

Federal Home Loan Bank of Des Moines Monthly Price Report

The Federal Home Loan Bank of Des Moines (Bank) is providing estimated valuations for specific Convertible, Amortizing and Non-Amortizing advances set forth below for members' information and convenience only. The estimated valuations are generated by models used for the Bank's own asset/liability management purposes. The models use specific assumptions, for example, market volatility and discount curve adjusted for the Bank's spread, to estimate the value of the advance. **The valuations represent theoretical market prices only and should not be construed as a liquidation price for the specific advance.**

It is expressly understood that in providing these valuations to members, the Bank is not performing any advisory service. The valuations are provided without representation or warranty and the member is solely responsible for any decision it makes or actions it takes based on the valuations provided. It is recommended that members maintain independent capabilities to value their asset/liability positions, including Convertible, Amortizing and Non-Amortizing advances. You should consult with your own tax, legal, accounting, credit and financial advisors with respect to the transaction structure and information detailed herein.

The table depicts valuation estimates resulting from immediate parallel interest-rate movements of plus/minus 400 basis points in 100 basis point increments. To identify your advance, locate the appropriate maturity date and verify the advance rate. The advances in report are grouped by advance type and then within each type sorted in ascending order by maturity date. Once the appropriate structure is located, read across to view the sensitivity analysis for that advance.

If you have any questions, contact the Money Desk at 800.544.3452, ext. 2122.

	Parallel-Shift Sensitivity Analysis												
8/31/2021					Price								
REFERENCE	SETTLEMENT	Rate	MATURITY	First/Next	-400	-300	-200	-100	Base	100	200	300	400
200908A00006	9/8/2020	0.42	9/8/2021	9/8/2020	100.09182	100.0695685	100.0473386	100.0251316	100.0029475	99.98078617	99.95864769	99.93653197	99.91443897
200914A00001	9/14/2020	0.25	9/14/2021	9/14/2020	100.15774	100.1187482	100.0798	100.0408987	100.0020444	99.96323684	99.92447603	99.88576185	99.84709423
201026A00001	10/26/2020	0.26	10/26/2021	10/26/2020	100.63363	100.4766077	100.3200797	100.1640466	100.008506	99.85345555	99.69889299	99.54481598	99.39122223
201116A00006	11/16/2020	0.42	11/16/2021	11/16/2020	100.88668	100.6700768	100.454418	100.2396945	100.0259001	99.81302873	99.60107444	99.39003123	99.17989319
201117A00004	11/17/2020	0.42	11/17/2021	11/17/2020	100.89824	100.6787818	100.4602941	100.2427655	100.0261899	99.81056078	99.59587203	99.38211743	99.16929083
201230A00011	12/30/2020	0.38	9/30/2021	12/30/2020	100.34133	100.2577254	100.1742544	100.0909203	100.0077228	99.92466162	99.84173641	99.75894688	99.6762927
210223A00013	2/23/2021	0.32	11/23/2021	2/23/2021	100.94413	100.7075879	100.4721572	100.2378327	100.0046067	99.77247139	99.54141919	99.31144249	99.08253379
210226A00016	2/26/2021	0.26	2/25/2022	2/26/2021	102.03654	101.5256586	101.0198735	100.5191063	100.0232827	99.53232974	99.04617599	98.56475142	98.08798733
210301A00006	3/1/2021	0.33	9/15/2021	3/1/2021	100.16846	100.1267119	100.0850162	100.0433715	100.0017777	99.9602349	99.91874284	99.87730147	99.8359107
210301A00007	3/1/2021	0.34	10/14/2021	3/1/2021	100.49605	100.37304	100.2503419	100.1279591	100.0058904	99.88413456	99.76269032	99.64155645	99.52073174
210301A00008	3/1/2021	0.34	11/15/2021	3/1/2021	100.85814	100.6444136	100.4316093	100.2197164	100.008729	99.79864115	99.58944713	99.38114119	99.17371762
210301A00011	3/1/2021	0.35	12/15/2021	3/1/2021	101.20308	100.9033046	100.605311	100.3090861	100.0146142	99.72187954	99.43086679	99.14156068	98.85394616
210304A00003	3/4/2021	0.34	3/4/2022	3/4/2021	102.11596	101.5848088	101.0591562	100.5389202	100.0240177	99.51436687	99.00988776	98.51050198	98.01613274
210324A00001	3/24/2021	0.37	3/24/2022	3/24/2021	102.35357	101.7628594	101.1789365	100.6016868	100.0309965	99.46675435	98.90885147	98.35718153	97.81164054
210330A00009	3/30/2021	0.32	11/30/2021	3/30/2021	101.02315	100.7666028	100.5113509	100.2573842	100.0046931	99.75326793	99.50309939	99.25417809	99.00649479
210413A00007	4/13/2021	0.25	4/13/2022	4/13/2021	102.57628	101.924638	101.2812372	100.6459255	100.0185511	99.3989659	98.78702539	98.18258874	97.58551851
210524A00009	5/24/2021	0.29	12/1/2021	5/24/2021	101.02683	100.7674182	100.5093336	100.2525652	99.99710309	99.74293726	99.49005794	99.23845543	98.98812011
210604A00004	6/4/2021	0.23	6/3/2022	6/4/2021	103.15454	102.3474622	101.5529236	100.7706356	100.000317	99.24169491	98.49450485	97.75849022	97.03340203
210623A00008	6/23/2021	0.38	6/23/2022	6/23/2021	103.41703	102.5493324	101.6960924	100.8569545	100.0315717	99.21960831	98.42073933	97.63465028	96.86103665
210624A00001	6/24/2021	0.39	6/24/2022	6/24/2021	103.43719	102.5663556	101.7100847	100.8680125	100.0397886	99.2250738	98.42354	97.63486964	96.85875528
210701A00012	7/1/2021	0.38	7/1/2022	7/1/2021	103.51121	102.6187364	101.7415356	100.8792164	100.0314032	99.19773291	98.37785448	97.57142841	96.77812622
210713A00002	7/13/2021	0.33	3/14/2022	7/13/2021	102.22088	101.6600099	101.1052795	100.5565855	100.0138298	99.47691607	98.94575045	98.42024088	97.90029729
210714A00022	7/14/2021	0.35	7/14/2022	7/14/2021	103.63794	102.7050613	101.7888589	100.8888885	100.004722	99.13594621	98.28216229	97.44298498	96.61804218
210715A00016	7/15/2021	0.27	1/18/2022	7/15/2021	101.56404	101.1656156	100.7703182	100.378111	99.98895768	99.60282259	99.21967066	98.83946733	98.46217857
210824A00006	8/24/2021	0.23	8/24/2022	8/24/2021	104.11487	103.0513937	102.0094536	100.9883996	99.98760934	99.00648517	98.04445256	97.1009592	96.1754739
210622A00004	6/22/2021	2.42	6/20/2036	6/22/2026	126.2852	120.7663611	115.1202287	108.7643233	101.5236106	93.80794195	86.15045113	78.96854323	72.45436178
150601A00342	6/1/2015	3.97	8/26/2033	6/1/2015	143.47542	135.1961945	127.5886673	120.5894554	114.1417636	108.1946516	102.7023842	97.6238578	92.92209469
150601A00439	6/1/2015	2.57	3/18/2024	6/1/2015	108.07409	106.6694931	105.2975997	103.9573671	102.6477925	101.3679135	100.1168061	98.89358305	97.69739189
150601A00440	6/1/2015	3.27	3/16/2029	6/1/2015	125.28893	120.6016938	116.169499	111.9758361	108.0054017	104.2439985	100.6784477	97.29650875	94.08680578
150601A00450	6/1/2015	3.28	4/27/2029	6/1/2015	125.67892	120.9096867	116.4032933	112.1425287	108.1114462	104.295265	100.680276	97.25375729	94.00389528
150601A00460	6/1/2015	3.05	5/16/2029	6/1/2015	124.8642	120.0862893	115.5734332	111.3081682	107.2743281	103.4569346	99.8421015	96.41694717	93.16951484
150601A00506	6/1/2015	3.14	7/6/2029	6/1/2015	125.67802	120.785846	116.1693569	111.8101272	107.6911128	103.7965388	100.1117959	96.62334652	93.3186379
150601A00528	6/1/2015	3.08	7/27/2029	6/1/2015	125.58107	120.657412	116.0129449	111.6289026	107.4879335	103.5739849	99.87219664	96.36880386	93.05104855

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REFERENCE	SETTLEMENT	Rate	MATURITY	First/Next	-400	-300	-200	-100	Base	100	200	300	400
150601A00559	6/1/2015	3.06	8/31/2029	6/1/2015	125.78154	120.7906241	116.0857631	111.6475344	107.4579963	103.5005627	99.75989075	96.22177919	92.87307485
150601A00684	6/1/2015	2.25	2/7/2025	6/1/2015	110.21814	108.2903415	106.4178827	104.598709	102.8308593	101.1124601	99.44172079	97.81692959	96.23644928
160603A00015	6/3/2016	1.95	6/5/2023	6/3/2016	109.80501	107.934752	106.1066173	104.3192765	102.5714543	100.861929	99.18952919	97.55313127	95.95165697
160608A00026	6/8/2016	2.36	6/8/2026	6/8/2016	125.1201	119.9299194	114.997566	110.3086461	105.8496572	101.6079261	97.57155364	93.72936205	90.07084708
160608A00031	6/8/2016	2.36	6/8/2026	6/8/2016	125.1201	119.9299194	114.997566	110.3086461	105.8496572	101.6079261	97.57155364	93.72936205	90.07084708
160608A00032	6/8/2016	2.36	6/8/2026	6/8/2016	125.1201	119.9299194	114.997566	110.3086461	105.8496572	101.6079261	97.57155364	93.72936205	90.07084708
160609A00075	6/9/2016	1.94	6/9/2026	6/9/2016	113.77023	110.9080892	108.1538593	105.5025312	102.9493667	100.4898819	98.1198314	95.83519423	93.63216018
160628A00006	6/28/2016	1.44	6/28/2023	6/28/2016	105.02573	103.9889871	102.9724812	101.9756191	100.9978301	100.0385664	99.09730133	98.17352853	97.26676093
161222A00035	12/22/2016	2.29	12/22/2023	12/22/2016	107.34405	106.0242618	104.7335577	103.4710359	102.2358295	101.0271065	99.84406772	98.68594538	97.55200161
161222A00036	12/22/2016	2.69	12/22/2026	12/22/2016	117.0073	113.8324858	110.786461	107.8628368	105.0555918	102.359047	99.76784362	97.27692314	94.88150802
161222A00037	12/22/2016	3.08	12/22/2031	12/22/2016	133.28726	126.4941283	120.1874569	114.3265479	108.8744736	103.7976997	99.06574767	94.65089345	90.5278974
170406A00031	4/6/2017	3.01	4/6/2027	4/6/2017	132.3711	126.0865234	120.1585388	114.5646891	109.2840631	104.2971771	99.58586987	95.13320503	90.92338193
170417A00059	4/17/2017	2.14	4/18/2022	4/17/2017	103.73398	103.0739797	102.4224414	101.7792017	101.1441024	100.5169889	99.89771091	99.28612169	98.68207819
170518A00028	5/18/2017	2.45	5/20/2024	5/18/2017	115.86501	112.9371739	110.10135	107.3540001	104.6917487	102.1113762	99.60981021	97.1841176	94.83149693
170830A00040	8/30/2017	1.84	8/30/2022	8/30/2017	103.07486	102.4984305	101.9302221	101.3700407	100.8176967	100.2730069	99.73579432	99.20588748	98.68312059
170921A00056	9/21/2017	2.82	9/21/2027	9/21/2017	133.25625	126.4720309	120.099532	114.1111757	108.481389	103.1864446	98.2043174	93.51455318	89.09814828
180302A00014	3/2/2018	2.69	3/2/2023	3/2/2018	105.21812	104.3553088	103.5082563	102.676508	101.8596291	101.0572016	100.2688243	99.49411079	98.73268977
180321A00015	3/21/2018	3.02	3/21/2025	3/21/2018	114.03885	111.6569474	109.3512056	107.1185712	104.9561333	102.8611182	100.8308827	98.86290639	96.95478546
180322A00030	3/22/2018	2.79	3/24/2025	3/22/2018	112.44853	110.3333138	108.2810418	106.2893171	104.3558492	102.4784523	100.6550393	98.88361699	97.16228082
180329A00011	3/29/2018	2.77	3/29/2023	3/29/2018	105.55919	104.6498093	103.7572805	102.8811143	102.0208448	101.1760243	100.3462225	99.53102557	98.73003526
180508A00038	5/8/2018	3.57	5/9/2033	5/8/2018	143.32298	134.6650094	126.7178682	119.414389	112.6943657	106.5037772	100.7941056	95.52173375	90.64741237
180612A00012	6/12/2018	2.94	6/12/2023	6/12/2018	106.53823	105.488862	104.4599397	103.4508626	102.461051	101.4899487	100.5370212	99.60175487	98.68365574
150601A00571	6/1/2015	2.5	9/23/2022	6/1/2015	103.65981	103.0310719	102.4152099	101.8118079	101.2204671	100.6408058	100.0724581	99.51507346	98.96831577
200108A00015	12/18/2020	1.98	12/18/2023	12/18/2020	113.08999	110.5363097	108.0534099	105.6388656	103.2903567	101.0056589	98.78263896	96.61925039	94.51352899
200108A00016	12/18/2020	1.98	12/18/2023	12/18/2020	113.08999	110.5363097	108.0534099	105.6388656	103.2903567	101.0056589	98.78263896	96.61925039	94.51352899
200114A00017	1/11/2021	1.93	1/11/2024	1/11/2021	113.31165	110.6820737	108.1269269	105.6436888	103.2299373	100.8833458	98.60167973	96.38279156	94.2246174
200114A00021	1/11/2021	1.93	1/11/2024	1/11/2021	113.31165	110.6820737	108.1269269	105.6436888	103.2299373	100.8833458	98.60167973	96.38279156	94.2246174
200207A00007	2/7/2020	1.74	2/7/2023	2/7/2020	107.92981	106.3844884	104.8692339	103.3832395	101.9257296	100.4959554	99.09319386	97.71674642	96.36593822
200207A00013	2/12/2020	1.73	2/10/2023	2/12/2020	107.96267	106.4072234	104.8822171	103.3868332	101.9202816	100.4817998	99.07065187	97.68612679	96.32753779
210826A00013	8/26/2021	1.97	2/28/2033	8/26/2021	154.69739	138.8078328	124.6925613	112.1438911	100.9794217	91.03884585	82.18117502	74.28232593	67.2330185
210803A00005	8/5/2021	2.06	8/4/2026	8/5/2021	126.8368	120.8932283	115.2631377	109.9283812	104.8719589	100.0779353	95.53136759	91.21823848	87.12539444
210823A00010	8/23/2021	0.36	8/23/2022	8/23/2021	104.1077	103.0492676	102.0121795	100.9957934	99.99949491	99.0226939	98.06482299	97.12533666	96.20371017
210826A00008	8/26/2021	0.89	2/26/2025	8/26/2021	115.22903	111.2656251	107.4589459	103.8019509	100.287956	96.91061323	93.66389199	90.54206129	87.53967307

	Parallel-Shift Sensitivity Analysis												
8/31/2021					Price								
REFERENCE	SETTLEMENT	Rate	MATURITY	First/Next	-400	-300	-200	-100	Base	100	200	300	400
210826A00009	8/26/2021	1.18	8/26/2026	8/26/2021	122.29326	116.3930122	110.8093789	105.5237655	100.5187647	95.77807503	91.28642434	87.02949979	82.99388254
210719A00009	7/19/2021	1.04	7/17/2026	7/19/2021	121.18197	115.440972	110.0019666	104.8475783	99.96152167	95.32852304	90.93425291	86.76526281	82.8089268
210721A00009	7/21/2021	1.7	7/21/2031	7/21/2021	145.09199	131.9636709	120.121886	109.4340523	99.78185759	91.0596632	83.17309014	76.0377693	69.57823576
210729A00003	7/29/2021	1.11	7/29/2026	7/29/2021	121.62133	115.8314558	110.3478808	105.1528823	100.2298502	95.56321293	91.13836747	86.94161405	82.96009594
210729A00004	7/29/2021	1.74	7/29/2031	7/29/2021	145.63722	132.4514222	120.5597514	109.8286049	100.138791	91.38390918	83.46892065	76.30888462	69.82784077
210729A00006	7/29/2021	1.87	11/30/2032	7/29/2021	152.35761	136.9581031	123.247019	111.0301999	100.1367466	90.41612127	81.73562774	73.97821463	67.04055957
210730A00009	7/30/2021	0.74	7/31/2024	7/30/2021	112.47711	109.2276691	106.0882961	103.0546736	100.1226737	97.28835326	94.5479445	91.89784598	89.33461439
210707A00002	7/7/2021	1.12	6/26/2026	7/7/2021	121.39317	115.7162835	110.334672	105.2315076	100.3910101	95.79837262	91.43969636	87.30193039	83.37281565
210707A00008	7/9/2021	2.44	7/7/2031	7/9/2021	153.28481	139.7991726	127.6183944	116.6091325	106.6523054	97.64150181	89.48157566	82.08740273	75.38278014
210709A00005	7/9/2021	1.69	7/9/2031	7/9/2021	144.71476	131.6572218	119.8754185	109.2382855	99.62882015	90.94251445	83.08596528	75.97564572	69.53681751
210709A00006	7/13/2021	2.4	7/11/2031	7/13/2021	152.87807	139.3978779	127.2239464	116.2226262	106.2745735	97.27315764	89.12304949	81.73897283	75.04459916
210714A00020	7/14/2021	0.9	3/14/2025	7/14/2021	115.43516	111.4174328	107.5601678	103.8560782	100.298251	96.8801252	93.59547212	90.43837605	87.40321692
210719A00004	7/19/2021	1	4/20/2026	7/19/2021	120.07654	114.653038	109.5028276	104.6106882	99.96232926	95.54433158	91.3440888	87.34975352	83.55018714
210629A00014	6/29/2021	1.78	12/28/2029	6/29/2021	139.46222	128.7137362	118.8678862	109.8443447	101.5703125	93.97977479	87.01283743	80.61513211	74.73728143
210629A00015	6/29/2021	1.89	6/27/2031	6/29/2021	146.8731	133.7506202	121.9032131	111.2004147	101.5257191	92.77501905	84.85523141	77.68308058	71.18402179
210701A00007	7/1/2021	1.22	7/1/2026	7/1/2021	121.97779	116.2695481	110.8586985	105.7282905	100.8624216	96.24616871	91.86552276	87.7073284	83.75922776
210706A00006	7/6/2021	1.15	7/6/2026	7/6/2021	121.65774	115.9410242	110.5230691	105.3867938	100.5161797	95.89619743	91.51274092	87.35256606	83.40323392
210706A00014	7/6/2021	1.15	6/26/2026	7/6/2021	121.5522	115.8713284	110.4858731	105.3790082	100.5349471	95.93887656	91.5768919	87.43593659	83.50374627
210706A00015	7/6/2021	1.06	12/31/2025	7/6/2021	119.20254	114.1679811	109.3718953	104.8018127	100.4459768	96.29330084	92.33332636	88.55618433	84.95255909
210624A00005	6/24/2021	1.22	6/24/2026	6/24/2021	121.90136	116.2184041	110.8305789	105.7210788	100.8741384	96.27496552	91.90967581	87.76523228	83.82938934
210624A00025	6/24/2021	1.43	6/24/2027	6/24/2021	126.89041	119.837415	113.2163848	106.9987256	101.1578732	95.66914256	90.50958599	85.65786212	81.09411564
210624A00026	6/24/2021	1.6	6/23/2028	6/24/2021	131.79379	123.3183935	115.4396857	108.1126965	101.2960619	94.9517175	89.04461983	83.54249178	78.41559131
210629A00005	6/29/2021	1.25	6/29/2026	6/29/2021	122.11552	116.4104597	111.0022808	105.8740723	101.00997	96.39508656	92.01544614	87.85792449	83.91019272
210629A00009	6/29/2021	1.14	12/31/2025	6/29/2021	119.58143	114.5382997	109.7339354	105.1558574	100.7922974	96.63215687	92.66496657	88.88084705	85.27047283
210629A00012	6/29/2021	1.14	12/29/2025	6/29/2021	119.56017	114.5238893	109.7258314	105.1535409	100.7952767	96.63996702	92.67716864	88.89702734	85.29024196
210611A00006	6/11/2021	1.85	6/11/2031	6/11/2021	146.23565	133.2057011	121.4376719	110.8027798	101.1859994	92.48452851	84.60643296	77.46944709	70.99991263
210623A00026	6/23/2021	0.78	6/24/2024	6/23/2021	112.21296	109.0823987	106.0545807	103.1255639	100.2915816	97.5490332	94.89447586	92.32461651	89.83630447
210623A00028	6/23/2021	1.22	6/23/2026	6/23/2021	121.8904	116.2110565	110.8265306	105.7200301	100.8758079	96.27908961	91.91600784	87.7735419	83.83946173
210624A00002	6/24/2021	0.57	6/23/2023	6/24/2021	107.72631	105.7726161	103.863848	101.9986719	100.1758032	98.39400498	96.65208581	94.94889754	93.28333355
210624A00003	6/24/2021	0.78	6/24/2024	6/24/2021	112.21296	109.0823987	106.0545807	103.1255639	100.2915816	97.5490332	94.89447586	92.32461651	89.83630447
210624A00004	6/24/2021	1.01	6/24/2025	6/24/2021	116.96081	112.5880295	108.4008995	104.3905777	100.5486901	96.86730453	93.3389045	89.95636539	86.71293172
210526A00014	5/26/2021	1.01	12/19/2025	5/26/2021	118.84305	113.8547582	109.1014928	104.5709565	100.2515627	96.13239087	92.20314387	88.45410913	84.87612203
210526A00017	5/26/2021	2.13	5/26/2033	5/26/2021	157.86434	141.4502198	126.8975827	113.9849633	102.5183181	92.32750062	83.26320811	75.19433255	68.00566009

	Parallel-Shift Sensitivity Analysis												
8/31/2021					Price								
REFERENCE	SETTLEMENT	Rate	MATURITY	First/Next	-400	-300	-200	-100	Base	100	200	300	400
210526A00018	5/26/2021	1.11	5/26/2026	5/26/2021	120.95481	115.3936385	110.1176536	105.1106699	100.3575158	95.84396392	91.55666693	87.48309727	83.61149179
210609A00003	6/9/2021	0.47	6/9/2023	6/9/2021	107.38036	105.4721045	103.6072467	101.7844354	100.0023713	98.25980762	96.55554836	94.88844502	93.25739444
210610A00012	6/11/2021	1.9	6/10/2026	6/11/2021	125.31786	119.5966666	114.1694837	109.0196123	104.1313978	99.49015702	95.08211196	90.89432889	86.9146616
210610A00014	6/11/2021	2.03	6/10/2026	6/11/2021	126.00035	120.2621743	114.8186388	109.6530202	104.7496363	100.0937777	95.67164164	91.47027087	87.4774969
210407A00012	4/7/2021	0.94	4/7/2025	4/7/2021	115.84187	111.7409857	107.8062584	104.0300217	100.4050116	96.92434112	93.58147816	90.37022494	87.28469872
210407A00013	4/7/2021	1.23	4/7/2026	4/7/2021	121.10182	115.6970847	110.5625017	105.6831346	101.0449575	96.63479262	92.44025393	88.44969534	84.65216206
210420A00009	4/20/2021	1.08	12/5/2025	4/20/2021	119.02574	114.0778718	109.3615014	104.8645126	100.575495	96.4837001	92.57899891	88.85184202	85.29322276
210420A00010	4/20/2021	1.08	12/12/2025	4/20/2021	119.09882	114.1270513	109.3886695	104.8714602	100.5639204	96.45521111	92.53511503	88.7939972	85.22276817
210518A00023	5/18/2021	1.17	5/18/2026	5/18/2021	121.18278	115.6420862	110.3842695	105.3933501	100.6543402	96.15318078	91.87667805	87.81244494	83.94884678
210525A00004	5/25/2021	1.02	12/19/2025	5/25/2021	118.89003	113.9006839	109.1463993	104.6148784	100.2945333	96.17444183	92.24430571	88.49441102	84.91559198
210324A00002	3/24/2021	2.06	3/24/2031	3/24/2021	147.81371	134.9938756	123.3886374	112.8764926	103.3486749	94.70776137	86.86643662	79.74639742	73.27738126
210324A00003	3/24/2021	1.18	3/24/2026	3/24/2021	120.69855	115.3494367	110.265915	105.43341	100.8382217	96.46747203	92.30905087	88.35156589	84.58429605
210330A00015	3/30/2021	0.47	3/30/2023	3/30/2021	106.61022	104.9199524	103.2650649	101.6445165	100.0573111	98.50249099	96.97913471	95.4863556	94.02329994
210330A00021	3/30/2021	2.16	3/28/2031	3/30/2021	148.97188	136.0800912	124.4094364	113.8377197	104.2555639	95.56500457	87.67824604	80.51655884	74.00930162
210330A00022	3/30/2021	1.27	3/30/2026	3/30/2021	121.21398	115.8332437	110.7202946	105.8603945	101.2396965	96.84518677	92.66462988	88.68651782	84.90002264
210330A00024	3/30/2021	0.68	3/29/2024	3/30/2021	111.01179	108.167695	105.4107905	102.7378577	100.1458205	97.63173706	95.1927929	92.82629427	90.52966219
210310A00015	3/11/2021	0.51	5/15/2023	3/11/2021	107.1959	105.3631136	103.5709128	101.8180147	100.1031934	98.42527458	96.78313273	95.17568833	93.60190565
210311A00007	3/11/2021	1.06	3/11/2026	3/11/2021	119.96557	114.6756063	109.646856	104.8650645	100.3168332	95.98956183	91.87139652	87.95118131	84.21841333
210312A00008	3/12/2021	1.13	3/12/2026	3/12/2021	120.32314	115.0215209	109.9817037	105.1893991	100.6311749	96.29439956	92.16718982	88.23836255	84.49738957
210315A00003	3/15/2021	1.13	3/13/2026	3/15/2021	120.33359	115.0285072	109.9855266	105.1903327	100.6294717	96.29029247	92.1608936	88.23007525	84.48729384
210318A00007	3/22/2021	1.41	3/21/2024	3/22/2021	112.91375	110.0679037	107.3085793	104.6326097	102.0369662	99.51875092	97.07519026	94.70362851	92.4015221
210319A00003	3/19/2021	0.95	3/19/2025	3/19/2021	115.67861	111.6408091	107.7647116	104.0429538	100.4685491	97.03486771	93.73561686	90.56482123	87.51680508
210305A00006	3/8/2021	1.02	8/11/2025	3/8/2021	117.51485	112.976354	108.6366029	104.4858635	100.5149349	96.71511308	93.07816118	89.59628182	86.26209134
210308A00009	3/8/2021	0.62	3/8/2024	3/8/2021	110.63682	107.8607897	105.1685146	102.5569671	100.0232458	97.56457265	95.17828738	92.86184105	90.61279092
210309A00002	3/11/2021	0.77	7/25/2024	3/11/2021	112.50802	109.2767195	106.1542934	103.1364864	100.219237	97.39866393	94.67105773	92.03287178	89.48071432
210309A00004	3/11/2021	0.87	11/25/2024	3/11/2021	114.14637	110.5026966	106.9938329	103.6139447	100.3574917	97.21921121	94.19410242	91.27741093	88.46461483
210310A00003	3/15/2021	0.79	8/26/2024	3/15/2021	112.90685	109.5696081	106.3480283	103.237457	100.2334564	97.33179266	94.52842499	91.8194958	89.2013212
210310A00014	3/11/2021	0.41	5/16/2022	3/11/2021	103.00045	102.249344	101.5091403	100.7795986	100.06049	99.35159193	98.65268804	97.96356816	97.28402796
210302A00005	3/5/2021	0.92	9/10/2025	3/5/2021	117.39698	112.7637706	108.337383	104.1074893	100.0643369	96.19871093	92.50190174	88.96567399	85.58223829
210302A00019	3/4/2021	1.06	3/4/2024	3/4/2021	111.76969	108.9905605	106.2949144	103.6797453	101.1421731	98.67943978	96.28890327	93.96803178	91.7143984
210303A00006	3/4/2021	0.97	10/10/2025	3/4/2021	117.93084	113.189228	108.6627414	104.3404543	100.2120584	96.26782489	92.49856892	88.89561532	85.45076751
210304A00002	3/5/2021	0.93	7/10/2025	3/5/2021	116.79749	112.3765202	108.1451849	104.0943944	100.2155445	96.50048512	92.94149386	89.53125138	86.26281829
210304A00006	3/4/2021	1.02	3/4/2026	3/4/2021	119.69655	114.4353781	109.4331774	104.6758681	100.150208	95.84374034	91.7447438	87.84218457	84.12567251

	Parallel-Shift Sensitivity Analysis												
8/31/2021					Price								
REFERENCE	SETTLEMENT	Rate	MATURITY	First/Next	-400	-300	-200	-100	Base	100	200	300	400
210305A00005	3/9/2021	0.54	8/11/2023	3/9/2021	108.21118	106.1056987	104.0517563	102.0477711	100.0922176	98.18362765	96.32058756	94.50173588	92.72576103
210225A00012	3/1/2021	0.91	8/25/2025	3/1/2021	117.18717	112.6102928	108.235808	104.0537124	100.0545493	96.22937808	92.56974259	89.0676426	85.71550657
210225A00013	3/1/2021	0.93	10/6/2025	3/1/2021	117.71137	112.987188	108.4769173	104.1697142	100.0553502	96.12417017	92.36705739	88.77539983	85.34105938
210225A00015	3/1/2021	0.7	8/26/2024	3/1/2021	112.6189	109.286193	106.0690311	102.9627639	99.96295736	97.06538139	94.26599878	91.56095535	88.94657049
210225A00016	3/1/2021	0.88	7/15/2025	3/1/2021	116.63919	112.2054121	107.9624909	103.9012541	100.013013	96.28953932	92.72303804	89.30612249	86.03179073
210226A00002	2/26/2021	0.86	2/26/2025	2/26/2021	115.11599	111.1546545	107.3499859	103.6949435	100.1828452	96.80734526	93.56241492	90.4423251	87.44162957
210226A00004	3/1/2021	1.04	12/5/2025	3/1/2021	118.83959	113.8958689	109.1835024	104.6903823	100.4051039	96.31692423	92.41571938	88.69194484	85.13659863
210224A00004	2/26/2021	0.91	12/18/2025	2/26/2021	118.36333	113.3889904	108.6490408	104.1312171	99.82396122	95.7163794	91.79820062	88.05973727	84.49184874
210224A00006	2/26/2021	0.88	10/21/2025	2/26/2021	117.63739	112.8671152	108.3146909	103.9689793	99.81947647	95.85627375	92.0700201	88.45188743	84.99353802
210224A00007	2/26/2021	0.68	10/21/2024	2/26/2021	113.12688	109.6112734	106.2225285	102.9553093	99.80453777	96.76538208	93.83324287	91.00374029	88.27270197
210225A00003	3/1/2021	0.93	9/24/2025	3/1/2021	117.58776	112.9048697	108.4326163	104.1604033	100.0782233	96.17662567	92.44668264	88.87995693	85.46847207
210225A00006	2/25/2021	0.98	2/25/2026	2/25/2021	119.42502	114.1938908	109.2193234	104.4874236	99.98511893	95.70010945	91.62081815	87.73634439	84.03642087
210225A00007	2/25/2021	1.79	8/23/2030	2/25/2021	142.28357	130.5329352	119.8382581	110.0992568	101.2256451	93.1360908	85.75728698	79.02312326	72.87394676
210219A00002	2/19/2021	0.32	2/22/2022	2/19/2021	101.99037	101.488904	100.9923523	100.5006419	100.0137023	99.53146432	99.05386019	98.58082336	98.11228857
210219A00004	2/19/2021	0.91	2/19/2026	2/19/2021	118.95992	113.7630196	108.8200998	104.1174595	99.64220447	95.38219928	91.32601871	87.46290239	83.78271262
210219A00008	2/22/2021	0.86	12/1/2025	2/22/2021	117.96297	113.0514275	108.3695388	103.905274	99.64730604	95.58496757	91.70820761	88.00755201	84.47406665
210223A00014	2/23/2021	0.31	2/23/2022	2/23/2021	101.99693	101.4925212	100.993083	100.4985408	100.0088229	99.5238591	99.04358038	98.56791916	98.09680914
210224A00002	2/25/2021	0.88	11/3/2025	2/25/2021	117.7678	112.9529857	108.3596539	103.9763962	99.79245713	95.79769598	91.98254782	88.33798705	84.85549354
210224A00003	2/26/2021	0.9	12/3/2025	2/26/2021	118.16834	113.2459015	108.5537894	104.0799427	99.81300268	95.74227104	91.85766684	88.14968694	84.60936909
210217A00009	2/18/2021	0.68	11/15/2024	2/18/2021	113.38182	109.7831848	106.3168042	102.977002	99.75838242	96.6558176	93.66443235	90.77958968	87.9968773
210218A00005	2/18/2021	0.32	2/18/2022	2/18/2021	101.94437	101.454731	100.969779	100.4894508	100.0136804	99.54240325	99.07555584	98.61307589	98.15490232
210218A00006	2/18/2021	0.5	2/20/2024	2/18/2021	110.1422	107.4261341	104.7907263	102.2331082	99.75053334	97.34036986	95.00009477	92.72728879	90.51963132
210218A00009	2/19/2021	0.62	7/15/2024	2/19/2021	111.94296	108.7512688	105.6662242	102.6836961	99.79973925	97.01058218	94.31261846	91.7023986	89.17662235
210218A00010	2/18/2021	1.72	2/18/2031	2/18/2021	143.53433	131.0600458	119.7620264	109.5233669	100.2393304	91.81602299	84.16922237	77.22333783	70.91048709
210218A00011	2/22/2021	0.85	10/24/2025	2/22/2021	117.53163	112.7541045	108.1951631	103.8436043	99.68887114	95.72100622	91.93061365	88.30882398	84.84726141
210208A00008	2/11/2021	0.78	11/17/2025	2/11/2021	117.45234	112.5982048	107.9693284	103.5540012	99.34119257	95.32050882	91.48215214	87.81688256	84.3159826
210208A00015	2/10/2021	0.46	8/25/2023	2/10/2021	108.19734	106.0498799	103.9559778	101.9139576	99.92220408	97.97916397	96.083343	94.23330325	92.42766055
210211A00005	2/11/2021	0.45	6/15/2023	2/11/2021	107.40958	105.4830208	103.6004887	101.7606395	99.96218115	98.20387196	96.48451862	94.80297367	93.15813324
210211A00007	2/11/2021	0.47	9/15/2023	2/11/2021	108.44402	106.230256	104.0729214	101.9701928	99.9203239	97.92163763	95.97252267	94.07143046	92.21687222
210216A00011	2/17/2021	0.83	12/15/2025	2/17/2021	117.95879	113.003024	108.2805565	103.7791715	99.4873622	95.3942853	91.48971839	87.76402084	84.20809729
210217A00008	2/18/2021	0.63	8/15/2024	2/18/2021	112.28447	108.9912882	105.8112125	102.739735	99.77255643	96.90557289	94.13486567	91.45669184	88.86747524
210201A00001	2/1/2021	0.77	12/16/2025	2/1/2021	117.68712	112.7342841	108.0147956	103.5164381	99.22770054	95.13773481	91.2363138	87.51379212	83.96106972
210201A00003	2/2/2021	0.74	10/15/2025	2/2/2021	116.94877	112.2124067	107.6918042	103.3759605	99.25450269	95.3176433	91.55614381	87.96128042	84.52481226

	Parallel-Shift Sensitivity Analysis												
8/31/2021					Price								
REFERENCE	SETTLEMENT	Rate	MATURITY	First/Next	-400	-300	-200	-100	Base	100	200	300	400
210201A00007	2/3/2021	0.57	8/15/2024	2/3/2021	112.09452	108.8043087	105.6271195	102.5584547	99.59401751	96.72970637	93.9616049	91.28597236	88.69923472
210208A00002	2/10/2021	0.45	6/15/2023	2/10/2021	107.40958	105.4830208	103.6004887	101.7606395	99.96218115	98.20387196	96.48451862	94.80297367	93.15813324
210208A00004	2/11/2021	0.76	10/15/2025	2/11/2021	117.03861	112.3003165	107.7778416	103.4601871	99.33697749	95.39842287	91.63528245	88.03883023	84.60082326
210208A00006	2/9/2021	0.46	8/15/2023	2/9/2021	108.09025	105.9740074	103.9098518	101.8961762	99.93143044	98.01412299	96.14281798	94.31613296	92.53273641
210122A00005	1/26/2021	0.6	7/15/2024	1/26/2021	111.88154	108.6907855	105.6066488	102.6250059	99.7419123	96.95359714	94.25645475	91.64703632	89.12204225
210122A00006	1/25/2021	0.61	8/15/2024	1/25/2021	112.22115	108.9289617	105.7498482	102.6793082	99.71304345	96.84695071	94.07711208	91.39978535	88.81139507
210127A00008	1/27/2021	0.93	1/27/2027	1/27/2021	122.34647	115.9333665	109.8899485	104.1931046	98.82128115	93.75436935	88.97360172	84.46145592	80.20156612
210127A00009	1/27/2021	1.3	7/27/2029	1/27/2021	133.38273	123.4393705	114.2978294	105.8895709	98.15223886	91.02906766	84.46835508	78.42298788	72.85001372
210127A00010	1/27/2021	1.41	7/26/2030	1/27/2021	138.07128	126.6172166	116.1888457	106.6893118	98.03134921	90.13628969	82.93317718	76.35797721	70.35287107
210129A00002	2/3/2021	0.59	7/25/2024	2/3/2021	111.94977	108.7270218	105.6129227	102.6032326	99.69389682	96.88104111	94.16096238	91.53012027	88.985129
210119A00005	1/20/2021	0.52	9/25/2023	1/20/2021	108.66072	106.4141489	104.2253628	102.0924755	100.0136775	97.98723255	96.01147322	94.08479814	92.20566862
210119A00007	1/20/2021	0.51	8/25/2023	1/20/2021	108.30177	106.153193	104.0582013	102.0151134	100.0223134	98.07824742	96.18142061	94.33039448	92.52378433
210121A00012	1/22/2021	0.64	10/15/2024	1/22/2021	112.9328	109.4388409	106.0704545	102.8223813	99.68961686	96.6673979	93.75118906	90.93667027	88.21972505
210121A00014	1/22/2021	0.64	10/25/2024	1/22/2021	113.0315	109.5051684	106.1064639	102.83	99.67065281	96.62354767	93.68404541	90.84772905	88.11039162
210121A00017	1/25/2021	0.48	5/25/2023	1/25/2021	107.23289	105.3706899	103.5502389	101.7701975	100.0292876	98.32628524	96.66001833	95.02936357	93.43324387
210121A00018	1/25/2021	0.5	8/25/2023	1/25/2021	108.28088	106.1325304	104.0377566	101.9948822	100.0022915	98.05843073	96.16180509	94.31097624	92.50455957
201221A00015	12/21/2020	0.88	12/4/2026	12/21/2020	121.57644	115.3619772	109.4974927	103.961443	98.73373078	93.795599	89.12953401	84.71917582	80.54923543
201223A00012	12/23/2020	0.91	12/18/2026	12/23/2020	121.87447	115.6063981	109.6932296	104.1130894	98.84556506	93.87159955	89.17339453	84.73432038	80.53883342
201223A00013	12/23/2020	0.9	12/11/2026	12/23/2020	121.75431	115.5122691	109.6226915	104.0638716	98.81555346	93.85882933	89.17604241	84.75069713	80.56737643
210108A00008	1/11/2021	0.51	8/15/2023	1/11/2021	108.19319	106.0758602	104.0106442	101.9959293	100.0301649	98.11185867	96.23957424	94.4119286	92.6275897
210112A00003	1/12/2021	0.53	9/15/2023	1/12/2021	108.57309	106.3579162	104.1991982	102.0951145	100.0439178	98.04393025	96.09353978	94.19119711	92.33541273
210114A00004	1/14/2021	0.4	1/14/2022	1/14/2021	101.56817	101.1813011	100.797386	100.4163868	100.0382704	99.66300399	99.29055539	98.92089285	98.55398509
201216A00001	12/16/2020	0.49	7/14/2023	12/16/2020	107.80497	105.7875921	103.8177788	101.894124	100.015272	98.17991566	96.38679454	94.63469269	92.92243695
201216A00003	12/16/2020	0.59	7/1/2024	12/16/2020	111.71242	108.5675138	105.5263814	102.5850619	99.73976294	96.98685698	94.32287298	91.74448892	89.24852457
201216A00004	12/16/2020	0.74	9/8/2025	12/16/2020	116.58845	111.9787724	107.5748339	103.3663729	99.34369377	95.49763499	91.81953654	88.30120969	84.93490866
201216A00013	12/16/2020	0.59	12/16/2025	12/16/2020	117.56269	112.5911738	107.8544974	103.3403387	99.03708904	94.93381006	91.02019074	87.2865078	83.72358882
201218A00014	12/18/2020	0.57	12/18/2025	12/18/2020	117.48726	112.5110763	107.7702015	103.2522892	98.94570717	94.83949341	90.92331398	87.18742335	83.62262749
201221A00014	12/21/2020	0.76	12/19/2025	12/21/2020	117.66852	112.7066163	107.9788311	103.4729086	99.17729901	95.08111678	91.17409802	87.44656171	83.88937332
201203A00005	12/3/2020	0.78	12/3/2026	12/3/2020	121.95665	115.70193	109.8001494	104.2295386	98.96979288	94.00196507	89.30836689	84.87247778	80.67886106
201204A00015	12/8/2020	1.07	12/8/2025	12/8/2020	119.01043	114.0533561	109.3285579	104.8238739	100.5278555	96.42971694	92.5192928	88.78699832	85.22379263
201210A00011	12/10/2020	0.41	12/10/2021	12/10/2020	101.16257	100.8771802	100.5934069	100.3112372	100.0306576	99.75165445	99.47421454	99.19832468	98.92397181
201210A00021	12/10/2020	0.89	12/10/2027	12/10/2020	125.94442	118.3000841	111.1601259	104.4887562	98.25290839	92.42201682	86.96781456	81.86414848	77.08681033
201214A00002	12/14/2020	0.45	12/14/2022	12/14/2020	105.4603	104.0665926	102.7039947	101.3714696	100.0680239	98.79270825	97.54461479	96.32287488	95.126657

	Parallel-Shift Sensitivity Analysis												
8/31/2021					Price								
REFERENCE	SETTLEMENT	Rate	MATURITY	First/Next	-400	-300	-200	-100	Base	100	200	300	400
201215A00001	12/15/2020	0.76	12/15/2025	12/15/2020	117.63081	112.6823942	107.9670247	103.4724967	99.18731393	95.10064257	91.20226949	87.48256283	83.93243558
201119A00021	11/23/2020	2.22	11/21/2030	11/23/2020	147.88335	135.5347844	124.3169788	114.1202786	104.84621	96.40628344	88.72093212	81.71856959	75.33475088
201119A00023	11/23/2020	2.23	11/21/2030	11/23/2020	147.98998	135.6363418	124.4137922	114.2126579	104.9344413	96.49063126	88.80164112	81.79586625	75.40884501
201123A00009	11/25/2020	1.02	11/25/2024	11/25/2020	114.66833	111.0157704	107.4982666	104.1099743	100.8453447	97.6991071	94.66625294	91.74202047	88.92188074
201123A00010	11/25/2020	1.48	11/24/2025	11/25/2020	120.75547	115.8051798	111.0846402	106.5818789	102.2856219	98.1852484	94.27074865	90.53268488	86.96215469
201123A00011	11/25/2020	1.41	11/24/2025	11/25/2020	120.43215	115.4890096	110.775378	106.2792928	101.9894897	97.8953571	93.98689425	90.25467168	86.68979494
201201A00002	12/1/2020	0.54	12/1/2023	12/1/2020	109.4144	106.9560542	104.5652772	102.2396852	99.97699984	97.77504372	95.63173461	93.54508043	91.5131744
201117A00016	11/17/2020	0.52	11/18/2024	11/17/2020	113.38285	109.7615347	106.273918	102.9142282	99.67698754	96.55699189	93.54929472	90.64919236	87.85221021
201117A00017	11/17/2020	0.39	11/17/2023	11/17/2020	109.26361	106.8431995	104.4885154	102.1972676	99.96726442	97.79641023	95.68269976	93.62421356	91.61911343
201118A00009	11/18/2020	0.61	11/18/2025	11/18/2020	117.38602	112.5092275	107.8594558	103.4248669	99.19431532	95.15730081	91.30392689	87.62486206	84.11130386
201118A00021	11/20/2020	0.97	11/20/2023	11/20/2020	110.30739	107.8723946	105.5035246	103.1984731	100.9550326	98.77109235	96.64463295	94.57372151	92.55650707
201119A00002	11/19/2020	0.5	11/18/2022	11/19/2020	105.3068	103.9675034	102.6619284	101.3888204	100.1469818	98.93527307	97.75260969	96.59795845	95.47033465
201119A00003	11/19/2020	0.56	11/17/2023	11/19/2020	109.31206	106.8981485	104.5496551	102.2642996	100.0399049	97.87438877	95.76575885	93.7121077	91.7116085
201116A00009	11/16/2020	0.51	11/14/2022	11/16/2020	105.27075	103.9444329	102.651204	101.3898429	100.1591845	98.9581201	97.78559354	96.64059848	95.52217537
201116A00021	11/16/2020	0.53	11/15/2024	11/16/2020	113.38641	109.7747001	106.2960253	102.9446607	99.71516829	96.60238104	93.60138679	90.70751394	87.91631773
201116A00024	11/18/2020	2.36	11/15/2034	11/18/2020	167.57001	148.3947393	131.6240017	116.9420774	104.0762424	92.79071698	82.8814936	74.17191108	66.50886501
201116A00025	11/18/2020	1.96	11/15/2032	11/18/2020	153.38157	137.9812954	124.2618556	112.030734	101.1183843	91.37538493	82.66995768	74.88580356	67.92021401
201117A00005	11/17/2020	0.5	11/17/2022	11/17/2020	105.29466	103.9586253	102.6561582	101.3860075	100.1469839	98.93795578	97.75784555	96.60562681	95.48032117
201117A00006	11/17/2020	0.57	11/17/2023	11/17/2020	109.33546	106.9212716	104.5725076	102.2868873	100.0622334	97.89646354	95.78758507	93.73369049	91.73295279
201030A00016	10/30/2020	1.14	10/8/2027	10/30/2020	125.96018	118.5749993	111.6635682	105.1931155	99.13330428	93.45603793	88.13528323	83.14690806	78.46853291
201030A00017	10/30/2020	1.14	10/15/2027	10/30/2020	126.02078	118.6102939	111.6764647	105.1862281	99.10898555	93.41640496	88.08224054	83.08216853	78.3936365
201030A00018	10/30/2020	1.15	10/22/2027	10/30/2020	126.15008	118.712096	111.7537788	105.2417719	99.14520875	93.4355152	88.08622736	83.07282456	78.37257663
201030A00019	10/30/2020	1.15	10/29/2027	10/30/2020	126.21093	118.7476052	111.7668778	105.2350913	99.12111485	93.39613618	88.03347672	83.0084223	78.29806829
201105A00003	11/6/2020	2.24	11/4/2030	11/6/2020	147.87607	135.5928062	124.4289443	114.2764386	105.038209	96.62697096	88.96420062	81.97921324	75.60834341
201105A00016	11/9/2020	2.18	11/8/2027	11/9/2020	133.43406	125.7042905	118.4721255	111.7028795	105.3644666	99.42719422	93.86357217	88.64813698	83.75729184
201021A00012	10/21/2020	1.85	10/19/2035	10/21/2020	162.84967	142.6516371	125.1638007	110.0074857	96.85867995	85.43990949	75.51335174	66.8749973	59.34969577
201028A00011	10/28/2020	0.91	4/28/2026	10/28/2020	119.64312	114.2052231	109.0425936	104.139832	99.48248552	95.05698694	90.85059468	86.85133776	83.04796464
201028A00012	10/28/2020	0.8	7/28/2025	10/28/2020	116.43251	111.9613176	107.6843294	103.5921281	99.6757986	95.92690234	92.33744929	88.89987169	85.60699949
201028A00013	10/28/2020	0.68	10/28/2024	10/28/2020	113.19685	109.6585449	106.2485453	102.9614265	99.7920265	96.73543503	93.78697957	90.94221202	88.19689629
201029A00002	10/29/2020	0.59	10/29/2025	10/29/2020	117.09654	112.2922608	107.7090587	103.3355469	99.16099515	95.17528581	91.36887501	87.73275645	84.25842773
201030A00012	10/30/2020	0.63	10/30/2025	10/30/2020	117.28823	112.4765797	107.8864131	103.5063213	99.32554951	95.33395736	91.52197979	87.88059081	84.40126974
201015A00030	10/19/2020	2.39	10/18/2027	10/19/2020	134.61729	126.9231721	119.7195446	112.9725204	106.6507349	100.7251419	95.16882958	89.95685264	85.06607823
201015A00032	10/19/2020	2.33	10/19/2026	10/19/2020	129.37448	123.1053674	117.1784593	111.5732226	106.2704719	101.2522713	96.50184551	92.00349843	87.7425376

	Parallel-Shift Sensitivity Analysis												
8/31/2021					Price								
REFERENCE	SETTLEMENT	Rate	MATURITY	First/Next	-400	-300	-200	-100	Base	100	200	300	400
201019A00005	10/19/2020	0.79	10/20/2025	10/19/2020	117.22171	112.463601	107.9227782	103.5881344	99.449196	95.49608277	91.71947029	88.11055527	84.66102325
201019A00006	10/19/2020	0.57	10/19/2023	10/19/2020	109.02556	106.7032453	104.4420473	102.2399096	100.0948647	98.00502752	95.96859075	93.98382109	92.0490555
201019A00007	10/19/2020	0.64	10/21/2024	10/19/2020	112.99201	109.4786348	106.0920598	102.8269524	99.6782368	96.64108304	93.71089363	90.8832905	88.154103
201021A00011	10/21/2020	1.11	10/21/2027	10/21/2020	125.86674	118.4411243	111.4943577	104.9931444	98.90667635	93.20643316	87.86599995	82.86090096	78.16844715
201001A00012	10/1/2020	0.74	9/16/2025	10/1/2020	116.66762	112.0302829	107.6008383	103.368866	99.32452655	95.4585255	91.76207984	88.22688698	84.84509567
201014A00002	10/14/2020	0.61	10/15/2024	10/14/2020	112.8322	109.3398991	105.9731231	102.7266175	99.59537924	96.57464657	93.65988547	90.84677718	88.13120648
201015A00002	10/15/2020	0.61	10/15/2024	10/15/2020	112.8322	109.3398991	105.9731231	102.7266175	99.59537924	96.57464657	93.65988547	90.84677718	88.13120648
201015A00003	10/15/2020	0.75	10/15/2025	10/15/2020	116.99369	112.2563616	107.7348229	103.4180738	99.29574009	95.35803309	91.59571313	88.00005533	84.56281776
201015A00024	10/19/2020	1.53	10/18/2027	10/19/2020	128.72076	121.2143192	114.1897085	107.6135222	101.4548455	95.68505352	90.27762992	85.20800028	80.45337995
201015A00025	10/19/2020	1.54	10/18/2027	10/19/2020	128.78932	121.2807012	114.2540089	107.6758362	101.5152628	95.7436592	90.33450433	85.26321949	80.50701597
200916A00023	9/16/2020	0.42	9/16/2024	9/16/2020	112.41535	109.0080493	105.7210449	102.5494028	99.48842115	96.5336187	93.68072348	90.92566142	88.26454594
200922A00015	9/24/2020	1.09	9/24/2025	9/24/2020	118.29593	113.5979772	109.1111617	104.8248599	100.7290452	96.81424861	93.07152469	89.49241949	86.06894064
200923A00001	9/23/2020	2.27	9/22/2025	9/23/2020	123.48918	118.6875057	114.1000493	109.7160788	105.5254619	101.5186281	97.68653448	94.02063344	90.51284257
200923A00002	9/23/2020	2.17	9/22/2025	9/23/2020	123.04721	118.2549186	113.676539	109.3013506	105.119233	101.1206272	97.29650127	93.63831794	90.1380047
200928A00009	9/28/2020	1.51	9/28/2032	9/28/2020	146.98918	132.1370066	118.8993221	107.0924686	96.55452365	87.14263093	78.73067036	71.20722362	64.4737956
201001A00011	10/1/2020	0.71	6/17/2025	10/1/2020	115.65001	111.3259404	107.185046	103.2185868	99.4182878	95.77631397	92.28524416	88.93804682	85.72805708
200826A00040	8/28/2020	0.92	10/27/2023	8/28/2020	109.90696	107.5507061	105.2568911	103.0233932	100.8481851	98.72932527	96.66495331	94.65328578	92.69261235
200909A00001	9/9/2020	0.98	9/8/2028	9/9/2020	129.03567	120.335297	112.2695268	104.7889912	97.84840372	91.40619863	85.42420747	79.86736506	74.70344248
200916A00015	9/16/2020	0.72	9/16/2025	9/16/2020	116.5796	111.9441285	107.5164846	103.2862546	99.24360165	95.3792334	91.68436904	88.15070802	84.77040105
200916A00016	9/16/2020	0.6	9/16/2024	9/16/2020	112.51071	109.113772	105.8364857	102.6739552	99.62151279	96.67470959	93.82930391	91.08125016	88.4266885
200916A00017	9/16/2020	0.54	9/15/2023	9/16/2020	108.5946	106.3791929	104.2202444	102.1159348	100.0645168	98.06431235	96.1137093	94.21115822	92.35516948
200916A00019	9/16/2020	0.42	9/16/2024	9/16/2020	112.41535	109.0080493	105.7210449	102.5494028	99.48842115	96.5336187	93.68072348	90.92566142	88.26454594
200826A00028	8/28/2020	1.08	8/28/2024	8/28/2020	113.85755	110.4990558	107.2570395	104.1268051	101.1038781	98.18398978	95.36306655	92.63721978	90.00273625
200826A00029	8/28/2020	1.16	11/27/2024	8/28/2020	115.17914	111.5114344	107.9794634	104.5773494	101.2995085	98.14063736	95.09569661	92.15989578	89.32867891
200826A00035	8/28/2020	0.78	8/28/2023	8/28/2020	108.90067	106.7366568	104.6267959	102.5693821	100.5627764	98.60540255	96.69574485	94.8323448	93.01379872
200826A00036	8/28/2020	0.88	7/28/2023	8/28/2020	108.73948	106.6706402	104.6514753	102.6804831	100.7562213	98.87730088	97.04238311	95.25017773	93.49944075
200826A00038	8/28/2020	1.11	8/28/2024	8/28/2020	113.95371	110.593706	107.3502118	104.2185375	101.1942075	98.27295181	95.45069559	92.72354911	90.08779802
200826A00039	8/28/2020	1.03	7/29/2024	8/28/2020	113.35934	110.102553	106.9557754	103.9147012	100.9752134	98.13337903	95.38543948	92.72780185	90.15703065
200806A00006	8/6/2020	0.76	8/6/2025	8/6/2020	116.3511	111.8526989	107.5508972	103.4360988	99.49922575	95.73168853	92.12535706	88.67253372	85.36592803
200818A00016	3/31/2021	0.57	4/1/2024	3/31/2021	110.74015	107.8906541	105.1287473	102.4511903	99.85488425	97.33686582	94.89430048	92.52447574	90.22479506
200818A00018	3/31/2021	0.57	4/1/2024	3/31/2021	110.74015	107.8906541	105.1287473	102.4511903	99.85488425	97.33686582	94.89430048	92.52447574	90.22479506
200824A00020	8/26/2020	1.57	8/26/2025	8/26/2020	120.0583	115.418318	110.9829439	106.742071	102.6861485	98.80614694	95.0935259	91.54020534	88.13853804
200826A00019	8/26/2020	0.98	8/26/2026	8/26/2020	121.19406	115.3223565	109.7661592	104.506929	99.52730847	94.81104271	90.342904	86.10862145	82.09481592

	Parallel-Shift Sensitivity Analysis												
8/31/2021					Price								
REFERENCE	SETTLEMENT	Rate	MATURITY	First/Next	-400	-300	-200	-100	Base	100	200	300	400
200826A00021	8/26/2020	0.83	8/26/2025	8/26/2020	116.85069	112.2776011	107.9069591	103.7287461	99.73349532	95.91225672	92.25656588	88.75841501	85.41022579
200629A00023	6/29/2020	0.95	6/29/2026	6/29/2020	120.52224	114.8572625	109.4876531	104.3965732	99.56822488	94.98778355	90.64133287	86.51580485	82.59892395
200708A00011	7/10/2020	2.87	7/10/2031	7/10/2020	158.25371	144.5039324	132.0788807	120.8434437	110.6769486	101.47155	93.13080718	85.56842656	78.70714754
200729A00015	7/30/2020	0.47	9/21/2021	7/30/2020	100.2441	100.1856181	100.1272155	100.0688942	100.0106539	99.95249451	99.89441589	99.83641784	99.77850021
200729A00016	7/30/2020	0.5	4/1/2022	7/30/2020	102.52468	101.9097544	101.3021609	100.7017707	100.1084565	99.5220939	98.94256158	98.36974086	97.80351585
200730A00011	7/30/2020	1.15	7/28/2028	7/30/2020	128.65223	120.1673758	112.2900136	104.973728	98.17586733	91.85722165	85.9817293	80.5162093	75.43011802
200730A00013	7/30/2020	0.74	1/30/2025	7/30/2020	114.36061	110.5073244	106.8031156	103.2414405	99.81607858	96.52111416	93.35092016	90.30014228	87.36368428
200611A00019	6/11/2020	0.88	12/11/2025	6/11/2020	118.15383	113.2063684	108.4913071	103.9964788	99.71042267	95.62234016	91.72205282	87.99996278	84.4470161
200611A00020	6/11/2020	0.81	6/11/2025	6/11/2020	115.99979	111.688098	107.5583902	103.6019681	99.81060601	96.17651869	92.69233472	89.3510718	86.14611371
200611A00021	6/11/2020	0.72	6/11/2024	6/11/2020	111.89568	108.8103932	105.8255308	102.9371953	100.1416674	97.43539794	94.81499825	92.27723205	89.8190072
200611A00023	6/11/2020	0.64	6/12/2023	6/11/2020	107.73139	105.8107396	103.9338688	102.0994229	100.3061041	98.55266674	96.83791458	95.1606981	93.51991233
200629A00020	6/29/2020	1.4	6/28/2030	6/29/2020	137.69251	126.3563886	116.0275265	106.6115358	98.02330487	90.18604442	83.03043702	76.49387679	70.51978989
200629A00021	6/29/2020	1.21	6/29/2028	6/29/2020	128.85497	120.462508	112.6641871	105.4150992	98.67394143	92.40270895	86.56641606	81.13284268	76.07230301
200527A00014	5/27/2020	1.06	5/27/2026	5/27/2020	120.70494	115.1466777	109.8736885	104.8697705	100.1197375	95.60934964	91.3252481	87.25489516	83.3865187
200527A00015	5/27/2020	0.99	11/26/2025	5/27/2020	118.51354	113.6061993	108.9275077	104.465521	100.2089912	96.14732368	92.27053482	88.56921261	85.03448015
200527A00016	5/27/2020	0.92	5/27/2025	5/27/2020	116.29195	112.0226143	107.9318663	104.0111819	100.2524983	96.64818791	93.1910324	89.87419714	86.69120836
200528A00021	5/28/2020	0.63	5/26/2023	5/28/2020	107.51656	105.6487583	103.8228704	102.0375539	100.2915235	98.58354925	96.91245283	95.27710523	93.67642394
200529A00022	6/1/2020	0.98	6/1/2026	6/1/2020	120.33837	114.7728457	109.4938155	104.4849725	99.73103115	95.21765976	90.93141539	86.85968305	82.99061954
200605A00005	6/5/2020	0.99	6/5/2025	6/5/2020	116.67198	112.3663825	108.2417643	104.2894729	100.5013244	96.86957602	93.38689878	90.04635285	86.8413641
200521A00013	5/21/2020	2.09	5/21/2035	5/21/2020	165.33653	145.5598547	128.3585604	113.3824862	100.3307537	88.94461069	79.00134485	70.30910328	62.70247905
200521A00015	5/21/2020	2.14	5/21/2036	5/21/2020	170.09567	148.4994646	129.8920071	113.8420104	99.98249292	88.00090482	77.63081296	68.64489213	60.84901107
200521A00016	5/21/2020	2.18	5/21/2037	5/21/2020	174.57756	151.1434287	131.141853	114.0491643	99.42410747	86.89450818	76.14615348	66.91350942	58.97196409
200521A00017	5/21/2020	2.22	5/21/2038	5/21/2020	178.78027	153.4980445	132.1214159	114.0226197	98.67783207	85.64950767	74.57179131	65.13845633	57.09292278
200527A00012	5/27/2020	1.2	5/27/2027	5/27/2020	125.13746	118.2325337	111.7466921	105.6523001	99.92369919	94.53705206	89.47020284	84.70254894	80.21492347
200527A00013	5/27/2020	1.13	11/25/2026	5/27/2020	122.94237	116.7206003	110.8472071	105.3008263	100.061524	95.11069299	90.43095705	86.00608186	81.82089338
200504A00007	5/4/2020	1.47	5/4/2028	5/4/2020	130.2955	122.04589	114.3677331	107.2185277	100.5591489	94.35356477	88.56857573	83.17357715	78.14034328
200511A00006	5/11/2020	1.65	5/13/2030	5/11/2020	139.73169	128.4697248	118.1933287	108.8112076	100.2409714	92.40822083	85.24573331	78.69273619	72.69425713
200515A00019	5/15/2020	0.59	5/15/2023	5/15/2020	107.33876	105.5046569	103.7111607	101.9569916	100.240923	98.56177991	96.91843606	95.30981137	93.73486951
200515A00020	5/15/2020	0.82	5/15/2025	5/15/2020	115.76624	111.5450315	107.4991537	103.6202982	99.90060765	96.33264532	92.90936947	89.62410957	86.47054417
200515A00021	5/15/2020	1.12	5/17/2027	5/15/2020	124.53712	117.6833823	111.2441281	105.1921343	99.50211669	94.15057753	89.1156695	84.37707038	79.91586816
200518A00019	5/19/2020	0.9	5/19/2025	5/19/2020	116.12841	111.8875445	107.8231984	103.9269918	100.1909951	96.60770429	93.17001538	89.87119977	86.70488207
200429A00064	4/29/2020	0.69	4/29/2022	4/29/2020	102.98975	102.2897412	101.5991945	100.9179165	100.2457219	99.58243006	98.92786538	98.28185671	97.64423736
200429A00065	4/29/2020	0.74	10/28/2022	4/29/2020	105.34048	104.0677487	102.8254895	101.6126242	100.4281209	99.27099496	98.14030729	97.03516105	95.95469957

	Parallel-Shift Sensitivity Analysis												
8/31/2021					Price								
REFERENCE	SETTLEMENT	Rate	MATURITY	First/Next	-400	-300	-200	-100	Base	100	200	300	400
200429A00066	4/29/2020	0.8	4/28/2023	4/29/2020	107.51049	105.725001	103.9781978	102.2688936	100.5959488	98.95826994	97.35480753	95.78455393	94.24654109
200430A00030	4/30/2020	0.96	4/30/2025	4/30/2020	116.17033	111.9886557	107.9788939	104.1329882	100.4433112	96.90263874	93.50412579	90.24128386	87.10796011
200504A00005	5/4/2020	0.6	5/4/2022	5/4/2020	102.99035	102.2753429	101.5702116	100.8747499	100.1887603	99.51205038	98.84443297	98.18572591	97.53575186
200504A00006	5/4/2020	0.94	5/5/2025	5/4/2020	116.14321	111.9462716	107.9224395	104.0635765	100.3619767	96.81034325	93.40176369	90.12968716	86.98790295
200429A00021	5/4/2020	0.97	4/29/2025	5/4/2020	116.19906	112.0200705	108.0127689	104.1691127	100.4814895	96.94268909	93.54587933	90.2845837	87.1526605
200429A00049	4/29/2020	1.25	4/29/2026	4/29/2020	121.392	115.9082866	110.7017074	105.7567682	101.0589263	96.59452949	92.35075653	88.31556146	84.47762218
200429A00054	4/29/2020	1.04	4/29/2025	4/29/2020	116.47635	112.292043	108.2795817	104.4309203	100.7384405	97.19492653	93.7935408	90.52780168	87.39156253
200429A00057	4/29/2020	1.4	4/29/2027	4/29/2020	126.13766	119.2968638	112.8657373	106.8176151	101.1277109	95.77297376	90.73195741	85.98469936	81.51261042
200429A00061	4/29/2020	1.66	10/29/2029	4/29/2020	137.65887	127.2034394	117.612188	108.8092832	100.7259192	93.29963036	86.47367655	80.19649029	74.42118052
200429A00062	4/29/2020	0.65	10/29/2021	4/29/2020	100.715	100.5496038	100.3847548	100.2204462	100.0566755	99.89344013	99.7307374	99.56856476	99.40691966
200424A00014	4/28/2020	1.01	4/23/2025	4/28/2020	116.29117	112.1298872	108.138881	104.3102104	100.636355	97.11018975	93.72496148	90.47426693	87.35203232
200427A00017	4/27/2020	1.02	4/25/2025	4/27/2020	116.35277	112.1838189	108.1856658	104.3503354	100.670275	97.13832921	93.74771689	90.49200868	87.36510659
200427A00018	4/27/2020	1.51	4/27/2028	4/27/2020	130.52541	122.2920978	114.6274598	107.4893163	100.83883	94.64022521	88.86053053	83.46934474	78.43862331
200428A00002	4/28/2020	1.47	4/26/2030	4/28/2020	139.5124	128.237278	117.9478573	108.5530123	99.9704842	92.12597251	84.95232675	78.3888245	72.38052572
200428A00003	4/29/2020	1.01	4/29/2025	4/29/2020	116.35751	112.1754833	108.1652333	104.318717	100.6283186	97.08682477	93.68740017	90.42356541	87.28917595
200429A00004	5/1/2020	0.74	5/1/2023	5/1/2020	107.44231	105.6484522	103.8936071	102.1765719	100.4961921	98.85136044	97.24101438	95.66413395	94.11973947
200423A00006	4/23/2020	0.82	4/23/2025	4/23/2020	116.1457	111.9709774	107.9675047	104.1272826	100.4427321	96.90667371	93.51230321	90.25316979	87.12315523
200423A00017	4/23/2020	1.82	4/23/2035	4/23/2020	163.70806	143.9505938	126.7693864	111.8144323	98.78490575	87.42203134	77.50302214	68.83591753	61.25518338
200423A00020	4/28/2020	0.68	4/15/2022	4/28/2020	102.80764	102.1500498	101.5008439	100.8598588	100.2269389	99.60193275	98.98469255	98.3750742	97.77293714
200423A00022	4/28/2020	0.76	2/15/2023	4/28/2020	106.58052	105.0194391	103.4892296	101.9890559	100.5181094	99.07560984	97.66080409	96.27296514	94.91139092
200423A00026	4/28/2020	0.85	12/15/2023	4/28/2020	110.30735	107.796669	105.355619	102.9818052	100.6729322	98.42680048	96.24130188	94.1144148	92.0442
200423A00027	4/28/2020	0.88	4/15/2024	4/28/2020	111.74871	108.8415244	106.0246811	103.2947898	100.6486128	98.08305691	95.59516558	93.18211164	90.84119077
200421A00024	4/24/2020	0.8	10/16/2023	4/24/2020	109.51	107.1910969	104.93301	102.7337049	100.5912308	98.503718	96.46937381	94.48647845	92.55338165
200421A00028	4/21/2020	0.56	4/21/2023	4/21/2020	107.24928	105.4831286	103.7549981	102.0637311	100.4082172	98.78739088	97.20022891	95.64574841	94.12300473
200421A00029	4/24/2020	0.72	12/15/2022	4/24/2020	105.82894	104.4314905	103.064877	101.7280821	100.4201329	99.14009919	97.88709112	96.66025668	95.45877993
200421A00031	4/21/2020	0.84	4/19/2024	4/21/2020	111.68105	108.7622709	105.9345116	103.1943416	100.5384867	97.96381963	95.46735169	93.04622579	90.69770951
200421A00032	4/21/2020	1.31	4/21/2027	4/21/2020	125.49106	118.6967503	112.3082194	106.2991344	100.645014	95.32308518	90.31215459	85.59249038	81.14571363
200422A00015	4/27/2020	0.73	12/22/2022	4/27/2020	105.90558	104.4996417	103.1222981	101.7726912	100.4500022	99.15344451	97.88226257	96.63573012	95.41314879
200417A00014	4/17/2020	0.96	4/17/2025	4/17/2020	116.02865	111.8918342	107.9236862	104.1163743	100.4624768	96.95496048	93.58715727	90.35274316	87.24571807
200417A00018	4/21/2020	0.67	7/25/2022	4/21/2020	104.06414	103.0953808	102.1445352	101.211108	100.2946243	99.39462669	98.51067367	97.64233958	96.78921365
200417A00019	4/17/2020	0.77	4/17/2025	4/17/2020	115.88317	111.7330291	107.7525272	103.9337657	100.2692653	96.75193891	93.37506837	90.13228273	87.01753807
200421A00020	4/24/2020	0.83	3/15/2024	4/24/2020	111.27376	108.4681751	105.7476422	103.1090656	100.5494813	98.06605263	95.65606387	93.31691393	91.04611089
200421A00021	4/21/2020	0.56	4/21/2023	4/21/2020	107.24928	105.4831286	103.7549981	102.0637311	100.4082172	98.78739088	97.20022891	95.64574841	94.12300473

	Parallel-Shift Sensitivity Analysis												
8/31/2021					Price								
REFERENCE	SETTLEMENT	Rate	MATURITY	First/Next	-400	-300	-200	-100	Base	100	200	300	400
200421A00022	4/21/2020	0.74	4/21/2023	4/21/2020	107.32157	105.5589151	103.8341387	102.1460872	100.4936561	98.87578545	97.29145748	95.73969424	94.21955586
200417A00004	4/17/2020	0.86	4/17/2024	4/17/2020	111.715	108.8020154	105.9797115	103.2446778	100.5936587	98.02354384	95.53136065	93.11426702	90.76954459
200417A00006	4/17/2020	0.74	4/17/2023	4/17/2020	107.27314	105.522988	103.8102658	102.1338395	100.4926246	98.88557954	97.31170422	95.77003731	94.25965458
200417A00008	4/17/2020	0.96	4/17/2025	4/17/2020	116.02865	111.8918342	107.9236862	104.1163743	100.4624768	96.95496048	93.58715727	90.35274316	87.24571807
200417A00011	4/22/2020	0.68	7/15/2022	4/22/2020	103.94648	103.0090098	102.0883449	101.1840353	100.2956484	99.42276662	98.56498703	97.72192045	96.89319098
200417A00012	4/22/2020	0.71	12/15/2022	4/22/2020	105.81552	104.4181619	103.051643	101.714941	100.407083	99.1271391	97.87421921	96.64747147	95.44607998
200417A00013	4/17/2020	0.74	4/17/2023	4/17/2020	107.27314	105.522988	103.8102658	102.1338395	100.4926246	98.88557954	97.31170422	95.77003731	94.25965458
200415A00031	4/15/2020	0.97	4/15/2025	4/15/2020	116.04604	111.9153717	107.9529023	104.1508284	100.5017588	96.99868862	93.63497608	90.40432153	87.30074752
200415A00033	4/15/2020	0.82	10/13/2023	4/15/2020	109.52097	107.2108803	104.961196	102.7699061	100.6350796	98.55486534	96.52748808	94.55124453	92.62449988
200415A00036	4/15/2020	0.91	10/15/2024	4/15/2020	113.83817	110.3293176	106.9464373	103.6842559	100.5377554	97.50215984	94.57292136	91.74570809	89.01639221
200415A00037	4/15/2020	0.97	4/15/2025	4/15/2020	116.04604	111.9153717	107.9529023	104.1508284	100.5017588	96.99868862	93.63497608	90.40432153	87.30074752
200415A00038	4/15/2020	1.37	4/15/2027	4/15/2020	125.80577	119.0228716	112.6438463	106.6425604	100.9947109	95.67768578	90.67043683	85.95336331	81.5082046
200417A00002	4/17/2020	0.96	4/17/2025	4/17/2020	116.02865	111.8918342	107.9236862	104.1163743	100.4624768	96.95496048	93.58715727	90.35274316	87.24571807
200415A00020	4/15/2020	0.86	4/15/2024	4/15/2020	111.69284	108.7864366	105.9703514	103.2412002	100.595746	98.03089618	95.54369468	93.13131485	90.79105284
200415A00021	4/15/2020	1.37	4/15/2027	4/15/2020	125.80577	119.0228716	112.6438463	106.6425604	100.9947109	95.67768578	90.67043683	85.95336331	81.5082046
200415A00023	4/15/2020	1.71	4/15/2030	4/15/2020	140.02072	128.8477649	118.6443023	109.321261	100.7981809	93.00234114	85.86797971	79.33559407	73.35131607
200415A00024	4/15/2020	2.2	4/16/2035	4/15/2020	166.76298	147.0258483	129.8388045	114.8575522	101.7859275	90.368957	80.38694631	71.65044133	63.9959315
200415A00026	4/15/2020	0.77	4/14/2023	4/15/2020	107.28765	105.5464276	103.8423032	102.1741629	100.5409366	98.94159654	97.37515547	95.84066421	94.33721005
200415A00027	4/15/2020	0.86	4/15/2024	4/15/2020	111.69284	108.7864366	105.9703514	103.2412002	100.595746	98.03089618	95.54369468	93.13131485	90.79105284
200413A00026	4/13/2020	0.82	4/13/2023	4/13/2020	107.36003	105.6211834	103.919342	102.2533917	100.6222671	99.02494473	97.4604412	95.92781114	94.42614538
200413A00027	4/13/2020	0.94	4/12/2024	4/13/2020	111.88235	108.9827114	106.1729394	103.4496693	100.8096898	98.24993248	95.76746379	93.35947823	91.02329174
200414A00013	4/14/2020	0.55	4/14/2022	4/14/2020	102.7788	102.1234392	101.4764052	100.83754	100.2066895	99.58370366	98.96843593	98.36074349	97.76048703
200414A00014	4/14/2020	0.76	4/12/2024	4/14/2020	111.80106	108.8932618	106.0757785	103.3452256	100.6983697	98.13212121	95.64352681	93.22976231	90.88812601
200414A00015	4/14/2020	0.64	4/14/2023	4/14/2020	107.30099	105.5555763	103.8474182	102.1753932	100.538425	98.93548006	97.36556545	95.82772685	94.32104664
200415A00003	4/15/2020	0.77	4/14/2023	4/15/2020	107.28765	105.5464276	103.8423032	102.1741629	100.5409366	98.94159654	97.37515547	95.84066421	94.33721005
200409A00011	4/9/2020	0.7	4/7/2023	4/9/2020	107.31593	105.5915756	103.9037156	102.25126	100.6331665	99.04843317	97.4960973	95.97523291	94.48494916
200409A00019	4/9/2020	0.58	4/8/2022	4/9/2020	102.72271	102.0854475	101.4560565	100.8343961	100.2203245	99.61370324	99.01439739	98.42227519	97.83720802
200413A00003	4/13/2020	0.64	4/13/2023	4/13/2020	107.28876	105.546481	103.8413467	102.1722386	100.5380854	98.93785804	97.37056815	95.83526548	94.33103631
200413A00004	4/13/2020	0.89	4/11/2025	4/13/2020	116.28823	112.1499607	108.1801002	104.3708432	100.7147952	97.20494767	93.83465504	90.5976136	87.48784168
200413A00011	4/13/2020	0.94	4/12/2024	4/13/2020	111.88235	108.9827114	106.1729394	103.4496693	100.8096898	98.24993248	95.76746379	93.35947823	91.02329174
200413A00012	4/13/2020	0.64	4/13/2023	4/13/2020	107.28876	105.546481	103.8413467	102.1722386	100.5380854	98.93785804	97.37056815	95.83526548	94.33103631
200407A00004	4/7/2020	0.99	4/7/2025	4/7/2020	116.63384	112.5020895	108.5379746	104.7337474	101.0820684	97.57597975	94.20888254	90.97451638	87.8669396
200407A00016	4/7/2020	0.8	4/7/2022	4/7/2020	102.7815	102.147829	101.5219427	100.9036956	100.2929487	99.6895659	99.09341479	98.50436592	97.92229295

