backed commercial paper ("ABCP") - 3-Year Transition and Default Rates

(December 31, 2020 through December 31, 2023)

Credit Ratings as of 12/31/2020		Credit ratings as of 12/31/2023 (%)						Other Outcomes During 12/31/2020 12/31/2023 (%)		
Credit Rating	# of Ratings Outstanding	F1+	F1	F2	F3	B	C	Defaults	Paid Off	Withdrawn (other)
F1+	8	100.0%								
F1	34	11.8%	76.5%						2.9%	8.8%
F2	1									100.0%
F3										
B										
C										
TOTAL	43									

### D(v) Asset-backed commercial paper ("ABCP") - 10-Year Transition and Default Rates

(December 31, 2013 through December 31, 2023)

Credit Ratings as of 12/31/2013		Credit ratings as of 12/31/2023 (%)						Other Outcomes During 12/31/2013 12/31/2023 (%)		
Credit Rating	# of Ratings Outstanding	F1+	F1	F2	F3	B	C	Defaults	Paid Off	Withdrawn (other)
F1+	13	30.8%	15.4%						30.8%	23.1%
F1	39	10.3%	46.2%						33.3%	10.3%
F2	1								100.0%	
F3										
B										
C										
TOTAL	53									

### D(vi) Other asset-backed securities ("other ABS") - 1-Year Transition and Default Rates

(December 31, 2022 through December 31, 2023)

Credit Ratings as of 12/31/2022		Credit ratings as of 12/31/2023 (%)																				Other Outcomes During 12/31/2022 12/31/2023 (%)			
Credit Rating	# of Ratings Outstanding	AAA	AA+	AA	AA-	A+	A	A-	BBB+	BBB	BBB-	BB+	BB	BB-	B+	B	B-	CCC+	CCC	CCC-	CC	C	Default	Paid Off	Withdrawn (other)
AAA	1477	53.4%	18.4%	0.3%			0.2%																	27.6%	
AA+	53	35.8%	50.9%																					13.2%	
AA	325	20.3%	2.8%	56.0%	0.6%		1.8%			0.3%														18.2%	
AA-	30			6.7%	83.3%																			10.0%	
A+	100	2.0%	3.0%	16.0%	4.0%	43.0%	1.0%			1.0%						1.0%								29.0%	
A	483	1.2%		8.1%	0.6%	1.7%	74.3%	0.6%		1.0%			0.2%									0.2%	12.0%		
A-	60			1.7%	1.7%	5.0%	11.7%	58.3%			11.7%													10.0%	
BBB+	52			3.8%	1.9%	9.6%	13.5%	11.5%	40.4%		1.9%	1.9%												13.5%	1.9%
BBB	272			2.6%	0.4%		8.5%	1.1%	1.1%	68.4%	0.7%		2.6%			0.4%								14.3%	
BBB-	51							7.8%	5.9%	68.6%														11.8%	
BB+	102						1.0%		2.0%	4.9%	2.0%	69.6%		1.0%										19.6%	
BB	107						0.9%		2.8%	6.5%		6.5%	74.8%											6.5%	
BB-	22									4.5%			27.3%	63.6%										4.5%	
B+	14	7.1%											7.1%		71.4%									14.3%	
B	70						1.4%		1.4%	1.4%			11.4%	1.4%		80.0%								1.4%	
B-	9												11.1%				55.6%		22.2%					11.1%	
CCC+																									
CCC	28											3.6%					3.6%	3.6%	60.7%		3.6%			25.0%	
CCC-																									
CC	35						5.7%														57.1%	22.9%	14.3%		
C	33																					97.0%			3.0%
TOTAL	3323																								

### D(vi) Other asset-backed securities ("other ABS") - 3-Year Transition and Default Rates

(December 31, 2020 through December 31, 2023)

Credit Ratings as of 12/31/2020		Credit ratings as of 12/31/2023 (%)																				Other Outcomes During 12/31/2020 12/31/2023 (%)			
Credit Rating	# of Ratings Outstanding	AAA	AA+	AA	AA-	A+	A	A-	BBB+	BBB	BBB-	BB+	BB	BB-	B+	B	B-	CCC+	CCC	CCC-	CC	C	Default	Paid Off	Withdrawn (other)
AAA	1556	16.4%	16.4%	0.5%			0.3%			0.2%														65.7%	0.4%
AA+	34	2.9%	14.7%																					82.4%	
AA	368	9.0%	4.9%	24.7%	0.5%		1.4%																	59.5%	
AA-	30	3.3%	3.3%	16.7%	16.7%																			60.0%	
A+	96	2.1%	1.0%	3.1%	2.1%	20.8%	3.1%			1.0%						1.0%								65.6%	
A	582	3.3%	0.3%	2.1%	0.2%	1.0%	38.5%	1.0%		1.2%	0.5%		0.5%			0.3%							0.2%	50.7%	0.2%
A-	48		2.1%	2.1%	2.1%	6.3%	2.1%	22.9%		2.1%	14.6%													45.8%	
BBB+	52			3.8%		5.8%	9.6%	7.7%	7.7%			1.9%							1.9%					59.6%	1.9%
BBB	289	3.1%		4.8%		1.0%	3.8%	1.4%	0.3%	29.1%	1.4%	0.3%	4.5%	0.3%		1.7%			1.0%				0.3%	46.4%	0.3%
BBB-	41			2.4%			2.4%	7.3%			14.6%													63.4%	7.3%
BB+	115								0.9%	1.7%	1.7%	35.7%												60.0%	
BB	90			3.3%			1.1%		2.2%	4.4%	1.1%	4.4%	28.9%			4.4%	2.2%		2.2%		2.2%			40.0%	3.3%
BB-	29												20.7%	13.8%										65.5%	
B+	7																							57.1%	42.9%
B	101						4.0%		1.0%		1.0%		2.0%	1.0%	2.0%	39.6%		1.0%	3.0%				13.9%	28.7%	3.0%
B-	14																14.3%							85.7%	
CCC+																									
CCC	43	2.3%										2.3%	2.3%						20.9%		14.0%	2.3%	2.3%	53.5%	
CCC-																									
CC	16						12.5%														81.3%		6.3%		
C	32																					96.9%		3.1%	
TOTAL	3543																								

