



Item 6: Credit Scenario Analysis

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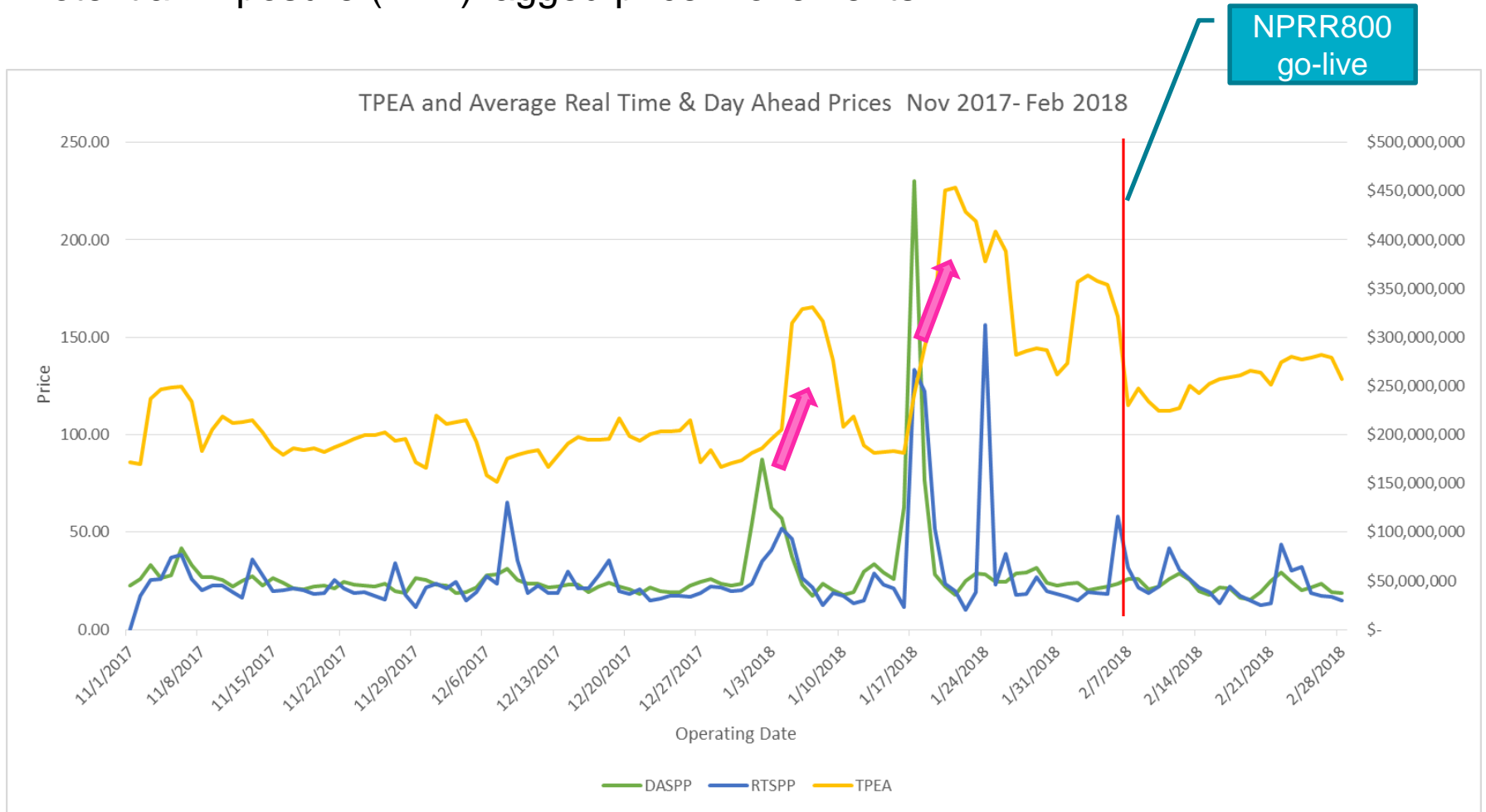
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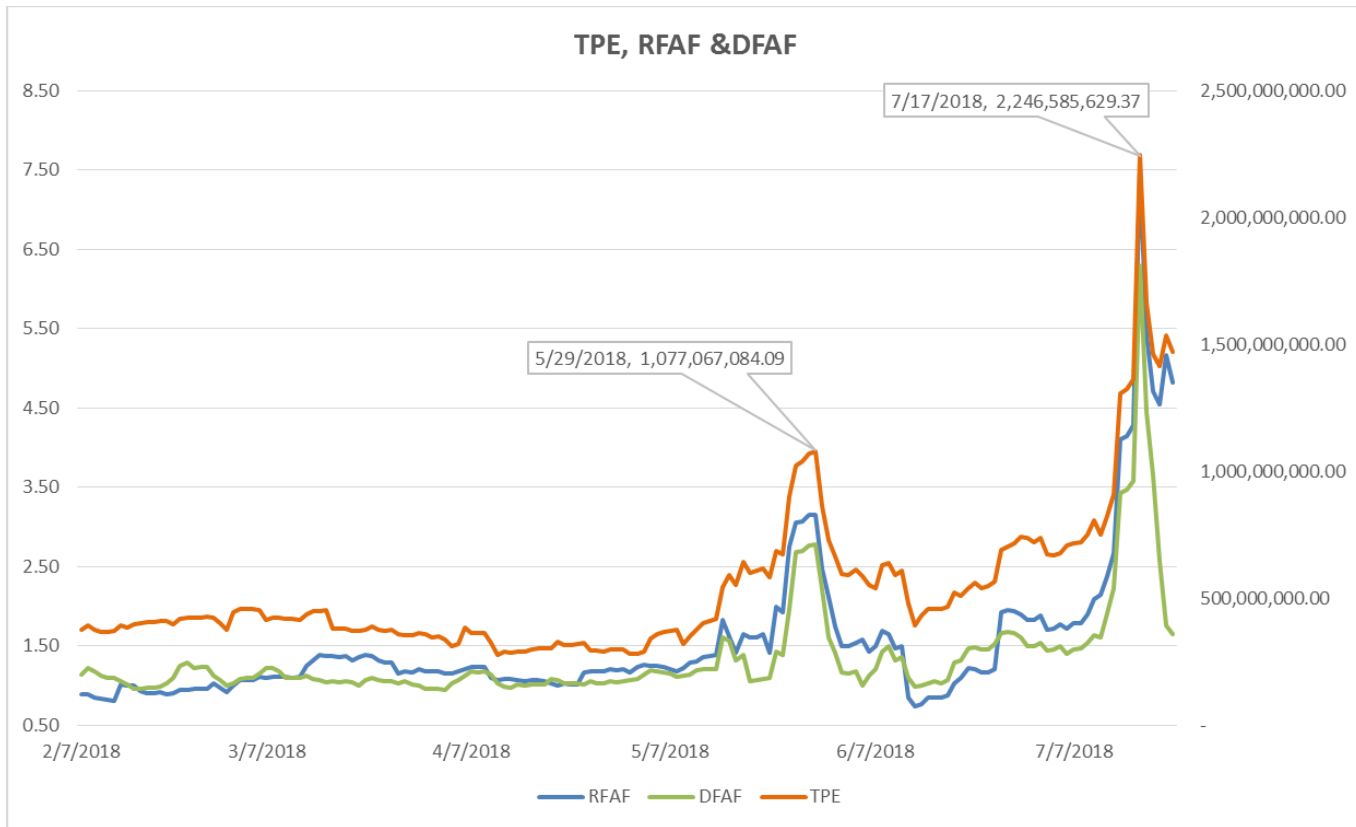
Credit Exposure Scenarios

Prior to implementation of NPRR800 in February 2018, computed Total Potential Exposure (TPE) lagged price movements.