	Parallel-Shift Sensitivity Analysis												
8/31/2021					Price								
REFERENCE	SETTLEMENT	Rate	MATURITY	First/Next	-400	-300	-200	-100	Base	100	200	300	400
200407A00019	4/7/2020	1.06	4/8/2024	4/7/2020	112.16971	109.2786548	106.4768583	103.7609996	101.1279015	98.57452719	96.09797283	93.69546063	91.36433248
200408A00004	4/8/2020	0.76	4/8/2022	4/8/2020	102.76958	102.1329792	101.5042313	100.8831944	100.2697273	99.66369201	99.06495427	98.47338283	97.88884959
200408A00011	4/8/2020	0.82	9/26/2022	4/8/2020	105.01769	103.8479424	102.7040434	101.5851446	100.4904345	99.41913619	98.37050586	97.34383076	96.33842777
200408A00013	4/13/2020	0.87	4/14/2023	4/13/2020	107.45708	105.7143617	104.0087716	102.3391928	100.7045542	99.10382746	97.53602455	96.00019561	94.49542726
200403A00025	4/3/2020	0.91	4/3/2024	4/3/2020	111.69781	108.8289305	106.0482915	103.3526265	100.7388087	98.2038488	95.74488737	93.35918854	91.04413356
200406A00018	4/6/2020	0.65	4/18/2022	4/6/2020	102.89338	102.2256643	101.5665808	100.9159642	100.2736521	99.63948626	99.01331233	98.39497993	97.78434239
200406A00049	4/6/2020	0.92	4/6/2023	4/6/2020	107.44075	105.7223322	104.0401655	102.3931763	100.7803323	99.20064129	97.65314954	96.13693955	94.6511285
200406A00053	4/6/2020	1.13	4/7/2025	4/6/2020	116.58147	112.4666254	108.5183512	104.7289682	101.0911972	97.59813676	94.24324092	91.02029869	87.92341475
200406A00059	4/6/2020	0.92	4/6/2023	4/6/2020	107.44075	105.7223322	104.0401655	102.3931763	100.7803323	99.20064129	97.65314954	96.13693955	94.6511285
200406A00060	4/6/2020	1.03	4/5/2024	4/6/2020	112.05179	109.1717751	106.380461	103.6745577	101.0509167	98.50652792	96.03851283	93.64411731	91.32070553
200402A00048	4/2/2020	0.71	4/2/2024	4/2/2020	111.55063	108.6777727	105.893405	103.1942464	100.5771583	98.03914001	95.57732161	93.18895713	90.87141837
200403A00010	4/6/2020	0.8	4/6/2023	4/6/2020	107.24027	105.5235947	103.8431402	102.1978317	100.5866378	99.00856725	97.462667	95.9480204	94.46374541
200403A00012	4/3/2020	0.55	4/15/2022	4/3/2020	102.79125	102.1328589	101.4828722	100.841128	100.2074703	99.58174686	98.96380923	98.35351274	97.75071626
200403A00015	4/3/2020	0.73	4/4/2022	4/3/2020	102.70042	102.075963	101.4590659	100.8495907	100.2474041	99.65237597	99.06437946	98.48329051	97.90898802
200403A00017	4/3/2020	0.81	4/3/2023	4/3/2020	107.22007	105.5126217	103.841062	102.2043364	100.6014278	99.0313585	97.49318819	95.9860123	94.50896018
200403A00018	4/3/2020	0.91	4/3/2024	4/3/2020	111.69781	108.8289305	106.0482915	103.3526265	100.7388087	98.2038488	95.74488737	93.35918854	91.04413356
200402A00030	4/2/2020	0.8	4/3/2023	4/2/2020	107.20346	105.4961472	103.8247288	102.1881418	100.5853693	99.01543368	97.47739466	95.97034774	94.49342234
200402A00035	4/2/2020	0.62	4/3/2023	4/2/2020	107.13323	105.4225698	103.7479383	102.1082685	100.5025379	98.92976365	97.38900063	95.87933971	94.39990594
200402A00036	4/2/2020	0.71	4/2/2024	4/2/2020	111.55063	108.6777727	105.893405	103.1942464	100.5771583	98.03914001	95.57732161	93.18895713	90.87141837
200402A00038	4/2/2020	0.84	4/2/2025	4/2/2020	115.99325	111.8899222	107.9526607	104.1738138	100.5461323	97.06274193	93.71712233	90.50308602	87.41475946
200402A00041	4/2/2020	1.03	4/2/2025	4/2/2020	116.13667	112.0464322	108.1213169	104.3537352	100.7364936	97.2627698	93.92609196	90.72031797	87.63961673
200402A00044	4/2/2020	1.65	4/2/2030	4/2/2020	139.2822	128.1899633	118.0573345	108.7964337	100.3278528	92.5797957	85.48731301	78.99161663	73.03946676
200402A00017	4/2/2020	0.76	4/1/2022	4/2/2020	102.68046	102.065	101.4568774	100.8559626	100.2621282	99.67524976	99.09520588	98.52187783	97.95514966
200402A00018	4/2/2020	0.85	4/3/2023	4/2/2020	107.28655	105.5785196	103.906395	102.2691149	100.6656618	99.0950578	97.55636233	96.04867054	94.57111153
200402A00022	4/2/2020	0.96	4/2/2024	4/2/2020	111.82428	108.9567932	106.1774206	103.4828992	100.8701101	98.33607123	95.87792997	93.49295685	91.17853907
200402A00023	4/2/2020	1.11	4/2/2025	4/2/2020	116.44683	112.3507617	108.4199862	104.6469114	101.024337	97.54543513	94.20372799	90.99306802	87.90761885
200402A00026	4/2/2020	1.28	4/2/2026	4/2/2020	121.29766	115.9049926	110.7810979	105.9111579	101.2812553	96.87831121	92.69003068	88.70485074	84.91189291
200402A00028	4/2/2020	0.71	4/4/2022	4/2/2020	102.68826	102.0638513	101.4469961	100.8375623	100.2354168	99.64042956	99.0524735	98.47142465	97.89716194
200402A00002	4/2/2020	0.71	4/4/2022	4/2/2020	102.68826	102.0638513	101.4469961	100.8375623	100.2354168	99.64042956	99.0524735	98.47142465	97.89716194
200402A00003	4/2/2020	0.8	4/3/2023	4/2/2020	107.20346	105.4961472	103.8247288	102.1881418	100.5853693	99.01543368	97.47739466	95.97034774	94.49342234
200402A00009	4/2/2020	1.03	4/2/2025	4/2/2020	116.13667	112.0464322	108.1213169	104.3537352	100.7364936	97.2627698	93.92609196	90.72031797	87.63961673
200402A00010	4/2/2020	0.89	4/2/2024	4/2/2020	111.63152	108.7666783	105.9898872	103.2978869	100.6875604	98.15592751	95.70013746	93.31746241	91.00529124
200402A00013	4/2/2020	0.89	4/2/2024	4/2/2020	111.63152	108.7666783	105.9898872	103.2978869	100.6875604	98.15592751	95.70013746	93.31746241	91.00529124

	Parallel-Shift Sensitivity Analysis												
8/31/2021					Price								
REFERENCE	SETTLEMENT	Rate	MATURITY	First/Next	-400	-300	-200	-100	Base	100	200	300	400
200402A00014	4/2/2020	0.84	4/2/2025	4/2/2020	115.99325	111.8899222	107.9526607	104.1738138	100.5461323	97.06274193	93.71712233	90.50308602	87.41475946
200331A00022	4/1/2020	1.07	4/1/2025	4/1/2020	116.28052	112.1908218	108.266086	104.4987384	100.8815975	97.40785252	94.07104198	90.86503337	87.78400445
200331A00024	3/31/2020	0.64	3/31/2023	3/31/2020	107.12985	105.4282883	103.762433	102.1312301	100.5336715	98.96878768	97.43564627	95.93335011	94.4610356
200401A00001	4/1/2020	1.01	4/1/2025	4/1/2020	116.04809	111.9627551	108.0422578	104.2790239	100.6658764	97.19600923	93.86296509	90.66061562	87.58314249
200401A00012	4/2/2020	1	4/2/2025	4/2/2020	116.02036	111.9323086	108.0093159	104.2437942	100.6285523	97.1567703	93.82197845	90.61803671	87.53911593
200401A00013	4/1/2020	1.01	4/1/2025	4/1/2020	116.04809	111.9627551	108.0422578	104.2790239	100.6658764	97.19600923	93.86296509	90.66061562	87.58314249
200401A00023	4/1/2020	0.82	4/1/2025	4/1/2020	115.90454	111.8061464	107.8735252	104.0990464	100.4754777	96.99596096	93.65399058	90.44339293	87.35830737
200331A00011	3/31/2020	1.09	3/31/2025	3/31/2020	116.34671	112.2590089	108.3360719	104.5703358	100.954633	97.48216556	94.14648378	90.94146615	87.8613006
200331A00014	3/31/2020	0.72	3/29/2024	3/31/2020	111.5344	108.6740989	105.9016206	103.2137161	100.607282	98.07935063	95.62708285	93.24776178	90.93878647
200331A00015	3/31/2020	0.64	3/31/2023	3/31/2020	107.12985	105.4282883	103.762433	102.1312301	100.5336715	98.96878768	97.43564627	95.93335011	94.4610356
200331A00016	3/31/2020	1.11	3/31/2026	3/31/2020	121.20404	115.7960417	110.6580033	105.7750261	101.1331163	96.71912467	92.52069011	88.52618846	84.72468419
200331A00017	3/31/2020	0.9	3/31/2025	3/31/2020	116.20409	112.1033172	108.1682439	104.3912502	100.7651128	97.28298228	93.93836042	90.72508058	87.63728842
200331A00018	3/31/2020	0.82	3/31/2023	3/31/2020	107.19971	105.5014789	103.8388142	102.2106731	100.6160527	99.05398891	97.52355406	96.02385555	94.55403409
200330A00046	3/30/2020	0.86	3/30/2023	3/30/2020	107.25374	105.5579379	103.8976165	102.2717338	100.6792911	99.11932765	97.59091963	96.09317775	94.62524589
200330A00054	3/30/2021	1.19	3/30/2026	3/30/2021	120.81242	115.4412684	110.3375621	105.4865741	100.8744723	96.48825668	92.31570505	88.3453219	84.56629115
200330A00064	3/30/2020	0.83	3/30/2023	3/30/2020	107.20424	105.5088621	103.8489587	102.2234864	100.6314464	99.07187867	97.54385925	96.04649912	94.57894235
200330A00066	3/30/2020	1.08	3/31/2025	3/30/2020	116.308	112.2210278	108.2987961	104.5337446	100.9187064	97.4468843	94.11182932	90.90742065	87.82784687
200331A00007	3/31/2020	0.72	3/29/2024	3/31/2020	111.5344	108.6740989	105.9016206	103.2137161	100.607282	98.07935063	95.62708285	93.24776178	90.93878647
200331A00008	3/31/2020	0.64	3/31/2023	3/31/2020	107.12985	105.4282883	103.762433	102.1312301	100.5336715	98.96878768	97.43564627	95.93335011	94.4610356
200330A00028	3/30/2020	1.09	3/28/2025	3/30/2020	116.31386	112.2361383	108.3224861	104.5653887	100.9577211	97.49272527	94.16398834	90.96542321	87.89124981
200330A00036	3/30/2020	0.86	3/30/2023	3/30/2020	107.25374	105.5579379	103.8976165	102.2717338	100.6792911	99.11932765	97.59091963	96.09317775	94.62524589
200330A00037	3/30/2020	1.09	3/28/2025	3/30/2020	116.31386	112.2361383	108.3224861	104.5653887	100.9577211	97.49272527	94.16398834	90.96542321	87.89124981
200330A00038	3/30/2020	1.79	3/29/2030	3/30/2020	140.61763	129.4806412	119.304572	110.0015904	101.4923169	93.70496899	86.57459838	80.04240812	74.05514139
200330A00043	3/30/2020	0.86	3/30/2023	3/30/2020	107.25374	105.5579379	103.8976165	102.2717338	100.6792911	99.11932765	97.59091963	96.09317775	94.62524589
200330A00044	3/30/2020	1.09	3/28/2025	3/30/2020	116.31386	112.2361383	108.3224861	104.5653887	100.9577211	97.49272527	94.16398834	90.96542321	87.89124981
200327A00088	3/27/2020	1.22	3/27/2025	3/27/2020	116.80449	112.7207039	108.8010338	105.037971	101.4243947	97.95355044	94.61902844	91.41474428	88.33492012
200330A00006	3/30/2020	0.9	3/28/2025	3/30/2020	116.17155	112.0808004	108.1550562	104.3867408	100.7686743	97.29404701	93.95639814	90.74959568	87.66781755
200330A00007	3/30/2020	0.93	4/1/2024	3/30/2020	111.73039	108.8673228	106.0921683	103.4016732	100.7927288	98.26236234	95.80773012	93.42611095	91.11489986
200330A00008	3/30/2020	1.09	3/28/2025	3/30/2020	116.31386	112.2361383	108.3224861	104.5653887	100.9577211	97.49272527	94.16398834	90.96542321	87.89124981
200330A00011	3/30/2020	0.93	4/1/2024	3/30/2020	111.73039	108.8673228	106.0921683	103.4016732	100.7927288	98.26236234	95.80773012	93.42611095	91.11489986
200330A00017	3/30/2020	0.86	3/30/2023	3/30/2020	107.25374	105.5579379	103.8976165	102.2717338	100.6792911	99.11932765	97.59091963	96.09317775	94.62524589
200327A00066	6/25/2020	0.93	6/26/2023	6/25/2020	108.44822	106.4784053	104.5539743	102.6735914	100.8359714	99.03987581	97.28411074	95.56752472	93.88900711
200327A00068	6/25/2020	0.93	6/26/2023	6/25/2020	108.44822	106.4784053	104.5539743	102.6735914	100.8359714	99.03987581	97.28411074	95.56752472	93.88900711

	Parallel-Shift Sensitivity Analysis												
8/31/2021					Price								
REFERENCE	SETTLEMENT	Rate	MATURITY	First/Next	-400	-300	-200	-100	Base	100	200	300	400
200327A00073	3/27/2020	0.99	3/27/2025	3/27/2020	116.50889	112.4149486	108.4859744	104.7143989	101.0930495	97.61512317	94.27416507	91.0640486	87.97895657
200327A00076	3/27/2020	1.18	3/27/2026	3/27/2020	121.51235	116.1099849	110.9766621	106.0975705	101.4587919	97.04724569	92.85063394	88.85739015	85.05663153
200327A00077	3/27/2020	0.83	3/27/2024	3/27/2020	111.8143	108.9562309	106.1857472	103.4996208	100.8947624	98.36821702	95.9171579	93.53887942	91.2307912
200327A00079	3/27/2020	0.99	3/27/2025	3/27/2020	116.50889	112.4149486	108.4859744	104.7143989	101.0930495	97.61512317	94.27416507	91.0640486	87.97895657
200327A00055	3/27/2020	1.01	3/27/2024	3/27/2020	111.89408	109.0439659	106.2810022	103.6019827	101.0038393	98.48363723	96.03856851	93.66594538	91.36319429
200327A00056	3/27/2020	1.18	3/27/2025	3/27/2020	116.65016	112.5692599	108.6523941	104.8920532	101.2811196	97.81284164	94.48081244	91.27895027	88.2014799
200327A00058	3/27/2020	0.9	3/27/2023	3/27/2020	107.2831	105.5957489	103.9435839	102.3255823	100.7407579	99.18816207	97.66688204	96.1760392	94.71478747
200327A00059	3/27/2020	1.01	3/27/2024	3/27/2020	111.89408	109.0439659	106.2810022	103.6019827	101.0038393	98.48363723	96.03856851	93.66594538	91.36319429
200327A00060	3/27/2020	1.18	3/27/2025	3/27/2020	116.65016	112.5692599	108.6523941	104.8920532	101.2811196	97.81284164	94.48081244	91.27895027	88.2014799
200327A00061	3/31/2020	1.18	3/31/2025	3/31/2020	116.69508	112.6008382	108.6715533	104.8996562	101.2779723	97.79969693	94.45837391	91.24787562	88.1623841
200327A00046	3/27/2020	1.23	3/27/2025	3/27/2020	116.84307	112.7585649	108.8381937	105.0744504	101.4602135	97.98872763	94.65358244	91.44869278	88.36828018
200327A00047	3/27/2020	0.99	3/27/2025	3/27/2020	116.50889	112.4149486	108.4859744	104.7143989	101.0930495	97.61512317	94.27416507	91.0640486	87.97895657
200327A00048	3/27/2020	1.18	3/24/2025	3/27/2020	116.61646	112.545568	108.6380185	104.886348	101.2834814	97.82270674	94.49765397	91.30227568	88.23082855
200327A00051	3/27/2020	0.99	3/27/2025	3/27/2020	116.50889	112.4149486	108.4859744	104.7143989	101.0930495	97.61512317	94.27416507	91.0640486	87.97895657
200327A00053	3/27/2020	0.84	3/25/2022	3/27/2020	102.63748	102.042872	101.4551261	100.8741255	100.2997547	99.73190074	99.1704532	98.61530415	98.06634807
200327A00054	3/27/2020	0.9	3/27/2023	3/27/2020	107.2831	105.5957489	103.9435839	102.3255823	100.7407579	99.18816207	97.66688204	96.1760392	94.71478747
200327A00039	3/27/2020	0.84	3/28/2022	3/27/2020	102.67645	102.0728497	101.4763089	100.886709	100.3039295	99.72785277	99.15836367	98.59534984	98.03870142
200327A00040	3/27/2020	0.72	3/27/2023	3/27/2020	107.21387	105.5232182	103.86789	102.2468526	100.6591141	99.10372098	97.57975573	96.08633525	94.62260924
200327A00041	3/27/2020	0.9	3/27/2023	3/27/2020	107.2831	105.5957489	103.9435839	102.3255823	100.7407579	99.18816207	97.66688204	96.1760392	94.71478747
200327A00042	3/27/2020	0.83	3/27/2024	3/27/2020	111.8143	108.9562309	106.1857472	103.4996208	100.8947624	98.36821702	95.9171579	93.53887942	91.2307912
200327A00043	3/27/2020	1.48	3/27/2028	3/27/2020	131.25914	123.0591718	115.4202955	108.301283	101.6641413	95.47384293	89.69807934	84.30703648	79.27318975
200327A00045	3/27/2020	2.24	3/27/2034	3/27/2020	165.85396	147.5511537	131.4543299	117.2850418	104.8013229	93.79274477	84.07616467	75.49206529	67.90140133
200327A00027	3/27/2020	0.9	3/27/2023	3/27/2020	107.2831	105.5957489	103.9435839	102.3255823	100.7407579	99.18816207	97.66688204	96.1760392	94.71478747
200327A00030	3/27/2020	1.01	3/27/2024	3/27/2020	111.89408	109.0439659	106.2810022	103.6019827	101.0038393	98.48363723	96.03856851	93.66594538	91.36319429
200327A00031	3/27/2020	1.18	3/27/2025	3/27/2020	116.65016	112.5692599	108.6523941	104.8920532	101.2811196	97.81284164	94.48081244	91.27895027	88.2014799
200327A00032	3/27/2020	0.66	3/28/2022	3/27/2020	102.63193	102.0276997	101.4305504	100.8403599	100.2570072	99.68037406	99.11034499	98.5468071	97.98965005
200327A00035	3/27/2020	0.83	3/27/2024	3/27/2020	111.8143	108.9562309	106.1857472	103.4996208	100.8947624	98.36821702	95.9171579	93.53887942	91.2307912
200327A00037	3/27/2020	1.18	3/27/2026	3/27/2020	121.51235	116.1099849	110.9766621	106.0975705	101.4587919	97.04724569	92.85063394	88.85739015	85.05663153
200326A00012	3/26/2020	0.99	3/25/2022	3/26/2020	102.72437	102.1294724	101.5414392	100.9601537	100.3855004	99.81736611	99.25564056	98.70021573	98.15098607
200326A00016	3/26/2020	1.54	3/25/2025	3/26/2020	118.01445	113.9142984	109.9784817	106.1994976	102.5702291	99.08392434	95.73417585	92.51490049	89.42032117
200326A00025	3/26/2020	0.99	3/28/2022	3/26/2020	102.76462	102.1607201	101.5638845	100.9739923	100.3909229	99.81455854	99.24478423	98.68148751	98.12455849
200327A00019	3/30/2020	0.85	3/15/2022	3/30/2020	102.5189	101.9541323	101.3955738	100.843122	100.2966768	99.75614079	99.22141826	98.69241572	98.16904166
200327A00022	3/27/2020	0.9	3/27/2023	3/27/2020	107.2831	105.5957489	103.9435839	102.3255823	100.7407579	99.18816207	97.66688204	96.1760392	94.71478747

	Parallel-Shift Sensitivity Analysis												
8/31/2021					Price								
REFERENCE	SETTLEMENT	Rate	MATURITY	First/Next	-400	-300	-200	-100	Base	100	200	300	400
200327A00025	3/30/2020	0.86	3/30/2022	3/30/2020	102.71431	102.1046663	101.5022206	100.9068475	100.3184229	99.73682602	99.16193871	98.59364555	98.03183372
200325A00044	3/25/2020	1.7	12/23/2024	3/25/2020	117.40097	113.6138866	109.9687901	106.4595863	103.0804747	99.82593561	96.69071514	93.66981081	90.75845786
200325A00046	3/25/2020	1.76	3/25/2025	3/25/2020	118.86192	114.7459188	110.7947253	107.0008157	103.357056	99.85667825	96.4932593	93.26070127	90.15321294
200325A00047	3/25/2020	1.68	9/25/2024	3/25/2020	116.15689	112.6726488	109.3113935	106.0680594	102.9378263	99.91610152	96.99850791	94.18087203	91.45921341
200325A00048	3/25/2020	1.34	12/27/2022	3/25/2020	106.76641	105.3488974	103.9584604	102.5943633	101.2558958	99.94237276	98.65313341	97.3875403	96.14497819
200326A00009	3/27/2020	1.54	3/27/2025	3/27/2020	118.03916	113.932256	109.9901511	106.2053128	102.5705955	99.0792208	95.72475644	92.50109631	89.4024419
200326A00011	3/30/2020	1.54	3/31/2025	3/30/2020	118.08857	113.9681557	110.013479	106.2169379	102.5713296	99.06982241	95.70593445	92.4735135	89.36671812
200325A00009	3/27/2020	1.67	3/27/2025	3/27/2020	118.54075	114.424449	110.47323	106.6795454	103.0362395	99.53652438	96.17395844	92.94242682	89.83612263
200325A00016	3/30/2020	1.67	3/31/2025	3/30/2020	118.59177	114.4619093	110.4980633	106.692623	103.0383753	99.52847883	96.15644242	92.91610495	89.80161652
200325A00032	3/25/2020	1.29	9/26/2022	3/25/2020	105.53938	104.3664987	103.219512	102.0975724	100.9998672	99.9256184	98.87408097	97.84454114	96.83631477
200325A00038	3/25/2020	1.48	9/25/2023	3/25/2020	110.75457	108.4848023	106.2732967	104.1181559	102.0175568	99.96974969	97.97305446	96.02585748	94.12660824
200325A00042	3/25/2020	1.58	3/25/2024	3/25/2020	113.42744	110.5624874	107.7848608	105.091351	102.4788913	99.94454809	97.4855139	95.09910132	92.78273683
200325A00043	3/25/2020	1.62	6/25/2024	3/25/2020	114.75172	111.5802406	108.5126143	105.5448689	102.673204	99.89398602	97.20374036	94.59914301	92.07701332
200324A00012	3/25/2020	1.78	3/25/2025	3/25/2020	118.93896	114.8215206	110.8689292	107.0736628	103.4285858	99.92692861	96.56226689	93.32850134	90.21983946
200324A00013	3/25/2020	1.78	3/25/2025	3/25/2020	118.93896	114.8215206	110.8689292	107.0736628	103.4285858	99.92692861	96.56226689	93.32850134	90.21983946
200324A00029	3/24/2020	1.86	3/24/2025	3/24/2020	119.23378	115.1139883	111.1589835	107.3612495	103.7136591	100.2094501	96.84220491	93.60583032	90.49453946
200324A00031	3/24/2020	1.64	3/22/2024	3/24/2020	113.55185	110.6943157	107.9236687	105.2367234	102.6304366	100.1018967	97.648317	95.26702959	92.95547916
200324A00051	3/24/2020	1.73	11/1/2024	3/24/2020	116.81305	113.2019798	109.721676	106.3666038	103.1314967	100.0113459	97.00138558	94.09707949	91.29410806
200324A00066	3/26/2020	1.81	3/26/2025	3/26/2020	119.06772	114.9447131	110.986852	107.1865955	103.5367913	100.0306544	96.66174593	93.42395296	90.31147034
200320A00013	3/20/2020	1.25	3/20/2024	3/20/2020	112.87863	110.0273165	107.2628127	104.5819348	101.9816411	99.45902114	97.01128959	94.63577967	92.3299373
200320A00026	3/20/2020	2.11	3/20/2029	3/20/2020	139.0742	129.363264	120.3985416	112.1188063	104.4681597	97.39553883	90.85427484	84.80169321	79.198753
200320A00049	3/25/2020	1.47	3/25/2025	3/25/2020	117.7448	113.649692	109.7187678	105.9445327	102.319875	98.83804809	95.4926493	92.27760024	89.18712834
200320A00052	3/25/2020	1.47	3/25/2025	3/25/2020	117.7448	113.649692	109.7187678	105.9445327	102.319875	98.83804809	95.4926493	92.27760024	89.18712834
200323A00011	3/23/2020	1.37	3/23/2023	3/23/2020	108.00012	106.3182566	104.6713091	103.0582636	101.4781473	99.93002456	98.41299484	96.92619096	95.46877767
200323A00018	3/23/2020	1.37	3/23/2023	3/23/2020	108.00012	106.3182566	104.6713091	103.0582636	101.4781473	99.93002456	98.41299484	96.92619096	95.46877767
200318A00047	3/18/2020	1.29	3/18/2025	3/18/2020	117.5609	113.4756384	109.5538939	105.7882117	102.1715247	98.69712745	95.35865534	92.15006517	89.06561693
200318A00054	3/18/2020	1.56	3/18/2025	3/18/2020	118.00459	113.9266344	110.0114379	106.2516009	102.6401041	99.17028699	95.83582658	92.63071857	89.54925924
200319A00009	3/19/2020	0.94	3/18/2022	3/19/2020	102.66092	102.0861794	101.5178624	100.955861	100.40007	99.85038697	99.30671141	98.76894513	98.23699207
200319A00025	3/19/2020	1.39	3/21/2024	3/19/2020	112.8594	110.0142942	107.255689	104.5804219	101.9854648	99.46792029	97.02501521	94.65409434	92.35261458
200319A00038	3/19/2020	1.18	9/17/2021	3/19/2020	100.23121	100.1838491	100.1365535	100.0893185	100.0421439	99.99502956	99.94797548	99.90098148	99.85404745
200319A00039	3/19/2020	1.12	3/18/2022	3/19/2020	102.70905	102.1348147	101.5669843	101.0054548	100.4501218	99.900883	99.35763833	98.82029001	98.28874233
200318A00013	3/18/2020	1.5	3/18/2025	3/18/2020	117.77477	113.7010904	109.7900427	106.0342331	102.4266471	98.96062834	95.62985812	92.42833606	89.35036222
200318A00026	3/20/2020	1.08	3/16/2022	3/20/2020	102.65929	102.0911245	101.5292318	100.9735121	100.4238642	99.88018882	99.34238882	98.81036927	98.28403725

	Parallel-Shift Sensitivity Analysis												
8/31/2021					Price								
REFERENCE	SETTLEMENT	Rate	MATURITY	First/Next	-400	-300	-200	-100	Base	100	200	300	400
200318A00037	3/18/2020	1.35	3/18/2024	3/18/2020	112.714	109.8799392	107.1318592	104.466222	101.8812261	99.37279781	96.93858725	94.5759608	92.28239569
200318A00038	3/18/2020	1.48	3/18/2025	3/18/2020	117.69816	113.6259091	109.7162443	105.9617771	102.3554947	98.89074212	95.56120197	92.36087522	89.28406321
200318A00039	3/18/2020	1.08	3/18/2022	3/18/2020	102.68668	102.1125108	101.5447523	100.9832942	100.428032	99.87886334	99.33568835	98.79840916	98.26693007
200318A00044	3/18/2020	1.17	3/18/2024	3/18/2020	112.63675	109.7947951	107.0392549	104.3669643	101.7749002	99.26017002	96.82000516	94.45175458	92.15287907
200317A00023	3/17/2020	1.1	3/17/2025	3/17/2020	116.81971	112.751415	108.8460024	105.0960495	101.494518	98.0347295	94.71034503	91.51534546	88.44401354
200317A00027	3/17/2020	1.29	3/17/2025	3/17/2020	116.95883	112.9034603	109.0100489	105.2712368	101.6800395	98.22982887	94.91431295	91.7275166	88.66376371
200317A00033	3/19/2020	1.1	2/15/2022	3/19/2020	102.27768	101.7958701	101.3185889	100.8457771	100.3773721	99.91331238	99.45353762	98.99798862	98.54660724
200317A00039	3/19/2020	1.11	4/15/2022	3/19/2020	103.08242	102.4238317	101.7736347	101.1316674	100.4977741	99.87180321	99.25360682	98.64304068	98.03996411
200317A00045	3/19/2020	1.43	3/19/2025	3/19/2020	117.51866	113.4466027	109.5372641	105.7832374	102.1774993	98.71338536	95.38456942	92.18504436	89.10910407
200317A00064	3/19/2020	1.12	5/16/2022	3/19/2020	103.51694	102.7637327	102.0214415	101.2898337	100.5686798	99.85775685	99.15684831	98.46574361	97.78423809
200316A00067	3/18/2020	1.1	9/15/2022	3/18/2020	105.17572	104.0395128	102.9276884	101.8394735	100.7741227	99.73092158	98.70918535	97.70825714	96.72750664
200316A00068	3/16/2020	1.05	3/16/2022	3/16/2020	102.64268	102.0745659	101.5127261	100.957059	100.4074632	99.86383947	99.32609077	98.79412212	98.2678406
200316A00070	3/16/2020	1.05	3/16/2022	3/16/2020	102.64268	102.0745659	101.5127261	100.957059	100.4074632	99.86383947	99.32609077	98.79412212	98.2678406
200316A00071	3/16/2020	1.18	3/16/2023	3/16/2020	107.59932	105.9411871	104.3172318	102.726473	101.1679687	99.6408127	98.14413203	96.67708581	95.23886367
200316A00072	3/16/2020	1.18	3/16/2023	3/16/2020	107.59932	105.9411871	104.3172318	102.726473	101.1679687	99.6408127	98.14413203	96.67708581	95.23886367
200317A00011	3/17/2020	1.04	3/17/2022	3/17/2020	102.65072	102.0796264	101.5148722	100.9563541	100.4039691	99.85761662	99.31719802	98.78261694	98.25377908
200316A00043	3/16/2020	1.3	3/14/2025	3/16/2020	116.9623	112.9162534	109.0315015	105.3007264	101.7169851	98.273688	94.96457897	91.78371617	88.7254545
200316A00046	3/16/2020	1.18	3/18/2024	3/16/2020	112.25361	109.4257649	106.6837595	104.0244565	101.4448581	98.94209569	96.51342322	94.15621102	91.86794013
200316A00048	3/16/2020	1.11	3/16/2023	3/16/2020	107.48669	105.8295123	104.2064874	102.6166419	101.0590346	99.53275959	98.03694433	96.5707484	95.13336186
200316A00049	3/16/2020	1.25	3/14/2025	3/16/2020	116.77141	112.7289009	108.8475848	105.1201453	101.5396433	98.09949265	94.79344062	91.61554865	88.56017481
200316A00050	3/16/2020	1.54	3/16/2027	3/16/2020	126.54924	119.8461949	113.5368074	107.5959447	102.0002045	96.72779	91.75839174	87.07307825	82.65419547
200316A00055	3/16/2020	1.06	3/14/2025	3/16/2020	116.63217	112.5768076	108.6835466	104.9450178	101.3542284	97.90454254	94.58966066	91.40360058	88.3406795
200316A00015	3/16/2020	0.99	3/14/2022	3/16/2020	102.58259	102.0205728	101.4647002	100.9148729	100.3709925	99.83296298	99.30069006	98.77408164	98.25304756
200316A00019	3/16/2020	1.11	3/16/2023	3/16/2020	107.48669	105.8295123	104.2064874	102.6166419	101.0590346	99.53275959	98.03694433	96.5707484	95.13336186
200316A00037	3/16/2020	1.06	3/14/2025	3/16/2020	116.63217	112.5768076	108.6835466	104.9450178	101.3542284	97.90454254	94.58966066	91.40360058	88.3406795
200316A00040	3/16/2020	1.04	3/16/2022	3/16/2020	102.63714	102.0690464	101.5072242	100.9515746	100.4019962	99.85838969	99.32065808	98.7887064	98.26244172
200316A00041	3/16/2020	1.16	3/16/2023	3/16/2020	107.56714	105.90928	104.2855906	102.6950927	101.1368447	99.60994038	98.11350697	96.64670369	95.2087203
200316A00042	3/16/2020	1.23	3/15/2024	3/16/2020	112.3534	109.5332753	106.7985408	104.1460905	101.5729503	99.07627352	96.6533347	94.30152364	92.0183396
200312A00015	3/12/2020	1.23	3/10/2025	3/12/2020	116.64952	112.6217802	108.7542725	105.0397482	101.4713255	98.0424717	94.74698394	91.57897004	88.53283128
200312A00019	3/17/2020	1.06	5/16/2022	3/17/2020	103.4733	102.7202633	101.9781485	101.2467152	100.5257342	99.81498235	99.11424322	98.42330625	97.74196681
200312A00036	3/12/2020	1.04	3/11/2022	3/12/2020	102.56928	102.0161553	101.4689879	100.927678	100.3921316	99.86225705	99.33796448	98.81916592	98.30577528
200312A00037	3/12/2020	1.3	3/12/2025	3/12/2020	116.9391	112.8997427	109.0212231	105.2962528	101.7179168	98.27965158	94.97522521	91.79871849	88.74450735
200313A00019	3/13/2020	1.55	3/13/2026	3/13/2020	122.41902	117.0646359	111.9741171	107.1330711	102.5279699	98.14609188	93.97546893	90.00483779	86.22359467

	Parallel-Shift Sensitivity Analysis												
8/31/2021					Price								
REFERENCE	SETTLEMENT	Rate	MATURITY	First/Next	-400	-300	-200	-100	Base	100	200	300	400
200316A00009	3/16/2020	1.25	3/14/2025	3/16/2020	116.77141	112.7289009	108.8475848	105.1201453	101.5396433	98.09949265	94.79344062	91.61554865	88.56017481
200311A00050	3/2/2021	1.46	3/2/2026	3/2/2021	121.84566	116.5404263	111.4953862	106.6964275	102.130274	97.7844363	93.64716036	89.70738057	85.95467561
200311A00052	3/2/2021	1.43	2/28/2025	3/2/2021	117.29059	113.2823449	109.4324664	105.7338387	102.1797038	98.76364468	95.47956505	92.32167202	89.28445897
200311A00055	3/11/2020	1.66	12/17/2027	3/11/2020	130.24419	122.4818909	115.2288164	108.4489773	102.109108	96.17844761	90.62853862	85.43304268	80.56757235
200312A00006	3/12/2020	1.23	3/12/2025	3/12/2020	116.67229	112.6378696	108.7641453	105.0438306	101.4700157	98.03614222	94.73598292	91.56362315	88.51344322
200312A00009	3/12/2020	1.46	3/12/2027	3/12/2020	126.01641	119.3419654	113.0591028	107.1428485	101.5699519	96.3187551	91.36907564	86.70209855	82.30027654
200312A00014	3/12/2020	1.04	3/12/2025	3/12/2020	116.53305	112.4858124	108.6001783	104.8688061	101.2847329	97.84135046	94.53238508	91.35187864	88.29417079
200310A00051	3/10/2020	1.41	3/8/2030	3/10/2020	136.66766	125.7794778	115.8294289	106.732049	98.41005933	90.79354679	83.81922774	77.42978891	71.57329684
200310A00054	3/10/2020	1.1	3/10/2025	3/10/2020	116.15482	112.1362254	108.2775954	104.5716905	101.0116386	97.59091626	94.30332943	91.14299432	88.10432028
200310A00062	3/10/2020	1.05	3/8/2024	3/10/2020	111.78831	108.9968807	106.289568	103.6633285	101.1152499	98.64254386	96.24253993	93.91267952	91.65051061
200311A00012	3/11/2020	0.87	3/11/2022	3/11/2020	102.47756	101.9247225	101.3778408	100.8368143	100.3015492	99.77195385	99.24793833	98.72941474	98.216297
200311A00031	3/11/2020	1.41	12/24/2027	3/11/2020	128.54699	120.8166542	113.5957353	106.8481538	100.5405589	94.64211071	89.12427932	83.96066039	79.12680667
200311A00032	3/11/2020	1.11	3/11/2025	3/11/2020	116.78908	112.7402362	108.8529138	105.1197789	101.5338774	98.08860913	94.77770792	91.59522237	88.53549832
200310A00028	3/10/2020	1.1	3/10/2025	3/10/2020	116.15482	112.1362254	108.2775954	104.5716905	101.0116386	97.59091626	94.30332943	91.14299432	88.10432028
200310A00033	3/10/2020	0.91	3/10/2025	3/10/2020	116.01446	111.9831247	108.1126564	104.3957609	100.8255129	97.39534	94.09900163	90.93057088	87.88441666
200310A00034	3/10/2020	1.41	3/11/2030	3/10/2020	136.69725	125.7972309	115.8371251	106.7312398	98.40209524	90.77960192	83.80032199	77.4068071	71.54700552
200310A00038	3/10/2020	1.41	3/11/2030	3/10/2020	136.69725	125.7972309	115.8371251	106.7312398	98.40209524	90.77960192	83.80032199	77.4068071	71.54700552
200310A00040	3/10/2020	1.36	3/10/2028	3/10/2020	128.94195	120.9284983	113.4598219	106.4961658	100.0008747	93.94013311	88.28273141	82.99985222	78.06487539
200310A00041	3/10/2020	1.39	3/12/2029	3/10/2020	132.81691	123.3781428	114.6680804	106.6268552	99.19980681	92.33700301	85.99280811	80.12549293	74.69688201
200310A00003	3/10/2020	1.1	3/10/2025	3/10/2020	116.15482	112.1362254	108.2775954	104.5716905	101.0116386	97.59091626	94.30332943	91.14299432	88.10432028
200310A00005	3/10/2020	1.41	3/8/2030	3/10/2020	136.66766	125.7794778	115.8294289	106.732049	98.41005933	90.79354679	83.81922774	77.42978891	71.57329684
200310A00014	3/10/2020	0.91	3/10/2025	3/10/2020	116.01446	111.9831247	108.1126564	104.3957609	100.8255129	97.39534	94.09900163	90.93057088	87.88441666
200310A00015	3/10/2020	1.37	3/11/2030	3/10/2020	136.30574	125.422969	115.4790554	106.3883763	98.07352214	90.4644686	83.49783755	77.11623574	71.26766225
200310A00020	3/10/2020	1.1	3/10/2025	3/10/2020	116.15482	112.1362254	108.2775954	104.5716905	101.0116386	97.59091626	94.30332943	91.14299432	88.10432028
200310A00021	3/10/2020	1.1	3/10/2025	3/10/2020	116.15482	112.1362254	108.2775954	104.5716905	101.0116386	97.59091626	94.30332943	91.14299432	88.10432028
200309A00030	3/9/2020	1.11	3/9/2027	3/9/2020	123.84127	117.2392037	111.0250071	105.1739469	99.66298905	94.47067684	89.57701464	84.96336102	80.61233011
200309A00038	3/9/2020	1.26	3/11/2030	3/9/2020	135.22907	124.3937489	114.494364	105.4455015	97.16994613	89.59785197	82.66600535	76.31716452	70.49946827
200309A00043	3/9/2020	0.92	6/7/2024	3/9/2020	112.44451	109.36366	106.3827666	103.4979324	100.7054448	98.00176253	95.38350653	92.84745082	90.39051446
200309A00044	3/9/2020	0.94	9/9/2024	3/9/2020	113.54226	110.1508961	106.8782595	103.7195156	100.6700596	97.72550101	94.88165257	92.13451915	89.4802879
200309A00045	3/9/2020	0.97	3/7/2025	3/9/2020	115.62841	111.6288807	107.7883687	104.0996888	100.55602	97.15088706	93.87814052	90.73193865	87.70673009
200309A00054	3/9/2020	0.98	3/9/2028	3/9/2020	127.39004	119.3832732	111.9233634	104.9702846	98.48713538	92.43988055	86.79711413	81.52984353	76.61129228
200306A00066	3/6/2020	1.2	3/8/2027	3/6/2020	124.38336	117.7690215	111.542861	105.6801367	100.157813	94.9544303	90.04998967	85.42584561	81.06460769
200306A00077	3/6/2020	1.06	3/6/2025	3/6/2020	115.95921	111.9566898	108.11315	104.4214083	100.8746509	97.466409	94.19053923	91.04120521	88.01286044

	Parallel-Shift Sensitivity Analysis												
8/31/2021					Price								
REFERENCE	SETTLEMENT	Rate	MATURITY	First/Next	-400	-300	-200	-100	Base	100	200	300	400
200306A00080	11/6/2020	1.12	11/6/2023	11/6/2020	110.48571	108.0921611	105.7626487	103.4949769	101.2870427	99.13683345	97.04242152	95.00196041	93.01368034
200306A00087	3/8/2021	1.26	3/7/2025	3/8/2021	116.72927	112.7094283	108.8492053	105.1413868	101.5791304	98.15594026	94.86564767	91.70239218	88.66060462
200309A00007	3/9/2020	1.11	3/9/2027	3/9/2020	123.84127	117.2392037	111.0250071	105.1739469	99.66298905	94.47067684	89.57701464	84.96336102	80.61233011
200309A00029	3/9/2020	1.02	3/7/2025	3/9/2020	115.81821	111.815182	107.9712716	104.2792919	100.7324184	97.32417209	94.04840037	90.89925823	87.87119121
200306A00036	3/6/2020	1.01	3/6/2025	3/6/2020	115.76956	111.7705386	107.930392	104.2419449	100.6983873	97.29325401	94.02040487	90.87400676	87.84851624
200306A00040	3/6/2020	1.01	3/6/2025	3/6/2020	115.76956	111.7705386	107.930392	104.2419449	100.6983873	97.29325401	94.02040487	90.87400676	87.84851624
200306A00049	3/6/2020	1.01	3/6/2025	3/6/2020	115.76956	111.7705386	107.930392	104.2419449	100.6983873	97.29325401	94.02040487	90.87400676	87.84851624
200306A00054	3/6/2020	1.01	3/6/2025	3/6/2020	115.76956	111.7705386	107.930392	104.2419449	100.6983873	97.29325401	94.02040487	90.87400676	87.84851624
200306A00055	3/6/2020	0.82	3/6/2025	3/6/2020	115.62871	111.6170355	107.7651363	104.0657771	100.5120958	97.09757797	93.81603793	90.66159969	87.62867976
200306A00064	3/6/2020	1.2	3/8/2027	3/6/2020	124.38336	117.7690215	111.542861	105.6801367	100.157813	94.9544303	90.04998967	85.42584561	81.06460769
200306A00003	3/6/2020	0.7	3/6/2023	3/6/2020	106.92854	105.3012935	103.7073051	102.1456349	100.6153799	99.1156704	97.64566814	96.20456522	94.79158253
200306A00010	3/6/2020	0.88	3/6/2023	3/6/2020	106.99526	105.371149	103.78017	102.2213906	100.6939128	99.19687126	97.72943226	96.29079192	94.880175
200306A00013	3/6/2020	1.01	3/6/2025	3/6/2020	115.76956	111.7705386	107.930392	104.2419449	100.6983873	97.29325401	94.02040487	90.87400676	87.84851624
200306A00022	3/6/2020	1.2	3/8/2027	3/6/2020	124.38336	117.7690215	111.542861	105.6801367	100.157813	94.9544303	90.04998967	85.42584561	81.06460769
200306A00028	3/6/2020	1.01	3/6/2025	3/6/2020	115.76956	111.7705386	107.930392	104.2419449	100.6983873	97.29325401	94.02040487	90.87400676	87.84851624
200306A00031	3/6/2020	1.01	3/6/2025	3/6/2020	115.76956	111.7705386	107.930392	104.2419449	100.6983873	97.29325401	94.02040487	90.87400676	87.84851624
200305A00030	3/5/2020	1.58	3/5/2030	3/5/2020	138.29854	127.3491459	117.3406047	108.1873502	99.8120068	92.14456324	85.1216376	78.68581893	72.78507744
200305A00032	3/5/2020	1.58	3/5/2030	3/5/2020	138.29854	127.3491459	117.3406047	108.1873502	99.8120068	92.14456324	85.1216376	78.68581893	72.78507744
200305A00037	3/5/2020	1.43	3/6/2028	3/5/2020	129.41687	121.4008553	113.928696	106.9607716	100.4605451	94.39430591	88.7309368	83.441702	78.5000533
200305A00038	3/5/2020	1.51	3/5/2029	3/5/2020	133.77181	124.3200133	115.5954945	107.5386682	100.0951148	93.21511045	86.85319923	80.96780665	75.52089008
200305A00039	3/5/2020	1.58	3/5/2030	3/5/2020	138.29854	127.3491459	117.3406047	108.1873502	99.8120068	92.14456324	85.1216376	78.68581893	72.78507744
200305A00045	3/5/2020	0.99	3/6/2023	3/5/2020	107.169	105.5434552	103.9510647	102.3908994	100.8620605	99.36368211	97.89492966	96.45499869	95.04311335
200305A00006	3/5/2020	0.99	3/6/2023	3/5/2020	107.169	105.5434552	103.9510647	102.3908994	100.8620605	99.36368211	97.89492966	96.45499869	95.04311335
200305A00014	3/10/2020	1	2/15/2023	3/10/2020	106.94625	105.3822356	103.8491464	102.3461448	100.8724207	99.42719233	98.00970525	96.61923114	95.25506666
200305A00015	3/5/2020	0.99	3/6/2023	3/5/2020	107.169	105.5434552	103.9510647	102.3908994	100.8620605	99.36368211	97.89492966	96.45499869	95.04311335
200305A00016	3/5/2020	0.99	3/6/2023	3/5/2020	107.169	105.5434552	103.9510647	102.3908994	100.8620605	99.36368211	97.89492966	96.45499869	95.04311335
200305A00017	3/5/2020	1.19	3/5/2025	3/5/2020	116.44103	112.4327592	108.5835006	104.8860839	101.3336998	97.9198832	94.63849409	91.48369891	88.44995361
200305A00019	3/5/2020	0.81	3/6/2023	3/5/2020	107.10247	105.473785	103.8783814	102.3153216	100.783702	99.28265199	97.81133287	96.36893599	94.95468165
200304A00029	3/4/2020	1.17	3/4/2025	3/4/2020	116.35405	112.3504956	108.5056929	104.812481	101.2640659	97.85399689	94.57614711	91.42469551	88.39410967
200304A00030	3/4/2020	1.6	12/22/2028	3/4/2020	133.72882	124.5448748	116.0492026	108.1867969	100.9073149	94.16465618	87.91658525	82.12438903	76.75256658
200304A00032	3/4/2020	1.6	12/15/2028	3/4/2020	133.65523	124.4981751	116.0259314	108.183835	100.9218579	94.19418796	87.95885276	82.17737915	76.81448461
200304A00033	3/4/2020	1.17	3/4/2025	3/4/2020	116.35405	112.3504956	108.5056929	104.812481	101.2640659	97.85399689	94.57614711	91.42469551	88.39410967
200304A00035	3/4/2020	1.17	3/4/2025	3/4/2020	116.35405	112.3504956	108.5056929	104.812481	101.2640659	97.85399689	94.57614711	91.42469551	88.39410967

	Parallel-Shift Sensitivity Analysis												
8/31/2021					Price								
REFERENCE	SETTLEMENT	Rate	MATURITY	First/Next	-400	-300	-200	-100	Base	100	200	300	400
200305A00001	3/5/2020	1.14	3/5/2025	3/5/2020	116.25154	112.2467582	108.4008874	104.7067602	101.157571	97.74685825	94.46848522	91.31662158	88.28572634
200304A00015	3/4/2020	0.83	3/4/2022	3/4/2020	102.41403	101.8814376	101.3543671	100.8327323	100.3164494	99.80543629	99.29961264	98.79889969	98.30322028
200304A00018	3/4/2020	0.98	3/4/2025	3/4/2020	116.21502	112.1987908	108.342211	104.6380618	101.079497	97.66001703	94.3734495	91.21393063	88.17588803
200304A00019	3/4/2020	1.04	3/6/2023	3/4/2020	107.24798	105.6217762	104.0287441	102.4679489	100.9384913	99.43950522	97.97015575	96.52963814	95.11717623
200304A00020	3/4/2020	0.98	3/4/2025	3/4/2020	116.21502	112.1987908	108.342211	104.6380618	101.079497	97.66001703	94.3734495	91.21393063	88.17588803
200304A00022	3/4/2020	0.86	3/6/2023	3/4/2020	107.18153	105.5521903	103.9561433	102.3924519	100.860212	99.35855271	97.88663502	96.44364998	95.02881761
200304A00025	3/4/2020	1.04	3/6/2023	3/4/2020	107.24798	105.6217762	104.0287441	102.4679489	100.9384913	99.43950522	97.97015575	96.52963814	95.11717623
200302A00056	3/2/2020	1.2	3/2/2023	3/2/2020	107.4484	105.832139	104.2487002	102.697169	101.1766616	99.68632624	98.22534186	96.79291668	95.38828687
200302A00060	3/2/2021	1.44	3/3/2025	3/2/2021	117.36443	113.3454157	109.4854776	105.7774468	102.2145236	98.79025128	95.49849704	92.3334338	89.28952313
200304A00002	3/4/2020	0.98	3/4/2025	3/4/2020	116.21502	112.1987908	108.342211	104.6380618	101.079497	97.66001703	94.3734495	91.21393063	88.17588803
200304A00005	3/4/2020	0.98	3/4/2025	3/4/2020	116.21502	112.1987908	108.342211	104.6380618	101.079497	97.66001703	94.3734495	91.21393063	88.17588803
200304A00011	3/4/2020	0.83	3/4/2022	3/4/2020	102.41403	101.8814376	101.3543671	100.8327323	100.3164494	99.80543629	99.29961264	98.79889969	98.30322028
200304A00012	3/4/2020	0.98	3/4/2025	3/4/2020	116.21502	112.1987908	108.342211	104.6380618	101.079497	97.66001703	94.3734495	91.21393063	88.17588803
200302A00013	3/2/2020	1.25	3/4/2024	3/2/2020	112.27618	109.4903092	106.7880763	104.1664715	101.6226098	99.15372863	96.75718159	94.43043263	92.17105082
200302A00014	3/2/2020	1.2	3/2/2022	3/2/2020	102.53479	102.0082688	101.4871327	100.9713006	100.460692	99.95522797	99.45483104	98.95942541	98.46893674
200302A00016	3/2/2020	1.36	3/3/2025	3/2/2020	117.06174	113.0482948	109.1937599	105.490976	101.9331489	98.5138275	95.22688444	92.06649767	89.02713363
200302A00017	3/2/2020	1.3	3/4/2024	3/2/2020	112.40947	109.621822	106.9178558	104.2945573	101.7490405	99.27854148	96.88041272	94.55211707	92.29122251
200302A00018	3/2/2020	1.25	3/2/2023	3/2/2020	107.52679	105.9098813	104.3258101	102.773658	101.2525407	99.76160628	98.30003334	96.8670298	95.46183156
200302A00025	3/2/2020	1.02	3/2/2022	3/2/2020	102.48525	101.9583531	101.4368498	100.9206615	100.4097074	99.90390805	99.40318596	98.90746496	98.41667046
200228A00071	2/28/2020	1.74	12/14/2029	2/28/2020	138.92629	128.250348	118.4679741	109.499835	101.274022	93.72532254	86.79456505	80.4280304	74.57692389
200228A00091	2/28/2020	1.72	12/7/2029	2/28/2020	138.65978	128.0199702	118.2692254	109.3287003	101.1269276	93.59909274	86.6863827	80.33540063	74.49764116
200302A00002	3/2/2020	1.12	3/3/2025	3/2/2020	116.73504	112.712368	108.8494013	105.138928	101.5741053	98.14843703	94.85575328	91.69019261	88.64618453
200302A00003	3/2/2020	1.2	3/2/2023	3/2/2020	107.4484	105.832139	104.2487002	102.697169	101.1766616	99.68632624	98.22534186	96.79291668	95.38828687
200302A00005	3/2/2020	1.31	3/3/2025	3/2/2020	116.87256	112.8625942	109.0114364	105.3119317	101.7572896	98.34106263	95.05712656	91.89966259	88.8631402
200302A00006	3/2/2020	1.2	3/2/2023	3/2/2020	107.4484	105.832139	104.2487002	102.697169	101.1766616	99.68632624	98.22534186	96.79291668	95.38828687
200225A00041	10/30/2020	1.48	10/30/2023	10/30/2020	111.2219	108.8414877	106.5242548	104.2680485	102.0708118	99.93057514	97.84545133	95.81363176	93.83338218
200226A00004	2/26/2020	1.58	2/26/2025	2/26/2020	117.82899	113.8179494	109.9650252	106.2631211	102.7055034	99.28577658	95.99786474	92.83599356	89.79467358
200227A00055	2/27/2020	1.41	2/27/2023	2/27/2020	107.73525	106.1257139	104.5487303	103.0033954	101.4888372	100.0042151	98.54871868	97.12156625	95.72200351
200228A00045	2/28/2020	1.45	2/28/2025	2/28/2020	117.36608	113.3564449	109.505222	105.8052887	102.2498858	98.83259458	95.54731761	92.38826071	89.34991605
200228A00047	5/18/2020	1.35	5/18/2023	5/18/2020	108.71746	106.8620698	105.0478673	103.2735483	101.5378642	99.83961917	98.17766708	96.55090909	94.95829104
200228A00070	5/18/2020	1.35	5/18/2023	5/18/2020	108.71746	106.8620698	105.0478673	103.2735483	101.5378642	99.83961917	98.17766708	96.55090909	94.95829104
200225A00023	2/25/2020	1.62	2/25/2025	2/25/2020	117.96569	113.9557019	110.1036276	106.4023894	102.8452679	99.42588109	96.13816557	92.97635849	89.93498109
200225A00028	2/25/2020	1.89	12/21/2029	2/25/2020	140.43074	129.66544	119.8014284	110.7586535	102.4645544	94.85332647	87.86526088	81.44615129	75.54676144

	Parallel-Shift Sensitivity Analysis												
8/31/2021					Price								
REFERENCE	SETTLEMENT	Rate	MATURITY	First/Next	-400	-300	-200	-100	Base	100	200	300	400
200225A00029	2/25/2020	1.89	12/28/2029	2/25/2020	140.51151	129.7178506	119.8295507	110.766091	102.454495	94.82858382	87.82831243	81.39917313	75.49165984
200225A00034	10/5/2020	1.5	10/5/2023	10/5/2020	110.93407	108.6319522	106.3894834	104.2046963	102.0757027	100.0006917	97.97792545	96.00573597	94.08252141
200225A00035	10/5/2020	1.5	10/5/2023	10/5/2020	110.93407	108.6319522	106.3894834	104.2046963	102.0757027	100.0006917	97.97792545	96.00573597	94.08252141
200225A00040	10/30/2020	1.48	10/30/2023	10/30/2020	111.2219	108.8414877	106.5242548	104.2680485	102.0708118	99.93057514	97.84545133	95.81363176	93.83338218
200220A00014	2/20/2020	2.09	12/21/2029	2/20/2020	142.33377	131.4867273	121.5458911	112.4308644	104.0687658	96.39349563	89.34507265	82.86903922	76.91592693
200220A00034	2/25/2020	1.71	3/27/2023	2/25/2020	108.61251	106.9137664	105.2504265	103.6214547	102.025859	100.4626851	98.93101491	97.42996459	95.95868309
200221A00011	2/21/2020	1.69	8/21/2024	2/21/2020	115.71988	112.3541352	109.1041458	105.9652811	102.9331254	100.0034644	97.17227513	94.43571594	91.79011724
200221A00023	2/21/2020	2.05	12/7/2029	2/21/2020	141.78406	131.0106569	121.1343295	112.0756662	103.7626801	96.13007794	89.11860461	82.6744553	76.74874772
200221A00024	2/21/2020	2.05	12/28/2029	2/21/2020	142.03774	131.1783806	121.2283353	112.106813	103.7405786	96.06321514	89.01445789	82.53959643	76.58893752
200224A00006	2/24/2020	1.58	11/15/2024	2/24/2020	116.48578	112.8347356	109.3173853	105.9279964	102.661124	99.51159344	96.4744845	93.5451172	90.71903809
200211A00014	2/11/2020	1.75	8/11/2023	2/11/2020	110.68778	108.5563995	106.4770792	104.4482205	102.4682833	100.5357851	98.6492987	96.80744951	95.00891336
200214A00018	2/18/2020	1.77	1/12/2022	2/18/2020	102.05907	101.6768489	101.2974941	100.9209753	100.5472609	100.1763195	99.80812012	99.44263243	99.07982643
200218A00025	2/21/2020	1.71	2/24/2023	2/21/2020	108.15518	106.5520965	104.9812415	103.4417284	101.9326986	100.453324	99.00280608	97.58037448	96.18528571
200218A00026	2/21/2020	1.73	3/25/2024	2/21/2020	113.83685	110.9663313	108.1832647	105.4844416	102.8667912	100.3273758	97.86338444	95.47212611	93.15102385
200218A00030	2/21/2020	1.71	2/24/2023	2/21/2020	108.15518	106.5520965	104.9812415	103.4417284	101.9326986	100.453324	99.00280608	97.58037448	96.18528571
200220A00013	2/20/2020	2.09	12/14/2029	2/20/2020	142.24826	131.4299444	121.5137523	112.4197438	104.0754544	96.4151593	89.37921435	82.91346412	76.96871094
201105A00002	11/5/2020	0.49	11/7/2022	11/5/2020	105.16095	103.8576372	102.5863086	101.3458012	100.1350063	98.952868	97.79837989	96.67058206	95.56855859
200605A00014	6/5/2020	1.02	6/5/2025	6/5/2020	115.89716	111.8366385	107.9440293	104.211366	100.6311152	97.19614749	93.89971259	90.73541688	87.69720185
200605A00016	6/5/2020	1.02	6/5/2025	6/5/2020	115.89716	111.8366385	107.9440293	104.211366	100.6311152	97.19614749	93.89971259	90.73541688	87.69720185
200605A00017	6/5/2020	1.02	6/5/2025	6/5/2020	115.89716	111.8366385	107.9440293	104.211366	100.6311152	97.19614749	93.89971259	90.73541688	87.69720185
200709A00021	7/9/2020	0.83	7/9/2025	7/9/2020	115.46064	111.3155343	107.3452088	103.541358	99.89611567	96.4020287	93.05203319	89.83943215	86.75787448
200709A00024	7/9/2020	0.83	7/9/2025	7/9/2020	115.46064	111.3155343	107.3452088	103.541358	99.89611567	96.4020287	93.05203319	89.83943215	86.75787448
200709A00025	7/9/2020	1.37	7/9/2030	7/9/2020	133.07365	123.2477412	114.2608687	106.0359753	98.5034867	91.60055041	85.27035374	79.46151399	74.12753308
200813A00019	8/13/2020	1.44	8/13/2030	8/13/2020	133.97507	124.0092431	114.9019155	106.5735068	98.9522412	91.97334346	85.57832158	79.71432627	74.3335788
200813A00020	8/13/2020	1.44	8/13/2030	8/13/2020	133.97507	124.0092431	114.9019155	106.5735068	98.9522412	91.97334346	85.57832158	79.71432627	74.3335788
200813A00021	8/13/2020	0.84	8/13/2025	8/13/2020	115.80876	111.5582031	107.4909383	103.5980536	99.87111829	96.30215519	92.88361406	89.60834622	86.46958101
200813A00023	8/13/2020	0.86	10/14/2025	8/13/2020	116.44336	112.0033188	107.7615881	103.7081575	99.83358559	96.12896025	92.5858661	89.19635349	85.95290992
200911A00011	9/11/2020	1.18	9/11/2030	9/11/2020	131.72466	121.8192257	112.7748544	104.5110444	96.95525696	90.04208771	83.71252904	77.91331269	72.59632293
200911A00012	9/11/2020	1.18	9/11/2030	9/11/2020	131.71915	121.8157206	112.7731238	104.5108865	96.95649117	90.04455221	83.71607894	77.91781827	72.60166803
200911A00013	9/11/2020	0.69	9/11/2025	9/11/2020	115.43273	111.1123027	106.9815416	103.0310537	99.2519631	95.63588101	92.17487648	88.86144867	85.68850103
201007A00008	10/7/2020	1.22	10/7/2030	10/7/2020	131.18166	121.5786093	112.8039225	104.7802806	97.43802005	90.71433687	84.55257544	78.90159469	73.7152027
201007A00010	10/7/2020	1.22	10/7/2030	10/7/2020	131.18166	121.5786093	112.8039225	104.7802806	97.43802005	90.71433687	84.55257544	78.90159469	73.7152027
201007A00011	10/7/2020	0.62	10/6/2023	10/7/2020	108.65561	106.4620578	104.3250188	102.2426264	100.2130943	98.23470925	96.30582722	94.42487024	92.59032298

	Parallel-Shift Sensitivity Analysis												
8/31/2021					Price								
REFERENCE	SETTLEMENT	Rate	MATURITY	First/Next	-400	-300	-200	-100	Base	100	200	300	400
201007A00014	10/7/2020	0.8	10/7/2025	10/7/2020	115.89531	111.5518198	107.4007427	103.4324299	99.63777427	96.0081764	92.5355132	89.21210859	86.03070618
201015A00020	10/15/2020	0.94	10/15/2027	10/15/2020	122.56001	115.8994473	109.6555873	103.7999399	98.30611978	93.14967817	88.30795017	83.75991503	79.48606809
201109A00012	11/9/2020	1.39	11/8/2030	11/9/2020	134.17631	123.9631775	114.6499627	106.1513522	98.39059106	91.29858232	84.81308351	78.87799127	73.44270437
201211A00001	12/11/2020	0.95	12/11/2030	12/11/2020	128.94053	119.8043864	111.4521406	103.8103442	96.81288462	90.400208	84.51863309	79.1197398	74.15982482
210107A00007	1/7/2021	0.84	1/7/2026	1/7/2021	117.10961	112.4110985	107.9320576	103.6610645	99.58734812	95.70075101	91.99169074	88.45112458	85.07051631
210201A00002	2/1/2021	1.19	2/1/2036	2/1/2021	129.97292	120.3161104	111.6185965	103.7717957	96.68048683	90.26106239	84.44001852	79.15265222	74.34193531
210809A00010	8/9/2021	1.06	8/7/2026	8/9/2021	119.68651	114.3936617	109.3747455	104.6140432	100.0968243	95.80927644	91.73844397	87.87216978	84.19904213
210603A00008	6/3/2021	1.74	6/3/2036	6/3/2021	136.09275	126.0689646	117.0470727	108.9123659	101.5644526	94.91535108	88.88785229	83.41411029	78.4344273
020619A00062	6/19/2002	5.86	6/20/2022	6/19/2002	108.01457	107.1335314	106.2669484	105.4144626	104.5757312	103.7504223	102.9382148	102.1387978	101.35187
020627A00001	6/27/2002	6.07	6/27/2022	6/27/2002	108.28737	107.3847105	106.4971781	105.6243954	104.7659965	103.9216272	103.0909447	102.2736178	101.4693254
020916A00006	9/16/2002	5.38	9/16/2022	9/16/2002	109.8165	108.6499172	107.5082665	106.3907495	105.2966049	104.2251034	103.1755455	102.1472605	101.1396048
020920A00012	9/20/2002	5.4	9/20/2022	9/20/2002	109.94342	108.7632831	107.6086271	106.4786331	105.3725152	104.2895206	103.228928	102.1900459	101.1722108
050902A00032	9/2/2005	4.69	8/22/2025	9/2/2005	134.2079	129.2670461	124.5405234	120.0178363	115.6890615	111.5448137	107.576214	103.7748592	100.132794
050923A00096	9/23/2005	4.86	9/22/2025	9/23/2005	135.67095	130.5901838	125.7335546	121.0898821	116.648613	112.3997784	108.3339577	104.4422452	100.7162189
210507A00008	5/7/2021	1.94	5/7/2031	5/7/2021	146.99466	134.0497078	122.3465443	111.7594981	102.1762214	93.49621738	85.62953467	78.49561073	72.0222482
210514A00033	5/18/2021	2.8	5/18/2028	5/18/2021	140.48742	131.8350573	123.7781871	116.2725575	109.2774401	102.7553311	96.67167903	90.99463636	85.69483372
210528A00003	5/28/2021	0.63	5/28/2024	5/28/2021	111.48595	108.4500681	105.5120862	102.6681707	99.91467221	97.24811231	94.66517417	92.1626934	89.73764977
210623A00011	6/23/2021	0.56	6/23/2023	6/23/2021	107.7073	105.753791	103.8452051	101.9802078	100.1575145	98.37588834	96.63413801	94.93111548	93.26571418
210720A00035	7/22/2021	2.27	7/21/2031	7/22/2021	151.65232	138.1892662	126.0362958	115.0588957	105.1370041	96.16338973	88.0422222	80.68780907	74.02347774
210818A00007	8/18/2021	0.81	8/18/2025	8/18/2021	117.34612	112.7697782	108.3953059	104.2127491	100.2127004	96.38626417	92.72502542	89.22102153	85.86671531
201015A00017	10/15/2020	0.29	10/17/2022	10/15/2020	104.81936	103.5823698	102.374284	101.1941023	100.040868	98.91366767	97.81162874	96.73391721	95.67973555
201028A00005	10/30/2020	1.85	10/31/2025	10/30/2020	122.1435	117.243306	112.566933	108.1028986	103.8403809	99.76917419	95.87964985	92.16272027	88.60980489
210128A00010	1/28/2021	0.57	7/9/2024	1/28/2021	111.73045	108.5605416	105.495997	102.5327643	99.66696566	96.89489295	94.21299941	91.61789174	89.10632258
210209A00029	2/12/2021	0.8	12/15/2025	2/12/2021	117.81823	112.8656112	108.1461858	103.6477394	99.35877008	95.26843841	91.366526	87.64339598	84.08995656
210212A00014	2/17/2021	1.38	2/17/2026	2/17/2021	121.23483	115.9921392	111.004623	106.2585464	101.740988	97.43978518	93.34348565	89.44130199	85.7230697
210428A00008	4/28/2021	1.93	4/26/2030	4/28/2021	142.33288	131.0159695	120.6816814	111.239577	102.6079817	94.71309577	87.48819682	80.8729273	74.81265704
200818A00007	8/18/2020	1.31	8/20/2029	8/18/2020	133.70678	123.6652445	114.4396384	105.9596829	98.16148122	90.9869103	84.38307225	78.30180066	72.6992157
200818A00008	8/18/2020	1.5	8/18/2031	8/18/2020	143.06448	129.9362307	118.1070039	107.4417854	97.82021461	89.13492761	81.2900961	74.2001367	67.78857047
200911A00019	9/15/2020	1.84	9/14/2027	9/15/2020	130.46753	123.0226126	116.0482022	109.5121424	103.3846385	97.63807077	92.24682518	87.18713714	82.4369489
200922A00040	9/24/2020	2	9/23/2024	9/24/2020	117.18134	113.6869572	110.3156011	107.062215	103.9219867	100.8903306	97.96287599	95.13545499	92.40409212
200928A00003	9/28/2020	0.55	9/26/2025	9/28/2020	116.60265	111.9146273	107.4384799	103.1635036	99.0795959	95.17721865	91.44736304	87.88151716	84.47163565
201006A00007	10/8/2020	1.47	10/10/2023	10/8/2020	110.93396	108.6168555	106.3600806	104.161635	102.019598	99.93212751	97.89745695	95.91389088	93.97980175
200709A00008	7/10/2020	1.88	7/10/2026	7/10/2020	125.54168	119.7153706	114.1927248	108.9563905	103.9900914	99.27855749	94.80745702	90.56333485	86.5335542

	Parallel-Shift Sensitivity Analysis												
8/31/2021					Price								
REFERENCE	SETTLEMENT	Rate	MATURITY	First/Next	-400	-300	-200	-100	Base	100	200	300	400
200720A00014	7/20/2020	0.35	7/20/2022	7/20/2020	103.81354	102.859884	101.9236173	101.0042724	100.1013943	99.21454394	98.34329775	97.48724703	96.64599722
200720A00034	7/20/2020	0.77	7/21/2025	7/20/2020	116.23612	111.7913223	107.5387299	103.4690608	99.5735299	95.84381937	92.27205141	88.8507626	85.57287992
200720A00042	7/22/2020	2.04	7/21/2026	7/22/2020	126.60392	120.7116541	115.127981	109.8351679	104.8165914	100.0566614	95.54075161	91.25513526	87.18692519
200730A00002	7/30/2020	0.67	11/6/2024	7/30/2020	113.25461	109.6869113	106.2494564	102.9366914	99.74333992	96.66438541	93.69505622	90.83081187	88.0673301
200814A00011	8/18/2020	1.58	8/16/2030	8/18/2020	140.03565	128.4147971	117.8387198	108.2082656	99.43415673	91.43595897	84.14116526	77.48437876	71.40658353
200515A00001	5/15/2020	0.59	5/15/2023	5/15/2020	107.33876	105.5046569	103.7111607	101.9569916	100.240923	98.56177991	96.91843606	95.30981137	93.73486951
200527A00021	5/27/2020	0.53	11/26/2021	5/27/2020	101.02905	100.7838552	100.5398469	100.2970209	100.0553687	99.81488169	99.57555156	99.33736996	99.10032867
200601A00009	6/1/2020	0.84	6/2/2025	6/1/2020	116.02931	111.7460421	107.6426631	103.710562	99.94159769	96.32806946	92.8626897	89.5385589	86.34914218
200604A00014	6/4/2020	2.42	6/4/2040	6/4/2020	190.18084	160.7700613	136.3594445	116.0647628	99.16257425	85.06028249	73.27189502	63.39837269	55.11168214
200605A00007	6/5/2020	0.52	6/5/2023	6/5/2020	107.70285	105.7985572	103.9375083	102.1183343	100.3397208	98.60040828	96.89918959	95.23490695	93.60644947
200709A00003	7/10/2020	1.63	7/10/2026	7/10/2020	124.20547	118.4129712	112.9228589	107.7178366	102.7816847	98.09918631	93.6560605	89.43889992	85.43511321
200403A00016	4/3/2020	0.63	4/17/2023	4/3/2020	107.32064	105.5659653	103.8488824	102.1682515	100.5229814	98.91202484	97.33437573	95.78906739	94.27517049
200415A00035	4/17/2020	2.16	4/16/2025	4/17/2020	120.72265	116.4998557	112.4481651	108.559658	104.8268303	101.2425696	97.80013205	94.49312088	91.31546612
200420A00011	4/20/2020	0.7	4/19/2024	4/20/2020	111.71117	108.7825785	105.9454977	103.1964777	100.5322207	97.94957651	95.44553527	93.01721976	90.6618786
200430A00017	4/30/2020	0.94	4/30/2025	4/30/2020	116.09104	111.9108894	107.9026038	104.0581302	100.3698427	96.83051886	93.43331512	90.17174447	87.03965551
200504A00013	5/4/2020	1.26	5/4/2027	5/4/2020	125.30407	118.4710044	112.0484578	106.009633	100.3296302	94.98529746	89.95509873	85.21899197	80.75831742
200505A00005	5/5/2020	0.77	5/5/2025	5/5/2020	116.07568	111.8635677	107.8256149	103.95361	100.2397853	96.67678599	93.2576459	89.9757638	86.82488195
200316A00013	3/16/2020	1	4/15/2022	3/16/2020	103.01212	102.3537945	101.703851	101.0621349	100.4284907	99.80276658	99.1848148	98.57449111	97.97165488
200318A00043	3/18/2020	1.06	3/20/2023	3/18/2020	107.68089	106.0066318	104.3670856	102.7612504	101.188162	99.64689266	98.13654948	96.65627252	95.20523344
200323A00010	3/23/2020	1.19	3/23/2022	3/23/2020	102.81825	102.2288748	101.6462387	101.0702258	100.5007236	99.93762217	99.38081406	98.83019413	98.28565963
200326A00026	3/26/2020	1.32	3/26/2024	3/26/2020	112.72994	109.8714497	107.1002243	104.4130513	101.8068623	99.27872271	96.82582405	94.44547812	92.13511082
200327A00036	3/27/2020	0.77	9/27/2023	3/27/2020	109.55667	107.2876491	105.0771655	102.9233018	100.8242179	98.77814846	96.78339863	94.83834097	92.94141208
200327A00074	3/31/2020	1.76	3/29/2024	3/31/2020	113.97267	111.0881314	108.2917309	105.5802237	102.9505043	100.3996027	97.92467722	95.52300826	93.19199181
200306A00099	3/10/2020	1.92	3/10/2031	3/10/2020	145.96903	133.2981816	121.8256446	111.4318472	102.0097137	93.4633035	85.70660267	78.66245105	72.2615908
200309A00004	3/9/2020	0.71	3/8/2024	3/9/2020	111.28101	108.4876132	105.7786168	103.1509603	100.6017152	98.12807828	95.72736485	93.39700311	91.13452854
200309A00019	3/9/2020	0.89	3/11/2024	3/9/2020	111.39236	108.5972009	105.8865081	103.2572135	100.7063845	98.23121367	95.82901273	93.49720641	91.23332705
200309A00020	3/9/2020	0.96	3/10/2025	3/9/2020	115.62207	111.6133202	107.7642507	104.0676283	100.5165911	97.10462579	93.82554765	90.67348202	87.64284689
200309A00033	3/9/2020	1.06	3/9/2026	3/9/2020	119.94512	114.6620607	109.6396172	104.8635863	100.3206119	95.99813328	91.88433254	87.96808703	84.23892458
200309A00041	3/9/2020	0.73	3/9/2022	3/9/2020	102.37664	101.8300224	101.289225	100.7541562	100.2247253	99.70084347	99.1824237	98.66938086	98.16163157
200304A00021	3/4/2020	0.94	3/4/2024	3/4/2020	111.85231	109.0633678	106.3583777	103.734305	101.1882483	98.71742922	96.31918671	93.9909709	91.73033784
200304A00034	3/4/2020	1.12	3/4/2024	3/4/2020	111.92964	109.1483759	106.4506497	103.8334483	101.2938899	98.8292152	96.43678064	94.1140531	91.85860443
200305A00008	3/10/2020	1.01	6/19/2023	3/10/2020	108.51185	106.562556	104.657913	102.7965789	100.9772604	99.1987133	97.4597408	95.75919071	94.0959536
200305A00029	3/5/2020	1.14	3/5/2025	3/5/2020	116.25154	112.2467582	108.4008874	104.7067602	101.157571	97.74685825	94.46848522	91.31662158	88.28572634

	Parallel-Shift Sensitivity Analysis												
8/31/2021					Price								
REFERENCE	SETTLEMENT	Rate	MATURITY	First/Next	-400	-300	-200	-100	Base	100	200	300	400
200306A00039	3/6/2020	0.88	3/6/2023	3/6/2020	106.99526	105.371149	103.78017	102.2213906	100.6939128	99.19687126	97.72943226	96.29079192	94.880175
200306A00063	3/6/2020	0.64	3/16/2022	3/6/2020	102.46764	101.8994328	101.337518	100.7817869	100.2321379	99.68847126	99.15068968	98.61869784	98.0924025
200302A00045	3/4/2020	1.31	3/4/2025	3/4/2020	116.88419	112.8708777	109.0166043	105.3141962	101.7568491	98.33810263	95.05182054	91.89217286	88.85361866
200303A00001	3/3/2020	1.15	3/3/2025	3/3/2020	116.84885	112.8240798	108.9590771	105.2466269	101.6798842	98.25235061	94.95785436	91.79053203	88.74481129
200303A00012	3/3/2020	1.71	3/1/2030	3/3/2020	139.52475	128.5356311	118.4883939	109.2975387	100.8857318	93.18298895	86.12594224	79.65718435	73.72468038
200303A00018	3/3/2020	1.27	3/3/2025	3/3/2020	116.72122	112.7140337	108.8655775	105.1686962	101.6166022	98.20285074	94.92132026	91.76619453	88.73194545
200304A00008	3/4/2020	1.03	11/15/2021	3/4/2020	101.00463	100.7906823	100.5776548	100.3655393	100.1543301	99.94402127	99.73460699	99.52608153	99.31843919
200304A00010	3/4/2020	1.2	3/4/2027	3/4/2020	125.38006	118.7140913	112.4393383	106.5308653	100.9654537	95.72147358	90.77876758	86.11854256	81.72327057
200227A00012	2/27/2020	1.41	2/27/2023	2/27/2020	107.73525	106.1257139	104.5487303	103.0033954	101.4888372	100.0042151	98.54871868	97.12156625	95.72200351
200228A00012	3/3/2020	1.4	3/3/2025	3/3/2020	117.21308	113.1968553	109.3396187	105.6342114	102.0738362	98.65203939	95.36269074	92.19996573	89.15832838
200228A00014	2/28/2020	1.4	2/28/2025	2/28/2020	117.17737	113.1711948	109.323333	105.6266635	102.0744309	98.66021983	95.37793621	92.22178898	89.18627335
200228A00059	2/28/2020	1.79	2/28/2030	2/28/2020	140.29389	129.2745448	119.1985853	109.9804372	101.5426952	93.81530574	86.73483454	80.24381079	74.29013892
200228A00063	2/28/2020	1.32	2/28/2023	2/28/2020	107.60968	105.9978965	104.4187725	102.8714009	101.3549055	99.86844134	98.41119414	96.98237829	95.58123587
200228A00067	2/28/2020	1.4	2/28/2025	2/28/2020	117.17737	113.1711948	109.323333	105.6266635	102.0744309	98.66021983	95.37793621	92.22178898	89.18627335
200225A00015	2/25/2020	1.54	2/26/2024	2/25/2020	112.9566	110.1837008	107.493457	104.8829091	102.3492269	99.88969928	97.50172792	95.18282216	92.93059364
200225A00017	2/25/2020	1.94	2/25/2030	2/25/2020	141.71715	130.6473596	120.5227872	111.257851	102.7751266	95.00453197	87.88259687	81.35180827	75.36002393
200225A00046	2/25/2020	1.54	2/23/2024	2/25/2020	112.91512	110.1527061	107.4723547	104.8711434	102.3462716	99.89505585	97.51492405	95.20341023	92.95814937
200226A00002	2/26/2020	1.53	2/27/2023	2/26/2020	107.92232	106.3112568	104.7327708	103.1859605	101.6699533	100.1839079	98.72701314	97.29848658	95.89757329
200226A00008	2/26/2020	1.38	2/26/2025	2/26/2020	117.65677	113.633717	109.769651	106.0574212	102.4902429	99.06167284	95.76559073	92.59618054	89.5479138
200226A00012	2/26/2020	1.54	2/28/2022	2/26/2020	102.67953	102.1584812	101.6426958	101.1320963	100.6266048	100.1261451	99.63064246	99.14002369	98.65421695
200220A00002	2/20/2020	1.76	2/20/2025	2/20/2020	118.42052	114.4200074	110.576288	106.8823679	103.3316043	99.91768599	96.63461547	93.47669121	90.43849145
200220A00029	2/20/2020	1.72	2/21/2023	2/20/2020	108.12286	106.5299155	104.9688193	103.4386945	101.9386974	100.4680141	99.02585964	97.6114766	96.22413375
200221A00006	2/21/2020	1.5	2/21/2025	2/21/2020	118.03915	114.0269679	110.1726013	106.4689886	102.9094237	99.48753645	96.1972743	93.03288432	89.98889672
200221A00016	2/21/2020	1.69	2/21/2025	2/21/2020	118.1723	114.172753	110.3301443	106.6374619	103.0880506	99.675588	96.39406615	93.23777388	90.20128051
200221A00031	2/21/2020	1.69	2/21/2025	2/21/2020	118.1723	114.172753	110.3301443	106.6374619	103.0880506	99.675588	96.39406615	93.23777388	90.20128051
200225A00005	2/25/2020	1.57	2/25/2025	2/25/2020	117.77744	113.7709009	109.9221724	106.2241834	102.6702182	99.25389811	95.96916296	92.81025309	89.77169273
200127A00030	1/27/2020	1.8	1/27/2025	1/27/2020	118.2256	114.3125812	110.5499177	106.9310348	103.4496847	100.099925	96.8761024	93.77283643	90.78500517
200130A00016	1/30/2020	1.58	1/30/2025	1/30/2020	118.02382	114.0902251	110.3085034	106.6719835	103.1743278	99.80951011	96.57179839	93.45573878	90.45614059
200131A00007	1/31/2020	1.68	1/31/2023	1/31/2020	107.74484	106.2237333	104.7318074	103.2682971	101.8324597	100.4235782	99.04095955	97.68393401	96.3518541
200203A00051	2/3/2020	1.58	11/3/2021	2/3/2020	100.96028	100.7802559	100.6008726	100.4221309	100.2440274	100.0665585	99.88972094	99.71351129	99.53792621
200207A00004	2/7/2020	1.53	2/7/2023	2/7/2020	107.82174	106.2738634	104.7561531	103.2678024	101.8080318	100.3760887	98.97124643	97.5928032	96.24008092
200207A00009	2/7/2020	1.58	2/7/2025	2/7/2020	118.13802	114.1741143	110.3642697	106.7016722	103.1798507	99.79265453	96.53423539	93.39903097	90.38174926
191219A00047	12/19/2019	1.76	12/17/2021	12/19/2019	101.68024	101.3734839	101.0685903	100.7655423	100.464323	100.1649159	99.86730448	99.57147257	99.27740413