### D(vi) Other asset-backed securities ("other ABS") - 10-Year Transition and Default Rates

(December 31, 2013 through December 31, 2023)

Credit Ratings as of 12/31/2013		Credit ratings as of 12/31/2023 (%)																					Other Outcomes During 12/31/2013 12/31/2023 (%)		
Credit Rating	# of Ratings Outstanding	AAA	AA+	AA	AA-	A+	A	A-	BBB+	BBB	BBB-	BB+	BB	BB-	B+	B	B-	CCC+	CCC	CCC-	CC	C	Default	Paid Off	Withdrawn (other)
AAA	1732	1.2%	10.4%	1.2%			0.3%			0.2%			0.1%			1.3%	0.1%		0.1%				0.5%	82.4%	2.4%
AA+	34		2.9%		5.9%					2.9%													2.9%	67.6%	17.6%
AA	226	0.4%	0.9%	1.8%		0.9%	0.9%			0.4%														92.5%	2.2%
AA-	52		7.7%	1.9%	1.9%	1.9%	1.9%	1.9%																82.7%	
A+	146		2.7%	8.9%	2.1%	2.1%	2.1%									2.1%							0.7%	79.5%	2.1%
A	632	0.2%	1.1%	0.5%			4.7%		0.2%	1.3%	0.3%	0.9%	0.3%			1.4%						0.2%	0.6%	88.0%	0.3%
A-	37	2.7%		2.7%			18.9%				16.2%		2.7%											56.8%	
BBB+	155									0.6%													0.6%	49.7%	49.0%
BBB	353	0.3%	0.3%				2.3%	0.3%	0.3%	3.7%		0.3%	1.1%			0.6%							2.0%	79.3%	9.6%
BBB-	56			1.8%			5.4%			3.6%							1.8%						3.6%	69.6%	14.3%
BB+	31											6.5%												58.1%	35.5%
BB	88						2.3%	1.1%					5.7%											79.5%	11.4%
BB-	18												5.6%											11.1%	83.3%
B+	12	8.3%																						8.3%	83.3%
B	89	1.1%					1.1%		1.1%			2.2%									3.4%			38.2%	52.8%
B-	53																		1.9%					66.0%	32.1%
CCC+																									
CCC	17																				23.5%			47.1%	29.4%
CCC-																									
CC	20						5.0%									10.0%					25.0%			50.0%	10.0%
C	75																		2.7%		1.3%	41.3%	5.3%	17.3%	32.0%
TOTAL	3826																								

### D(vii) Other Structured Finance Products ("other SFPs") - 1-Year Transition and Default Rates

(December 31, 2022 through December 31, 2023)

Credit Ratings as of 12/31/2022		Credit ratings as of 12/31/2023 (%)																					Other Outcomes During 12/31/2022 12/31/2023 (%)		
Credit Rating	# of Ratings Outstanding	AAA	AA+	AA	AA-	A+	A	A-	BBB+	BBB	BBB-	BB+	BB	BB-	B+	B	B-	CCC+	CCC	CCC-	CC	C	Default	Paid Off	Withdrawn (other)
AAA	80	93.8%																						6.3%	
AA+	4		100.0%																						
AA	146	0.7%		83.6%			1.4%																13.7%		
AA-	2				100.0%																				
A+	9		11.1%			66.7%																		22.2%	
A	89				1.1%	1.1%	77.5%															1.1%	13.5%	5.6%	
A-																									
BBB+	2						50.0%		50.0%																
BBB	1																								
BBB-	3									33.3%	33.3%													100.0%	
BB+	1											100.0%												33.3%	
BB																									
BB-																									
B+																									
B																									
B-																									
CCC+																									
CCC																									
CCC-																									
CC																									
C																									
TOTAL	337																								

### D(vii) Other Structured Finance Products ("other SFPs") - 3-Year Transition and Default Rates

(December 31, 2020 through December 31, 2023)

Credit Ratings as of 12/31/2020		Credit ratings as of 12/31/2023 (%)																				Other Outcomes During 12/31/2020 12/31/2023 (%)			
Credit Rating	# of Ratings Outstanding	AAA	AA+	AA	AA-	A+	A	A-	BBB+	BBB	BBB-	BB+	BB	BB-	B+	B	B-	CCC+	CCC	CCC-	CC	C	Default	Paid Off	Withdrawn (other)
AAA	227	29.1%		41.9%			2.2%																	21.1%	5.7%
AA+	3	33.3%	66.7%																						
AA	103	1.0%		9.7%			44.7%																1.0%	18.4%	25.2%
AA-	8		12.5%	75.0%																					12.5%
A+	5				40.0%	20.0%																			40.0%
A	58				1.7%	3.4%	34.5%																	8.6%	51.7%
A-	6					66.7%			16.7%																16.7%
BBB+	6						16.7%																		83.3%
BBB	20										5.0%												20.0%		75.0%
BBB-																									
BB+	2									50.0%															50.0%
BB																									
BB-																									
B+																									
B																									
B-																									
CCC+																									
CCC																									
CCC-																									
CC																									
C																									
TOTAL	438																								

D(vii) Other Structured Finance Products ("other SFPs") Data includes structured finance other long term ratings not otherwise classified including covered bond programs and closed end fund ratings.