Credit Exposure Scenarios

Since implementation of NPRR800 in February 2018, computed Total Potential Exposure (TPE) has closely tracked the Real-Time (RFAF) and Day-Ahead (DFAF) adjustment factors based on forward ICE prices.



Credit Exposure Scenarios

Base case: Total Potential Exposure (TPE) on June 27, 2018

Scenarios

1. 2011 Actual peak: Exposure adjusted based on forward prices as of August 1, 2011
2. 2011 Medium stress: Base case exposure adjusted based on forward prices as of August 1, 2011, with prices on one day adjusted to \$9000 peak and \$3000 off-peak
3. 2011 High stress: Base case exposure adjusted based on forward prices as of August 1, 2011, with two days at \$9000 for both peak and off-peak
4. 2017 Actual peak: Base case exposure adjusted based on forward prices as of July 21, 2017
5. 2017 Stress: Base case exposure adjusted based on forward prices as of July 21, 2017, with the peak price for four consecutive weekdays increased to \$2000
6. Low stress: Base case exposure adjusted to reflect theoretical very low forward prices
7. 2018 Actual: Actual results on July 17, 2018

Credit Exposure Scenarios

Notes:

1. For each scenario ERCOT computed Total Potential Exposure (TPE) and excess collateral. Counter-Parties are required to post, at a minimum, their TPE in collateral.
2. Excess collateral above TPE is necessary for continued participation in Real-Time, Day-Ahead or CRR markets. Excess collateral posting is voluntary on the part of the Counter-Party.
3. Excess collateral in the base case was held constant in each scenario except 2018 Actual, which reflects additional collateral posted as TPE increased.
4. Within each scenario. TPE and excess collateral were computed for:
 - All Counter-Parties
 - Counter-Parties in the bottom quintile with respect to excess collateral posted
 - Counter-Party segments: Load only, generation only, Load + generation, CRR only, and traders
 - Counter-Party credit rating (or non-rated as applicable)

Credit Exposure Scenarios

Summary results

Scenario	Description	TPE (\$m)		Excess Collateral (\$m)	
		All Counter-Parties	Bottom Quintile	All Counter-Parties	Bottom Quintile
	Base case	\$700.71	\$4.3	\$3,077.1	\$2.7
1	2011 Actual peak	\$527.2	\$3.8	\$3,178.3	\$3.2
2	2011 Medium stress	\$2,458.7	\$1,287.5	\$1,319.8	(\$563.5)
3	2011 High stress	\$5,522.9	\$4,615.8	(\$1,817.4)	(\$2,940.1)
4	2017 Actual peak	\$616.6	\$4.7	\$3,088.9	\$3.1
5	2017 Stress	\$3,362.5	\$2,563.2	\$343.1	(\$1,158.7)
6	Low stress	\$317.9	\$3.0	\$3,387.7	\$3.4
7	2018 Actual	\$2,242.1	\$315.5	\$3,176.3	(\$83.6)