	Parallel-Shift Sensitivity Analysis												
8/31/2021					Price								
REFERENCE	SETTLEMENT	Rate	MATURITY	First/Next	-400	-300	-200	-100	Base	100	200	300	400
191223A00008	12/23/2019	1.93	12/23/2021	12/23/2019	101.7992	101.475291	101.1534525	100.8336603	100.5158949	100.2001371	99.88636773	99.57456812	99.26471971
191223A00056	12/23/2019	2.46	12/14/2029	12/23/2019	145.76005	134.791232	124.7335749	115.5065044	107.0369686	99.25870103	92.1115579	85.54092263	79.49717154
200108A00021	1/13/2020	1.97	1/13/2025	1/13/2020	118.65545	114.7796944	111.0511937	107.463584	104.0108097	100.6871083	97.48699362	94.40524199	91.43687772
200109A00012	1/14/2020	1.94	12/15/2022	1/14/2020	107.46678	106.0575802	104.6794276	103.3312973	102.0122105	100.7212313	99.45746432	98.22005235	97.0081744
200121A00008	1/24/2020	1.84	1/20/2022	1/24/2020	102.21163	101.8058365	101.4032735	101.0038979	100.6076718	100.2145579	99.82451971	99.43752104	99.05352641
191104A00018	11/5/2019	1.96	11/5/2024	11/5/2019	117.65347	114.0153285	110.5092137	107.1295179	103.8709096	100.7283189	97.6969229	94.77213187	91.949576
191104A00025	11/4/2019	2.33	8/2/2030	11/4/2019	147.59931	135.6809735	124.8208652	114.9194097	105.8868759	97.64235994	90.11287616	83.23254604	76.94187367
191108A00014	11/8/2019	2.25	11/8/2029	11/8/2019	144.98876	134.1095744	124.1282592	114.9659146	106.5509687	98.81846328	91.70940953	85.1702098	79.15213855
191212A00026	12/13/2019	1.92	6/16/2022	12/13/2019	104.60017	103.7482451	102.910159	102.0855748	101.274168	100.4756247	99.68964065	98.91592115	98.15418074
191212A00027	12/13/2019	1.93	10/17/2022	12/13/2019	106.59223	105.346366	104.1294907	102.9406059	101.7787544	100.6430223	99.53253621	98.44646164	97.38400034
191218A00013	12/18/2019	1.94	12/19/2022	12/18/2019	107.52318	106.1088572	104.7243021	103.3685863	102.0408187	100.7401449	99.46574585	98.21683578	96.99266042
191003A00013	10/3/2019	1.66	10/3/2022	10/3/2019	106.05869	104.8605806	103.6893925	102.5442226	101.4242119	100.3285389	99.25641723	98.20709439	97.17984946
191007A00024	10/7/2019	1.7	7/14/2022	10/7/2019	104.84824	103.9093883	102.9872882	102.0814931	101.1915735	100.3171148	99.45771652	98.61299216	97.78256823
191015A00001	10/15/2019	1.87	10/15/2021	10/15/2019	100.6994	100.5733505	100.4476328	100.3222449	100.1971853	100.0724529	99.9480462	99.82396398	99.70020493
191018A00005	10/18/2019	1.89	5/2/2022	10/18/2019	103.85247	103.1401327	102.4375348	101.7444755	101.0607617	100.3862053	99.72062338	99.06383795	98.41567553
191021A00021	10/21/2019	2.22	12/21/2027	10/21/2019	134.2429	126.3362244	118.9465767	112.037476	105.5752002	99.52856178	93.86870458	88.5689177	83.60446559
191101A00002	11/1/2019	1.85	11/1/2022	11/1/2019	106.73997	105.4454153	104.1820871	102.9488682	101.7446928	100.5685449	99.41945529	98.29649909	97.19879307
190923A00081	9/23/2019	1.96	9/20/2024	9/23/2019	117.00697	113.5250392	110.1654578	106.9232134	103.7935301	100.7718565	97.85385355	95.03538337	92.31249844
190924A00035	9/24/2019	1.88	9/13/2024	9/24/2019	116.64641	113.1927231	109.8598467	106.6428572	103.5370623	100.5379888	97.64137083	94.84313917	92.13941058
190926A00007	9/26/2019	1.88	9/26/2022	9/26/2019	106.19427	105.0174524	103.8665896	102.7408329	101.6393679	100.5614152	99.50622845	98.47309247	97.46132185
190926A00034	9/26/2019	1.88	9/26/2022	9/26/2019	106.19427	105.0174524	103.8665896	102.7408329	101.6393679	100.5614152	99.50622845	98.47309247	97.46132185
190930A00077	9/30/2019	2.23	9/28/2029	9/30/2019	142.58455	132.0330775	122.3408145	113.4332613	105.242748	97.70777182	90.77240539	84.3857645	78.50152936
191001A00023	10/1/2019	1.85	9/27/2024	10/1/2019	116.74443	113.2442733	109.8677542	106.6097746	103.465483	100.4302578	97.49969394	94.66959225	91.93594781
190820A00038	8/20/2019	1.76	8/20/2024	8/20/2019	115.92926	112.5633953	109.3131605	106.1739337	103.1413082	100.2110782	97.37922882	94.64192565	91.995506
190827A00002	8/27/2019	1.74	8/27/2024	8/27/2019	115.95978	112.5712866	109.2999137	106.1409567	103.0899246	100.1425328	97.29469211	94.54249877	91.88222484
190904A00001	9/4/2019	1.5	9/4/2024	9/4/2019	115.78788	112.3648755	109.0612316	105.8721035	102.7928754	99.81914583	96.94671637	94.17158064	91.48991448
190905A00002	9/5/2019	1.78	9/6/2022	9/5/2019	105.76628	104.6548915	103.5667516	102.5011349	101.4573479	100.4347253	99.43262856	98.45044464	97.48758464
190910A00004	9/11/2019	1.86	9/11/2024	9/11/2019	116.55331	113.1075244	109.7821128	106.5721799	103.4730569	100.4802926	97.58964189	94.79705486	92.09866642
190917A00029	9/17/2019	2.02	12/6/2022	9/17/2019	107.4915	106.0920031	104.7264744	103.3936779	102.0924381	100.8216359	99.58020452	98.36712713	97.18143344
190815A00008	8/15/2019	1.82	8/15/2022	8/15/2019	105.46734	104.4261723	103.405484	102.4046717	101.4231591	100.4603919	99.51583707	98.58898139	97.67933089
190815A00015	8/15/2019	1.82	8/15/2022	8/15/2019	105.46734	104.4261723	103.405484	102.4046717	101.4231591	100.4603919	99.51583707	98.58898139	97.67933089
190815A00025	8/15/2019	1.97	8/15/2029	8/15/2019	141.26833	130.8607422	121.2930842	112.4932617	104.3957156	96.94079802	90.07421133	83.74650332	77.91261239
190816A00015	8/16/2019	2.2	8/16/2029	8/16/2019	141.75258	131.3938909	121.8680956	113.1038909	105.0364207	97.60666405	90.7608824	84.45012239	78.62976735

	Parallel-Shift Sensitivity Analysis												
8/31/2021					Price								
REFERENCE	SETTLEMENT	Rate	MATURITY	First/Next	-400	-300	-200	-100	Base	100	200	300	400
190816A00020	8/16/2019	1.79	8/16/2024	8/16/2019	115.97029	112.6164473	109.3774029	106.2485884	103.2256439	100.3044078	97.48090634	94.75134393	92.1120942
190816A00033	8/16/2019	1.77	8/16/2024	8/16/2019	115.90691	112.5540612	109.3159809	106.1881056	103.1660766	100.2457329	97.42310154	94.69438771	92.05596575
190807A00027	8/7/2019	1.77	8/7/2024	8/7/2019	115.78511	112.4626218	109.2529695	106.1516978	103.1545552	100.2574818	97.45659913	94.74820119	92.12874575
190808A00012	8/8/2019	1.89	8/8/2024	8/8/2019	116.17595	112.8442406	109.6257319	106.515951	103.5106297	100.6056921	97.79724484	95.08156777	92.45510531
190808A00024	8/8/2019	1.69	2/8/2024	8/8/2019	113.49022	110.7616363	108.1128558	105.5410763	103.043616	100.6179036	98.26147249	95.97195614	93.74708337
190809A00010	8/9/2019	1.88	8/8/2024	8/9/2019	116.14451	112.8132856	109.5952518	106.4859337	103.4810635	100.5765657	97.76854728	95.05328853	92.42723418
190813A00008	8/13/2019	1.88	8/13/2024	8/13/2019	116.21386	112.8657205	109.6318455	106.5077006	103.4889584	100.5714874	97.75134194	95.02475307	92.38811915
190814A00006	8/14/2019	1.84	8/14/2023	8/14/2019	110.91644	108.7735277	106.68316	104.6437143	102.6536301	100.7114054	98.8155944	96.96480514	95.15769674
190805A00021	8/5/2019	1.89	1/16/2024	8/5/2019	113.28241	110.6377513	108.0683557	105.5716626	103.1452094	100.7866317	98.49365856	96.2641086	94.0958856
190805A00037	8/5/2019	2.17	8/6/2029	8/5/2019	142.97617	132.5315085	122.9256481	114.08688	105.949969	98.45554042	91.54952605	85.18266536	79.3100556
190806A00007	8/6/2019	1.88	8/5/2022	8/6/2019	105.36493	104.3554533	103.3652368	102.3937366	101.4404262	100.5047983	99.58636456	98.68465449	97.79921452
190807A00005	8/7/2019	1.77	8/7/2024	8/7/2019	115.78511	112.4626218	109.2529695	106.1516978	103.1545552	100.2574818	97.45659913	94.74820119	92.12874575
190807A00017	8/7/2019	1.76	3/12/2024	8/7/2019	113.7435	110.9137682	108.1693932	105.5072754	102.9244517	100.4180856	97.98546083	95.62397559	93.33113681
190807A00022	8/7/2019	1.76	1/17/2023	8/7/2019	107.6385	106.1598624	104.7088946	103.2848839	101.8871427	100.5150063	99.16783211	97.84499816	96.54590282
190711A00019	7/11/2019	2.19	7/11/2023	7/11/2019	111.09504	109.0536329	107.0600379	105.1128432	103.2106916	101.3522747	99.53633053	97.76164153	96.02703287
190712A00018	7/12/2019	2.25	7/12/2024	7/12/2019	116.90335	113.6459196	110.4964281	107.4507193	104.5048192	101.654928	98.89741183	96.22879432	93.64574887
190724A00023	7/24/2019	2.13	7/24/2025	7/24/2019	122.68556	118.0811983	113.67528	109.4582169	105.4209354	101.5548458	97.85181377	94.30413358	90.90450356
190729A00007	7/29/2019	2.17	7/28/2023	7/29/2019	111.32603	109.2306529	107.1854746	105.1889813	103.239716	101.3362753	99.47730653	97.6615063	95.88761783
190802A00015	8/2/2019	2	2/15/2023	8/2/2019	108.47012	106.8938874	105.3487998	103.8340154	102.3487178	100.8921194	99.46346008	98.06200612	96.68704892
190802A00032	8/2/2019	2.01	8/2/2024	8/2/2019	116.46766	113.150466	109.9453308	106.8478545	103.8538351	100.9592588	98.16029024	95.4532639	92.83467528
190620A00056	6/25/2019	2.07	1/17/2023	6/25/2019	108.08454	106.6025002	105.1481942	103.7209046	102.3199421	100.9446405	99.59435538	98.26846344	96.96636156
190625A00008	6/25/2019	2.04	6/27/2022	6/25/2019	104.87124	103.9845738	103.1128503	102.255691	101.4127335	100.5836271	99.7680326	98.96562193	98.17607746
190625A00016	6/25/2019	2.13	6/25/2024	6/25/2019	116.28661	113.0922742	110.0023666	107.0128913	104.1200297	101.3201307	98.60970268	95.98540566	93.44404344
190625A00027	6/25/2019	2.04	6/24/2022	6/25/2019	104.82167	103.9444055	103.0817825	102.2334321	101.3990024	100.5781529	99.77055407	98.97588707	98.19384315
190626A00004	6/26/2019	2.15	6/26/2024	6/26/2019	116.3617	113.1630685	110.0690624	107.0756856	104.179115	101.3756948	98.66192843	96.03447079	93.49012048
190702A00002	7/2/2019	2.16	7/2/2024	7/2/2019	116.4809	113.2614527	110.1477693	107.1358164	104.2217335	101.4018277	98.67256556	96.03056546	93.47259007
190603A00009	6/3/2019	2.17	7/6/2022	6/3/2019	105.13387	104.2182881	103.3186073	102.4344145	101.5653123	100.7109168	99.87085702	99.04477448	98.23232246
190603A00047	6/3/2019	2.22	6/2/2023	6/3/2019	110.5205	108.6034729	106.729699	104.8977978	103.1064447	101.3543712	99.64036231	97.96325356	96.32192819
190606A00027	6/6/2019	2.51	6/5/2026	6/6/2019	128.38481	122.6063358	117.1230136	111.9181184	106.9759713	102.2818674	97.82200893	93.58344416	89.55401012
190607A00003	6/7/2019	1.92	6/7/2022	6/7/2019	104.53749	103.712181	102.8998627	102.1002317	101.3129925	100.5378586	99.77455248	99.02280483	98.28235456
190613A00011	6/13/2019	2.26	6/13/2024	6/13/2019	116.49505	113.3358126	110.2790156	107.3206973	104.4570784	101.684551	98.99966958	96.39914258	93.87982414
190620A00044	6/20/2019	2.04	6/20/2022	6/20/2019	104.7643	103.8994053	103.0487541	102.2119935	101.3887851	100.5788016	99.78172624	98.99725218	98.22508227
190522A00003	5/22/2019	2.55	5/22/2024	5/22/2019	117.00513	113.9079911	110.9096112	108.0061553	105.1939721	102.4695801	99.82965791	97.27103568	94.7906867

	Parallel-Shift Sensitivity Analysis												
8/31/2021					Price								
REFERENCE	SETTLEMENT	Rate	MATURITY	First/Next	-400	-300	-200	-100	Base	100	200	300	400
190523A00014	5/23/2019	2.5	11/15/2023	5/23/2019	113.81842	111.3575816	108.9629931	106.6323579	104.3634809	102.1542617	100.0026905	97.90684283	95.86487503
190523A00018	5/23/2019	2.51	3/15/2024	5/23/2019	115.80825	112.9415962	110.1614162	107.4645705	104.8480514	102.3089803	99.84460135	97.45227473	95.12947146
190524A00026	5/28/2019	2.45	6/15/2023	5/28/2019	111.16437	109.201498	107.2833618	105.4085905	103.5758722	101.7839463	100.0316011	98.31767164	96.64103716
190524A00031	5/24/2019	2.43	5/24/2022	5/24/2019	104.61072	103.8288052	103.0585614	102.2997242	101.5520416	100.8152689	100.0891685	99.37350963	98.66806826
190529A00013	5/29/2019	2.38	5/29/2024	5/29/2019	116.61846	113.5050546	110.4915543	107.5740577	104.7488472	102.0123795	99.36127566	96.79231186	94.30241114
190409A00033	4/9/2019	2.62	6/9/2023	4/9/2019	111.37851	109.4319291	107.5294864	105.6698075	103.851572	102.0735135	100.3344167	98.63311444	96.96848594
190424A00021	4/24/2019	2.6	4/22/2022	4/24/2019	104.16049	103.4769879	102.8024482	102.1366924	101.4795495	100.8308532	100.1904411	99.5581554	98.93384191
190430A00001	4/30/2019	2.47	5/2/2024	4/30/2019	116.90004	113.8571735	110.9098995	108.0545741	105.2877201	102.6060182	100.006299	97.48553445	95.04083095
190501A00017	5/1/2019	2.61	5/1/2024	5/1/2019	116.84296	113.8137842	110.879489	108.0364712	105.2812889	102.6106562	100.0214346	97.5106258	95.0753636
190510A00018	5/10/2019	2.54	5/10/2023	5/10/2019	110.73575	108.8851932	107.0752596	105.3046746	103.5722215	101.8767339	100.2170934	98.59222707	97.00110505
190521A00068	5/21/2019	2.47	9/15/2021	5/21/2019	100.25791	100.2160867	100.1743141	100.1325927	100.0909224	100.049303	100.0077345	99.96621676	99.92474974
190321A00003	3/21/2019	2.67	3/21/2024	3/21/2019	116.33755	113.4453029	110.6406673	107.9204378	105.2815523	102.7210808	100.2362189	97.82428133	95.48269624
190326A00024	3/26/2019	2.59	3/26/2024	3/26/2019	116.20016	113.2944129	110.4770328	107.7447798	105.0945512	102.5233796	100.028425	97.60696892	95.25640821
190328A00027	3/28/2019	2.51	9/21/2021	3/28/2019	100.36348	100.3048959	100.2463908	100.187967	100.1296245	100.071363	100.0131823	99.95508245	99.89706312
190328A00031	4/25/2019	2.56	4/25/2024	4/25/2019	116.60379	113.5970989	110.6841398	107.8613661	105.1253958	102.4729992	99.9010906	97.40672108	94.98707088
190328A00083	3/28/2019	2.37	3/28/2024	3/28/2019	116.05105	113.1320095	110.3020857	107.5579927	104.8965904	102.3148759	99.80997585	97.37914064	95.01973753
190403A00006	4/3/2019	2.48	4/3/2024	4/3/2019	116.45079	113.5073645	110.6542036	107.8879585	105.2054322	102.6035679	100.0794421	97.6302577	95.25333746
190222A00028	2/22/2019	2.62	2/22/2022	2/22/2019	103.16163	102.6562707	102.1558554	101.6603165	101.1695829	100.6835848	100.2022539	99.72552319	99.2533268
190226A00006	2/26/2019	2.64	2/26/2024	2/26/2019	116.27331	113.4478613	110.7065082	108.0462419	105.4641812	102.9575661	100.5237519	98.16020359	95.8644904
190301A00012	3/1/2019	3.41	3/1/2029	3/1/2019	149.9142	139.8494504	130.5444642	121.9376459	113.972707	106.5981815	99.76698836	93.43603743	87.56587125
190305A00010	3/5/2019	2.84	3/7/2022	3/5/2019	103.47126	102.9271044	102.3886667	101.8558609	101.3285988	100.8067942	100.2903624	99.77922087	99.27328836
190315A00014	3/15/2019	2.74	3/15/2024	3/15/2019	116.42905	113.5540288	110.7656829	108.0608599	105.4365461	102.8898574	100.4180321	98.01842532	95.68850297
190318A00008	3/18/2019	2.76	3/18/2024	3/18/2019	116.53256	113.6469135	110.8484505	108.1339969	105.5005135	102.9450919	100.4649478	98.05741481	95.71993883
190111A00010	1/11/2019	2.87	1/7/2022	1/11/2019	102.37863	102.0101795	101.6443865	101.2812206	100.9206534	100.562657	100.207204	99.85426718	99.5038199
190114A00042	1/14/2019	2.92	1/13/2023	1/14/2019	109.24952	107.7702763	106.3185031	104.8935026	103.494596	102.1211269	100.7724607	99.44798292	98.14709921
190114A00061	1/14/2019	2.98	1/31/2024	1/14/2019	116.29226	113.5625626	110.9115624	108.3365391	105.83488	103.4040783	101.0417285	98.74552098	96.51323822
190131A00018	1/31/2019	2.83	3/25/2022	1/31/2019	103.79022	103.19177	102.6002133	102.0154331	101.4373136	100.8657414	100.3006055	99.74179776	99.18921218
190131A00036	1/31/2019	2.69	7/31/2023	1/31/2019	112.72737	110.602716	108.5292008	106.5052779	104.5294548	102.6002937	100.7164099	98.87646901	97.07918497
190215A00005	2/15/2019	2.89	2/15/2024	2/15/2019	116.32977	113.5492261	110.8502386	108.2299367	105.6855657	103.2144846	100.8141613	98.48216668	96.21617033
181231A00007	12/31/2018	2.86	12/31/2021	12/31/2018	102.24447	101.8966402	101.5511637	101.2080209	100.8671883	100.5286426	100.1923611	99.85832103	99.52650025
190107A00035	1/7/2019	2.82	10/15/2021	1/7/2019	100.81864	100.6924612	100.5666101	100.441089	100.3158966	100.1910317	100.0664928	99.94227866	99.81838798
190109A00010	1/9/2019	2.98	1/9/2023	1/9/2019	109.26108	107.7936621	106.3532979	104.9393038	103.5510159	102.1877923	100.8490119	99.53407343	98.24239501
190110A00003	1/10/2019	2.97	1/10/2024	1/10/2019	115.89994	113.2409354	110.6569174	108.14535	105.7037975	103.3299204	101.021471	98.77628958	96.59230029

	Parallel-Shift Sensitivity Analysis												
8/31/2021					Price								
REFERENCE	SETTLEMENT	Rate	MATURITY	First/Next	-400	-300	-200	-100	Base	100	200	300	400
190110A00015	1/10/2019	2.88	1/18/2022	1/10/2019	102.58811	102.1872149	101.7894627	101.3948148	101.0032349	100.614687	100.2291361	99.84654748	99.4668869
190110A00016	1/10/2019	2.88	1/25/2022	1/10/2019	102.71919	102.2976168	101.8795095	101.4648206	101.0535083	100.6455314	100.2408494	99.83942256	99.44121161
181127A00027	11/27/2018	3.25	11/28/2022	11/27/2018	108.98418	107.5875059	106.2266025	104.9001063	103.6067242	102.3452273	101.1144467	99.91327016	98.74063853
181130A00025	11/30/2018	3	6/1/2022	11/30/2018	105.27392	104.463776	103.6660857	102.8805591	102.1069197	101.3448992	100.5942373	99.85468147	99.12598659
181204A00023	12/4/2018	3.16	12/3/2021	12/4/2018	101.8037	101.5372108	101.2721213	101.0084161	100.7460842	100.485115	100.225498	99.96722248	99.71027823
181212A00027	12/12/2018	2.99	12/12/2023	12/12/2018	115.81443	113.2381171	110.7328579	108.2961964	105.9257802	103.6193566	101.3747673	99.18994408	97.06290389
181212A00033	12/12/2018	2.99	12/12/2023	12/12/2018	115.81443	113.2381171	110.7328579	108.2961964	105.9257802	103.6193566	101.3747673	99.18994407	97.06290389
181219A00006	12/19/2018	3.06	12/19/2023	12/19/2018	115.73553	113.1464093	110.6289115	108.1805923	105.7991096	103.4822175	101.2277618	99.03367525	96.89797368
181108A00025	11/8/2018	3.44	7/31/2023	11/8/2018	113.93147	111.8001432	109.7199701	107.6894	105.7069432	103.7711647	101.880682	100.0341628	98.23032316
181114A00012	11/14/2018	3.13	11/14/2022	11/14/2018	108.71246	107.3603554	106.0418521	104.7557099	103.5007477	102.275841	101.0799191	99.91196136	98.77099483
181114A00024	11/14/2018	3.27	12/14/2021	11/14/2018	102.04932	101.7507805	101.4539963	101.1589548	100.8656405	100.5740383	100.2841331	99.99591005	99.7093544
181115A00055	11/15/2018	3.01	11/15/2021	11/15/2018	101.44474	101.2299108	101.0160045	100.8030159	100.590939	100.379768	100.1694969	99.96012001	99.75163148
181120A00024	11/20/2018	3.25	11/20/2023	11/20/2018	115.66304	113.1645432	110.7335371	108.3676742	106.0647069	103.8224857	101.6389543	99.51214389	97.44016941
181123A00016	11/23/2018	3.19	11/23/2022	11/23/2018	108.80667	107.427404	106.0830839	104.7723892	103.4940691	102.2469345	101.0298538	99.8417496	98.68159553
181005A00005	10/5/2018	3.31	10/5/2023	10/5/2018	114.93599	112.5889818	110.3025591	108.0747256	105.9035661	103.7872438	101.7239959	99.71213059	97.75002288
181005A00016	10/5/2018	3.26	1/10/2023	10/5/2018	109.67677	108.2032446	106.7569341	105.3371489	103.9432199	102.5745001	101.2303634	99.91020409	98.61343572
181016A00087	10/16/2018	3.31	10/16/2023	10/16/2018	115.14234	112.7593888	110.4385979	108.1778934	105.9752856	103.8288674	101.73681	99.69735904	97.70883105
181018A00014	10/18/2018	3.21	10/18/2021	10/18/2018	100.92418	100.7894627	100.6551155	100.5211411	100.3875379	100.2543044	100.1214389	99.98894003	99.85680614
181023A00020	10/23/2018	3.15	10/22/2021	10/23/2018	100.99267	100.8466222	100.7010062	100.5558223	100.4110685	100.2667429	100.1228436	99.97936875	99.83631638
181106A00003	11/6/2018	3.31	11/5/2021	11/6/2018	101.29024	101.1042816	100.919013	100.7344284	100.5505239	100.3672959	100.1847405	100.002854	99.82163281
180917A00032	9/17/2018	3.17	9/15/2023	9/17/2018	114.25228	111.974965	109.7553804	107.5916696	105.4820489	103.4248053	101.4182928	99.4609297	97.55119518
180918A00023	9/18/2018	3.17	9/18/2023	9/18/2018	114.30878	112.0214758	109.7923192	107.619428	105.5009994	103.4353026	101.4206748	99.45551812	97.53829687
180918A00037	9/18/2018	3.06	9/17/2021	9/18/2018	100.32027	100.2728341	100.225462	100.1781506	100.1308997	100.0837092	100.036579	99.989509	99.94249907
180919A00018	9/19/2018	3.12	6/20/2022	9/19/2018	105.65816	104.7891672	103.9344627	103.0936954	102.266526	101.4526263	100.6516787	99.86337544	99.08741871
180924A00052	9/24/2018	3.22	9/22/2023	9/24/2018	114.49272	112.1909035	109.947806	107.7615225	105.6302242	103.5521553	101.5256298	99.54902796	97.62079312
180928A00011	9/28/2018	3.12	7/15/2022	9/28/2018	106.141	105.1926681	104.2612781	103.3463768	102.4475287	101.5643135	100.6963258	99.84317371	99.00447898
180830A00039	8/30/2018	3.03	8/30/2023	8/30/2018	113.65667	111.4356488	109.2701086	107.1583013	105.098545	103.0892228	101.1287799	99.21572017	97.34860418
180831A00019	8/31/2018	3.21	9/2/2025	8/31/2018	127.28999	122.4755889	117.872631	113.4706706	109.2598348	105.2307908	101.3747129	97.68325176	94.14850668
180910A00007	9/10/2018	2.96	9/8/2023	9/10/2018	113.99882	111.7398492	109.5379001	107.3911507	105.2978505	103.2563174	101.264935	99.32214925	97.42646566
180910A00013	9/10/2018	3.08	9/11/2023	9/10/2018	113.98443	111.7225192	109.5177463	107.3682859	105.2723807	103.2283426	101.2345491	99.28944069	97.39151766
180910A00028	9/10/2018	3.56	9/9/2033	9/10/2018	182.36261	163.8519161	147.4492219	132.9007991	119.9847742	108.5069785	98.29735837	89.20686564	81.10476412
180911A00042	9/11/2018	2.99	9/11/2023	9/11/2018	114.11915	111.8494771	109.6372471	107.4806205	105.3778276	103.3271681	101.3270085	99.37577842	97.47196806
180730A00033	7/30/2018	3.11	7/29/2022	7/30/2018	106.40757	105.4144655	104.4398783	103.4832906	102.5442072	101.6221508	100.7166614	99.8272953	98.95362466

	Parallel-Shift Sensitivity Analysis												
8/31/2021					Price								
REFERENCE	SETTLEMENT	Rate	MATURITY	First/Next	-400	-300	-200	-100	Base	100	200	300	400
180731A00022	7/31/2018	3.47	7/31/2028	7/31/2018	146.78761	137.6423582	129.1393326	121.2299219	113.8694409	107.0167911	100.6341548	94.6867179	89.14241678
180810A00028	8/10/2018	2.91	8/10/2023	8/10/2018	113.35579	111.193713	109.0843647	107.0261199	105.0174184	103.056759	101.1426963	99.27383825	97.44884411
180813A00037	8/13/2018	2.95	2/14/2022	8/13/2018	103.13108	102.6498082	102.1730315	101.700687	101.2327129	100.7690486	100.3096348	99.85441297	99.40332593
180814A00010	8/14/2018	3.1	8/14/2025	8/14/2018	127.17349	122.406379	117.8465702	113.4839281	109.3088685	105.3123253	101.4857196	97.82093072	94.31026925
180828A00032	8/28/2018	3.49	8/29/2033	8/28/2018	181.16515	162.7764133	146.4791225	132.0219559	119.1850843	107.7760793	97.62636962	88.58817057	80.53182358
180615A00063	6/15/2018	3.2	6/15/2026	6/15/2018	133.09216	127.1329966	121.478822	116.1123467	111.0173621	106.1786623	101.5819762	97.21390486	93.0618633
180620A00014	6/20/2018	3.4	6/20/2028	6/20/2018	145.56638	136.6157088	128.2849001	120.5276359	113.3012937	106.5666349	100.2875188	94.43064263	88.9653048
180620A00015	6/20/2018	3.04	6/20/2023	6/20/2018	112.36579	110.3759383	108.4315782	106.531341	104.6739139	102.8580341	101.0824861	99.34609948	97.64774718
180627A00027	6/27/2018	2.87	6/27/2023	6/27/2018	112.4629	110.4452743	108.4741165	106.5480668	104.6658111	102.8260825	101.0276598	99.26936497	97.55006168
180629A00008	6/29/2018	3.02	6/29/2023	6/29/2018	112.49623	110.4774435	108.5051396	106.5779645	104.6946145	102.8538318	101.0544033	99.29515809	97.57496588
180719A00065	7/19/2018	3.36	7/20/2026	7/19/2018	133.6901	127.6208611	121.8667335	116.4096979	111.2328538	106.320348	101.6573047	97.22976005	93.02460183
180530A00025	5/30/2018	3.49	5/30/2030	5/30/2018	158.4272	146.2594093	135.1406247	124.9742419	115.6730583	107.158312	99.3588215	92.21021853	85.65426112
180530A00044	5/30/2018	2.87	5/31/2022	5/30/2018	105.07291	104.2678151	103.4750262	102.6942672	101.9252661	101.1677588	100.4214891	99.6862086	98.9616759
180530A00069	5/30/2018	2.87	5/31/2022	5/30/2018	105.07291	104.2678151	103.4750262	102.6942672	101.9252661	101.1677588	100.4214891	99.6862086	98.9616759
180531A00014	5/31/2018	2.8	5/31/2023	5/31/2018	111.82892	109.9006256	108.0158135	106.1730837	104.3710937	102.6085592	100.8842505	99.1969897	97.54564787
180614A00038	6/14/2018	3.08	6/14/2023	6/14/2018	112.32825	110.3572054	108.4309992	106.5482619	104.7076743	102.907969	101.1479284	99.42638192	97.74220367
180615A00061	6/15/2018	3.28	6/15/2028	6/15/2018	145.96141	136.9604648	128.5835352	120.7839281	113.5186854	106.748267	100.4362612	94.54912133	89.05592559
180403A00009	4/3/2018	2.91	4/3/2025	4/3/2018	124.05806	119.7993337	115.711448	111.7865647	108.0172536	104.3964687	100.9175256	97.57408093	94.3601122
180412A00036	4/12/2018	3.54	4/15/2038	4/12/2018	209.77483	181.6874557	157.8295385	137.5320587	120.235495	105.4713834	92.84706535	82.03305748	72.75258095
180514A00034	5/14/2018	3.07	5/14/2024	5/14/2018	118.82547	115.717309	112.7076015	109.7925512	106.9685408	104.2321197	101.5799949	99.00902251	96.5161996
180518A00012	5/18/2018	3.1	5/18/2022	5/18/2018	104.99634	104.2310182	103.4768534	102.7336016	102.0010269	101.2789002	100.5669988	99.86510644	99.17301288
180522A00038	5/22/2018	3.23	5/22/2025	5/22/2018	126.20226	121.7381158	117.458388	113.3543381	109.4176969	105.6406395	102.0157579	98.53603634	95.19482716
180530A00007	5/30/2018	2.66	11/30/2021	5/30/2018	101.64208	101.3842291	101.1276785	100.8724214	100.6184481	100.365749	100.1143146	99.8641354	99.61520209
180207A00012	2/7/2018	2.53	2/7/2022	2/7/2018	102.84728	102.3868882	101.9306208	101.4784203	101.0302322	100.5860033	100.1456812	99.70921437	99.27655236
180222A00026	2/22/2018	2.98	2/21/2025	2/22/2018	123.60751	119.4934734	115.5402167	111.7405675	108.0877133	104.5751829	101.1968268	97.94679964	94.81954323
180223A00026	2/23/2018	2.92	12/15/2022	2/23/2018	108.78242	107.3637834	105.9763617	104.6191259	103.2910925	101.991321	100.7189117	99.47300297	98.25276996
180308A00014	3/8/2018	2.79	9/15/2021	3/8/2018	100.27129	100.2294512	100.1876671	100.1459342	100.1042524	100.0626216	100.0210416	99.97951251	99.93803408
180328A00008	3/28/2018	2.85	3/25/2022	3/28/2018	103.80181	103.2033167	102.6117217	102.0269036	101.4487464	100.8771368	100.3119638	99.75311931	99.20049725
180329A00003	3/29/2018	3.08	3/29/2028	3/29/2018	143.17316	134.5586475	126.5261396	119.0331347	112.0404591	105.5119856	99.41438102	93.71687561	88.39105303
171206A00010	12/6/2017	2.45	12/6/2022	12/6/2017	108.05753	106.6540425	105.2845948	103.9479483	102.6429257	101.3684058	100.1233202	98.90664999	97.71742331
171208A00007	12/8/2017	2.47	12/9/2024	12/8/2017	120.48225	116.6720711	113.0034116	109.4701541	106.0664883	102.7868926	99.62611695	96.57916825	93.64129539
180116A00045	1/16/2018	2.49	1/11/2022	1/16/2018	102.31177	101.9318604	101.5547798	101.1804957	100.8089768	100.4401926	100.0741128	99.71070768	99.34994786
180118A00039	1/18/2018	3.09	1/19/2027	1/18/2018	135.16635	128.4207205	122.0566476	116.0505483	110.3804156	105.0257057	99.96723347	95.18707579	90.66848231

	Parallel-Shift Sensitivity Analysis												
8/31/2021					Price								
REFERENCE	SETTLEMENT	Rate	MATURITY	First/Next	-400	-300	-200	-100	Base	100	200	300	400
180125A00023	1/25/2018	2.57	1/25/2022	1/25/2018	102.59143	102.1701797	101.7523901	101.3380169	100.9270184	100.5193535	100.1149817	99.71386307	99.31595858
180206A00013	2/6/2018	2.72	2/6/2024	2/6/2018	116.12718	113.3710876	110.6951877	108.0966828	105.5728866	103.1212228	100.7392201	98.42450715	96.17480771
170929A00057	9/29/2017	2.16	9/29/2023	9/29/2017	112.63415	110.3246535	108.0746813	105.8822758	103.7455638	101.6627481	99.63210367	97.65197432	95.72076907
171002A00013	10/2/2017	2.23	11/30/2022	10/2/2017	107.69965	106.3054516	104.9471884	103.6234829	102.3330297	101.0745884	99.84697966	98.64908132	97.47982513
171006A00034	10/6/2017	2.27	10/6/2022	10/6/2017	106.80002	105.587841	104.4030794	103.2448144	102.1121647	101.0042877	99.92037738	98.85966247	97.82140435
171016A00045	10/16/2017	2.2	10/17/2022	10/16/2017	106.90837	105.6605064	104.4416647	103.2508449	102.0870889	100.9494821	99.83715037	98.74925839	97.68500723
171018A00003	10/18/2017	2.23	10/18/2023	10/18/2017	113.09222	110.7197607	108.4095613	106.1595262	103.9676531	101.8320233	99.75079737	97.72221112	95.74457199
171122A00009	11/22/2017	2.2	11/22/2022	11/22/2017	107.68677	106.3157597	104.9795077	103.6767074	102.4061148	101.1665471	99.95687864	98.77603762	97.62300301
170831A00053	8/31/2017	1.81	3/1/2022	8/31/2017	102.8754	102.3502856	101.8305172	101.3160115	100.8066888	100.3024712	99.80328228	99.30904714	98.81969237
170831A00054	8/31/2017	1.85	6/30/2022	8/31/2017	104.85734	103.9601767	103.0782961	102.2113127	101.3588519	100.5205513	99.69606077	98.88504132	98.08716514
170913A00003	9/13/2017	2.08	9/13/2022	9/13/2017	106.19889	105.0629835	103.951291	102.8630411	101.797498	100.7539567	99.73174095	98.73020201	97.74871725
170918A00007	9/18/2017	2.8	9/20/2027	9/18/2017	137.02949	129.3573405	122.1675618	115.4272427	109.1058845	103.1752152	97.60901551	92.38295914	87.47446642
170919A00076	9/19/2017	1.97	9/19/2022	9/19/2017	106.31764	105.160017	104.0274972	102.9192722	101.8345669	100.7726386	99.73277562	98.71429572	97.71654448
170920A00028	9/21/2017	2.16	9/21/2022	9/21/2017	106.42028	105.2578659	104.1207546	103.0081258	101.9191952	100.8532119	99.8094563	98.78723855	97.78589719
170622A00040	6/22/2017	3.41	6/23/2036	6/22/2017	193.24561	169.7585998	149.4736277	131.93162	116.7417359	103.570913	92.13505673	82.19161226	73.53329493
170629A00067	6/29/2017	2.19	6/29/2022	6/29/2017	105.0323	104.138763	103.2603754	102.3967543	101.54753	100.7123449	99.89085333	99.08272073	98.2876234
170728A00040	7/28/2017	2.44	1/27/2025	7/28/2017	121.15271	117.1726485	113.3453491	109.664129	106.1226375	102.7148346	99.43497458	96.27758937	93.23747404
170803A00019	8/3/2017	2.14	8/3/2022	8/3/2017	105.58066	104.576275	103.5909342	102.624096	101.675243	100.7438771	99.82951832	98.93170424	98.04998894
170803A00021	8/3/2017	2.5	8/5/2024	8/3/2017	118.04662	114.6955027	111.4576941	108.328739	105.3043798	102.3805504	99.5533661	96.81911439	94.17424645
170808A00037	8/8/2017	2.19	12/15/2022	8/8/2017	107.8024	106.3907953	105.0102782	103.659825	102.3384559	101.0452338	99.77926211	98.53968261	97.32567327
170612A00039	6/12/2017	2.29	6/12/2024	6/12/2017	117.02735	113.8530539	110.781779	107.8095316	104.9325016	102.1470527	99.44971308	96.83716654	94.3062444
170615A00015	6/15/2017	2.25	6/14/2024	6/15/2017	116.93971	113.7602909	110.6842078	107.7074602	104.8262321	102.0368806	99.3359269	96.72004723	94.18606514
170616A00018	6/16/2017	2.4	6/16/2025	6/16/2017	123.23778	118.7485714	114.4481664	110.3275747	106.3782849	102.5922387	98.96180336	95.47974744	92.13921651
170619A00067	6/19/2017	1.84	9/20/2021	6/19/2017	100.31404	100.2582233	100.2024854	100.146824	100.091239	100.0357303	99.98029752	99.92494068	99.86965957
170619A00084	6/19/2017	1.95	6/20/2022	6/19/2017	104.77695	103.910782	103.0588969	102.2209398	101.3965713	100.5854626	99.78729574	99.00176271	98.22856524
170622A00039	6/22/2017	3.36	6/22/2035	6/22/2017	186.77654	165.3527915	146.6805504	130.3878487	116.1549348	103.7067	92.80623868	83.24936511	74.85994161
170419A00025	4/19/2017	2.72	4/19/2027	4/19/2017	135.4026	128.2864257	121.5912236	115.2897994	109.3568626	103.7688831	98.50395897	93.54169481	88.86309
170502A00028	5/2/2017	2.84	5/3/2027	5/2/2017	136.37492	129.1798128	122.4125028	116.0452001	110.0520729	104.409099	99.09392829	94.08575727	89.3652134
170515A00010	5/15/2017	2.58	5/15/2024	5/15/2017	116.98074	113.9058376	110.9284039	108.0446808	105.2510871	102.5442068	99.92077992	97.37769394	94.91197594
170518A00034	5/18/2017	2.15	5/18/2023	5/18/2017	110.42346	108.5474187	106.7130544	104.9190457	103.1641279	101.4470894	99.76676971	98.12205579	96.51188017
170601A00018	6/1/2017	1.96	6/1/2022	6/1/2017	104.46945	103.6627747	102.8685124	102.086377	101.3160925	100.5573912	99.81001355	99.07370754	98.3482287
170609A00026	6/9/2017	2.3	6/9/2023	6/9/2017	110.78344	108.8425599	106.9457112	105.0915195	103.2786677	101.5058922	99.77198045	98.07576829	96.41613744
170228A00015	2/28/2017	2.87	5/28/2025	2/28/2017	124.20378	119.7762614	115.5323405	111.4632889	107.5608494	103.8172103	100.2249775	96.7771494	93.46709315

	Parallel-Shift Sensitivity Analysis												
8/31/2021					Price								
REFERENCE	SETTLEMENT	Rate	MATURITY	First/Next	-400	-300	-200	-100	Base	100	200	300	400
170322A00011	3/22/2017	2.48	3/22/2024	3/22/2017	116.25597	113.3526685	110.5375699	107.8074429	105.1591958	102.589871	100.0966379	97.67678663	95.32772203
170404A00007	4/4/2017	2.22	4/4/2022	4/4/2017	103.60589	102.9782848	102.3582694	101.7457026	101.1404508	100.5423836	99.95137362	99.36729646	98.79003071
170412A00045	4/12/2017	2.01	4/12/2022	4/12/2017	103.67475	103.0221283	102.377713	101.7413488	101.1128854	100.4921761	99.87907791	99.27345135	98.67516028
170417A00014	4/17/2017	1.95	4/18/2022	4/17/2017	103.73554	103.0647202	102.4025605	101.7488958	101.1035633	100.4664042	99.83726394	99.21599163	98.60244021
170417A00094	4/17/2017	1.95	4/19/2022	4/17/2017	103.75199	103.0781055	102.4129645	101.7563934	101.1082271	100.4683049	99.83647019	99.21257012	98.59645583
170117A00037	1/17/2017	2	1/18/2022	1/17/2017	102.27927	101.8786896	101.4812594	101.0869377	100.6956882	100.3074747	99.92226206	99.54001534	99.16070028
170119A00006	1/19/2017	2.85	1/21/2025	1/19/2017	121.98425	118.0234965	114.21358	110.5479516	107.0203826	103.6249468	100.3560044	97.20818657	94.17638092
170130A00010	1/30/2017	2.92	1/30/2025	1/30/2017	122.39199	118.3946165	114.5504485	110.8527922	107.2952806	103.8718587	100.576766	97.40452048	94.34990405
170203A00013	2/3/2017	3.67	2/1/2036	2/3/2017	195.57484	172.5447009	152.5711005	135.2265394	120.145591	107.015599	95.56880886	85.57570715	76.83937799
170215A00043	2/15/2017	2.7	8/28/2024	2/15/2017	119.0506	115.6101691	112.288341	109.0803552	105.9816667	102.9879394	100.0950351	97.29900337	94.59607155
170216A00044	2/16/2017	3.52	2/17/2032	2/16/2017	169.59918	154.3605324	140.6578665	128.3269697	117.2220207	107.2134409	98.18600897	90.03720259	82.67573923
160923A00033	9/23/2016	2.04	9/23/2026	9/23/2016	128.35241	122.1670659	116.3166309	110.7811943	105.5421379	100.5820431	95.88460711	91.43456533	87.21761949
160926A00022	9/26/2016	1.6	9/24/2021	9/26/2016	100.35459	100.2876646	100.2208416	100.1541171	100.0874908	100.0209627	99.95453238	99.88819979	99.82196466
160928A00014	9/28/2016	1.37	9/28/2021	9/28/2016	100.4031	100.3249368	100.2468954	100.1689784	100.0911856	100.0135168	99.93597149	99.85854954	99.78125062
161006A00012	10/6/2016	1.98	10/7/2024	10/6/2016	117.82869	114.2668789	110.831899	107.5184792	104.3215984	101.2364756	98.25855708	95.38350381	92.60717983
161013A00037	10/13/2016	1.52	10/13/2021	10/13/2016	100.63741	100.5169341	100.396762	100.2768933	100.157327	100.0380617	99.91909632	99.80042967	99.68206057
161031A00006	10/31/2016	1.76	11/1/2021	10/31/2016	100.94354	100.769399	100.5958551	100.4229065	100.2505502	100.0787833	99.90760264	99.73700536	99.56698848
160616A00028	6/16/2016	1.81	6/16/2023	6/16/2016	109.97794	108.023503	106.1136824	104.2471179	102.422505	100.63859	98.89416742	97.18807788	95.51920583
160628A00031	6/28/2016	1.77	6/28/2023	6/28/2016	110.08261	108.0906672	106.14463	104.2431616	102.3849704	100.5688107	98.79348101	97.0578221	95.3607152
160707A00032	7/7/2016	1.52	7/7/2023	7/7/2016	110.02169	107.9977374	106.0210573	104.0902633	102.2040182	100.3610325	98.56006237	96.79990755	95.07940978
160727A00002	7/27/2016	1.87	7/27/2023	7/27/2016	110.7095	108.6234831	106.5873968	104.5997407	102.659067	100.7639814	98.91313997	97.10524743	95.33905488
160830A00035	8/30/2016	2.06	8/30/2024	8/30/2016	117.02789	113.6130117	110.3163406	107.1331109	104.0587809	101.089018	98.21968808	95.44684465	92.76671957
160916A00014	9/16/2016	1.66	9/16/2021	9/16/2016	100.239	100.194413	100.1498839	100.1054105	100.0609928	100.0166307	99.97232399	99.92807267	99.88387659
150827A00029	8/27/2015	2.74	8/27/2024	8/27/2015	119.66169	116.2030481	112.863713	109.638891	106.5240066	103.5146948	100.6067901	97.79631612	95.07947576
150909A00018	9/9/2015	2.28	9/9/2021	9/9/2015	100.14995	100.1248756	100.0998254	100.0748017	100.0498044	100.0248336	99.99988916	99.97497106	99.95007926
151223A00074	12/23/2015	3.01	12/23/2027	12/23/2015	141.12533	132.938671	125.2852716	118.1275511	111.4307689	105.1627941	99.29389714	93.79655761	88.64528957
160119A00025	1/19/2016	3.05	1/19/2028	1/19/2016	140.5422	132.3259285	124.6492439	117.4738592	110.7643911	104.4881284	98.61481677	93.11646277	87.96715401
160122A00029	1/22/2016	2.48	1/22/2025	1/22/2016	121.22001	117.2550705	113.4417201	109.7733544	106.2436942	102.8467666	99.57688831	96.42864982	93.3969008
160329A00006	3/29/2016	2.12	3/29/2023	3/29/2016	109.31701	107.6063846	105.9314679	104.2912156	102.6846239	101.1107276	99.56859822	98.05734188	96.57609811
150610A00008	6/10/2015	3.58	6/10/2030	6/10/2015	161.46162	149.0230197	137.6607997	127.2755012	117.7773714	109.0853665	101.1262635	93.83386704	87.14829997
150610A00037	6/10/2015	2.48	6/10/2022	6/10/2015	105.03463	104.1979393	103.3745533	102.5641599	101.7664531	100.9811367	100.2079234	99.44653473	98.69670089
150819A00013	8/19/2015	3.51	8/19/2030	8/19/2015	160.02301	147.4653549	136.0140394	125.5651541	116.0250736	107.3093881	99.34195241	92.0540376	85.38357374
150821A00017	8/21/2015	2.22	8/23/2022	8/21/2015	106.1177	105.0462704	103.9964062	102.9674624	101.9588185	100.9698781	100.0000682	99.04883752	98.11565602

	Parallel-Shift Sensitivity Analysis												
8/31/2021					Price								
REFERENCE	SETTLEMENT	Rate	MATURITY	First/Next	-400	-300	-200	-100	Base	100	200	300	400
150824A00095	8/24/2015	2.34	8/24/2023	8/24/2015	112.42394	110.2285029	108.087649	105.9996692	103.9629178	101.9758127	100.0368316	98.14451001	96.29743804
150826A00039	8/26/2015	3.22	8/27/2029	8/26/2015	152.89559	141.9614303	131.9022708	122.6432008	114.1161023	106.2589979	99.01546757	92.33412359	86.16813765
150601A00594	6/1/2015	3.2	10/20/2026	6/1/2015	134.06572	127.6678277	121.6174606	115.8938158	110.4774523	105.3501935	100.4950379	95.89607613	91.53841472
150601A00609	6/1/2015	2.52	9/30/2021	6/1/2015	100.51733	100.4335786	100.3499611	100.2664809	100.1831374	100.0999306	100.0168599	99.93392514	99.85112599
150601A00642	6/1/2015	2.6	3/31/2022	6/1/2015	103.74369	103.127582	102.5187672	101.9171196	101.3225134	100.7348256	100.1539362	99.57972781	99.01208578
150601A00650	6/1/2015	2.75	3/31/2023	6/1/2015	110.32772	108.6025344	106.9134187	105.2593117	103.6391967	102.0520962	100.4970698	98.9732127	97.47965374
150601A00689	6/1/2015	2.81	2/28/2025	6/1/2015	122.34529	118.2444017	114.304582	110.5186125	106.879639	103.3811516	100.0169661	96.78120519	93.66828156
150601A01024	6/1/2015	5.33	2/27/2026	6/1/2015	140.47748	134.7456064	129.2885348	124.0915343	119.1407469	114.4231292	109.9263998	105.6389906	101.5500015
150413A00034	4/13/2015	2.25	4/13/2022	4/13/2015	103.77694	103.1218088	102.4749413	101.8361793	101.2053712	100.5823687	99.96702765	99.35920712	98.75876975
150506A00014	5/6/2015	2.21	5/6/2022	5/6/2015	104.21376	103.486957	102.7702747	102.063499	101.3664256	100.6788555	100.0005953	99.3314568	98.67125682
150601A00485	6/1/2015	3.09	6/21/2024	6/1/2015	119.44131	116.2023113	113.0687884	110.0366872	107.1021372	104.2614404	101.5110621	98.8476227	96.26788968
150601A00490	6/1/2015	3.19	7/2/2024	6/1/2015	119.46556	116.2014429	113.044212	109.9897936	107.0342908	104.1739765	101.405284	98.72480001	96.12925671
150601A00495	6/1/2015	2.99	6/27/2024	6/1/2015	119.25217	115.9965515	112.8473949	109.8006278	106.85236	103.9988716	101.2366048	98.56215549	95.972266
150601A00523	6/1/2015	4.55	7/25/2031	6/1/2015	177.22839	162.4437275	149.0639919	136.9467215	125.9646408	116.0039706	106.9629325	98.7504255	91.28485502
131217A00023	12/17/2013	3.74	1/2/2024	12/17/2013	117.66867	115.0126659	112.4307847	109.9205434	107.479556	105.1055297	102.7962612	100.5496325	98.36360691
140131A00025	1/31/2014	3.28	1/30/2023	1/31/2014	110.09324	108.556782	107.0497331	105.5713176	104.1207879	102.6974216	101.3005208	99.9294112	98.58344058
141028A00012	10/28/2014	2.73	10/28/2022	10/28/2014	107.73408	106.4458361	105.1883251	103.9604582	102.7611962	101.5895484	100.444569	99.32535522	98.23104453
150105A00027	1/5/2015	2.23	1/5/2022	1/5/2015	102.14669	101.7841851	101.4242522	101.0668668	100.7120017	100.3596303	100.0097264	99.66226393	99.31721751
150213A00025	2/13/2015	2.37	2/14/2022	2/13/2015	102.85923	102.3787208	101.9026981	101.4311024	100.963872	100.5009465	100.0422665	99.58777362	99.13741068
150316A00043	3/16/2015	2.37	3/16/2023	3/16/2015	109.73854	108.0585897	106.4132845	104.8016316	103.2226745	101.675493	100.1592007	98.67294418	97.21590088
120320A00005	3/20/2012	3.18	3/30/2022	3/20/2012	104.09114	103.4768235	102.8697407	102.2697692	101.6767847	101.0906656	100.5112934	99.93855209	99.37232839
120517A00007	5/17/2012	2.42	5/31/2023	5/17/2012	111.13147	109.2097834	107.3314519	105.4950795	103.6993272	101.9429143	100.2246142	98.54325231	96.89770272
121031A00004	10/31/2012	2.07	10/31/2022	10/31/2012	107.14467	105.848214	104.5829722	103.347833	102.1417327	100.963657	99.81263844	98.68775365	97.58812075
121227A00024	12/27/2012	2.2	12/30/2021	12/27/2012	102.00232	101.6578819	101.315758	100.9759292	100.6383727	100.3030656	99.96998563	99.63911076	99.31041916
130712A00005	7/12/2013	3.25	7/17/2023	7/12/2013	113.58288	111.4925292	109.4515332	107.458424	105.5117869	103.6102583	101.7525239	99.9373163	98.16341289
131024A00019	10/24/2013	3.23	10/30/2023	10/24/2013	115.57394	113.1362395	110.7630987	108.4523203	106.201802	104.009531	101.8735791	99.79209808	97.76331614
111024A00027	10/24/2011	3.11	10/30/2023	10/24/2011	115.29918	112.8646593	110.494634	108.1869053	105.9393732	103.7500267	101.6169393	99.53826473	97.51223273
111216A00001	12/16/2011	3.95	12/30/2031	12/16/2011	173.95952	158.6912886	144.9366818	132.5362057	121.3479886	111.2457489	102.1170088	93.86152075	86.38988028
111223A00006	12/23/2011	2.98	12/30/2021	12/23/2011	102.26655	101.9215486	101.5788671	101.2384835	100.9003748	100.5645184	100.2308919	99.89947315	99.57024036
120113A00012	1/13/2012	3.62	1/15/2027	1/13/2012	138.25901	131.4409315	125.0064461	118.9319281	113.1953298	107.7760644	102.654903	97.81387752	93.23619209
120127A00018	1/27/2012	3.64	2/1/2027	1/27/2012	138.67934	131.7887894	125.2889472	119.1555638	113.3660154	107.8991903	102.7353803	97.85617975	93.24439367
120202A00020	2/2/2012	2.7	2/15/2022	2/2/2012	103.03214	102.548204	102.0688198	101.5939194	101.1234399	100.6573197	100.1954983	99.73791638	99.28451565
210226A00012	2/26/2021	2.31	2/26/2036	2/26/2021	172.17446	150.7661601	132.2719341	116.2775701	102.4297262	90.42671905	80.01074385	70.96129896	63.08962337

	Parallel-Shift Sensitivity Analysis												
8/31/2021					Price								
REFERENCE	SETTLEMENT	Rate	MATURITY	First/Next	-400	-300	-200	-100	Base	100	200	300	400
210304A00004	3/4/2021	0.58	3/4/2024	3/4/2021	110.49013	107.7280376	105.0490317	102.4501213	99.92843832	97.48123636	95.10588437	92.7998612	90.56075018
210604A00005	6/4/2021	0.3	12/2/2022	6/4/2021	105.36902	103.9861558	102.638399	101.3244283	100.0429838	98.79286794	97.57294126	96.38211898	95.21936786
210804A00008	8/6/2021	2.28	8/4/2028	8/6/2021	137.55045	128.7220117	120.5208105	112.8990499	105.8128078	99.22170426	93.08859911	87.37931653	82.0623945
051003A00009	10/3/2005	5.15	10/15/2025	10/3/2005	136.75991	131.596525	126.6630616	121.9479297	117.4401956	113.1295388	109.0062137	105.0610136	101.2852378
100809A00029	8/9/2010	4.23	8/15/2025	8/9/2010	131.36029	126.5222698	121.893293	117.4631757	113.2222874	109.1615168	105.2722409	101.5462958	97.97595043
201030A00001	11/2/2020	2.54	10/29/2040	11/2/2020	194.5646	164.1115923	138.9176547	118.037373	100.7000989	86.27687338	74.25374771	64.21023679	55.80189833
201030A00003	11/2/2020	2.58	10/29/2040	11/2/2020	195.51791	164.9719461	139.696939	118.7457622	101.3463208	86.86843112	74.79710612	64.71097849	56.26485497
201116A00010	11/16/2020	0.57	11/15/2023	11/16/2020	109.3139	106.9061561	104.5635274	102.2837485	100.0646571	97.90418543	95.80035428	93.7512688	91.75511391
201130A00005	11/30/2020	0.28	11/30/2022	11/30/2020	105.33081	103.9504028	102.6057522	101.2954857	100.0183006	98.77295936	97.55828515	96.37315855	95.21651398
210106A00006	1/8/2021	0.48	7/17/2023	1/8/2021	107.81792	105.7914379	103.8129345	101.8809816	99.99420605	98.15128453	96.35094093	94.59194452	92.87310805
210201A00012	2/3/2021	0.75	11/17/2025	2/3/2021	117.31444	112.4633401	107.8373974	103.4249058	99.2148387	95.19680641	91.36101478	87.69822742	84.19973018
200720A00035	7/20/2020	1.81	7/20/2035	7/20/2020	161.29665	141.5687584	124.4485678	109.5771958	96.64678823	85.39304435	75.58886959	67.03897986	59.57531029
200818A00004	8/18/2020	0.92	8/18/2026	8/18/2020	120.78711	114.9524411	109.4301057	104.2018257	99.25048296	94.56004212	90.11547674	85.90270052	81.90850377
200922A00025	9/24/2020	2.61	9/26/2022	9/24/2020	107.00456	105.8228696	104.6672111	103.5367315	102.4306145	101.3480791	100.288377	99.25079157	98.23463569
200922A00038	9/24/2020	2.33	9/25/2023	9/24/2020	112.60851	110.3181934	108.0865716	105.9117272	103.791825	101.7251034	99.70987119	97.74450377	95.8274402
200925A00003	9/25/2020	0.59	9/25/2024	9/25/2020	112.56899	109.1427708	105.8379981	102.6496621	99.57299399	96.60345033	93.73670103	90.9686178	88.29526343
201006A00003	10/6/2020	0.29	10/6/2022	10/6/2020	104.68822	103.4868037	102.3126857	101.1649499	100.0427163	98.94514353	97.87142698	96.82079663	95.79251528
200513A00003	5/13/2020	0.68	5/13/2025	5/13/2020	115.79738	111.5652591	107.5090969	103.6205508	99.89173035	96.3151676	92.88379148	89.59090386	86.43015729
200604A00005	6/4/2020	0.89	6/4/2025	6/4/2020	116.25375	111.9596152	107.8459756	103.9041938	100.1261047	96.50398391	93.03052063	89.69879247	86.50224224
200604A00013	6/4/2020	2.21	6/4/2035	6/4/2020	167.4706	147.487795	130.108467	114.9781933	101.7925072	90.2896342	80.24431393	71.46254351	63.77710016
200615A00004	6/15/2020	0.56	6/15/2022	6/15/2020	103.47786	102.6340551	101.8039354	100.9871663	100.183428	99.39241061	98.61381407	97.8473477	97.09272983
200710A00006	7/10/2020	0.4	7/10/2023	7/10/2020	107.87601	105.8644828	103.9002182	101.9818194	100.1079439	98.27729749	96.48863193	94.74074293	93.03246844
200716A00015	7/20/2020	1.54	7/19/2024	7/20/2020	114.81924	111.5713782	108.4320755	105.3971164	102.4624761	99.62430773	96.87893329	94.22283547	91.65264955
200427A00010	4/27/2020	0.68	4/27/2022	4/27/2020	102.9579	102.2639818	101.5793672	100.9038693	100.2373071	99.57950447	98.93028972	98.2894957	97.65695956
200429A00046	5/1/2020	2.07	4/30/2025	5/1/2020	120.57085	116.304688	112.2129913	108.2876061	104.5208109	100.9052918	97.43411809	94.10071962	90.89886548
200429A00051	5/1/2020	2.54	4/30/2025	5/1/2020	122.43413	118.1321972	114.0058074	110.0467687	106.2473198	102.6001088	99.09816889	95.73489512	92.50402361
200430A00006	4/30/2020	0.61	4/29/2022	4/30/2020	102.93543	102.2356367	101.5452961	100.8642221	100.1922296	99.52913799	98.87477166	98.2289595	97.59153484
200511A00021	5/11/2020	1.53	2/1/2029	5/11/2020	133.57482	124.2530781	115.6400743	107.6784284	100.3156793	93.50383794	87.19898475	81.36090617	75.95276474
200511A00023	5/11/2020	1.7	2/3/2031	5/11/2020	143.13485	130.7411363	119.5111908	109.3298607	100.0939176	91.71077287	84.09733296	77.1789833	70.88868537
200310A00065	3/13/2020	1.1	3/13/2025	3/13/2020	116.18775	112.1591884	108.2912748	104.5767243	101.0086229	97.58040835	94.28585026	91.11903115	88.07432895
200312A00017	3/16/2020	1.09	2/15/2023	3/16/2020	107.0834	105.5182842	103.9841152	102.4800532	101.0052875	99.55903577	98.14054318	96.74908089	95.38394506
200317A00026	3/17/2020	1.22	3/15/2024	3/17/2020	112.32641	109.5066478	106.7722683	104.1201649	101.5473636	99.05101799	96.62840293	94.2769084	91.99403388
200325A00030	3/25/2020	1.5	3/25/2025	3/25/2020	118.45651	114.3323648	110.3738102	106.573274	102.9235723	99.41789089	96.04976353	92.81305206	89.70192772

	Parallel-Shift Sensitivity Analysis												
8/31/2021					Price								
REFERENCE	SETTLEMENT	Rate	MATURITY	First/Next	-400	-300	-200	-100	Base	100	200	300	400
200330A00041	4/1/2020	1.09	4/1/2025	4/1/2020	116.358	112.266844	108.3406954	104.5719766	100.9535045	97.47846695	94.14040094	90.93317262	87.85095844
200417A00009	4/17/2020	1.35	4/16/2027	4/17/2020	125.69097	118.9079899	112.5291209	106.5282015	100.880903	95.56459006	90.55819367	85.84209446	81.39801516
200225A00006	2/25/2020	1.57	2/25/2022	2/25/2020	102.64968	102.1375094	101.6304299	101.1283696	100.6312544	100.1390116	99.6515699	99.16885929	98.69081122
200227A00006	2/27/2020	1.47	2/27/2025	2/27/2020	117.42805	113.4208156	109.5717485	105.8737497	102.3200759	98.90432304	95.62040745	92.46254765	89.42524768
200227A00016	2/27/2020	1.47	2/27/2025	2/27/2020	117.42805	113.4208156	109.5717485	105.8737497	102.3200759	98.90432304	95.62040745	92.46254765	89.42524768
200228A00016	2/28/2020	1.35	2/22/2024	2/28/2020	112.40113	109.6487924	106.97817	104.3863565	101.8705657	99.42812762	97.05648327	94.75317888	92.51586109
200228A00039	2/28/2020	1.33	4/28/2023	2/28/2020	108.43034	106.6365649	104.8816336	103.164353	101.4835789	99.83821355	98.22720368	96.64953768	95.1042438
200304A00052	3/6/2020	2.11	3/8/2027	3/6/2020	129.95611	123.1819216	116.8026456	110.7932004	105.1302257	99.7919566	94.75810625	90.00975779	85.52926497
200207A00016	2/7/2020	1.74	2/7/2024	2/7/2020	113.21146	110.4981627	107.8639814	105.3061532	102.822027	100.4090605	98.06481467	95.78694913	93.5732173
200210A00005	2/10/2020	1.77	2/10/2027	2/10/2020	128.59073	121.9148094	115.6247795	109.6963679	104.1069534	98.83544315	93.86216149	89.16874785	84.73806214
200210A00021	2/10/2020	1.76	2/10/2025	2/10/2020	118.27606	114.3137545	110.5054632	106.844373	103.3240116	99.93822745	96.68117153	93.54728109	90.53126381
200214A00015	2/18/2020	1.76	8/6/2024	2/18/2020	115.7402	112.4215677	109.2155461	106.1176912	103.1237639	100.2297155	97.43167856	94.7259572	92.10901874
200224A00018	2/24/2020	1.58	8/19/2024	2/24/2020	115.34371	111.9901821	108.7518305	105.624059	102.6024806	99.68290815	96.8613443	94.13397141	91.49714257
200224A00029	2/24/2020	1.56	2/24/2023	2/24/2020	107.92266	106.3214676	104.752471	103.2147829	101.7075453	100.2299314	98.78114333	97.36041166	95.96699369
200122A00034	1/22/2020	1.87	1/22/2024	1/22/2020	113.31684	110.6531985	108.0658497	105.55218	103.1096775	100.7359309	98.42862527	96.1855373	94.00453119
200123A00048	1/23/2020	1.7	1/23/2025	1/23/2020	118.37197	114.4547057	110.6878084	107.0647181	103.5791927	100.2252948	96.99737542	93.89005804	90.89822423
200129A00017	2/3/2020	1.75	8/15/2022	2/3/2020	105.39813	104.3573397	103.33702	102.3365713	101.3554174	100.3930042	99.44879857	98.52228756	97.61297725
200130A00025	1/30/2020	1.54	1/30/2023	1/30/2020	107.71114	106.1901729	104.6983862	103.2350093	101.7992997	100.3905404	99.00803864	97.65112502	96.31915226
200131A00016	1/31/2020	1.73	1/31/2025	1/31/2020	118.02106	114.0989	110.3279417	106.7015522	103.2134299	99.85758206	96.62830818	93.52018407	90.5280469
200203A00050	2/3/2020	1.54	2/3/2022	2/3/2020	102.34202	101.8947016	101.4512892	101.0117271	100.5759653	100.1439547	99.71564703	99.29099482	98.86995143
191125A00036	11/25/2019	2.29	11/23/2029	11/25/2019	143.87265	133.0613948	123.1445552	114.0433233	105.6862359	98.00845168	90.95110488	84.46072427	78.48871227
191126A00026	11/26/2019	1.91	11/25/2026	11/26/2019	128.45208	122.0468674	115.9989566	110.2864597	104.8889531	99.7873729	94.96391631	90.40195052	86.0859289
191220A00001	12/20/2019	2.62	12/19/2031	12/20/2019	157.75044	143.3877908	130.4676919	118.837145	108.3601221	98.91560767	90.39587255	82.70495375	75.75731535
191230A00012	12/30/2019	1.77	12/1/2023	12/30/2019	112.70582	110.2006068	107.7641588	105.3940519	103.0879667	100.8436868	98.65909268	96.53215666	94.46093806
200109A00014	1/14/2020	1.93	8/15/2022	1/14/2020	105.57609	104.5343379	103.5130703	102.5116866	101.5296103	100.5662869	99.62118327	98.69378598	97.7836009
200110A00013	1/10/2020	1.76	1/10/2024	1/10/2020	113.25216	110.6185074	108.0594761	105.572538	103.1552623	100.8053148	98.52045299	96.29852247	94.13745252
191106A00004	11/6/2019	2.01	11/6/2024	11/6/2019	117.83881	114.1942974	110.6821197	107.2966482	104.0325352	100.8846959	97.84829347	94.91872504	92.09160852
191106A00022	11/6/2019	2.34	1/2/2030	11/6/2019	144.86949	133.8700228	123.7900922	114.5480327	106.0698182	98.28831306	91.14259928	84.57737227	78.54239825
191108A00011	11/8/2019	2.08	10/18/2024	11/8/2019	117.80436	114.2208357	110.7656485	107.433423	104.2190465	101.1176532	98.12461019	95.23550482	92.44613264
191113A00016	11/15/2019	2.02	8/15/2024	11/15/2019	116.68481	113.3229819	110.0760336	106.9393948	103.9087081	100.979814	98.14874033	95.41169315	92.76504723
191119A00027	11/19/2019	1.8	11/19/2024	11/19/2019	117.83435	114.1342468	110.5701413	107.1361719	103.8267764	100.6366699	97.56082909	94.5944771	91.73306948
191122A00005	11/22/2019	2.03	11/22/2027	11/22/2019	133.77848	125.9417263	118.6137602	111.7588292	105.3438835	99.33835954	93.71397897	88.44456512	83.50587544
191002A00016	10/2/2019	1.79	10/2/2023	10/2/2019	111.53266	109.2328483	106.9924159	104.8094132	102.6819677	100.6082829	98.58663478	96.6153679	94.6928924

	Parallel-Shift Sensitivity Analysis												
8/31/2021					Price								
REFERENCE	SETTLEMENT	Rate	MATURITY	First/Next	-400	-300	-200	-100	Base	100	200	300	400
191009A00018	10/9/2019	1.74	10/12/2021	10/9/2019	100.63745	100.5198937	100.4026272	100.2856491	100.1689582	100.0525534	99.93643379	99.82059813	99.70504539
191009A00028	10/9/2019	1.76	10/9/2024	10/9/2019	116.60851	113.0728338	109.6631381	106.3741842	103.2009836	100.1387865	97.18306887	94.32951994	91.57403079
191011A00013	10/11/2019	1.88	10/11/2022	10/11/2019	106.43666	105.2108321	104.0131128	102.8425408	101.6982012	100.57922	99.4847614	98.41402611	97.36624922
191031A00033	10/31/2019	2.2	5/31/2028	10/31/2019	136.11088	127.5653274	119.613671	112.211449	105.3177656	98.89498473	92.90845243	87.32624472	82.11893789
191104A00023	11/4/2019	2.24	8/4/2028	11/4/2019	137.2377	128.4204906	120.2299424	112.618294	105.541656	98.95967889	92.83525098	87.13422293	81.82515745
190923A00020	9/23/2019	2.05	9/24/2029	9/23/2019	142.52188	131.9133091	122.1706371	113.2186764	104.9891341	97.41994911	90.45469263	84.04203064	78.13523944
190925A00004	9/25/2019	1.7	9/24/2024	9/25/2019	116.71507	113.2128277	109.8343129	106.5744262	103.4283137	100.3913511	97.45913144	94.62745284	91.89230807
190930A00008	9/30/2019	1.9	10/10/2023	9/30/2019	111.89114	109.5632244	107.2958711	105.0870663	102.9348826	100.8374719	98.79306142	96.79994997	94.85650442
190930A00035	9/30/2019	1.93	9/30/2024	9/30/2019	117.0509	113.5361571	110.1457827	106.8746386	103.7178347	100.6707132	97.72883531	94.88797004	92.14408268
190930A00070	9/30/2019	1.93	9/27/2024	9/30/2019	117.00825	113.5038237	110.1231444	106.8611141	103.7128776	100.6738093	97.73950115	94.90575036	92.16854885
190930A00075	9/30/2019	2.19	9/29/2027	9/30/2019	133.01563	125.4379073	118.3405241	111.6905091	105.4573273	99.61268434	94.13035065	88.98599978	84.15706081
190830A00023	8/30/2019	1.78	9/15/2022	8/30/2019	105.90887	104.7683672	103.6523154	102.5599355	101.4904806	100.4432349	99.41751206	98.41265383	97.42802857
190904A00020	9/4/2019	1.69	9/1/2023	9/4/2019	110.86688	108.6696361	106.5275452	104.4388594	102.4019014	100.4150594	98.47678301	96.58558117	94.74001906
190910A00017	9/16/2019	1.86	9/16/2024	9/16/2019	116.62332	113.16039	109.8188507	106.593746	103.4803502	100.4741592	97.57087818	94.7664107	92.05684818
190910A00027	9/10/2019	1.86	9/9/2022	9/10/2019	105.89866	104.7770862	103.6791636	102.6041525	101.5513415	100.5200484	99.50961886	98.51942461	97.54886248
190918A00003	9/18/2019	1.95	9/19/2022	9/18/2019	106.15753	105.0029741	103.8734291	102.7680874	101.6861775	100.6269603	99.58972765	98.57380051	97.57852756
190923A00012	9/23/2019	2.43	9/25/2034	9/23/2019	171.09804	151.6983897	134.7111008	119.8219397	106.7591325	95.28743627	85.20306439	76.32933847	68.51296027
190819A00022	8/19/2019	1.8	8/19/2024	8/19/2019	116.04287	112.6783923	109.4293783	106.2912179	103.259515	100.3300734	97.49888713	94.76213051	92.1161487
190820A00019	8/20/2019	1.76	8/21/2023	8/20/2019	110.85405	108.6904793	106.5804536	104.5223082	102.5144376	100.5552976	98.64340216	96.77732113	94.95567748
190826A00028	8/26/2019	1.56	8/26/2022	8/26/2019	105.49635	104.4189835	103.3635032	102.3292506	101.3155906	100.3219132	99.34763221	98.39218432	97.45502773
190826A00030	8/26/2019	1.72	8/26/2026	8/26/2019	126.1966	120.164536	114.4555369	109.050632	103.9320604	99.08319068	94.48844237	90.13321437	86.00381824
190826A00065	8/26/2019	2.09	8/28/2029	8/26/2019	140.90217	130.5347804	121.0051083	112.2411174	104.1773134	96.75411942	89.91731408	83.6175244	77.80976986
190828A00019	8/28/2019	2	3/28/2028	8/28/2019	133.84002	125.5988928	117.918407	110.7575169	104.0783906	97.8461407	92.02858025	86.59600001	81.52096551
190806A00027	8/6/2019	1.71	8/7/2023	8/6/2019	110.85492	108.7281807	106.6532098	104.6284181	102.6522794	100.723325	98.84014027	97.00136302	95.20568061
190808A00050	8/8/2019	1.7	8/8/2024	8/8/2019	116.0611	112.7198372	109.4923584	106.3741626	103.3609507	100.4486181	97.63324405	94.91108303	92.27855531
190809A00020	8/9/2019	2.44	8/9/2034	8/9/2019	170.64158	151.4686924	134.6589221	119.9071253	106.9490296	95.55558046	85.52809084	76.69408001	68.90369995
190809A00021	8/9/2019	2.12	8/9/2029	8/9/2019	142.56024	132.1215612	122.5224347	113.6909932	105.5618702	98.07557854	91.17795362	84.81965258	78.95570266
190814A00003	8/14/2019	2.01	8/14/2029	8/14/2019	141.62111	131.2026513	121.6243877	112.8142426	104.7066684	97.2420245	90.36601769	84.0291975	78.18650183
190815A00007	8/15/2019	1.81	7/6/2023	8/15/2019	110.27827	108.2601766	106.2890515	104.3635219	102.4822637	100.6439995	98.84749715	97.09156761	95.37506307
190724A00025	7/24/2019	1.96	7/24/2023	7/24/2019	111.1449	109.0579084	107.0207545	105.0319415	103.0900276	101.1936235	99.34139061	97.53203844	95.76432272
190726A00017	7/26/2019	2.44	7/24/2026	7/26/2019	128.73844	122.7835728	117.1402431	111.7905432	106.7176887	101.9059393	97.34052842	93.00759838	88.89413963
190729A00009	7/29/2019	2.19	7/29/2024	7/29/2019	116.97111	113.6588348	110.4579938	107.3642245	104.3733641	101.4814352	98.68463686	95.97933569	93.36205722
190731A00029	7/31/2019	1.93	7/29/2022	7/31/2019	105.40777	104.4182227	103.4471802	102.4941239	101.5585579	100.6400043	99.73800252	98.8521085	97.98189388