### D(vii) Other Structured Finance Products ("other SFPs") - 10-Year Transition and Default Rates

(December 31, 2013 through December 31, 2023)

Credit Ratings as of 12/31/2013		Credit ratings as of 12/31/2023 (%)																				Other Outcomes During 12/31/2013 12/31/2023 (%)			
Credit Rating	# of Ratings Outstanding	AAA	AA+	AA	AA-	A+	A	A-	BBB+	BBB	BBB-	BB+	BB	BB-	B+	B	B-	CCC+	CCC	CCC-	CC	C	Default	Paid Off	Withdrawn (other)
AAA	409	9.5%		9.3%			6.8%																	51.3%	23.0%
AA+	10	30.0%																							70.0%
AA	39			10.3%																				48.7%	41.0%
AA-	6																								100.0%
A+	4			50.0%																					50.0%
A	35	2.9%			2.9%		45.7%		2.9%															5.7%	40.0%
A-	1																								100.0%
BBB+	10																								100.0%
BBB	33		3.0%		3.0%	15.2%																		39.4%	39.4%
BBB-	2						50.0%																		50.0%
BB+	4					25.0%																		75.0%	
BB																									
BB-																									
B+	2																								100.0%
B	4				25.0%																				75.0%
B-																									
CCC+																									
CCC																									
CCC-																									
CC																									
C																									
TOTAL	559																								

### E(i) Sovereign issuers - 1-Year Transition and Default Rates

(December 31, 2022 through December 31, 2023)

Credit Ratings as of 12/31/2022		Credit ratings as of 12/31/2023 (%)																				Other Outcomes During 12/31/2022 12/31/2023 (%)			
Credit Rating	# of Ratings Outstanding	AAA	AA+	AA	AA-	A+	A	A-	BBB+	BBB	BBB-	BB+	BB	BB-	B+	B	B-	CCC+	CCC	CCC-	CC	C	Default	Paid Off	Withdrawn (other)
AAA	26	96.2%	3.8%																						
AA+	9	11.1%	77.8%	11.1%																					
AA	7			85.7%	14.3%																				
AA-	12			8.3%	83.3%	8.3%																			
A+	5				20.0%	80.0%																			
A	7					14.3%	71.4%	14.3%																	
A-	6							83.3%																	16.7%
BBB+	5							20.0%	80.0%																
BBB	11									90.9%	9.1%														
BBB-	6									33.3%	66.7%														
BB+	8											100.0%													
BB	7										14.3%	42.9%	42.9%												
BB-	11												18.2%	72.7%	9.1%										
B+	9													11.1%	77.8%										
B	9															77.8%	11.1%								
B-	8																87.5%	12.5%	25.0%	25.0%					
CCC+	4																	50.0%							
CCC																									
CCC-	2																				50.0%		50.0%		
CC	2																				50.0%		50.0%		
C	1																						100.0%		
TOTAL	155																								

E(i) Sovereign issuers - 3-Year Transition and Default Rates  
(December 31, 2020 through December 31, 2023)

Credit Ratings as of 12/31/2020		Credit ratings as of 12/31/2023 (%)																				Other Outcomes During 12/31/2020-12/31/2023 (%)			
Credit Rating	# of Ratings Outstanding	AAA	AA+	AA	AA-	A+	A	A-	BBB+	BBB	BBB-	BB+	BB	BB-	B+	B	B-	CCC+	CCC	CCC-	CC	C	Default	Paid Off	Withdrawn (other)
AAA	26	96.2%	3.8%																						
AA+	7	14.3%	71.4%	14.3%																					
AA	7		14.3%		57.1%	28.6%																			
AA-	10			10.0%	80.0%	10.0%																			
A+	8			12.5%	25.0%	50.0%																		12.5%	
A	7					14.3%	71.4%	14.3%																	
A-	6							66.7%																33.3%	
BBB+	6							16.7%	50.0%	16.7%														16.7%	
BBB	11							9.1%		63.6%	18.2%													9.1%	
BBB-	11								9.1%	36.4%	27.3%	9.1%												18.2%	
BB+	9											66.7%	22.2%											11.1%	
BB	5										20.0%	40.0%	20.0%	20.0%											
BB-	11											9.1%	18.2%	45.5%	18.2%	9.1%									
B+	8												25.0%	50.0%	12.5%	12.5%									
B	14													14.3%	7.1%	28.6%	14.3%			7.1%			28.6%		
B-	6																50.0%	16.7%	16.7%				16.7%		
CCC+																									
CCC	8																	25.0%			12.5%		12.5%	12.5%	
CCC-																									
CC																									
C	1																						100.0%		
TOTAL	161																								

E(i) Sovereign issuers - 10-Year Transition and Default Rates  
(December 31, 2013 through December 31, 2023)