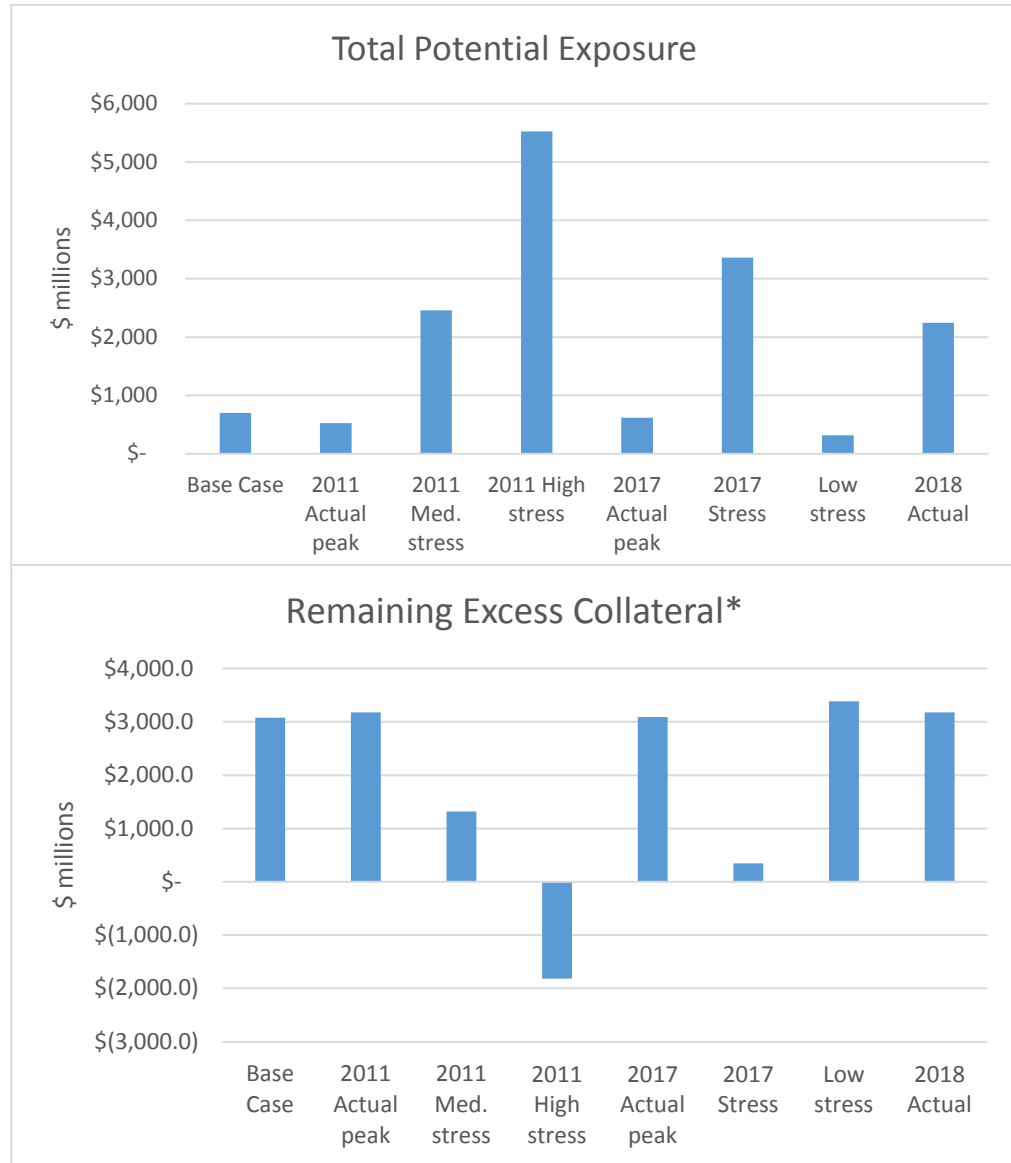
Credit Exposure Scenarios

Summary results – All Counter-Parties

Total excess collateral remains positive in all scenarios but 2011 High stress.

However, when Counter-Parties are disaggregated by segment and by credit rating, some sub-groupings show negative collateral in the 2011 medium and high stress and 2017 stress cases

* Except in 2018 Actual scenario this assumes no additional posted amounts



Credit Exposure Scenarios

Scenario Outcomes

- In terms of TPE, peak exposure in July 2018 (Scenario 7) was approximately equivalent to the 2011 medium stress scenario. However, excess collateral was much higher.
- Negative excess collateral (collateral calls) first becomes apparent among lower-rated Counter-Parties with Load or Load and generation.
- In the 2011 high stress case (Scenario 3), negative excess collateral is prevalent among Load, Load and generation, and trader Counter-Parties. In this scenario, negative collateral is observed among investment grade Load and generation Counter-Parties, but not in other investment grade classes.
- In 2017 stress case, negative excess collateral is again concentrated in non-investment grade Load and generation Counter-Parties.
- Among Counter-Parties with the bottom quintile of excess collateral, in Scenarios 2, 3 and 5 all Counter-Party categories and ratings classes showed negative excess collateral.

Credit Exposure Scenarios

Observations

- ERCOT's traditional credit collateralization methodology was based on past invoice amounts and therefore lagged price events. NPRR800 was designed to incorporate forward ERCOT North Prices so as to increase collateral requirements prior to market-anticipated price events.
- While intended to anticipate price movements, NPRR800 was also designed to continue to maintain adequate collateral levels during changing market conditions.
- In the July 2018 price event Market Participants responded to prices by posting large amounts of excess collateral prior to the highest price days.

Results

- In general the scenarios show ERCOT maintaining sufficient collateral.

Credit Exposure Scenarios

Questions

Appendix: Detailed Results

Credit Exposure Scenario 1

Distribution of TPE by Rating and Category

Distribution of TPE by Rating and Category							
Rating Group	CRR Only	Gen Only	Load Only	Load and Gen	Trader	Total TPE	Percent TPE
AAA	0	0	0	0	0	0	0.00%
AA- to AA+	217,410	0	0	8,260,797	0	8,478,208	1.61%
A- to A+	0	3,305,457	11,541,873	52,435,741	2,571,392	69,854,463	13.25%
BBB- to BBB+	0	5,205,054	9,403,103	93,449,741	27,881,832	135,939,730	25.79%
Investment Grade	217,410	8,510,510	20,944,976	154,146,280	30,453,224	214,272,400	40.65%
BB- to BB+	0	0	12,744,468	790,839	11,338,805	24,874,112	4.72%
B- to B+	0	36,665	0	81,628,263	30,939,462	112,604,390	21.36%
CCC+ and below	0	0	0	0	0	0	0.00%
Not Rated	1,327,850	9,582,452	13,230,532	54,159,089	97,126,364	175,426,286	33.28%
Non-Investment Grade	1,327,850	9,619,117	25,975,000	136,578,190	139,404,631	312,904,788	59.35%
Total TPE	1,545,260	18,129,627	46,919,976	290,724,470	169,857,854	527,177,188	100.00%
Percent TPE	0.29%	3.44%	8.90%	55.15%	32.22%	100.00%	

Credit Exposure Scenario 2

Distribution of TPE by Rating and Category

Distribution of TPE by Rating and Category							
Rating Group	CRR Only	Gen Only	Load Only	Load and Gen	Trader	Total TPE	Percent TPE
AAA	0	0	0	0	0	0	0.00%
AA- to AA+	217,410	0	0	64,371,158	0	64,588,568	2.63%
A- to A+	0	17,062,002	42,580,986	294,745,839	9,027,058	363,415,885	14.78%
BBB- to BBB+	0	10,189,404	46,526,192	471,326,664	55,696,063	583,738,323	23.74%
Investment Grade	217,410	27,251,406	89,107,178	830,443,661	64,723,121	1,011,742,776	41.15%
BB- to BB+	0	0	58,280,612	4,458,944	47,298,333	110,037,890	4.48%
B- to B+	0	224,954	0	546,734,498	35,182,573	582,142,025	23.68%
CCC+ and below	0	0	0	0	0	0	0.00%
Not Rated	1,327,850	25,905,882	72,299,328	315,947,420	339,276,188	754,756,668	30.70%
Non-Investment Grade	1,327,850	26,130,836	130,579,940	867,140,862	421,757,094	1,446,936,582	58.85%
Total TPE	1,545,260	53,382,242	219,687,118	1,697,584,523	486,480,215	2,458,679,358	100.00%
Percent TPE	0.06%	2.17%	8.94%	69.04%	19.79%	100.00%	

Credit Exposure Scenario 3

Distribution of TPE by Rating and Category

Distribution of TPE by Rating and Category							
Rating Group	CRR Only	Gen Only	Load Only	Load and Gen	Trader	Total TPE	Percent TPE
AAA	0	0	0	0	0	0	0.00%
AA- to AA+	217,410	0	0	156,552,765	0	156,770,175	2.84%
A- to A+	0	38,756,981	93,068,124	677,598,105	19,599,005	829,022,215	15.01%
BBB- to BBB+	0	18,041,356	105,121,455	1,066,614,956	99,634,460	1,289,412,228	23.35%
Investment Grade	217,410	56,798,337	198,189,580	1,900,765,826	119,233,466	2,275,204,618	41.20%
BB- to BB+	0	0	130,018,840	10,526,272	103,991,564	244,536,675	4.43%
B- to B+	0	521,584	0	1,287,996,010	41,867,180	1,330,384,774	24.09%
CCC+ and below	0	0	0	0	0	0	0.00%
Not Rated	1,327,850	52,722,110	166,158,268	728,608,920	723,984,802	1,672,801,951	30.29%
Non-Investment Grade	1,327,850	53,243,694	296,177,108	2,027,131,201	869,843,546	3,247,723,400	58.80%
Total TPE	1,545,260	110,042,031	494,366,688	3,927,897,027	989,077,012	5,522,928,018	100.00%
Percent TPE	0.03%	1.99%	8.95%	71.12%	17.91%	100.00%	