	Parallel-Shift Sensitivity Analysis												
8/31/2021					Price								
REFERENCE	SETTLEMENT	Rate	MATURITY	First/Next	-400	-300	-200	-100	Base	100	200	300	400
190802A00004	8/2/2019	2	8/2/2022	8/2/2019	105.43058	104.430095	103.4485216	102.4853267	101.5399979	100.612042	99.70098348	98.80636433	97.92774279
190805A00048	8/5/2019	1.88	8/5/2022	8/5/2019	105.36493	104.3554533	103.3652368	102.3937366	101.4404262	100.5047983	99.58636456	98.68465449	97.79921452
190617A00027	6/17/2019	2.21	6/16/2023	6/17/2019	110.73008	108.7683625	106.8513996	104.9778298	103.1463446	101.3556862	99.60464579	97.89206031	96.21681084
190619A00007	6/19/2019	2.21	6/20/2022	6/19/2019	104.905	104.0394604	103.1881712	102.3507799	101.526948	100.7163481	99.9186632	99.1335864	98.36082041
190620A00055	6/25/2019	2.08	4/17/2023	6/25/2019	109.55532	107.7849596	106.0524029	104.3565093	102.6961835	101.0703743	99.47807155	97.91830472	96.39014058
190701A00008	7/3/2019	2.1	7/3/2023	7/3/2019	110.79378	108.7796462	106.8121761	104.8900114	103.0118419	101.1764036	99.38247702	97.62888499	95.91449116
190712A00001	7/12/2019	2.05	7/12/2024	7/12/2019	116.76284	113.4966306	110.338901	107.2854673	104.3323275	101.4756556	98.71179272	96.03723918	93.44864632
190717A00007	7/17/2019	2.18	10/14/2022	7/17/2019	106.83382	105.5959743	104.3867068	103.2050387	102.0500332	100.9207955	99.81647037	98.73624023	97.67932286
190605A00012	6/5/2019	1.92	6/6/2022	6/5/2019	104.52099	103.6988104	102.8895244	102.0928316	101.3084397	100.5360656	99.77543462	99.02628041	98.28834469
190605A00020	6/5/2019	2.19	2/5/2024	6/5/2019	114.34409	111.6227763	108.9805402	106.4146227	103.9223814	101.5012822	99.14889336	96.86288142	94.64100616
190606A00026	6/6/2019	2.23	6/6/2023	6/6/2019	110.60424	108.6742263	106.7878945	104.9438707	103.1408348	101.3775216	99.6527178	97.96525956	96.31402958
190607A00009	6/7/2019	2.14	6/7/2022	6/7/2019	104.6283	103.8037295	102.992124	102.1931765	101.4065925	100.6320867	99.86938234	99.11821122	98.37831318
190607A00023	6/7/2019	1.92	6/7/2022	6/7/2019	104.53749	103.712181	102.8998627	102.1002317	101.3129925	100.5378586	99.77455248	99.02280483	98.28235456
190614A00005	6/14/2019	1.99	6/14/2022	6/14/2019	104.70979	103.8622941	103.0284864	102.2080325	101.4006134	100.6059202	99.8236536	99.05352372	98.2952496
190530A00031	5/30/2019	2.21	5/31/2022	5/30/2019	104.6455	103.8411314	103.0490822	102.2690755	101.5008385	100.7441065	99.99862271	99.26413783	98.54040998
190531A00003	5/31/2019	2.31	10/29/2021	5/31/2019	100.98832	100.8225829	100.6573907	100.4927399	100.328628	100.1650522	100.00201	99.83949889	99.67751619
190531A00013	5/31/2019	2.31	12/6/2022	5/31/2019	107.87324	106.471053	105.1028812	103.7674881	102.4636972	101.1903877	99.94649182	98.73099138	97.54291498
190531A00038	5/31/2019	2.82	5/31/2034	5/31/2019	175.5692	156.3622714	139.4793294	124.6248084	111.5422291	100.0088459	89.83105144	80.84042853	72.89035485
190603A00040	6/3/2019	2.11	6/3/2022	6/3/2019	104.53766	103.7256948	102.9263067	102.139201	101.3640963	100.6007197	99.84880676	99.10810068	98.37835242
190604A00030	6/4/2019	2.2	6/3/2022	6/4/2019	104.60776	103.7954938	102.9958051	102.2084021	101.4330033	100.6693358	99.91713491	99.17614398	98.44611385
190528A00007	5/28/2019	2.44	11/15/2023	5/28/2019	113.67838	111.2191954	108.8262221	106.497168	104.2298387	102.022135	99.87204796	97.777654	95.73711044
190528A00028	5/28/2019	2.42	5/30/2023	5/28/2019	110.8378	108.9268462	107.0588843	105.2325284	103.446455	101.6993975	99.99014279	98.31752898	96.68044217
190529A00031	5/29/2019	2.36	5/30/2023	5/29/2019	110.728	108.8180849	106.95114	105.1257819	103.3406875	101.5945908	99.88627916	98.21459125	96.57841363
190529A00089	5/29/2019	2.38	5/29/2024	5/29/2019	116.61846	113.5050546	110.4915543	107.5740577	104.7488472	102.0123795	99.36127566	96.79231186	94.30241114
190530A00008	5/30/2019	2.38	5/30/2025	5/30/2019	122.88807	118.4625528	114.2214973	110.1560968	106.2580227	102.5193973	98.93276574	95.49107056	92.18762736
190530A00029	5/30/2019	2.25	5/30/2024	5/30/2019	116.70453	113.5765607	110.549258	107.6186762	104.7810596	102.0328289	99.37057135	96.79103147	94.29110241
190424A00023	4/24/2019	2.43	4/24/2023	4/24/2019	110.51255	108.708045	106.942451	105.2145741	103.5232739	101.8674558	100.2460695	98.65810587	97.10259543
190426A00011	5/1/2019	2.56	3/15/2022	5/1/2019	103.46092	102.8931446	102.331598	101.7761813	101.2267946	100.6833397	100.1457209	99.61384431	99.08761814
190506A00027	5/6/2019	2.38	5/6/2022	5/6/2019	104.33261	103.6053475	102.8882017	102.180967	101.483439	100.7954188	100.1167128	99.4471328	98.78649547
190507A00006	5/7/2019	2.57	5/8/2023	5/7/2019	110.75458	108.9098329	107.1054765	105.34025	103.612947	101.9224108	100.2675323	98.64724715	97.06053368
190522A00021	5/23/2019	2.47	10/15/2021	5/23/2019	100.77471	100.6485783	100.5227763	100.3973043	100.2721609	100.1473448	100.0228546	99.89868904	99.77484685
190523A00022	5/23/2019	2.47	10/12/2022	5/23/2019	107.13509	105.901722	104.6966765	103.5189837	102.36772	101.242003	100.1409892	99.06387186	98.00987904
190227A00005	2/27/2019	2.87	2/27/2024	2/27/2019	116.49171	113.6687314	110.9296739	108.2715374	105.6914493	103.1866576	100.7545254	98.39252461	96.09823133

	Parallel-Shift Sensitivity Analysis												
8/31/2021					Price								
REFERENCE	SETTLEMENT	Rate	MATURITY	First/Next	-400	-300	-200	-100	Base	100	200	300	400
190313A00017	3/13/2019	2.73	7/15/2022	3/13/2019	105.79023	104.8436407	103.913965	103.0007566	102.1035806	101.2220171	100.355661	99.50412094	98.66701901
190319A00008	3/19/2019	2.72	3/21/2022	3/19/2019	103.65916	103.0729412	102.4933505	101.9202767	101.3536104	100.7932444	100.2390738	99.69099619	99.14891142
190320A00005	3/20/2019	2.75	3/20/2024	3/20/2019	116.53845	113.6465595	110.8421828	108.1221216	105.48332	102.922854	100.4379247	98.02585197	95.68406872
190329A00016	3/29/2019	2.56	3/29/2022	3/29/2019	103.70532	103.0952775	102.4923956	101.8965484	101.3076136	100.7254715	100.150005	99.58109987	99.01864446
190329A00018	3/29/2019	2.6	3/29/2024	3/29/2019	116.27558	113.3595819	110.5324624	107.7909528	105.131925	102.552387	100.0494761	97.62045247	95.26269263
190122A00008	1/22/2019	2.98	1/20/2023	1/22/2019	109.44935	107.947975	106.4748322	105.0291938	103.6103541	102.2176307	100.8503639	99.50791577	98.18966921
190122A00043	1/22/2019	2.96	1/22/2025	1/22/2019	122.981	118.9845951	115.1406748	111.4426054	107.884076	104.4590834	101.1619152	97.98713418	94.92956353
190130A00019	1/30/2019	3.01	1/30/2024	1/30/2019	116.35167	113.6243316	110.9755395	108.4025776	105.9028409	103.4738302	101.1131468	98.81848788	96.58764193
190204A00036	2/4/2019	2.86	11/4/2021	2/4/2019	101.18896	101.0059828	100.8236695	100.6420177	100.4610238	100.2806842	100.1009953	99.92195375	99.74355591
190215A00004	2/15/2019	2.84	2/15/2023	2/15/2019	109.75018	108.1636749	106.6085087	105.0838267	103.5888073	102.1226581	100.6846141	99.27393711	97.88991401
190227A00002	2/27/2019	2.61	2/28/2022	2/27/2019	103.26614	102.742826	102.2248038	101.7119918	101.2043117	100.7016868	100.2040421	99.71130389	99.22339987
190104A00003	1/4/2019	2.81	1/4/2022	1/4/2019	102.30142	101.9418523	101.5848118	101.2302714	100.8782049	100.5285864	100.1813904	99.83659183	99.49416591
190108A00039	1/8/2019	3.04	4/30/2024	1/8/2019	118.04763	115.0045839	112.0566511	109.2002218	106.4318509	103.7482492	101.1462753	98.62292717	96.17533541
190110A00009	1/10/2019	2.97	1/16/2024	1/10/2019	116.00468	113.325584	110.7225288	108.1929223	105.7342788	103.3442118	101.020429	98.76072857	96.56299468
190110A00012	1/10/2019	2.97	1/18/2024	1/10/2019	116.0396	113.3538026	110.7443999	108.2087798	105.74444	103.3489782	101.0200873	98.75555109	96.55324042
190111A00037	1/11/2019	2.68	1/11/2022	1/11/2019	102.41723	102.0366704	101.658953	101.2840413	100.9119039	100.54251	100.1758292	99.81183148	99.45048744
190115A00063	1/15/2019	2.96	1/16/2024	1/15/2019	115.97947	113.3006966	110.6979531	108.1686514	105.710306	103.3205305	100.997033	98.73761172	96.54015108
181211A00009	12/11/2018	3.14	12/11/2023	12/11/2018	115.78692	113.221569	110.7267732	108.3000969	105.9392049	103.6418609	101.4059229	99.229338	97.11013813
181214A00012	12/14/2018	3.07	12/14/2021	12/14/2018	101.99057	101.6921445	101.3954728	101.1005432	100.8073404	100.5158491	100.2260544	99.93794125	99.65149509
181217A00052	12/17/2018	3.04	12/17/2021	12/17/2018	102.03895	101.731803	101.426517	101.1230741	100.8214577	100.5216512	100.2236383	99.92740278	99.63292872
181219A00005	12/19/2018	3.06	12/19/2023	12/19/2018	115.73553	113.1464093	110.6289115	108.1805923	105.7991096	103.4822175	101.2277618	99.03367525	96.89797368
181221A00018	12/21/2018	2.98	12/21/2021	12/21/2018	102.09641	101.7776482	101.4608868	101.1461054	100.8332855	100.5224087	100.213457	99.90641229	99.60125703
181226A00024	12/26/2018	2.9	12/27/2021	12/26/2018	102.1834	101.8472067	101.5132232	101.18143	100.8518056	100.5243288	100.1989786	99.8757343	99.55457563
181015A00024	10/15/2018	3.29	10/16/2023	10/15/2018	115.09746	112.7150199	110.3947286	108.1345134	105.9323848	103.7864359	101.6948384	99.65583808	97.66775177
181023A00021	10/23/2018	3.28	10/23/2023	10/23/2018	115.20576	112.800683	110.4587678	108.1778865	105.9560018	103.7911615	101.6814946	99.62520695	97.6205776
181023A00025	10/23/2018	3.27	10/23/2023	10/23/2018	115.18311	112.7782934	110.4366325	108.1560002	105.9343592	103.7697577	101.6603247	99.60426626	97.59986154
181114A00014	11/14/2018	3.17	11/14/2023	11/14/2018	115.72246	113.2351838	110.8148086	108.4590198	106.1656008	103.932431	101.7574809	99.63880752	97.57454933
181123A00013	11/23/2018	3.14	11/23/2021	11/23/2018	101.60611	101.3684827	101.1319777	100.896583	100.6622906	100.4290929	100.1969821	99.96595073	99.73599118
181210A00015	12/10/2018	3.12	12/11/2023	12/10/2018	115.73868	113.1739128	110.6796902	108.2535748	105.8932316	103.5964248	101.3610126	99.18494264	97.06624702
180914A00046	9/14/2018	2.93	9/14/2021	9/14/2018	100.26231	100.223222	100.1841839	100.1451929	100.1062489	100.0673518	100.0285016	99.98969806	99.95094122
180921A00024	9/21/2018	2.99	9/21/2021	9/21/2018	100.39705	100.3383861	100.2797997	100.2212954	100.162873	100.1045322	100.0462731	99.98809525	99.92999865
181002A00055	10/2/2018	3.14	10/3/2022	10/2/2018	107.73146	106.5231358	105.341885	104.1868079	103.0570414	101.95176	100.870174	99.81152696	98.77509467
181004A00028	10/4/2018	3.31	10/4/2023	10/4/2018	114.91724	112.5734924	110.2901925	108.0653467	105.8970465	103.7834615	101.7228348	99.71348014	97.75377786

	Parallel-Shift Sensitivity Analysis												
8/31/2021					Price								
REFERENCE	SETTLEMENT	Rate	MATURITY	First/Next	-400	-300	-200	-100	Base	100	200	300	400
181010A00019	10/10/2018	3.21	9/15/2021	10/10/2018	100.28884	100.246992	100.2051929	100.1634449	100.1217481	100.0801022	100.0385073	99.99696317	99.95546978
181010A00023	10/10/2018	3.41	4/1/2024	10/10/2018	118.55202	115.5954845	112.7290681	109.9494441	107.2534358	104.638005	102.1002455	99.6373757	97.2467329
180731A00009	7/31/2018	2.97	7/31/2023	7/31/2018	113.29212	111.1616358	109.082409	107.0528875	105.0715752	103.1370314	101.2478682	99.40274844	97.6003831
180820A00054	8/20/2018	3	8/18/2023	8/20/2018	113.37418	111.1931406	109.0657521	106.9903475	104.9653255	102.9891454	101.0603249	99.17743669	97.33910638
180827A00010	8/27/2018	2.99	8/25/2023	8/27/2018	113.48126	111.2775231	109.1284872	107.0324403	104.9877348	102.9927862	101.0460701	99.14611979	97.29152342
180906A00004	9/6/2018	2.92	9/7/2021	9/6/2018	100.12911	100.109595	100.0901031	100.0706309	100.0511781	100.0317448	100.012331	99.99293659	99.97356159
180906A00047	9/6/2018	2.81	9/7/2021	9/6/2018	100.12879	100.1092572	100.0897488	100.0702603	100.0507914	100.0313423	100.0119128	99.99250284	99.97311252
180910A00032	9/10/2018	3.22	9/10/2024	9/10/2018	120.95323	117.4404155	114.0496233	110.7759046	107.6145407	104.5610322	101.6110875	98.76061213	96.00569785
180719A00004	7/19/2018	3.07	7/19/2023	7/19/2018	112.96351	110.8788751	108.8435237	106.8559841	104.9148426	103.018737	101.1663539	99.35642675	97.58773407
180719A00061	7/19/2018	3.07	7/19/2023	7/19/2018	112.96351	110.8788751	108.8435237	106.8559841	104.9148426	103.018737	101.1663539	99.35642675	97.58773407
180723A00024	10/23/2018	3.1	10/22/2021	10/23/2018	100.98542	100.8393766	100.6937693	100.548594	100.4038489	100.2595319	100.1156412	99.9721749	99.82913109
180724A00075	7/24/2018	2.98	7/24/2023	7/24/2018	113.18092	111.0731062	109.015545	107.0067262	105.0451964	103.129555	101.2584526	99.43058831	97.64470785
180727A00038	7/27/2018	3.36	7/25/2025	7/27/2018	127.24151	122.5593429	118.0775791	113.7865717	109.6771921	105.7407968	101.9691992	98.35464341	94.88977849
180730A00078	7/30/2018	3.14	7/28/2023	7/30/2018	113.27096	111.1556237	109.0908849	107.0752164	105.1071501	103.1852715	101.3082179	99.47467585	97.68337889
180612A00018	6/12/2018	2.88	6/10/2022	6/12/2018	105.35437	104.5162556	103.6914634	102.8796796	102.0805977	101.2939212	100.5193626	99.75664327	99.00549298
180618A00011	6/18/2018	3.02	6/20/2022	6/18/2018	105.57539	104.7067818	103.8524527	103.0120563	102.1852537	101.3717166	100.5711275	99.78317884	99.00757275
180620A00044	6/20/2018	2.89	6/20/2023	6/20/2018	112.36967	110.3745541	108.4251336	106.5200372	104.6579437	102.8375822	101.0577295	99.31720807	97.61488409
180622A00006	6/22/2018	3.53	12/21/2029	6/22/2018	156.03561	144.5999955	134.1060227	124.4707826	115.619088	107.4827136	99.9997174	93.11383226	86.77391847
180625A00009	6/25/2018	3	6/27/2022	6/25/2018	105.68501	104.7945319	103.9190425	103.0581616	102.2115257	101.3787834	100.5595948	99.75363087	98.96057324
180716A00037	7/16/2018	3.01	7/18/2022	7/16/2018	106.10023	105.1428065	104.2026481	103.279293	102.3722934	101.4812172	100.6056474	99.74518142	98.89943067
180521A00072	5/21/2018	2.96	5/23/2022	5/21/2018	105.0681	104.2862408	103.5160118	102.7571542	102.0094172	101.2725576	100.546339	99.83053195	99.12491358
180522A00037	5/22/2018	3.01	5/22/2023	5/22/2018	112.04432	110.1411379	108.2803935	106.4607386	104.6808786	102.9395741	101.2356379	99.5679318	97.9353646
180529A00043	5/29/2018	2.99	5/30/2023	5/29/2018	111.88088	109.9600789	108.0824548	106.2466203	104.4512464	102.6950613	100.9768472	99.29543737	97.64971334
180531A00015	5/31/2018	2.95	5/31/2023	5/31/2018	111.82593	109.9026448	108.0226509	106.1845503	104.3870092	102.6287508	100.908553	99.22524451	97.57770312
180611A00030	6/11/2018	2.91	6/12/2023	6/11/2018	112.25682	110.2874669	108.3629379	106.4818462	104.6428621	102.8447092	101.0861618	99.36604225	97.68321874
180612A00005	6/12/2018	3.09	6/12/2023	6/12/2018	112.30921	110.3444859	108.424393	106.5475513	104.7126391	102.9183877	101.1635786	99.44704114	97.7676498
180427A00011	4/27/2018	3.03	4/27/2022	4/27/2018	104.53994	103.8400054	103.1494298	102.4680272	101.7956157	101.1320183	100.4770626	99.83058034	99.19240806
180430A00078	10/30/2018	3.24	10/30/2023	10/30/2018	115.24509	112.8181612	110.4553972	108.1546168	105.9137343	103.7307523	101.6037572	99.53091489	97.51046656
180503A00040	5/3/2018	3.3	5/5/2025	5/3/2018	125.53619	121.1582299	116.9588723	112.9297587	109.0629807	105.3510483	101.7868645	98.36370265	95.07518396
180514A00032	5/14/2018	3.27	5/14/2026	5/14/2018	132.88715	127.0446978	121.4966589	116.2265136	111.2187645	106.4588704	101.9331805	97.62887524	93.53390982
180514A00035	5/14/2018	3.07	5/14/2024	5/14/2018	118.82547	115.717309	112.7076015	109.7925512	106.9685408	104.2321197	101.5799949	99.00902251	96.5161996
180518A00020	5/21/2018	3.08	3/15/2022	5/21/2018	103.74739	103.1786922	102.6162369	102.0599187	101.5096374	100.965295	100.4267954	99.89404481	99.36695134
180226A00034	2/26/2018	2.82	6/27/2022	2/26/2018	105.53242	104.6426648	103.7678815	102.9076983	102.0617522	101.2296916	100.4111769	99.60587919	98.81348028

	Parallel-Shift Sensitivity Analysis												
8/31/2021					Price								
REFERENCE	SETTLEMENT	Rate	MATURITY	First/Next	-400	-300	-200	-100	Base	100	200	300	400
180226A00043	2/26/2018	2.73	9/27/2021	2/26/2018	100.48397	100.4085936	100.3333308	100.2581851	100.1831565	100.1082445	100.0334489	99.9587695	99.88420603
180308A00016	3/8/2018	2.88	6/1/2022	3/8/2018	105.09955	104.2912776	103.4954104	102.7116666	101.9397709	101.1794561	100.4304632	99.69254076	98.9654447
180323A00013	3/23/2018	3.18	3/23/2028	3/23/2018	143.82045	135.2054784	127.1708746	119.6743683	112.676983	106.1427658	100.038538	94.33366677	88.99985656
180410A00017	4/10/2018	3.02	10/10/2023	4/10/2018	114.38424	112.0281854	109.733279	107.4974919	105.3188798	103.1955782	101.1257987	99.10782483	97.14000907
180411A00001	4/11/2018	2.84	1/25/2022	4/11/2018	102.7027	102.2811733	101.863107	101.4484589	101.037187	100.6292504	100.2246084	99.82322134	99.42504993
171227A00018	12/27/2017	2.83	12/27/2024	12/27/2017	121.49694	117.6258355	113.8995246	110.3118165	106.8568152	103.5289081	100.3227512	97.23325405	94.25556688
180104A00018	1/4/2018	2.97	1/4/2027	1/4/2018	134.21803	127.5513242	121.2593669	115.3191468	109.7091836	104.409415	99.40109621	94.66670726	90.18986665
180129A00004	1/29/2018	2.63	1/31/2022	1/29/2018	102.72432	102.2852834	101.849989	101.418387	100.9904308	100.5660743	100.1452724	99.72798056	99.31415522
180130A00091	1/30/2018	2.74	1/25/2023	1/30/2018	109.20652	107.6918634	106.2059511	104.7480331	103.3173847	101.9133058	100.5351194	99.18217141	97.853829
180207A00002	2/7/2018	3.13	2/6/2026	2/7/2018	129.5879	124.1919575	119.0541979	114.1608953	109.499126	105.0567171	100.8221995	96.78476269	92.93421415
180207A00022	2/7/2018	2.79	2/7/2023	2/7/2018	109.50511	107.9473342	106.4198511	104.9218468	103.4525395	102.0111745	100.597023	99.20938084	97.8475679
171103A00017	11/3/2017	2.09	11/3/2022	11/3/2017	107.22036	105.913741	104.6388215	103.3944559	102.1795563	100.9930861	99.83405671	98.70152486	97.59459012
171130A00005	11/30/2017	2.45	11/30/2022	11/30/2017	107.9854	106.5892099	105.2289924	103.9033669	102.6110273	101.350732	100.1213009	98.92161084	97.75059275
171208A00008	12/8/2017	2.25	12/8/2022	12/8/2017	107.98613	106.5781258	105.2036188	103.8614121	102.5503668	101.2693974	100.0174689	98.79359356	97.5968284
171211A00033	12/11/2017	2.26	12/12/2022	12/11/2017	108.0467	106.6337293	105.2529685	103.9033136	102.583713	101.2931624	100.0307028	98.79541711	97.58642862
171212A00027	12/12/2017	2.21	12/13/2021	12/12/2017	101.7483	101.4529059	101.1592386	100.8672835	100.5770255	100.2884499	100.0015418	99.71628679	99.43267047
171213A00019	12/13/2017	2.17	12/13/2021	12/13/2017	101.73666	101.4412889	101.1476436	100.8557106	100.5654745	100.2769207	99.9900344	99.70480104	99.42120627
170906A00006	9/6/2017	1.81	9/6/2022	9/6/2017	105.93107	104.8167247	103.7257109	102.6573058	101.6108126	100.5855626	99.58091428	98.59625151	97.63098264
171012A00027	10/12/2017	2.21	10/12/2022	10/12/2017	106.83443	105.6029432	104.3997464	103.2238731	102.0744005	100.9504468	99.85116936	98.7757621	97.72345376
171018A00001	10/18/2017	1.96	10/18/2021	10/18/2017	100.7706	100.6359139	100.5016044	100.3676692	100.2341068	100.1009155	99.96809379	99.83564005	99.70355271
171026A00006	10/26/2017	2.32	10/26/2022	10/26/2017	107.206	105.9275544	104.6794896	103.4607325	102.2702602	101.1070968	99.97031082	98.85901275	97.77235268
171026A00011	10/26/2017	2.94	10/26/2027	10/26/2017	138.50493	130.6589647	123.3125481	116.4311436	109.9827853	103.9378746	98.26899142	92.95072304	87.95950587
171030A00023	10/30/2017	2.9	11/1/2027	10/30/2017	138.3166	130.4554754	123.0961611	116.2038782	109.7464437	103.6940638	98.01914342	92.69611238	87.7012657
170608A00020	6/8/2017	2.27	6/10/2024	6/8/2017	116.9363	113.7697606	110.7058627	107.7406218	104.8702359	102.0910771	99.39968242	96.79274499	94.26710566
170622A00036	6/22/2017	3.23	6/22/2032	6/22/2017	168.03656	152.3712624	138.3352543	125.7492751	114.4546864	104.3110021	95.19372633	86.99245935	79.60923616
170822A00019	8/22/2017	2.44	8/22/2024	8/22/2017	118.12356	114.7169256	111.4272333	108.2498096	105.1801946	102.214132	99.34755893	96.57659546	93.89753564
170822A00020	8/22/2017	2.59	8/22/2025	8/22/2017	124.41731	119.699726	115.1885537	110.8736478	106.7454211	102.7948073	99.01322929	95.39257021	91.92514617
170830A00030	8/30/2017	2	3/30/2022	8/30/2017	103.39086	102.778916	102.1741917	101.576559	100.9858938	100.4020748	99.82498369	99.2545048	98.69052507
170831A00022	8/31/2017	2.27	2/29/2024	8/31/2017	114.93518	112.1261364	109.4009242	106.7565379	104.1900999	101.6988537	99.28015819	96.93148189	94.65039773
170216A00041	2/16/2017	2.37	2/16/2022	2/16/2017	102.89383	102.40735	101.9254715	101.4481277	100.9752547	100.5067899	100.0426717	99.58283976	99.12723479
170313A00033	3/13/2017	3.31	3/15/2027	3/13/2017	137.41842	130.4058355	123.7997832	117.5744802	111.7059155	106.1717188	100.9510392	96.02443411	91.37376688
170405A00013	4/5/2017	2.07	4/5/2022	4/5/2017	103.59518	102.9638034	102.3401117	101.7239607	101.1152141	100.513739	99.91940574	99.33208754	98.75166072
170524A00047	5/24/2017	2.22	5/24/2023	5/24/2017	110.64853	108.752404	106.8987078	105.0860859	103.3132401	101.5789276	99.88195798	98.2211905	96.59553128

	Parallel-Shift Sensitivity Analysis												
8/31/2021					Price								
REFERENCE	SETTLEMENT	Rate	MATURITY	First/Next	-400	-300	-200	-100	Base	100	200	300	400
170530A00064	5/30/2017	2.32	3/27/2023	5/30/2017	109.61366	107.9063475	106.2345919	104.5973586	102.9936512	101.4225111	99.8830162	98.37427877	96.89544398
170602A00026	6/2/2017	2.25	6/3/2024	6/2/2017	116.76702	113.6253955	110.5851555	107.6423348	104.7931567	102.034021	99.36149401	96.77229912	94.2633086
161208A00007	12/8/2016	2.6	12/8/2023	12/8/2016	114.43546	111.8956146	109.425571	107.0229018	104.6852849	102.4104979	100.1964128	98.04099151	95.94228093
161213A00017	12/13/2016	2.24	12/13/2022	12/13/2016	108.03177	106.6177792	105.2356658	103.8843561	102.5628204	101.2700751	100.0051801	98.76723646	97.55538408
170111A00020	1/11/2017	2.27	1/11/2022	1/11/2017	102.2298	101.8500759	101.4731838	101.099087	100.7277546	100.3591557	99.99326022	99.63003841	99.26946093
170120A00008	1/20/2017	3.63	1/20/2034	1/20/2017	182.68236	163.7574695	147.0369327	132.2494789	119.1586196	107.5580287	97.26755492	88.1297791	80.0070395
170130A00008	1/30/2017	2.58	1/30/2023	1/30/2017	109.05937	107.5309728	106.0318362	104.5611917	103.1182956	101.7024295	100.3128994	98.94903417	97.61018537
170203A00031	2/3/2017	2.09	2/3/2022	2/3/2017	102.58272	102.1347771	101.6907367	101.2505507	100.8141689	100.3815423	99.95262239	99.52736183	99.10571389
160830A00038	8/30/2016	2.24	8/28/2026	8/30/2016	128.1468	122.0877439	116.3518911	110.9203102	105.7752734	100.9001779	96.27946827	91.89856514	87.74379867
160830A00061	8/30/2018	1.89	8/30/2023	8/30/2018	111.25879	109.0634642	106.9230995	104.8359602	102.8003794	100.8147546	98.8775446	96.98726665	95.14249398
160922A00049	9/22/2016	1.79	9/22/2022	9/22/2016	106.03082	104.8675761	103.7297305	102.6164616	101.5269798	100.4605292	99.41638553	98.39385474	97.3922712
160926A00074	9/26/2016	1.38	9/27/2021	9/26/2016	100.38944	100.3140755	100.2388254	100.1636933	100.0886788	100.0137818	99.9390018	99.8643387	99.78979218
161115A00010	11/15/2016	2.09	11/15/2021	11/15/2016	101.22967	101.0153849	100.8020144	100.5895571	100.3780072	100.1673589	99.9576062	99.74874351	99.54076507
161123A00008	11/23/2016	2.2	11/23/2021	11/23/2016	101.38545	101.1481845	100.9120375	100.6769995	100.4430626	100.210219	99.97846114	99.74778132	99.51817205
160401A00016	4/1/2016	2.42	4/1/2025	4/1/2016	121.51031	117.3223223	113.3022195	109.4423152	105.7353215	102.1743266	98.75277197	95.46443284	92.30339862
160615A00031	6/15/2016	2.51	6/17/2030	6/15/2016	150.68127	138.7061879	127.7807869	117.8073797	108.6978458	100.3726534	92.75998094	85.7949332	79.41884085
160701A00019	7/1/2016	1.73	7/3/2023	7/1/2016	110.0794	108.0723453	106.1118193	104.1964641	102.3249736	100.4960875	98.70858979	96.96130696	95.25310591
160706A00010	7/6/2016	1.99	7/7/2025	7/6/2016	121.19444	116.6944711	112.3861221	108.2602503	104.3081985	100.521765	96.8931769	93.41506576	90.08044422
160815A00005	8/15/2016	2.23	8/17/2026	8/15/2016	127.93926	121.9230846	116.2260302	110.8295059	105.7161023	100.8695081	96.27443484	91.91654755	87.78240049
160830A00037	8/30/2016	2.16	8/29/2025	8/30/2016	122.65837	117.9542669	113.4573675	109.1574341	105.0447902	101.110288	97.34527596	93.74156944	90.29142266
150923A00045	9/23/2015	1.97	9/23/2021	9/23/2015	100.36951	100.3053033	100.2411853	100.1771606	100.1132291	100.0493906	99.98564483	99.92199163	99.85843078
151002A00081	10/2/2015	2.29	10/2/2023	10/2/2015	112.96869	110.6462777	108.3838741	106.1795007	104.0312625	101.937342	99.89599477	97.90554645	95.9643888
151005A00053	10/5/2015	1.99	10/5/2021	10/5/2015	100.5554	100.4575814	100.3599565	100.2625289	100.1652982	100.0682637	99.97142471	99.87478072	99.7783311
160307A00026	3/7/2016	2.2	3/7/2023	3/7/2016	109.0962	107.4517834	105.8409088	104.2626335	102.7160466	101.2002706	99.71445973	98.25779906	96.82950248
160330A00056	3/30/2016	2.26	3/31/2025	3/30/2016	121.48267	117.2825432	113.2510749	109.3805304	105.6635792	102.0932688	98.66300304	95.36652165	92.1978808
160331A00024	3/31/2016	1.91	3/31/2022	3/31/2016	103.35348	102.7387015	102.1312058	101.5308662	100.937557	100.3511554	99.77154156	99.19859821	98.63221085
150601A00717	6/1/2015	2.13	4/1/2022	6/1/2015	103.48382	102.8656032	102.2547519	101.6511315	101.0546144	100.4650757	99.88239364	99.3064493	98.73712637
150710A00040	7/10/2015	2.63	7/11/2022	7/10/2015	105.62712	104.6937073	103.7767613	102.8758526	101.9905632	101.1204892	100.2652405	99.42444045	98.5977249
150819A00011	8/19/2015	2.53	8/19/2022	8/19/2015	106.23093	105.1732973	104.1366765	103.1204487	102.1240162	101.1468046	100.1882614	99.24785536	98.32507502
150821A00018	8/21/2015	2.6	8/21/2024	8/21/2015	119.11279	115.6821777	112.3693517	109.1696038	106.0784391	103.0915681	100.2048964	97.41451447	94.71668787
150824A00040	8/24/2015	2.36	8/24/2022	8/24/2015	106.1486	105.0757941	104.0246075	102.9943949	101.9845333	100.994424	100.0234918	99.07118344	98.13696685
150904A00021	9/4/2015	2.52	9/5/2023	9/4/2015	113.00795	110.7690931	108.5866451	106.4588079	104.3838556	102.3601294	100.3860352	98.46004006	96.58066926
150317A00013	3/17/2015	2.58	3/17/2025	3/17/2015	122.49918	118.3250896	114.317003	110.467381	106.7690723	103.2152907	99.79959417	96.51586531	93.35829282

	Parallel-Shift Sensitivity Analysis												
8/31/2021					Price								
REFERENCE	SETTLEMENT	Rate	MATURITY	First/Next	-400	-300	-200	-100	Base	100	200	300	400
150601A00615	6/1/2015	2.67	6/30/2022	6/1/2015	105.42893	104.5304661	103.6472739	102.7789671	101.925172	101.0855273	100.2596835	99.44730261	98.64805754
150601A00646	6/1/2015	2.68	9/30/2022	6/1/2015	107.11493	105.9199316	104.7515195	103.6088153	102.490978	101.3972025	100.3267185	99.27878803	98.25270414
150601A00666	6/1/2015	3.88	1/16/2035	6/1/2015	191.78789	170.7016117	152.2331043	136.0391561	121.8233729	109.3295697	98.33612679	88.65116324	80.10840525
150601A00688	6/1/2015	2.61	2/21/2025	6/1/2015	122.073	117.9871146	114.0611897	110.2880825	106.66101	103.173529	99.81951683	96.59315373	93.48890597
150601A00694	6/1/2015	3.56	3/6/2030	6/1/2015	157.15634	145.3737497	134.5836077	124.6966013	115.6319057	107.3163384	99.68359947	92.67359126	86.23180866
140113A00012	1/13/2014	3.48	1/17/2023	1/13/2014	110.11328	108.6157881	107.1462988	105.7040956	104.2884816	102.898783	101.5343483	100.1945475	98.87877067
140307A00011	3/7/2014	3.19	3/15/2023	3/7/2014	111.03994	109.3519763	107.6987653	106.0793099	104.4926522	102.9378704	101.4140771	99.9204172	98.45606675
140702A00034	7/2/2014	2.7	7/1/2022	7/2/2014	105.60437	104.7005737	103.8122136	102.9388955	102.0802396	101.2358793	100.4054597	99.58863778	98.78508169
140911A00027	9/11/2014	3.18	9/16/2024	9/11/2014	120.93177	117.399704	113.9908521	110.7001934	107.5229418	104.454535	101.4906227	98.62705507	95.8598726
141202A00012	12/2/2014	2.32	12/2/2021	12/2/2014	101.59015	101.326637	101.0644943	100.8037073	100.5442655	100.2861586	100.0293763	99.77390827	99.5197446
150220A00022	2/20/2015	2.8	2/20/2025	2/20/2015	122.31989	118.2482665	114.3354979	110.5745161	106.9586044	103.4813812	100.1367817	96.91904021	93.82267342
130212A00017	2/12/2013	2.29	2/15/2023	2/12/2013	108.91205	107.3322664	105.7836993	104.2654979	102.7768439	101.3169482	99.88504898	98.48041087	97.10232377
130405A00006	4/5/2013	2.41	4/7/2025	4/5/2013	122.17649	117.9398623	113.8740038	109.9710474	106.2235393	102.6244122	99.16696305	95.84483195	92.65198211
130424A00005	4/24/2013	3.07	4/24/2030	4/24/2013	155.50288	143.5180896	132.5626052	122.5421931	113.3717238	104.9742514	97.280186	90.22655451	83.75633924
130528A00028	5/28/2013	2.63	5/30/2023	5/28/2013	111.22209	109.3075109	107.4359892	105.6061412	103.8166413	102.066221	100.3536655	98.67781102	97.03754207
130702A00018	7/2/2013	3.17	7/17/2023	7/2/2013	113.42486	111.3361116	109.2966847	107.3051139	105.3599853	103.4599363	101.6036534	99.78986986	98.01736396
130821A00019	8/21/2013	3.81	8/29/2025	8/21/2013	130.53282	125.6445559	120.9701834	116.4991622	112.2215261	108.1278529	104.2092313	100.457231	96.86387306
091112A00011	11/12/2009	4.77	11/15/2024	11/12/2009	128.04513	124.1854027	120.4655116	116.8794885	113.4216621	110.0866424	106.8693038	103.7647705	100.7684023
110805A00014	8/5/2011	4.06	8/17/2026	8/5/2011	137.9439	131.6692076	125.7236052	120.0880297	114.7446263	109.6766621	104.8684501	100.305278	95.97334284
111006A00023	10/6/2011	3.81	10/15/2026	10/6/2011	137.69206	131.2146389	125.0868305	119.2878038	113.7980816	108.5994487	103.6748628	99.00837252	94.58504107
111024A00010	10/24/2011	3.11	10/30/2023	10/24/2011	115.29918	112.8646593	110.494634	108.1869053	105.9393732	103.7500267	101.6169393	99.53826473	97.51223273
120312A00009	3/12/2012	2.72	3/15/2024	3/12/2012	116.79199	113.9030797	111.1014138	108.383813	105.7472388	103.1887831	100.7056619	98.29520915	95.95487057
120907A00022	9/7/2012	1.88	9/15/2021	9/7/2012	100.23716	100.1953154	100.1535239	100.111784	100.0700955	100.0284585	99.98687274	99.94533816	99.90385467
011107A00022	11/7/2001	5.56	11/5/2021	11/7/2001	101.70483	101.5183061	101.3324706	101.1473207	100.9628528	100.7790629	100.5959474	100.4135025	100.2317246
011107A00031	11/7/2001	5.56	11/5/2021	11/7/2001	101.70483	101.5183061	101.3324706	101.1473207	100.9628528	100.7790629	100.5959474	100.4135025	100.2317246
051107A00075	11/7/2005	5.29	11/17/2025	11/7/2005	138.95722	133.6076862	128.5009821	123.6246089	118.9667944	114.5164421	110.2630883	106.1968611	102.3084438
060808A00022	8/8/2006	5.57	6/15/2026	8/8/2006	144.64521	138.4266114	132.5214798	126.9122038	121.5822613	116.5161459	111.6992988	107.1180452	102.7595359
081217A00076	12/17/2008	3.86	12/22/2023	12/17/2008	118.12522	115.4897953	112.9274092	110.435581	108.01193	105.6541724	103.3601166	101.1276589	98.95477923
090226A00006	2/26/2009	4.55	3/1/2024	2/26/2009	121.42676	118.5196004	115.6988629	112.9614488	110.304391	107.7248474	105.2200954	102.7875256	100.4246365
210312A00005	3/12/2021	0.53	3/12/2024	3/12/2021	110.83888	108.0393547	105.3247184	102.6918836	100.1378938	97.65991912	95.25525027	92.9212923	90.65555904
210527A00008	5/27/2021	0.32	5/30/2023	5/27/2021	107.26622	105.3841043	103.5445228	101.746104	99.98753426	98.26755688	96.58496862	94.93861687	93.32739696
210607A00001	6/7/2021	0.46	6/7/2023	6/7/2021	107.33958	105.4377146	103.5790383	101.7621922	99.98587443	98.24883693	96.54988263	94.8878628	93.26167459
210609A00013	6/11/2021	1.64	6/11/2025	6/11/2021	119.39936	115.0203935	110.8254902	106.8058732	102.953239	99.2597277	95.71789691	92.32069653	89.06144568

	Parallel-Shift Sensitivity Analysis												
8/31/2021					Price								
REFERENCE	SETTLEMENT	Rate	MATURITY	First/Next	-400	-300	-200	-100	Base	100	200	300	400
210722A00001	7/22/2021	1.1	7/22/2026	7/22/2021	121.55548	115.7884732	110.3254966	105.149021	100.2426133	95.59086419	91.17931933	86.99441533	83.02342047
210830A00011	8/30/2021	0.53	8/30/2023	8/30/2021	108.39816	106.2334897	104.1231588	102.0654481	100.0587083	98.10135398	96.19186042	94.32876071	92.51064322
200818A00006	8/18/2020	1.18	8/18/2028	8/18/2020	129.07816	120.5054738	112.5512068	105.1677372	98.31133986	91.9418465	86.02233936	80.5188729	75.40022056
200818A00010	8/18/2020	1.88	8/20/2035	8/18/2020	162.7706	142.8152261	125.5090249	110.4856323	97.43103927	86.07588642	76.18892311	67.57145201	60.05260651
200825A00007	8/27/2020	4.79	8/27/2026	8/27/2020	142.15587	135.7362767	129.6536328	123.8883677	118.422149	113.2378017	108.319228	103.651335	99.21996569
200928A00002	9/28/2020	0.35	9/28/2023	9/28/2020	108.64752	106.3855531	104.1820517	102.0350927	99.94283596	97.90351584	95.91543759	93.97697389	92.08656154
201030A00002	11/2/2020	2.8	10/29/2040	11/2/2020	200.76112	169.7038922	143.9830026	122.641903	104.9005411	90.12199868	77.78557735	67.46505779	58.81111647
210106A00007	1/8/2021	0.49	7/25/2023	1/8/2021	107.9248	105.8732998	103.8708941	101.916105	100.0075126	98.14374903	96.32349575	94.54548176	92.80848145
200720A00041	7/22/2020	2.34	7/21/2027	7/22/2020	133.13226	125.7965166	118.9120491	112.4487856	106.3788068	100.6761809	95.31681255	90.27830358	85.53982555
200722A00012	7/22/2020	0.41	7/21/2023	7/22/2020	108.01763	105.9716405	103.9744353	102.0245594	100.1206061	98.26122046	96.44509605	94.6709735	92.93763827
200731A00004	7/31/2020	0.38	7/31/2023	7/31/2020	108.06821	105.9916274	103.9652326	101.9874991	100.0569612	98.1722076	96.33187851	94.53466375	92.7793004
200803A00011	8/3/2020	0.72	8/4/2025	8/3/2020	116.16088	111.6728127	107.3806727	103.2749096	99.34648713	95.58685473	91.98791852	88.5420146	85.24188383
200812A00004	8/12/2020	0.59	8/12/2025	8/12/2020	116.3366	111.8006597	107.4642434	103.3175516	99.35131691	95.55677369	91.92562834	88.45003121	85.12255047
200814A00009	8/18/2020	1.36	8/16/2028	8/18/2020	130.47439	121.8582584	113.862167	106.4384483	99.54332816	93.13658871	87.18126225	81.64335345	76.49158632
200604A00009	6/4/2020	0.7	6/4/2025	6/4/2020	116.10275	111.7945141	107.6678192	103.7139649	99.92472173	96.29230555	92.80934966	89.46887971	86.26428999
200615A00005	6/15/2020	0.61	6/15/2023	6/15/2020	107.70996	105.780499	103.8951185	102.0524756	100.2512764	98.4902779	96.76828522	95.0841495	93.43676556
200626A00014	6/26/2020	0.62	6/26/2025	6/26/2020	116.00017	111.6225843	107.4317129	103.418642	99.57493028	95.89258207	92.36402088	88.98206534	85.73990641
200709A00002	7/10/2020	1.66	7/10/2025	7/10/2020	119.85387	115.3711751	111.080055	106.9713444	103.0363653	99.2668972	95.65515086	92.19374305	88.87567346
200709A00014	7/13/2020	0.57	1/20/2023	7/13/2020	105.96064	104.4859876	103.0390925	101.6192351	100.2257229	98.85788638	97.51507823	96.19667236	94.902063
200720A00037	7/22/2020	2.1	7/21/2025	7/22/2020	121.85055	117.2914965	112.9282647	108.7514282	104.7520638	100.9217223	97.25240054	93.73651578	90.36688108
200506A00010	5/6/2020	0.94	5/6/2026	5/6/2020	120.731	115.2135094	109.9768794	105.0052986	100.2839397	95.79888949	91.53708718	87.4862669	83.63490452
200511A00014	5/11/2020	0.52	2/1/2022	5/11/2020	101.83103	101.3913779	100.9555026	100.5233564	100.0948918	99.67006194	99.24882083	98.83112324	98.4169247
200511A00019	5/11/2020	1.18	2/1/2027	5/11/2020	123.89444	117.4207097	111.3203817	105.5700732	100.1479837	95.03377734	90.20847713	85.65436754	81.35490445
200529A00008	5/29/2020	0.33	5/31/2022	5/29/2020	103.19667	102.3985144	101.6126164	100.8386949	100.0764782	99.3257028	98.58611293	97.85746051	97.13950467
200604A00001	6/4/2020	0.65	6/5/2023	6/4/2020	107.66847	105.7694707	103.9135191	102.0992477	100.3253505	98.59057589	96.89372417	95.2336446	93.60923291
200604A00004	6/4/2020	0.76	6/4/2024	6/4/2020	111.93984	108.8757341	105.910901	103.041458	100.263708	97.57412564	94.96934853	92.4461676	90.00151916
200428A00011	4/30/2020	1.95	4/29/2025	4/30/2020	120.08116	115.8276857	111.7481475	107.8344185	104.0788035	100.4740132	97.01313996	93.68963537	90.4972889
200429A00009	4/29/2020	0.78	4/29/2025	4/29/2020	116.05263	111.8601122	107.8402631	103.9849837	100.2866024	96.73785358	93.33185345	90.06207735	86.92233853
200429A00035	5/1/2020	1.41	4/30/2024	5/1/2020	113.42039	110.44261	107.5583746	104.7641242	102.0564629	99.43214863	96.88808512	94.42131393	92.02900723
200430A00007	4/30/2020	0.72	4/28/2023	4/30/2020	107.37165	105.5874065	103.8418301	102.13373	100.4619669	98.82544826	97.2231251	95.65399035	94.11707653
200501A00003	5/1/2020	0.66	4/14/2023	5/1/2020	107.10128	105.3617002	103.659188	101.9926301	100.3609572	98.76314253	97.19819948	95.66517968	94.16317111
200506A00002	5/8/2020	0.97	5/5/2025	5/8/2020	116.26262	112.0633727	108.0373094	104.1762822	100.4725827	96.91891154	93.50835396	90.23435685	87.09070737
200309A00021	3/9/2020	1.05	3/9/2026	3/9/2020	119.8956	114.6137032	109.5923861	104.8174416	100.2755156	95.95404888	91.84122514	87.92592327	84.19767249

	Parallel-Shift Sensitivity Analysis												
8/31/2021					Price								
REFERENCE	SETTLEMENT	Rate	MATURITY	First/Next	-400	-300	-200	-100	Base	100	200	300	400
200310A00037	3/10/2020	0.84	3/7/2022	3/10/2020	102.41488	101.8739713	101.3387609	100.809158	100.2850748	99.76642536	99.2531254	98.74509246	98.24224573
200313A00032	3/18/2020	1.46	3/18/2025	3/18/2020	117.62156	113.5507278	109.6424458	105.8893212	102.2843424	98.82085591	95.49254581	92.29341439	89.21776421
200319A00024	3/19/2020	1.12	3/15/2022	3/19/2020	102.66764	102.1023974	101.5433671	100.9904471	100.4435375	99.90254062	99.36736078	98.83790444	98.31408005
200326A00028	3/26/2020	1.54	3/26/2025	3/26/2020	118.02681	113.9232771	109.9843164	106.2024052	102.5704122	99.08157234	95.72946572	92.50799772	89.41138056
200413A00023	4/13/2020	0.74	2/7/2022	4/13/2020	102.00187	101.5442599	101.0907413	100.641264	100.1957742	99.75421887	99.31654616	98.88270497	98.45264512
200302A00036	3/2/2020	1.45	3/2/2026	3/2/2020	121.79636	116.492282	111.4483586	106.6504772	102.0853633	97.74052916	93.60422233	89.66537865	85.91357819
200304A00038	3/4/2020	1.01	3/1/2022	3/4/2020	102.42363	101.9003874	101.3824688	100.869791	100.362275	99.85984325	99.36241974	98.86992996	98.3823009
200305A00035	3/5/2020	1.25	3/5/2026	3/5/2020	120.8428	115.551448	110.5203214	105.735269	101.1829871	96.85096186	92.72741782	88.80127052	85.06208216
200306A00030	3/6/2020	0.88	3/6/2023	3/6/2020	106.99526	105.371149	103.78017	102.2213906	100.6939128	99.19687126	97.72943226	96.29079192	94.880175
200309A00003	3/9/2020	0.72	3/9/2022	3/9/2020	102.3713	101.8247004	101.2839195	100.7488671	100.2194524	99.69558665	99.17718286	98.66415588	98.15642232
200309A00005	3/9/2020	0.77	3/7/2025	3/9/2020	115.44899	111.4375078	107.5859255	103.8869968	100.3338492	96.91995897	93.63913172	90.48548341	87.45342317
200228A00020	2/28/2020	1.32	2/24/2023	2/28/2020	107.55063	105.9524614	104.3864383	102.85167	101.3473001	99.87250319	98.42648292	97.00847114	95.61772646
200228A00025	2/28/2020	1.57	3/2/2027	2/28/2020	126.58581	119.9282419	113.6593682	107.7545114	102.1906869	96.9464775	92.00191862	87.33839227	82.93852947
200228A00026	2/28/2020	2.14	2/28/2035	2/28/2020	165.27117	145.8242178	128.87198	114.0801172	101.1606825	89.86547933	79.98039905	71.32058972	63.72632959
200228A00040	2/28/2020	1.14	2/28/2023	2/28/2020	107.54444	105.9295451	104.3474388	102.7972016	101.2779523	99.78884179	98.32905127	96.89779123	95.49429999
200302A00028	3/2/2020	1.25	2/26/2024	3/2/2020	112.18967	109.4269154	106.7465747	104.1457038	101.6214798	99.17119816	96.79226731	94.48220281	92.23862235
200302A00034	3/2/2020	1.25	3/1/2024	3/2/2020	112.24041	109.4640724	106.770893	104.1578887	101.6221992	99.16108445	96.77191957	94.45218868	92.19947982
200224A00046	2/24/2020	1.59	2/24/2025	2/24/2020	117.83882	113.8347033	109.9881638	106.2921414	102.739936	99.32518385	96.04183852	92.88415307	89.84666362
200226A00017	2/26/2020	1.53	2/27/2023	2/26/2020	107.92232	106.3112568	104.7327708	103.1859605	101.6699533	100.1839079	98.72701314	97.29848658	95.89757329
200227A00009	2/27/2020	1.47	2/27/2025	2/27/2020	117.42805	113.4208156	109.5717485	105.8737497	102.3200759	98.90432304	95.62040745	92.46254765	89.42524768
200227A00022	2/27/2020	1.41	2/27/2023	2/27/2020	107.73525	106.1257139	104.5487303	103.0033954	101.4888372	100.0042151	98.54871868	97.12156625	95.72200351
200227A00030	2/27/2020	1.59	2/27/2026	2/27/2020	122.44947	117.1401836	112.0906764	107.2868819	102.7155709	98.36429591	94.22134144	90.27567653	86.5169113
200228A00019	2/28/2020	1.21	2/20/2025	2/28/2020	116.93477	112.9463462	109.1148813	105.43335	101.8950841	98.49374956	95.22332768	92.07809775	89.05262041
200218A00004	2/18/2020	1.73	2/21/2023	2/18/2020	108.13827	106.5452041	104.9839853	103.4537402	101.9536248	100.4828253	99.0405568	97.62606162	96.23860854
200218A00028	2/18/2020	1.73	2/21/2023	2/18/2020	108.13827	106.5452041	104.9839853	103.4537402	101.9536248	100.4828253	99.0405568	97.62606162	96.23860854
200221A00004	2/21/2020	1.69	2/21/2025	2/21/2020	118.1723	114.172753	110.3301443	106.6374619	103.0880506	99.675588	96.39406615	93.23777388	90.20128051
200221A00014	2/21/2020	1.49	2/21/2023	2/21/2020	107.98164	106.3862741	104.8228623	103.2905241	101.7884112	100.315706	98.87161974	97.45539131	96.06628618
200224A00002	2/24/2020	1.56	2/24/2023	2/24/2020	107.92266	106.3214676	104.752471	103.2147829	101.7075453	100.2299314	98.78114333	97.36041166	95.96699369
200224A00020	2/24/2020	1.59	2/24/2025	2/24/2020	117.83882	113.8347033	109.9881638	106.2921414	102.739936	99.32518385	96.04183852	92.88415307	89.84666362
200130A00021	1/30/2020	1.54	1/30/2023	1/30/2020	107.71114	106.1901729	104.6983862	103.2350093	101.7992997	100.3905404	99.00803864	97.65112502	96.31915226
200131A00015	2/5/2020	1.73	2/5/2025	2/5/2020	118.09277	114.1515584	110.3629169	106.7201296	103.216811	99.84689012	96.60459354	93.48442886	90.48116958
200131A00047	1/31/2020	1.68	1/31/2023	1/31/2020	107.74484	106.2237333	104.7318074	103.2682971	101.8324597	100.4235782	99.04095955	97.68393401	96.3518541
200203A00011	2/3/2020	1.7	2/15/2023	2/3/2020	108.01296	106.4403919	104.8989038	103.3876542	101.9058287	100.4526413	99.02733363	97.62917363	96.25745424

	Parallel-Shift Sensitivity Analysis												
8/31/2021					Price								
REFERENCE	SETTLEMENT	Rate	MATURITY	First/Next	-400	-300	-200	-100	Base	100	200	300	400
200204A00016	2/4/2020	1.72	2/6/2023	2/4/2020	107.89977	106.3577143	104.8456055	103.3626426	101.9080543	100.4810963	99.08104958	97.70721954	96.358935
200214A00013	2/18/2020	1.78	11/10/2021	2/18/2020	101.08498	100.8851195	100.6860603	100.4877968	100.2903242	100.0936377	99.89773257	99.70260413	99.50824773
200122A00028	1/22/2020	1.84	1/21/2022	1/22/2020	102.22741	101.8186852	101.4132272	101.0110012	100.6119685	100.2160911	99.82333164	99.43365336	99.04701998
200122A00035	1/22/2020	1.94	1/22/2025	1/22/2020	118.67093	114.765997	111.0104574	107.3978067	103.9218611	100.5767377	97.35683836	94.25683442	91.27165204
200124A00008	1/24/2020	1.92	1/22/2027	1/24/2020	129.24801	122.6227405	116.3764069	110.4854202	104.9277748	99.68293684	94.73173832	90.05627934	85.63983814
200127A00013	1/27/2020	1.56	1/27/2023	1/27/2020	107.69642	106.1844715	104.7013746	103.2463741	101.8187395	100.4177653	99.04276953	97.69309307	96.36809859
200128A00015	1/28/2020	1.81	1/28/2025	1/28/2020	118.27577	114.3586527	110.5921491	106.9696732	103.4849619	100.1320587	96.90529664	93.79928276	90.80888341
200129A00010	1/29/2020	1.76	1/31/2022	1/29/2020	102.35104	101.9129689	101.4786289	101.0479753	100.6209615	100.1975416	99.77767048	99.36130382	98.94839796
191226A00020	12/26/2019	2.44	12/21/2029	12/26/2019	145.66408	134.67398	124.5987009	115.3572334	106.8761358	99.08879165	91.93474325	85.35909308	79.31196654
200103A00009	1/3/2020	1.9	1/3/2024	1/3/2020	113.12271	110.5202122	107.9907535	105.5318782	103.1412298	100.8165439	98.55564467	96.35644037	94.2169198
200115A00014	1/17/2020	1.88	9/15/2022	1/17/2020	106.01669	104.8755516	103.7588782	102.6658858	101.5958274	100.5479869	99.52167775	98.51624158	97.5310465
200115A00017	1/15/2020	1.88	1/17/2023	1/15/2020	107.81116	106.331206	104.8789461	103.4536661	102.0546779	100.6813163	99.33293789	98.0089202	96.70866104
200115A00022	1/15/2020	1.88	10/14/2022	1/15/2020	106.48517	105.2495094	104.0423958	102.8628474	101.7099283	100.5827445	99.48044178	98.4022033	97.34724761
200115A00024	1/15/2020	1.88	1/17/2023	1/15/2020	107.81116	106.331206	104.8789461	103.4536661	102.0546779	100.6813163	99.33293789	98.0089202	96.70866104
191120A00005	11/20/2019	2.63	11/20/2034	11/20/2019	171.90564	152.4154754	135.3616859	120.4247905	107.3287926	95.83506265	85.73710695	76.85609184	69.03701128
191120A00010	11/20/2019	1.88	1/20/2022	11/20/2019	102.22755	101.821718	101.4191164	101.0197024	100.6234382	100.2302864	99.84021052	99.45317437	99.06914248
191120A00024	11/20/2019	2.23	11/16/2029	11/20/2019	143.21545	132.4583582	122.5898803	113.531858	105.2134042	97.57018758	90.54379351	84.08115064	78.13401575
191121A00004	11/21/2019	1.77	11/21/2024	11/21/2019	117.75869	114.0533124	110.4843399	107.0458885	103.7323701	100.538476	97.45916073	94.48962665	91.62531014
191206A00020	12/9/2019	1.91	12/15/2021	12/9/2019	101.66571	101.3650386	101.0661531	100.7690403	100.4736845	100.1800698	99.88818104	99.59800279	99.30951999
191218A00014	12/18/2019	2.04	12/18/2024	12/18/2019	118.54324	114.7519365	111.1021825	107.5878909	104.2032728	100.9428222	97.80130046	94.7737209	91.8553356
191004A00032	10/4/2019	2.01	1/3/2028	10/4/2019	132.90792	125.0003359	117.6131244	110.7094334	104.2551999	98.21892307	92.57145972	87.28583648	82.33707833
191007A00027	10/7/2019	1.69	10/7/2022	10/7/2019	106.15504	104.9436553	103.7597747	102.6024663	101.4708436	100.3640592	99.28130234	98.22179745	97.18480192
191008A00031	10/8/2019	1.52	10/8/2024	10/8/2019	116.307	112.7669633	109.353296	106.0607356	102.8842715	99.81913342	96.86077779	94.00487571	91.24730113
191018A00015	10/18/2019	1.89	10/18/2021	10/18/2019	100.74743	100.6129131	100.4787699	100.3449992	100.2115991	100.0785682	99.94590498	99.8136078	99.68167513
191025A00010	10/25/2019	2.24	7/25/2028	10/25/2019	137.11162	128.3345154	120.1789373	112.5976932	105.5473994	98.98815803	92.88326084	87.19891908	81.90401758
191104A00019	11/5/2019	1.9	2/1/2022	11/5/2019	102.42703	101.9858324	101.5484234	101.1147532	100.684774	100.2584391	99.8357022	99.41651809	99.00084217
190930A00041	9/30/2019	1.94	10/25/2021	9/30/2019	100.86437	100.7100439	100.5561929	100.4028195	100.2499216	100.0974968	99.94554297	99.79405798	99.64303964
190930A00069	9/30/2019	1.9	9/29/2023	9/30/2019	111.73081	109.4378767	107.2039682	105.0271496	102.9055664	100.8374389	98.82105892	96.85478597	94.93704423
191001A00006	10/1/2019	1.83	6/18/2024	10/1/2019	115.28628	112.1290048	109.0745827	106.1190524	103.2586313	100.4897066	97.80882584	95.21268919	92.69814122
191003A00002	10/3/2019	1.58	10/4/2021	10/3/2019	100.50949	100.4144323	100.3195571	100.224868	100.1303645	100.0360459	99.94191175	99.84796146	99.75419447
191003A00019	10/3/2019	1.71	9/27/2024	10/3/2019	116.28273	112.7900601	109.4208213	106.1699304	103.0325426	100.0040425	97.0800313	94.25631558	91.52889599
191004A00004	10/4/2019	1.54	10/4/2024	10/4/2019	116.3213	112.7935795	109.3914258	106.1096259	102.9432161	99.88746958	96.93788372	94.09016764	91.34023084
190919A00025	9/19/2019	1.8	9/19/2024	9/19/2019	116.97305	113.4827691	110.1153259	106.865676	103.7290189	100.70078	97.77659841	94.95231567	92.22396491

	Parallel-Shift Sensitivity Analysis												
8/31/2021					Price								
REFERENCE	SETTLEMENT	Rate	MATURITY	First/Next	-400	-300	-200	-100	Base	100	200	300	400
190920A00018	9/20/2019	1.98	9/20/2022	9/20/2019	106.20665	105.0486583	103.915812	102.8073012	101.7223483	100.6602085	99.62016802	98.60154261	97.60367605
190924A00010	9/24/2019	1.95	9/24/2021	9/24/2019	100.37799	100.3110525	100.2442093	100.1774647	100.1108184	100.0442702	99.97781993	99.91146737	99.84521231
190925A00011	9/25/2019	1.89	9/25/2024	9/25/2019	116.84813	113.352717	109.9805797	106.7266497	103.5860967	100.5543187	97.62692942	94.7997467	92.06878175
190926A00012	9/26/2019	1.93	9/27/2021	9/26/2019	100.42378	100.3484535	100.2732424	100.1981484	100.1231713	100.0483108	99.97356662	99.89893856	99.82442633
190927A00012	10/1/2019	1.96	10/1/2024	10/1/2019	117.16403	113.6443231	110.2492284	106.9735992	103.8125324	100.7613576	97.8156245	94.97109116	92.22371269
190829A00050	8/29/2019	1.73	8/29/2024	8/29/2019	115.9546	112.5598535	109.2826565	106.1182735	103.0621895	100.1100973	97.25788669	94.50163403	91.83759282
190917A00022	9/17/2019	2.02	9/16/2022	9/17/2019	106.18417	105.0389076	103.918253	102.8214211	101.7476583	100.6962427	99.66648204	98.65771252	97.66929719
190917A00028	9/17/2019	2.02	3/1/2023	9/17/2019	108.71846	107.0946753	105.5038138	103.9449554	102.4172149	100.9197396	99.45170713	98.01232439	96.60082634
190917A00044	9/17/2019	1.86	9/17/2021	9/17/2019	100.26785	100.220421	100.1730521	100.1257443	100.0784974	100.0313114	99.98418608	99.93712141	99.89011722
190917A00045	9/17/2019	1.86	9/17/2021	9/17/2019	100.26785	100.220421	100.1730521	100.1257443	100.0784974	100.0313114	99.98418608	99.93712141	99.89011722
190918A00007	9/20/2019	1.95	12/15/2022	9/20/2019	107.4802	106.0709088	104.6926617	103.3444384	102.0252603	100.7341914	99.47033623	98.23283756	97.02087436
190826A00029	8/26/2019	1.53	8/26/2024	8/26/2019	115.76454	112.3706427	109.0942411	105.9306016	102.8752137	99.92377459	97.0721782	94.31650467	91.65301094
190826A00063	8/26/2019	2.05	8/28/2028	8/26/2019	136.04171	127.1820755	118.9587711	111.3228222	104.2292607	97.63678099	91.5074238	85.80628895	80.50127431
190828A00031	8/28/2019	1.71	8/28/2024	8/28/2019	115.87707	112.4867109	109.2136568	106.0531857	103.0007959	100.0521924	97.20327654	94.45013562	91.78903331
190829A00012	8/29/2019	1.54	8/29/2024	8/29/2019	115.83657	112.4319997	109.1455911	105.9725772	102.90841	99.94875177	97.08946338	94.32659414	91.656372
190829A00015	8/30/2019	2.06	8/30/2022	8/30/2019	105.94431	104.8538998	103.7858364	102.7394413	101.7140606	100.7090663	99.72385549	98.75784864	97.81048868
190829A00029	8/29/2019	1.75	7/14/2023	8/29/2019	110.27893	108.2366431	106.2424082	104.2948082	102.3924736	100.5340838	98.71836564	96.94409091	95.21007458
190814A00009	8/14/2019	1.84	8/14/2024	8/14/2019	116.10123	112.7516742	109.5165511	106.3913125	103.3716205	100.453334	97.63249841	94.9053362	92.26823787
190816A00022	8/16/2019	1.77	8/16/2024	8/16/2019	115.90691	112.5540612	109.3159809	106.1881056	103.1660766	100.2457329	97.42310154	94.69438771	92.05596575
190816A00036	8/16/2019	1.77	8/16/2024	8/16/2019	115.90691	112.5540612	109.3159809	106.1881056	103.1660766	100.2457329	97.42310154	94.69438771	92.05596575
190819A00004	8/20/2019	1.81	5/24/2024	8/20/2019	114.88201	111.8092812	108.8349293	105.9551223	103.1662126	100.4647226	97.84733521	95.31088514	92.8523504
190820A00029	8/20/2019	1.76	8/20/2024	8/20/2019	115.92926	112.5633953	109.3131605	106.1739337	103.1413082	100.2110782	97.37922882	94.64192565	91.995506
190820A00030	8/20/2019	1.76	4/16/2024	8/20/2019	114.22055	111.2758379	108.4224616	105.6569945	102.9761643	100.3768448	97.85604757	95.41091542	93.03871519
190730A00016	7/30/2019	2	7/30/2024	7/30/2019	116.874	113.5488401	110.3359044	107.2307855	104.2292789	101.3273685	98.52121684	95.80715587	93.18167876
190802A00017	8/2/2019	2.01	11/15/2023	8/2/2019	112.67478	110.227427	107.8460303	105.5283068	103.2720697	101.0752268	98.93577615	96.85180072	94.82146418
190805A00009	8/5/2019	1.91	8/5/2024	8/5/2019	116.19695	112.8744249	109.6644767	106.5626736	103.5647822	100.6667593	97.86474195	95.1550389	92.53412148
190805A00029	8/5/2019	1.93	8/5/2022	8/5/2019	105.41292	104.4031923	103.4127272	102.4409817	101.4874291	100.5515623	99.63289268	98.73094973	97.84527984
190808A00011	8/8/2019	1.86	8/8/2023	8/8/2019	110.86831	108.744174	106.6717074	104.6493269	102.6755101	100.7487917	98.8677604	97.03105706	95.23737198
190808A00023	8/8/2019	1.68	11/8/2023	8/8/2019	112.15594	109.7296257	107.3683895	105.0699898	102.8322822	100.6532144	98.53082182	96.46322259	94.44861349
190625A00021	6/25/2019	1.88	6/26/2023	6/25/2019	110.55061	108.5548824	106.605148	104.7000551	102.8382989	101.018622	99.23981222	97.50070095	95.80016099
190627A00010	6/27/2019	1.97	6/27/2024	6/27/2019	116.29771	113.0862033	109.9800525	106.975224	104.067863	101.2542839	98.53096137	95.89452272	93.34174021
190701A00009	7/3/2019	2.14	7/2/2024	7/3/2019	116.42028	113.2017419	110.088944	107.0778546	104.164614	101.3455298	98.61706942	95.9758518	93.41864025
190711A00020	7/11/2019	1.98	7/11/2022	7/11/2019	105.15296	104.2203974	103.304321	102.4043007	101.5199171	100.6507651	99.79645364	98.95660503	98.13085418

	Parallel-Shift Sensitivity Analysis												
8/31/2021					Price								
REFERENCE	SETTLEMENT	Rate	MATURITY	First/Next	-400	-300	-200	-100	Base	100	200	300	400
190729A00006	7/29/2019	2.14	7/29/2022	7/29/2019	105.49611	104.5076981	103.5377389	102.5857194	101.6511455	100.7335413	99.83244791	98.94742289	98.07803951
190730A00007	7/30/2019	2.19	7/30/2024	7/30/2019	116.9859	113.6702356	110.4662141	107.3694633	104.3758087	101.4812625	98.68201358	95.97441905	93.35499553
190610A00017	6/10/2019	2.29	6/10/2024	6/10/2019	116.53828	113.3879562	110.3395788	107.3891918	104.5330255	101.7674825	99.08912886	96.49468469	93.98101658
190617A00026	6/17/2019	2.17	6/17/2022	6/17/2019	104.82113	103.9651508	103.1231165	102.2946902	101.4795439	100.6773599	99.88783085	99.11065885	98.34555537
190620A00025	6/20/2019	2.04	6/20/2022	6/20/2019	104.7643	103.8994053	103.0487541	102.2119935	101.3887851	100.5788016	99.78172624	98.99725218	98.22508227
190620A00027	6/20/2019	2.14	6/20/2024	6/20/2019	116.24236	113.06458	109.9903516	107.0156924	104.1368017	101.3500483	98.65196144	96.03922288	93.50865893
190621A00015	6/21/2019	2.2	6/21/2024	6/21/2019	116.43707	113.253222	110.1731696	107.1929251	104.3086819	101.5168029	98.81381108	96.19638193	93.66133547
190621A00023	6/21/2019	1.93	6/21/2022	6/21/2019	104.77693	103.9077051	103.0528573	102.2120333	101.3848901	100.5710958	99.77032905	98.9822789	98.20664416
190530A00045	5/30/2019	2.44	5/30/2024	5/30/2019	116.8096	113.690301	110.6711578	107.7482577	104.9178709	102.1764424	99.52058248	96.94705721	94.45277999
190531A00009	6/5/2019	2.1	6/3/2022	6/5/2019	104.61176	103.7983612	102.9975676	102.2090925	101.4326535	100.6679765	99.91479585	99.17285382	98.4419003
190531A00037	5/31/2019	2.61	5/31/2029	5/31/2019	145.98595	135.6691058	126.1604991	117.3923755	109.3030106	101.8361449	94.94047167	88.56917541	82.67951561
190603A00031	6/3/2019	1.98	6/3/2022	6/3/2019	104.51825	103.7052554	102.9048632	102.1167851	101.3407388	100.5764504	99.82365418	99.08209252	98.35151538
190603A00048	6/3/2019	2.24	6/3/2024	6/3/2019	116.28394	113.1596178	110.1359583	107.2090317	104.3750944	101.6305771	98.97207534	96.39634032	93.90027041
190606A00028	6/6/2019	2.74	6/6/2029	6/6/2019	145.61935	135.3645391	125.9121315	117.1949482	109.1517756	101.7268096	94.86914991	88.53234433	82.67397787
190523A00015	5/23/2019	2.51	4/1/2024	5/23/2019	116.07643	113.1538129	110.3205157	107.5732369	104.9088244	102.3242637	99.81667136	97.38328768	95.02147091
190523A00016	5/23/2019	2.48	2/15/2023	5/23/2019	109.20158	107.6194803	106.0686335	104.5481933	103.0573404	101.5952844	100.1612624	98.75453812	97.3744004
190523A00024	5/23/2019	2.47	10/31/2022	5/23/2019	107.47506	106.1789119	104.9139194	103.6789672	102.4729951	101.2949926	100.1439953	99.01908303	97.91937669
190524A00015	5/24/2019	2.24	5/24/2022	5/24/2019	104.54706	103.7643479	102.9933318	102.23375	101.4853495	100.7478847	100.0211171	99.3048151	98.59875382
190524A00040	5/24/2019	2.47	5/24/2024	5/24/2019	116.80387	113.7033901	110.7019603	107.7957317	104.9810349	102.2543719	99.61240582	97.05195229	94.56997116
190529A00020	5/29/2019	2.38	5/29/2024	5/29/2019	116.61846	113.5050546	110.4915543	107.5740577	104.7488472	102.0123795	99.36127566	96.79231186	94.30241114
190409A00031	4/9/2019	2.64	4/9/2024	4/9/2019	116.56585	113.6109196	110.7468624	107.9703	105.2780015	102.6668787	100.1339784	97.67647579	95.29166783
190430A00002	4/30/2019	2.4	11/2/2022	4/30/2019	107.58089	106.2751249	105.0009431	103.7572059	102.5428324	101.3567923	100.198103	99.06582683	97.95906864
190507A00004	5/7/2019	2.88	5/7/2029	5/7/2019	148.00867	137.6999962	128.1909111	119.4149707	111.3115975	103.8255312	96.90633505	90.50795033	84.58829397
190508A00008	5/8/2019	2.36	5/9/2022	5/8/2019	104.37169	103.6351764	102.9090438	102.1930724	101.48705	100.79077	100.1040317	99.42663975	98.75840416
190514A00056	5/14/2019	2.32	5/15/2023	5/14/2019	110.67841	108.8089919	106.9809444	105.1929584	103.443784	101.7322235	100.0571293	98.41740067	96.81198161
190515A00055	5/15/2019	2.26	5/15/2023	5/15/2019	110.57113	108.7027064	106.8756332	105.0886031	103.3403668	101.6297272	99.95553694	98.31669594	96.71214862
190226A00020	2/26/2019	2.64	2/26/2024	2/26/2019	116.27331	113.4478613	110.7065082	108.0462419	105.4641812	102.9575661	100.5237519	98.16020359	95.8644904
190314A00018	3/14/2019	2.53	3/14/2022	3/14/2019	103.47835	102.9128361	102.3535067	101.8002599	101.2529968	100.7116204	100.1760359	99.64615046	99.12187338
190326A00002	3/26/2019	2.56	9/26/2022	3/26/2019	106.94906	105.7677041	104.6123741	103.4822179	102.3764196	101.294198	100.2348052	99.19752451	98.18166899
190326A00003	3/26/2019	2.57	3/27/2023	3/26/2019	110.02397	108.3131431	106.6379384	104.9973192	103.3902873	101.8158824	100.2731807	98.76129278	97.27936238
190326A00032	3/26/2019	2.4	3/26/2024	3/26/2019	116.10155	113.1879931	110.363244	107.6240333	104.9672373	102.3898682	99.88906744	97.46209859	95.1063417
190401A00010	4/1/2019	2.62	4/1/2024	4/1/2019	116.379	113.4522395	110.6148943	107.8636622	105.195388	102.6070543	100.0957749	97.65878733	95.29344738
190129A00061	1/30/2019	2.92	2/1/2022	1/30/2019	102.86755	102.4252118	101.9866692	101.5518725	101.1207739	100.6933265	100.2694841	99.84920124	99.43243334

	Parallel-Shift Sensitivity Analysis												
8/31/2021					Price								
REFERENCE	SETTLEMENT	Rate	MATURITY	First/Next	-400	-300	-200	-100	Base	100	200	300	400
190208A00005	2/8/2019	2.63	2/8/2023	2/8/2019	109.49283	107.9283922	106.3944918	104.8903039	103.4150376	101.9679293	100.5482419	99.15526361	97.78830672
190208A00009	2/8/2019	2.67	2/8/2024	2/8/2019	116.03323	113.2716137	110.5905469	107.9872097	105.4588977	103.0030175	100.6170816	98.29870339	96.04559221
190215A00006	2/15/2019	2.89	2/15/2024	2/15/2019	116.32977	113.5492261	110.8502386	108.2299367	105.6855657	103.2144846	100.8141613	98.48216668	96.21617033
190219A00020	2/19/2019	2.88	2/16/2024	2/19/2019	116.32153	113.5377361	110.8356881	108.2125045	105.6654212	103.1917883	100.789065	98.45481456	96.18669872
190222A00021	2/22/2019	2.95	8/21/2024	2/22/2019	119.73187	116.303201	112.9919208	109.7933402	106.7029896	103.7166035	100.8301096	98.03961929	95.3414176
181211A00031	12/11/2018	2.95	12/11/2023	12/11/2018	115.69982	113.1279594	110.6269935	108.1944615	105.8280125	103.5253961	101.2844565	99.10312789	96.97943016
181220A00027	12/20/2018	2.97	2/28/2022	12/20/2018	103.40642	102.8832169	102.3652917	101.8525679	101.3449674	100.8424139	100.3448324	99.85214964	99.36429352
190102A00026	1/2/2019	2.62	1/4/2022	1/2/2019	102.2672	101.907331	101.549995	101.1951659	100.8428173	100.4929232	100.145458	99.8003965	99.45771369
190115A00025	1/15/2019	2.96	1/12/2024	1/15/2019	115.90976	113.2443809	110.6543269	108.1370487	105.6900942	103.3111084	100.9978292	98.7480829	96.55978056
190117A00004	1/17/2019	2.9	1/18/2022	1/17/2019	102.59596	102.1950432	101.7972722	101.4026056	101.0110071	100.6224408	100.2368715	99.85426457	99.47458581
190123A00034	1/23/2019	2.98	1/23/2025	1/23/2019	123.07195	119.0706248	115.2220766	111.5196505	107.9570194	104.528165	101.2273605	98.04915548	94.98836046
181005A00037	10/9/2018	3.4	10/3/2025	10/9/2018	129.40446	124.4193842	119.6571108	115.1064204	110.756725	106.5980285	102.6208893	98.81638669	95.17608886
181009A00060	10/9/2018	3.07	10/12/2021	10/9/2018	100.80414	100.6862917	100.5687365	100.4514716	100.3344957	100.2178078	100.1014068	99.98529156	99.86946101
181107A00008	11/7/2018	3.42	11/7/2023	11/7/2018	115.81095	113.3521181	110.9587981	108.6287474	106.3598168	104.1499493	101.997175	99.89960679	97.85543602
181116A00015	11/19/2018	3.29	2/15/2024	11/19/2018	117.37428	114.5800876	111.8677656	109.234431	106.6773198	104.1937819	101.7812764	99.43736593	97.159712
181119A00018	11/19/2018	3.28	11/17/2023	11/19/2018	115.67674	113.1876316	110.7655502	108.4081722	106.1132731	103.8787251	101.702492	99.58262422	97.51725459
181120A00023	11/20/2018	3.15	11/19/2021	11/20/2018	101.53158	101.3054524	101.080344	100.8562466	100.6331535	100.4110578	100.1899528	99.9698319	99.75068843
180913A00030	9/13/2018	3.33	9/12/2025	9/13/2018	127.9934	123.13017	118.4815659	114.0369265	109.7861796	105.7198072	101.8288116	98.10468436	94.53937629
180913A00040	9/13/2018	2.89	9/13/2021	9/13/2018	100.24211	100.2058257	100.1695796	100.1333762	100.0972155	100.0610973	100.0250216	99.98898833	99.95299738
180914A00026	9/14/2018	3.15	9/14/2023	9/14/2018	114.19049	111.9169673	109.7010327	107.5408324	105.4345892	103.3805963	101.3772138	99.42286526	97.51603524
180914A00029	9/14/2018	3.48	9/14/2028	9/14/2018	147.62663	138.2834868	129.6068979	121.5456001	114.0525383	107.0844964	100.6017647	94.56783806	88.94914155
180917A00054	9/17/2018	3.17	9/15/2023	9/17/2018	114.25228	111.974965	109.7553804	107.5916696	105.4820489	103.4248053	101.4182928	99.4609297	97.55119518
181002A00018	10/2/2018	3.1	10/4/2021	10/2/2018	100.6447	100.549602	100.454688	100.3599592	100.2654151	100.1710551	100.0768786	99.98288519	99.88907425
180801A00013	8/1/2018	3.04	10/15/2021	8/1/2018	100.84626	100.7200447	100.5941627	100.4686108	100.3433877	100.218492	100.0939225	99.96967784	99.84575668
180820A00036	8/20/2018	3	8/21/2023	8/20/2018	113.42902	111.2381575	109.1013999	107.0170578	104.98351	102.9991972	101.062619	99.17233118	97.32694342
180823A00013	8/23/2018	2.97	8/23/2023	8/23/2018	113.4031	111.2063582	109.0640033	106.9743395	104.9357326	102.9466112	101.0054631	99.11083332	97.26132085
180829A00008	8/29/2018	3.23	8/30/2027	8/29/2018	140.80765	133.0495545	125.7745884	118.9500457	112.5456034	106.5331353	100.886542	95.58159452	90.59579059
180829A00044	8/29/2018	2.98	8/26/2022	8/29/2018	106.8163	105.7335283	104.6726815	103.633096	102.6141373	101.6151957	100.6356854	99.6750434	98.73272817
180831A00016	8/31/2018	2.99	8/31/2023	8/31/2018	113.59078	111.3673844	109.1996063	107.0856879	105.0239413	103.0127437	101.0505346	99.13581284	97.26713385
180530A00026	5/30/2018	3.55	5/30/2031	5/30/2018	165.34817	151.4022569	138.776837	127.3388622	116.9693887	107.5620085	99.02146624	91.26243492	84.20843191
180618A00026	6/18/2018	3.05	4/13/2023	6/18/2018	111.13168	109.3596473	107.6252303	105.927306	104.2647918	102.6366476	101.0418741	99.47951087	97.94863388
180625A00040	6/25/2018	3	6/24/2022	6/25/2018	105.62718	104.7461801	103.8798612	103.0278581	102.1898177	101.3653989	100.5542714	99.75611539	98.97062155
180703A00015	7/3/2018	3.06	7/3/2023	7/3/2018	112.64732	110.6148051	108.6293182	106.6894855	104.7939867	102.9415483	101.1309412	99.36097935	97.63051776