Credit Ratings as of 12/31/2013		Credit ratings as of 12/31/2023 (%)																				Other Outcomes During 12/31/2013-12/31/2023 (%)			
Credit Rating	# of Ratings Outstanding	AAA	AA+	AA	AA-	A+	A	A-	BBB+	BBB	BBB-	BB+	BB	BB-	B+	B	B-	CCC+	CCC	CCC-	CC	C	Default	Paid Off	Withdrawn (other)
AAA	27	85.2%	14.8%																						
AA+	5	20.0%			80.0%																				
AA	5		20.0%	40.0%	40.0%																				
AA-	7			14.3%	57.1%	14.3%																		14.3%	
A+	7			14.3%	14.3%	28.6%	14.3%	28.6%																	
A	5					40.0%	20.0%					20.0%												20.0%	
A-	3							66.7%	33.3%																
BBB+	10				10.0%		20.0%	10.0%	10.0%	30.0%	10.0%		10.0%												
BBB	11						9.1%	9.1%	9.1%		9.1%	18.2%	9.1%	9.1%										18.2%	
BBB-	12									41.7%	16.7%	16.7%		8.3%		8.3%								8.3%	
BB+	6							16.7%	16.7%	16.7%		16.7%	16.7%												
BB	1											100.0%													
BB-	14											14.3%	7.1%	14.3%		7.1%	28.6%		7.1%				21.4%		
B+	7											14.3%				28.6%	14.3%						42.9%		
B	9														22.2%	22.2%	11.1%						44.4%		
B-	4									25.0%	25.0%						25.0%						25.0%		
CCC+																									
CCC	1														100.0%										
CCC-																									
CC	1																						100.0%		
C																									
TOTAL	135																								



### E(ii) U.S. Public Finance - 1-Year Transition and Default Rates

(December 31, 2022 through December 31, 2023)

Credit Ratings as of 12/31/2022		Credit ratings as of 12/31/2023 (%)																					Other Outcomes During 12/31/2022 12/31/2023 (%)		
Credit Rating	# of Ratings Outstanding	AAA	AA+	AA	AA-	A+	A	A-	BBB+	BBB	BBB-	BB+	BB	BB-	B+	B	B-	CCC+	CCC	CCC-	CC	C	Default	Paid Off	Withdrawn (other)
AAA	469	94.0%	4.1%																						1.9%
AA+	547	2.9%	93.2%	0.2%																					3.7%
AA	625		3.0%	93.0%	0.6%	0.2%																			3.2%
AA-	563			3.4%	90.2%	2.1%																			4.3%
A+	344				11.0%	84.3%	0.9%	0.6%																	3.2%
A	252					10.7%	83.7%	1.2%	0.4%		0.4%														3.6%
A-	192						15.1%	79.7%	3.1%		0.5%														1.6%
BBB+	129						0.8%	3.9%	86.0%	5.4%	1.6%														2.3%
BBB	166							0.6%	6.0%	84.3%	3.0%	0.6%				0.6%									4.8%
BBB-	148								1.4%	8.1%	85.8%	0.7%		0.7%											2.7%
BB+	74									1.4%	2.7%	81.1%	4.1%	4.1%		1.4%									5.4%
BB	46										4.3%	17.4%	67.4%	2.2%		4.3%		2.2%							2.2%
BB-	33												3.0%	78.8%	6.1%							3.0%	3.0%		6.1%
B+	6														83.3%										16.7%
B	7															100.0%									
B-	10															20.0%	60.0%		10.0%				10.0%		
CCC+	1																		100.0%						
CCC	4																		75.0%						25.0%
CCC-																									
CC	1																								100.0%
C	4																					50.0%	25.0%		25.0%
TOTAL	3621																								

### E(ii) U.S. Public Finance - 3-Year Transition and Default Rates

(December 31, 2020 through December 31, 2023)

Credit Ratings as of 12/31/2020		Credit ratings as of 12/31/2023 (%)																				Other Outcomes During 12/31/2020 12/31/2023 (%)			
Credit Rating	# of Ratings Outstanding	AAA	AA+	AA	AA-	A+	A	A-	BBB+	BBB	BBB-	BB+	BB	BB-	B+	B	B-	CCC+	CCC	CCC-	CC	C	Default	Paid Off	Withdrawn (other)
AAA	456	88.8%	5.0%																						6.1%
AA+	558	5.7%	81.2%	1.6%	0.2%	0.2%																			11.1%
AA	637	0.6%	7.5%	77.7%	3.0%	0.3%																			10.8%
AA-	581	0.2%	0.3%	8.4%	73.0%	4.0%	1.0%	0.3%	0.2%																12.6%
A+	342				18.1%	67.0%	1.5%	1.5%															0.3%		11.7%
A	287				3.1%	19.5%	59.2%	3.1%	1.0%		0.7%														13.2%
A-	187					1.6%	21.4%	61.5%	5.3%	0.5%		1.1%													8.6%
BBB+	139					0.7%	5.0%	11.5%	55.4%	11.5%	1.4%	0.7%													13.7%
BBB	151						0.7%	2.6%	11.9%	61.6%	9.3%	1.3%				0.7%									11.9%
BBB-	154						0.6%	0.6%	4.5%	16.9%	53.2%	4.5%	1.3%	2.6%		0.6%		0.6%							14.3%
BB+	66								1.5%	4.5%	10.6%	54.5%	4.5%	4.5%					1.5%						18.2%
BB	55						1.8%				7.3%	16.4%	45.5%	5.5%		7.3%					1.8%	1.8%			12.7%
BB-	26										3.8%	3.8%	3.8%	50.0%	7.7%	3.8%	3.8%								23.1%
B+	15														20.0%	6.7%	6.7%		6.7%				20.0%		40.0%
B	9															22.2%	11.1%					11.1%	11.1%		44.4%
B-	13															15.4%	15.4%		7.7%				15.4%		46.2%
CCC+																									
CCC	10																		20.0%						80.0%
CCC-																									
CC	2																								100.0%
C	2																								50.0%
TOTAL	3690																								

### E(ii) U.S. Public Finance - 10-Year Transition and Default Rates

(December 31, 2013 through December 31, 2023)