Credit Exposure Scenario 4

Distribution of TPE by Rating and Category

Distribution of TPE by Rating and Category							
Rating Group	CRR Only	Gen Only	Load Only	Load and Gen	Trader	Total TPE	Percent TPE
AAA	0	0	0	0	0	0	0.00%
AA- to AA+	217,410	0	0	10,025,916	0	10,243,326	1.66%
A- to A+	0	4,313,361	13,430,337	65,575,527	2,644,068	85,963,294	13.94%
BBB- to BBB+	0	5,370,913	11,367,467	106,269,307	29,912,021	152,919,708	24.80%
Investment Grade	217,410	9,684,275	24,797,804	181,870,750	32,556,089	249,126,328	40.40%
BB- to BB+	0	0	14,355,261	868,045	13,576,521	28,799,828	4.67%
B- to B+	0	43,282	0	103,150,900	31,088,561	134,282,743	21.78%
CCC+ and below	0	0	0	0	0	0	0.00%
Not Rated	1,327,850	10,262,199	16,064,087	68,847,784	107,946,963	204,448,882	33.15%
Non-Investment Grade	1,327,850	10,305,480	30,419,348	172,866,729	152,612,046	367,531,453	59.60%
Total TPE	1,545,260	19,989,755	55,217,152	354,737,479	185,168,135	616,657,781	100.00%
Percent TPE	0.25%	3.24%	8.95%	57.53%	30.03%	100.00%	

Credit Exposure Scenario 5

Distribution of TPE by Rating and Category

Distribution of TPE by Rating and Category							
Rating Group	CRR Only	Gen Only	Load Only	Load and Gen	Trader	Total TPE	Percent TPE
AAA	0	0	0	0	0	0	0.00%
AA- to AA+	217,410	0	0	89,958,461	0	90,175,872	2.68%
A- to A+	0	25,772,234	59,873,632	417,982,430	10,111,959	513,740,255	15.28%
BBB- to BBB+	0	11,941,119	64,728,869	605,857,223	73,253,067	755,780,277	22.48%
Investment Grade	217,410	37,713,353	124,602,502	1,113,798,114	83,365,025	1,359,696,404	40.44%
BB- to BB+	0	0	74,956,975	6,719,838	67,270,495	148,947,308	4.43%
B- to B+	0	293,598	0	785,763,235	36,729,475	822,786,308	24.47%
CCC+ and below	0	0	0	0	0	0	0.00%
Not Rated	1,327,850	33,907,185	99,409,710	450,060,341	446,337,372	1,031,042,457	30.66%
Non-Investment Grade	1,327,850	34,200,782	174,366,685	1,242,543,413	550,337,343	2,002,776,073	59.56%
Total TPE	1,545,260	71,914,135	298,969,187	2,356,341,527	633,702,368	3,362,472,477	100.00%
Percent TPE	0.05%	2.14%	8.89%	70.08%	18.85%	100.00%	

Credit Exposure Scenario 6

Distribution of TPE by Rating and Category

Distribution of TPE by Rating and Category							
Rating Group	CRR Only	Gen Only	Load Only	Load and Gen	Trader	Total TPE	Percent TPE
AAA	0	0	0	0	0	0	0.00%
AA- to AA+	217,410	0	0	3,060,804	0	3,278,214	1.03%
A- to A+	0	1,908,820	8,206,713	26,343,474	2,470,763	38,929,770	12.25%
BBB- to BBB+	0	4,622,757	5,538,835	49,162,824	25,060,425	84,384,842	26.55%
Investment Grade	217,410	6,531,577	13,745,549	78,567,101	27,531,188	126,592,825	39.83%
BB- to BB+	0	0	7,232,617	570,031	7,479,817	15,282,465	4.81%
B- to B+	0	13,784	0	31,447,233	30,423,828	61,884,845	19.47%
CCC+ and below	0	0	0	0	0	0	0.00%
Not Rated	1,327,850	7,880,715	6,670,614	25,225,094	72,995,597	114,099,870	35.90%
Non-Investment Grade	1,327,850	7,894,499	13,903,231	57,242,357	110,899,242	191,267,179	60.17%
Total TPE	1,545,260	14,426,076	27,648,780	135,809,458	138,430,431	317,860,005	100.00%
Percent TPE	0.49%	4.54%	8.70%	42.73%	43.55%	100.00%	

Credit Exposure Scenario 1

Distribution of Excess Collateral by Rating and Category

Distribution of Excess Collateral by Rating and Category							
Rating Group	CRR Only	Gen Only	Load Only	Load and Gen	Trader	Excess Collateral	Percent Excess Collateral
AAA	0	0	0	0	0	0	0.00%
AA- to AA+	52,039,528	0	0	180,749,108	0	232,788,636	7.32%
A- to A+	26,428,715	41,636,416	95,058,127	435,348,611	104,841,911	703,313,781	22.13%
BBB- to BBB+	3,150,000	17,137,276	99,396,908	466,654,588	147,866,444	734,205,215	23.10%
Investment Grade	81,618,243	58,773,692	194,455,035	1,082,752,307	252,708,354	1,670,307,631	52.55%
BB- to BB+	0	0	16,260,576	14,765,013	24,201,105	55,226,695	1.74%
B- to B+	0	148,379	0	272,971,740	28,762,677	301,882,796	9.50%
CCC+ and below	0	0	0	0	0	0	0.00%
Not Rated	29,483,931	63,703,048	38,958,258	677,107,704	341,714,690	1,150,967,631	36.21%
Non-Investment Grade	29,483,931	63,851,426	55,218,834	964,844,458	394,678,472	1,508,077,122	47.45%
Total Excess Collateral	111,102,174	122,625,119	249,673,869	2,047,596,765	647,386,826	3,178,384,753	100.00%
Percent Excess Collateral	3.50%	3.86%	7.86%	64.42%	20.37%	100.00%	