	Parallel-Shift Sensitivity Analysis												
8/31/2021					Price								
REFERENCE	SETTLEMENT	Rate	MATURITY	First/Next	-400	-300	-200	-100	Base	100	200	300	400
180713A00027	7/13/2018	3.23	7/13/2028	7/13/2018	146.04224	136.9337914	128.4632005	120.5823687	113.2470655	106.4165955	100.0534989	94.12327891	88.59415322
180719A00011	7/19/2018	3	11/12/2021	7/19/2018	101.3644	101.1584524	100.9533519	100.7490945	100.545675	100.3430883	100.1413292	99.94039255	99.74027328
180406A00014	4/6/2018	2.95	4/6/2023	4/6/2018	110.83224	109.0843091	107.3731771	105.6977555	104.0569966	102.4498938	100.8754792	99.33282178	97.82102576
180425A00007	4/25/2018	2.98	4/25/2023	4/25/2018	111.4809	109.6646264	107.8875394	106.1484365	104.4461673	102.7796286	101.1477609	99.54954714	97.98400988
180514A00033	5/14/2018	3.36	5/15/2028	5/14/2018	146.05139	137.1625467	128.8830655	121.1677418	113.9749695	107.2664341	101.0068339	95.16362754	89.70680295
180521A00025	5/21/2018	3.24	5/21/2025	5/21/2018	126.22454	121.7632734	117.4861875	113.3845547	109.4501219	105.6750792	102.0520326	98.57397913	95.23428305
180529A00066	5/29/2018	2.99	5/26/2023	5/29/2018	111.80739	109.8992924	108.0338789	106.2097853	104.4257048	102.6803863	100.9726316	99.30129242	97.66526769
180530A00014	5/30/2018	2.93	5/30/2023	5/30/2018	111.77108	109.8513176	107.9747105	106.1398738	104.3454789	102.5902546	100.8729836	99.19249964	97.54768479
180116A00010	1/16/2018	2.58	1/17/2023	1/16/2018	108.81834	107.3307107	105.8709129	104.438229	103.031967	101.651458	100.296055	98.96513213	97.658084
180118A00037	1/18/2018	2.88	1/21/2025	1/18/2018	122.09394	118.1312284	114.3194133	110.6519401	107.1225779	103.7253986	100.4547609	97.30529401	94.27188399
180126A00028	1/26/2018	2.69	1/26/2023	1/26/2018	109.15109	107.633883	106.1455217	104.6852504	103.2523408	101.8460891	100.4658153	99.11086181	97.78059281
180130A00085	1/30/2018	2.79	1/30/2025	1/30/2018	122.49316	118.4792068	114.6194326	110.9070827	107.335738	103.8992939	100.5919437	97.40816234	94.34269075
180223A00022	2/23/2018	2.93	2/23/2023	2/23/2018	110.02687	108.4118639	106.8292412	105.2781077	103.7576019	102.2668931	100.8051803	99.37169043	97.96567764
180226A00015	2/26/2018	2.85	9/28/2022	2/26/2018	107.30887	106.1190214	104.9555031	103.8174504	102.7040342	101.6144608	100.5479706	99.50383566	98.48135848
171101A00023	11/1/2017	2.78	11/3/2025	11/1/2017	126.4173	121.413758	116.6380241	112.0784208	107.7239404	103.5642024	99.58941373	95.79033181	92.15822989
171214A00005	12/14/2017	2.29	12/14/2022	12/14/2017	108.11059	106.694899	105.3107734	103.9571609	102.6330537	101.3374882	100.0695433	98.82833764	97.61302764
171218A00020	12/18/2017	2.99	12/20/2027	12/18/2017	139.66985	131.5890885	124.0333342	116.9656664	110.3519512	104.160615	98.36244005	92.93037632	87.83937
171219A00025	12/19/2017	2.33	12/19/2022	12/19/2017	108.22443	106.8022421	105.4100198	104.0468237	102.7117559	101.4039557	100.1225977	98.86689046	97.63607405
171219A00063	12/19/2017	2.8	12/20/2027	12/19/2017	139.58824	131.4627145	123.8667905	116.7631333	110.11723	103.8971625	98.0733996	92.61860593	87.50746812
180102A00020	1/2/2018	2.5	1/3/2023	1/2/2018	108.46407	107.0206816	105.6036094	104.2121952	102.8458007	101.5038084	100.1856204	98.89065785	97.61836016
171011A00013	10/11/2017	2.77	10/13/2026	10/11/2017	131.7782	125.4652927	119.4950662	113.8470493	108.5021054	103.4423392	98.65100904	94.11244603	89.81197945
171016A00033	10/16/2017	2.2	10/17/2022	10/16/2017	106.90837	105.6605064	104.4416647	103.2508449	102.0870889	100.9494821	99.83715037	98.74925839	97.68500723
171026A00009	10/26/2017	2.75	10/27/2025	10/26/2017	126.16867	121.1939976	116.4449759	111.9100811	107.578451	103.4398395	99.48457773	95.70353762	92.08809855
171026A00010	10/26/2017	2.84	10/26/2026	10/26/2017	132.37416	126.0009918	119.9756344	114.2771869	108.8861242	103.7841955	98.95433383	94.38057279	90.04796911
171030A00020	10/30/2017	2.16	1/14/2022	10/30/2017	102.23886	101.8504133	101.4649274	101.0823662	100.7026966	100.3258857	99.9519011	99.58071112	99.21228435
171031A00029	10/31/2017	2.43	10/31/2023	10/31/2017	113.40963	111.0008973	108.656018	106.3728189	104.1492208	101.9832324	99.87294632	97.81653427	95.81224337
170814A00084	8/14/2017	1.91	8/15/2022	8/14/2017	105.67102	104.6270514	103.603639	102.6001755	101.616082	100.6508015	99.70379835	98.77455717	97.86258164
170906A00034	9/6/2017	1.87	9/7/2021	9/6/2017	100.10862	100.0891307	100.0696564	100.0502017	100.0307665	100.0113507	99.99195441	99.9725775	99.95321998
170907A00059	9/7/2017	1.99	9/7/2022	9/7/2017	106.00367	104.8877794	103.7952878	102.7254645	101.6776096	100.6510519	99.64514707	98.65927676	97.69284699
170908A00017	9/9/2019	2.32	9/9/2024	9/9/2019	118.01684	114.5541219	111.2119972	107.9855725	104.870181	101.8613727	98.95490336	96.14672337	93.43296752
170921A00063	9/21/2017	2.23	9/21/2022	9/21/2017	106.49697	105.3340965	104.1965365	103.0834658	101.9940999	100.9276877	99.88350932	98.86087494	97.8591229
171005A00006	10/5/2017	2.32	10/7/2024	10/5/2017	118.96308	115.3826894	111.9296335	108.5986173	105.3846028	102.2827931	99.28861924	96.39772737	93.60596751
170630A00027	6/30/2017	2.35	6/28/2024	6/30/2017	117.46215	114.2300298	111.1038721	108.0796302	105.1534316	102.3215733	99.5805127	96.92686048	94.35737246

	Parallel-Shift Sensitivity Analysis												
8/31/2021					Price								
REFERENCE	SETTLEMENT	Rate	MATURITY	First/Next	-400	-300	-200	-100	Base	100	200	300	400
170724A00015	7/24/2017	2.32	7/24/2023	7/24/2017	111.56144	109.4758116	107.4398771	105.4521427	103.5111736	101.6155872	99.76405114	97.955281	96.18803809
170725A00047	7/25/2017	2.19	7/25/2022	7/25/2017	105.47492	104.4989801	103.5410453	102.6006197	101.6772265	100.7704062	99.87971553	99.00472714	98.1450285
170728A00032	7/28/2017	2.36	7/27/2023	7/28/2017	111.69054	109.5944625	107.5485226	105.5512067	103.6010617	101.6966876	99.83673539	98.01990469	96.24494181
170731A00006	7/31/2017	2.16	8/1/2022	7/31/2017	105.5658	104.5677235	103.5884526	102.6274554	101.6842242	100.7582701	99.84912179	98.95632526	98.07944249
170731A00029	7/31/2017	2.34	7/31/2023	7/31/2017	111.71608	109.6075722	107.5497633	105.5411164	103.5801544	101.6654548	99.79564686	97.9694099	96.18547071
170518A00011	5/18/2017	1.94	5/18/2022	5/18/2017	104.22286	103.4596871	102.707665	101.9665528	101.2361141	100.5161195	99.80634591	99.10657678	98.4166015
170519A00002	5/19/2017	2.15	5/19/2022	5/19/2017	104.31662	103.5510686	102.7967322	102.053365	101.3207287	100.5985921	99.88673058	99.18492584	98.49296574
170530A00006	5/30/2017	2.15	5/31/2022	5/30/2017	104.51828	103.715561	102.9251243	102.1466922	101.3799932	100.6247636	99.88074788	99.14769775	98.42537236
170531A00003	5/31/2017	1.94	5/31/2022	5/31/2017	104.43743	103.6339471	102.8427813	102.0636485	101.2962761	100.5403996	99.79576226	99.06211502	98.33921614
170609A00007	6/9/2017	1.96	6/9/2022	6/9/2017	104.60236	103.7706419	102.9521182	102.1464722	101.3534016	100.5726135	99.80382425	99.0467587	98.30115013
170614A00012	6/14/2017	1.9	6/14/2022	6/14/2017	104.63681	103.7896491	102.9561665	102.1360341	101.3289329	100.534554	99.75259829	98.98277589	98.22480591
170216A00045	2/16/2017	3.73	2/17/2037	2/16/2017	202.84588	177.5552815	155.8264214	137.1310004	121.0219668	107.1206376	95.10591774	84.7052668	75.68712225
170317A00059	3/17/2017	2.47	3/17/2023	3/17/2017	109.91685	108.2324484	106.5828212	104.9669659	103.3839213	101.8327621	100.3125979	98.82257079	97.36185422
170320A00014	3/20/2017	2.22	3/21/2022	3/20/2017	103.42877	102.8426318	102.263135	101.6901655	101.1236132	100.5633707	100.0093327	99.46139662	98.91946179
170327A00072	3/29/2017	3.09	3/29/2027	3/29/2017	137.38456	130.2862717	123.6031254	117.3085742	111.3779149	105.7881455	100.5178395	95.54702935	90.85709909
170410A00007	4/10/2017	2.1	4/11/2022	4/10/2017	103.71465	103.0648826	102.4232463	101.7895892	101.1637632	100.5456234	99.93502885	99.33184179	98.73592789
170427A00047	4/27/2017	3.18	4/27/2029	4/27/2017	148.87026	138.6335446	129.184811	120.4589898	112.3967249	104.9438396	98.05085846	91.67257531	85.76766359
161212A00040	12/12/2016	2.45	12/12/2023	12/12/2016	114.50799	111.9475935	109.4579055	107.0364778	104.680968	102.3891334	100.1588255	97.98798504	95.87463782
170111A00013	1/11/2017	3.4	1/10/2031	1/11/2017	161.29647	148.1141717	136.1382406	125.2512886	115.3479308	106.3335029	98.1229211	90.63966784	83.81488992
170117A00046	1/17/2017	2.55	1/17/2024	1/17/2017	114.96221	112.293188	109.7000788	107.1802942	104.7313491	102.3508577	100.0365287	97.78616117	95.59764011
170215A00038	2/15/2017	2.71	8/22/2022	2/15/2017	106.4666	105.3982922	104.3513841	103.3252385	102.3192422	101.3328057	100.3653625	99.4163676	98.48529691
170215A00041	2/15/2017	2.6	10/16/2023	2/15/2017	113.54913	111.1842943	108.8812403	106.6379038	104.4523059	102.3225502	100.2468181	98.22336493	96.25051668
170216A00010	2/16/2017	2.37	2/16/2022	2/16/2017	102.89383	102.40735	101.9254715	101.4481277	100.9752547	100.5067899	100.0426717	99.58283976	99.12723479
160922A00009	9/22/2016	1.55	9/22/2022	9/22/2016	105.90634	104.74169	103.6025131	102.4879806	101.3973	100.3297122	99.28449009	98.26093677	97.25838406
160922A00051	9/22/2016	2.5	9/22/2028	9/22/2016	139.94108	130.8491595	122.4131198	114.5821645	107.3096867	100.5529028	94.27251992	88.43243368	82.99945389
160926A00046	9/26/2016	1.66	9/26/2023	9/26/2016	111.49146	109.204004	106.9753991	104.8037204	102.6871214	100.6238303	98.61214581	96.65043447	94.73712682
161004A00034	10/4/2016	1.67	10/4/2021	10/4/2016	100.50918	100.4142042	100.3194167	100.2248141	100.130396	100.0361617	99.94211079	99.84824267	99.7545568
161006A00011	10/6/2016	1.64	10/6/2022	10/6/2016	106.22697	105.0160582	103.8326013	102.6756721	101.5443868	100.4379005	99.35540504	98.29612702	97.25932594
161013A00038	10/13/2016	1.52	10/13/2021	10/13/2016	100.63741	100.5169341	100.396762	100.2768933	100.157327	100.0380617	99.91909632	99.80042967	99.68206057
160714A00023	8/10/2016	2.49	8/10/2028	8/10/2016	139.27356	130.3616308	122.0831004	114.3896374	107.2368384	100.5838869	94.39324665	88.63038228	83.26350503
160714A00029	8/10/2016	2.27	8/10/2026	8/10/2016	128.06001	122.0645887	116.3859512	111.0057128	105.9066539	101.0726364	96.48853047	92.140146	88.01416982
160714A00054	7/14/2016	2.03	7/15/2024	7/14/2016	116.2727	113.0153392	109.8662841	106.8213505	103.8765395	101.028028	98.27216015	95.60543919	93.02451944
160804A00014	8/4/2016	1.99	8/5/2024	8/4/2016	116.44776	113.1213507	109.9076248	106.8021401	103.8006599	100.8991377	98.09370794	95.38067625	92.75651131

	Parallel-Shift Sensitivity Analysis												
8/31/2021					Price								
REFERENCE	SETTLEMENT	Rate	MATURITY	First/Next	-400	-300	-200	-100	Base	100	200	300	400
160909A00024	9/9/2016	1.7	9/9/2021	9/9/2016	100.13541	100.1103418	100.085304	100.0602928	100.035308	100.0103496	99.98541763	99.96051195	99.93563256
160921A00020	9/21/2016	1.97	9/21/2023	9/21/2016	111.76231	109.4937188	107.2830937	105.1285524	103.0282899	100.9805737	98.98373969	97.03618929	95.13638603
160624A00010	6/24/2016	1.66	6/24/2022	6/24/2016	104.50282	103.6270365	102.7658763	101.9189719	101.0859714	100.2665347	99.46033265	98.66704669	97.88636837
160624A00063	6/24/2016	1.52	6/24/2022	6/24/2016	104.48238	103.6053321	102.7429498	101.8948637	101.0607207	100.2401791	99.43290845	98.63858885	97.8569106
160628A00039	6/28/2016	2.01	6/29/2026	6/28/2016	126.9997	121.1448228	115.5936313	110.3288411	105.3342361	100.5945988	96.09564422	91.82395784	87.76693842
160701A00039	7/1/2016	1.92	7/1/2026	7/1/2016	126.54715	120.6968567	115.1504802	109.890703	104.9012831	100.1669789	95.67348303	91.40736034	87.35599051
160705A00006	7/5/2016	1.38	7/5/2022	7/5/2016	104.52978	103.6187582	102.7235369	101.8437105	100.9788845	100.1286779	99.29272259	98.4706627	97.66215408
160706A00006	7/6/2016	1.47	7/6/2023	7/6/2016	109.91017	107.8903606	105.917667	103.9907084	102.1081538	100.2687198	98.471168	96.71430382	94.9969741
150817A00077	8/17/2015	2.49	8/17/2023	8/17/2015	112.61666	110.4407392	108.3184169	106.2480243	104.2279606	102.2566858	100.3327178	98.45463011	96.62104904
150819A00012	8/19/2015	3.04	8/19/2025	8/19/2015	126.31125	121.5643379	117.0242481	112.6808514	108.5245698	104.5463437	100.7376013	97.09022951	93.59654667
150923A00049	9/23/2015	1.97	9/23/2021	9/23/2015	100.36951	100.3053033	100.2411853	100.1771606	100.1132291	100.0493906	99.98564483	99.92199163	99.85843078
151211A00007	12/11/2015	2.73	12/15/2025	12/11/2015	127.61267	122.4185871	117.4668269	112.7447463	108.2404349	103.9426678	99.84086221	95.92503662	92.18577332
160119A00026	1/19/2016	3.14	1/19/2029	1/19/2016	146.93025	137.1435754	128.0865957	119.7009596	111.9332696	104.7346372	98.06028066	91.86916085	86.12365061
160329A00044	3/29/2016	1.79	3/29/2022	3/29/2016	103.31234	102.7028447	102.1005169	101.5052324	100.9168682	100.3353041	99.76042297	99.19211007	98.63025338
150601A00664	6/1/2015	3.78	1/16/2032	6/1/2015	171.3933	156.2008792	142.5241522	130.2025753	119.093423	109.0697273	100.0184643	91.83895763	84.4414723
150601A00668	6/1/2015	3.89	1/16/2037	6/1/2015	204.26916	179.0165352	157.2964188	138.5880554	122.4503096	108.5091153	96.44696096	85.99406806	76.9209853
150601A00830	6/1/2015	6.743	7/31/2025	6/1/2015	142.05	137.0249942	132.2130413	127.6039002	123.187882	118.9558144	114.8990108	111.0092419	107.2787094
150603A00017	6/3/2015	2.84	6/3/2025	6/3/2015	124.82862	120.3515356	116.0610755	111.9483347	108.0048944	104.2227901	100.5944835	97.11283693	93.77108914
150603A00018	6/3/2015	2.84	6/3/2025	6/3/2015	124.82862	120.3515356	116.0610755	111.9483347	108.0048944	104.2227901	100.5944835	97.11283693	93.77108914
150610A00009	6/10/2015	3.03	6/10/2025	6/10/2015	125.72877	121.2102565	116.8806259	112.7308795	108.7525082	104.9374585	101.2781047	97.76722364	94.39797043
150331A00004	3/31/2015	2.08	3/31/2022	3/31/2015	103.51731	102.9011727	102.2923487	101.6907051	101.0961158	100.5084572	99.9276089	99.35345306	98.78587466
150408A00004	4/8/2015	2.17	4/10/2023	4/8/2015	109.82924	108.0737579	106.3555034	104.6733653	103.0262752	101.4132068	99.83317373	98.28522786	96.76845707
150518A00026	5/18/2015	2.08	11/18/2021	5/18/2015	101.2967	101.0735676	100.8514287	100.6302789	100.4101113	100.1909195	99.97269684	99.7554369	99.53913323
150601A00470	6/1/2015	2.98	5/31/2024	6/1/2015	118.742	115.581262	112.5221019	109.5605414	106.6927914	103.9152407	101.2244464	98.61712426	96.09014007
150601A00638	6/1/2015	2.51	9/30/2021	6/1/2015	100.51651	100.4327548	100.349138	100.2656585	100.1823157	100.0991095	100.0160395	99.93310547	99.85030699
150601A00640	6/1/2015	2.57	12/31/2021	6/1/2015	102.1334	101.7857979	101.440557	101.0976486	100.7570492	100.4187356	100.082685	99.74887471	99.41728251
140411A00009	4/11/2014	3.1	4/11/2024	4/11/2014	118.31044	115.3154955	112.4128384	109.5990251	106.8707645	104.2249118	101.6584602	99.1685342	96.75238268
140423A00036	4/23/2014	4.03	4/23/2029	4/23/2014	156.19657	145.6851276	135.9756664	127.0023181	118.7049701	111.028735	103.9234693	97.34333919	91.24642855
140815A00030	8/15/2014	2.96	10/16/2023	8/15/2014	114.35696	111.9829337	109.6708864	107.4187436	105.224521	103.0863167	101.0023069	98.97074222	96.98994368
140922A00026	9/22/2014	3.02	9/30/2024	9/22/2014	121.17466	117.5805112	114.1132281	110.7675724	107.5385565	104.42143	101.4116663	98.5049505	95.69716836
141024A00010	10/24/2014	2.81	10/24/2024	10/24/2014	120.88795	117.2216136	113.6869693	110.2784788	106.9908708	103.8191302	100.7584835	97.80438589	94.95250797
150319A00013	3/19/2015	3.25	3/19/2030	3/19/2015	154.83627	143.1066886	132.3710517	122.5394839	113.53069	105.2710943	97.69407026	90.73925115	84.35191142
111024A00022	10/24/2011	3.11	10/30/2023	10/24/2011	115.29918	112.8646593	110.494634	108.1869053	105.9393732	103.7500267	101.6169393	99.53826473	97.51223273

	Parallel-Shift Sensitivity Analysis												
8/31/2021					Price								
REFERENCE	SETTLEMENT	Rate	MATURITY	First/Next	-400	-300	-200	-100	Base	100	200	300	400
120228A00010	2/28/2012	2.34	3/2/2022	2/28/2012	103.16389	102.6349551	102.1114301	101.593235	101.0802886	100.5725117	100.0698263	99.57215609	99.0794264
120411A00012	4/11/2012	2.87	4/15/2022	4/11/2012	104.20711	103.5444273	102.8901737	102.2441862	101.6063088	100.9763893	100.3542792	99.73983367	99.13291167
121101A00011	11/1/2012	2.03	11/1/2022	11/1/2012	107.11314	105.8136705	104.5455687	103.3077137	102.0990339	100.9185078	99.76516103	98.6380637	97.53632793
121116A00007	11/16/2012	1.99	11/16/2021	11/16/2012	101.2244	101.0072824	100.7911043	100.5758633	100.3615531	100.1481679	99.93570137	99.72414771	99.51350095
131011A00006	10/11/2013	3.28	10/15/2021	10/11/2013	100.87638	100.7501358	100.6242201	100.4986346	100.3733779	100.2484488	100.1238459	99.99956787	99.87561346
011029A00020	10/29/2001	5.73	10/29/2021	10/29/2001	101.56843	101.4017838	101.2356873	101.0701368	100.9051295	100.740663	100.5767344	100.4133413	100.2504809
080909A00042	9/9/2008	4.74	9/11/2023	9/9/2008	117.86868	115.558111	113.3058243	111.1099562	108.9687125	106.8803701	104.8432731	102.8558298	100.9165099
081215A00091	12/15/2008	4.19	12/15/2023	12/15/2008	118.78241	116.1606146	113.6110753	111.131309	108.7189367	106.3716792	104.0873517	101.8638595	99.69919321
110818A00012	8/18/2011	2.86	8/31/2022	8/18/2011	106.92049	105.8194817	104.7410972	103.6846467	102.6494662	101.6349183	100.6403908	99.66529562	98.70906736
110825A00016	8/25/2011	3.06	8/31/2022	8/25/2011	107.12758	106.0254077	104.9458735	103.8882896	102.8519917	101.836342	100.8407279	99.86456099	98.90727554
110919A00026	9/19/2011	2.66	9/30/2021	9/19/2011	100.53976	100.4559071	100.372194	100.2886191	100.2051819	100.1218823	100.0387199	99.95569427	99.8728052
210709A00002	7/9/2021	1.36	7/9/2029	7/9/2021	135.30448	125.276253	116.0528399	107.5657573	99.75266593	92.55679117	85.92640138	79.81433704	74.17758612
210715A00009	7/15/2021	0.54	7/17/2023	7/15/2021	107.93626	105.9085841	103.9289077	101.9958047	100.1079014	98.2638737	96.46244491	94.70238373	92.98250233
210818A00005	8/18/2021	0.6	8/19/2024	8/18/2021	112.70931	109.3856092	106.1766624	103.0778739	100.0848584	97.19343163	94.39959894	91.6995461	89.08962984
210816A00003	8/16/2021	0.71	8/16/2024	8/16/2021	112.54801	109.2476013	106.0606116	102.9825186	100.0090081	97.13596159	94.35944695	91.67570846	89.08115794
210817A00013	8/19/2021	2	8/19/2026	8/19/2021	126.70809	120.7169476	115.0443979	109.6718499	104.5818936	99.75821814	95.18553763	90.84952079	86.73672669
210802A00002	8/2/2021	0.7	8/1/2025	8/2/2021	116.69877	112.1909617	107.8798788	103.7559351	99.81006043	96.03367176	92.41864441	88.95728515	85.64230698
210608A00017	6/10/2021	2.67	6/8/2029	6/10/2021	145.02937	134.7908195	125.3544053	116.6529202	108.625129	101.215209	94.37224504	88.04977295	82.2053686
210609A00007	6/11/2021	2.6	6/11/2029	6/11/2021	144.45277	134.2262555	124.8021805	116.113245	108.0981374	100.7009676	93.87076048	87.56099962	81.72921529
210609A00011	6/11/2021	1.32	6/11/2024	6/11/2021	113.67578	110.564332	107.5539608	104.6407418	101.8209354	99.09097229	96.44744499	93.88709898	91.40682462
210621A00008	6/21/2021	1.04	6/23/2025	6/21/2021	117.0739	112.702099	108.5157809	104.5061101	100.6647199	96.98368527	93.45549708	90.07303799	86.82955972
210624A00020	6/24/2021	0.78	6/24/2024	6/24/2021	112.21296	109.0823987	106.0545807	103.1255639	100.2915816	97.5490332	94.89447586	92.32461651	89.83630447
210624A00022	6/24/2021	0.87	6/24/2025	6/24/2021	117.01692	112.6254672	108.4208892	104.3942628	100.5371427	96.84152997	93.29984591	89.90490768	86.64990537
210527A00009	5/27/2021	0.5	5/28/2024	5/27/2021	111.54582	108.4990663	105.5507658	102.6970573	99.9342639	97.25888157	94.66756922	92.15713968	89.72455126
210527A00019	5/27/2021	1	5/27/2026	5/27/2021	121.26113	115.6615773	110.3500091	105.3100349	100.5262967	95.98439499	91.67082319	87.57290645	83.67874534
210527A00026	6/1/2021	2.78	6/1/2028	6/1/2021	140.53501	131.8310046	123.7291146	116.1843759	109.1554207	102.6041732	96.49556925	90.7973023	85.47959166
210601A00002	6/1/2021	0.9	6/2/2025	6/1/2021	116.27337	111.9853029	107.8772729	103.9406628	100.1673261	96.5495566	93.0800618	89.75193735	86.55864382
210603A00015	6/7/2021	2.71	6/7/2028	6/7/2021	140.08849	131.3782999	123.272205	115.7250317	108.6952199	102.1445168	96.03769546	90.34230035	85.02841445
210608A00005	6/8/2021	0.51	6/7/2024	6/8/2021	111.67794	108.5981466	105.6185716	102.7353045	99.94461433	97.2429428	94.62689469	92.09322914	89.63885132
210414A00001	4/14/2021	0.7	5/16/2024	4/14/2021	111.56809	108.5676387	105.6629467	102.850313	100.1262062	97.48725798	94.93025443	92.45212745	90.04994692
210428A00006	4/28/2021	1.23	4/28/2026	4/28/2021	121.27863	115.8010174	110.6001274	105.6604931	100.9675994	96.50782008	92.26835764	88.23718805	84.40300941
210428A00007	4/28/2021	1.74	10/27/2028	4/28/2021	134.26135	125.2550348	116.9105374	109.1758254	102.0032172	95.34899825	89.17307104	83.43863751	78.1119111
210428A00015	4/28/2021	2.02	4/28/2031	4/28/2021	147.78899	134.8379261	123.125265	112.5260143	102.928406	94.23243163	86.34854956	79.19654052	72.70449349

	Parallel-Shift Sensitivity Analysis												
8/31/2021					Price								
REFERENCE	SETTLEMENT	Rate	MATURITY	First/Next	-400	-300	-200	-100	Base	100	200	300	400
210429A00005	4/29/2021	2.08	4/29/2031	4/29/2021	148.47423	135.4851982	123.7376097	113.1061857	103.4788992	94.75550959	86.84626752	79.67076733	73.1569307
210507A00009	5/7/2021	2.02	5/7/2032	5/7/2021	151.99989	137.4119102	124.3489253	112.6433078	102.1466588	92.72751584	84.26934191	76.66876189	69.83401565
210224A00011	2/26/2021	1.17	2/27/2023	2/26/2021	107.3611	105.754628	104.1806495	102.6382652	101.1266049	99.6448294	98.19212975	96.76772559	95.37086394
210305A00013	3/5/2021	2.41	3/5/2036	3/5/2021	174.02073	152.4421368	133.7998902	117.6764392	103.71564	91.61345301	81.11008931	71.9833735	64.04313021
210312A00004	3/12/2021	0.34	3/10/2023	3/12/2021	106.40312	104.7686498	103.167739	101.5994303	100.0628067	98.55698492	97.08111429	95.63437491	94.21597643
210312A00010	3/12/2021	0.63	3/12/2024	3/12/2021	110.70379	107.9148744	105.210361	102.5871859	100.0424151	97.57323989	95.17697085	92.8510319	90.59295467
210323A00007	3/23/2021	0.51	3/25/2024	3/23/2021	110.91692	108.0771386	105.3243384	102.6553138	100.0670008	97.55646888	95.12091385	92.7576518	90.46411283
210326A00002	3/26/2021	0.57	6/26/2024	3/26/2021	112.05611	108.9111424	105.8697689	102.928014	100.0820776	97.32832686	94.66328753	92.08363622	89.58619284
210212A00008	2/12/2021	0.95	10/13/2026	2/12/2021	121.49385	115.4549051	109.7477998	104.3525875	99.25062702	94.42449064	89.85787862	85.53553986	81.44319867
210212A00016	2/17/2021	1.32	2/18/2025	2/17/2021	116.74462	112.7817468	108.9742359	105.3151659	101.7979592	98.41636643	95.16444824	92.03655806	89.02732602
210216A00006	2/16/2021	1.44	2/15/2030	2/16/2021	138.43852	127.471748	117.4450107	108.2730967	99.87891466	92.19268456	85.15121106	78.69723195	72.77883416
210216A00007	2/16/2021	1.3	2/16/2029	2/16/2021	133.26579	123.8340738	115.1264044	107.0836574	99.65181527	92.78150375	86.42757084	80.54870601	75.10709553
210216A00008	2/16/2021	0.71	2/17/2026	2/16/2021	118.76775	113.5578235	108.6029237	103.8892742	99.40391485	95.13464891	91.06999415	87.19913709	83.51189053
210216A00009	2/16/2021	0.92	2/16/2027	2/16/2021	123.49818	116.9444227	110.7730571	104.959879	99.48233851	94.31941708	89.45151586	84.86035272	80.52886721
210125A00007	1/27/2021	2.98	1/27/2031	1/27/2021	157.00216	143.9617803	132.1255829	121.375575	111.6059039	102.7215508	94.63717178	87.27606819	80.56927104
210128A00008	1/28/2021	0.54	4/9/2024	1/28/2021	110.73841	107.8639829	105.0785258	102.3787165	99.76138307	97.2234941	94.762151	92.3745813	90.05813214
210129A00008	1/29/2021	0.62	10/8/2024	1/29/2021	112.79711	109.326881	105.9807668	102.7535982	99.64045436	96.63665012	93.73772286	90.93942051	88.2376901
210129A00013	1/29/2021	0.65	1/9/2025	1/29/2021	113.82273	110.0451136	106.411396	102.9153632	99.55110087	96.31297988	93.19564098	90.19398043	87.3031365
210201A00004	2/3/2021	1.15	2/3/2025	2/3/2021	115.92009	112.0250859	108.280995	104.681176	101.2193163	97.8894138	94.68576014	91.60292456	88.63573888
210210A00005	2/10/2021	0.52	2/13/2024	2/10/2021	110.11961	107.4267334	104.8131921	102.2761857	99.81303453	97.42116953	95.09812697	92.84154347	90.64915125
201119A00008	11/19/2020	0.28	5/19/2022	11/19/2020	103.01703	102.2558092	101.5057749	100.7666843	100.0382993	99.3203887	98.61272774	97.91509817	97.22728789
201204A00016	12/8/2020	1.58	12/8/2023	12/8/2020	111.98432	109.4741451	107.0331273	104.6588575	102.3490327	100.1014488	97.91399572	95.78465216	93.71148133
201208A00029	12/10/2020	1.52	12/9/2025	12/10/2020	121.12071	116.1133474	111.3401281	106.7888104	102.4478678	98.30643994	94.35429029	90.58176623	86.97976215
201208A00031	12/10/2020	1.43	12/9/2024	12/10/2020	116.26774	112.543821	108.9585836	105.5060275	102.1804573	98.97645994	95.88888903	92.91284937	90.04368306
210114A00009	1/19/2021	2.66	1/17/2030	1/19/2021	148.14113	136.9446612	126.6852924	117.2795698	108.6518728	100.7336437	93.46269541	86.78258994	80.64208058
210125A00006	1/27/2021	2.16	1/26/2027	1/27/2021	129.70613	123.0894701	116.8506955	110.966298	105.4143483	100.1743828	95.22729851	90.5552556	86.141588
201028A00003	10/30/2020	1.42	2/27/2026	10/30/2020	121.61295	116.3232798	111.2926878	106.5071423	101.953443	97.61917025	93.49263474	89.56283048	85.81939122
201028A00004	10/30/2020	1.55	12/29/2023	10/30/2020	112.18843	109.6127995	107.1091797	104.6751508	102.3083896	100.0066642	97.76783057	95.5898277	93.47067441
201028A00006	10/30/2020	1.56	2/15/2024	10/30/2020	112.85679	110.1216114	107.4669614	104.8899931	102.3879833	99.95832117	97.59850352	95.30612916	93.07889427
201030A00004	11/2/2020	2.56	10/29/2040	11/2/2020	195.04125	164.5417692	139.3072968	118.3915676	101.0232098	86.57265225	74.52542691	64.46060764	56.03337665
201030A00005	11/2/2020	2.49	10/29/2040	11/2/2020	193.37296	163.03615	137.9435493	117.1518865	99.8923215	85.53742621	73.5745497	63.58430968	55.22320254
201116A00011	11/16/2020	0.71	11/15/2024	11/16/2020	113.48529	109.8849032	106.4168236	103.0753685	99.85514048	96.75101013	93.75810076	90.87177393	88.087616
200922A00043	9/24/2020	2.4	9/25/2023	9/24/2020	112.76118	110.4691785	108.2359001	106.0594331	103.9379412	101.869662	99.85290316	97.88603934	95.96750871

	Parallel-Shift Sensitivity Analysis												
8/31/2021					Price								
REFERENCE	SETTLEMENT	Rate	MATURITY	First/Next	-400	-300	-200	-100	Base	100	200	300	400
200922A00044	9/24/2020	2.61	9/25/2023	9/24/2020	113.21921	110.922134	108.6838856	106.5025507	104.3762898	102.3033376	100.2819991	98.31064607	96.38771426
200925A00002	9/25/2020	0.74	9/25/2025	9/25/2020	116.75672	112.0882454	107.6300944	103.3716731	99.3029788	95.41456606	91.69751225	88.14338553	84.744215
200925A00004	9/25/2020	0.53	9/25/2023	9/25/2020	108.68253	106.4357182	104.2466955	102.1135763	100.0345513	98.00788377	96.03190636	94.10501751	92.22567841
200925A00008	9/25/2020	0.74	9/25/2025	9/25/2020	116.75672	112.0882454	107.6300944	103.3716731	99.3029788	95.41456606	91.69751225	88.14338553	84.744215
201022A00012	10/26/2020	2.25	10/24/2030	10/26/2020	147.8418	135.6012488	124.472881	114.3496631	105.1353891	96.74353202	89.0962244	82.12335007	75.76173602
200922A00034	9/24/2020	2.24	9/23/2026	9/24/2020	128.51024	122.3521916	116.5265725	111.0136716	105.7950502	100.853455	96.17273548	91.73776708	87.53438073
200922A00035	9/24/2020	2.94	9/23/2024	9/24/2020	120.26971	116.7254699	113.3055763	110.0049268	106.8186649	103.7421631	100.77101	97.9009992	95.12811812
200922A00036	9/24/2020	1.55	9/23/2025	9/24/2020	120.31944	115.5817699	111.0563775	106.7326042	102.6003859	98.65021791	94.87312001	91.26060484	87.80464778
200922A00037	9/24/2020	2.76	9/23/2025	9/24/2020	125.67111	120.8197349	116.1843643	111.7541865	107.5189914	103.469135	99.59550491	95.88948767	92.34293859
200922A00039	9/24/2020	3	9/23/2025	9/24/2020	126.7326	121.8586701	117.2014856	112.7502028	108.4945825	104.4249533	100.5321763	96.80761319	93.24309544
200922A00041	9/24/2020	2.68	9/23/2024	9/24/2020	119.41548	115.8850302	112.4785619	109.1909852	106.017456	102.9533583	99.99429207	97.13606144	94.37466412
200917A00002	9/17/2020	0.53	9/17/2025	9/17/2020	116.42599	111.7711604	107.3256858	103.0790475	99.02131016	95.14309054	91.43552303	87.89022833	84.49928393
200922A00023	9/24/2020	2.5	9/26/2022	9/24/2020	106.88246	105.7015054	104.5465695	103.4168016	102.3113856	101.2295407	100.170519	99.13360404	98.11810895
200922A00027	9/24/2020	1.65	9/23/2025	9/24/2020	120.76173	116.0146596	111.4801781	107.147611	103.0068823	99.04847552	95.26339976	91.64315714	88.17971313
200922A00029	9/24/2020	2.73	9/25/2023	9/24/2020	113.48094	111.1809657	108.9398774	106.7557607	104.6267747	102.5511522	100.5271967	98.55327849	96.62783171
200922A00030	9/24/2020	2.45	9/25/2023	9/24/2020	112.87024	110.5770251	108.3425633	106.1649372	104.0423099	101.9729181	99.95506885	97.98713618	96.06755765
200922A00033	9/24/2020	2.37	9/23/2024	9/24/2020	118.39697	114.8829675	111.4925062	108.2205164	105.0621685	102.0128604	99.06820533	96.22402026	93.47631512
200911A00021	9/15/2020	1.1	9/15/2025	9/15/2020	118.24087	113.5735325	109.1149092	104.8545555	100.7826072	96.88974606	93.16716577	89.60654121	86.1999993
200911A00022	9/15/2020	1.42	9/15/2025	9/15/2020	119.64811	114.9510339	110.4636395	106.1754455	102.0765499	98.15759819	94.40974986	90.82464699	87.39438533
200911A00023	9/15/2020	2.04	9/14/2027	9/15/2020	131.81648	124.3292753	117.3144988	110.7398932	104.5755648	98.79380112	93.36890104	88.27701824	83.49601816
200911A00024	9/15/2020	2.09	9/14/2027	9/15/2020	132.15372	124.6559409	117.631073	111.0468309	104.8732963	99.08273371	93.64942001	88.54948852	83.76078548
200911A00025	9/15/2020	2.28	9/13/2030	9/15/2020	147.63059	135.552789	124.5604409	114.5501889	105.4290183	97.11317331	89.52719279	82.60304961	76.27938403
200911A00026	9/15/2020	1.45	9/15/2025	9/15/2020	119.78004	115.0801747	110.590083	106.2992789	102.197857	98.27645933	94.52624211	90.93884441	87.50635902
200819A00007	8/19/2020	0.38	8/21/2023	8/19/2020	108.29733	106.1549367	104.065798	102.0282498	100.0406915	98.10158378	96.20944559	94.36285155	92.5604294
200827A00007	8/27/2020	0.77	8/27/2025	8/27/2020	116.60046	112.0293707	107.6608386	103.4848308	99.49186804	95.67298884	92.0197184	88.52403945	85.17836503
200828A00002	8/28/2020	0.73	8/28/2026	8/28/2020	120.75277	114.8557717	109.2770366	103.997795	99.00047739	94.26863452	89.78686007	85.54071912	81.51668186
200902A00018	9/4/2020	1.08	9/3/2025	9/4/2020	118.02132	113.3978354	108.9797637	104.7568951	100.7195839	96.85871378	93.16566558	89.6322874	86.25086673
200911A00006	9/11/2020	0.37	9/11/2023	9/11/2020	108.50557	106.2971225	104.1448628	102.0469866	100.0017599	98.00751719	96.06265809	94.16564437	92.31499692
200911A00020	9/15/2020	1.14	9/15/2025	9/15/2020	118.41678	113.7457202	109.2835005	105.0196667	100.9443501	97.04822758	93.32248878	89.75880444	86.34929755
200810A00004	8/10/2020	0.43	8/9/2024	8/10/2020	112.06889	108.7865078	105.6165287	102.5544869	99.59612373	96.73737371	93.97435394	91.30335509	88.7208325
200811A00003	8/11/2020	0.57	8/11/2025	8/11/2020	116.24083	111.7101078	107.3785671	103.2364334	99.27446063	95.48390292	91.8564851	88.38437468	85.06015575
200817A00011	8/17/2020	0.53	2/18/2025	8/17/2020	114.35614	110.4218967	106.6427016	103.0116155	99.5220532	96.16775903	92.94278849	89.841491	86.85849365
200817A00014	8/17/2020	0.51	8/17/2022	8/17/2020	104.18624	103.1459568	102.1262906	101.1266339	100.1464026	99.18503516	98.24199161	97.31675232	96.40881717

	Parallel-Shift Sensitivity Analysis												
8/31/2021					Price								
REFERENCE	SETTLEMENT	Rate	MATURITY	First/Next	-400	-300	-200	-100	Base	100	200	300	400
200818A00005	8/18/2020	1.05	8/18/2027	8/18/2020	124.9049	117.7261773	110.9990081	104.6927766	98.77908988	93.23160842	88.02588725	83.13923054	78.55055795
200818A00009	8/18/2020	1.7	8/18/2033	8/18/2020	152.72458	136.2993109	121.7808934	108.9380132	97.56847356	87.49540373	78.56397637	70.6385647	63.60027817
200727A00016	7/27/2020	0.43	7/27/2023	7/27/2020	108.12437	106.0592485	104.0437619	102.076417	100.1557717	98.28043669	96.44907338	94.66039159	92.91314751
200730A00001	7/30/2020	0.46	7/30/2024	7/30/2020	112.06372	108.8126757	105.6719529	102.6372144	99.70431767	96.86930589	94.12839832	91.47798148	88.91460074
200731A00005	7/31/2020	0.45	7/31/2024	7/31/2020	112.04242	108.7885912	105.6452777	102.6081322	99.6730012	96.83591767	94.09309123	91.44089936	88.87587893
200803A00005	8/3/2020	0.54	6/30/2023	8/3/2020	107.74871	105.7737219	103.8444117	101.9594508	100.1175623	98.31751416	96.55811716	94.83822331	93.1567241
200806A00002	8/6/2020	0.43	8/6/2024	8/6/2020	112.03921	108.7666771	105.6059017	102.5524643	99.60214184	96.750902	93.99489312	91.33043516	88.75401098
200807A00004	8/7/2020	0.29	8/8/2022	8/7/2020	103.98498	102.9718293	101.9782599	101.0037101	100.0476383	99.10952349	98.18886398	97.2851766	96.39799588
200709A00007	7/10/2020	1.67	7/9/2027	7/10/2020	128.60631	121.4499943	114.7338848	108.4287251	102.5073442	96.94449794	91.71672326	86.80220406	82.18064779
200720A00012	7/20/2020	0.77	7/15/2025	7/20/2020	116.17692	111.7525026	107.5186547	103.4662072	99.58648301	95.8712644	92.31276661	88.90361269	85.63681001
200720A00039	7/22/2020	2.48	7/21/2025	7/22/2020	123.45467	118.8629749	114.4681318	110.260676	106.2316449	102.3725517	98.67535743	95.13244526	91.7365957
200720A00044	7/22/2020	2.22	7/21/2026	7/22/2020	127.57261	121.6556763	116.0482745	110.7326283	105.6920727	100.9109782	96.37468144	92.06942021	87.98227403
200722A00010	7/22/2020	0.66	7/22/2024	7/22/2020	112.13654	108.9202233	105.8120311	102.8077492	99.90335366	97.09499893	94.37900888	91.75186845	89.21021565
200722A00011	7/22/2020	0.59	7/24/2023	7/22/2020	108.11322	106.0627907	104.0613551	102.107442	100.1996362	98.33657413	96.51694174	94.73947202	93.00294318
200629A00005	6/29/2020	0.55	6/29/2022	6/29/2020	103.63271	102.7457649	101.8738903	101.0167054	100.1738418	99.34494346	98.52966612	97.72767662	96.93865263
200630A00004	6/30/2020	0.66	7/1/2024	6/30/2020	111.92438	108.7762935	105.7320678	102.7877319	99.93949084	97.18371458	94.51692977	91.93581213	89.43717927
200701A00004	7/1/2020	0.54	7/1/2022	7/1/2020	103.64867	102.7555481	101.877704	101.0147492	100.1663079	99.33201683	98.51152485	97.70449229	96.91059054
200709A00004	7/10/2020	1.4	7/10/2025	7/10/2020	118.76529	114.3045857	110.0347588	105.9466773	102.0316894	98.28159975	94.68864289	91.24545834	87.94506751
200709A00005	7/10/2020	2.23	7/10/2030	7/10/2020	146.27911	134.5069093	123.7743899	113.9842963	105.0489282	96.8891603	89.43356469	82.61762727	76.38304739
200709A00006	7/10/2020	2.58	7/10/2030	7/10/2020	149.84992	137.9143092	127.0287915	117.0953375	108.0255356	99.73960702	92.1655241	85.23822132	78.8988909
200611A00010	6/11/2020	1.08	6/11/2027	6/11/2020	124.5061	117.5692927	111.0563966	104.9393541	99.19211495	93.79047828	88.71195081	83.93561752	79.44202246
200611A00011	6/11/2020	1.2	6/9/2028	6/11/2020	128.59186	120.2781671	112.5491801	105.3608589	98.67269954	92.44743466	86.65075839	81.2510758	76.2192751
200611A00013	6/11/2020	0.59	6/12/2023	6/11/2020	107.63796	105.7182142	103.8422255	102.0086447	100.2161748	98.46357039	96.74963573	95.07322171	93.43322381
200615A00019	6/17/2020	1.34	6/16/2025	6/17/2020	118.23032	113.8582158	109.6706479	105.6588172	101.8143984	98.1295091	94.59668329	91.20884696	87.95929506
200615A00023	6/17/2020	1.68	6/17/2024	6/17/2020	114.82459	111.6773024	108.6325292	105.6863157	102.8348885	100.0746435	97.40213738	94.81407917	92.30732237
200626A00015	6/26/2020	0.43	6/26/2023	6/26/2020	107.77722	105.808778	103.8857957	102.0069379	100.1709147	98.37648317	96.62244508	94.90764512	93.23096895
200527A00022	5/27/2020	0.53	5/27/2022	5/27/2020	103.22164	102.4365218	101.6632753	100.901631	100.1513295	99.41211919	98.68375578	97.9660021	97.25862785
200529A00004	5/29/2020	0.56	5/29/2024	5/29/2020	111.73188	108.6793599	105.7255359	102.8665399	100.098683	97.41844952	94.82248775	92.30760039	89.87073628
200529A00009	5/29/2020	0.42	5/30/2023	5/29/2020	107.44947	105.5656141	103.7243321	101.9242452	100.1640388	98.44245519	96.75829037	95.11039086	93.49765117
200601A00006	6/1/2020	0.6	6/1/2023	6/1/2020	107.53006	105.6443986	103.8013477	101.9995373	100.2376567	98.51445121	96.82871949	95.17931031	93.56512001
200604A00010	6/4/2020	0.89	6/4/2025	6/4/2020	116.25375	111.9596152	107.8459756	103.9041938	100.1261047	96.50398391	93.03052063	89.69879247	86.50224224
200604A00012	6/4/2020	1.59	6/4/2030	6/4/2020	139.36373	128.039206	117.7123971	108.290324	99.68912522	91.83311835	84.65396281	78.0899123	72.08514708
200511A00017	5/11/2020	0.83	2/3/2025	5/11/2020	114.7372	110.8634814	107.1400672	103.560336	100.1179967	96.80706807	93.62186143	90.55696496	87.60722857

	Parallel-Shift Sensitivity Analysis												
8/31/2021					Price								
REFERENCE	SETTLEMENT	Rate	MATURITY	First/Next	-400	-300	-200	-100	Base	100	200	300	400
200511A00018	5/11/2020	0.98	2/2/2026	5/11/2020	119.10931	113.9703598	109.0796974	104.4240832	99.99104759	95.76884571	91.74641203	87.91331734	84.25972891
200511A00020	5/11/2020	1.4	2/1/2028	5/11/2020	128.84891	120.9752545	113.6284762	106.7707277	100.3670644	94.38520558	88.79531896	83.569823	78.68320667
200511A00022	5/11/2020	1.6	2/1/2030	5/11/2020	138.11846	127.3021134	117.4054306	108.3456495	100.0478433	92.44414164	85.47303344	79.07874251	73.21066691
200511A00028	5/13/2020	1.02	5/13/2024	5/13/2020	112.45856	109.4545335	106.5460406	103.7293989	101.0010967	98.35778374	95.79626289	93.31348148	90.90652364
200513A00002	5/13/2020	0.56	5/13/2024	5/13/2020	111.56789	108.566819	105.6614891	102.8481999	100.123424	97.4837964	94.92610641	92.44728867	90.04441553
200505A00006	5/5/2020	0.39	11/4/2021	5/5/2020	100.75938	100.5767846	100.3948567	100.2135915	100.0329853	99.85303458	99.67373572	99.49508516	99.31707937
200506A00005	5/6/2020	0.97	5/6/2025	5/6/2020	116.27315	112.0705401	108.0413635	104.1774553	100.4710907	96.91495548	93.50212108	90.22602156	87.08043216
200507A00005	5/7/2020	0.67	5/5/2023	5/7/2020	107.36631	105.5613692	103.7958905	102.0686445	100.3784565	98.72420031	97.10479556	95.51920543	93.9664344
200508A00004	5/8/2020	0.43	5/8/2023	5/8/2020	107.22049	105.4037423	103.6269391	101.8888316	100.1882237	98.52396859	96.89496692	95.30016381	93.73854673
200511A00015	5/11/2020	0.6	2/1/2023	5/11/2020	106.15925	104.6472509	103.1643372	101.7097393	100.2827164	98.88255273	97.50855685	96.16006051	94.83641765
200511A00016	5/11/2020	0.71	2/1/2024	5/11/2020	110.47901	107.8207444	105.2396773	102.733127	100.2985226	97.93339744	95.63538451	93.40221169	91.23169728
200430A00008	4/30/2020	0.94	4/30/2025	4/30/2020	116.09104	111.9108894	107.9026038	104.0581302	100.3698427	96.83051886	93.43331512	90.17174447	87.03965551
200430A00009	4/30/2020	1.16	4/30/2026	4/30/2020	120.94258	115.466442	110.2673559	105.3298156	100.6392717	96.18206676	91.94537507	87.91714705	84.08605774
200430A00016	4/30/2020	0.82	4/30/2024	4/30/2020	111.7455	108.7913434	105.9301641	103.1584202	100.4727335	97.86987908	95.34677703	92.9004846	90.52818906
200504A00004	5/4/2020	0.75	5/5/2025	5/4/2020	115.99585	111.7852862	107.7488283	103.8782733	100.1658552	96.60422093	93.1864058	89.9058101	86.75617755
200504A00015	5/4/2020	0.68	5/4/2023	5/4/2020	107.37231	105.5702618	103.8075565	102.0829758	100.3953502	98.74355823	97.1265241	95.54321525	93.9926402
200505A00004	5/5/2020	0.77	5/5/2025	5/5/2020	116.07568	111.8635677	107.8256149	103.95361	100.2397853	96.67678599	93.2576459	89.9757638	86.82488195
200429A00047	5/1/2020	2.7	4/30/2025	5/1/2020	123.06844	118.7543279	114.6161277	110.6456325	106.8350675	103.1770678	99.66465427	96.29121019	93.05046042
200429A00050	5/1/2020	2.61	4/30/2025	5/1/2020	122.71165	118.4043794	114.2728225	110.3087716	106.5044594	102.8525284	99.34600624	95.97828296	92.74308971
200429A00052	5/1/2020	1.43	4/30/2024	5/1/2020	113.47717	110.4985852	107.6135682	104.8185549	102.1101486	99.48510692	96.94033285	94.47286747	92.07988243
200429A00053	5/1/2020	2.18	4/30/2025	5/1/2020	121.00694	116.7324029	112.6325866	108.699325	104.9248874	101.3019511	97.82357679	94.48318623	91.27454079
200429A00056	5/1/2020	1.54	4/30/2025	5/1/2020	118.4697	114.2438798	110.1913052	106.3038696	102.5738966	98.99411511	95.55763528	92.25792597	89.08879355
200429A00058	5/1/2020	1.83	4/30/2025	5/1/2020	119.61939	115.3714918	111.2975108	107.3893103	103.6391893	100.0398533	96.58439003	93.26624702	90.07921026
200429A00015	4/29/2020	0.66	4/29/2024	4/29/2020	111.70828	108.7482212	105.8814489	103.1044063	100.4137007	97.80609344	95.27849147	92.8279398	90.45161406
200429A00017	5/4/2020	0.66	8/15/2022	5/4/2020	104.32049	103.2855172	102.2709377	101.276151	100.3005829	99.34368082	98.40491346	97.4837694	96.57975629
200429A00018	5/4/2020	0.73	4/17/2023	5/4/2020	107.2561	105.5061076	103.7935335	102.1172525	100.4761801	98.8692751	97.2955373	95.75400546	94.24375543
200429A00043	5/1/2020	1.56	4/30/2025	5/1/2020	118.54899	114.3216462	110.2675952	106.3787276	102.6473651	99.06623498	95.62844595	92.32746535	89.15709815
200429A00044	5/1/2020	1.86	4/30/2025	5/1/2020	119.73832	115.4881414	111.4119459	107.5015973	103.749392	100.1480331	96.69060604	93.3705561	90.18166717
200429A00045	5/1/2020	1.54	4/30/2025	5/1/2020	118.4697	114.2438798	110.1913052	106.3038696	102.5738966	98.99411511	95.55763528	92.25792597	89.08879355
200417A00016	4/21/2020	2.18	4/21/2025	4/21/2020	120.87459	116.6323662	112.5625577	108.6571607	104.9085896	101.3096561	97.8535461	94.53379735	91.34427904
200420A00047	4/20/2020	0.77	4/20/2023	4/20/2020	107.36082	105.6008348	103.878624	102.1930388	100.5429797	98.92739102	97.34525918	95.79561022	94.27750795
200424A00006	4/24/2020	0.6	4/24/2023	4/24/2020	107.35432	105.5781439	103.8403375	102.1397308	100.4751983	98.84565966	97.25007822	95.68745814	94.15684262
200428A00013	4/30/2020	1.49	4/29/2024	4/30/2020	113.63451	110.6568689	107.7726623	104.9783438	102.2705248	99.64596998	97.10158916	94.63442971	92.2416692

	Parallel-Shift Sensitivity Analysis												
8/31/2021					Price								
REFERENCE	SETTLEMENT	Rate	MATURITY	First/Next	-400	-300	-200	-100	Base	100	200	300	400
200429A00003	4/29/2020	0.74	4/28/2023	4/29/2020	107.40636	105.6218051	103.875922	102.1675209	100.4954624	98.85865368	97.25604571	95.68663124	94.14944267
200429A00010	4/29/2020	0.78	4/29/2025	4/29/2020	116.05263	111.8601122	107.8402631	103.9849837	100.2866024	96.73785358	93.33185345	90.06207735	86.92233853
200413A00031	4/13/2020	0.73	4/13/2022	4/13/2020	102.81427	102.1626213	101.5191986	100.8838507	100.2564263	99.63677775	99.02476114	98.42023608	97.82306561
200413A00032	4/13/2020	0.82	4/13/2023	4/13/2020	107.36003	105.6211834	103.919342	102.2533917	100.6222671	99.02494473	97.4604412	95.92781114	94.42614538
200414A00016	4/16/2020	1.64	4/15/2024	4/16/2020	113.87155	110.9348593	108.0892113	105.3311948	102.6575506	100.0651645	97.55105974	95.11238989	92.74643208
200415A00019	4/15/2020	0.68	4/15/2022	4/15/2020	102.80764	102.1500498	101.5008439	100.8598588	100.2269389	99.60193275	98.98469255	98.3750742	97.77293714
200415A00030	4/15/2020	0.76	3/15/2023	4/15/2020	106.91179	105.2623406	103.6468621	102.0643853	100.5139756	98.99473333	97.505792	96.04631684	94.61550333
200416A00005	4/16/2020	0.49	4/15/2022	4/16/2020	102.75289	102.0946428	101.4447946	100.8031877	100.169666	99.54407732	98.9262733	98.31610925	97.71344405
200406A00013	4/6/2020	0.83	4/1/2022	4/6/2020	102.7224	102.106797	101.4985319	100.8974758	100.3035013	99.71648403	99.13630242	98.56283778	97.99597415
200406A00020	4/6/2020	0.65	4/6/2022	4/6/2020	102.74062	102.1092495	101.4856101	100.8695576	100.2609543	99.65966551	99.06556012	98.47850995	97.89838988
200407A00001	4/8/2020	2.41	4/7/2025	4/8/2020	121.56406	117.3551453	113.315608	109.4376604	105.7139213	102.1373916	98.70143211	95.39974295	92.22634374
200407A00002	4/8/2020	1.82	4/8/2024	4/8/2020	114.27638	111.3562501	108.5260676	105.7824895	103.1223174	100.5424939	98.04009539	95.61232532	93.25650744
200408A00019	4/10/2020	1.7	4/11/2022	4/10/2020	103.39777	102.7499851	102.1102985	101.4785596	100.8546208	100.2383382	99.62957138	99.02818346	98.43404076
200408A00021	4/8/2020	0.99	4/4/2025	4/8/2020	116.59936	112.4780754	108.5236743	104.7284655	101.0851566	97.58683309	94.22693681	90.99924486	87.89785056
200402A00011	4/2/2020	0.8	3/31/2023	4/2/2020	107.16665	105.4687039	103.8063187	102.178452	100.5841012	99.02230195	97.49212701	95.99268383	94.52311325
200402A00021	4/2/2020	0.77	10/2/2024	4/2/2020	113.73793	110.2585976	106.9033052	103.6669037	100.5444908	97.53139774	94.62317674	91.81558911	89.10459387
200403A00006	4/3/2020	1.05	4/3/2025	4/3/2020	116.22538	112.1302298	108.2004919	104.4285584	100.8072186	97.32963464	93.98931981	90.78011826	87.69618608
200403A00014	4/3/2020	0.63	4/17/2023	4/3/2020	107.32064	105.5659653	103.8488824	102.1682515	100.5229814	98.91202484	97.33437573	95.78906739	94.27517049
200403A00021	4/3/2020	0.74	4/29/2022	4/3/2020	103.02369	102.3235564	101.632881	100.9514755	100.2791546	99.6157376	98.96104896	98.31491746	97.67717643
200406A00006	4/6/2020	1.13	4/7/2025	4/6/2020	116.58147	112.4666254	108.5183512	104.7289682	101.0911972	97.59813676	94.24324092	91.02029869	87.92341475
200327A00075	3/31/2020	1.75	3/29/2024	3/31/2020	113.94526	111.0610903	108.2650556	105.5539055	102.924535	100.3739743	97.899382	95.49803869	93.16734061
200330A00027	3/30/2020	0.62	3/30/2022	3/30/2020	102.63374	102.0235795	101.4206386	100.8247874	100.2359015	99.65385947	99.07854268	98.50983524	97.94762389
200330A00045	3/30/2020	1.47	3/30/2027	3/30/2020	126.26217	119.5209287	113.1780448	107.2079273	101.5867664	96.29239585	91.30417102	86.60285638	82.17052198
200331A00060	3/31/2020	1.09	3/31/2025	3/31/2020	116.34671	112.2590089	108.3360719	104.5703358	100.954633	97.48216556	94.14648378	90.94146615	87.8613006
200401A00020	4/1/2020	0.72	3/29/2022	4/1/2020	102.61857	102.0122081	101.4129729	100.8207422	100.2353938	99.65680848	99.0848696	98.51946331	97.96047833
200401A00025	4/1/2020	0.54	4/1/2022	4/1/2020	102.61108	101.9950657	101.3864032	100.7849663	100.1906271	99.60326062	99.02274495	98.44896088	97.88179198
200317A00065	3/19/2020	2.05	3/19/2025	3/19/2020	119.89538	115.7790861	111.8268111	108.0311037	104.3848934	100.8814707	97.51446647	94.27783258	91.16582361
200323A00007	3/23/2020	1.05	9/23/2021	3/23/2020	100.30455	100.2404512	100.1764466	100.1125347	100.0487151	99.9849877	99.92135232	99.85780874	99.79435678
200324A00020	3/24/2020	1.23	3/24/2022	3/24/2020	102.8493	102.2569408	101.6713855	101.0925167	100.5202205	99.9543853	99.39490222	98.84166471	98.29456861
200325A00029	3/25/2020	1.15	3/24/2023	3/25/2020	107.88033	106.1927101	104.5402271	102.9218572	101.3366186	99.78356687	98.2617931	96.77042237	95.30861208
200326A00029	3/26/2020	1.82	3/26/2027	3/26/2020	128.38507	121.5956708	115.2057882	109.1898383	103.5240064	98.18611777	93.15551608	88.41295136	83.94047698
200326A00030	3/26/2020	1.13	3/24/2023	3/26/2020	107.62193	105.9403826	104.2937881	102.6811304	101.1014343	99.5537618	98.03721002	96.55090974	95.09402373
200311A00058	3/16/2020	1.1	10/14/2022	3/16/2020	105.57867	104.3487009	103.1471873	101.9731499	100.8256554	99.70381191	98.60676747	97.53370729	96.48385196

	Parallel-Shift Sensitivity Analysis												
8/31/2021					Price								
REFERENCE	SETTLEMENT	Rate	MATURITY	First/Next	-400	-300	-200	-100	Base	100	200	300	400
200312A00004	3/13/2020	1.23	1/24/2025	3/13/2020	116.09607	112.2306994	108.5138825	104.9391336	101.5002865	98.1914759	95.00712084	91.94190966	88.99078535
200312A00016	3/16/2020	1.09	2/15/2023	3/16/2020	107.0834	105.5182842	103.9841152	102.4800532	101.0052875	99.55903577	98.14054318	96.74908089	95.38394506
200312A00042	3/16/2020	1.38	3/16/2023	3/16/2020	107.9211	106.2602578	104.6336445	103.0402759	101.4792089	99.94953589	98.45038261	96.98090697	95.54029743
200313A00022	3/13/2020	1.11	3/8/2022	3/13/2020	102.56574	102.0214836	101.4829908	100.9501691	100.4229293	99.90118386	99.38484725	98.8738356	98.3680668
200316A00064	3/16/2020	0.99	3/16/2022	3/16/2020	102.60946	102.0414488	101.4797148	100.9241527	100.3746611	99.83114078	99.29349466	98.7616278	98.2354473
200310A00042	3/10/2020	1.41	3/11/2030	3/10/2020	136.69725	125.7972309	115.8371251	106.7312398	98.40209524	90.77960192	83.80032199	77.4068071	71.54700552
200310A00073	3/12/2020	2.12	3/11/2027	3/12/2020	130.05442	123.2672931	116.876283	110.8562025	105.1835947	99.83660691	94.79487209	90.03940046	85.55247917
200311A00006	3/13/2020	1.12	3/10/2025	3/13/2020	116.23093	112.2109261	108.3509303	104.6436994	101.0823596	97.66038633	94.37158397	91.21006751	88.17024505
200311A00036	3/16/2020	1.03	4/15/2022	3/16/2020	103.0313	102.3728955	101.7228829	101.0810983	100.4473862	99.82159475	99.20357626	98.59318645	97.99028467
200311A00040	3/12/2020	1.3	3/11/2025	3/12/2020	116.9275	112.8914876	109.016084	105.2940161	101.7183829	98.28263404	94.9805496	91.80622166	88.75403669
200311A00056	3/13/2020	1.27	4/10/2024	3/13/2020	112.77646	109.8707282	107.054808	104.3253457	101.6791395	99.11312945	96.62438985	94.21012232	91.86764929
200309A00027	3/9/2020	0.97	3/10/2025	3/9/2020	115.66012	111.6506706	107.8009182	104.1036327	100.5519516	97.13936083	93.85967492	90.70701861	87.67580927
200309A00046	3/9/2020	0.78	3/11/2025	3/9/2020	115.52891	111.5034353	107.6387932	103.9276773	100.3631582	96.93865936	93.64793725	90.48506208	87.44440032
200309A00056	3/9/2020	0.97	3/7/2025	3/9/2020	115.62841	111.6288807	107.7883687	104.0996888	100.55602	97.15088706	93.87814052	90.73193865	87.70673009
200309A00064	3/9/2020	0.55	3/9/2022	3/9/2020	102.33067	101.7835771	101.2423165	100.7067979	100.1769302	99.65262423	99.13379263	98.62034992	98.1122124
200310A00019	3/10/2020	0.95	3/10/2023	3/10/2020	107.15519	105.5181762	103.914694	102.3437956	100.8045662	99.29612428	97.81762095	96.36823788	94.94718616
200310A00025	3/10/2020	0.87	3/11/2024	3/10/2020	111.74401	108.9353319	106.2116712	103.5699373	101.007173	98.52054789	96.10735172	93.76498861	91.49097133
200306A00037	3/6/2020	1.11	3/6/2026	3/6/2020	120.16161	114.8830736	109.8644786	105.0916761	100.5513657	96.23103673	92.11891784	88.20392869	84.47563594
200306A00046	3/6/2020	1.01	3/3/2025	3/6/2020	115.73748	111.7483906	107.9174952	104.2376659	100.7021342	97.30447343	94.03857931	90.89865213	87.87917958
200306A00065	3/6/2020	1.38	3/6/2030	3/6/2020	136.35481	125.4874156	115.556176	106.4758357	98.16930238	90.56682872	83.60527836	77.2274691	71.3815841
200306A00098	3/10/2020	1.59	3/8/2030	3/10/2020	138.42764	127.4619663	117.4391941	108.2735164	99.88733783	92.21045425	85.17931385	78.73635629	72.82942027
200306A00100	3/10/2020	1.82	3/10/2031	3/10/2020	144.86495	132.2483706	120.8264142	110.4797996	101.1017173	92.59647034	84.87826678	77.8701498	71.50304759
200306A00101	3/10/2020	1.93	3/8/2030	3/10/2020	141.75205	130.64	120.4798618	111.1851769	102.6777528	94.886835	87.74836539	81.20431689	75.20209787
200305A00043	3/5/2020	0.95	3/7/2022	3/5/2020	102.47298	101.9318936	101.3965057	100.8667267	100.3424686	99.82364565	99.31017344	98.80196952	98.29895308
200306A00001	3/6/2020	1.11	3/6/2026	3/6/2020	120.16161	114.8830736	109.8644786	105.0916761	100.5513657	96.23103673	92.11891784	88.20392869	84.47563594
200306A00002	3/6/2020	0.64	3/7/2022	3/6/2020	102.35334	101.812081	101.2765275	100.7465927	100.2221885	99.70322862	99.18962852	98.68130543	98.17817827
200306A00009	3/6/2020	0.82	3/7/2022	3/6/2020	102.40432	101.86344	101.3282618	100.798691	100.2746396	99.75602167	99.24275303	98.73475117	98.2319353
200306A00012	3/6/2020	0.95	3/6/2024	3/6/2020	111.49849	108.7169524	106.0191287	103.4019958	100.8626603	98.39835148	96.00641561	93.68430983	91.42959695
200306A00014	3/6/2020	1.38	3/6/2030	3/6/2020	136.35481	125.4874156	115.556176	106.4758357	98.16930238	90.56682872	83.60527836	77.2274691	71.3815841
200305A00009	3/10/2020	1.04	10/18/2023	3/10/2020	110.07248	107.7412048	105.4711583	103.260285	101.1066172	99.00826866	96.96343144	94.97037125	93.02742406
200305A00011	3/5/2020	0.95	3/7/2022	3/5/2020	102.47298	101.9318936	101.3965057	100.8667267	100.3424686	99.82364565	99.31017344	98.80196952	98.29895308
200305A00012	3/5/2020	1.14	3/5/2025	3/5/2020	116.25154	112.2467582	108.4008874	104.7067602	101.157571	97.74685825	94.46848522	91.31662158	88.28572634
200305A00020	3/5/2020	0.95	3/5/2025	3/5/2020	116.11211	112.0946429	108.2369907	104.5319231	100.972582	97.55245708	94.2653658	91.10543506	88.06708386

	Parallel-Shift Sensitivity Analysis												
8/31/2021					Price								
REFERENCE	SETTLEMENT	Rate	MATURITY	First/Next	-400	-300	-200	-100	Base	100	200	300	400
200305A00036	3/5/2020	1.36	3/5/2027	3/5/2020	125.33353	118.7018626	112.4584455	106.5785848	101.0392791	95.81909803	90.89806757	86.25756314	81.88021183
200305A00040	3/10/2020	0.99	3/10/2023	3/10/2020	107.21884	105.5812959	103.9772931	102.4058836	100.8661522	99.35721723	97.87822951	96.4283705	95.00685104
200304A00017	3/4/2020	0.83	3/16/2022	3/4/2020	102.57288	102.0043343	101.4420838	100.8860198	100.3360404	99.79204597	99.25393915	98.72162457	98.19500897
200304A00040	3/4/2020	1.12	3/1/2024	3/4/2020	111.89505	109.1232911	106.4345888	103.8259592	101.2945451	98.83760966	96.45253097	94.13679598	91.88799548
200304A00053	3/6/2020	2.33	3/6/2025	3/6/2020	120.77623	116.6849285	112.7552041	108.9797787	105.3517452	101.8645458	98.51195192	95.28804577	92.1872031
200304A00054	3/6/2020	2.35	3/8/2027	3/6/2020	131.42585	124.6094997	118.1898415	112.1417007	106.4416312	101.0677877	95.99980732	91.21870167	86.70675699
200305A00002	3/5/2020	1.14	3/5/2025	3/5/2020	116.25154	112.2467582	108.4008874	104.7067602	101.157571	97.74685825	94.46848522	91.31662158	88.28572634
200305A00007	3/5/2020	1.14	3/5/2025	3/5/2020	116.25154	112.2467582	108.4008874	104.7067602	101.157571	97.74685825	94.46848522	91.31662158	88.28572634
200303A00002	3/3/2020	1.06	3/3/2023	3/3/2020	107.45856	105.8356477	104.2457895	102.688057	101.1615575	99.6654304	98.19884655	96.76100638	95.35113873
200303A00004	3/3/2020	1.06	3/3/2022	3/3/2020	102.5197	101.9897425	101.4652452	100.9461247	100.4322986	99.92368637	99.42020889	98.92178872	98.42834997
200303A00007	3/3/2020	1.11	3/4/2024	3/3/2020	112.30635	109.5113552	106.8004489	104.1705958	101.6188903	99.14254994	96.73890964	94.40541576	92.13962072
200303A00010	3/3/2020	1.34	3/3/2025	3/3/2020	116.98607	112.9740145	109.1208305	105.4193582	101.8628052	98.44472155	95.15898129	91.99976364	88.96153626
200303A00034	3/3/2020	1.21	3/3/2025	3/3/2020	116.4942	112.491193	108.6467893	104.9538431	101.4055712	97.9955329	94.71761081	91.56599244	88.53515332
200304A00007	3/4/2020	1.01	3/15/2022	3/4/2020	102.60704	102.0419931	101.483155	100.9304258	100.3837054	99.84289625	99.30790271	98.77863126	98.25499034
200302A00031	3/2/2020	1.02	11/18/2022	3/2/2020	106.12417	104.776704	103.4631726	102.1823084	100.9329055	99.7138171	98.52395138	97.36226836	96.22777691
200302A00033	3/2/2020	1.31	3/3/2025	3/2/2020	116.87256	112.8625942	109.0114364	105.3119317	101.7572896	98.34106263	95.05712656	91.89966259	88.8631402
200302A00035	3/2/2020	1.22	7/3/2023	3/2/2020	109.09471	107.0974172	105.1464626	103.2404935	101.3782091	99.55835435	97.77971821	96.04113183	94.34146678
200302A00051	3/2/2020	1.22	8/8/2023	3/2/2020	109.56409	107.4535432	105.3943874	103.3850537	101.4240274	99.50985062	97.64111921	95.81648079	94.03463229
200302A00053	3/2/2020	1.31	3/3/2025	3/2/2020	116.87256	112.8625942	109.0114364	105.3119317	101.7572896	98.34106263	95.05712656	91.89966259	88.8631402
200302A00054	3/2/2020	1.31	3/3/2025	3/2/2020	116.87256	112.8625942	109.0114364	105.3119317	101.7572896	98.34106263	95.05712656	91.89966259	88.8631402
200228A00064	2/28/2020	1.35	2/28/2024	2/28/2020	112.48063	109.7074196	107.0170959	104.4066905	101.8733584	99.41437415	97.02712634	94.7091119	92.45793083
200228A00065	2/28/2020	1.4	2/28/2025	2/28/2020	117.17737	113.1711948	109.323333	105.6266635	102.0744309	98.66021983	95.37793621	92.22178898	89.18627335
200228A00066	2/28/2020	1.35	2/28/2024	2/28/2020	112.48063	109.7074196	107.0170959	104.4066905	101.8733584	99.41437415	97.02712634	94.7091119	92.45793083
200228A00073	2/28/2020	1.32	2/28/2023	2/28/2020	107.60968	105.9978965	104.4187725	102.8714009	101.3549055	99.86844134	98.41119414	96.98237829	95.58123587
200302A00008	3/2/2020	1.2	3/9/2023	3/2/2020	107.53993	105.9026061	104.2987832	102.7275109	101.1878764	99.67900092	98.20003744	96.75016977	95.32861088
200302A00011	3/2/2020	1.31	2/27/2025	3/2/2020	116.82467	112.8284922	108.9901654	105.3025964	101.7590534	98.35314357	95.07879366	91.93023228	88.9019731
200228A00042	2/28/2020	1.17	2/28/2024	2/28/2020	112.40483	109.6239783	106.9264213	104.3091717	101.7693647	99.30425643	96.91121804	94.58772994	92.33137658
200228A00043	2/28/2020	1.21	2/28/2025	2/28/2020	117.04105	113.0221871	109.1625294	105.454901	101.8924946	98.46884649	95.1778171	92.01357296	88.97056952
200228A00058	2/28/2020	1.31	2/28/2022	2/28/2020	102.56262	102.0419153	101.5264741	101.0162162	100.5110639	100.010941	99.51577274	99.02548595	98.54000884
200228A00060	2/28/2020	1.31	2/28/2022	2/28/2020	102.56262	102.0419153	101.5264741	101.0162162	100.5110639	100.010941	99.51577274	99.02548595	98.54000884
200228A00061	2/28/2020	1.13	7/20/2022	2/28/2020	104.52668	103.5694374	102.629631	101.7067913	100.8004621	99.91020353	99.03559107	98.17621519	97.33168048
200228A00062	2/28/2020	1.32	2/28/2023	2/28/2020	107.60968	105.9978965	104.4187725	102.8714009	101.3549055	99.86844134	98.41119414	96.98237829	95.58123587
200228A00015	3/3/2020	1.34	10/16/2023	3/3/2020	110.72174	108.3890561	106.1174791	103.9049645	101.7495533	99.64936767	97.60260708	95.60754439	93.66252216