Credit Ratings as of 12/31/2013		Credit ratings as of 12/31/2023 (%)																					Other Outcomes During 12/31/2013 12/31/2023 (%)		
Credit Rating	# of Ratings Outstanding	AAA	AA+	AA	AA-	A+	A	A-	BBB+	BBB	BBB-	BB+	BB	BB-	B+	B	B-	CCC+	CCC	CCC-	CC	C	Default	Paid Off	Withdrawn (other)
AAA	414	54.1%	9.7%	0.5%	0.2%	0.2%																			35.3%
AA+	464	14.2%	47.4%	6.7%	1.5%	0.4%	0.6%																		29.1%
AA	639	3.1%	17.8%	33.0%	6.4%	1.3%	0.5%	0.6%	0.2%																37.1%
AA-	687	1.2%	4.9%	17.0%	24.7%	6.3%	1.5%	0.7%	0.4%	0.1%	0.1%							0.1%				0.1%			42.6%
A+	431	0.7%	1.6%	5.8%	17.6%	24.1%	5.1%	3.2%	0.9%	0.2%											0.2%				40.4%
A	318	1.3%	0.6%	3.5%	11.3%	12.9%	19.5%	4.7%	0.6%	1.3%	0.6%	0.6%											0.3%		42.8%
A-	273	0.4%			5.5%	7.0%	10.6%	10.3%	4.0%	1.5%	0.7%	1.1%	0.4%												58.6%
BBB+	166		0.6%	1.2%	1.8%	3.6%	10.2%	9.6%	9.0%	7.2%	2.4%	1.8%													52.4%
BBB	138				0.7%		6.5%	2.9%	10.9%	17.4%	5.1%	2.2%	0.7%	0.7%		0.7%						0.7%			51.4%
BBB-	135				0.7%	1.5%	3.0%	3.7%	11.1%	8.9%	5.9%	3.0%	2.2%		0.7%			0.7%	1.5%			0.7%	5.2%		48.1%
BB+	52							1.9%	1.9%	9.6%	9.6%	11.5%	3.8%	3.8%			1.9%						3.8%		51.9%
BB	36								5.6%	5.6%		8.3%		2.8%	2.8%								2.8%		72.2%
BB-	21						4.8%				4.8%		4.8%										4.8%		81.0%
B+	8										12.5%				12.5%		12.5%						12.5%		50.0%
B	12					8.3%													8.3%				8.3%		75.0%
B-	7														14.3%		28.6%								57.1%
CCC+																									
CCC	4																					25.0%		75.0%	
CCC-																									
CC	2																						100.0%		
C	2																								50.0%
TOTAL	3809																								

### E(iii) International Public Finance - 1-Year Transition and Default Rates

(December 31, 2022 through December 31, 2023)

Credit Ratings as of 12/31/2022		Credit ratings as of 12/31/2023 (%)																					Other Outcomes During 12/31/2022 12/31/2023 (%)		
Credit Rating	# of Ratings Outstanding	AAA	AA+	AA	AA-	A+	A	A-	BBB+	BBB	BBB-	BB+	BB	BB-	B+	B	B-	CCC+	CCC	CCC-	CC	C	Default	Paid Off	Withdrawn (other)
AAA	27	96.3%																							
AA+	9		100.0%																						
AA	33			15.2%	81.8%																				
AA-	59				59.3%	23.7%																			
A+	75				8.0%	61.3%	29.3%																		
A	50					8.0%	80.0%	8.0%																	
A-	59						3.4%	88.1%	3.4%																
BBB+	62							3.2%	88.7%	4.8%															
BBB	105								1.0%	93.3%	3.8%														
BBB-	72									1.4%	86.1%	2.8%													
BB+	22									4.5%	4.5%	63.6%													
BB	16											6.3%	62.5%		6.3%										
BB-	15												60.0%	13.3%		6.7%									
B+	7													14.3%	85.7%										
B	13															100.0%									
B-	4																100.0%								
CCC+	2																	50.0%	50.0%						
CCC																									
CCC-	5																				100.0%				
CC	11																	9.1%				90.9%			
C	1																						100.0%		
TOTAL	647																								

### E(iii) International Public Finance - 3-Year Transition and Default Rates

(December 31, 2020 through December 31, 2023)

Credit Ratings as of 12/31/2020		Credit ratings as of 12/31/2023 (%)																				Other Outcomes During 12/31/2020 12/31/2023 (%)			
Credit Rating	# of Ratings Outstanding	AAA	AA+	AA	AA-	A+	A	A-	BBB+	BBB	BBB-	BB+	BB	BB-	B+	B	B-	CCC+	CCC	CCC-	CC	C	Default	Paid Off	Withdrawn (other)
AAA	26	84.6%	7.7%																						7.7%
AA+	1		100.0%																						
AA	35		14.3%	8.6%	74.3%																				2.9%
AA-	42	2.4%			47.6%	26.2%																			23.8%
A+	37				13.5%	81.1%																			5.4%
A	53				3.8%	13.2%	66.0%	9.4%	1.9%																5.7%
A-	56					3.6%	5.4%	62.5%	12.5%																16.1%
BBB+	65							15.4%	52.3%	16.9%															15.4%
BBB	86							1.2%	4.7%	54.7%	3.5%				1.2%										34.9%
BBB-	82								1.2%	25.6%	46.3%	4.9%	2.4%												19.5%
BB+	33										9.1%	27.3%	6.1%												57.6%
BB	23										13.0%	4.3%	30.4%												52.2%
BB-	23												21.7%	8.7%		39.1%									30.4%
B+	8												12.5%		62.5%	12.5%									12.5%
B	14												7.1%			7.1%	14.3%				50.0%		7.1%		14.3%
B-	3																66.7%		33.3%						
CCC+																									
CCC	1																								100.0%
CCC-																									
CC	2																				100.0%				
C	2																						100.0%		
TOTAL	592																								