Credit Exposure Scenario 2

Distribution of Excess Collateral by Rating and Category

Distribution of Excess Collateral by Rating and Category							
Rating Group	CRR Only	Gen Only	Load Only	Load and Gen	Trader	Excess Collateral	Percent Excess Collateral
AAA	0	0	0	0	0	0	0.00%
AA- to AA+	52,039,528	0	0	124,638,747	0	176,678,275	13.39%
A- to A+	26,428,715	27,879,871	64,019,015	193,038,513	98,386,244	409,752,358	31.05%
BBB- to BBB+	3,152,000	12,152,926	62,523,819	88,777,665	120,052,212	286,658,622	21.72%
Investment Grade	81,620,243	40,032,797	126,542,834	406,454,925	218,438,456	873,089,255	66.15%
BB- to BB+	0	0	(29,275,568)	11,096,908	(11,758,423)	(29,937,083)	-2.27%
B- to B+	0	(39,910)	0	(192,134,495)	24,519,566	(167,654,839)	-12.70%
CCC+ and below	0	0	0	0	0	0	0.00%
Not Rated	46,147,030	47,379,617	(20,110,539)	415,319,373	155,610,494	644,345,976	48.82%
Non-Investment Grade	46,147,030	47,339,707	(49,386,106)	234,281,786	168,371,637	446,754,055	33.85%
Total Excess Collateral	127,767,273	87,372,504	77,156,728	640,736,711	386,810,093	1,319,843,310	100.00%
Percent Excess Collateral	9.68%	6.62%	5.85%	48.55%	29.31%	100.00%	

Credit Exposure Scenario 3

Distribution of Excess Collateral by Rating and Category

Distribution of Excess Collateral by Rating and Category							
Rating Group	CRR Only	Gen Only	Load Only	Load and Gen	Trader	Excess Collateral	Percent Excess Collateral
AAA	0	0	0	0	0	0	0.00%
AA- to AA+	52,039,528	0	0	32,457,140	0	84,496,668	-4.65%
A- to A+	26,428,715	6,184,892	13,531,876	(189,813,752)	87,814,297	(55,853,972)	3.07%
BBB- to BBB+	3,150,000	4,300,974	3,678,555	(506,510,627)	76,113,815	(419,267,283)	23.07%
Investment Grade	81,618,243	10,485,866	17,210,432	(663,867,239)	163,928,112	(390,624,587)	21.49%
BB- to BB+	0	0	(101,013,795)	5,029,581	(68,451,654)	(164,435,868)	9.05%
B- to B+	0	(336,540)	0	(933,396,007)	17,834,959	(915,897,588)	50.40%
CCC+ and below	0	0	0	0	0	0	0.00%
Not Rated	29,483,931	20,563,389	(113,969,479)	2,657,873	(285,143,748)	(346,408,034)	19.06%
Non-Investment Grade	29,483,931	20,226,849	(214,983,274)	(925,708,553)	(335,760,443)	(1,426,741,490)	78.51%
Total Excess Collateral	111,102,174	30,712,715	(197,772,842)	(1,589,575,792)	(171,832,331)	(1,817,366,077)	100.00%
Percent Excess Collateral	-6.11%	-1.69%	10.88%	87.47%	9.46%	100.00%	

Credit Exposure Scenario 4

Distribution of Excess Collateral by Rating and Category

Distribution of Excess Collateral by Rating and Category							
Rating Group	CRR Only	Gen Only	Load Only	Load and Gen	Trader	Excess Collateral	Percent Excess Collateral
AAA	0	0	0	0	0	0	0.00%
AA- to AA+	52,039,528	0	0	178,983,990	0	231,023,518	7.48%
A- to A+	26,428,715	40,628,512	93,169,663	422,208,825	104,769,234	687,204,949	22.25%
BBB- to BBB+	3,150,000	16,971,416	97,432,544	453,835,022	145,836,254	717,225,237	23.22%
Investment Grade	81,618,243	57,599,928	190,602,207	1,055,027,837	250,605,489	1,635,453,703	52.95%
BB- to BB+	0	0	14,649,783	14,687,807	21,963,389	51,300,979	1.66%
B- to B+	0	141,762	0	251,449,103	28,613,578	280,204,443	9.07%
CCC+ and below	0	0	0	0	0	0	0.00%
Not Rated	29,483,931	63,023,301	36,124,703	662,419,009	330,894,091	1,121,945,034	36.32%
Non-Investment Grade	29,483,931	63,165,063	50,774,486	928,555,919	381,471,057	1,453,450,457	47.05%
Total Excess Collateral	111,102,174	120,764,991	241,376,693	1,983,583,755	632,076,546	3,088,904,160	100.00%
Percent Excess Collateral	3.60%	3.91%	7.81%	64.22%	20.46%	100.00%	

Credit Exposure Scenario 5

Distribution of Excess Collateral by Rating and Category

Distribution of Excess Collateral by Rating and Category							
Rating Group	CRR Only	Gen Only	Load Only	Load and Gen	Trader	Excess Collateral	Percent Excess Collateral
AAA	0	0	0	0	0	0	0.00%
AA- to AA+	52,039,528	0	0	99,051,444	0	151,090,972	44.04%
A- to A+	26,428,715	19,169,639	46,726,368	69,801,923	97,301,344	259,427,988	75.62%
BBB- to BBB+	3,150,000	10,401,211	44,071,142	(45,752,894)	102,495,209	114,364,668	33.33%
Investment Grade	81,618,243	29,570,850	90,797,510	123,100,473	199,796,553	524,883,628	152.99%
BB- to BB+	0	0	(45,951,930)	8,836,015	(31,730,585)	(68,846,501)	-20.07%
B- to B+	0	(108,554)	0	(431,163,232)	22,972,663	(408,299,122)	-119.01%
CCC+ and below	0	0	0	0	0	0	0.00%
Not Rated	29,483,931	39,378,315	(47,220,921)	281,206,453	(7,496,318)	295,351,460	86.09%
Non-Investment Grade	29,483,931	39,269,761	(93,172,851)	(141,120,765)	(16,254,240)	(181,794,164)	-52.99%
Total Excess Collateral	111,102,174	68,840,611	(2,375,341)	(18,020,292)	183,542,313	343,089,464	100.00%
Percent Excess Collateral	32.38%	20.06%	-0.69%	-5.25%	53.50%	100.00%	

Credit Exposure Scenario 6

Distribution of Excess Collateral by Rating and Category

Distribution of Excess Collateral by Rating and Category							
Rating Group	CRR Only	Gen Only	Load Only	Load and Gen	Trader	Excess Collateral	Percent Excess Collateral
AAA	0	0	0	0	0	0	0.00%
AA- to AA+	52,039,528	0	0	185,949,101	0	237,988,629	7.03%
A- to A+	26,428,715	43,033,053	98,393,287	461,440,879	104,942,539	734,238,474	21.67%
BBB- to BBB+	3,150,000	17,719,572	103,261,176	510,941,505	150,687,850	785,760,103	23.19%
Investment Grade	81,618,243	60,752,626	201,654,463	1,158,331,485	255,630,389	1,757,987,206	51.89%
BB- to BB+	0	0	21,772,428	14,985,822	28,060,093	64,818,342	1.91%
B- to B+	0	171,260	0	323,152,770	29,278,311	352,602,341	10.41%
CCC+ and below	0	0	0	0	0	0	0.00%
Not Rated	29,483,931	65,404,784	45,518,175	706,041,699	365,845,457	1,212,294,047	35.79%
Non-Investment Grade	29,483,931	65,576,044	67,290,603	1,044,180,291	423,183,861	1,629,714,730	48.11%
Total Excess Collateral	111,102,174	126,328,670	268,945,066	2,202,511,777	678,814,250	3,387,701,936	100.00%
Percent Excess Collateral	3.28%	3.73%	7.94%	65.01%	20.04%	100.00%	