	Parallel-Shift Sensitivity Analysis												
8/31/2021					Price								
REFERENCE	SETTLEMENT	Rate	MATURITY	First/Next	-400	-300	-200	-100	Base	100	200	300	400
200228A00027	2/28/2020	1.31	2/28/2022	2/28/2020	102.56262	102.0419153	101.5264741	101.0162162	100.5110639	100.010941	99.51577274	99.02548595	98.54000884
200228A00029	2/28/2020	1.31	2/28/2022	2/28/2020	102.56262	102.0419153	101.5264741	101.0162162	100.5110639	100.010941	99.51577274	99.02548595	98.54000884
200228A00030	2/28/2020	1.32	2/28/2023	2/28/2020	107.60968	105.9978965	104.4187725	102.8714009	101.3549055	99.86844134	98.41119414	96.98237829	95.58123587
200228A00031	2/28/2020	1.35	2/28/2024	2/28/2020	112.48063	109.7074196	107.0170959	104.4066905	101.8733584	99.41437415	97.02712634	94.7091119	92.45793083
200228A00041	2/28/2020	1.14	2/28/2023	2/28/2020	107.54444	105.9295451	104.3474388	102.7972016	101.2779523	99.78884179	98.32905127	96.89779123	95.49429999
200227A00026	2/27/2020	1.41	2/27/2023	2/27/2020	107.73525	106.1257139	104.5487303	103.0033954	101.4888372	100.0042151	98.54871868	97.12156625	95.72200351
200227A00027	2/27/2020	1.47	2/27/2025	2/27/2020	117.42805	113.4208156	109.5717485	105.8737497	102.3200759	98.90432304	95.62040745	92.46254765	89.42524768
200227A00031	2/27/2020	1.43	2/27/2024	2/27/2020	112.67919	109.906652	107.2168747	104.6068929	102.0738693	99.61508611	97.22793872	94.90993059	92.65866787
200227A00052	2/27/2020	1.41	2/27/2023	2/27/2020	107.73525	106.1257139	104.5487303	103.0033954	101.4888372	100.0042151	98.54871868	97.12156625	95.72200351
200228A00005	2/28/2020	1.35	2/28/2024	2/28/2020	112.48063	109.7074196	107.0170959	104.4066905	101.8733584	99.41437415	97.02712634	94.7091119	92.45793083
200228A00013	3/3/2020	1.33	1/14/2022	3/3/2020	101.92257	101.5348661	101.1501209	100.7682964	100.3893592	100.0132767	99.64001648	99.26954682	98.90183641
200226A00025	2/26/2020	1.38	2/26/2025	2/26/2020	117.65677	113.633717	109.769651	106.0574212	102.4902429	99.06167284	95.76559073	92.59618054	89.5479138
200227A00004	2/27/2020	1.65	2/27/2030	2/27/2020	140.64507	129.5325912	119.3742165	110.0832163	101.5811531	93.79705299	86.66666113	80.13177452	74.13964419
200227A00005	2/27/2020	1.43	2/27/2024	2/27/2020	112.67919	109.906652	107.2168747	104.6068929	102.0738693	99.61508611	97.22793872	94.90993059	92.65866787
200227A00011	2/27/2020	1.42	2/28/2022	2/27/2020	102.61853	102.0976642	101.5820584	101.0716371	100.5663226	100.0660386	99.57071043	99.08026487	98.59463011
200227A00013	2/27/2020	1.43	2/27/2024	2/27/2020	112.67919	109.906652	107.2168747	104.6068929	102.0738693	99.61508611	97.22793872	94.90993059	92.65866787
200227A00023	2/27/2020	1.47	2/27/2025	2/27/2020	117.42805	113.4208156	109.5717485	105.8737497	102.3200759	98.90432304	95.62040745	92.46254765	89.42524768
200226A00009	2/26/2020	1.75	2/26/2030	2/26/2020	141.61327	130.4622084	120.2672045	110.9414224	102.4063302	94.59086355	87.43068075	80.86749589	74.84848089
200226A00013	2/26/2020	1.35	2/26/2024	2/26/2020	112.85535	110.0751637	107.3780322	104.7609764	102.2211469	99.75581434	97.36236328	95.03828689	92.78118153
200226A00014	2/26/2020	1.53	2/27/2023	2/26/2020	107.92232	106.3112568	104.7327708	103.1859605	101.6699533	100.1839079	98.72701314	97.29848658	95.89757329
200226A00015	2/26/2020	1.53	2/26/2024	2/26/2020	112.93015	110.1576048	107.4677025	104.8574882	102.3241322	99.86492338	97.47726376	95.15866287	92.90673256
200226A00016	2/26/2020	1.57	2/26/2025	2/26/2020	117.79131	113.7809592	109.9287052	106.227452	102.6704665	99.25135392	95.96403905	92.80274817	89.76199241
200226A00019	2/26/2020	1.38	2/26/2025	2/26/2020	117.65677	113.633717	109.769651	106.0574212	102.4902429	99.06167284	95.76559073	92.59618054	89.5479138
200225A00042	2/25/2020	1.39	2/25/2022	2/25/2020	102.6015	102.0889566	101.5815205	101.0791142	100.5816631	100.0890942	99.60133608	99.11831841	98.63997241
200225A00044	2/25/2020	1.57	2/25/2022	2/25/2020	102.64968	102.1375094	101.6304299	101.1283696	100.6312544	100.1390116	99.6515699	99.16885929	98.69081122
200225A00045	2/25/2020	1.54	2/24/2023	2/25/2020	107.89166	106.2907171	104.7219683	103.1845235	101.6775249	100.2001457	98.75158829	97.33108328	95.93788809
200225A00050	2/25/2020	1.57	2/25/2025	2/25/2020	117.77744	113.7709009	109.9221724	106.2241834	102.6702182	99.25389811	95.96916296	92.81025309	89.77169273
200226A00005	2/26/2020	1.53	2/27/2023	2/26/2020	107.92232	106.3112568	104.7327708	103.1859605	101.6699533	100.1839079	98.72701314	97.29848658	95.89757329
200226A00006	2/26/2020	1.57	2/26/2025	2/26/2020	117.79131	113.7809592	109.9287052	106.227452	102.6704665	99.25135392	95.96403905	92.80274817	89.76199241
200224A00035	2/24/2020	1.59	2/24/2025	2/24/2020	117.83882	113.8347033	109.9881638	106.2921414	102.739936	99.32518385	96.04183852	92.88415307	89.84666362
200225A00003	2/25/2020	1.54	2/27/2023	2/25/2020	107.93791	106.3267187	104.7481075	103.2011743	101.6850463	100.1988823	98.74187101	97.31322994	95.9122041
200225A00004	2/25/2020	1.54	2/26/2024	2/25/2020	112.9566	110.1837008	107.493457	104.8829091	102.3492269	99.88969928	97.50172792	95.18282216	92.93059364
200225A00012	2/25/2020	1.57	2/25/2025	2/25/2020	117.77744	113.7709009	109.9221724	106.2241834	102.6702182	99.25389811	95.96916296	92.81025309	89.77169273

	Parallel-Shift Sensitivity Analysis												
8/31/2021					Price								
REFERENCE	SETTLEMENT	Rate	MATURITY	First/Next	-400	-300	-200	-100	Base	100	200	300	400
200225A00014	2/25/2020	1.57	2/25/2022	2/25/2020	102.64968	102.1375094	101.6304299	101.1283696	100.6312544	100.1390116	99.6515699	99.16885929	98.69081122
200225A00018	2/25/2020	1.94	2/25/2030	2/25/2020	141.71715	130.6473596	120.5227872	111.257851	102.7751266	95.00453197	87.88259687	81.35180827	75.36002393
200224A00016	2/24/2020	1.56	2/24/2023	2/24/2020	107.92266	106.3214676	104.752471	103.2147829	101.7075453	100.2299314	98.78114333	97.36041166	95.96699369
200224A00017	2/24/2020	1.59	2/24/2025	2/24/2020	117.83882	113.8347033	109.9881638	106.2921414	102.739936	99.32518385	96.04183852	92.88415307	89.84666362
200224A00019	2/24/2020	1.59	2/18/2025	2/24/2020	117.75528	113.7740015	109.9486209	106.272195	102.7381269	99.34014932	96.07230537	92.92893193	89.90464324
200224A00021	2/24/2020	1.58	9/24/2024	2/24/2020	115.81457	112.3390651	108.986194	105.7509156	102.6284261	99.61414789	96.70371829	93.89297738	91.17795746
200224A00024	2/24/2020	1.59	2/24/2025	2/24/2020	117.83882	113.8347033	109.9881638	106.2921414	102.739936	99.32518385	96.04183852	92.88415307	89.84666362
200224A00025	2/24/2020	1.59	1/23/2025	2/24/2020	117.40291	113.5173969	109.7808651	106.1868221	102.7290925	99.40180181	96.19936014	93.11644699	90.14799662
200221A00003	2/25/2020	1.69	2/25/2025	2/25/2020	118.22924	114.2144233	110.3576648	106.6518776	103.0903374	99.66665728	96.37476923	93.20890605	90.1635848
200221A00009	2/21/2020	1.69	2/22/2022	2/21/2020	102.66352	102.160102	101.6616105	101.1679739	100.6791218	100.1949847	99.71549463	99.24058497	98.77019029
200221A00013	2/21/2020	1.69	2/21/2025	2/21/2020	118.1723	114.172753	110.3301443	106.6374619	103.0880506	99.675588	96.39406615	93.23777388	90.20128051
200224A00001	2/24/2020	1.59	2/24/2025	2/24/2020	117.83882	113.8347033	109.9881638	106.2921414	102.739936	99.32518385	96.04183852	92.88415307	89.84666362
200224A00007	2/24/2020	1.59	2/24/2025	2/24/2020	117.83882	113.8347033	109.9881638	106.2921414	102.739936	99.32518385	96.04183852	92.88415307	89.84666362
200224A00015	2/24/2020	1.57	1/10/2024	2/24/2020	112.39644	109.7814462	107.2404642	104.770983	102.3705958	100.0369915	97.76794938	95.56133576	93.41509968
200219A00016	2/19/2020	1.57	10/19/2022	2/19/2020	106.35054	105.0974857	103.8737871	102.6784235	101.5104198	100.3688455	99.2528115	98.16146845	97.09400421
200220A00001	2/20/2020	1.74	2/22/2022	2/20/2020	102.68809	102.1845983	101.6860359	101.1923291	100.7034072	100.2192008	99.73964187	99.26466386	98.7942013
200220A00007	2/20/2020	1.72	2/21/2023	2/20/2020	108.12286	106.5299155	104.9688193	103.4386945	101.9386974	100.4680141	99.02585964	97.6114766	96.22413375
200220A00008	2/20/2020	1.74	2/20/2024	2/20/2020	113.39893	110.6400953	107.9628928	105.3644296	102.8419296	100.3927323	98.01428721	95.70414876	93.45997099
200220A00015	2/20/2020	1.57	2/20/2025	2/20/2020	118.28811	114.2749511	110.4194699	106.7146148	103.1536918	99.73034249	96.43852461	93.27249501	90.22679288
200220A00025	2/20/2020	1.72	2/21/2023	2/20/2020	108.12286	106.5299155	104.9688193	103.4386945	101.9386974	100.4680141	99.02585964	97.6114766	96.22413375
200214A00017	2/14/2020	1.59	2/14/2025	2/14/2020	118.27646	114.285001	110.4495686	106.7632275	103.2193863	99.81178158	96.53446028	93.38176211	90.34830359
200214A00020	2/18/2020	1.78	1/15/2025	2/18/2020	117.99214	114.1217223	110.3986999	106.816688	103.3696143	100.0517008	96.85744758	93.78161795	90.81922436
200218A00023	2/18/2020	1.55	2/21/2023	2/18/2020	108.07422	106.4781023	104.913953	103.3808906	101.8780665	100.4046627	98.95988994	97.54298692	96.15321876
200218A00024	2/20/2020	1.73	7/17/2023	2/20/2020	110.28339	108.2319843	106.2290435	104.2731308	102.3628593	100.4968922	98.67394061	96.89276148	95.15215567
200219A00006	2/19/2020	1.76	2/18/2022	2/19/2020	102.63561	102.1439996	101.6570922	101.1748222	100.6971234	100.2239311	99.75518155	99.29081245	98.8307625
200219A00015	2/19/2020	1.77	2/19/2027	2/19/2020	128.71118	121.9974691	115.6736623	109.7151202	104.0988845	98.80355534	93.8091782	89.09713857	84.65006536
200212A00003	2/12/2020	1.63	2/12/2025	2/12/2020	118.3969	114.4104077	110.579466	106.8971686	103.3569555	99.95259281	96.6781548	93.52800663	90.49678855
200214A00002	2/14/2020	1.58	11/15/2024	2/14/2020	117.01652	113.3433883	109.8049783	106.3955025	103.1094651	99.94164387	96.88707379	93.94103267	91.09902734
200214A00005	2/14/2020	1.59	2/14/2025	2/14/2020	118.27646	114.285001	110.4495686	106.7632275	103.2193863	99.81178158	96.53446028	93.38176211	90.34830359
200214A00007	2/14/2020	1.59	2/14/2025	2/14/2020	118.27646	114.285001	110.4495686	106.7632275	103.2193863	99.81178158	96.53446028	93.38176211	90.34830359
200214A00014	2/18/2020	1.8	2/18/2025	2/18/2020	118.54135	114.5457552	110.706476	107.0165509	103.4693685	100.0586471	96.77841647	93.62300049	90.58700108
200214A00016	2/14/2020	1.57	2/14/2024	2/14/2020	113.26527	110.5196316	107.8548663	105.2681179	102.7566494	100.3178374	97.94916641	95.64822366	93.41269434
200205A00013	2/5/2020	1.77	2/6/2023	2/5/2020	107.97464	106.431997	104.9193079	103.4357751	101.9806271	100.5531191	99.15253186	97.77817061	96.42936388

	Parallel-Shift Sensitivity Analysis												
8/31/2021					Price								
REFERENCE	SETTLEMENT	Rate	MATURITY	First/Next	-400	-300	-200	-100	Base	100	200	300	400
200207A00015	2/7/2020	1.73	2/7/2022	2/7/2020	102.44626	101.9874464	101.5327415	101.0820857	100.635425	100.1927064	99.75387782	99.31888818	98.88768721
200207A00017	2/7/2020	1.96	2/8/2027	2/7/2020	128.67578	122.0407784	115.7877343	109.8927135	104.3333981	99.08897266	94.14001581	89.46839977	85.05719787
200207A00018	2/7/2020	2.14	2/7/2030	2/7/2020	143.41669	132.3453197	122.2116765	112.9314591	104.4283501	96.63322014	89.48341735	82.92213095	76.89781973
200210A00009	2/10/2020	1.57	2/10/2025	2/10/2020	118.14403	114.1692918	110.3494224	106.6775623	103.1471899	99.75210729	96.48642236	93.34453177	90.32110526
200211A00022	2/11/2020	1.73	2/10/2023	2/11/2020	107.96267	106.4072234	104.8822171	103.3868332	101.9202816	100.4817998	99.07065187	97.68612679	96.32753779
200203A00022	2/3/2020	1.75	2/3/2025	2/3/2020	118.13801	114.2030945	110.4202346	106.7827511	103.2842905	99.91881205	96.68057022	93.56409882	90.56419573
200204A00001	2/4/2020	1.79	2/4/2025	2/4/2020	118.30041	114.359007	110.5700194	106.9267393	103.4227938	100.0521237	96.80896657	93.68784011	90.68352717
200204A00012	2/4/2020	1.98	2/4/2027	2/4/2020	128.74278	122.1210122	115.8795912	109.9947314	104.4442548	99.20747346	94.2650815	89.59905624	85.19256647
200204A00015	2/4/2020	1.72	2/6/2023	2/4/2020	107.89977	106.3577143	104.8456055	103.3626426	101.9080543	100.4810963	99.08104958	97.70721954	96.358935
200204A00020	2/4/2020	1.6	2/4/2025	2/4/2020	118.16891	114.2151821	110.414716	106.7607549	103.2468775	99.86697939	96.6152554	93.48618345	90.47450906
200205A00011	2/7/2020	2.31	2/7/2024	2/7/2020	114.68609	111.9536884	109.3008417	106.7247682	104.2228039	101.7923937	99.43108658	97.13653056	94.9064679
200203A00001	2/3/2020	1.7	2/3/2023	2/3/2020	107.82212	106.290548	104.7885349	103.3153016	101.8700913	100.4521731	99.06084127	97.69541359	96.35523079
200203A00004	2/3/2020	1.7	2/3/2023	2/3/2020	107.82212	106.290548	104.7885349	103.3153016	101.8700913	100.4521731	99.06084127	97.69541359	96.35523079
200203A00005	2/3/2020	1.7	5/3/2023	2/3/2020	109.14608	107.3308749	105.555207	103.8178496	102.1176298	100.4534228	98.8241497	97.22877459	95.6663028
200203A00006	2/3/2020	1.76	2/3/2025	2/3/2020	118.17498	114.2393946	110.4558886	106.8177774	103.3187068	99.95263535	96.71381706	93.59678506	90.59633668
200203A00009	2/3/2020	1.52	2/3/2023	2/3/2020	107.74357	106.2094936	104.705082	103.229543	101.7821164	100.3620677	98.96868784	97.60129163	96.25921684
200203A00012	2/3/2020	1.57	2/3/2025	2/3/2020	118.04323	114.0953504	110.3003931	106.6516259	103.1426466	99.7673683	96.52000262	93.395043	90.38724954
200131A00010	2/3/2020	1.68	2/3/2023	2/3/2020	107.79235	106.2610082	104.7592247	103.2862167	101.8412278	100.4235272	99.03240909	97.66719151	96.32721526
200131A00014	2/5/2020	1.7	2/22/2022	2/5/2020	102.66843	102.1650013	101.6664956	101.172845	100.6839789	100.1998279	99.72032408	99.24540075	98.77499249
200131A00017	1/31/2020	1.51	1/31/2024	1/31/2020	112.90938	110.2149434	107.5986255	105.0577133	102.5896055	100.1918066	97.86192167	95.5976521	93.39679079
200131A00032	1/31/2020	2.1	1/31/2030	1/31/2020	142.9339	131.9119371	121.8217463	112.5797416	104.1102338	96.34464617	89.22081385	82.68235472	76.67810521
200131A00038	1/31/2020	1.73	1/30/2025	1/31/2020	118.00789	114.0891681	110.3213998	106.6979718	103.2125969	99.85929632	96.63238224	93.52644247	90.53632537
200131A00048	1/31/2020	1.69	1/31/2024	1/31/2020	112.98228	110.2951157	107.6856928	105.1513154	102.6893999	100.2974672	97.97313855	95.71413001	93.51824863
200130A00010	1/30/2020	1.56	1/31/2022	1/30/2020	102.30503	101.8666	101.4319121	101.0009199	100.5735765	100.1498357	99.72965231	99.31298164	98.89977988
200130A00011	1/30/2020	1.54	1/30/2023	1/30/2020	107.71114	106.1901729	104.6983862	103.2350093	101.7992997	100.3905404	99.00803864	97.65112502	96.31915226
200130A00012	1/30/2020	1.72	1/30/2023	1/30/2020	107.78919	106.270693	104.7812772	103.3201798	101.8866622	100.4800107	99.09953581	97.74457097	96.41447182
200130A00028	1/30/2020	1.54	2/7/2023	1/30/2020	107.83676	106.2887629	104.7709358	103.2824705	101.8225872	100.3905334	98.98558243	97.60703232	96.25420497
200130A00048	1/30/2020	1.74	1/31/2022	1/30/2020	102.34246	101.90441	101.4700919	101.03946	100.6124679	100.1890696	99.76921986	99.35287447	98.93998975
200131A00006	1/31/2020	1.52	1/31/2022	1/31/2020	102.28787	101.8494781	101.4148342	100.9838856	100.5565856	100.1328879	99.71274734	99.29611925	98.88295982
200127A00023	1/27/2020	1.8	1/27/2025	1/27/2020	118.2256	114.3125812	110.5499177	106.9310348	103.4496847	100.099925	96.8761024	93.77283643	90.78500517
200128A00028	1/28/2020	1.81	1/28/2025	1/28/2020	118.27577	114.3586527	110.5921491	106.9696732	103.4849619	100.1320587	96.90529664	93.79928276	90.80888341
200129A00008	1/29/2020	1.76	1/31/2022	1/29/2020	102.35104	101.9129689	101.4786289	101.0479753	100.6209615	100.1975416	99.77767048	99.36130382	98.94839796
200129A00018	2/3/2020	1.74	12/15/2022	2/3/2020	107.19828	105.7910081	104.4147472	103.0684751	101.7512142	100.4620293	99.20002609	97.96434814	96.75417531

	Parallel-Shift Sensitivity Analysis												
8/31/2021					Price								
REFERENCE	SETTLEMENT	Rate	MATURITY	First/Next	-400	-300	-200	-100	Base	100	200	300	400
200130A00005	1/30/2020	1.73	1/30/2024	1/30/2020	113.0712	110.3859781	107.7783519	105.2456341	102.7852483	100.394723	98.07168563	95.8138589	93.61905576
200130A00006	1/30/2020	1.77	1/30/2025	1/30/2020	118.15525	114.233889	110.4635527	106.8376296	103.34983	99.99417237	96.76496657	93.65679803	90.66451289
200122A00010	1/22/2020	1.84	1/24/2022	1/22/2020	102.27479	101.8572348	101.4430897	101.0323112	100.6248585	100.2206913	99.81976984	99.42205517	99.02750888
200123A00005	1/23/2020	1.81	1/24/2022	1/23/2020	102.26251	101.8449865	101.4308717	101.0201235	100.6127008	100.2085634	99.80767162	99.40998643	99.01546946
200123A00013	1/27/2020	1.89	1/27/2025	1/27/2020	118.55633	114.6373947	110.8689805	107.24451	103.7577295	100.4026909	97.17373523	94.065477	91.07278925
200123A00049	1/23/2020	1.63	1/23/2023	1/23/2020	107.73944	106.2390228	104.767037	103.3227407	101.9054188	100.5143806	99.14895816	97.80850593	96.49239946
200127A00016	1/27/2020	1.81	1/27/2025	1/27/2020	118.26234	114.3486716	110.5853691	106.9658654	103.4839119	100.1335657	96.90917272	93.80535205	90.81698118
200127A00019	1/27/2020	1.8	1/27/2025	1/27/2020	118.2256	114.3125812	110.5499177	106.9310348	103.4496847	100.099925	96.8761024	93.77283643	90.78500517
200113A00003	1/13/2020	1.72	1/13/2022	1/13/2020	102.09085	101.7052436	101.3225592	100.9427625	100.5658207	100.1917016	99.82037344	99.45180498	99.08596539
200114A00006	1/15/2020	1.99	1/15/2025	1/15/2020	118.75603	114.8720712	111.1358871	107.541084	104.0815763	100.751573	97.54556187	94.45829436	91.48477163
200115A00015	1/17/2020	1.88	1/17/2023	1/17/2020	107.81116	106.331206	104.8789461	103.4536661	102.0546779	100.6813163	99.33293789	98.0089202	96.70866104
200115A00018	1/15/2020	1.9	1/16/2024	1/15/2020	113.30762	110.6626387	108.0929314	105.5959336	103.1691823	100.810313	98.51705458	96.28722545	94.1187292
200117A00026	1/17/2020	1.69	1/18/2022	1/17/2020	102.15761	101.7573237	101.3601854	100.966154	100.5751929	100.1872664	99.802339	99.42037591	99.04134287
200121A00009	1/24/2020	1.94	1/24/2025	1/24/2020	118.69858	114.7867362	111.0247694	107.4061492	103.9246624	100.574399	97.34973527	94.24531873	91.25605322
200106A00015	1/6/2020	1.87	2/15/2024	1/6/2020	113.66628	110.9205291	108.2555448	105.6684762	103.1565927	100.7172766	98.34801773	96.04640859	93.81013907
200106A00019	1/6/2020	1.89	7/16/2024	1/6/2020	115.85667	112.6024656	109.4566132	106.4149187	103.4733772	100.6281605	97.87560773	95.21221761	92.63464021
200108A00017	1/8/2020	2.55	1/8/2035	1/8/2020	174.38602	154.3269554	136.8046955	121.4832002	108.0725666	96.32249354	86.01669638	76.96813275	69.01491889
200108A00018	1/8/2020	1.68	1/18/2022	1/8/2020	102.15368	101.7534086	101.3562798	100.9622577	100.571306	100.1833887	99.79847051	99.41651657	99.03749263
200110A00014	1/10/2020	1.73	1/10/2023	1/10/2020	107.68701	106.2255486	104.7911369	103.3830832	102.0007226	100.6434119	99.31052878	98.00147123	96.71565645
200110A00022	1/13/2020	2	1/6/2025	1/13/2020	118.66635	114.8128827	111.105028	107.53653	104.1014318	100.7940626	97.60902256	94.54116825	91.58559932
191223A00022	12/23/2019	1.93	12/30/2021	12/23/2019	101.91086	101.5666126	101.2246818	100.8850451	100.5476796	100.2125627	99.87967193	99.54898531	99.22048105
191223A00055	12/23/2019	2.46	12/7/2029	12/23/2019	145.66574	134.7263584	124.6940042	115.4885631	107.0374029	99.2746353	92.14045607	85.58055352	79.54557708
191226A00019	12/26/2019	2.4	12/22/2028	12/26/2019	140.35773	130.9227866	122.1896127	114.1023415	106.6098322	99.66524312	93.22564973	87.25169825	81.70729151
191230A00013	12/30/2019	1.84	12/2/2024	12/30/2019	118.15976	114.4116884	110.8026318	107.3265556	103.977731	100.750717	97.64034385	94.64169707	91.7501031
191230A00031	12/30/2019	1.85	12/30/2024	12/30/2019	118.58584	114.7421578	111.0433071	107.4830716	104.0555396	100.7550829	97.57634214	94.51421205	91.56382825
191231A00006	12/31/2019	1.88	12/31/2021	12/31/2019	101.90974	101.5626191	101.2178527	100.8754163	100.5352866	100.1974402	99.86185449	99.52850678	99.19737485
191212A00029	12/13/2019	1.94	5/16/2023	12/13/2019	109.74569	107.8867067	106.0688565	104.2908426	102.5514219	100.8494036	99.1836463	97.55305547	95.9565809
191216A00042	12/16/2019	1.95	12/16/2022	12/16/2019	107.50502	106.0941933	104.7141036	103.3637497	102.0421743	100.7484616	99.48173483	98.24115425	97.02591521
191217A00012	12/20/2019	2.03	12/20/2024	12/20/2019	118.53578	114.7383386	111.08284	107.5631867	104.1735776	100.9084942	97.76268444	94.73114896	91.80912669
191219A00036	12/20/2019	2.1	12/20/2024	12/20/2019	118.78478	114.9830064	111.3233035	107.7995625	104.4059781	101.1370275	97.98745527	94.95225806	92.02667135
191220A00002	12/20/2019	3.02	12/20/2038	12/20/2019	197.73048	169.9034125	146.4406392	126.6260227	109.864699	95.66198929	83.60606925	73.3537089	64.61852747
191223A00009	12/23/2019	1.95	12/23/2022	12/23/2019	107.579	106.1597818	104.7690473	103.4059613	102.069721	100.7595547	99.47472061	98.21450527	96.9782221
191206A00021	12/6/2019	2.02	12/6/2024	12/6/2019	118.30434	114.5547598	110.9442352	107.4667566	104.116613	100.8883779	97.77689305	94.77725293	91.8847907

	Parallel-Shift Sensitivity Analysis												
8/31/2021					Price								
REFERENCE	SETTLEMENT	Rate	MATURITY	First/Next	-400	-300	-200	-100	Base	100	200	300	400
191206A00044	12/10/2019	2.01	10/31/2024	12/10/2019	117.75219	114.1287078	110.636204	107.269137	104.0222389	100.8904993	97.86915026	94.9536535	92.13968708
191209A00009	12/9/2019	1.91	12/9/2021	12/9/2019	101.57043	101.2871499	101.0054546	100.7253338	100.446774	100.1697624	99.89428583	99.62033162	99.34788708
191210A00011	12/10/2019	1.92	12/12/2022	12/10/2019	107.40858	106.0031637	104.6297551	103.2872604	101.9746357	100.6908838	99.43505234	98.20623081	97.00354844
191212A00019	12/13/2019	1.93	12/19/2022	12/13/2019	107.50964	106.0954126	104.7109536	103.3553323	102.0276574	100.7270748	99.45276544	98.20394349	96.97985478
191212A00028	12/13/2019	1.93	1/17/2023	12/13/2019	107.8831	106.4025992	104.9498008	103.523992	102.1244843	100.7506122	99.40173197	98.07722106	96.77647696
191203A00004	12/4/2019	1.87	12/4/2024	12/4/2019	117.75024	114.016423	110.4210057	106.9579988	103.6217125	100.4067412	97.30794767	94.32044711	91.43959303
191204A00013	12/4/2019	1.72	12/4/2024	12/4/2019	117.76566	114.0180678	110.4096957	106.934507	103.5867672	100.361029	97.25211591	94.25510642	91.36531954
191206A00008	12/6/2019	2.44	12/6/2030	12/6/2019	150.43138	137.9045327	126.5263071	116.1850854	106.7806497	98.22296436	90.43109245	83.33223213	76.86086029
191206A00009	12/6/2019	2.87	12/4/2037	12/6/2019	190.1604	164.628316	142.9013727	124.386207	108.5850523	95.07989918	83.51934969	73.60769538	65.09583293
191206A00013	12/6/2019	3.05	12/6/2044	12/6/2019	228.6245	187.8342803	155.2325566	129.1014642	108.0935817	91.15031158	77.43858327	66.30169407	57.22107579
191206A00019	12/6/2019	1.96	11/15/2023	12/6/2019	112.55809	110.1121051	107.7320545	105.4156486	103.1607012	100.9651212	98.82690733	96.74414336	94.71499368
191122A00021	11/26/2019	3.4	11/22/2038	11/26/2019	205.46067	177.0740545	153.094603	132.804294	115.6060294	101.0027	88.57996682	77.99208235	68.9502032
191126A00015	11/27/2019	1.88	10/14/2022	11/27/2019	106.48517	105.2495094	104.0423958	102.8628474	101.7099283	100.5827445	99.48044178	98.4022033	97.34724761
191126A00022	11/26/2019	1.72	5/26/2023	11/26/2019	109.77134	107.8774725	106.0261127	104.2159014	102.4455341	100.7137622	99.01938968	97.36127075	95.73830682
191126A00023	11/26/2019	1.81	5/27/2025	11/26/2019	120.52727	116.1578895	111.9707892	107.9572659	104.1090944	100.4184941	96.87810175	93.4809457	90.22042255
191129A00012	11/29/2019	1.99	11/29/2024	11/29/2019	118.10122	114.3771563	110.790653	107.3357501	104.0067896	100.7983976	97.70546831	94.72314791	91.84682057
191202A00005	12/2/2019	2.03	12/2/2024	12/2/2019	118.28342	114.5467171	110.9482812	107.4821182	104.1425416	100.9241501	97.82181073	94.83064378	91.94600814
191121A00009	11/21/2019	2.55	11/21/2036	11/21/2019	183.31092	159.680573	139.4009954	121.9757063	106.9842621	94.07027038	82.93134158	73.31066125	64.98991345
191121A00010	11/21/2019	2.59	11/20/2037	11/21/2019	188.45791	162.8311933	141.042068	122.4906339	106.6737858	93.16915793	81.62180286	71.73312414	63.25167351
191121A00034	11/21/2019	2.28	11/2/2029	11/21/2019	143.49891	132.7822408	122.9466524	113.9150049	105.6172958	97.98996737	90.97528111	84.52075654	78.57866659
191122A00007	11/22/2019	1.87	11/21/2025	11/22/2019	123.24229	118.2259522	113.4418981	108.8780345	104.5229766	100.3659989	96.39699263	92.60642564	88.98530619
191122A00018	11/26/2019	3.11	11/22/2039	11/26/2019	203.79238	173.9376768	148.9713186	128.055768	110.5015069	95.7401948	83.30280763	72.80181417	63.91662766
191122A00020	11/26/2019	3.2	11/23/2037	11/26/2019	196.58514	170.566897	148.3990097	129.4838324	113.3196749	99.48494693	87.62499345	77.44115148	68.68164367
191115A00016	11/18/2019	2.48	11/18/2024	11/18/2019	119.63743	115.9233045	112.3450026	108.8966923	105.5728387	102.3681821	99.27772216	96.29670278	93.42059861
191115A00028	11/15/2019	2.34	9/28/2029	11/15/2019	143.59982	133.0059344	123.2737427	114.3285793	106.1026158	98.53420275	91.56727737	85.15083025	79.23842573
191115A00030	11/15/2019	2.35	11/9/2029	11/15/2019	144.24814	133.4734923	123.5859356	114.5076624	106.168084	98.50312331	91.45458107	84.96956805	78.99999431
191120A00006	11/20/2019	2.67	11/20/2035	11/20/2019	177.23371	155.8595703	137.3308414	121.2507247	107.2797444	95.12720717	84.54396879	75.31630448	67.260711
191120A00011	11/20/2019	1.88	1/20/2023	11/20/2019	107.85699	106.3678148	104.9066523	103.4727812	102.0655017	100.6841374	99.32803432	97.99655986	96.68910206
191120A00031	11/20/2019	1.69	11/21/2022	11/20/2019	107.01969	105.656476	104.3277803	103.0323071	101.7688229	100.5361549	99.33318664	98.15885531	97.01214813
191114A00008	11/18/2019	1.93	4/17/2023	11/18/2019	109.29985	107.5317538	105.8014174	104.1077029	102.4495165	100.8258077	99.23556775	97.67782702	96.15165334
191114A00009	11/18/2019	1.94	8/16/2023	11/18/2019	111.15224	109.000757	106.9021548	104.8547999	102.8571173	100.9075917	99.00476448	97.14723134	95.33363988
191114A00020	11/18/2019	1.91	2/15/2022	11/18/2019	102.65963	102.1767391	101.6983933	101.2245241	100.7550689	100.2899661	99.82915521	99.37257705	98.92017338
191114A00021	11/18/2019	1.91	6/15/2022	11/18/2019	104.57584	103.7270757	102.8920536	102.0704376	101.2619068	100.4661502	99.68286674	98.91176487	98.15256194

	Parallel-Shift Sensitivity Analysis												
8/31/2021					Price								
REFERENCE	SETTLEMENT	Rate	MATURITY	First/Next	-400	-300	-200	-100	Base	100	200	300	400
191115A00014	11/18/2019	2.45	11/18/2024	11/18/2019	119.53368	115.8213172	112.244723	108.7980739	105.4758369	102.2727536	99.18382525	96.20429724	93.32964559
191115A00015	11/18/2019	2.61	11/18/2024	11/18/2019	120.08698	116.3652493	112.7795474	109.3240383	105.9931799	102.7817057	99.68460876	96.69712678	93.81472838
191105A00014	11/5/2019	1.96	11/6/2023	11/5/2019	112.42352	110.007374	107.6557461	105.3664257	103.1372957	100.9663298	98.85158755	96.79120986	94.78341497
191105A00018	11/5/2019	1.78	11/6/2023	11/5/2019	112.35784	109.9354655	107.5779114	105.2829525	103.048458	100.8723884	98.75279114	96.6877955	94.67560879
191106A00012	11/6/2019	2.02	10/11/2024	11/6/2019	117.50378	113.9471714	110.5173459	107.2090199	104.0171681	100.9370064	97.96397788	95.09374131	92.32215877
191107A00011	11/8/2019	2.02	2/24/2023	11/8/2019	108.63573	107.0287296	105.4540338	103.9107493	102.3980153	100.9150021	99.4609091	98.03496432	96.63642255
191108A00013	11/8/2019	2.25	11/8/2029	11/8/2019	144.98876	134.1095744	124.1282592	114.9659146	106.5509687	98.81846328	91.70940953	85.1702098	79.15213855
191113A00017	11/15/2019	1.93	12/6/2021	11/15/2019	101.52823	101.2536285	100.9805138	100.7088766	100.4387049	100.1699868	99.90271049	99.63686442	99.37243708
191031A00041	10/31/2019	1.72	10/31/2023	10/31/2019	112.13097	109.7301282	107.3931412	105.1178283	102.9021052	100.7439764	98.64153044	96.59293549	94.59643536
191104A00009	11/4/2019	1.91	11/6/2023	11/4/2019	112.30818	109.8933732	107.5430617	105.2550299	103.0271616	100.8574312	98.74389909	96.68470691	94.67807362
191104A00022	11/4/2019	2.17	8/4/2027	11/4/2019	132.18813	124.8326476	117.9329755	111.4585385	105.3809603	99.6738983	94.31288729	89.2751969	84.53969996
191104A00024	11/4/2019	2.26	8/3/2029	11/4/2019	142.12895	131.8023687	122.3021585	113.5578967	105.5054968	98.08661228	91.24809584	84.94151163	79.12269604
191105A00007	11/5/2019	1.98	11/5/2026	11/5/2019	128.58932	122.2507059	116.2621791	110.6025076	105.2518646	100.191729	95.4047919	90.87486997	86.58682599
191105A00008	11/5/2019	1.83	11/5/2024	11/5/2019	117.73687	114.0843626	110.5646915	107.1721986	103.9015098	100.7475154	97.7053551	94.77040399	91.93825927
191021A00034	10/22/2019	1.9	10/17/2022	10/22/2019	106.55711	105.3114615	104.0948047	102.9061349	101.7444951	100.6089712	99.49869019	98.41281755	97.35055513
191023A00006	10/23/2019	1.95	10/23/2024	10/23/2019	117.43677	113.843632	110.3796844	107.039498	103.8179061	100.7099923	97.71107713	94.8167043	92.0226288
191025A00005	10/28/2019	1.98	10/28/2024	10/28/2019	117.60812	113.9964515	110.5150761	107.158497	103.9214848	100.7990647	97.78650252	94.87929107	92.07313766
191025A00009	10/25/2019	2.26	5/25/2029	10/25/2019	141.21817	131.1837803	121.9353636	113.4071463	105.5391959	98.2768731	91.57033682	85.37409863	79.64662056
191025A00013	10/25/2019	1.98	10/25/2024	10/25/2019	117.56611	113.9645539	110.4926559	107.1449589	103.9162702	100.8016492	97.79639373	94.89602638	92.09628232
191031A00019	10/31/2019	1.88	10/31/2022	10/31/2019	106.76026	105.4687763	104.208367	102.9779224	101.7763844	100.6027444	99.45603994	98.33535266	97.23980534
191017A00003	10/17/2019	1.9	12/10/2021	10/17/2019	101.58349	101.2973103	101.0127561	100.7298089	100.4484551	100.1686811	99.89047368	99.61381955	99.33870567
191017A00022	10/17/2019	2.25	7/17/2028	10/17/2019	137.08874	128.3408488	120.2105565	112.6511025	105.6194945	99.07618449	92.98477665	87.31176129	82.02627255
191017A00026	10/17/2019	2.3	7/17/2029	10/17/2019	142.26879	131.99838	122.5450959	113.8396941	105.8191261	98.42595896	91.60784886	85.317067	79.51007138
191018A00006	10/18/2019	1.89	6/1/2022	10/18/2019	104.3341	103.5291151	102.7365061	101.9559854	101.1872783	100.4301184	99.68424718	98.94941371	98.22537455
191018A00007	10/18/2019	1.89	7/1/2022	10/18/2019	104.80851	103.9098962	103.0266248	102.1583071	101.3045661	100.4650374	99.63936858	98.82721879	98.02825829
191021A00033	10/22/2019	1.9	7/18/2022	10/22/2019	105.09233	104.1399376	103.2047476	102.2862986	101.384144	100.4978531	99.62701007	98.77121363	97.93007624
191009A00021	10/9/2019	1.71	10/7/2022	10/9/2019	106.17787	104.9663516	103.7823322	102.6248873	101.4931301	100.3862133	99.303326	98.24369265	97.20657055
191009A00026	10/9/2019	1.74	10/7/2022	10/9/2019	106.21213	105.0003961	103.8161686	102.6585187	101.5265599	100.4194444	99.3363615	98.27653544	97.23922349
191009A00027	10/9/2019	1.74	10/6/2023	10/9/2019	111.47876	109.1675297	106.9162093	104.7228234	102.585474	100.5023401	98.471675	96.49180183	94.56111053
191015A00013	10/15/2019	1.72	10/15/2024	10/15/2019	117.07069	113.4960983	110.0496386	106.725947	103.5199184	100.4266942	97.44164826	94.56037415	91.77867333
191015A00026	10/15/2019	1.69	10/15/2021	10/15/2019	100.68845	100.5622982	100.4364755	100.3109842	100.1858229	100.0609902	99.93648481	99.81230538	99.68845059
191015A00029	10/15/2019	1.91	10/15/2024	10/15/2019	117.19139	113.6273795	110.1908179	106.8763838	103.6790094	100.5938707	97.61637431	94.74214443	91.9670113
191004A00013	10/4/2019	1.53	10/22/2021	10/4/2019	100.77256	100.6266156	100.4811106	100.3360392	100.1913995	100.0471894	99.90340701	99.76005044	99.61711776

	Parallel-Shift Sensitivity Analysis												
8/31/2021					Price								
REFERENCE	SETTLEMENT	Rate	MATURITY	First/Next	-400	-300	-200	-100	Base	100	200	300	400
191007A00020	10/7/2019	1.69	10/7/2022	10/7/2019	106.15504	104.9436553	103.7597747	102.6024663	101.4708436	100.3640592	99.28130234	98.22179745	97.18480192
191007A00029	10/7/2019	1.88	10/9/2029	10/7/2019	141.12999	130.5247113	120.7903746	111.850959	103.6374492	96.08715881	89.14311875	82.75352857	76.8712627
191008A00018	10/8/2019	1.74	10/11/2022	10/8/2019	106.27517	105.0503526	103.8536238	102.6840268	101.5406471	100.4226108	99.3290828	98.25926403	97.21238995
191008A00033	10/8/2019	1.71	10/8/2024	10/8/2019	116.42862	112.8990031	109.4950935	106.2116608	103.0437309	99.98656739	97.03565892	94.18670654	91.43561245
191009A00017	10/9/2019	1.76	10/4/2024	10/9/2019	116.54195	113.0229765	109.6289536	106.3547009	103.1952893	100.1460246	97.20243436	94.36025624	91.61542643
191004A00001	10/4/2019	2.47	10/4/2034	10/4/2019	168.79723	149.7077608	132.9900765	118.3353624	105.4765214	94.18234795	84.25254321	75.5134441	67.81436101
191004A00002	10/4/2019	2.08	10/4/2029	10/4/2019	141.27403	130.7556329	121.0965622	112.2221218	104.0644767	96.5619881	89.65861739	83.30339069	77.44991682
191004A00003	10/4/2019	1.89	10/5/2026	10/4/2019	126.7068	120.5556715	114.7391702	109.2373226	104.0314532	99.10409455	94.43890328	90.02058102	85.83480208
191004A00005	10/4/2019	1.54	10/4/2024	10/4/2019	116.3213	112.7935795	109.3914258	106.1096259	102.9432161	99.88746958	96.93788372	94.09016764	91.34023084
191004A00009	10/4/2019	1.71	10/4/2021	10/4/2019	100.51297	100.4179916	100.3232005	100.2285944	100.1341727	100.039935	99.94588052	99.8520089	99.75831953
191004A00012	10/4/2019	1.78	10/4/2024	10/4/2019	116.60833	113.0882813	109.6932055	106.4179276	103.2575178	100.2072808	97.26274326	94.41964206	91.67391255
191002A00013	10/2/2019	1.78	10/3/2022	10/2/2019	106.19432	104.9953824	103.8233784	102.6774052	101.5566035	100.4601514	99.38726237	98.33718351	97.30919367
191002A00017	10/2/2019	1.84	10/2/2024	10/2/2019	116.78038	113.2637772	109.8718252	106.5993668	103.4414927	100.393527	97.45101432	94.60970825	91.86555974
191003A00014	10/3/2019	1.71	9/20/2024	10/3/2019	116.1879	112.719159	109.3724178	106.1426772	103.025173	100.0153649	97.10892442	94.30172395	91.58982576
191003A00020	10/3/2019	1.72	10/3/2022	10/3/2019	106.1265	104.9279815	103.7563855	102.6108139	101.4904077	100.3943451	99.3218398	98.27213895	97.24452157
191003A00022	10/3/2019	1.72	2/3/2023	10/3/2019	107.8519	106.3200877	104.8178452	103.3443865	101.8989548	100.4808191	99.08927346	97.72363567	96.38324631
191003A00033	10/3/2019	1.54	10/3/2022	10/3/2019	106.06635	104.8659634	103.6925842	102.5453078	101.4232712	100.3256493	99.25165235	98.20052459	97.17154201
190930A00012	9/30/2019	1.93	9/30/2024	9/30/2019	117.0509	113.5361571	110.1457827	106.8746386	103.7178347	100.6707132	97.72883531	94.88797004	92.14408268
190930A00014	9/30/2019	1.89	9/30/2022	9/30/2019	106.27008	105.0802058	103.9168373	102.7790994	101.666153	100.5771951	99.51145702	98.46820271	97.44672684
190930A00040	9/30/2019	1.92	2/25/2022	9/30/2019	102.82463	102.3119409	101.8043505	101.3017831	100.8041644	100.3114217	99.82348352	99.34027999	98.86174246
190930A00071	9/30/2019	2.05	9/29/2025	9/30/2019	122.61508	117.8086422	113.217699	108.8314064	104.6395281	100.6323985	96.80088716	93.1363661	89.63067908
191001A00005	10/1/2019	1.8	4/18/2023	10/1/2019	109.09368	107.3243632	105.5928866	103.8981043	102.2389186	100.6142754	99.02316243	97.46460679	95.93767324
191002A00006	10/2/2019	1.84	10/2/2024	10/2/2019	116.78038	113.2637772	109.8718252	106.5993668	103.4414927	100.393527	97.45101432	94.60970825	91.86555974
190926A00015	9/26/2019	2.32	11/26/2030	9/26/2019	149.01599	136.5942915	125.3102756	115.0535337	105.7249282	97.23538244	89.50481063	82.46116652	76.03959758
190926A00016	9/26/2019	2.28	5/24/2030	9/26/2019	146.1754	134.5833179	124.0016832	114.336963	105.5047502	97.42882972	90.04034309	83.27704224	77.08262264
190926A00017	9/26/2019	2.23	9/26/2029	9/26/2019	142.55837	132.0153863	122.3304173	113.429112	105.2439288	97.71347799	90.78193203	84.39849457	78.51692331
190927A00019	9/30/2019	1.91	9/30/2022	9/30/2019	106.29251	105.1025007	103.9389983	102.8011286	101.6880523	100.5989665	99.53310244	98.48972398	97.46812576
190927A00036	9/27/2019	1.94	9/6/2024	9/27/2019	116.74198	113.3092097	109.9959141	106.7972498	103.7086007	100.7255651	97.84394377	95.05972992	92.36909867
190930A00011	9/30/2019	1.89	10/24/2022	9/30/2019	106.65886	105.3903057	104.1517792	102.942224	101.7606329	100.6060451	99.47754317	98.37425099	97.2953312
190924A00033	9/24/2019	1.84	9/30/2022	9/24/2019	106.21401	105.0244684	103.8614347	102.7240264	101.6114047	100.5227665	99.45734347	98.41439954	97.39322952
190925A00018	9/25/2019	1.7	9/25/2024	9/25/2019	116.72909	113.2233984	109.8416387	106.5787015	103.4297214	100.3900633	97.45530988	94.62124987	91.8838671
190925A00019	9/27/2019	1.93	9/27/2023	9/27/2019	111.76633	109.4791792	107.2507885	105.0792415	102.962696	100.8993838	98.88760776	96.92573768	95.01220748
190925A00024	9/25/2019	1.88	4/14/2022	9/25/2019	103.55854	102.9012071	102.2522069	101.6113784	100.978568	100.3536257	99.73640534	99.12676429	98.52456348

	Parallel-Shift Sensitivity Analysis												
8/31/2021					Price								
REFERENCE	SETTLEMENT	Rate	MATURITY	First/Next	-400	-300	-200	-100	Base	100	200	300	400
190926A00004	9/26/2019	1.93	9/21/2021	9/26/2019	100.32954	100.2709836	100.2125076	100.154113	100.0957995	100.037567	99.97941541	99.92134447	99.86335406
190926A00006	9/26/2019	1.7	9/26/2022	9/26/2019	106.13526	104.9566145	103.8040079	102.6765827	101.5735211	100.4940404	99.43739103	98.402855	97.38974404
190919A00017	9/19/2019	1.8	9/19/2022	9/19/2019	106.13226	104.975728	103.8442891	102.737129	101.6534727	100.592578	99.55373374	98.53625789	97.53949643
190920A00021	9/20/2019	1.96	9/18/2026	9/20/2019	127.83521	121.680878	115.8591994	110.3504379	105.1361351	100.1990186	95.52292029	91.0926992	86.89417092
190923A00017	9/23/2019	1.74	9/23/2024	9/23/2019	116.83277	113.3318523	109.9545077	106.6956514	103.5504392	100.5142561	97.58270318	94.75158664	92.01690648
190923A00032	9/23/2019	1.72	9/22/2023	9/23/2019	111.56279	109.2869275	107.0694002	104.9083064	102.8018243	100.7482051	98.74576969	96.79290514	94.88806151
190923A00078	9/23/2019	1.96	6/28/2024	9/23/2019	115.81795	112.6210691	109.5289615	106.5376276	103.6432434	100.8421516	98.13085332	95.50600057	92.96438852
190924A00026	9/24/2019	1.9	7/22/2022	9/24/2019	105.15714	104.1920773	103.2446653	102.3144223	101.4008848	100.5036058	99.62215421	98.75611397	97.90508356
190913A00014	9/13/2019	2.08	9/13/2024	9/13/2019	117.29736	113.8332555	110.4902352	107.2633663	104.1479473	101.1394965	98.23373957	95.42659928	92.71418475
190913A00025	9/13/2019	2.04	3/15/2022	9/13/2019	103.17446	102.607597	102.0469591	101.492444	100.9439518	100.4013845	99.86464641	99.3336438	98.80828494
190916A00008	9/16/2019	2.05	9/16/2021	9/16/2019	100.25639	100.2117868	100.1672427	100.1227544	100.0783219	100.0339448	99.9896233	99.94535714	99.90114624
190916A00009	9/16/2019	2.04	9/16/2022	9/16/2019	106.20579	105.0604017	103.9396221	102.8426671	101.768783	100.7172478	99.68736932	98.67848364	97.68995379
190917A00035	9/19/2019	2.02	10/16/2023	9/19/2019	112.24763	109.8975974	107.6090328	105.3798841	103.2081817	101.0920376	99.02964158	97.01925706	95.05921761
190919A00007	9/19/2019	2.04	9/19/2024	9/19/2019	117.25451	113.7718098	110.4113629	107.1681677	104.0374563	101.0146842	98.09551913	95.27582931	92.55167289
190909A00025	9/9/2019	1.88	9/9/2024	9/9/2019	116.59016	113.1501949	109.8302258	106.6253805	103.5310118	100.542689	97.65618572	94.86746985	92.17269286
190910A00013	9/10/2019	1.9	9/9/2022	9/10/2019	105.94109	104.8192735	103.7211099	102.6458612	101.5928162	100.5612924	99.55063542	98.56021688	97.58943358
190910A00030	9/10/2019	1.86	9/10/2024	9/10/2019	116.53931	113.0969521	109.7747654	106.5678667	103.4715986	100.4815205	97.59339709	94.80318774	92.10703604
190912A00031	9/12/2019	1.75	9/12/2024	9/12/2019	116.70981	113.2463506	109.9042137	106.6784514	103.5643459	100.5573999	97.65332523	94.84803115	92.13761437
190912A00033	9/12/2019	1.77	9/12/2023	9/12/2019	111.52032	109.2758885	107.0884578	104.9561909	102.8773284	100.8501804	98.87312318	96.94459614	95.06309878
190912A00034	9/12/2019	1.76	9/12/2022	9/12/2019	105.97542	104.8419011	103.7325149	102.6465003	101.5831248	100.5416863	99.52151125	98.52195371	97.54239352
190905A00035	9/5/2019	1.82	9/7/2021	9/5/2019	100.10765	100.0881562	100.0686828	100.0492289	100.0297945	100.0103796	99.99098409	99.97160802	99.95225133
190906A00004	9/6/2019	1.78	9/6/2022	9/6/2019	105.76628	104.6548915	103.5667516	102.5011349	101.4573479	100.4347253	99.43262856	98.45044464	97.48758464
190906A00005	9/6/2019	1.77	9/6/2023	9/6/2019	111.10881	108.8935834	106.7342084	104.6289045	102.5759631	100.5737421	98.62066331	96.71520888	94.85591882
190906A00012	9/6/2019	1.76	9/6/2024	9/6/2019	116.16	112.7364849	109.4322036	106.2423195	103.1622247	100.1875251	97.31402886	94.53773622	91.85482906
190906A00014	9/6/2019	1.57	9/6/2024	9/6/2019	116.0415	112.6080376	109.2944292	106.0958087	103.0075348	100.0251819	97.14452872	94.36154783	91.67239503
190906A00018	9/6/2019	1.76	9/6/2024	9/6/2019	116.16	112.7364849	109.4322036	106.2423195	103.1622247	100.1875251	97.31402886	94.53773622	91.85482906
190903A00004	9/3/2019	1.77	9/6/2022	9/3/2019	105.75576	104.6444305	103.5563499	102.4907916	101.4470622	100.4244964	99.42245564	98.44032692	97.47752137
190904A00007	9/4/2019	1.69	9/1/2023	9/4/2019	110.86688	108.6696361	106.5275452	104.4388594	102.4019014	100.4150594	98.47678301	96.58558117	94.74001906
190904A00008	9/4/2019	1.69	9/3/2024	9/4/2019	115.89325	112.4835659	109.1924143	106.0150019	102.9467573	99.98332093	97.1205332	94.3544245	91.68120516
190904A00019	9/4/2019	1.69	9/4/2024	9/4/2019	115.90672	112.4936299	109.1992704	106.018839	102.9477532	99.98164265	97.11633827	94.34786121	91.67241323
190905A00003	9/5/2019	1.76	9/5/2024	9/5/2019	116.14631	112.7262118	109.4251452	106.2382864	103.1610386	100.1890183	97.31804345	94.54412347	91.86344886
190905A00015	9/5/2019	1.78	9/6/2022	9/5/2019	105.76628	104.6548915	103.5667516	102.5011349	101.4573479	100.4347253	99.43262856	98.45044464	97.48758464
190829A00031	8/29/2019	1.54	8/29/2024	8/29/2019	115.83657	112.4319997	109.1455911	105.9725772	102.90841	99.94875177	97.08946338	94.32659414	91.656372

	Parallel-Shift Sensitivity Analysis												
8/31/2021					Price								
REFERENCE	SETTLEMENT	Rate	MATURITY	First/Next	-400	-300	-200	-100	Base	100	200	300	400
190829A00045	8/29/2019	1.9	8/28/2026	8/29/2019	126.27598	120.2655491	114.5764405	109.1898085	104.08801	99.25452217	94.67386527	90.33153146	86.21391868
190830A00002	8/30/2019	1.93	8/28/2026	8/30/2019	126.44105	120.426331	114.7330979	109.3424998	104.2368862	99.39972708	94.81553613	90.46979914	86.34890809
190830A00010	9/3/2019	1.75	9/1/2023	9/3/2019	110.99344	108.7948386	106.6514155	104.5614244	102.5231873	100.5350914	98.59558582	96.70317863	94.85643438
190830A00012	8/30/2019	1.76	8/30/2024	8/30/2019	116.06437	112.6647248	109.3828867	106.2141067	103.1538559	100.1978146	97.34186048	94.58205869	91.91465211
190830A00021	8/30/2019	1.76	8/30/2024	8/30/2019	116.06437	112.6647248	109.3828867	106.2141067	103.1538559	100.1978146	97.34186048	94.58205869	91.91465211
190827A00039	8/27/2019	1.78	8/26/2022	8/27/2019	105.5919	104.5159294	103.4617896	102.4288171	101.4163796	100.4238696	99.45070336	98.49631984	97.56017943
190828A00008	8/28/2019	1.75	8/29/2022	8/28/2019	105.60864	104.5232321	103.460019	102.4183293	101.3975149	100.3969535	99.4160475	98.45422227	97.51092558
190828A00009	8/28/2019	1.71	8/28/2024	8/28/2019	115.87707	112.4867109	109.2136568	106.0531857	103.0007959	100.0521924	97.20327654	94.45013562	91.78903331
190828A00015	8/28/2019	2.04	8/28/2029	8/28/2019	140.44593	130.0974083	120.5855032	111.8382571	103.7902451	96.38195451	89.55922308	83.27273273	77.47755369
190828A00020	8/28/2019	1.95	5/28/2027	8/28/2019	129.93763	122.8862207	116.2605154	110.0325188	104.1762295	98.66748894	93.48384045	88.60439924	84.00973366
190829A00005	8/30/2019	2.06	8/30/2023	8/30/2019	111.61637	109.417211	107.2730921	105.1822742	103.1430883	101.1539297	99.21325512	97.3195799	95.47147533
190826A00038	8/26/2019	1.74	8/26/2022	8/26/2019	105.55108	104.4753428	103.4214265	102.3886745	101.3764543	100.3841587	99.41120396	98.45702906	97.52109447
190826A00056	8/26/2019	1.72	8/26/2024	8/26/2019	115.88234	112.4982311	109.230999	106.0759523	103.0286132	100.0847091	97.24016246	94.49108041	91.83374517
190826A00057	8/26/2019	1.87	8/26/2025	8/26/2019	121.35868	116.6915816	112.2299648	107.9636892	103.8831701	99.97934568	96.24364482	92.66795817	89.24461057
190826A00058	8/26/2019	1.91	8/26/2026	8/26/2019	126.30533	120.3009058	114.6171309	109.2352183	104.13758	99.307743	94.73027359	90.39070575	86.27547573
190826A00060	8/26/2019	2.02	8/26/2027	8/26/2019	131.45567	124.0462424	117.1008949	110.588174	104.4789141	98.74606139	93.36451031	88.31095348	83.56374409
190827A00001	8/27/2019	1.74	8/27/2024	8/27/2019	115.95978	112.5712866	109.2999137	106.1409567	103.0899246	100.1425328	97.29469211	94.54249877	91.88222484
190823A00005	8/23/2019	1.62	8/23/2024	8/23/2019	116.01244	112.624179	109.3528746	106.1938278	103.1425611	100.1948025	97.34647455	94.59368448	91.93271444
190826A00004	8/26/2019	1.74	8/26/2022	8/26/2019	105.55108	104.4753428	103.4214265	102.3886745	101.3764543	100.3841587	99.41120396	98.45702906	97.52109447
190826A00006	8/26/2019	1.72	8/26/2024	8/26/2019	115.88234	112.4982311	109.230999	106.0759523	103.0286132	100.0847091	97.24016246	94.49108041	91.83374517
190826A00018	8/26/2019	1.9	8/27/2029	8/26/2019	140.77752	130.3459692	120.7601114	111.9470541	103.8405347	96.38029024	89.51148556	83.18419906	77.35295949
190826A00025	8/26/2019	1.76	11/26/2024	8/26/2019	117.25701	113.5571249	109.9937373	106.5609398	103.2531285	100.0649803	96.9914368	94.02768882	91.16916237
190826A00034	8/26/2019	1.9	8/24/2029	8/26/2019	140.74028	130.3213316	120.7462473	111.9423623	103.8436148	96.38991829	89.52659316	83.20385461	77.3763518
190821A00016	8/21/2019	1.79	8/22/2022	8/21/2019	105.53851	104.4753029	103.4334285	102.4122468	101.4111461	100.4295387	99.46685947	98.522565	97.59613251
190821A00017	8/21/2019	1.8	8/21/2024	8/21/2019	116.07013	112.6988949	109.4435547	106.2994768	103.2622405	100.3276273	97.49160989	94.75034242	92.1001514
190821A00021	8/21/2019	1.79	8/18/2022	8/21/2019	105.47493	104.4245389	103.3949799	102.3856412	101.3959315	100.4252826	99.47314762	98.53900085	97.62233611
190821A00028	8/21/2019	1.8	8/21/2023	8/21/2019	110.93712	108.7726625	106.6617745	104.602784	102.5940851	100.6341331	98.72144141	96.85457952	95.03216993
190821A00030	8/21/2019	1.8	8/21/2024	8/21/2019	116.07013	112.6988949	109.4435547	106.2994768	103.2622405	100.3276273	97.49160989	94.75034242	92.1001514
190822A00016	8/22/2019	1.84	8/22/2022	8/22/2019	105.58895	104.5254654	103.4833174	102.4618659	101.4604992	100.4786293	99.51569116	98.57114123	97.64445667
190820A00012	8/20/2019	1.76	8/19/2022	8/20/2019	105.46082	104.4073885	103.3749126	102.3627727	101.3703724	100.3971386	99.44252008	98.50598666	97.5870281
190820A00013	8/20/2019	1.76	8/21/2023	8/20/2019	110.85405	108.6904793	106.5804536	104.5223082	102.5144376	100.5552976	98.64340216	96.77732113	94.95567748
190820A00020	8/20/2019	1.76	8/20/2024	8/20/2019	115.92926	112.5633953	109.3131605	106.1739337	103.1413082	100.2110782	97.37922882	94.64192565	91.995506
190820A00021	8/20/2019	2.13	8/20/2029	8/20/2019	141.16684	130.817685	121.3023057	112.5492075	104.4933676	97.07562204	90.24211056	83.94377607	78.1359141

	Parallel-Shift Sensitivity Analysis												
8/31/2021					Price								
REFERENCE	SETTLEMENT	Rate	MATURITY	First/Next	-400	-300	-200	-100	Base	100	200	300	400
190820A00054	8/20/2019	1.76	8/18/2022	8/20/2019	105.44502	104.3947839	103.3653855	102.3562052	101.3666518	100.396157	99.44417414	98.51017746	97.59366084
190821A00009	8/21/2019	1.79	8/22/2022	8/21/2019	105.53851	104.4753029	103.4334285	102.4122468	101.4111461	100.4295387	99.46685947	98.522565	97.59613251
190819A00005	8/19/2019	1.62	8/21/2023	8/19/2019	110.87619	108.7064249	106.5904644	104.5266323	102.5133123	100.5489498	98.63204937	96.76117143	94.93493031
190819A00020	8/19/2019	1.79	8/19/2022	8/19/2019	105.49083	104.4372291	103.4045917	102.3922925	101.3997352	100.4263464	99.47157494	98.53489063	97.61578317
190819A00026	8/19/2019	1.62	8/19/2024	8/19/2019	115.95817	112.5834988	109.3249037	106.1777431	103.1375885	100.2002137	97.36158423	94.61784758	91.96532381
190819A00030	8/19/2019	2.01	8/20/2029	8/19/2019	141.69783	131.2540063	121.6540352	112.8253891	104.7021201	97.2242352	90.3371306	83.99108252	78.14078823
190820A00005	8/21/2019	1.76	2/27/2023	8/21/2019	108.28088	106.6668808	105.0855149	103.535877	102.0170926	100.5283192	99.06874419	97.63758388	96.23408204
190820A00008	8/20/2019	1.76	8/20/2024	8/20/2019	115.92926	112.5633953	109.3131605	106.1739337	103.1413082	100.2110782	97.37922882	94.64192565	91.995506
190816A00013	8/16/2019	2.2	8/16/2029	8/16/2019	141.75258	131.3938909	121.8680956	113.1038909	105.0364207	97.60666405	90.7608824	84.45012239	78.62976735
190816A00014	8/16/2019	1.77	8/16/2024	8/16/2019	115.90691	112.5540612	109.3159809	106.1881056	103.1660766	100.2457329	97.42310154	94.69438771	92.05596575
190816A00016	8/16/2019	2.2	8/16/2029	8/16/2019	141.75258	131.3938909	121.8680956	113.1038909	105.0364207	97.60666405	90.7608824	84.45012239	78.62976735
190816A00021	8/16/2019	1.77	8/16/2023	8/16/2019	110.80176	108.6539612	106.5589741	104.5151622	102.5209527	100.5748321	98.67534394	96.82108569	95.01070675
190816A00031	8/16/2019	1.77	8/16/2024	8/16/2019	115.90691	112.5540612	109.3159809	106.1881056	103.1660766	100.2457329	97.42310154	94.69438771	92.05596575
190816A00035	8/16/2019	1.77	8/16/2023	8/16/2019	110.80176	108.6539612	106.5589741	104.5151622	102.5209527	100.5748321	98.67534394	96.82108569	95.01070675
190814A00010	8/14/2019	1.84	4/5/2023	8/14/2019	108.96244	107.2338219	105.5415908	103.8846726	102.2620329	100.6726776	99.11565071	97.59003281	96.09493902
190814A00015	8/14/2019	1.84	8/14/2024	8/14/2019	116.10123	112.7516742	109.5165511	106.3913125	103.3716205	100.453334	97.63249841	94.9053362	92.26823787
190815A00012	8/15/2019	1.81	8/15/2024	8/15/2019	116.02001	112.6685534	109.4317081	106.3049138	103.2838219	100.3642811	97.54232761	94.81417496	92.17620542
190816A00006	8/16/2019	1.77	8/16/2024	8/16/2019	115.90691	112.5540612	109.3159809	106.1881056	103.1660766	100.2457329	97.42310154	94.69438771	92.05596575
190816A00007	8/16/2019	1.77	8/16/2023	8/16/2019	110.80176	108.6539612	106.5589741	104.5151622	102.5209527	100.5748321	98.67534394	96.82108569	95.01070675
190816A00011	8/16/2019	1.77	8/16/2024	8/16/2019	115.90691	112.5540612	109.3159809	106.1881056	103.1660766	100.2457329	97.42310154	94.69438771	92.05596575
190812A00003	8/12/2019	1.67	8/12/2024	8/12/2019	116.02141	112.6680329	109.4292678	106.3005651	103.277579	100.3561608	97.53234878	94.80235865	92.16257443
190812A00006	8/12/2019	1.86	8/12/2024	8/12/2019	116.13686	112.793085	109.5633355	106.4430885	103.4280293	100.5140383	97.69718151	94.97370031	92.34000313
190813A00007	8/13/2019	1.89	8/15/2022	8/13/2019	105.53654	104.495005	103.473948	102.4727721	101.4909007	100.5277797	99.58287556	98.65567522	97.74568453
190813A00016	8/13/2019	1.88	8/13/2024	8/13/2019	116.21386	112.8657205	109.6318455	106.5077006	103.4889584	100.5714874	97.75134194	95.02475307	92.38811915
190814A00005	8/14/2019	1.65	8/14/2024	8/14/2019	115.98545	112.6262624	109.3821019	106.2483882	103.220752	100.2950229	97.46721873	94.73353589	92.09034042
190814A00008	8/14/2019	1.84	8/14/2024	8/14/2019	116.10123	112.7516742	109.5165511	106.3913125	103.3716205	100.453334	97.63249841	94.9053362	92.26823787
190809A00005	8/9/2019	1.88	7/11/2022	8/9/2019	104.9612	104.0310444	103.1173145	102.2195826	101.3374312	100.4704573	99.6182716	98.78049817	97.9567736
190809A00008	8/9/2019	1.87	8/3/2023	8/9/2019	110.81419	108.7058411	106.648432	104.6404138	102.6802961	100.7666435	98.89807347	97.07325389	95.29090085
190809A00011	8/9/2019	1.69	8/9/2024	8/9/2019	116.04336	112.6991897	109.4690071	106.3482991	103.3327551	100.4182595	97.60088153	94.87686603	92.24262432
190809A00012	8/9/2019	1.69	8/9/2024	8/9/2019	116.04336	112.6991897	109.4690071	106.3482991	103.3327551	100.4182595	97.60088153	94.87686603	92.24262432
190809A00015	8/9/2019	1.88	8/9/2022	8/9/2019	105.42961	104.4073338	103.4048065	102.421459	101.4567449	100.5101383	99.58113306	98.6692417	97.77399461
190809A00022	8/9/2019	1.88	8/9/2024	8/9/2019	116.15838	112.8237721	109.6025705	106.4902871	103.4826422	100.5755492	97.76510467	95.04757893	92.41940749
190807A00036	8/7/2019	1.75	8/7/2023	8/7/2019	110.6296	108.5109967	106.4438646	104.4266331	102.4577877	100.5358703	98.6594768	96.8272545	95.03790009

	Parallel-Shift Sensitivity Analysis												
8/31/2021					Price								
REFERENCE	SETTLEMENT	Rate	MATURITY	First/Next	-400	-300	-200	-100	Base	100	200	300	400
190807A00045	8/7/2019	1.77	8/7/2024	8/7/2019	115.78511	112.4626218	109.2529695	106.1516978	103.1545552	100.2574818	97.45659913	94.74820119	92.12874575
190808A00009	8/8/2019	1.89	8/8/2024	8/8/2019	116.17595	112.8442406	109.6257319	106.515951	103.5106297	100.6056921	97.79724484	95.08156777	92.45510531
190808A00025	8/8/2019	1.7	8/8/2024	8/8/2019	116.0611	112.7198372	109.4923584	106.3741626	103.3609507	100.4486181	97.63324405	94.91108303	92.27855531
190808A00052	8/8/2019	1.7	8/8/2024	8/8/2019	116.0611	112.7198372	109.4923584	106.3741626	103.3609507	100.4486181	97.63324405	94.91108303	92.27855531
190809A00001	8/9/2019	1.88	8/9/2022	8/9/2019	105.42961	104.4073338	103.4048065	102.421459	101.4567449	100.5101383	99.58113306	98.6692417	97.77399461
190806A00026	8/6/2019	1.71	8/7/2023	8/6/2019	110.85492	108.7281807	106.6532098	104.6284181	102.6522794	100.723325	98.84014027	97.00136302	95.20568061
190807A00012	8/7/2019	1.76	2/7/2023	8/7/2019	107.95981	106.4142569	104.8987695	103.4125463	101.9548117	100.5248168	99.12183822	97.74517756	96.39415974
190807A00014	8/7/2019	1.75	8/7/2023	8/7/2019	110.6296	108.5109967	106.4438646	104.4266331	102.4577877	100.5358703	98.6594768	96.8272545	95.03790009
190807A00020	8/7/2019	1.57	2/7/2024	8/7/2019	113.16442	110.4434035	107.8018985	105.2371217	102.7464039	100.3271852	97.97701039	95.69352339	93.47446299
190807A00021	8/7/2019	2	8/7/2026	8/7/2019	126.55064	120.6042423	114.972087	109.6359522	104.5787676	99.78453415	95.23825077	90.92584749	86.8341227
190807A00023	8/7/2019	1.77	8/7/2024	8/7/2019	115.78511	112.4626218	109.2529695	106.1516978	103.1545552	100.2574818	97.45659913	94.74820119	92.12874575
190805A00004	8/5/2019	1.7	8/5/2022	8/5/2019	105.30338	104.292587	103.301115	102.3284098	101.3739427	100.4372046	99.51770507	98.61497182	97.72854958
190805A00007	8/5/2019	1.88	8/5/2022	8/5/2019	105.36493	104.3554533	103.3652368	102.3937366	101.4404262	100.5047983	99.58636456	98.68465449	97.79921452
190805A00008	8/5/2019	1.88	8/4/2023	8/5/2019	110.84935	108.7375894	106.6769221	104.6657893	102.7026941	100.786195	98.91490356	97.0874822	95.30264173
190805A00011	8/5/2019	1.91	8/5/2024	8/5/2019	116.19695	112.8744249	109.6644767	106.5626736	103.5647822	100.6667593	97.86474195	95.1550389	92.53412148
190805A00049	8/5/2019	1.88	8/4/2023	8/5/2019	110.84935	108.7375894	106.6769221	104.6657893	102.7026941	100.786195	98.91490356	97.0874822	95.30264173
190805A00050	8/5/2019	1.91	8/5/2024	8/5/2019	116.19695	112.8744249	109.6644767	106.5626736	103.5647822	100.6667593	97.86474195	95.1550389	92.53412148
190731A00004	7/31/2019	2.18	7/31/2024	7/31/2019	116.96948	113.6509116	110.4441799	107.3449054	104.3489028	101.4521738	98.65089772	95.94142241	93.32025601
190731A00028	7/31/2019	1.93	7/29/2022	7/31/2019	105.40777	104.4182227	103.4471802	102.4941239	101.5585579	100.6400043	99.73800252	98.8521085	97.98189388
190801A00010	8/1/2019	1.97	8/1/2023	8/1/2019	111.29082	109.1779229	107.1160165	105.1035524	103.1390399	101.2210436	99.34818079	97.51911917	95.7325747
190802A00003	8/2/2019	2.01	8/2/2024	8/2/2019	116.46766	113.150466	109.9453308	106.8478545	103.8538351	100.9592588	98.16029024	95.4532639	92.83467528
190802A00016	8/2/2019	2.01	7/12/2023	8/2/2019	110.75862	108.7175623	106.7243803	104.7776644	102.8760538	101.0182365	99.20294682	97.42896421	95.69511069
190802A00029	8/2/2019	2	8/2/2022	8/2/2019	105.43058	104.430095	103.4485216	102.4853267	101.5399979	100.612042	99.70098348	98.80636433	97.92774279
190719A00002	7/19/2019	2.12	4/21/2022	7/19/2019	103.82756	103.1482978	102.4779081	101.8162162	101.1630535	100.518256	99.88166348	99.25312006	98.63247372
190719A00006	7/19/2019	2.17	7/19/2024	7/19/2019	116.76152	113.4840887	110.315968	107.2529154	104.2908818	101.425997	98.65456081	95.97303441	93.37803257
190724A00021	7/24/2019	2.33	7/23/2027	7/24/2019	134.24315	126.8247995	119.8640014	113.3301882	107.1949832	101.4320351	96.01686368	90.92671795	86.14044544
190724A00024	7/24/2019	2.49	7/24/2029	7/24/2019	145.7039	135.195544	125.5249727	116.6209753	108.4187407	100.85925	93.88873121	87.45816878	81.52286054
190726A00005	7/26/2019	1.97	7/26/2022	7/26/2019	105.39513	104.4149431	103.4529178	102.5085549	101.5813716	100.6709023	99.77669827	98.89832669	98.03536995
190729A00008	7/29/2019	2.18	1/29/2024	7/29/2019	114.20941	111.512677	108.8936984	106.3497847	103.8783581	101.4769453	99.14317215	96.87475957	94.66951871
190715A00010	7/15/2019	2.23	7/15/2024	7/15/2019	116.88685	113.6201718	110.4620372	107.4082519	104.4548091	101.5978785	98.83379727	96.15906197	93.57032045
190715A00014	7/15/2019	2.16	3/30/2022	7/15/2019	103.48581	102.8735475	102.2685034	101.6705536	101.0795739	100.495443	99.91804263	99.34725697	98.78297298
190715A00028	7/17/2019	2.17	1/18/2022	7/17/2019	102.30953	101.9093085	101.5122242	101.1182402	100.7273204	100.3394289	99.95453059	99.57259081	99.19357544
190715A00029	7/17/2019	2.16	4/18/2022	7/17/2019	103.8036	103.1334043	102.471854	101.8187781	101.1740142	100.5374045	99.90879464	99.28803456	98.67497774