### E(iii) International Public Finance - 10-Year Transition and Default Rates

(December 31, 2013 through December 31, 2023)

Credit Ratings as of 12/31/2013		Credit ratings as of 12/31/2023 (%)																				Other Outcomes During 12/31/2013 12/31/2023 (%)			
Credit Rating	# of Ratings Outstanding	AAA	AA+	AA	AA-	A+	A	A-	BBB+	BBB	BBB-	BB+	BB	BB-	B+	B	B-	CCC+	CCC	CCC-	CC	C	Default	Paid Off	Withdrawn (other)
AAA	21	90.5%	4.8%																						4.8%
AA+	20	5.0%			70.0%																				25.0%
AA	22		22.7%	9.1%	31.8%																				36.4%
AA-	17				52.9%	11.8%	5.9%																		29.4%
A+	8				12.5%	50.0%	12.5%		12.5%																12.5%
A	8				12.5%	12.5%		62.5%																	12.5%
A-	14				21.4%			35.7%	21.4%	7.1%															14.3%
BBB+	23						4.3%	8.7%	4.3%	43.5%	4.3%														34.8%
BBB	39						2.6%	15.4%	5.1%	12.8%	7.7%		2.6%		5.1%										48.7%
BBB-	40								5.0%	10.0%	32.5%	10.0%	5.0%	2.5%		5.0%									30.0%
BB+	14							7.1%					7.1%			7.1%									78.6%
BB	15																6.7%								93.3%
BB-	10													10.0%			10.0%								80.0%
B+	6																								100.0%
B	1																								100.0%
B-	7																14.3%				14.3%		42.9%		28.6%
CCC+																									
CCC																									
CCC-																									
CC																									
C																									
TOTAL	265																								

Fitch calculates the "Default" classification to incorporate its definitions of both "D – Default" and "Restricted Default," where both such definitions were applicable to a particular asset class. For the purposes of these performance and measurement statistics, a credit rating is classified as a Default if any of the following conditions are met:

- The obligor failed to timely pay principal or interest due according to the terms of an obligation during the applicable period or the issuer of the security or money market instrument failed to timely pay principal or interest due according to the terms of the security or money market instrument during the applicable period;
- The security or money market instrument was subject to a write-down, applied loss, or other realized deficiency of the outstanding principal amount during the applicable period.

## Definitions and Symbols

### International Credit Rating Scales

The following sections describe Credit Rating Scales (those featuring the symbols 'AAA'–'D' and 'F1'–'D') and their use for issuers and obligations in corporate, public, structured and infrastructure and project finance debt markets.

Within rating categories, Fitch may use modifiers. The modifiers "+" or "-" may be appended to a rating to denote relative status within major rating categories.

For example, the rating category 'AA' has three notch-specific rating levels ('AA+'; 'AA'; 'AA-'; each a rating level). Such suffixes are not added to 'AAA' ratings and ratings below the 'CCC' category. For the short-term rating category of 'F1', a '+' may be appended. For VRs, the modifiers "+" or "-" may be appended to a rating to denote relative status within categories from 'aa' to 'ccc'. For Derivative Counterparty Ratings the modifiers "+" or "-" may be appended to the ratings within 'AA(dcr)' to 'CCC(dcr)' categories.

International credit ratings relate to either foreign currency or local currency commitments and, in both cases, assess the capacity to meet these commitments using a globally applicable scale. As such, both foreign currency and local currency international ratings are internationally comparable assessments.

The Local Currency International Rating measures the likelihood of repayment in the currency of the jurisdiction in which the issuer is domiciled and hence does not take account of the risk that it will not be possible to convert local currency into foreign currency or make transfers between sovereign jurisdictions (transfer and convertibility [T&C] risk).

A Local Currency International Rating will be assigned in cases where the underlying issuance is denominated in local currency but the terms and conditions allow for repayment/settlement in foreign currency at the prevailing exchange rate at the time of repayment. Examples include Global Depository Notes (GDNs) and Masala bonds.

Foreign Currency Ratings additionally consider the profile of the issuer or note after addressing T&C risk. This risk is usually communicated for different countries by the Country Ceiling, which caps the foreign currency ratings of most, though not all, issuers within a given country.

Besides T&C risks, there can be rating distinctions between an issuer's Local Currency and Foreign Currency Ratings, when there is considered to be a risk of selective default on Local Currency obligations versus Foreign Currency obligations, or vice versa.

A Foreign Currency Rating will be assigned in cases where an issuance is denominated in local currency or local currency equivalent, but repayment of principal and/or interest is required to be made in foreign currency at the prevailing exchange rate at the time of repayment.

Where the rating is not explicitly described in the relevant RAC as local or foreign currency, the reader should assume that the rating is a Foreign Currency Rating (i.e. the rating is applicable for all convertible currencies of obligation).

### Issuer Default Ratings

Rated entities in a number of sectors, including financial and non- financial corporations, sovereigns, insurance companies and certain sectors within public finance, are generally assigned IDRs. IDRs are also assigned to certain entities or enterprises in global infrastructure, project finance and public finance. IDRs opine on an entity's relative vulnerability to default (including by way of a distressed debt exchange) on financial obligations. The threshold default risk addressed by the IDR is generally that of the financial obligations whose non-payment would best reflect the uncured failure of that entity. As such, IDRs also address relative vulnerability to bankruptcy, administrative receivership or similar concepts.