Credit Exposure Scenario 1

Distribution of TPE in the Bottom Quintile of Excess Collateral

Quintile Distribution of Average TPE by Rating and Category									
Rating Group	CRR Only	Gen Only	Load Only	Load and Gen	Trader	Quintile Average TPE	Percent Quintile Average TPE	Percent Total Average TPE	
AAA	0	0	0	0	0	0	0.0%	0.00%	
AA- to AA+	0	0	0	0	0	0	0.0%	0.00%	
A- to A+	0	0	0	0	0	0	0.0%	0.00%	
BBB- to BBB+	0	92	0	0	0	92	0.0%	0.00%	
Investment Grade	0	92	0	0	0	92	0.0%	0.00%	
BB- to BB+	0	0	0	0	0	0	0.0%	0.00%	
B- to B+	0	36,665	0	0	0	36,665	1.0%	0.01%	
CCC+ and below	0	0	0	0	0	0	0.0%	0.00%	
Not Rated	659,596	454,338	786,370	202,235	1,695,351	3,797,890	99.0%	0.72%	
Non-Investment Grade	659,596	491,003	786,370	202,235	1,695,351	3,834,555	100.0%	0.73%	
Quintile Average TPE	659,596	491,095	786,370	202,235	1,695,351	3,834,647	100.0%	0.73%	
Percent Quintile Average TPE	17.2%	12.8%	20.5%	5.3%	44.2%	100.0%			
Percent Total Average TPE	0.13%	0.09%	0.15%	0.04%	0.32%	0.73%			

Credit Exposure Scenario 2

Distribution of TPE in the Bottom Quintile of Excess Collateral

Quintile Distribution of Average TPE by Rating and Category								
Rating Group	CRR Only	Gen Only	Load Only	Load and Gen	Trader	Quintile Average TPE	Percent Quintile Average TPE	Percent Total Average TPE
AAA	0	0	0	0	0	0	0.0%	0.00%
AA- to AA+	0	0	0	0	0	0	0.0%	0.00%
A- to A+	0	0	5,323,425	148,564,639	0	153,888,065	12.0%	6.26%
BBB- to BBB+	0	0	0	242,649,058	0	242,649,058	18.8%	9.87%
Investment Grade	0	0	5,323,425	391,213,697	0	396,537,122	30.8%	16.13%
BB- to BB+	0	0	58,280,612	0	47,298,333	105,578,946	8.2%	4.29%
B- to B+	0	0	0	426,232,066	5,535,302	431,767,368	33.5%	17.56%
CCC+ and below	0	0	0	0	0	0	0.0%	0.00%
Not Rated	0	9,189,162	60,231,508	17,061,047	267,098,308	353,580,024	27.5%	14.38%
Non-Investment Grade	0	9,189,162	118,512,120	443,293,113	319,931,944	890,926,338	69.20%	36.24%
Quintile Average TPE	0	9,189,162	123,835,546	834,506,809	319,931,944	1,287,463,460	100.0%	52.36%
Percent Quintile Average TPE	0.0%	0.7%	9.6%	64.8%	24.8%	100.0%		
Percent Total Average TPE	0.00%	0.37%	5.04%	33.94%	13.01%	52.36%		

Credit Exposure Scenario 3

Distribution of TPE in the Bottom Quintile of Excess Collateral

Quintile Distribution of Average TPE by Rating and Category								
Rating Group	CRR Only	Gen Only	Load Only	Load and Gen	Trader	Quintile Average TPE	Percent Quintile Average TPE	Percent Total Average TPE
AAA	0	0	0	0	0	0	0.0%	0.00%
AA- to AA+	0	0	0	0	0	0	0.0%	0.00%
A- to A+	0	0	11,752,666	629,315,374	0	641,068,041	13.9%	11.61%
BBB- to BBB+	0	0	70,236,041	1,044,584,660	0	1,114,820,701	24.2%	20.19%
Investment Grade	0	0	81,988,707	1,673,900,035	0	1,755,888,742	38.0%	31.79%
BB- to BB+	0	0	130,018,840	0	103,991,564	234,010,403	5.1%	4.24%
B- to B+	0	0	0	1,287,996,010	12,219,910	1,300,215,920	28.2%	23.54%
CCC+ and below	0	0	0	0	0	0	0.0%	0.00%
Not Rated	0	24,288,441	143,044,129	560,431,782	597,942,630	1,325,706,983	28.7%	24.00%
Non-Investment Gra	0	24,288,441	273,062,969	1,848,427,792	714,154,104	2,859,933,306	61.96%	51.78%
Quintile Average	0	24,288,441	355,051,676	3,522,327,827	714,154,104	4,615,822,048	100.0%	83.58%
Percent Quintile Average TPE	0.0%	0.5%	7.7%	76.3%	15.5%	100.0%		
Percent Total Average TPE	0.00%	0.44%	6.43%	63.78%	12.93%	83.58%		

Credit Exposure Scenario 4

Distribution of TPE in the Bottom Quintile of Excess Collateral

Quintile Distribution of Average TPE by Rating and Category									
Rating Group	CRR Only	Gen Only	Load Only	Load and Gen	Trader	Quintile Average TPE	Percent Quintile Average TPE	Percent Total Average TPE	
AAA	0	0	0	0	0	0	0.0%	0.00%	
AA- to AA+	0	0	0	0	0	0	0.0%	0.00%	
A- to A+	0	0	0	0	0	0	0.0%	0.00%	
BBB- to BBB+	0	109	0	0	0	109	0.0%	0.00%	
Investment Grade	0	109	0	0	0	109	0.0%	0.00%	
BB- to BB+	0	0	0	0	0	0	0.0%	0.00%	
B- to B+	0	43,282	0	0	0	43,282	0.9%	0.01%	
CCC+ and below	0	0	0	0	0	0	0.0%	0.00%	
Not Rated	621,403	464,143	1,459,148	202,638	1,933,852	4,681,184	99.1%	0.76%	
Non-Investment Gra	621,403	507,424	1,459,148	202,638	1,933,852	4,724,466	100.00%	0.77%	
Quintile Average TPE	621,403	507,533	1,459,148	202,638	1,933,852	4,724,574	100.0%	0.77%	
Percent Quintile Average TPE	13.2%	10.7%	30.9%	4.3%	40.9%	100.0%			
Percent Total Average TPE	0.10%	0.08%	0.24%	0.03%	0.31%	0.77%			