	Parallel-Shift Sensitivity Analysis												
8/31/2021					Price								
REFERENCE	SETTLEMENT	Rate	MATURITY	First/Next	-400	-300	-200	-100	Base	100	200	300	400
190716A00046	7/16/2019	2.19	7/18/2022	7/16/2019	105.35566	104.4019484	103.4654603	102.5457295	101.6423092	100.754768	99.88269009	99.02567368	98.183331
190717A00008	7/17/2019	2.22	7/17/2024	7/17/2019	116.8859	113.6129102	110.4488663	107.3895539	104.4309442	101.5691863	98.80059798	96.12165743	93.52899535
190708A00021	7/8/2019	1.99	7/8/2022	7/8/2019	105.1115	104.1884063	103.2814766	102.390287	101.5144304	100.6535135	99.80715639	98.97499213	98.15666583
190709A00018	7/9/2019	2.24	7/9/2024	7/9/2019	116.82792	113.5811231	110.4416295	107.4053197	104.4682532	101.626662	98.87694183	96.21564434	93.63946935
190710A00012	7/10/2019	2.18	7/10/2023	7/10/2019	111.05958	109.0215686	107.0312207	105.0871359	103.1879631	101.3323994	99.51918818	97.74711693	96.01501567
190710A00022	7/10/2019	2.22	7/10/2024	7/10/2019	116.78175	113.5324847	110.3907085	107.3522893	104.4132763	101.5698918	98.8185225	96.1557115	93.57815055
190711A00022	7/11/2019	2	7/11/2023	7/11/2019	111.01882	108.9727228	106.9746398	105.0231559	103.1169054	101.2545719	99.43488561	97.65662183	95.91859882
190712A00009	7/12/2019	2.19	7/12/2023	7/12/2019	111.11098	109.0663773	107.0697266	105.1196096	103.2146635	101.3535743	99.53507484	97.75794252	96.02099777
190703A00004	7/3/2019	2.08	7/5/2022	7/3/2019	105.03855	104.1265109	103.230259	102.3493862	101.483499	100.6322176	99.79517486	98.97201575	98.16239706
190703A00017	7/3/2019	2.33	5/4/2026	7/3/2019	126.9867	121.3502591	115.9975162	110.912618	106.0806881	101.4877625	97.12072757	92.96726332	89.01579048
190703A00019	7/3/2019	2.08	7/5/2022	7/3/2019	105.03855	104.1265109	103.230259	102.3493862	101.483499	100.6322176	99.79517486	98.97201575	98.16239706
190703A00022	7/3/2019	2.08	7/5/2022	7/3/2019	105.03855	104.1265109	103.230259	102.3493862	101.483499	100.6322176	99.79517486	98.97201575	98.16239706
190708A00001	7/8/2019	1.99	7/8/2022	7/8/2019	105.1115	104.1884063	103.2814766	102.390287	101.5144304	100.6535135	99.80715639	98.97499213	98.15666583
190708A00011	7/8/2019	2.2	7/8/2024	7/8/2019	116.69101	113.449441	110.3149209	107.2833444	104.3507834	101.5134818	98.76784649	96.11043963	93.53797093
190627A00052	6/27/2019	2.1	6/27/2022	6/27/2019	104.9221	104.0351962	103.1632373	102.3058455	101.462658	100.6333243	99.81750524	99.01487249	98.22510845
190628A00004	6/28/2019	2.12	6/28/2023	6/28/2019	110.75319	108.7546414	106.80213	104.8943125	103.0298937	101.2076243	99.42629959	97.68475701	95.98187472
190628A00024	6/28/2019	2.09	6/28/2022	6/28/2019	104.93029	104.0402917	103.1653367	102.3050458	101.4590528	100.6270038	99.80855635	99.0033791	98.21115144
190701A00007	7/2/2019	2.09	7/1/2022	7/2/2019	104.98034	104.0809108	103.1968352	102.327723	101.4731969	100.6328923	99.80645654	98.99354864	98.19383869
190701A00017	7/1/2019	1.9	7/1/2022	7/1/2019	104.91669	104.0161584	103.1310203	102.2608858	101.405376	100.5641248	99.73677821	98.92299389	98.12244061
190701A00023	7/1/2019	1.95	7/1/2024	7/1/2019	116.29614	113.0719051	109.9537473	106.9376149	104.0196314	101.1960891	98.46344059	95.81829107	93.25739076
190625A00024	6/25/2019	2.26	6/25/2025	6/25/2019	122.14643	117.6667696	113.3762341	109.2658412	105.3270852	101.5519076	97.9326715	94.46213682	91.13343776
190626A00010	6/26/2019	2.1	6/26/2023	6/26/2019	110.68292	108.6911666	106.7452186	104.8437339	102.9854152	101.1690125	99.3933206	97.6571775	95.95946219
190626A00015	6/26/2019	2.15	6/26/2024	6/26/2019	116.3617	113.1630685	110.0690624	107.0756856	104.179115	101.3756948	98.66192843	96.03447079	93.49012048
190626A00019	6/26/2019	2.1	6/24/2022	6/26/2019	104.87201	103.9945164	103.1316624	102.2830837	101.4484284	100.6273558	99.8195364	99.02465134	98.2423918
190627A00009	6/27/2019	1.93	6/27/2023	6/27/2019	110.66219	108.6622984	106.7085338	104.7995411	102.9340156	101.1107	99.32838208	97.58589252	95.88210335
190627A00037	6/27/2019	1.93	6/27/2023	6/27/2019	110.66219	108.6622984	106.7085338	104.7995411	102.9340156	101.1107	99.32838208	97.58589252	95.88210335
190624A00052	6/24/2019	1.89	6/24/2022	6/24/2019	104.793	103.9145076	103.0506983	102.2012019	101.3656649	100.5437453	99.7351123	98.93944573	98.15643561
190625A00003	6/25/2019	2.03	6/27/2022	6/25/2019	104.86276	103.9761367	103.1044525	102.247332	101.4044128	100.5753442	99.75978716	98.95741351	98.16790563
190625A00012	6/25/2019	2.12	6/25/2024	6/25/2019	116.25651	113.0626265	109.9731557	106.9841066	104.0916606	101.292167	98.58213479	95.95822404	93.41723893
190625A00013	6/25/2019	2.01	6/24/2022	6/25/2019	104.79649	103.9193501	103.0568425	102.2086063	101.3742894	100.5535515	99.7460629	98.95150493	98.16956883
190625A00017	6/25/2019	2.02	12/15/2022	6/25/2019	107.57418	106.164209	104.7852998	103.4364262	102.116609	100.8249121	99.56043961	98.32233404	97.10977404
190625A00023	6/25/2019	2.47	6/25/2027	6/25/2019	133.63923	126.3788836	119.5598755	113.1531026	107.1315232	101.4700039	96.14517543	91.13529997	86.42014943
190620A00045	6/20/2019	2.14	6/20/2024	6/20/2019	116.24236	113.06458	109.9903516	107.0156924	104.1368017	101.3500483	98.65196144	96.03922288	93.50865893

	Parallel-Shift Sensitivity Analysis												
8/31/2021					Price								
REFERENCE	SETTLEMENT	Rate	MATURITY	First/Next	-400	-300	-200	-100	Base	100	200	300	400
190620A00057	6/25/2019	2.09	5/15/2023	6/25/2019	110.01745	108.1585926	106.3408092	104.5628096	102.8233541	101.1212549	99.45537359	97.82461847	96.2279419
190621A00021	6/21/2019	2.12	6/21/2022	6/21/2019	104.84729	103.9789578	103.124972	102.2849764	101.4586295	100.6456004	99.84556909	99.05822567	98.28327
190621A00041	6/21/2019	2.12	6/21/2022	6/21/2019	104.84729	103.9789578	103.124972	102.2849764	101.4586295	100.6456004	99.84556909	99.05822567	98.28327
190624A00008	6/24/2019	2.08	6/24/2022	6/24/2019	104.85523	103.9778128	103.1150358	102.2665332	101.4319531	100.6109548	99.80320896	99.00839658	98.22620892
190624A00026	6/24/2019	2.08	6/24/2022	6/24/2019	104.85523	103.9778128	103.1150358	102.2665332	101.4319531	100.6109548	99.80320896	99.00839658	98.22620892
190612A00011	6/12/2019	2.2	6/30/2022	6/12/2019	105.0578	104.1610908	103.2796294	102.4130331	101.5609283	100.7229541	99.89876157	99.08801296	98.29038158
190618A00002	6/18/2019	2.11	6/18/2025	6/18/2019	122.07179	117.599131	113.315041	109.2105369	105.2771145	101.5067214	97.89172992	94.42491263	91.09941851
190619A00009	6/19/2019	2.26	6/19/2024	6/19/2019	116.58644	113.4067487	110.3305605	107.3538951	104.4729511	101.6840972	98.98386294	96.36893074	93.83612786
190619A00024	6/19/2019	2.21	7/19/2022	6/19/2019	105.39091	104.433935	103.4942941	102.5715186	101.6651572	100.7747748	99.89995136	99.04028168	98.19537438
190620A00010	6/20/2019	2.04	6/20/2022	6/20/2019	104.7643	103.8994053	103.0487541	102.2119935	101.3887851	100.5788016	99.78172624	98.99725218	98.22508227
190620A00026	6/20/2019	2.09	6/20/2023	6/20/2019	110.56818	108.5958391	106.668645	104.7852439	102.9443327	101.1446576	99.38501198	97.66423405	95.98120484
190606A00029	6/6/2019	2.96	6/6/2034	6/6/2019	174.77929	155.7837185	139.0801765	124.3777076	111.4237706	99.99898397	89.91261752	80.99871634	73.11276712
190607A00005	6/7/2019	1.92	6/7/2022	6/7/2019	104.53749	103.712181	102.8998627	102.1002317	101.3129925	100.5378586	99.77455248	99.02280483	98.28235456
190607A00012	6/7/2019	2.13	6/7/2022	6/7/2019	104.62039	103.7958604	102.9842893	102.1853758	101.3988254	100.6243528	99.86168136	99.11054279	98.37067694
190607A00018	6/7/2019	2.19	6/7/2024	6/7/2019	116.19686	113.061091	110.0266296	107.0895373	104.2460584	101.4926102	98.8257739	96.24228542	93.7390273
190610A00018	6/10/2019	2.52	6/10/2026	6/10/2019	128.57283	122.7706264	117.265454	112.0404806	107.0799198	102.3689633	97.89371504	93.6411291	89.59895302
190611A00015	6/11/2019	2.32	6/11/2024	6/11/2019	116.6426	113.4875633	110.4346773	107.4799861	104.6197153	101.8502629	99.16818957	96.57021052	94.05318699
190604A00031	6/4/2019	2.25	6/5/2023	6/4/2019	110.62486	108.6976936	106.8141136	104.9727399	103.1722511	101.4113809	99.68891556	98.00369075	96.3545892
190605A00004	6/5/2019	2.11	1/12/2022	6/5/2019	102.18672	101.8041984	101.4245483	101.0477359	100.6737295	100.3024976	99.93400945	99.56823452	99.20514284
190605A00005	6/5/2019	2.01	6/5/2024	6/5/2019	116.08928	112.9511701	109.9145399	106.9754279	104.1300589	101.3748326	98.70631491	96.12122795	93.61644219
190605A00034	6/5/2019	2.11	6/6/2022	6/5/2019	104.58785	103.7665144	102.9580412	102.1621309	101.3784924	100.6068435	99.8469106	99.09842837	98.36113941
190605A00035	6/5/2019	2.18	6/5/2023	6/5/2019	110.49552	108.5695838	106.6872126	104.8470246	103.0476992	101.2879707	99.56662594	97.88250123	96.23447986
190606A00023	6/6/2019	2.23	6/6/2024	6/6/2019	116.29991	113.1658144	110.1328931	107.1972099	104.3550113	101.602717	98.93691108	96.35433238	93.85186665
190603A00002	6/3/2019	2.03	6/2/2023	6/3/2019	110.4481	108.5267646	106.6488752	104.8130343	103.0179092	101.2622243	99.54475742	97.86433761	96.21984191
190603A00003	6/3/2019	2.05	6/3/2024	6/3/2019	116.1773	113.0442964	110.0124597	107.077837	104.2366584	101.4853301	98.82042455	96.2386713	93.73694828
190603A00005	6/3/2019	2.25	6/3/2024	6/3/2019	116.31336	113.1886128	110.1645348	107.2372	104.4028643	101.6579582	98.99907683	96.42297117	93.92653928
190603A00032	6/3/2019	1.98	6/3/2022	6/3/2019	104.51825	103.7052554	102.9048632	102.1167851	101.3407388	100.5764504	99.82365418	99.08209252	98.35151538
190603A00033	6/3/2019	2.05	6/3/2024	6/3/2019	116.1773	113.0442964	110.0124597	107.077837	104.2366584	101.4853301	98.82042455	96.2386713	93.73694828
190603A00046	6/3/2019	2.17	6/3/2022	6/3/2019	104.58439	103.7722274	102.972639	102.1853351	101.4100343	100.6464637	99.89435886	99.15346288	98.42352671
190530A00007	5/30/2019	2.35	11/30/2021	5/30/2019	101.53951	101.2820865	101.0259641	100.7711303	100.5175755	100.26529	100.0142644	99.7644894	99.51595571
190530A00009	5/30/2019	2.25	5/30/2024	5/30/2019	116.70453	113.5765607	110.549258	107.6186762	104.7810596	102.0328289	99.37057135	96.79103147	94.29110241
190530A00021	5/30/2019	2.21	5/27/2022	5/30/2019	104.57637	103.7844373	103.0044627	102.2361816	101.4793323	100.7336613	99.99892207	99.27487571	98.56129003
190530A00024	5/30/2019	2.25	5/30/2024	5/30/2019	116.70453	113.5765607	110.549258	107.6186762	104.7810596	102.0328289	99.37057135	96.79103147	94.29110241

	Parallel-Shift Sensitivity Analysis												
8/31/2021					Price								
REFERENCE	SETTLEMENT	Rate	MATURITY	First/Next	-400	-300	-200	-100	Base	100	200	300	400
190530A00034	5/30/2019	2.44	5/30/2024	5/30/2019	116.8096	113.690301	110.6711578	107.7482577	104.9178709	102.1764424	99.52058248	96.94705721	94.45277999
190531A00035	5/31/2019	2.29	5/31/2022	5/31/2019	104.62613	103.8229438	103.0320496	102.2531651	101.4860185	100.730346	99.98589201	99.2524082	98.5296536
190529A00032	5/29/2019	2.38	5/29/2024	5/29/2019	116.61846	113.5050546	110.4915543	107.5740577	104.7488472	102.0123795	99.36127566	96.79231186	94.30241114
190529A00050	5/29/2019	2.31	11/29/2021	5/29/2019	101.51248	101.2579449	101.0046813	100.7526801	100.5019319	100.2524275	100.0041577	99.75711333	99.51128543
190529A00069	5/29/2019	2.34	11/29/2021	5/29/2019	101.52003	101.2654792	101.0122028	100.760189	100.5094282	100.2599112	100.0116289	99.76457201	99.51873168
190530A00003	5/30/2019	2.21	5/27/2022	5/30/2019	104.57637	103.7844373	103.0044627	102.2361816	101.4793323	100.7336613	99.99892207	99.27487571	98.56129003
190530A00004	5/30/2019	2.24	5/30/2023	5/30/2019	110.7845	108.8690916	106.9968615	105.1664151	103.3764208	101.6256045	99.91274623	98.23667736	96.59627781
190530A00006	5/30/2019	2.25	5/30/2024	5/30/2019	116.70453	113.5765607	110.549258	107.6186762	104.7810596	102.0328289	99.37057135	96.79103147	94.29110241
190528A00042	5/28/2019	2.38	11/29/2021	5/28/2019	101.53009	101.2755248	101.0222316	100.7702008	100.5194232	100.2698895	100.0215904	99.77451692	99.52866002
190529A00005	5/29/2019	2.31	11/29/2021	5/29/2019	101.51248	101.2579449	101.0046813	100.7526801	100.5019319	100.2524275	100.0041577	99.75711333	99.51128543
190529A00009	5/29/2019	2.35	5/31/2022	5/29/2019	104.67235	103.8689649	103.0778748	102.2987964	101.5314579	100.7755956	100.0309538	99.2972841	98.57434556
190529A00011	5/29/2019	2.36	5/30/2023	5/29/2019	110.728	108.8180849	106.95114	105.1257819	103.3406875	101.5945908	99.88627916	98.21459125	96.57841363
190529A00023	5/29/2019	2.38	5/29/2024	5/29/2019	116.61846	113.5050546	110.4915543	107.5740577	104.7488472	102.0123795	99.36127566	96.79231186	94.30241114
190529A00028	5/29/2019	2.38	5/29/2024	5/29/2019	116.61846	113.5050546	110.4915543	107.5740577	104.7488472	102.0123795	99.36127566	96.79231186	94.30241114
190528A00003	5/28/2019	2.42	5/31/2022	5/28/2019	104.72627	103.9226563	103.1313375	102.3520328	101.5844705	100.8283868	100.0835259	99.34963932	98.62648618
190528A00005	5/28/2019	2.42	6/15/2023	5/28/2019	111.10804	109.1457209	107.2281187	105.3538712	103.5216668	101.7302451	99.97839485	98.26495117	96.5887936
190528A00006	5/28/2019	2.43	9/15/2023	5/28/2019	112.66039	110.4004892	108.1979657	106.0509685	103.9577243	101.9165297	99.9257484	97.98380769	96.08919555
190528A00009	5/28/2019	2.45	5/15/2024	5/28/2019	116.60575	113.536222	110.5640268	107.6854159	104.8968125	102.1948043	99.57613531	97.03769651	94.57651851
190528A00015	5/28/2019	2.42	5/27/2022	5/28/2019	104.65594	103.8647539	103.085498	102.3179078	101.5617229	100.8166905	100.0825652	99.35910878	98.64609003
190528A00039	5/28/2019	2.38	11/29/2021	5/28/2019	101.53009	101.2755248	101.0222316	100.7702008	100.5194232	100.2698895	100.0215904	99.77451692	99.52866002
190523A00008	5/23/2019	2.29	5/23/2023	5/23/2019	110.7588	108.8646374	107.0128074	105.2019572	103.4307935	101.6980779	100.0026243	98.34329604	96.71900297
190523A00017	5/23/2019	2.51	3/15/2024	5/23/2019	115.80825	112.9415962	110.1614162	107.4645705	104.8480514	102.3089803	99.84460135	97.45227473	95.12947146
190523A00020	5/23/2019	2.5	2/9/2024	5/23/2019	115.21106	112.4651797	109.7993834	107.2108686	104.6969478	102.2550437	99.8826842	97.57749715	95.33720593
190523A00023	5/23/2019	2.48	3/22/2023	5/23/2019	109.79198	108.0978038	106.4387225	104.8137235	103.2218305	101.6621043	100.1336409	98.63556988	97.16705261
190524A00014	5/24/2019	2.24	5/24/2022	5/24/2019	104.54706	103.7643479	102.9933318	102.23375	101.4853495	100.7478847	100.0211171	99.3048151	98.59875382
190524A00032	5/24/2019	2.45	5/24/2023	5/24/2019	110.79204	108.8994551	107.0491354	105.2397318	103.4699532	101.7385637	100.0443794	98.38626549	96.76313379
190521A00005	5/21/2019	2.56	5/21/2024	5/21/2019	117.01831	113.9241073	110.9284852	108.0276189	105.2178671	102.4957574	99.85797717	97.30136448	94.82290023
190521A00028	5/21/2019	2.47	11/22/2021	5/21/2019	101.43152	101.1970193	100.9636152	100.7312955	100.5000525	100.2698786	100.0407666	99.81270893	99.58569842
190521A00043	5/21/2019	2.54	5/22/2023	5/21/2019	110.92106	109.0332504	107.1874904	105.3824426	103.6168261	101.8894145	100.1990326	98.54455415	96.9248988
190522A00017	5/23/2019	2.53	3/1/2023	5/23/2019	109.5165	107.8861713	106.2888828	104.7237134	103.189775	101.6862113	100.212197	98.76693615	97.34966086
190522A00019	5/23/2019	2.55	5/15/2024	5/23/2019	116.8942	113.8205417	110.8443169	107.9617735	105.1693314	102.4635755	99.84124654	97.299233	94.83456269
190523A00007	5/23/2019	2.28	5/23/2022	5/23/2019	104.55961	103.7798787	103.0117559	102.2549824	101.5093079	100.7744896	100.0502914	99.33648423	98.63284558
190515A00002	5/15/2019	2.44	5/16/2022	5/15/2019	104.47719	103.7200611	102.973889	102.2384398	101.5134833	100.7987959	100.0941604	99.39936557	98.71420622

	Parallel-Shift Sensitivity Analysis												
8/31/2021					Price								
REFERENCE	SETTLEMENT	Rate	MATURITY	First/Next	-400	-300	-200	-100	Base	100	200	300	400
190515A00008	5/15/2019	2.41	11/15/2021	5/15/2019	101.29761	101.0832197	100.8697456	100.6571851	100.4455324	100.2347815	100.0249267	99.81596222	99.60788231
190515A00023	5/15/2019	2.25	5/16/2022	5/15/2019	104.41548	103.6575716	102.9106531	102.1744836	101.4488321	100.7334742	100.0281917	99.33277268	98.64701113
190516A00012	5/16/2019	2.43	11/16/2021	5/16/2019	101.31905	101.1017859	100.8854622	100.6700762	100.4556215	100.2420922	100.0294822	99.81778545	99.60699611
190517A00005	5/17/2019	2.31	5/17/2024	5/17/2019	116.67785	113.5910626	110.6025244	107.7084373	104.9051777	102.1892894	99.55747509	97.00658709	94.53361956
190520A00007	5/20/2019	2.52	5/20/2024	5/20/2019	116.88644	113.797264	110.8064362	107.910147	105.1047666	102.3868333	99.75304447	97.20024784	94.72543315
190513A00013	5/13/2019	2.52	5/13/2024	5/13/2019	116.77616	113.7104404	110.7417477	107.866354	105.0807002	102.3813911	99.76518602	97.22899063	94.76984911
190513A00076	5/13/2019	2.42	11/12/2021	5/13/2019	101.24614	101.0403705	100.8354452	100.6313624	100.428117	100.2257038	100.0241176	99.82335326	99.62340577
190514A00020	5/14/2019	2.66	5/14/2025	5/14/2019	123.13131	118.7703822	114.5888957	110.5783886	106.7308583	103.038729	99.4948257	96.09235067	92.82486043
190514A00021	5/14/2019	2.72	11/14/2025	5/14/2019	126.32154	121.2824056	116.4742372	111.8851129	107.5038	103.319711	99.32286213	95.50383492	91.85374062
190514A00024	5/14/2019	2.34	5/14/2024	5/14/2019	116.71768	113.6397296	110.6594978	107.7732127	104.97728	102.2682714	99.64291525	97.09808813	94.63080681
190514A00073	5/14/2019	2.53	5/14/2024	5/14/2019	116.82073	113.7512453	110.7789889	107.9002178	105.1113625	102.409018	99.78993452	97.25100923	94.78927829
190502A00027	5/2/2019	2.42	5/2/2022	5/2/2019	104.28917	103.5741889	102.8689891	102.1733697	101.4871366	100.8101007	100.1420781	99.48288978	98.83236134
190507A00027	5/7/2019	2.59	5/7/2024	5/7/2019	116.88188	113.8333949	110.8808917	108.0206981	105.249313	102.5633953	99.95975502	97.43534529	94.98725463
190509A00019	5/9/2019	2.5	10/12/2021	5/9/2019	100.72647	100.6088198	100.4914574	100.3743835	100.2575971	100.141097	100.0248822	99.90895164	99.79330418
190509A00029	5/9/2019	2.34	6/9/2022	5/9/2019	104.90502	104.0719616	103.2521114	102.4451535	101.6507854	100.8687141	100.0986555	99.34033434	98.59348352
190509A00030	5/9/2019	2.48	11/9/2021	5/9/2019	101.20648	101.0092825	100.8128628	100.6172165	100.4223391	100.2282259	100.0348724	99.84227412	99.65042662
190510A00009	5/10/2019	2.47	11/10/2021	5/10/2019	101.2218	101.0217365	100.8224787	100.6240173	100.4263474	100.2294643	100.0333632	99.83803933	99.64348817
190429A00003	4/29/2019	2.62	10/13/2023	4/29/2019	113.54392	111.1882511	108.8939425	106.6589547	104.4813292	102.3591883	100.2907311	98.2742299	96.30802623
190429A00004	4/29/2019	2.65	4/15/2024	4/29/2019	116.6927	113.7167913	110.8328631	108.0374699	105.3273233	102.6992812	100.1503401	97.67762809	95.2783975
190430A00003	4/30/2019	2.43	8/2/2023	4/30/2019	112.23702	110.1112727	108.0368508	106.0121981	104.0358123	102.1062465	100.2221073	98.38205221	96.58478723
190430A00021	4/30/2019	2.52	10/29/2021	4/30/2019	101.0229	100.8571164	100.6918808	100.5271867	100.3630316	100.1994128	100.0363277	99.87377369	99.71174828
190501A00003	5/1/2019	2.61	5/1/2024	5/1/2019	116.84296	113.8137842	110.879489	108.0364712	105.2812889	102.6106562	100.0214346	97.5106258	95.0753636
190501A00028	5/1/2019	2.42	5/1/2024	5/1/2019	116.74158	113.7040975	110.7619717	107.9115717	105.1494316	102.472243	99.87684666	97.36022413	94.91949065
190426A00008	4/26/2019	2.57	4/26/2022	4/26/2019	104.21235	103.5166631	102.8302435	102.1529098	101.4844825	100.8247867	100.1736522	99.53091321	98.89640804
190426A00009	4/26/2019	2.63	4/26/2024	4/26/2019	116.8179	113.8050061	110.8860877	108.0575934	105.3161294	102.6584547	100.0814734	97.58222661	95.15788534
190426A00012	5/1/2019	2.57	7/15/2022	5/1/2019	105.64633	104.70045	103.7714776	102.8589638	101.9624737	101.0815878	100.2159011	99.36502236	98.5285739
190426A00016	5/1/2019	2.58	4/14/2023	5/1/2019	110.35429	108.5860339	106.8553815	105.1612033	103.5024153	101.8779762	100.2868858	98.72818253	97.20094161
190426A00032	6/27/2019	2.55	6/27/2022	6/27/2019	105.30355	104.414864	103.5411399	102.6820035	101.8370919	101.0060539	100.18855	99.38425168	98.59284085
190426A00033	6/27/2019	2.55	6/27/2022	6/27/2019	105.30355	104.414864	103.5411399	102.6820035	101.8370919	101.0060539	100.18855	99.38425168	98.59284085
190411A00017	4/15/2019	2.65	4/15/2024	4/15/2019	116.6927	113.7167913	110.8328631	108.0374699	105.3273233	102.6992812	100.1503401	97.67762809	95.2783975
190411A00019	5/1/2019	2.63	5/2/2022	5/1/2019	104.36119	103.646884	102.9423358	102.2473449	101.5617179	100.8852666	100.2178077	99.55916283	98.90915835
190411A00020	5/1/2019	2.63	5/2/2022	5/1/2019	104.36119	103.646884	102.9423358	102.2473449	101.5617179	100.8852666	100.2178077	99.55916283	98.90915835
190411A00029	4/11/2019	2.46	4/11/2024	4/11/2019	116.52702	113.5568144	110.678308	107.8880761	105.1828458	102.5594898	100.0150182	97.54657178	95.15141476

	Parallel-Shift Sensitivity Analysis												
8/31/2021					Price								
REFERENCE	SETTLEMENT	Rate	MATURITY	First/Next	-400	-300	-200	-100	Base	100	200	300	400
190423A00002	4/23/2019	2.52	4/23/2024	4/23/2019	116.89373	113.8797697	110.95978	108.1302057	105.3876563	102.728894	100.1508258	97.65049514	95.22507528
190424A00007	4/24/2019	2.66	4/24/2024	4/24/2019	116.86959	113.8623789	110.9488041	108.1253324	105.3885886	102.7353492	100.1625345	97.66720065	95.24653302
190403A00024	4/3/2019	2.61	7/29/2022	4/3/2019	105.93774	104.9470596	103.974858	103.020625	102.0838662	101.1641047	100.2608813	99.37375282	98.50229211
190404A00003	4/4/2019	2.47	4/4/2024	4/4/2019	116.43963	113.4931429	110.6370922	107.86812	105.18302	102.578727	100.0523093	97.60096236	95.22200174
190404A00023	4/5/2019	2.62	5/16/2022	4/5/2019	104.60814	103.8504695	103.1037682	102.3677951	101.6423201	100.9271194	100.2219756	99.52667766	98.84102006
190404A00024	4/5/2019	2.61	2/15/2022	4/5/2019	102.9897	102.5058852	102.0266193	101.5518364	101.0814735	100.6154693	100.153763	99.69629545	99.24300831
190408A00004	4/8/2019	2.6	10/8/2021	4/8/2019	100.66774	100.5613858	100.4552661	100.3493821	100.2437328	100.1383175	100.0331353	99.92818559	99.82346742
190409A00019	4/9/2019	2.91	4/9/2029	4/9/2019	147.82507	137.6301638	128.2188913	119.5267142	111.4947387	104.0691934	97.2009582	90.84513901	84.96068297
190328A00079	3/28/2019	2.37	3/28/2024	3/28/2019	116.05105	113.1320095	110.3020857	107.5579927	104.8965904	102.3148759	99.80997585	97.37914064	95.01973753
190329A00017	3/29/2019	2.59	3/29/2023	3/29/2019	110.09116	108.3738794	106.6924355	105.0457757	103.4328929	101.8528185	100.3046208	98.78740303	97.30030172
190329A00034	3/29/2019	2.56	3/29/2022	3/29/2019	103.70532	103.0952775	102.4923956	101.8965484	101.3076136	100.7254715	100.150005	99.58109987	99.01864446
190401A00035	4/1/2019	2.53	10/1/2021	4/1/2019	100.53846	100.45188	100.3654492	100.2791673	100.193034	100.1070489	100.0212116	99.93552168	99.84997888
190402A00004	4/2/2019	2.9	4/2/2029	4/2/2019	147.62578	137.4655247	128.0845841	119.4189166	111.4100663	104.0046501	97.15389286	90.81320605	84.94180839
190402A00010	4/2/2019	2.4	4/6/2022	4/2/2019	103.81444	103.1793016	102.5519268	101.9321714	101.319897	100.7149688	100.117255	99.52662695	98.94295921
190328A00003	3/28/2019	2.64	9/30/2024	3/28/2019	119.39887	115.8460056	112.4185182	109.1112394	105.9192454	102.8378457	99.86257042	96.98915876	94.21354747
190328A00019	3/28/2019	2.56	3/28/2024	3/28/2019	116.15001	113.2387993	110.4162641	107.6791465	105.0243279	102.4488254	99.94978497	97.52447463	95.17027859
190328A00033	4/25/2019	2.56	4/25/2024	4/25/2019	116.60379	113.5970989	110.6841398	107.8613661	105.1253958	102.4729992	99.9010906	97.40672108	94.98707088
190328A00046	3/28/2019	2.7	3/4/2025	3/28/2019	122.1477	118.0375294	114.0892249	110.2955113	106.6494825	103.1445811	99.77457818	96.5335552	93.41588649
190328A00053	3/28/2019	2.33	3/28/2022	3/28/2019	103.61387	103.0063224	102.4058863	101.8124363	101.2258511	100.646012	100.0728033	99.50611158	98.94582627
190328A00065	3/28/2019	2.56	3/28/2024	3/28/2019	116.15001	113.2387993	110.4162641	107.6791465	105.0243279	102.4488254	99.94978497	97.52447463	95.17027859
190326A00004	3/26/2019	2.58	9/26/2023	3/26/2019	113.17086	110.8712069	108.6305113	106.4468457	104.3183648	102.2432977	100.2199439	98.24667049	96.32190827
190327A00006	3/27/2019	2.53	3/27/2024	3/27/2019	116.05204	113.1452312	110.3269114	107.5938256	104.9428646	102.3710543	99.87554874	97.4536239	95.10267129
190327A00013	3/27/2019	2.53	3/27/2024	3/27/2019	116.05204	113.1452312	110.3269114	107.5938256	104.9428646	102.3710543	99.87554874	97.4536239	95.10267129
190327A00024	3/27/2019	2.48	3/25/2022	3/27/2019	103.58748	102.9897025	102.398816	101.8147006	101.2372405	100.6663222	100.101835	99.54367075	98.99172352
190327A00031	3/27/2019	2.53	3/27/2024	3/27/2019	116.05204	113.1452312	110.3269114	107.5938256	104.9428646	102.3710543	99.87554874	97.4536239	95.10267129
190327A00032	3/27/2019	2.53	1/26/2024	3/27/2019	115.05695	112.3586878	109.7379111	107.191947	104.7182353	102.3143193	99.97784041	97.70653411	95.49822532
190318A00024	3/18/2019	2.57	3/18/2024	3/18/2019	116.43559	113.5422185	110.7364568	108.0151095	105.3751164	102.8135496	100.3276063	97.91460264	95.57196806
190319A00013	3/19/2019	2.72	3/18/2022	3/19/2019	103.60411	103.0269707	102.4562638	101.8918808	101.3337167	100.7816692	100.2356377	99.69552431	99.16123295
190321A00018	3/21/2019	2.45	3/21/2022	3/21/2019	103.55943	102.9728655	102.3929431	101.8195514	101.2525803	100.6919223	100.1374722	99.58912723	99.04678672
190321A00021	3/21/2019	2.67	3/21/2024	3/21/2019	116.33755	113.4453029	110.6406673	107.9204378	105.2815523	102.7210808	100.2362189	97.82428133	95.48269624
190321A00044	3/21/2019	2.45	3/21/2022	3/21/2019	103.55943	102.9728655	102.3929431	101.8195514	101.2525803	100.6919223	100.1374722	99.58912723	99.04678672
190326A00001	3/26/2019	2.55	3/28/2022	3/26/2019	103.68157	103.0745724	102.4746709	101.8817382	101.2956534	100.7162985	100.1435581	99.57731936	99.0174721
190308A00007	3/8/2019	2.8	3/8/2024	3/8/2019	116.47459	113.6205069	110.8519943	108.1659618	105.5594527	103.029636	100.5738003	98.1893477	95.8737884

	Parallel-Shift Sensitivity Analysis												
8/31/2021					Price								
REFERENCE	SETTLEMENT	Rate	MATURITY	First/Next	-400	-300	-200	-100	Base	100	200	300	400
190311A00003	3/11/2019	2.68	9/10/2021	3/11/2019	100.17777	100.1498906	100.1220457	100.0942311	100.0664466	100.0386924	100.0109682	99.983274	99.95560983
190311A00009	3/11/2019	2.54	3/11/2022	3/11/2019	103.42954	102.8730848	102.322622	101.778052	101.2392803	100.7062146	100.1787644	99.65684101	99.14035784
190313A00019	3/13/2019	2.73	7/15/2022	3/13/2019	105.79023	104.8436407	103.913965	103.0007566	102.1035806	101.2220171	100.355661	99.50412094	98.66701901
190314A00027	3/22/2019	2.92	3/21/2025	3/22/2019	123.26377	119.0783325	115.0592266	111.1988942	107.4901698	103.9262537	100.5006916	97.20735419	94.04041933
190318A00021	3/18/2019	2.76	3/18/2024	3/18/2019	116.53256	113.6469135	110.8484505	108.1339969	105.5005135	102.9450919	100.4649478	98.05741481	95.71993883
190219A00026	2/19/2019	2.8	2/22/2022	2/19/2019	103.20892	102.7039194	102.2038562	101.7086591	101.2182573	100.7325815	100.2515634	99.77513636	99.30323475
190219A00045	2/19/2019	2.8	2/28/2022	2/19/2019	103.32001	102.7970595	102.2793887	101.7669174	101.2595676	100.757263	100.2599287	99.76749131	99.27987882
190220A00007	2/20/2019	2.87	2/20/2024	2/20/2019	116.36677	113.568947	110.8536574	108.2179725	105.6590891	103.1743206	100.7610916	98.41693244	96.13947407
190221A00002	2/21/2019	2.81	2/22/2022	2/21/2019	103.21383	102.7088187	102.2087412	101.7135301	101.2231144	100.7374247	100.2563929	99.77995213	99.30803696
190225A00026	2/25/2019	3.43	2/27/2034	2/25/2019	183.3931	164.0710656	147.0279947	131.980258	118.680989	106.9151467	96.49526401	87.25778247	79.05989102
190301A00009	3/1/2019	2.83	3/1/2022	3/1/2019	103.35393	102.8279156	102.307243	101.7918314	101.2816014	100.7764753	100.2763769	99.7812313	99.29096537
190214A00008	2/14/2019	2.64	2/14/2023	2/14/2019	109.6224	108.0369968	106.4828974	104.9592532	103.4652438	102.0000776	100.5629908	99.15324615	97.77013159
190214A00012	2/14/2019	2.6	2/14/2022	2/14/2019	103.00612	102.5247257	102.0478349	101.5753841	101.1073114	100.6435561	100.1840585	99.72875997	99.27760306
190214A00013	2/14/2019	2.64	2/14/2023	2/14/2019	109.6224	108.0369968	106.4828974	104.9592532	103.4652438	102.0000776	100.5629908	99.15324615	97.77013159
190215A00003	2/15/2019	2.82	2/15/2022	2/15/2019	103.08872	102.604629	102.1250871	101.65003	101.1793949	100.7131202	100.2511453	99.79341097	99.33985879
190215A00017	2/15/2019	2.89	2/15/2024	2/15/2019	116.32977	113.5492261	110.8502386	108.2299367	105.6855657	103.2144846	100.8141613	98.48216668	96.21617033
190215A00046	2/15/2019	2.7	2/15/2024	2/15/2019	116.23596	113.4480992	110.7421954	108.115351	105.5647926	103.0878616	100.6820092	98.34479056	96.07386037
190211A00016	2/11/2019	3.01	2/11/2025	2/11/2019	122.94227	118.891898	114.9982508	111.2544052	107.6537858	104.1901423	100.8575322	97.6503034	94.56307858
190211A00017	2/11/2019	3.12	2/11/2026	2/11/2019	129.68648	124.2677631	119.1091915	114.1968881	109.517789	105.059592	100.8107083	96.76021736	92.89782498
190212A00017	2/12/2019	2.86	6/30/2023	2/12/2019	112.20739	110.1883999	108.2159374	106.2886583	104.4052615	102.5644917	100.7651372	99.00602867	97.28603685
190213A00023	2/13/2019	2.93	2/13/2024	2/13/2019	116.39818	113.623455	110.9299286	108.3147454	105.7751691	103.3085764	100.9124515	98.584381	96.32204891
190214A00004	2/14/2019	2.6	2/14/2022	2/14/2019	103.00612	102.5247257	102.0478349	101.5753841	101.1073114	100.6435561	100.1840585	99.72875997	99.27760306
190214A00006	2/14/2019	2.67	2/14/2024	2/14/2019	116.13972	113.3564934	110.6549991	108.0323542	105.4857957	103.012675	100.6104526	98.27669269	96.00905822
190201A00009	2/1/2019	2.8	2/4/2022	2/1/2019	102.87113	102.4199804	101.9727839	101.5294879	101.0900414	100.6543946	100.2224983	99.7943042	99.36976483
190201A00011	2/1/2019	2.8	2/4/2022	2/1/2019	102.87113	102.4199804	101.9727839	101.5294879	101.0900414	100.6543946	100.2224983	99.7943042	99.36976483
190206A00013	2/6/2019	2.68	2/6/2023	2/6/2019	109.52966	107.9715826	106.4437904	104.9454759	103.4758575	102.0341807	100.6197169	99.23176234	97.86963711
190208A00008	2/8/2019	2.86	2/8/2024	2/8/2019	116.12678	113.3723629	110.6981154	108.1012314	105.5790245	103.1289186	100.7484424	98.43522463	96.18698913
190211A00002	2/11/2019	2.88	2/12/2024	2/11/2019	116.25005	113.4806118	110.792138	108.181784	105.6468243	103.1846461	100.7927431	98.46871114	96.21024302
190211A00011	2/11/2019	2.8	2/11/2022	2/11/2019	103.00045	102.5284081	102.0606955	101.5972519	101.1380189	100.6829392	100.2319566	99.78501591	99.34206277
190130A00020	1/30/2019	2.97	4/17/2023	1/30/2019	111.0711	109.2873138	107.5415835	105.83276	104.1597413	102.5214693	100.9169275	99.34513905	97.80516487
190131A00011	1/31/2019	3.13	1/30/2026	1/31/2019	129.4617	124.0946346	118.9832354	114.1139753	109.4741109	105.0516356	100.8352335	96.81423586	92.97858053
190131A00017	1/31/2019	2.83	3/25/2022	1/31/2019	103.79022	103.19177	102.6002133	102.0154331	101.4373136	100.8657414	100.3006055	99.74179776	99.18921218
190131A00019	1/31/2019	3.44	1/30/2034	1/31/2019	183.0373	163.870048	146.9496373	131.9981595	118.773503	107.0645767	96.68719127	87.48050595	79.30395983

	Parallel-Shift Sensitivity Analysis												
8/31/2021					Price								
REFERENCE	SETTLEMENT	Rate	MATURITY	First/Next	-400	-300	-200	-100	Base	100	200	300	400
190131A00027	1/31/2019	2.86	1/31/2023	1/31/2019	109.49109	107.9563525	106.4510418	104.9743854	103.525634	102.1040639	100.7089758	99.33969397	97.9955651
190131A00053	1/31/2019	2.67	1/31/2023	1/31/2019	109.39968	107.8625454	106.3549397	104.8760788	103.4252098	102.0016056	100.6045638	99.23340561	97.88747484
190123A00035	1/23/2019	3.18	1/22/2027	1/23/2019	136.81282	129.9747183	123.5243809	117.4377677	111.6924546	106.2675128	101.1434021	96.30187154	91.72586814
190123A00036	1/23/2019	3.32	1/23/2029	1/23/2019	150.05429	140.0686296	130.8286141	122.2744807	114.3515561	107.0097954	100.2033687	93.89028565	88.03205588
190128A00035	1/28/2019	3.04	1/26/2024	1/28/2019	116.35785	113.6429623	111.0059282	108.4440697	105.9548154	103.5356976	101.1843476	98.8984906	96.6759421
190129A00028	1/30/2019	2.92	2/1/2022	1/30/2019	102.86755	102.4252118	101.9866692	101.5518725	101.1207739	100.6933265	100.2694841	99.84920124	99.43243334
190130A00012	1/30/2019	2.92	1/31/2022	1/30/2019	102.84874	102.4093882	101.9737757	101.5418576	101.1135872	100.6889185	100.2678063	99.85020614	99.43607431
190130A00018	1/30/2019	2.95	10/17/2022	1/30/2019	107.78654	106.5331188	105.3088146	104.1126197	102.9435736	101.8007594	100.6833008	99.59036049	98.52113747
190115A00034	1/15/2019	2.91	1/17/2023	1/15/2019	109.29315	107.8019057	106.3385544	104.9023801	103.492689	102.1088105	100.7500959	99.41591776	98.10566911
190122A00007	1/22/2019	3.03	1/22/2024	1/22/2019	116.26176	113.5606278	110.9366314	108.3871301	105.9095865	103.5015652	101.1607279	98.88482893	96.67171087
190122A00042	1/22/2019	2.79	1/23/2023	1/22/2019	109.43054	107.9170764	106.4322808	104.9754032	103.5457219	102.1425398	100.7651831	99.41300043	98.08536166
190122A00045	1/22/2019	3.17	1/22/2027	1/22/2019	136.75278	129.9163692	123.4676509	117.3825904	111.6387666	106.2152542	101.0925158	96.25230335	91.67756632
190122A00046	1/22/2019	3.29	1/22/2029	1/22/2019	149.784	139.8125104	130.5855497	122.0434604	114.1316601	106.8001863	100.0032831	93.69902738	87.84898932
190123A00005	1/23/2019	2.94	1/24/2022	1/23/2019	102.72501	102.30634	101.8910809	101.4791952	101.0706418	100.6653805	100.2633714	99.86457544	99.46895424
190111A00013	1/11/2019	2.87	1/7/2022	1/11/2019	102.37863	102.0101795	101.6443865	101.2812206	100.9206534	100.562657	100.207204	99.85426718	99.5038199
190111A00026	1/11/2019	3.48	1/11/2034	1/11/2019	183.31494	164.2114171	147.3378335	132.4194718	119.2168662	107.5211126	97.14982674	87.94365476	79.76325796
190114A00040	1/14/2019	2.89	1/14/2025	1/14/2019	122.58589	118.6228209	114.8101106	111.1412528	107.6100597	104.2106434	100.9373993	97.78499139	94.74833729
190114A00043	1/14/2019	2.88	1/14/2022	1/14/2019	102.51323	102.124141	101.7380125	101.3548124	100.9745073	100.5970645	100.2224516	99.85063677	99.48158859
190115A00028	1/15/2019	2.86	11/8/2021	1/15/2019	101.2624	101.0679619	100.8742788	100.6813468	100.4891613	100.2977181	100.1070127	99.917041	99.72779859
190115A00029	1/15/2019	2.86	11/8/2021	1/15/2019	101.2624	101.0679619	100.8742788	100.6813468	100.4891613	100.2977181	100.1070127	99.917041	99.72779859
190110A00004	1/10/2019	3.09	1/10/2025	1/10/2019	122.67045	118.7334088	114.9449251	111.2986064	107.7883692	104.4084231	101.1532548	98.01761371	94.99649759
190110A00005	1/10/2019	3.2	1/9/2026	1/10/2019	129.43822	124.1430287	119.0969625	114.2869987	109.7008639	105.3269851	101.154447	97.17295032	93.37277459
190110A00010	1/10/2019	2.97	1/16/2024	1/10/2019	116.00468	113.325584	110.7225288	108.1929223	105.7342788	103.3442118	101.020429	98.76072857	96.56299468
190110A00013	1/10/2019	2.97	1/17/2024	1/10/2019	116.02214	113.3396931	110.7334643	108.2008511	105.7393594	103.3465948	101.0202578	98.75813924	96.55811666
190110A00014	1/10/2019	2.97	1/17/2024	1/10/2019	116.02214	113.3396931	110.7334643	108.2008511	105.7393594	103.3465948	101.0202578	98.75813924	96.55811666
190110A00028	1/10/2019	2.78	1/10/2024	1/10/2019	115.80932	113.1434777	110.5529743	108.0352602	105.5878831	103.2084879	100.8948125	98.64468324	96.4560112
190107A00023	1/7/2019	2.87	1/6/2023	1/7/2019	109.03577	107.5792118	106.1493561	104.745532	103.367088	102.0133939	100.6838397	99.37783519	98.09480855
190107A00024	1/7/2019	2.91	1/5/2024	1/7/2019	115.66344	113.023023	110.4566857	107.9619323	105.536369	103.1776964	100.8837049	98.65227052	96.4813515
190107A00028	1/7/2019	2.62	1/7/2022	1/7/2019	102.32191	101.9531972	101.5871506	101.2237378	100.8629304	100.5047003	100.1490198	99.79586184	99.44519944
190107A00036	1/7/2019	2.84	4/15/2022	1/7/2019	104.18794	103.5253263	102.8711418	102.2252228	101.5874134	100.9575611	100.3355177	99.72113834	99.11428188
190110A00001	1/10/2019	2.88	1/10/2022	1/10/2019	102.43837	102.0610766	101.686566	101.3148105	100.9457799	100.579444	100.2157735	99.85473909	99.49631219
190110A00002	1/10/2019	2.93	1/10/2023	1/10/2019	109.20868	107.7386717	106.2958209	104.879434	103.4888438	102.1234048	100.7824928	99.46550339	98.17185175
190102A00050	1/2/2019	3.38	1/3/2034	1/2/2019	181.69803	162.7319568	145.9791915	131.1673018	118.0587703	106.4463596	96.14911302	87.00890018	78.88743266

	Parallel-Shift Sensitivity Analysis												
8/31/2021					Price								
REFERENCE	SETTLEMENT	Rate	MATURITY	First/Next	-400	-300	-200	-100	Base	100	200	300	400
190102A00058	1/2/2019	2.91	1/2/2024	1/2/2019	115.61163	112.9812375	110.4243992	107.9386511	105.521624	103.1710414	100.8847156	98.66054361	96.49650308
190103A00010	1/3/2019	2.7	1/3/2024	1/3/2019	115.48895	112.8490861	110.2832887	107.7890644	105.3640202	103.0058575	100.7123672	98.48142639	96.31099377
190104A00033	1/4/2019	3.37	1/31/2029	1/4/2019	149.05622	139.143552	129.971445	121.4805027	113.6163882	106.3293686	99.57390287	93.30826847	87.49422304
190107A00010	1/7/2019	2.66	1/9/2023	1/7/2019	108.98942	107.5211316	106.0799578	104.6652121	103.2762283	101.9123621	100.5729902	99.25750931	97.96533573
190107A00022	1/7/2019	2.83	1/7/2022	1/7/2019	102.36418	101.9957592	101.6299986	101.2668648	100.9063296	100.5483651	100.1929437	99.84003835	99.48962238
181227A00022	12/27/2019	2.91	12/27/2022	12/27/2019	108.92905	107.4956723	106.0896608	104.7102649	103.3567662	102.0284719	100.7247139	99.44484773	98.18825133
181227A00026	12/27/2018	3.03	12/27/2023	12/27/2018	115.80334	113.1889988	110.6473834	108.1760466	105.7726377	103.4348996	101.1606641	98.94784824	96.79445007
181227A00027	12/27/2018	3.24	12/26/2025	12/27/2018	129.44092	124.1912753	119.1867303	114.4145441	109.8627024	105.5198754	101.3753751	97.4191158	93.64157654
181227A00028	12/27/2018	3.46	12/27/2028	12/27/2018	149.22475	139.435769	130.3690876	121.9674441	114.1784016	106.953918	100.2499562	94.02613163	88.24539149
181228A00008	12/28/2018	2.9	12/28/2021	12/28/2018	102.20208	101.8629725	101.5261091	101.1914716	100.859038	100.5287866	100.2006961	99.87474515	99.55091305
190102A00041	1/2/2019	2.91	1/2/2024	1/2/2019	115.61163	112.9812375	110.4243992	107.9386511	105.521624	103.1710414	100.8847156	98.66054361	96.49650308
181211A00043	12/11/2018	3.14	12/11/2023	12/11/2018	115.78692	113.221569	110.7267732	108.3000969	105.9392049	103.6418609	101.4059229	99.229338	97.11013813
181213A00031	12/13/2018	2.97	12/13/2023	12/13/2018	115.78395	113.2049426	110.6971186	108.2580189	105.8852905	103.5766796	101.3300266	99.14326165	97.01439987
181217A00010	12/17/2018	3.11	12/15/2023	12/17/2018	115.78594	113.2084029	110.7019576	108.2641668	105.8926913	103.5852903	101.3398153	99.15420636	97.02648718
181218A00072	12/18/2018	3.04	12/19/2022	12/18/2018	109.01286	107.5877641	106.1926336	104.8265293	103.4885545	102.1778498	100.893591	99.63498754	98.40128059
181218A00077	12/18/2018	3.09	12/18/2023	12/18/2018	115.79083	113.2040769	110.68883	108.2426417	105.8631701	103.5481703	101.2954893	99.10306135	96.968904
181227A00019	12/28/2020	3.1	12/29/2025	12/28/2020	128.83064	123.5848139	118.5844373	113.816743	109.2696948	104.931941	100.7927719	96.8420802	93.07032423
181128A00031	11/28/2018	3.29	11/28/2023	11/28/2018	115.90867	113.381759	110.9236662	108.5319672	106.2043501	103.9386053	101.7326197	99.58437148	97.49192535
181129A00023	11/29/2018	3.16	11/29/2021	11/29/2018	101.72631	101.4714157	101.2177917	100.9654315	100.7143258	100.4644651	100.2158405	99.96844263	99.7222626
181129A00027	11/29/2018	3.16	11/29/2021	11/29/2018	101.72631	101.4714157	101.2177917	100.9654315	100.7143258	100.4644651	100.2158405	99.96844263	99.7222626
181130A00037	11/30/2018	3.05	11/30/2023	11/30/2018	115.74191	113.2032321	110.7339865	108.3317181	105.9940849	103.718849	101.5038707	99.34710309	97.24658751
181203A00053	12/4/2018	3.23	12/1/2023	12/4/2018	115.822	113.2867202	110.8206832	108.4214477	106.0866862	103.8141737	101.6017827	99.44747732	97.3493088
181211A00018	12/11/2018	3.14	12/11/2023	12/11/2018	115.78692	113.221569	110.7267732	108.3000969	105.9392049	103.6418609	101.4059229	99.229338	97.11013813
181114A00010	11/14/2018	3.08	11/15/2021	11/14/2018	101.4596	101.2447517	101.0308227	100.8178115	100.6057121	100.3945187	100.1842252	99.97482604	99.76631529
181114A00021	11/14/2018	3.17	11/14/2023	11/14/2018	115.72246	113.2351838	110.8148086	108.4590198	106.1656008	103.932431	101.7574809	99.63880752	97.57454933
181115A00036	11/15/2018	3.2	11/15/2021	11/15/2018	101.46534	101.2506867	101.036957	100.8241418	100.6122351	100.4012312	100.1911242	99.98190841	99.77357802
181115A00076	11/15/2018	3.22	12/31/2021	11/15/2018	102.36744	102.0193418	101.6736045	101.3302022	100.9891113	100.6503088	100.3137716	99.97947729	99.64740345
181123A00015	11/23/2018	3.14	11/23/2021	11/23/2018	101.60611	101.3684827	101.1319777	100.896583	100.6622906	100.4290929	100.1969821	99.96595073	99.73599118
181127A00026	11/27/2018	3.2	11/26/2021	11/27/2018	101.67828	101.4320003	101.1869174	100.943021	100.7003023	100.4587529	100.2183643	99.97912823	99.74103641
181101A00020	11/1/2018	3.26	11/1/2021	11/1/2018	101.20311	101.0286337	100.8547548	100.6814721	100.5087827	100.3366836	100.1651717	99.99424415	99.82389791
181102A00006	11/2/2018	3.07	11/2/2021	11/2/2018	101.20728	101.0297623	100.8528712	100.6766008	100.5009479	100.3259092	100.1514815	99.9776616	99.80444635
181109A00023	11/9/2018	3.39	11/9/2022	11/9/2018	108.77456	107.4408122	106.1397762	104.8702549	103.6311124	102.421267	101.2396881	100.0853926	98.95744267
181109A00027	11/13/2018	3.48	4/15/2024	11/13/2018	119.01106	116.0029334	113.0875473	110.2614386	107.5212949	104.8639513	102.2863825	99.78569513	97.35912156

	Parallel-Shift Sensitivity Analysis												
8/31/2021					Price								
REFERENCE	SETTLEMENT	Rate	MATURITY	First/Next	-400	-300	-200	-100	Base	100	200	300	400
181109A00028	11/9/2018	3.72	11/9/2026	11/9/2018	137.64155	131.0771648	124.8713172	119.0023859	113.4501751	108.1958142	103.2216637	98.51122706	94.04907025
181109A00029	11/9/2018	3.72	11/9/2026	11/9/2018	137.64155	131.0771648	124.8713172	119.0023859	113.4501751	108.1958142	103.2216637	98.51122706	94.04907025
181022A00029	10/22/2018	3.22	10/24/2022	10/22/2018	108.24316	106.9644288	105.7158932	104.4964916	103.3052122	102.1410901	101.0032037	99.89067296	98.80265676
181023A00052	10/23/2018	3.15	10/23/2023	10/23/2018	115.25938	112.8468182	110.49774	108.2100031	105.9815559	103.810433	101.6947508	99.63270339	97.6225585
181025A00010	10/25/2018	3.07	10/25/2022	10/25/2018	108.23702	106.9526941	105.6988118	104.474298	103.2781295	102.1093302	100.9669683	99.85015389	98.75803667
181026A00002	10/26/2018	3.28	10/26/2023	10/26/2018	115.2618	112.8469087	110.4956151	108.2057708	105.9753174	103.8022834	101.6847792	99.62099332	97.60918841
181029A00081	10/29/2018	3.27	4/28/2023	10/29/2018	111.79733	109.9732325	108.1885498	106.4420722	104.7326397	103.0591392	101.4205028	99.8157046	98.24375937
181030A00012	10/30/2018	3.32	10/30/2023	10/30/2018	115.42796	112.9989191	110.6340855	108.331279	106.0884126	103.9034876	101.7745893	99.6998823	97.67760676
181010A00020	10/10/2018	3.27	12/1/2022	10/10/2018	109.06487	107.6600183	106.2909465	104.9562974	103.6547821	102.3851758	101.1463129	99.93708463	98.75643457
181010A00021	10/10/2018	3.29	3/15/2023	10/10/2018	110.97485	109.291265	107.6422777	106.0269018	104.4441852	102.8932117	101.3730988	99.88299619	98.4220846
181015A00008	10/15/2018	3.15	9/15/2021	10/15/2018	100.28633	100.2444862	100.2026892	100.1609434	100.1192487	100.077605	100.0360122	99.99447022	99.95297897
181016A00084	10/16/2018	3.21	10/17/2022	10/16/2018	108.09097	106.8356244	105.6094266	104.4113683	103.2404883	102.0958688	100.976633	99.88194256	98.81099596
181018A00011	10/18/2018	3.35	10/18/2023	10/18/2018	115.26987	112.8793486	110.5513012	108.2836356	106.0743477	103.9215169	101.8233016	99.77793563	97.78372403
181022A00026	10/22/2018	3.18	10/15/2021	10/22/2018	100.86383	100.7375978	100.6116962	100.4861247	100.360882	100.2359668	100.1113778	99.98711369	99.86317313
181005A00011	10/5/2018	3.2	10/5/2023	10/5/2018	115.03243	112.6777115	110.3838928	108.1489657	105.9710016	103.8481509	101.7786388	99.76076185	97.79288448
181005A00012	10/5/2018	3.33	10/4/2024	10/5/2018	122.27688	118.6518988	115.1550879	111.7811371	108.5249954	105.3818526	102.347126	99.41644812	96.585655
181005A00017	10/5/2018	3.27	4/11/2023	10/5/2018	111.46465	109.6958367	107.9644741	106.2694462	104.6096784	102.9841386	101.3918348	99.83181299	98.30315592
181009A00008	10/9/2018	3.24	10/7/2022	10/9/2018	107.92492	106.7026188	105.5079852	104.3400917	103.1980473	102.0810003	100.9881361	99.91867498	98.87187069
181009A00035	10/9/2018	3.12	10/11/2022	10/9/2018	108.0146	106.7766279	105.5670079	104.3847756	103.2290083	102.0988241	100.9933798	99.91186913	98.85352047
181009A00036	10/9/2018	3.07	10/8/2021	10/9/2018	100.72742	100.6209027	100.5146244	100.4085831	100.3027781	100.1972084	100.0918732	99.98677181	99.88190332
180927A00008	9/27/2018	3.14	9/27/2022	9/27/2018	107.61265	106.4241325	105.2618414	104.1249136	103.0125254	101.9238884	100.8582476	99.81487988	98.793092
180927A00015	9/27/2018	3.02	9/27/2022	9/27/2018	107.62134	106.4305718	105.2661159	104.1271057	103.0127137	101.9221479	100.8546503	99.80949433	98.78598398
180927A00042	9/27/2018	3.02	9/27/2022	9/27/2018	107.62134	106.4305718	105.2661159	104.1271057	103.0127137	101.9221479	100.8546503	99.80949433	98.78598398
181001A00074	10/1/2018	3.03	10/3/2022	10/1/2018	107.75167	106.5409745	105.3574427	104.2001707	103.0682916	101.9609762	100.8774312	99.81689701	98.77864624
181002A00019	10/2/2018	2.98	10/4/2021	10/2/2018	100.64219	100.547001	100.4520019	100.3571891	100.2625621	100.1681203	100.0738631	99.97979002	99.88590047
181004A00029	10/4/2018	3.7	10/4/2028	10/4/2018	149.73216	140.2370227	131.4224713	123.2358819	115.6289703	108.5574154	101.9805137	95.86086553	90.16409043
180921A00021	9/21/2018	2.99	9/21/2021	9/21/2018	100.39705	100.3383861	100.2797997	100.2212954	100.162873	100.1045322	100.0462731	99.98809525	99.92999865
180924A00044	9/24/2018	3.1	9/24/2021	9/24/2018	100.45491	100.3878981	100.3209889	100.2541783	100.1874661	100.1208521	100.0543362	99.98791799	99.92159743
180924A00047	9/24/2018	3.14	9/23/2022	9/24/2018	107.53347	106.3581045	105.2084141	104.0835619	102.9827489	101.9052102	100.8502131	99.81705523	98.80506325
180925A00060	9/25/2018	3.23	8/25/2023	9/25/2018	113.9825	111.773426	109.61916	107.5179881	105.4682595	103.4683867	101.5168426	99.61215773	97.75291752
180926A00004	9/26/2018	3.04	9/26/2022	9/26/2018	107.62372	106.4361143	105.2746856	104.1385725	103.0269537	101.9390433	100.8740886	99.83136847	98.81019166
180926A00031	9/26/2018	3.24	9/26/2023	9/26/2018	114.61235	112.2967124	110.0403568	107.8413527	105.6978453	103.6080544	101.570271	99.58285337	97.64422441
180920A00014	9/20/2018	3.59	9/20/2028	9/20/2018	148.60654	139.205067	130.4750117	122.3646637	114.8265628	107.8171273	101.2963176	95.22733049	89.57632137

	Parallel-Shift Sensitivity Analysis												
8/31/2021					Price								
REFERENCE	SETTLEMENT	Rate	MATURITY	First/Next	-400	-300	-200	-100	Base	100	200	300	400
180920A00027	9/20/2018	3.04	9/20/2022	9/20/2018	107.50437	106.3365463	105.1940661	104.0761132	102.9819037	101.9106867	100.8617426	99.83438175	98.82794263
180920A00028	9/20/2018	3.12	9/20/2023	9/20/2018	114.57023	112.2673805	110.0232867	107.8360385	105.7038067	103.6248355	101.5974386	99.61999615	97.69095118
180920A00035	9/20/2018	3.16	9/20/2022	9/20/2018	107.49595	106.3303125	105.1899412	104.0740181	102.9817626	101.9124273	100.8652957	99.83968117	98.8349249
180920A00062	9/20/2018	3.12	9/20/2023	9/20/2018	114.57023	112.2673805	110.0232867	107.8360385	105.7038067	103.6248355	101.5974386	99.61999615	97.69095118
180920A00063	9/20/2018	3	9/20/2021	9/20/2018	100.37869	100.3228233	100.2670298	100.211313	100.1556725	100.1001084	100.0446204	99.98920832	99.93387208
180917A00078	9/17/2018	3.05	9/15/2023	9/17/2018	114.32354	112.039095	109.8126728	107.6424048	105.5264951	103.4632187	101.4509188	99.48800305	97.57294082
180918A00011	9/18/2018	3.17	9/18/2023	9/18/2018	114.30878	112.0214758	109.7923192	107.619428	105.5009994	103.4353026	101.4206748	99.45551812	97.53829687
180918A00012	9/18/2018	3.06	9/17/2021	9/18/2018	100.32027	100.2728341	100.225462	100.1781506	100.1308997	100.0837092	100.036579	99.989509	99.94249907
180918A00013	9/18/2018	3.11	9/16/2022	9/18/2018	107.36252	106.2103363	105.0828705	103.9793282	102.8989535	101.8410219	100.8048389	99.78973851	98.79508152
180918A00038	9/18/2018	3.11	9/16/2022	9/18/2018	107.36252	106.2103363	105.0828705	103.9793282	102.8989535	101.8410219	100.8048389	99.78973851	98.79508152
180918A00041	9/18/2018	3.18	9/18/2024	9/18/2018	121.48196	117.9222779	114.4871518	111.1714846	107.970423	104.8793417	101.893831	99.00968549	96.22289297
180911A00080	9/11/2018	2.94	9/9/2022	9/11/2018	107.17954	106.0485224	104.9413486	103.8572658	102.7955569	101.7555341	100.7365378	99.73793475	98.75911684
180912A00011	9/12/2018	3.41	9/11/2026	9/12/2018	134.83292	128.550656	122.603199	116.9708807	111.6352908	106.5791926	101.7864421	97.24191285	92.93142618
180913A00029	9/13/2018	3.11	9/13/2023	9/13/2018	114.08591	111.8166507	109.604822	107.448579	105.3461514	103.2958388	101.2960072	99.34508633	97.44156597
180914A00008	9/14/2018	3.15	9/14/2023	9/14/2018	114.19049	111.9169673	109.7010327	107.5408324	105.4345892	103.3805963	101.3772138	99.42286526	97.51603524
180914A00013	9/14/2018	3.48	9/14/2028	9/14/2018	147.62663	138.2834868	129.6068979	121.5456001	114.0525383	107.0844964	100.6017647	94.56783806	88.94914155
180914A00028	9/14/2018	3.37	9/12/2025	9/14/2018	128.16893	123.3019946	118.6498089	114.2017035	109.9476016	105.8779806	101.9838388	98.25666347	94.68840163
180904A00014	9/4/2018	3.37	9/1/2028	9/4/2018	146.53401	137.2793047	128.6826284	120.6935628	113.2658109	106.3568375	99.92754509	93.94197898	88.3670594
180905A00015	9/5/2018	2.85	9/1/2022	9/5/2018	106.92945	105.8252218	104.7437515	103.6843414	102.6463217	101.6290495	100.6319075	99.65430256	98.69566467
180906A00013	9/6/2018	2.81	9/7/2021	9/6/2018	100.12879	100.1092572	100.0897488	100.0702603	100.0507914	100.0313423	100.0119128	99.99250284	99.97311252
180906A00020	9/6/2018	2.81	9/7/2021	9/6/2018	100.12879	100.1092572	100.0897488	100.0702603	100.0507914	100.0313423	100.0119128	99.99250284	99.97311253
180910A00033	9/10/2018	3.43	9/8/2028	9/10/2018	147.12725	137.8247959	129.1849572	121.1568658	113.693817	106.7529095	100.2947165	94.28298709	88.68437521
180911A00012	9/11/2018	3.06	9/9/2022	9/11/2018	107.17162	106.0427038	104.9375517	103.8554162	102.7955835	101.7573688	100.7401154	99.74319277	98.76599547
180827A00020	8/27/2018	3.21	8/27/2025	8/27/2018	127.18458	122.3926218	117.8103561	113.4274599	109.2341774	105.2212838	101.3800536	97.70223058	94.18000008
180827A00032	8/27/2018	2.96	8/29/2022	8/27/2018	106.85372	105.7613378	104.691255	103.6427927	102.6153004	101.6081536	100.6207525	99.65252043	98.70290321
180827A00034	8/27/2018	2.99	8/28/2023	8/27/2018	113.53603	111.3224608	109.1640516	107.0590665	105.0058379	103.0027621	101.0482967	99.14095785	97.27931728
180831A00018	8/31/2018	2.95	8/31/2022	8/31/2018	106.88193	105.7831224	104.7068624	103.6524633	102.6192644	101.6066311	100.6139539	99.64064735	98.68614855
180904A00004	9/4/2018	2.89	9/5/2023	9/4/2018	113.79405	111.5466891	109.355908	107.2199065	105.1369537	103.1053862	101.1236052	99.19007321	97.30331144
180904A00012	9/4/2018	3.35	9/4/2030	9/4/2018	160.61826	147.8755774	136.2643282	125.6775006	116.0187448	107.2012591	99.14679765	91.7847862	85.05153365
180820A00055	8/20/2018	3.37	8/21/2028	8/20/2018	146.35272	137.1453073	128.5899787	120.6369759	113.2405865	106.3587969	99.95297562	93.98758394	88.42991358
180821A00011	8/21/2018	2.98	8/21/2023	8/21/2018	113.38748	111.1970659	109.0607395	106.9768199	104.9436862	102.9597794	101.0235993	99.13370199	97.28869719
180823A00033	8/23/2018	2.85	8/23/2023	8/23/2018	113.47087	111.2673697	109.1185311	107.0226447	104.9780652	102.9832103	101.0365579	99.13664315	97.28205619
180823A00035	8/23/2018	3.05	8/22/2025	8/23/2018	127.09845	122.3058052	117.7227089	113.3388584	109.1445158	105.1304725	101.2880174	97.60890751	94.0853401

	Parallel-Shift Sensitivity Analysis												
8/31/2021					Price								
REFERENCE	SETTLEMENT	Rate	MATURITY	First/Next	-400	-300	-200	-100	Base	100	200	300	400
180823A00053	8/23/2018	3.2	8/23/2028	8/23/2018	146.48496	137.2076352	128.5899029	120.5812714	113.1353647	106.2095711	99.76471901	93.76478251	88.17661332
180823A00055	8/23/2018	3.44	8/23/2033	8/23/2018	180.34572	162.0334978	145.8027941	131.4036971	118.6175834	107.2530524	97.14240963	88.13861924	80.11266245
180815A00021	8/15/2018	3.01	8/15/2023	8/15/2018	113.33993	111.1684978	109.0502639	106.9835879	104.9668883	102.998643	101.0773873	99.20171046	97.37025419
180816A00024	8/16/2018	3.01	8/16/2023	8/16/2018	113.35824	111.1835311	109.0621746	106.9925194	104.9729771	103.0020196	101.0781761	99.20003048	97.36621897
180816A00038	8/16/2018	3.38	8/16/2028	8/16/2018	146.349	137.1602201	128.6209785	120.6817977	113.2972224	106.4254684	100.0281088	94.06978717	88.5179579
180816A00043	8/16/2018	2.83	8/16/2022	8/16/2018	106.60039	105.5482628	104.5168777	103.5056261	102.5139223	101.5412031	100.586927	99.65057261	98.73163833
180817A00013	8/17/2018	2.94	2/15/2022	8/17/2018	103.1453	102.6610541	102.1813544	101.7061407	101.23535	100.7689208	100.3067924	99.84890555	99.39520192
180817A00022	8/17/2018	2.87	8/17/2023	8/17/2018	113.40241	111.2181946	109.087742	107.0093817	104.981508	103.0025765	101.0711007	99.18564982	97.34484607
180813A00013	8/13/2018	2.99	12/5/2022	8/13/2018	108.75476	107.3475004	105.9746904	104.6350665	103.3274272	102.0506288	100.8035818	99.58524756	98.39463584
180813A00026	8/13/2018	2.87	8/11/2023	8/13/2018	113.29227	111.1277656	109.0161229	106.9557099	104.9449608	102.9823684	101.0664818	99.19590396	97.36928922
180813A00059	8/13/2018	3.01	8/11/2023	8/13/2018	113.26672	111.1083688	109.002622	106.9478621	104.9425336	102.9851392	101.0742376	99.20844056	97.38641083
180814A00032	8/14/2018	3.1	8/14/2025	8/14/2018	127.17349	122.406379	117.8465702	113.4839281	109.3088685	105.3123253	101.4857196	97.82093072	94.31026925
180814A00033	8/14/2018	3.25	8/13/2027	8/14/2018	140.66265	132.9709485	125.7547077	118.9819843	112.6231405	106.6506692	101.0390306	95.76450142	90.80503669
180815A00011	8/15/2018	2.97	8/15/2022	8/15/2018	106.6043	105.5569942	104.5302498	103.5234637	102.5360579	101.5674762	100.6171837	99.68466569	98.76942641
180730A00081	7/30/2018	3.5	7/28/2028	7/30/2018	146.97162	137.8308038	129.3310514	121.4238979	114.0647888	107.2127412	100.8300404	94.88196339	89.33652732
180731A00004	7/31/2018	2.97	7/31/2023	7/31/2018	113.29212	111.1616358	109.082409	107.0528875	105.0715752	103.1370314	101.2478682	99.40274844	97.6003831
180801A00015	8/1/2018	3.16	8/1/2023	8/1/2018	113.38629	111.2574995	109.1798921	107.1519164	105.1720793	103.2389431	101.3511225	99.50728276	97.70613744
180802A00006	8/2/2018	2.99	8/2/2023	8/2/2018	113.36987	111.2323928	109.1464821	107.110568	105.1231414	103.1827492	101.2879918	99.43752073	97.63003643
180808A00009	8/8/2018	3.12	8/7/2023	8/8/2018	113.41735	111.2697522	109.1742066	107.1291247	105.1329757	103.1842857	101.2816353	99.4236572	97.60903412
180809A00029	8/9/2018	2.99	9/9/2021	8/9/2018	100.16776	100.142667	100.1176015	100.0925625	100.06755	100.042564	100.0176043	99.99267101	99.96776402
180727A00028	7/27/2018	3.25	7/27/2026	7/27/2018	134.10674	127.9743772	122.1622823	116.6520298	111.4263526	106.4690596	101.7649636	97.29981392	93.06023356
180727A00037	7/27/2018	3.13	7/27/2023	7/27/2018	113.23216	111.1202873	109.058863	107.0463677	105.0813391	103.1623688	101.2880996	99.45722325	97.66847842
180727A00039	7/27/2018	3.48	7/27/2028	7/27/2018	146.79902	137.6680726	129.1773678	121.27852	113.9270424	107.0820135	100.7057738	94.76365058	89.22370619
180730A00004	7/30/2018	3.14	7/28/2023	7/30/2018	113.27096	111.1556237	109.0908849	107.0752164	105.1071501	103.1852715	101.3082179	99.47467585	97.68337889
180730A00023	7/30/2018	3.13	7/30/2024	7/30/2018	120.40361	117.0240776	113.7581546	110.6013928	107.5495426	104.5985444	101.7445187	98.98375786	96.31271653
180730A00041	7/30/2018	3.14	7/31/2023	7/30/2018	113.32727	111.2021693	109.1280955	107.1035045	105.1269099	103.1968802	101.312036	99.4710484	97.67263613
180719A00063	7/19/2018	3.21	7/19/2024	7/19/2018	119.96782	116.641579	113.4258857	110.3164565	107.3092022	104.4002143	101.5857554	98.8622517	96.22628389
180719A00064	7/19/2018	3.3	7/21/2025	7/19/2018	126.9162	122.2540597	117.7910029	113.5174739	109.4244252	105.5032888	101.7459486	98.14471414	94.69229567
180720A00006	7/20/2018	3.03	7/17/2023	7/20/2018	112.84749	110.7701526	108.7417968	106.760966	104.8262586	102.9363242	101.0898603	99.28561112	97.52236519
180720A00008	7/20/2018	3	7/20/2022	7/20/2018	106.12988	105.1661056	104.2198227	103.2905573	102.3778531	101.4812698	100.600383	99.73478257	98.88407299
180720A00068	7/20/2018	2.89	7/20/2023	7/20/2018	112.92728	110.834352	108.791065	106.7959364	104.8475375	102.9444917	101.0854722	99.26919974	97.49444057
180724A00025	7/24/2018	2.93	7/25/2022	7/24/2018	106.26991	105.2883602	104.3249181	103.3790876	102.4503888	101.5383592	100.6425527	99.76253925	98.89790362
180716A00054	7/16/2018	3.59	7/16/2040	7/16/2018	223.24404	190.0673889	162.4525044	139.4212672	120.1731041	104.0519235	90.51935144	79.13304051	69.52906927

	Parallel-Shift Sensitivity Analysis												
8/31/2021					Price								
REFERENCE	SETTLEMENT	Rate	MATURITY	First/Next	-400	-300	-200	-100	Base	100	200	300	400
180716A00056	7/16/2018	3.1	7/16/2025	7/16/2018	126.65976	122.001086	117.5412135	113.2706094	109.1802482	105.2615827	101.5065157	97.90737387	94.45688355
180717A00047	7/17/2018	3.3	9/17/2025	7/17/2018	127.95161	123.0722246	118.4087941	113.9505612	109.6873638	105.6096004	101.7081964	97.97457192	94.40061181
180717A00076	7/17/2018	3.03	7/17/2023	7/17/2018	112.84749	110.7701526	108.7417968	106.760966	104.8262586	102.9363242	101.0898603	99.28561112	97.52236519
180718A00026	7/18/2018	3.03	7/18/2023	7/18/2018	112.86593	110.7853483	108.7538881	106.7700884	104.8325421	102.9398928	101.0908329	99.2841014	97.51848206
180719A00060	7/19/2018	3.05	7/19/2022	7/19/2018	106.15606	105.195255	104.2518318	103.3253214	102.4152718	101.5212467	100.6428254	99.77960146	98.9311828
180705A00061	7/5/2018	3	7/6/2022	7/5/2018	105.85889	104.9398167	104.0366879	103.1490888	102.276621	101.4189	100.575554	99.74622357	98.93056139
180705A00062	7/5/2018	3.04	7/6/2023	7/5/2018	112.66408	110.622231	108.6278157	106.6794478	104.7757899	102.9155523	101.0974907	99.32040416	97.58313382
180706A00013	7/6/2018	3.01	7/6/2023	7/6/2018	112.60589	110.5646199	108.5707727	106.6229618	104.7198503	102.8601486	101.0426128	99.26604229	97.52927844
180713A00013	7/13/2018	2.88	7/13/2023	7/13/2018	112.7782	110.708285	108.6870088	106.7129334	104.7846718	102.900887	101.0602899	99.26163707	97.50372888
180713A00035	7/13/2018	3.02	7/13/2022	7/13/2018	106.01223	105.0707318	104.1459481	103.2374346	102.3447644	101.4675252	100.6053192	99.75776209	98.92448244
180716A00016	7/16/2018	3.03	7/14/2023	7/16/2018	112.79217	110.724568	108.7055239	106.7335986	104.8074085	102.9256197	101.0869458	99.29014624	97.5340239
180627A00057	6/27/2018	2.98	6/27/2022	6/27/2018	105.66805	104.7776578	103.9022468	103.0414434	102.1948842	101.3622177	100.5431039	99.73721401	98.94422958
180629A00071	6/29/2018	3.02	6/29/2023	6/29/2018	112.49623	110.4774435	108.5051396	106.5779645	104.6946145	102.8538318	101.0544033	99.29515809	97.57496588
180702A00012	7/2/2018	3.01	7/3/2023	7/2/2018	112.55078	110.5192239	108.5346753	106.5957629	104.7011667	102.8496136	101.0398753	99.2707661	97.54114137
180702A00034	7/2/2018	2.86	7/3/2023	7/2/2018	112.55499	110.5180004	108.5282353	106.5843159	104.6849139	102.8287477	101.0145811	99.24122101	97.50751585
180705A00003	7/5/2018	3.04	7/5/2023	7/5/2018	112.64562	110.6070111	108.6156974	106.6702973	104.7694795	102.9119595	101.0964982	99.32189979	97.58701007
180705A00060	7/5/2018	3	7/6/2022	7/5/2018	105.85889	104.9398167	104.0366879	103.1490888	102.276621	101.4189	100.575554	99.74622357	98.93056139
180622A00004	6/22/2018	3.47	12/22/2028	6/22/2018	149.22389	139.4532436	130.4024113	122.0143825	114.2369492	107.0222781	100.3265235	94.10947432	88.33423611
180622A00005	6/22/2018	3.5	7/2/2029	6/22/2018	152.79159	142.1490806	132.3396945	123.2935918	114.9471277	107.2422777	100.1261144	93.55033602	87.47084067
180622A00018	6/22/2018	2.92	6/22/2023	6/22/2018	112.46428	110.4620619	108.5057796	106.5940572	104.7255751	102.8990632	101.1132986	99.36710349	97.65934296
180625A00041	6/25/2018	3.06	6/20/2023	6/25/2018	112.40363	110.4134141	108.4686926	106.5681009	104.7103262	102.8941052	101.1182224	99.38150717	97.68283228
180627A00026	6/27/2018	2.87	6/27/2023	6/27/2018	112.4629	110.4452743	108.4741165	106.5480668	104.6658111	102.8260825	101.0276598	99.26936497	97.55006168
180627A00030	6/27/2018	3.02	6/27/2023	6/27/2018	112.45883	110.4465594	108.4805462	106.5594357	104.681922	102.8467465	101.0526957	99.29859879	97.58332639
180619A00021	6/19/2018	3.24	6/19/2028	6/19/2018	145.72068	136.7132274	128.3312631	120.5279461	113.2601787	106.4882923	100.175757	94.28891794	88.79675444
180619A00023	6/19/2018	3.04	6/19/2023	6/19/2018	112.34703	110.3604395	108.4192241	106.52202	104.6675133	102.8544405	101.0815858	99.34777903	97.65189326
180620A00017	6/20/2018	3.24	6/20/2028	6/20/2018	145.73745	136.7256472	128.339844	120.5331487	113.2624211	106.4879531	100.1731786	94.28440937	88.79059402
180620A00038	6/20/2018	3.4	6/20/2028	6/20/2018	145.56638	136.6157088	128.2849001	120.5276359	113.3012937	106.5666349	100.2875188	94.43064263	88.9653048
180621A00017	6/21/2018	3.42	6/21/2028	6/21/2018	145.73645	136.7760619	128.4363158	120.6708261	113.4369131	106.695285	100.4097519	94.54696568	89.07618293
180622A00003	6/22/2018	2.87	6/22/2022	6/22/2018	105.57723	104.7012392	103.8397738	102.9924705	102.1589819	101.338972	100.5321155	99.73809769	98.95661368
180604A00047	6/4/2018	2.97	6/3/2022	6/4/2018	105.20753	104.392663	103.5904028	102.8004561	102.022541	101.2563841	100.5017202	99.75829224	99.02585053
180604A00048	6/4/2018	3.01	6/5/2023	6/4/2018	112.02915	110.0885994	108.191896	106.3376487	104.5245289	102.7512633	101.0166315	99.31946268	97.65863343
180604A00050	6/4/2018	3.15	6/4/2024	6/4/2018	118.97946	115.8126181	112.7475765	109.7803707	106.9072229	104.1245308	101.4288578	98.81692371	96.28559676
180615A00066	6/15/2018	3	6/14/2024	6/15/2018	119.17644	115.9639909	112.8557002	109.8475377	106.9356613	104.1164028	101.3862592	98.7418837	96.18007764