In aggregate, IDRs provide an ordinal ranking of issuers based on the agency's view of their relative vulnerability to default, rather than a prediction of a specific percentage likelihood of default.

**AAA: Highest Credit Quality**

'AAA' ratings denote the lowest expectation of default risk. They are assigned only in cases of exceptionally strong capacity for payment of financial commitments. This capacity is highly unlikely to be adversely affected by foreseeable events.

**AA: Very High Credit Quality**

'AA' ratings denote expectations of very low default risk. They indicate very strong capacity for payment of financial commitments. This capacity is not significantly vulnerable to foreseeable events.

**A: High Credit Quality**

'A' ratings denote expectations of low default risk. The capacity for payment of financial commitments is considered strong. This capacity may, nevertheless, be more vulnerable to adverse business or economic conditions than is the case for higher ratings.

**BBB: Good Credit Quality**

'BBB' ratings indicate that expectations of default risk are currently low. The capacity for payment of financial commitments is considered adequate, but adverse business or economic conditions are more likely to impair this capacity.

**BB: Speculative**

'BB' ratings indicate an elevated vulnerability to default risk, particularly in the event of adverse changes in business or economic conditions over time; however, business or financial flexibility exists that supports the servicing of financial commitments.

**B: Highly Speculative**

'B' ratings indicate that material default risk is present, but a limited margin of safety remains. Financial commitments are currently being met; however, capacity for continued payment is vulnerable to deterioration in the business and economic environment.

**CCC: Substantial Credit Risk**

Very low margin for safety. Default is a real possibility.

**CC: Very High Levels of Credit Risk**

Default of some kind appears probable.

**C: Near Default**

A default or default-like process has begun, or for a closed funding vehicle, payment capacity is irrevocably impaired. Conditions that are indicative of a 'C' category rating for an issuer include:

- The issuer has entered into a grace or cure period following non-payment of a material financial obligation;
- The formal announcement by the issuer or their agent of a distressed debt exchange; and
- A closed financing vehicle where payment capacity is irrevocably impaired such that it is not expected to pay interest and/or principal in full during the life of the transaction, but where no payment default is imminent.

**RD: Restricted Default**

'RD' ratings indicate an issuer that in Fitch's opinion has experienced:

- An uncured payment default or distressed debt exchange on a bond, loan or other material financial obligation, but
- Has not entered into bankruptcy filings, administration, receivership, liquidation, or other formal winding-up procedure, and
- Has not otherwise ceased operating.

This would include:

- The selective payment default on a specific class or currency of debt;
- The uncured expiry of any applicable original grace period, cure period or default forbearance period following a payment default on a bank loan, capital markets security or other material financial obligation.

**D: Default**

'D' ratings indicate an issuer that in Fitch's opinion has entered into bankruptcy filings, administration, receivership, liquidation or other formal winding-up procedure or that has otherwise ceased business and debt is still outstanding.

Default ratings are not assigned prospectively to entities or their obligations; within this context, non-payment on an instrument that contains a deferral feature or grace period will generally not be considered a default until after the expiration of the deferral or grace period, unless a default is otherwise driven by bankruptcy or other similar circumstance, or by a distressed debt exchange.

In all cases, the assignment of a default rating reflects the agency's opinion as to the most appropriate rating category consistent with the rest of its universe of ratings and may differ from the definition of default under the terms of an issuer's financial obligations or local commercial practice.

**Short-Term Ratings Assigned to Issuers and Obligations**

A short-term issuer or obligation rating is based in all cases on the short-term vulnerability to default of the rated entity and relates to the capacity to meet financial obligations in accordance with the documentation governing the relevant obligation. Short-term deposit ratings may be adjusted for loss severity. Short-Term Ratings are assigned to obligations whose initial maturity is viewed as "short term" based on market convention (a long-term rating can also be used to rate an issue with short maturity). Typically, this means a timeframe of up to 13 months for corporate, sovereign, and structured obligations and up to 36 months for obligations in U.S. public finance markets.

**F1: Highest Short-Term Credit Quality**

Indicates the strongest intrinsic capacity for timely payment of financial commitments; may have an added '+' to denote any exceptionally strong credit feature.

**F2: Good Short-Term Credit Quality**

Good intrinsic capacity for timely payment of financial commitments.

**F3: Fair Short-Term Credit Quality**

The intrinsic capacity for timely payment of financial commitments is adequate.

**B: Speculative Short-Term Credit Quality**

Minimal capacity for timely payment of financial commitments, plus heightened vulnerability to near term adverse changes in financial and economic conditions.

### **C: High Short-Term Default Risk**

Default is a real possibility.

### **RD: Restricted Default**

Indicates an entity that has defaulted on one or more of its financial commitments, although it continues to meet other financial obligations. Typically applicable to entity ratings only.

### **D: Default**

Indicates a broad-based default event for an entity, or the default of a short-term obligation.

### **Relationship between Short- and Long-Term Ratings**

The credit risks that drive the long-term rating and the short-term rating are linked but distinct. Some issuers may have a significantly stronger short-term credit profile than implied by the long-term rating. Some long-term factors such as strategy are unlikely to have an immediate impact on defaults. Conversely, factors such as liquidity can have a significant impact on short-term performance and will therefore gain more weight in the short-term rating.

The table below reflects typical relationships between the long-term rating and the short-term rating. The two are linked, but at certain long-term rating levels ('A+' to 'BBB') more than one short-term rating is possible. The lower of the two short-term ratings indicated by the table is the base-line. Whether an issuer achieves the higher of two possible short-term ratings is determined by the analytical groups with reference to sector specific factors (such as Liquidity for example). Details are contained in the relevant criteria.