Credit Exposure Scenario 5

Distribution of TPE in the Bottom Quintile of Excess Collateral

Quintile Distribution of Average TPE by Rating and Category								
Rating Group	CRR Only	Gen Only	Load Only	Load and Gen	Trader	Quintile Average TPE	Percent Quintile Average TPE	Percent Total Average TPE
AAA	0	0	0	0	0	0	0.0%	0.00%
AA- to AA+	0	0	0	0	0	0	0.0%	0.00%
A- to A+	0	0	6,839,350	230,296,671	0	237,136,021	9.3%	7.05%
BBB- to BBB+	0	0	0	591,910,358	0	591,910,358	23.1%	17.60%
Investment Grade	0	0	6,839,350	822,207,029	0	829,046,379	32.3%	24.66%
BB- to BB+	0	0	74,956,975	0	67,270,495	142,227,470	5.5%	4.23%
B- to B+	0	0	0	785,763,235	7,082,205	792,845,440	30.9%	23.58%
CCC+ and below	0	0	0	0	0	0	0.0%	0.00%
Not Rated	0	15,545,796	79,418,169	348,215,570	355,918,753	799,098,288	31.2%	23.77%
Non-Investment Gra	0	15,545,796	154,375,144	1,133,978,806	430,271,453	1,734,171,198	67.66%	51.57%
Quintile Average TPE	0	15,545,796	161,214,494	1,956,185,835	430,271,453	2,563,217,577	100.0%	76.23%
Percent Quintile Average TPE	0.0%	0.6%	6.3%	76.3%	16.8%	100.0%		
Percent Total Average TPE	0.00%	0.46%	4.79%	58.18%	12.80%	76.23%		

Credit Exposure Scenario 6

Distribution of TPE in the Bottom Quintile of Excess Collateral

Quintile Distribution of Average TPE by Rating and Category								
Rating Group	CRR Only	Gen Only	Load Only	Load and Gen	Trader	Quintile Average TPE	Percent Quintile Average TPE	Percent Total Average TPE
AAA	0	0	0	0	0	0	0.0%	0.00%
AA- to AA+	0	0	0	0	0	0	0.0%	0.00%
A- to A+	0	0	0	0	0	0	0.0%	0.00%
BBB- to BBB+	0	35	0	0	0	35	0.0%	0.00%
Investment Grade	0	35	0	0	0	35	0.0%	0.00%
BB- to BB+	0	0	0	0	0	0	0.0%	0.00%
B- to B+	0	13,784	0	0	0	13,784	0.5%	0.00%
CCC+ and below	0	0	0	0	0	0	0.0%	0.00%
Not Rated	659,596	420,428	541,430	200,840	1,139,272	2,961,565	99.5%	0.93%
Non-Investment Grade	659,596	434,212	541,430	200,840	1,139,272	2,975,349	100.0%	0.94%
Quintile Average TPE	659,596	434,246	541,430	200,840	1,139,272	2,975,383	100.0%	0.94%
Percent Quintile Average TPE	22.2%	14.6%	18.2%	6.8%	38.3%	100.0%		
Percent Total Average TPE	0.21%	0.14%	0.17%	0.06%	0.36%	0.94%		

Credit Exposure Scenario 1

Distribution in the Bottom Quintile of Excess Collateral*

Quintile Distribution of Excess Collateral by Rating and Category						Total Quintile Excess Collateral	Percent Quintile Excess Collateral	Percent Total Excess Collateral
Rating Group	CRR Only	Gen Only	Load Only	Load and Gen	Trader			
AAA	0	0	0	0	0	0	0.00%	0.00%
AA- to AA+	0	0	0	0	0	0	0.00%	0.00%
A- to A+	111,550	0	0	0	0	111,550	3.44%	0.00%
BBB- to BBB+	150,000	103,404	0	0	0	253,404	7.82%	0.01%
Investment Grade	261,550	103,404	0	0	0	364,954	11.27%	0.01%
BB- to BB+	0	0	0	0	0	0	0.00%	0.00%
B- to B+	0	148,379	0	0	102,136	250,515	7.73%	0.01%
CCC+ and below	0	0	0	0	0	0	0.00%	0.00%
Not Rated	460,302	219,924	1,016,120	52,785	874,667	2,623,797	81.00%	0.08%
Non-Investment Grade	460,302	368,303	1,016,120	52,785	976,802	2,874,312	88.73%	0.09%
Total Quintile Excess Collateral	721,852	471,707	1,016,120	52,785	976,802	3,239,266	100.00%	0.10%
Percent Quintile Excess Collateral	22.28%	14.56%	31.37%	1.63%	30.16%	100.00%		
Percent Total Excess Collateral	0.02%	0.01%	0.03%	0.00%	0.03%	0.10%		

*Excess Collateral is a voluntary posting by Counterparty

Credit Exposure Scenario 2

Distribution in the Bottom Quintile of Excess Collateral*

Quintile Distribution of Excess Collateral by Rating and Category								
Rating Group	CRR Only	Gen Only	Load Only	Load and Gen	Trader	Total Quintile Excess Collateral	Percent Quintile Excess Collateral	Percent Total Excess Collateral
AAA	0	0	0	0	0	0	0.0%	0.0%
AA- to AA+	0	0	0	0	0	0	0.0%	0.0%
A- to A+	0	0	(3,023,425)	(10,554,208)	0	(13,577,633)	2.4%	-1.0%
BBB- to BBB+	0	0	0	(111,046,830)	0	(111,046,830)	19.7%	-8.4%
BB- to BB+	0	0	(29,275,568)	0	(11,758,423)	(41,033,991)	7.3%	-3.1%
B- to B+	0	0	0	(232,632,063)	(535,302)	(233,167,365)	41.4%	-17.7%
CCC+ and below	0	0	0	0	0	0	0.0%	0.0%
Not Rated	0	(3,268,999)	(31,794,304)	(298,277)	(129,286,601)	(164,648,182)	29.2%	-12.5%
Total Quintile Excess Collateral	0	(3,268,999)	(64,093,297)	(354,531,378)	(141,580,327)	(563,474,001)	100.0%	-42.7%
Percent Quintile Excess Collateral	0.0%	0.6%	11.4%	62.9%	25.1%	100.0%		
Percent Total Excess Collateral	0.0%	-0.2%	-4.9%	-26.9%	-10.7%	-42.7%		