The Rating Correspondence Table is a guide only. Actual ratings assigned can differ from this correspondence consistent with the criteria employed by individual rating groups, where analytically merited.

### **Rating Correspondence Table**

Long-Term Rating	Short-Term Rating
AAA	F1+
AA+	F1+
AA	F1+
AA-	F1+
A+	F1 or F1+
A	F1 or F1+
A-	F2 or F1
BBB+	F2 or F1
BBB	F3 or F2
BBB-	F3
BB+	B
BB	B
BB-	B
B+	B
B	B
B-	B
CCC+/CCC/CCC-	C
CC	C
C	C
RD/D	RD/D

Source: Fitch Ratings

### **Standalone Credit Profile**

A Standalone Credit Profile (SCP) measures the intrinsic vulnerability to default of an issuer without considering extraordinary impact (either support or interference) on the credit profile due to the relationship with, and credit quality of, related parties. The ordinary impact from related entities is considered as part of the SCP, while extraordinary impact is not considered in the SCP but is reflected in the rating. SCPs are not credit ratings but express a key component of the rating analysis. SCPs are indicated using the International Rating Scale but using lower-case letters, e.g. 'aaa' instead of 'AAA'. The relevant criteria may provide additional information on ordinary/extraordinary considerations.

### **Structured Finance**

Ratings of structured finance obligations on the long-term scale consider the obligations' relative vulnerability to default. These ratings are typically assigned to an individual security or tranche in a transaction and not to an issuer.

#### **AAA: Highest Credit Quality**

'AAA' ratings denote the lowest expectation of default risk. They are assigned only in cases of exceptionally strong capacity for payment of financial commitments. This capacity is highly unlikely to be adversely affected by foreseeable events.

#### **AA: Very High Credit Quality**

'AA' ratings denote expectations of very low default risk. They indicate very strong capacity for payment of financial commitments. This capacity is not significantly vulnerable to foreseeable events.

#### **A: High Credit Quality**

'A' ratings denote expectations of low default risk. The capacity for payment of financial commitments is considered strong. This capacity may, nevertheless, be more vulnerable to adverse business or economic conditions than is the case for higher ratings.

#### **BBB: Good Credit Quality**

'BBB' ratings indicate that expectations of default risk are currently low. The capacity for payment of financial commitments is considered adequate, but adverse business or economic conditions are more likely to impair this capacity.

#### **BB: Speculative**

'BB' ratings indicate an elevated vulnerability to default risk, particularly in the event of adverse changes in business or economic conditions over time.

#### **B: Highly Speculative**

'B' ratings indicate that material default risk is present, but a limited margin of safety remains. Financial commitments are currently being met; however, capacity for continued payment is vulnerable to deterioration in the business and economic environment.

#### **CCC: Substantial Credit Risk**

Very low margin for safety. Default is a real possibility.

#### **CC: Very High Levels of Credit Risk**

Default of some kind appears probable.

#### **C: Exceptionally High Levels of Credit Risk**

Default appears imminent or inevitable.



### ***D: Default***

Indicates a default. Default generally is defined as one of the following:

- Failure to make payment of principal and/or interest under the contractual terms of the rated obligation;
- Bankruptcy filings, administration, receivership, liquidation or other winding-up or cessation of the business of an issuer/obligor; or
- Distressed exchange of an obligation, where creditors were offered securities with diminished structural or economic terms compared with the existing obligation to avoid a probable payment default.

### ***Structured Finance Defaults***

Imminent default, categorized under 'C', typically refers to the occasion where a payment default has been intimated by the issuer and is all but inevitable. This may, for example, be where an issuer has missed a scheduled payment but (as is typical) has a grace period during which it may cure the payment default. Another alternative would be where an issuer has formally announced a distressed debt exchange, but the date of the exchange still lies several days or weeks in the immediate future.

Additionally, in structured finance transactions, where analysis indicates that an instrument is irrevocably impaired such that it is not expected to pay interest and/or principal in full in accordance with the terms of the obligation's documentation during the life of the transaction, but where no payment default in accordance with the terms of the documentation is imminent, the obligation will typically be rated in the 'C' category.

### ***Structured Finance Write-Downs***

Where an instrument has experienced an involuntary and, in the agency's opinion, irreversible write-down of principal (i.e. other than through amortization, and resulting in a loss to the investor), a credit rating of 'D' will be assigned to the instrument. Where the agency believes the write-down may prove to be temporary (and the loss may be written up again in future if and when performance improves), then a credit rating of 'C' will typically be assigned. Should the write-down then later be reversed, the credit rating will be raised to an appropriate level for that instrument. Should the write-down later be deemed as irreversible, the credit rating will be lowered to 'D'.

### ***Note***

In the case of structured finance, while the ratings do not address the loss severity given default of the rated liability, loss severity assumptions on the underlying assets are nonetheless typically included as part of the analysis. Loss severity assumptions are used to derive pool cash flows available to service the rated liability.

The suffix 'sf' denotes an issue that is a structured finance transaction.

## **Ratings Definitions**

Additional information regarding Ratings Definitions can also be found via the web link below under the heading: "Ratings Definitions", <https://www.fitchratings.com/products/rating-definitions>.

## **17 CFR 17g-7(b) Disclosure of Credit Rating Histories**

Information pursuant to 17 CFR 17g-7(b) Disclosure of Credit Rating Histories, can be found at the web address: <https://www.fitchratings.com/ratings-history-disclosure>.