*Excess Collateral is a voluntary posting by Counterparty

Credit Exposure Scenario 3

Distribution in the Bottom Quintile of Excess Collateral*

Quintile Distribution of Excess Collateral by Rating and Category								
Rating Group	CRR Only	Gen Only	Load Only	Load and Gen	Trader	Total Quintile Excess Collateral	Percent Quintile Excess Collateral	Percent Total Excess Collateral
AAA	0	0	0	0	0	0	0.00%	0.00%
AA- to AA+	0	0	0	0	0	0	0.00%	0.00%
A- to A+	0	0	(9,452,666)	(274,658,972)	0	(284,111,638)	9.66%	15.63%
BBB- to BBB+	0	0	(15,486,040)	(655,480,334)	0	(670,966,373)	22.82%	36.92%
Investment Grade	0	0	(24,938,706)	(930,139,306)	0	(955,078,011)	32.48%	52.55%
BB- to BB+	0	0	(101,013,795)	0	(68,451,654)	(169,465,449)	5.76%	9.32%
B- to B+	0	0	0	(933,396,007)	(7,219,910)	(940,615,917)	31.99%	51.76%
CCC+ and below	0	0	0	0	0	0	0.00%	0.00%
Not Rated	0	(15,368,279)	(106,969,285)	(309,175,009)	(443,422,859)	(874,935,431)	29.76%	48.14%
Non-Investment Gra	0	(15,368,279)	(207,983,080)	(1,242,571,015)	(519,094,422)	(1,985,016,796)	67.52%	109.22%
Total Quintile Excess Collateral	0	(15,368,279)	(232,921,786)	(2,172,710,321)	(519,094,422)	(2,940,094,808)	100.00%	161.78%
Percent Quintile Excess Collateral	0.00%	0.52%	7.92%	73.90%	17.66%	100.00%		
Percent Total Excess Collateral	0.00%	0.85%	12.82%	119.55%	28.56%	161.78%		

*Excess Collateral is a voluntary posting by Counterparty

Credit Exposure Scenario 4

Distribution in the Bottom Quintile of Excess Collateral*

Quintile Distribution of Excess Collateral by Rating and Category								
Rating Group	CRR Only	Gen Only	Load Only	Load and Gen	Trader	Total Quintile Excess Collateral	Percent Quintile Excess Collateral	Percent Total Excess Collateral
AAA	0	0	0	0	0	0	0.00%	0.00%
AA- to AA+	0	0	0	0	0	0	0.00%	0.00%
A- to A+	111,550	0	0	0	0	111,550	3.65%	0.00%
BBB- to BBB+	150,000	103,388	0	0	0	253,388	8.29%	0.01%
Investment Grade	261,550	103,388	0	0	0	364,938	11.94%	0.01%
BB- to BB+	0	0	0	0	0	0	0.00%	0.00%
B- to B+	0	141,762	0	0	102,136	243,898	7.98%	0.01%
CCC+ and below	0	0	0	0	0	0	0.00%	0.00%
Not Rated	292,479	210,119	1,074,652	52,381	817,627	2,447,257	80.08%	0.08%
Non-Investment Gra	292,479	351,881	1,074,652	52,381	919,763	2,691,156	88.06%	0.09%
Total Quintile Excess Collateral	554,029	455,269	1,074,652	52,381	919,763	3,056,093	100.00%	0.10%
Percent Quintile Excess Collateral	18.13%	14.90%	35.16%	1.71%	30.10%	100.00%		
Percent Total Excess Collateral	0.02%	0.01%	0.03%	0.00%	0.03%	0.10%		

*Excess Collateral is a voluntary posting by Counterparty

Credit Exposure Scenario 5

Distribution in the Bottom Quintile of Excess Collateral*

Quintile Distribution of Excess Collateral by Rating and Category								
Rating Group	CRR Only	Gen Only	Load Only	Load and Gen	Trader	Total Quintile Excess Collateral	Percent Quintile Excess Collateral	Percent Total Excess Collateral
AAA	0	0	0	0	0	0	0.00%	0.00%
AA- to AA+	0	0	0	0	0	0	0.00%	0.00%
A- to A+	0	0	(4,539,350)	(70,332,588)	0	(74,871,938)	6.46%	-21.82%
BBB- to BBB+	0	0	0	(202,806,032)	0	(202,806,032)	17.50%	-59.11%
Investment Grade	0	0	(4,539,350)	(273,138,619)	0	(277,677,970)	23.97%	-80.93%
BB- to BB+	0	0	(45,951,930)	0	(31,730,585)	(77,682,516)	6.70%	-22.64%
B- to B+	0	0	0	(431,163,232)	(2,082,205)	(433,245,437)	37.39%	-126.28%
CCC+ and below	0	0	0	0	0	0	0.00%	0.00%
Not Rated	0	(6,625,633)	(52,411,996)	(96,958,797)	(214,047,828)	(370,044,254)	31.94%	-107.86%
Non-Investment Gra	0	(6,625,633)	(98,363,926)	(528,122,029)	(247,860,618)	(880,972,206)	76.03%	-256.78%
Total Quintile Excess Collateral	0	(6,625,633)	(102,903,276)	(801,260,649)	(247,860,618)	(1,158,650,176)	100.00%	-337.71%
Percent Quintile Excess Collateral	0.00%	0.57%	8.88%	69.15%	21.39%	100.00%		
Percent Total Excess Collateral	0.00%	-1.93%	-29.99%	-233.54%	-72.24%	-337.71%		

*Excess Collateral is a voluntary posting by Counterparty

Credit Exposure Scenario 6

Distribution in the Bottom Quintile of Excess Collateral*

Quintile Distribution of Excess Collateral by Rating and Category								
Rating Group	CRR Only	Gen Only	Load Only	Load and Gen	Trader	Total Quintile Excess Collateral	Percent Quintile Excess Collateral	Percent Total Excess Collateral
AAA	0	0	0	0	0	0	0.00%	0.00%
AA- to AA+	0	0	0	0	0	0	0.00%	0.00%
A- to A+	111,550	0	0	0	0	111,550	3.30%	0.00%
BBB- to BBB+	152,000	103,462	0	0	0	255,462	7.56%	0.01%
Investment Grade	263,550	103,462	0	0	0	367,012	10.86%	0.01%
BB- to BB+	0	0	0	0	0	0	0.00%	0.00%
B- to B+	0	171,260	0	0	102,136	273,396	8.09%	0.01%
CCC+ and below	0	0	0	0	0	0	0.00%	0.00%
Not Rated	460,302	253,834	955,031	54,179	1,016,518	2,739,864	81.05%	0.08%
Non-Investment Grade	460,302	425,094	955,031	54,179	1,118,654	3,013,259	89.14%	0.09%
Total Quintile Excess Collateral	723,852	528,556	955,031	54,179	1,118,654	3,380,271	100.00%	0.10%
Percent Quintile Excess Collateral	21.41%	15.64%	28.25%	1.60%	33.09%	100.00%		
Percent Total Excess Collateral	0.02%	0.02%	0.03%	0.00%	0.03%	0.10%		

*Excess Collateral is a voluntary posting by Counterparty

Credit Exposure Scenarios

Questions