	Parallel-Shift Sensitivity Analysis												
8/31/2021					Price								
REFERENCE	SETTLEMENT	Rate	MATURITY	First/Next	-400	-300	-200	-100	Base	100	200	300	400
180618A00025	6/18/2018	3.01	4/13/2022	6/18/2018	104.25827	103.6014025	102.9528126	102.3123436	101.6798436	101.0551642	100.4381609	99.82869265	99.22662182
180619A00020	6/19/2018	3.1	6/19/2025	6/19/2018	126.17818	121.6202713	117.253732	113.0694632	109.0588546	105.2137518	101.52643	97.98956838	94.59622688
180530A00028	5/30/2018	3.67	5/31/2033	5/30/2018	179.3287	161.5975563	145.8386796	131.8197994	119.3372299	108.2122106	98.28773443	89.42579501	81.5049947
180530A00030	5/30/2018	3.68	5/30/2034	5/30/2018	185.62806	165.9508802	148.6219424	133.3451023	119.8631418	107.9524645	97.4185378	88.09197463	79.8251611
180530A00039	5/30/2018	2.93	5/30/2023	5/30/2018	111.77108	109.8513176	107.9747105	106.1398738	104.3454789	102.5902546	100.8729836	99.19249964	97.54768479
180530A00072	5/30/2018	3.06	5/30/2024	5/30/2018	118.62632	115.4806354	112.4357537	109.4877413	106.632848	103.867499	101.1882855	98.59195556	96.07540511
180601A00018	6/1/2018	2.87	6/1/2023	6/1/2018	111.97611	110.0433383	108.1541829	106.3072415	104.5011721	102.7346905	101.0065669	99.31562294	97.66072908
180601A00023	6/1/2018	3.3	6/1/2028	6/1/2018	145.87783	136.9324333	128.6042531	120.8472229	113.618962	106.8804633	100.5958058	94.73189412	89.25822085
180529A00044	5/29/2018	3.11	5/29/2024	5/29/2018	118.75528	115.6108671	112.5671208	109.6201136	106.7661038	104.001525	101.3229759	98.7272115	96.21113431
180529A00056	5/29/2018	3	5/26/2023	5/29/2018	111.82557	109.9173032	108.0517221	106.2274642	104.4432225	102.6977458	100.9898358	99.31834406	97.68216957
180529A00063	5/29/2018	2.95	5/31/2022	5/29/2018	105.13454	104.3291766	103.5361264	102.7551089	101.9858519	101.2280915	100.4815715	99.74604314	99.02126518
180530A00006	5/30/2018	2.87	5/31/2022	5/30/2018	105.07291	104.2678151	103.4750262	102.6942672	101.9252661	101.1677588	100.4214891	99.6862086	98.9616759
180530A00024	5/30/2018	3.44	5/30/2029	5/30/2018	151.69058	141.2184131	131.5586598	122.6436268	114.411624	106.8063974	99.77662187	93.27544357	87.26006717
180530A00027	5/30/2018	3.61	6/1/2032	5/30/2018	172.33223	156.5233346	142.3437736	129.615382	118.1804106	107.8990861	98.647475	90.31561088	82.80585234
180522A00018	5/22/2018	3.1	5/23/2022	5/22/2018	105.09391	104.3130107	103.5437089	102.7857491	102.0388819	101.3028647	100.5774622	99.86244581	99.15759349
180522A00019	5/22/2018	3.16	5/22/2023	5/22/2018	112.04098	110.1427134	108.2866959	106.4715844	104.6960923	102.9589878	101.2590906	99.59526941	97.96643914
180522A00039	5/22/2018	3.43	5/22/2028	5/22/2018	146.70173	137.7643531	129.4408423	121.6855544	114.4564921	107.7149887	101.4254256	95.5549755	90.07336895
180524A00024	5/24/2018	3	3/21/2022	5/24/2018	103.81818	103.2314394	102.6513312	102.0777442	101.5105687	100.9496975	100.3950258	99.84645101	99.30387297
180525A00005	5/25/2018	3.32	5/25/2028	5/25/2018	145.91406	136.993202	128.6862631	120.947534	113.7349533	107.0098003	100.7364106	94.88191895	89.41602441
180529A00042	5/29/2018	3.42	5/30/2028	5/29/2018	145.36997	136.5040309	128.2477632	120.5557838	113.3863379	106.7009861	100.4643231	94.6437216	89.20909935
180426A00053	4/26/2018	2.94	4/26/2023	4/26/2018	111.43079	109.611882	107.8322646	106.0907312	104.3861269	102.7173438	101.0833183	99.48302919	97.91549535
180427A00010	4/27/2018	2.95	4/27/2023	4/27/2018	111.46718	109.644858	107.8619471	106.1172347	104.4095607	102.7378121	101.1009209	99.49786147	97.92764845
180511A00035	5/11/2018	2.93	5/11/2023	5/11/2018	111.69449	109.8277252	108.0020303	106.216121	104.4687633	102.758775	101.0850225	99.44641826	97.8419189
180516A00019	5/16/2018	3.19	5/16/2023	5/16/2018	111.98142	110.1017451	108.2635964	106.4656659	104.7066995	102.9854958	101.3009031	99.65181727	98.03717856
180518A00014	5/18/2018	3.17	5/18/2023	5/18/2018	111.98344	110.0977372	108.2537948	106.4502962	104.6859765	102.9596243	101.2700787	99.61622634	97.99699927
180521A00005	5/21/2018	3.02	5/22/2023	5/21/2018	112.06241	110.1590559	108.2981456	106.4783279	104.6983081	102.9568468	101.2527566	99.58489944	97.95218382
180411A00014	4/11/2018	2.88	6/27/2022	4/11/2018	105.58328	104.6932872	103.8182685	102.9578528	102.1116767	101.2793889	100.4606495	99.65512975	98.86251127
180412A00034	4/12/2018	3.23	4/15/2030	4/12/2018	156.94896	144.9350937	133.9487931	123.8962949	114.6928705	106.261911	98.53410893	91.44672667	84.94294164
180425A00008	4/25/2018	2.89	4/25/2022	4/25/2018	104.47837	103.7837586	103.0983709	102.4220275	101.7545501	101.0957653	100.4455038	99.80360104	99.16989646
180425A00019	4/25/2018	3.02	10/25/2021	4/25/2018	101.03012	100.8755897	100.721536	100.5679603	100.4148606	100.2622346	100.1100802	99.95839499	99.80717699
180425A00020	4/25/2018	3.11	10/25/2022	4/25/2018	108.13188	106.8506635	105.5997775	104.3781544	103.1847758	102.0186701	100.8789099	99.76460934	98.67492184
180426A00011	4/26/2018	2.94	4/26/2023	4/26/2018	111.43079	109.611882	107.8322646	106.0907312	104.3861269	102.7173438	101.0833183	99.48302919	97.91549535
180328A00010	3/28/2018	3.1	3/28/2025	3/28/2018	124.07541	119.8522375	115.7974518	111.9033706	108.1627127	104.5685704	101.1143882	97.7939428	94.60132391

	Parallel-Shift Sensitivity Analysis												
8/31/2021					Price								
REFERENCE	SETTLEMENT	Rate	MATURITY	First/Next	-400	-300	-200	-100	Base	100	200	300	400
180402A00005	4/2/2018	2.94	4/3/2023	4/2/2018	110.75979	109.0216871	107.3200449	105.6537892	104.0218873	102.4233462	100.8572112	99.32256369	97.81851954
180403A00005	4/3/2018	2.72	4/3/2023	4/3/2018	110.62708	108.8861141	107.1817412	105.5128771	103.8784837	102.277563	100.7091557	99.17233865	97.66622357
180403A00006	4/3/2018	3.07	4/3/2028	4/3/2018	143.17835	134.5452583	126.4964994	118.9893321	111.9843607	105.4452588	99.33851454	93.63319812	88.30074952
180403A00041	4/3/2018	2.91	4/3/2025	4/3/2018	124.05806	119.7993337	115.711448	111.7865647	108.0172536	104.3964687	100.9175256	97.57408093	94.3601122
180410A00016	4/10/2018	2.89	4/11/2022	4/10/2018	104.14466	103.4941953	102.8518577	102.2174912	101.590948	100.9720838	100.3607578	99.75683283	99.16017491
180306A00010	3/6/2018	2.8	2/15/2022	3/6/2018	103.07929	102.5952248	102.1157092	101.6406782	101.1700691	100.7038201	100.2418708	99.78416187	99.33063493
180308A00011	3/8/2018	2.9	9/15/2022	3/8/2018	107.11641	105.9688332	104.8458186	103.7465788	102.6703643	101.6164569	100.5841678	99.57283661	98.58182939
180308A00015	3/8/2018	2.82	12/15/2021	3/8/2018	101.93558	101.6343835	101.3349777	101.037347	100.7414755	100.4473475	100.1549477	99.86426069	99.57527139
180313A00026	3/13/2018	3.34	3/13/2028	3/13/2018	143.50521	134.9881349	127.0411622	119.6230056	112.6955801	106.2237391	100.175032	94.51948468	89.22939735
180320A00007	3/20/2018	2.92	3/21/2022	3/20/2018	103.77275	103.1861542	102.6061938	102.0327535	101.4657234	100.9049966	100.350468	99.80203535	99.25959824
180327A00024	3/27/2018	2.79	5/26/2023	3/27/2018	111.71937	109.8071675	107.9378309	106.109984	104.3223122	102.5735574	100.8625144	99.18802879	97.54899338
180216A00004	2/16/2018	2.75	2/16/2023	2/16/2018	109.8287	108.2349872	106.6728627	105.1414658	103.6399655	102.1675602	100.7234764	99.30696769	97.91731328
180222A00023	2/22/2018	2.84	2/22/2022	2/22/2018	103.22858	102.7235164	102.2233965	101.7281432	101.2376856	100.7519543	100.2708812	99.79439947	99.32244356
180222A00025	2/22/2018	3.48	2/22/2033	2/22/2018	177.80303	160.4209364	144.9423676	131.1468538	118.8405899	107.8530847	98.03424632	89.25184616	81.38930866
180222A00027	2/22/2018	3.24	2/22/2028	2/22/2018	143.77228	135.2695762	127.3332455	119.9224878	112.9996468	106.5299551	100.481298	94.82399803	89.53061787
180226A00040	2/26/2018	2.79	2/28/2022	2/26/2018	103.31493	102.7919914	102.2743356	101.7618791	101.2545441	100.7522542	100.2549344	99.76251141	99.27491325
180306A00005	3/6/2018	2.65	3/4/2022	3/6/2018	103.36007	102.8246075	102.2946885	101.7702263	101.2511369	100.737338	100.228749	99.72529076	99.226886
180202A00012	2/2/2018	2.57	2/2/2022	2/2/2018	102.77469	102.3291736	101.8875161	101.4496644	101.0155696	100.5851835	100.1584587	99.73534869	99.31580764
180205A00018	2/5/2018	2.66	2/3/2023	2/5/2018	109.44227	107.8948421	106.3773181	104.8889014	103.4288249	101.9963478	100.5907548	99.21135469	97.85747968
180205A00019	2/5/2018	2.88	2/5/2025	2/5/2018	122.93528	118.8918681	115.0044706	111.26622	107.67059	104.2113765	100.8826792	97.67888558	94.59465497
180205A00050	2/5/2018	2.81	2/6/2023	2/5/2018	109.53201	107.9770765	106.4523181	104.9569319	103.4901401	102.0511923	100.6393633	99.25395296	97.89428456
180207A00003	2/7/2018	3.28	2/7/2028	2/7/2018	142.49508	134.1436205	126.3438488	119.0563466	112.2447125	105.8753143	99.91706423	94.34121427	89.12116866
180214A00004	2/14/2018	2.71	2/14/2023	2/14/2018	109.72897	108.1427116	106.5877733	105.0633053	103.5684867	102.1025256	100.6646578	99.25414547	97.8702764
180124A00038	1/24/2018	2.51	9/1/2021	1/24/2018	100.0173	100.0145132	100.0117306	100.0089504	100.0061725	100.003397	100.0006237	99.99785278	99.99508415
180125A00022	1/25/2018	2.69	1/25/2023	1/25/2018	109.1334	107.6193118	106.1339545	104.6765816	103.2464686	101.8429157	100.4652463	99.11280653	97.78496373
180126A00029	1/26/2018	2.88	1/27/2025	1/26/2018	122.1944	118.2103437	114.3786715	110.6927376	107.1462223	103.7331149	100.4476963	97.28452333	94.23841416
180130A00070	1/30/2018	3.14	1/29/2027	1/30/2018	135.62508	128.8315163	122.4238895	116.3782359	110.6722025	105.2849297	100.1969435	95.39005711	90.84727902
180130A00084	1/30/2018	2.59	1/30/2023	1/30/2018	109.2634	107.7303224	106.2266385	104.7515771	103.3043898	101.8843537	100.4907705	99.12296516	97.78028537
180201A00033	2/1/2018	2.53	2/1/2022	2/1/2018	102.7393	102.2968158	101.8581332	101.4232045	100.9919816	100.5644175	100.1404657	99.72008068	99.30321756
180116A00031	1/16/2018	2.58	1/17/2023	1/16/2018	108.81834	107.3307107	105.8709129	104.438229	103.031967	101.651458	100.296055	98.96513213	97.658084
180116A00046	1/16/2018	2.58	1/11/2023	1/16/2018	108.72956	107.26019	105.8180137	104.4023393	103.0124977	101.6478417	100.307745	98.99160171	97.69882541
180118A00004	1/18/2018	2.88	1/17/2025	1/18/2018	122.02697	118.0784895	114.2799086	110.6247421	107.106818	103.7202632	100.4594874	97.3191682	94.29423639
180123A00026	1/23/2018	2.57	1/14/2022	1/23/2018	102.3951	102.006286	101.6204342	101.2375092	100.8574777	100.480307	100.1059646	99.73441878	99.36563816

	Parallel-Shift Sensitivity Analysis												
8/31/2021					Price								
REFERENCE	SETTLEMENT	Rate	MATURITY	First/Next	-400	-300	-200	-100	Base	100	200	300	400
180124A00019	1/24/2018	2.41	1/24/2022	1/24/2018	102.54613	102.1274546	101.7121977	101.3003207	100.8917824	100.4865423	100.0845605	99.68579766	99.29021524
180124A00020	1/24/2018	2.53	1/24/2023	1/24/2018	109.0691	107.5554385	106.0705037	104.6135413	103.1838273	101.7806621	100.4033697	99.05129647	97.72381032
180110A00029	1/10/2018	3.13	1/10/2028	1/10/2018	140.97782	132.7794946	125.1173394	117.9534544	111.2528063	104.982997	99.11405268	93.6182312	88.46984491
180111A00007	1/11/2018	2.66	1/14/2025	1/11/2018	121.74781	117.7996296	114.001379	110.346573	106.8290389	103.442903	100.1825744	97.04272987	94.01829965
180111A00016	1/11/2018	2.57	1/11/2023	1/11/2018	108.71535	107.2460832	105.8040121	104.3884412	102.9987011	101.6341449	100.2941463	98.97809945	97.68541796
180116A00009	1/16/2018	2.49	1/14/2022	1/16/2018	102.36461	101.9758719	101.5900914	101.2072374	100.8272765	100.450176	100.0759034	99.70442704	99.33571546
180116A00014	1/16/2018	3.01	1/19/2027	1/16/2018	134.68891	127.9566584	121.6054072	115.6116049	109.9532706	104.6098854	99.56228713	94.79257471	90.28401848
180116A00015	1/16/2018	3.06	1/18/2028	1/16/2018	140.59879	132.3842356	124.7089007	117.5345412	110.8258121	104.5500363	98.67699003	93.17870741	88.02930046
180103A00027	1/3/2018	2.51	1/3/2023	1/3/2018	108.47805	107.0345568	105.6173826	104.2258683	102.8593754	101.5172864	100.1990034	98.90394737	97.63155578
180104A00013	1/4/2018	2.39	1/4/2023	1/4/2018	108.52102	107.071141	105.6477889	104.2503008	102.8780309	101.5303544	100.2066666	98.90638227	97.62893459
180104A00017	1/4/2018	2.77	1/3/2025	1/4/2018	121.39664	117.5048469	113.7593206	110.1537967	106.6823127	103.3391919	100.119028	97.01667067	94.0272121
180109A00028	1/9/2018	2.6	1/9/2025	1/9/2018	121.44729	117.5207881	113.7428737	110.1071393	106.607489	103.2381213	99.99351277	96.86840362	93.8577833
180110A00027	1/10/2018	2.6	1/10/2023	1/10/2018	108.74058	107.2740988	105.8347077	104.4217191	103.0344676	101.6723096	100.3346221	99.02080268	97.73026777
180110A00028	1/10/2018	2.85	1/10/2025	1/10/2018	121.80115	117.879462	114.1058982	110.4740806	106.9779408	103.611703	100.369868	97.24719822	94.23870441
171213A00032	12/13/2017	2.17	12/13/2021	12/13/2017	101.73666	101.4412889	101.1476436	100.8557106	100.5654745	100.2769207	99.9900344	99.70480104	99.42120627
171220A00004	12/20/2017	2.52	12/20/2021	12/20/2017	101.93462	101.6190621	101.3054638	100.9938098	100.6840819	100.3762622	100.0703331	99.76627715	99.46407707
180102A00021	1/2/2018	2.82	1/2/2026	1/2/2018	127.57027	122.3395983	117.3545467	112.6023177	108.070844	103.7487449	99.62528364	95.6903278	91.93431211
180103A00007	1/3/2018	2.44	1/7/2022	1/3/2018	102.22326	101.8551612	101.489716	101.1268958	100.7666726	100.4090183	100.0539055	99.70130721	99.35119664
180103A00011	1/3/2018	2.35	1/3/2023	1/3/2018	108.44789	107.0015238	105.5815787	104.187388	102.8183099	101.4737235	100.1530277	98.85564063	97.5809989
180103A00019	1/3/2018	2.51	1/3/2023	1/3/2018	108.47805	107.0345568	105.6173826	104.2258683	102.8593754	101.5172864	100.1990034	98.90394737	97.63155578
171206A00041	12/6/2017	2.44	12/6/2024	12/6/2017	120.32892	116.5309205	112.8737677	109.3513635	105.957919	102.6879339	99.53617998	96.49768593	93.56772235
171206A00048	12/6/2017	3.04	12/6/2032	12/6/2017	170.5485	153.9258616	139.1031299	125.8745126	114.0587959	103.4962877	94.0461594	85.58412813	78.00043435
171207A00019	12/7/2017	2.41	6/16/2022	12/7/2017	105.0001	104.1463636	103.3064861	102.4801309	101.6669732	100.8666984	100.079002	99.30358902	98.54017362
171207A00036	12/7/2017	2.23	12/7/2022	12/7/2017	107.94792	106.541318	105.1685343	103.8283468	102.5195948	101.2411728	99.99202691	98.77115193	97.57758853
171208A00006	12/8/2017	2.67	12/8/2026	12/8/2017	133.07056	126.4938262	120.2841069	114.4189078	108.8772357	103.6394932	98.68737769	94.0037884	89.57274064
171212A00024	12/12/2017	2.29	12/12/2022	12/12/2017	108.08675	106.6734929	105.2924511	103.9425202	102.6226483	101.3318313	100.0691096	98.83356641	97.62432467
171204A00020	12/4/2017	2.48	12/5/2022	12/4/2017	108.08491	106.6823625	105.3141811	103.9791041	102.6759325	101.4035248	100.1607937	98.94670274	97.76026368
171205A00013	12/5/2017	2.4	12/6/2021	12/5/2017	101.65572	101.3808824	101.1075393	100.8356747	100.5652765	100.2963328	100.0288318	99.76276205	99.49811191
171205A00014	12/5/2017	2.49	12/5/2022	12/5/2017	108.09804	106.6954044	105.3271322	103.9919661	102.6887069	101.4162131	100.1733973	98.95922323	97.77270235
171206A00008	12/6/2017	2.36	12/6/2021	12/6/2017	101.64487	101.3700523	101.0967287	100.8248834	100.5545044	100.2855799	100.0180981	99.75204735	99.48741618
171206A00038	12/6/2017	2.69	12/6/2027	12/6/2017	138.60695	130.5630701	123.041418	116.0052443	109.4205811	103.2560182	97.48249712	92.0731216	87.00298551
171206A00040	12/6/2017	2.23	12/6/2022	12/6/2017	107.93617	106.530789	105.1595442	103.8211947	102.5145582	101.238509	99.99197424	98.7739312	97.58340415
171101A00022	11/1/2017	2.65	11/1/2024	11/1/2017	119.94621	116.2828592	112.7516975	109.3471355	106.0638583	102.8968111	99.84118391	96.8923982	94.04609391

	Parallel-Shift Sensitivity Analysis												
8/31/2021					Price								
REFERENCE	SETTLEMENT	Rate	MATURITY	First/Next	-400	-300	-200	-100	Base	100	200	300	400
171116A00021	11/16/2017	2.16	11/16/2022	11/16/2017	107.53149	106.1809012	104.8640933	103.5798133	102.3268675	101.1041197	99.91048843	98.744943	97.606501
171120A00017	11/20/2017	2.41	11/21/2022	11/20/2017	107.77403	106.4082984	105.077067	103.7790376	102.5129798	101.2777232	100.0721542	98.89521191	97.74588575
171127A00016	11/27/2017	2.28	11/27/2023	11/27/2017	113.85772	111.3511928	108.913129	106.541119	104.2328589	101.9861468	99.79887717	97.66903559	95.59469397
171129A00010	11/29/2017	2.32	11/29/2021	11/29/2017	101.515	101.2604563	101.0071885	100.755183	100.5044307	100.2549221	100.0066481	99.75959956	99.51376751
171129A00020	11/29/2017	2.89	11/30/2026	11/29/2017	133.21139	126.6921477	120.5344239	114.7161296	109.2166547	104.0167594	99.09847479	94.44501106	90.04067328
171030A00022	10/30/2017	2.28	10/31/2022	10/30/2017	107.24487	105.9502242	104.6867076	103.453207	102.2486629	101.0720652	99.92245038	98.79889868	97.70053168
171030A00094	10/30/2017	2.13	11/1/2021	10/30/2017	101.00757	100.8333436	100.659717	100.486686	100.3142476	100.1423987	99.97113634	99.80045759	99.63035948
171031A00007	10/31/2017	2.15	12/27/2021	10/31/2017	101.93567	101.5999886	101.2665199	100.9352389	100.6061241	100.2791544	99.95430892	99.63156691	99.31090805
171031A00012	10/31/2017	2.28	10/31/2022	10/31/2017	107.24487	105.9502242	104.6867076	103.453207	102.2486629	101.0720652	99.92245038	98.79889868	97.70053168
171031A00061	10/31/2017	2.28	10/31/2022	10/31/2017	107.24487	105.9502242	104.6867076	103.453207	102.2486629	101.0720652	99.92245038	98.79889868	97.70053168
171101A00021	11/1/2017	2.51	11/1/2023	11/1/2017	113.60934	111.1951373	108.8449917	106.5567178	104.3282272	102.1575206	100.0426824	97.98187713	95.97334477
171025A00026	10/25/2017	2.64	10/25/2024	10/25/2017	119.79958	116.1609676	112.6530191	109.2702372	106.0073952	102.8595201	99.82187873	96.88996387	94.05948222
171025A00027	10/25/2017	2.36	10/25/2022	10/25/2017	107.2363	105.96085	104.7156341	103.4995888	102.3116983	101.1509933	100.0165487	98.90748085	97.82294541
171026A00005	10/26/2017	2.16	10/26/2021	10/26/2017	100.91451	100.7573028	100.6005938	100.4443782	100.2886537	100.1334179	99.9786686	99.8244035	99.67062033
171026A00007	10/26/2017	2.47	10/26/2023	10/26/2017	113.41992	111.0262296	108.6956854	106.4261558	104.2155953	102.0620448	99.96362691	97.91854172	95.92506295
171026A00008	10/26/2017	2.6	10/25/2024	10/26/2017	119.66422	116.0278516	112.522088	109.1414325	105.8806603	102.7348007	99.69912206	96.76911917	93.94050041
171030A00021	10/30/2017	2.29	11/30/2022	10/30/2017	107.77758	106.3828402	105.024044	103.6998149	102.4088472	101.1499003	99.92179454	98.72340755	97.55367085
171010A00038	10/10/2017	2.23	10/11/2022	10/10/2017	106.84037	105.6120309	104.4118351	103.2388256	102.0920866	100.9707429	99.8739579	98.80093133	97.75089741
171012A00026	10/12/2017	2.09	10/12/2021	10/12/2017	100.67845	100.5608465	100.4435358	100.3265136	100.2097787	100.0933301	99.97716662	99.86128725	99.74569089
171013A00021	10/13/2017	2	10/17/2022	10/13/2017	106.82311	105.5734279	104.3528604	103.1603968	101.9950751	100.8559767	99.742224	98.65297833	97.58743754
171016A00005	10/16/2017	2.2	10/17/2022	10/16/2017	106.90837	105.6605064	104.4416647	103.2508449	102.0870889	100.9494821	99.83715037	98.74925839	97.68500723
171016A00021	10/16/2017	2.2	10/17/2022	10/16/2017	106.90837	105.6605064	104.4416647	103.2508449	102.0870889	100.9494821	99.83715037	98.74925839	97.68500723
171018A00011	10/18/2017	2.68	10/18/2027	10/18/2017	137.82196	129.9808485	122.6393148	115.7628293	109.3194306	103.2795225	97.61568573	92.30250678	87.31642026
171003A00008	10/3/2017	2.88	10/4/2027	10/3/2017	137.77568	130.030125	122.7738642	115.9733432	109.5974846	103.6174922	98.00667148	92.74026542	87.79530363
171005A00003	10/5/2017	2.02	10/5/2022	10/5/2017	106.64315	105.4328642	104.2499242	103.0934142	101.9624563	100.8562112	99.77387558	98.71468106	97.67789164
171010A00004	10/10/2017	1.92	10/12/2021	10/10/2017	100.66942	100.5517191	100.4343093	100.3171893	100.2003582	100.0838147	99.96755772	99.85158626	99.73589917
171010A00005	10/10/2017	2.06	10/11/2022	10/10/2017	106.791	105.5606641	104.3585606	103.1837263	102.0352415	100.9122272	99.81384332	98.73928631	97.68778721
171010A00024	10/10/2017	2.38	10/10/2023	10/10/2017	112.95961	110.6196363	108.3404745	106.1201059	103.9565957	101.8480889	99.79280596	97.7890392	95.83514927
171010A00037	10/10/2017	2.09	10/12/2021	10/10/2017	100.67845	100.5608465	100.4435358	100.3265136	100.2097787	100.0933301	99.97716662	99.86128725	99.74569089
170915A00031	9/15/2017	2.1	9/15/2023	9/15/2017	112.27669	110.0146844	107.8102401	105.6615016	103.5666862	101.5240817	99.53204351	97.58899112	95.69340515
170918A00108	9/18/2017	1.97	9/20/2022	9/18/2017	106.33443	105.1735446	104.0379024	102.926685	101.8391112	100.7744324	99.73193146	98.71092107	97.71074189
170919A00073	9/19/2017	2.28	9/19/2024	9/19/2017	118.54783	115.032163	111.6400023	108.3662833	105.2061829	102.1551051	99.20866845	96.36269488	93.61319859
170928A00020	9/29/2017	2.29	9/29/2022	9/29/2017	106.70138	105.5120397	104.3491124	103.2117254	102.0990447	101.0102722	99.94464398	98.90142815	97.87992351

	Parallel-Shift Sensitivity Analysis												
8/31/2021					Price								
REFERENCE	SETTLEMENT	Rate	MATURITY	First/Next	-400	-300	-200	-100	Base	100	200	300	400
171002A00012	10/2/2017	2.08	10/1/2021	10/2/2017	100.49959	100.4130395	100.3266421	100.2403936	100.1542936	100.0683417	99.98253759	99.89688085	99.81137113
171003A00007	10/3/2017	2.22	10/3/2022	10/3/2017	106.69163	105.4896555	104.3146599	103.1657414	102.0420393	100.9427307	99.86702788	98.81417698	97.78345576
170912A00009	9/12/2017	2.11	12/15/2022	9/12/2017	107.695	106.2841665	104.904406	103.5546961	102.2340574	100.941553	99.67628682	98.43740093	97.22407363
170912A00031	9/12/2017	1.89	9/12/2022	9/12/2017	106.11455	104.9802214	103.8700378	102.7832376	101.7190878	100.6768862	99.65595893	98.65565979	97.67536836
170913A00027	9/13/2017	2.08	9/13/2022	9/13/2017	106.19889	105.0629835	103.951291	102.8630411	101.797498	100.7539567	99.73174095	98.73020201	97.74871725
170914A00039	9/14/2017	2.23	9/16/2024	9/14/2017	118.33683	114.8343031	111.4545934	108.1926728	105.0437556	102.0032802	99.06689806	96.23046133	93.49001289
170915A00001	9/15/2017	2.43	9/16/2024	9/15/2017	118.48379	114.9910029	111.6203967	108.3669846	105.2260147	102.1929578	99.26349511	96.43350713	93.69906327
170915A00005	9/15/2017	1.81	9/15/2021	9/15/2017	100.23423	100.1923917	100.1506027	100.1088653	100.0671794	100.0255448	99.98396157	99.9424295	99.9009485
170907A00002	9/7/2017	1.69	9/7/2021	9/7/2017	100.10694	100.0874268	100.0679373	100.0484675	100.0290174	100.0095869	99.99017608	99.97078485	99.95141318
170907A00050	9/7/2017	1.69	9/7/2021	9/7/2017	100.10694	100.0874268	100.0679373	100.0484675	100.0290174	100.0095869	99.99017608	99.97078485	99.95141318
170908A00016	9/10/2018	1.94	9/10/2021	9/10/2018	100.15714	100.129287	100.1014599	100.0736629	100.0458962	100.0181595	99.99045295	99.9627764	99.93512982
170911A00032	9/11/2017	1.85	9/12/2022	9/11/2017	106.07174	104.9376613	103.8277231	102.7411646	101.6772531	100.6352862	99.61459041	98.61451946	97.63445303
170911A00044	9/11/2017	1.73	9/13/2021	9/11/2017	100.20009	100.1638357	100.1276257	100.0914584	100.0553337	100.0192515	99.98321177	99.9472144	99.91125931
170912A00008	9/12/2017	1.98	12/15/2021	9/12/2017	101.68647	101.3857575	101.0868319	100.7896793	100.4942838	100.2006297	99.90870155	99.61848417	99.32996241
170831A00029	8/31/2017	1.87	8/31/2022	8/31/2017	105.89538	104.8001481	103.7274546	102.6766143	101.6469649	100.637871	99.64872218	98.67893201	97.72793684
170831A00052	8/31/2017	1.78	11/30/2021	8/31/2017	101.41821	101.1607336	100.9045608	100.64968	100.3960815	100.1437558	99.89269331	99.64288458	99.3943203
170906A00005	9/6/2017	1.69	9/7/2021	9/6/2017	100.10694	100.0874268	100.0679373	100.0484675	100.0290174	100.0095869	99.99017608	99.97078485	99.95141318
170906A00020	9/6/2017	2.14	9/6/2023	9/6/2017	111.8948	109.6710778	107.5033754	105.3899126	103.3289758	101.3189184	99.35815731	97.44517043	95.5784935
170906A00036	9/6/2017	1.81	9/6/2022	9/6/2017	105.93107	104.8167247	103.7257109	102.6573058	101.6108126	100.5855626	99.58091428	98.59625151	97.63098264
170906A00037	9/6/2017	1.99	9/6/2022	9/6/2017	105.98722	104.8745725	103.7851875	102.7183438	101.6733473	100.6495323	99.64625995	98.66291667	97.69891326
170828A00030	8/28/2017	1.96	9/1/2021	8/28/2017	100.01577	100.0129818	100.0102006	100.0074217	100.0046451	100.0018709	99.99909893	99.99632931	99.99356199
170828A00031	8/28/2017	2.07	8/1/2022	8/28/2017	105.48045	104.4828209	103.5039869	102.5434209	101.6006153	100.6750813	99.76634787	98.87396091	97.9974826
170829A00023	8/29/2017	1.83	8/29/2022	8/29/2017	105.82119	104.7326252	103.6663517	102.6216869	101.5979797	100.5946045	99.61096052	98.64647051	97.70057943
170831A00004	8/31/2017	2	8/31/2023	8/31/2017	111.82415	109.6136055	107.4585546	105.3572413	103.3079773	101.3091398	99.35916855	97.45656259	95.5998778
170831A00006	8/31/2017	1.87	8/31/2022	8/31/2017	105.89538	104.8001481	103.7274546	102.6766143	101.6469649	100.637871	99.64872218	98.67893201	97.72793684
170831A00021	8/31/2017	1.99	2/25/2022	8/31/2017	102.85962	102.3468272	101.8391347	101.3364658	100.8387464	100.3459037	99.85786625	99.37456414	98.89592871
170821A00038	8/23/2017	2.39	8/23/2024	8/23/2017	118.4745	115.0474763	111.7384167	108.5425879	105.4554791	102.4727865	99.59040225	96.8044043	94.11104678
170822A00012	8/22/2017	2.11	8/22/2022	8/22/2017	105.86132	104.7963427	103.7527174	102.7298091	101.7270056	100.7437185	99.77938225	98.83345286	97.90540709
170822A00017	8/22/2017	2.11	8/22/2022	8/22/2017	105.86132	104.7963427	103.7527174	102.7298091	101.7270056	100.7437185	99.77938225	98.83345286	97.90540709
170822A00018	8/22/2017	2.25	8/22/2023	8/22/2017	111.88763	109.710039	107.5863702	105.5149362	103.4941188	101.5223615	99.59816676	97.72009317	95.88675306
170824A00038	8/24/2017	2.23	8/24/2023	8/24/2017	111.87801	109.6944052	107.5650107	105.488129	103.4621289	101.4854416	99.5565578	97.67402505	95.83644517
170825A00025	8/25/2017	2.12	8/25/2022	8/25/2017	105.92196	104.8472797	103.7943302	102.7624553	101.7510272	100.7594429	99.7871227	98.83350941	97.89806711
170804A00020	8/4/2017	2.13	8/1/2022	8/4/2017	105.53735	104.5394226	103.5602974	102.5994439	101.6563546	100.7305405	99.82153049	98.92887048	98.05212253

	Parallel-Shift Sensitivity Analysis												
8/31/2021					Price								
REFERENCE	SETTLEMENT	Rate	MATURITY	First/Next	-400	-300	-200	-100	Base	100	200	300	400
170808A00036	8/8/2017	2.04	11/15/2021	8/8/2017	101.21906	101.0047858	100.7914314	100.5789902	100.3674564	100.1568241	99.94708737	99.73824058	99.530278
170809A00005	8/9/2017	2.61	8/11/2025	8/9/2017	124.3318	119.652577	115.1766013	110.8939615	106.7952834	102.8716977	99.11481025	95.51667363	92.06976125
170815A00006	8/15/2017	2.5	8/15/2024	8/15/2017	118.20435	114.8188186	111.5487775	108.389637	105.3370194	102.3867461	99.53482654	96.77744899	94.11097137
170818A00003	8/18/2017	2.23	8/20/2024	8/18/2017	117.91656	114.5079547	111.2164364	108.0373234	104.9661487	101.9986497	99.13075751	96.35858643	93.67842511
170818A00037	8/18/2017	2.08	8/18/2022	8/18/2017	105.76414	104.7121704	103.6810589	102.6701889	101.6789688	100.7068297	99.75322452	98.81762694	97.89953039
170731A00004	7/31/2017	2.16	7/29/2022	7/31/2017	105.5149	104.5263943	103.5563397	102.604226	101.6695592	100.7518632	99.85067911	98.96556459	98.09609282
170731A00028	7/31/2017	2.16	8/1/2022	7/31/2017	105.5658	104.5677235	103.5884526	102.6274554	101.6842242	100.7582701	99.84912179	98.95632526	98.07944249
170802A00027	8/2/2017	2.16	8/2/2022	8/2/2017	105.58277	104.5814897	103.5991349	102.6351688	101.6890788	100.7603715	99.84857121	98.95321965	98.07387489
170803A00013	8/3/2017	2.14	8/3/2022	8/3/2017	105.58066	104.576275	103.5909342	102.624096	101.675243	100.7438771	99.82951832	98.93170424	98.04998894
170803A00020	8/3/2017	2.84	8/3/2027	8/3/2017	136.6026	129.1148033	122.0884867	115.4927801	109.2990373	103.4806607	98.01294434	92.87293064	88.03927771
170803A00032	8/3/2017	2.12	8/3/2023	8/3/2017	111.62602	109.5035223	107.4323727	105.4110073	103.4379207	101.5116638	99.63084072	97.79410665	96.00016566
170724A00014	7/24/2017	2.14	7/25/2022	7/24/2017	105.42851	104.4528091	103.4951075	102.5549121	101.6317462	100.7251503	99.83468126	98.95991176	98.10042932
170724A00016	7/24/2017	2.5	7/24/2024	7/24/2017	117.8576	114.5476013	111.3483508	108.2555406	105.2650524	102.3729509	99.57547393	96.86902463	94.25016271
170728A00029	7/28/2017	2.1	1/27/2022	7/28/2017	102.43079	102.0041337	101.5810255	101.1614219	100.7452796	100.3325558	99.92320863	99.51719675	99.11447954
170728A00030	7/28/2017	2.18	7/27/2022	7/28/2017	105.49966	104.5174175	103.553399	102.6071055	101.6780515	100.7657695	99.86980824	98.98973293	98.12512392
170728A00031	7/28/2017	2.27	1/27/2023	7/28/2017	108.55214	107.0366008	105.5499309	104.0913731	102.6601975	101.2556988	99.87719543	98.52402863	97.19556124
170728A00033	7/28/2017	2.46	1/29/2024	7/28/2017	114.92617	112.2202424	109.5922786	107.0395807	104.5595648	102.1497515	99.80776088	97.53130834	95.31819973
170630A00010	6/30/2017	2.63	6/30/2026	6/30/2017	130.32051	124.3784096	118.743482	113.398272	108.3264057	103.512516	98.94217597	94.60183652	90.47876883
170630A00036	6/30/2017	2.01	6/30/2022	6/30/2017	104.99442	104.0966037	103.2140829	102.346467	101.4933811	100.6544628	99.82936167	99.01773864	98.21926576
170706A00028	7/6/2017	2.09	7/6/2022	7/6/2017	105.16534	104.2481658	103.3469445	102.4612582	101.5907078	100.7349077	99.89348553	99.0660811	98.2523463
170706A00090	7/6/2017	2.48	7/6/2023	7/6/2017	111.57786	109.5468241	107.5630125	105.6250425	103.7315829	101.8813494	100.0731034	98.30564931	96.57783332
170717A00033	7/17/2017	2.19	7/18/2022	7/17/2017	105.35566	104.4019484	103.4654603	102.5457295	101.6423092	100.754768	99.88269009	99.02567368	98.183331
170720A00009	7/20/2017	2.14	7/20/2022	7/20/2017	105.34404	104.3842098	103.4418224	102.5164033	101.6074974	100.7146653	99.83748347	98.97554296	98.128449
170623A00028	6/23/2017	2.79	6/23/2027	6/23/2017	135.68337	128.3683639	121.496645	115.0390198	108.9683673	103.2594796	97.88891733	92.83487659	88.07706674
170628A00008	6/28/2017	2.04	9/15/2021	6/28/2017	100.23994	100.1981282	100.1563711	100.1146651	100.0730101	100.0314061	99.98985298	99.94835061	99.9068989
170628A00056	6/28/2017	1.97	6/28/2022	6/28/2017	104.92682	104.035456	103.1591747	102.2976001	101.4503647	100.6171128	99.79750054	98.99119531	98.19787513
170629A00073	6/29/2017	2.2	6/29/2023	6/29/2017	111.2129	109.2014486	107.2364442	105.3165341	103.4404128	101.6068214	99.81454531	98.06241264	96.34929219
170630A00008	6/30/2017	2.35	7/1/2024	6/30/2017	117.50991	114.267468	111.1315603	108.0981198	105.1632552	102.3232448	99.57452764	96.91369584	94.33748722
170630A00009	6/30/2017	2.53	6/30/2025	6/30/2017	124.00084	119.4494676	115.0908081	110.9157106	106.9155031	103.081968	99.40731601	95.88416143	92.50549932
170613A00033	6/13/2017	2.3	6/13/2024	6/13/2017	117.07297	113.8947905	110.8198241	107.8440709	104.9637166	102.1751208	99.47480707	96.85945459	94.3258899
170615A00034	6/15/2017	2.13	6/15/2022	6/15/2017	104.75477	103.9051976	103.0693766	102.2469707	101.4376589	100.6411299	99.85708273	99.08522545	98.32527532
170616A00019	6/16/2017	2.64	6/16/2027	6/16/2017	135.75104	128.4183638	121.5301086	115.0569706	108.9717309	103.2490975	97.86555811	92.79924574	88.02981507
170622A00016	6/22/2017	2.11	6/22/2022	6/22/2017	104.85573	103.9843072	103.1273246	102.2844284	101.4552735	100.6395257	99.83686185	99.04696901	98.26954413

	Parallel-Shift Sensitivity Analysis												
8/31/2021					Price								
REFERENCE	SETTLEMENT	Rate	MATURITY	First/Next	-400	-300	-200	-100	Base	100	200	300	400
170622A00037	6/22/2017	3.27	6/22/2033	6/22/2017	174.11319	156.6059377	141.0643114	127.2553488	114.9748787	104.0438254	94.30500789	85.62036174	77.86852507
170622A00038	6/22/2017	3.32	6/22/2034	6/22/2017	180.51208	161.0726028	143.9738309	128.9187258	115.6494621	103.9420702	93.60183392	84.45933379	76.36704303
170608A00017	6/8/2017	1.95	6/8/2022	6/8/2017	104.5778	103.7492553	102.9338003	102.1311281	101.3409397	100.5629457	99.7968651	99.04242593	98.29936422
170609A00006	6/9/2017	1.89	12/9/2021	6/9/2017	101.59086	101.3072508	101.0252349	100.7447985	100.4659283	100.1886111	99.91283389	99.63858378	99.36584802
170609A00025	6/9/2017	2.13	6/9/2022	6/9/2017	104.64561	103.8149721	102.997489	102.1928481	101.4007483	100.6208982	99.85301495	99.09682475	98.35206189
170609A00043	6/9/2017	3.07	6/9/2032	6/9/2017	168.10088	152.3607087	138.259065	125.6155918	114.2706977	104.0830667	94.92747871	86.69289944	79.28080642
170612A00003	6/12/2017	1.97	6/13/2022	6/12/2017	104.67692	103.8326336	103.0019343	102.1844926	101.379993	100.5881297	99.80860665	99.0411369	98.28544237
170613A00032	6/13/2017	2.45	6/13/2025	6/13/2017	123.39606	118.9137477	114.6196044	110.5046677	106.5604527	102.7789271	99.15248496	95.67392056	92.33640516
170531A00005	5/31/2017	1.94	5/31/2022	5/31/2017	104.43743	103.6339471	102.8427813	102.0636485	101.2962761	100.5403996	99.79576226	99.06211502	98.33921614
170531A00080	5/31/2017	2.3	5/31/2024	5/31/2017	116.86691	113.7334405	110.7008824	107.7652758	104.9228527	102.1700226	99.50336215	96.91960595	94.41563782
170602A00023	6/2/2017	2.09	6/2/2023	6/2/2017	110.55858	108.6361951	106.7572759	104.9204249	103.1243088	101.3676513	99.64922988	97.96787291	96.32245702
170602A00033	6/2/2017	2.09	6/2/2022	6/2/2017	104.5054	103.6966353	102.9003412	102.1162356	101.3440403	100.5834857	99.8343101	99.09625975	98.36908832
170606A00014	6/6/2017	1.9	6/6/2022	6/6/2017	104.50523	103.6831222	102.8739045	102.0772792	101.2929543	100.5206463	99.76008076	99.0109913	98.27311964
170606A00017	6/6/2017	1.9	6/6/2022	6/6/2017	104.50523	103.6831222	102.8739045	102.0772792	101.2929543	100.5206463	99.76008076	99.0109913	98.27311964
170517A00027	5/17/2017	1.99	5/17/2022	5/17/2017	104.2429	103.4826682	102.7335061	101.9951703	101.2674271	100.5500496	99.84281734	99.14551603	98.45793741
170519A00034	5/19/2017	1.97	5/19/2022	5/19/2017	104.26145	103.495087	102.7399658	101.9958408	101.2624728	100.5396298	99.82708613	99.12462278	98.4320268
170524A00011	5/24/2017	2.54	5/24/2024	5/24/2017	117.00771	113.9042804	110.8999788	107.9909478	105.1735161	102.4441832	99.79961027	97.23661092	94.75214306
170530A00002	5/30/2017	2.15	5/31/2022	5/30/2017	104.51828	103.715561	102.9251243	102.1466922	101.3799932	100.6247636	99.88074788	99.14769775	98.42537236
170530A00027	5/30/2017	1.97	5/31/2022	5/30/2017	104.46055	103.6569676	102.8657036	102.0864737	101.3190053	100.5630337	99.81830231	99.084562	98.36157101
170530A00060	5/30/2017	2.12	3/25/2022	5/30/2017	103.37894	102.7818617	102.1916646	101.6082329	101.0314509	100.4612053	99.89738535	99.33988296	98.78859232
170504A00038	5/4/2017	2.09	5/4/2022	5/4/2017	104.09603	103.375751	102.6654098	101.964806	101.2737404	100.5920192	99.91945378	99.25586061	98.60106102
170508A00010	5/8/2017	2.43	5/8/2024	5/8/2017	116.88177	113.8203099	110.8555323	107.9837241	105.2013491	102.505033	99.8915547	97.35783803	94.900944
170509A00006	5/9/2017	2.3	5/9/2022	5/9/2017	104.25481	103.5197522	102.7950415	102.0804604	101.3757974	100.6808469	99.99540912	99.31928949	98.65229886
170515A00005	5/15/2017	2.04	5/16/2022	5/15/2017	104.26265	103.5053661	102.7590659	102.0235085	101.2984629	100.5837047	99.879016	99.18418491	98.49900549
170515A00054	5/15/2017	3.2	5/17/2032	5/15/2017	169.38326	153.6660016	139.5741677	126.929822	115.5754178	105.3713654	96.19389848	87.93320434	80.49178356
170515A00056	5/15/2017	3.2	5/17/2032	5/15/2017	169.38326	153.6660016	139.5741677	126.929822	115.5754178	105.3713654	96.19389848	87.93320434	80.49178356
170419A00024	4/19/2017	2.45	4/21/2025	4/19/2017	122.55773	118.2669336	114.1505977	110.2006083	106.4092822	102.7693395	99.27387941	95.91635825	92.69056841
170424A00009	4/24/2017	2.04	4/25/2022	4/24/2017	103.91077	103.2183018	102.5350405	101.8608036	101.1954131	100.5386957	99.89048269	99.25060961	98.61891625
170427A00044	4/27/2017	3.02	4/27/2027	4/27/2017	136.30161	129.1690067	122.4581593	116.1418074	110.1946012	104.5929574	99.31492621	94.34006944	89.64934791
170427A00046	4/27/2017	3.1	4/27/2028	4/27/2017	142.43455	133.7901497	125.734794	118.2250952	111.2210926	104.6859616	98.58575112	92.88914448	87.56724096
170428A00030	4/28/2017	2.25	4/28/2022	4/28/2017	104.03184	103.330839	102.6392586	101.9569087	101.2836056	100.6191703	99.96342862	99.31621083	98.67735162
170501A00008	5/1/2017	2.23	5/2/2022	5/1/2017	104.0862	103.3729644	102.6694704	101.9755236	101.2909307	100.6155037	99.9490594	99.29141965	98.64241088
170327A00070	3/29/2017	3.05	3/29/2027	3/29/2017	137.13575	130.0446936	123.3684701	117.0805495	111.1562432	105.5725637	100.3080977	95.34288989	90.65833634

	Parallel-Shift Sensitivity Analysis												
8/31/2021					Price								
REFERENCE	SETTLEMENT	Rate	MATURITY	First/Next	-400	-300	-200	-100	Base	100	200	300	400
170327A00075	3/27/2019	2.47	3/28/2022	3/27/2019	103.63454	103.0277081	102.4279639	101.8351871	101.249257	100.6700555	100.0974671	99.53137927	98.97168166
170328A00015	3/28/2017	2.75	11/29/2024	3/28/2017	120.7552	116.9858131	113.3552396	109.8574731	106.4868124	103.2378423	100.1054175	97.08464651	94.17087738
170417A00043	4/17/2017	2.14	4/18/2022	4/17/2017	103.79064	103.1205005	102.4589975	101.8059684	101.161251	100.5246872	99.8961229	99.27540799	98.66239594
170417A00057	4/17/2017	2.32	4/17/2023	4/17/2017	109.96407	108.1900888	106.4539797	104.7545993	103.0908508	101.4616808	99.86607764	98.30306903	96.77172017
170417A00068	4/17/2019	2.59	4/17/2024	4/17/2019	116.55778	113.5773437	110.6891983	107.8898791	105.1760804	102.5446436	99.99255035	97.51691413	95.11497413
170322A00023	3/22/2017	3.82	9/22/2039	3/22/2017	218.89814	187.9201476	161.9148299	140.0426341	121.6105745	106.0459432	92.87484976	81.7046841	72.20976857
170322A00024	3/22/2017	3.72	9/22/2036	3/22/2017	200.29312	175.8655776	154.8012039	136.6121371	120.8839375	107.2641926	95.45293832	85.19460165	76.27121682
170322A00025	3/22/2017	3.58	3/22/2033	3/22/2017	176.91319	159.6188544	144.2233459	130.5060293	118.2730441	107.3539313	97.59869759	88.87526149	81.06722915
170322A00026	3/22/2017	3.22	3/22/2028	3/22/2017	142.76369	134.2396639	126.2885162	118.868611	111.9415536	105.4719216	99.42701951	93.77665498	88.49293465
170323A00009	3/23/2017	2.1	3/23/2022	3/23/2017	103.39432	102.8023545	102.2171648	101.6386304	101.0666379	100.5010767	99.94183883	99.38881845	98.84191224
170323A00013	3/23/2017	2.1	3/23/2022	3/23/2017	103.39432	102.8023545	102.2171648	101.6386304	101.0666379	100.5010767	99.94183883	99.38881845	98.84191224
170314A00006	3/14/2017	2.67	3/14/2024	3/14/2017	116.64005	113.7562873	110.9595581	108.2466953	105.61467	103.0605833	100.5816599	98.17524196	95.83878285
170316A00018	3/16/2017	2.8	3/18/2024	3/16/2017	116.64089	113.7537781	110.9538857	108.2380359	105.6031883	103.0464336	100.5649864	98.15617947	95.81745778
170321A00013	3/21/2017	2.18	3/21/2022	3/21/2017	103.40604	102.8199825	102.2405597	101.6676636	101.1011842	100.5410139	99.98704762	99.43918261	98.89731832
170322A00010	3/22/2017	2.11	3/22/2022	3/22/2017	103.38316	102.7942094	102.2119587	101.6362985	101.067117	100.5043052	99.94775661	99.39736689	98.85303413
170322A00015	3/22/2017	2.31	3/22/2022	3/22/2017	103.4435	102.855022	102.2732339	101.6980213	101.1292731	100.5668808	100.010738	99.46074103	98.91678823
170322A00022	3/22/2017	3.89	9/23/2041	3/22/2017	232.22578	196.534185	167.0915418	142.7472979	122.5696554	105.8029097	91.83329634	80.16161116	70.38123381
170310A00032	3/10/2017	2.27	3/10/2022	3/10/2017	103.26649	102.7135184	102.1664659	101.6252397	101.0897471	100.5598971	100.0356006	99.51677059	99.00332169
170313A00027	3/13/2017	2.27	3/14/2022	3/13/2017	103.33581	102.7707551	102.2118763	101.6590766	101.112257	100.5713207	100.036173	99.50672096	98.98287398
170313A00032	3/13/2017	3.69	6/14/2032	3/13/2017	173.56772	157.6364017	143.3500335	130.5284402	119.012113	108.6597402	99.34604428	90.95988543	83.40259896
170313A00034	3/13/2017	3.31	3/15/2027	3/13/2017	137.41842	130.4058355	123.7997832	117.5744802	111.7059155	106.1717188	100.9510392	96.02443411	91.37376688
170313A00035	3/13/2017	3.31	3/15/2027	3/13/2017	137.41842	130.4058355	123.7997832	117.5744802	111.7059155	106.1717188	100.9510392	96.02443411	91.37376688
170314A00005	3/14/2017	2.29	3/14/2022	3/14/2017	103.34678	102.7816844	102.222771	101.6699369	101.1230832	100.582113	100.0469316	99.51744631	98.99356624
170224A00039	5/24/2017	3.17	5/24/2027	5/24/2017	137.66832	130.4004101	123.5666698	117.1387223	111.0902073	105.3966236	100.0351879	94.98470409	90.2254436
170224A00044	5/24/2017	3.29	5/24/2029	5/24/2017	150.26964	139.8767418	130.2897275	121.4415287	113.2710103	105.7224168	98.74487099	92.29192158	86.32113582
170228A00014	2/28/2017	2.89	3/1/2027	2/28/2017	135.7071	128.7551009	122.2057066	116.033448	110.2145963	104.727039	99.55016062	94.66473398	90.05281959
170228A00018	2/28/2017	2.25	2/28/2022	2/28/2017	103.04044	102.518315	102.0014672	101.4898129	100.9832743	100.481775	99.98524027	99.49359672	99.00677245
170303A00021	3/3/2017	2.2	3/3/2022	3/3/2017	103.10904	102.5772999	102.0510375	101.5301649	101.0145996	100.5042609	99.99906953	99.49894789	99.00381995
170307A00033	3/7/2017	2.2	3/7/2022	3/7/2017	103.17753	102.6337285	102.0956549	101.5632191	101.0363326	100.514909	99.99886351	99.4881131	98.98257649
170216A00043	2/16/2017	3.17	2/16/2027	2/16/2017	136.11387	129.2373194	122.754966	116.6421027	110.8756997	105.4342808	100.2978106	95.44759035	90.86616203
170217A00014	2/17/2017	2.27	2/14/2022	2/17/2017	102.81236	102.3319816	101.8560889	101.3846223	100.9175202	100.454722	99.99616852	99.54180132	99.09156322
170223A00003	2/23/2017	2.05	2/23/2022	2/23/2017	102.89816	102.3906188	101.8880808	101.3904687	100.8977101	100.4097344	99.92647215	99.44785521	98.97381685
170224A00019	2/24/2017	2.21	2/24/2022	2/24/2017	102.95273	102.4426004	101.9375158	101.4374016	100.942185	100.4517943	99.96615907	99.48521052	99.00888104

	Parallel-Shift Sensitivity Analysis												
8/31/2021					Price								
REFERENCE	SETTLEMENT	Rate	MATURITY	First/Next	-400	-300	-200	-100	Base	100	200	300	400
170224A00020	2/24/2017	3.08	2/24/2027	2/24/2017	135.70456	128.8085896	122.3098049	116.1832008	110.4054754	104.9549054	99.81123168	94.95555278	90.37022707
170224A00021	2/24/2017	3.4	2/24/2032	2/24/2017	168.24956	153.0536518	139.3942416	127.1066485	116.0446721	106.0784345	97.09248146	88.98411241	81.66191231
170203A00012	2/3/2017	3.63	2/2/2035	2/3/2017	188.94667	167.9818512	149.6345922	133.5601341	119.4609381	107.0799951	96.19511529	86.61404751	78.17030403
170207A00013	2/7/2017	2.05	2/7/2022	2/7/2017	102.63177	102.1719575	101.7162661	101.2646376	100.8170179	100.3733537	99.93359262	99.4976833	99.0655752
170207A00023	2/7/2017	2.26	2/7/2022	2/7/2017	102.68416	102.2247079	101.7693679	101.3180812	100.8707936	100.4274522	99.98800487	99.55240041	99.12058853
170215A00037	2/15/2017	2.71	5/23/2022	2/15/2017	104.8024	104.0227191	103.2546233	102.497857	101.7521709	101.0173227	100.2930772	99.57920615	98.87548761
170215A00039	2/15/2017	2.72	11/7/2022	2/15/2017	107.90809	106.5865591	105.2973264	104.0392153	102.8111088	101.6119428	100.4407032	99.2964226	98.17817784
170215A00040	2/15/2017	2.59	5/15/2023	2/15/2017	110.91035	109.0432378	107.2173587	105.4314156	103.6841644	101.9744132	100.3010194	98.66288751	97.05896603
170120A00009	1/20/2017	3.67	1/22/2035	1/20/2017	189.40804	168.4594562	150.1197458	134.0460965	119.9425413	107.5533395	96.65732112	87.06305135	78.60469299
170120A00010	1/20/2017	3.71	1/22/2036	1/20/2017	196.10861	173.0829362	153.1063969	135.7533771	120.6599477	107.5146345	96.05061045	86.03908553	77.28370323
170120A00011	1/20/2017	3.75	1/20/2037	1/20/2017	202.76128	177.6090833	155.9818752	137.3593174	121.300714	107.4324454	95.43744221	85.04635651	76.03014985
170123A00039	1/23/2017	2.79	1/23/2026	1/23/2017	128.53673	123.1900634	118.0979849	113.2470393	108.6245526	104.2185823	100.0178716	96.01180666	92.19037604
170130A00031	1/30/2017	2.96	7/30/2025	1/30/2017	125.63167	120.9657217	116.500513	112.2263415	108.1340269	104.2148785	100.4606671	96.86359764	93.41628416
170130A00054	3/30/2017	2.33	4/29/2022	3/30/2017	104.10315	103.3988825	102.7041127	102.0186518	101.3423137	100.6749174	100.0162866	99.3662495	98.72463885
170111A00009	1/11/2017	3.16	1/11/2028	1/11/2017	141.20717	132.9976758	125.3251656	118.1516742	111.4421059	105.1640063	99.28735003	93.78434788	88.62926939
170111A00011	1/11/2017	3.24	1/11/2029	1/11/2017	147.6393	137.855155	128.7978987	120.4095935	112.6372011	105.4321482	98.74992953	92.54974815	86.79418885
170111A00012	1/11/2017	3.31	1/11/2030	1/11/2017	154.28696	142.847058	132.3567341	122.7318622	113.8961849	105.7805387	98.32216103	91.46406791	85.15449513
170111A00014	1/11/2017	3.47	1/12/2032	1/11/2017	168.37732	153.3542173	139.8330529	127.6546193	116.6773814	106.7754332	97.83669978	89.76135382	82.46042057
170111A00016	1/11/2017	3.51	1/11/2033	1/11/2017	174.77895	157.909625	142.8661442	129.43945	117.4454821	106.7220707	97.1262312	88.53180611	80.82740663
170117A00045	1/17/2017	2.21	1/18/2022	1/17/2017	102.32522	101.9249652	101.5278432	101.1338219	100.7428649	100.3549364	99.97000133	99.58802499	99.20897327
161222A00030	12/22/2016	3.09	12/22/2026	12/22/2016	135.76136	129.0620157	122.7375629	116.7650157	111.1229219	105.7912489	100.7512817	95.98552985	91.47764079
161223A00028	12/23/2016	2.23	12/23/2021	12/23/2016	101.92458	101.6000885	101.277666	100.9572972	100.6389624	100.3226422	100.0083175	99.69596932	99.38557904
170109A00031	1/9/2017	2.29	1/10/2022	1/9/2017	102.2202	101.8434035	101.4693911	101.0981312	100.7295934	100.3637477	100.0005646	99.64001504	99.28207038
170110A00020	1/10/2017	2.4	1/10/2024	1/10/2017	114.85666	112.2028025	109.624024	107.1177755	104.6816126	102.3131881	100.0102472	97.77062335	95.59223444
170110A00022	1/10/2017	2.27	1/10/2023	1/10/2017	108.45368	106.9864427	105.5463562	104.1327285	102.7448918	101.3821999	100.0440281	98.72977172	97.43884544
170110A00023	1/10/2017	2.08	1/10/2022	1/10/2017	102.1769	101.7998012	101.4254973	101.053953	100.6851379	100.3190218	99.95557513	99.59476856	99.23657332
161115A00011	11/15/2016	2.46	11/15/2023	11/15/2016	113.72506	111.2653241	108.8718124	106.5422313	104.2743861	102.0661772	99.91559548	97.82071695	95.77969863
161117A00015	11/17/2016	2.08	11/17/2021	11/17/2016	101.25998	101.0399607	100.820912	100.6028245	100.3856918	100.1695075	99.95426558	99.73995967	99.52658367
161213A00014	12/13/2016	2.07	12/13/2021	12/13/2016	101.70756	101.4122461	101.1186563	100.8267783	100.5365971	100.2480979	99.9612659	99.67608666	99.39254577
161214A00023	12/14/2016	3.3	12/15/2031	12/14/2016	168.05852	153.0499746	139.5380075	127.3644358	116.3885953	106.4853193	97.54315832	89.46281066	82.15574133
161215A00001	12/15/2016	2.5	12/15/2021	12/15/2016	101.84068	101.5396688	101.240446	100.9429974	100.6473072	100.3533598	100.0611396	99.77063154	99.48182035
161215A00014	12/15/2016	2.66	12/15/2022	12/15/2016	108.43337	107.0172397	105.6322772	104.2774571	102.9517973	101.6543584	100.384242	99.1405875	97.92257114
161004A00040	10/4/2016	1.45	10/4/2021	10/4/2016	100.49717	100.4021224	100.3072587	100.2125811	100.118089	100.0237819	99.92965912	99.83572023	99.74196463

	Parallel-Shift Sensitivity Analysis												
8/31/2021					Price								
REFERENCE	SETTLEMENT	Rate	MATURITY	First/Next	-400	-300	-200	-100	Base	100	200	300	400
161006A00013	10/6/2016	2.07	10/6/2025	10/6/2016	123.50443	118.6359713	113.986956	109.5462761	105.3034522	101.2485928	97.37235759	93.66592352	90.12095296
161014A00006	10/14/2016	1.74	10/14/2021	10/14/2016	100.66787	100.5446647	100.4217766	100.2992043	100.1769465	100.0550019	99.93336933	99.81204758	99.6910354
161020A00002	10/20/2016	1.96	8/15/2023	10/20/2016	111.1783	109.02959	106.9336236	104.8887713	102.8934645	100.9461936	99.04550579	97.19000208	95.3783351
161031A00007	10/31/2016	1.91	10/31/2022	10/31/2016	106.79661	105.5048849	104.2442426	103.0135688	101.8118053	100.6379434	99.49102073	98.37011861	97.27435982
161109A00018	11/9/2016	2.63	11/9/2026	11/9/2016	131.38717	124.9917541	118.9481136	113.2349529	107.8323885	102.7218447	97.88596009	93.30850124	88.97428266
160926A00004	9/26/2016	1.66	9/26/2023	9/26/2016	111.49146	109.204004	106.9753991	104.8037204	102.6871214	100.6238303	98.61214581	96.65043447	94.73712682
160926A00023	9/26/2016	1.74	9/26/2022	9/26/2016	106.03887	104.8629888	103.7130458	102.5881948	101.487622	100.4105482	99.35622735	98.3239447	97.31301508
160929A00004	9/29/2016	1.74	9/29/2022	9/29/2016	106.08611	104.9004987	103.7412375	102.6074605	101.4983352	100.4130648	99.35088677	98.3110705	97.29291602
160930A00005	9/30/2016	2.03	9/30/2024	9/30/2016	117.3816	113.8614879	110.4658863	107.1896528	104.0278926	100.9759431	98.02936139	95.18391212	92.43555659
160930A00010	9/30/2016	1.47	9/30/2022	9/30/2016	105.94115	104.7510632	103.5875364	102.4496925	101.3366893	100.2477212	99.18201687	98.13883773	97.11747616
161003A00004	10/3/2016	1.91	10/3/2023	10/3/2016	111.81146	109.5055235	107.2591662	105.0704307	102.9374361	100.8583779	98.83152456	96.85521363	94.9278485
160916A00016	9/16/2016	1.66	9/16/2021	9/16/2016	100.239	100.194413	100.1498839	100.1054105	100.0609928	100.0166307	99.97232399	99.92807267	99.88387659
160920A00004	9/20/2016	1.68	9/20/2021	9/20/2016	100.2999	100.2441527	100.1884766	100.1328765	100.0773521	100.0219033	99.96652998	99.91123195	99.85600906
160922A00014	9/22/2016	2.06	9/22/2026	9/22/2016	128.45057	122.266111	116.4163158	110.8813011	105.6424712	100.6824281	95.98488743	91.53460124	87.31728656
160922A00050	9/22/2016	2.24	9/22/2025	9/22/2016	123.35659	118.5577295	113.9729962	109.5916604	105.4035932	101.3992278	97.56952452	93.90593879	90.40039121
160923A00030	9/23/2016	1.41	9/23/2021	9/23/2016	100.33362	100.2694392	100.205352	100.1413582	100.0774574	100.0136496	99.94993456	99.88631199	99.82278175
160923A00032	9/23/2016	1.67	9/25/2023	9/23/2016	111.4985	109.2140647	106.9883457	104.819427	102.7054685	100.6447042	98.63543838	96.67604285	94.76495308
160815A00006	8/15/2016	2.23	8/17/2026	8/15/2016	127.93926	121.9230846	116.2260302	110.8295059	105.7161023	100.8695081	96.27443484	91.91654755	87.78240049
160815A00007	8/15/2016	2.23	8/17/2026	8/15/2016	127.93926	121.9230846	116.2260302	110.8295059	105.7161023	100.8695081	96.27443484	91.91654755	87.78240049
160816A00003	8/16/2016	1.63	8/16/2023	8/16/2016	110.82372	108.6697943	106.5689352	104.5194954	102.5198916	100.5686003	98.66415541	96.80514548	94.99021136
160830A00032	8/30/2016	1.82	8/30/2022	8/30/2016	105.69666	104.6076401	103.5409464	102.4959015	101.4718521	100.4681707	99.48425465	98.51952494	97.57342488
160830A00034	8/30/2016	1.9	8/30/2023	8/30/2016	111.27982	109.0842729	106.9436873	104.8563316	102.8205388	100.8347061	98.89729227	97.00681449	95.16184582
160906A00017	9/6/2016	1.65	9/7/2021	9/6/2016	100.10433	100.0848429	100.0653724	100.0459213	100.0264898	100.0070777	99.98768503	99.96831179	99.94895792
160718A00010	7/18/2016	1.65	7/18/2023	7/18/2016	110.43731	108.3757852	106.3631241	104.39787	102.4786202	100.6040229	98.77277473	96.98361916	95.23534413
160726A00005	7/26/2016	2.28	7/27/2026	7/26/2016	127.91817	121.9740491	116.3416969	111.0031579	105.9416025	101.1412499	96.58729773	92.26585613	88.16388704
160801A00001	8/1/2016	1.97	8/1/2024	8/1/2016	116.32849	113.0166076	109.816525	106.723852	103.7344	100.8441678	98.04933204	95.3462382	92.73139236
160802A00003	8/2/2016	2.53	8/1/2031	8/2/2016	156.8114	142.9380831	130.4164912	119.1074723	108.8868663	99.64382456	91.27932201	83.70484202	76.84121355
160811A00011	8/11/2016	2.25	8/11/2026	8/11/2016	127.96504	121.9686583	116.2893123	110.9085961	105.8092666	100.9751642	96.39113944	92.04298459	87.91737029
160812A00005	8/12/2016	1.69	8/12/2022	8/12/2016	105.29193	104.2610457	103.2502654	102.259001	101.2866915	100.3327972	99.39679874	98.47819603	97.57650758
160706A00027	7/6/2016	2.29	7/6/2028	7/6/2016	137.25914	128.5442688	120.4419658	112.9060522	105.8940499	99.36686992	93.28852558	87.62587228	82.3483696
160706A00028	7/6/2016	2.39	7/6/2029	7/6/2016	142.93052	132.6732666	123.2285248	114.5277095	106.5083541	99.11353425	92.29135091	85.9944633	80.17966782
160706A00029	7/6/2016	2.49	7/8/2030	7/6/2016	148.90454	137.0196802	126.1808827	116.2904962	107.2604502	99.01127229	91.47120922	84.57544211	78.26538492
160706A00030	7/6/2016	2.59	7/7/2031	7/6/2016	155.00297	141.4300288	129.1680615	118.0832305	108.0560009	98.97954884	90.75835189	83.30694271	76.54880516

	Parallel-Shift Sensitivity Analysis												
8/31/2021					Price								
REFERENCE	SETTLEMENT	Rate	MATURITY	First/Next	-400	-300	-200	-100	Base	100	200	300	400
160712A00023	7/12/2016	1.79	7/12/2023	7/12/2016	110.32797	108.291233	106.3022904	104.3597314	102.4621976	100.608379	98.79701258	97.02687962	95.29680426
160714A00020	9/6/2016	2.28	9/4/2026	9/6/2016	128.4654	122.3740334	116.6086054	111.1499577	105.9801582	101.0824169	96.44100664	92.04119043	87.86915391
160701A00020	7/1/2016	2.13	7/1/2026	7/1/2016	126.81656	120.9864621	115.4583557	110.2150754	105.2405165	100.519565	96.03803068	91.78258685	87.74071322
160701A00027	7/1/2016	1.93	7/1/2024	7/1/2016	115.7698	112.5641541	109.4638077	106.4647453	103.5631255	100.7552739	98.03767436	95.4069618	92.85991455
160701A00028	7/1/2016	2.16	7/1/2026	7/1/2016	126.97608	121.1419647	115.6099928	110.3629913	105.3848493	100.6604462	96.17558589	91.91693603	87.87197099
160705A00005	7/5/2016	1.49	7/5/2023	7/5/2016	109.93471	107.9176865	105.9476477	104.0232187	102.1430743	100.3059359	98.51057057	96.75578819	95.04044021
160705A00104	7/5/2016	2.1	7/6/2026	7/5/2016	126.72447	120.8797965	115.338725	110.0839475	105.0992325	100.3693489	95.87999996	91.61776083	87.57002137
160706A00026	7/6/2016	2.19	7/6/2027	7/6/2016	131.96239	124.7144149	117.909935	111.5195763	105.5160499	99.87399724	94.56984428	89.5816675	84.88907045
160628A00040	6/28/2016	1.56	6/28/2023	6/28/2016	109.96824	107.9721323	106.022126	104.1168711	102.255068	100.4354634	98.65684901	96.91805881	95.21796775
160628A00049	6/28/2016	1.88	6/27/2025	6/28/2016	121.2495	116.7633709	112.4674889	108.3528026	104.410736	100.6331646	97.01238886	93.54110963	90.21240533
160628A00050	6/28/2016	1.56	6/28/2023	6/28/2016	109.96824	107.9721323	106.022126	104.1168711	102.255068	100.4354634	98.65684901	96.91805881	95.21796775
160630A00011	6/30/2016	1.8	6/30/2023	6/30/2016	110.17023	108.1713487	106.2186024	104.3106583	102.4462265	100.6240623	98.84296425	97.10177277	95.39936809
160630A00012	6/30/2016	2.11	6/30/2025	6/30/2016	121.59725	117.1120731	112.816891	108.7026839	104.7609086	100.9834687	97.36268945	93.89129299	90.56237627
160630A00021	6/30/2016	1.59	6/30/2023	6/30/2016	110.05564	108.0525687	106.0958329	104.1840831	102.3160214	100.4903956	98.70599724	96.96166005	95.25625789
160616A00034	6/16/2016	1.97	6/17/2024	6/16/2016	115.69028	112.5302023	109.4729539	106.5145724	103.6512741	100.8794452	98.19563299	95.59653761	93.07900391
160620A00015	6/20/2016	1.71	6/20/2023	6/20/2016	110.13376	108.1604511	106.2324208	104.3483029	102.5067881	100.7066169	98.94657719	97.22550225	95.54226829
160624A00011	6/24/2016	1.83	6/26/2023	6/24/2016	110.16722	108.1805294	106.2395469	104.3429318	102.4893897	100.6776732	98.90657986	97.17494993	95.48166486
160627A00025	6/27/2016	1.65	6/27/2022	6/27/2016	104.54064	103.6555283	102.7853347	101.9296874	101.0882242	100.2605948	99.44646046	98.6454933	97.85737605
160627A00070	6/27/2016	1.52	9/27/2021	6/27/2016	100.39293	100.3176317	100.2424471	100.1673796	100.0924289	100.0175948	99.94287696	99.8682752	99.79378923
160628A00038	6/28/2016	1.88	6/27/2025	6/28/2016	121.2495	116.7633709	112.4674889	108.3528026	104.410736	100.6331646	97.01238886	93.54110963	90.21240533
160606A00004	6/6/2016	2.43	6/8/2026	6/6/2016	128.07066	122.2878072	116.8009043	111.5931684	106.6488694	101.9532531	97.49247476	93.2535376	89.22423596
160606A00005	6/6/2016	2.92	6/6/2031	6/6/2016	158.31996	144.7000015	132.3809075	121.2309336	111.1323467	101.9798641	93.67927608	86.1462284	79.30514378
160606A00043	6/8/2016	2.23	12/15/2021	6/8/2016	101.76061	101.4597533	101.1606848	100.8633899	100.5678527	100.2740576	99.9819891	99.69163194	99.40297103
160610A00009	6/10/2016	1.89	6/12/2023	6/10/2016	110.06701	108.1238755	106.2249526	104.3688761	102.5543362	100.7800754	99.04488604	97.34760781	95.68712532
160613A00047	6/15/2016	2.18	6/16/2025	6/15/2016	121.68402	117.2433221	112.989291	108.9130426	105.0061715	101.2607189	97.6691462	94.22430987	90.91943864
160616A00027	6/16/2016	2.27	6/16/2026	6/16/2016	127.28617	121.4973668	116.0061228	110.7955546	105.8498299	101.1540956	96.69441109	92.45768725	88.43162981
160330A00054	3/30/2016	2.9	3/31/2031	3/30/2016	159.2018	145.6944787	133.4587153	122.36756	112.3073725	103.1763624	94.88329673	87.34635503	80.49211373
160420A00002	4/20/2016	1.96	11/16/2022	4/20/2016	107.11934	105.7741501	104.462579	103.1833833	101.9353758	100.7174266	99.52845995	98.36745087	97.23342215
160422A00026	4/22/2016	2.62	4/22/2026	4/22/2016	128.3481	122.7177214	117.368572	112.2850429	107.4524846	102.8571387	98.48607895	94.32715551	90.36894406
160504A00004	5/4/2016	2.3	5/4/2026	5/4/2016	127.71378	122.0322679	116.6372569	111.5127093	106.6435757	102.015731	97.61591237	93.43166088	89.4512682
160510A00012	5/10/2016	1.49	10/12/2021	5/10/2016	100.61905	100.5014007	100.3840452	100.2669794	100.1502024	100.0337129	99.91750981	99.8015921	99.68595865
160524A00027	5/24/2016	3.06	5/27/2031	5/24/2016	159.75472	146.1016709	133.7474806	122.5609883	112.4249534	103.2345069	94.89578447	87.32471854	80.44596762
160307A00027	3/7/2016	2.71	3/6/2026	3/7/2016	128.07037	122.6056475	117.407502	112.4614953	107.7540482	103.2723862	99.00448706	94.93903249	91.0653631

	Parallel-Shift Sensitivity Analysis												
8/31/2021					Price								
REFERENCE	SETTLEMENT	Rate	MATURITY	First/Next	-400	-300	-200	-100	Base	100	200	300	400
160307A00028	3/7/2016	2.91	3/7/2028	3/7/2016	140.2618	131.8758136	124.051939	116.7494729	109.9308699	103.5614785	97.60930288	92.04478673	86.84061468
160328A00013	3/28/2016	2.17	3/28/2024	3/28/2016	115.50227	112.5907329	109.7681368	107.0312003	104.3767889	101.8019046	99.30367956	96.87936866	94.52634392
160328A00014	3/28/2016	2.49	3/27/2026	3/28/2016	128.09813	122.5383857	117.2533709	112.2280161	107.4481622	102.9005003	98.57251591	94.45243701	90.52918577
160328A00045	3/28/2016	2.49	3/27/2026	3/28/2016	128.09813	122.5383857	117.2533709	112.2280161	107.4481622	102.9005003	98.57251591	94.45243701	90.52918577
160329A00045	3/29/2016	2.12	3/29/2024	3/29/2016	115.38012	112.4671843	109.6433056	106.9052023	104.2497326	101.6738919	99.17480585	96.7497236	94.39601159
160211A00035	2/11/2016	2.25	2/11/2025	2/11/2016	120.11399	116.1148461	112.270942	108.5754157	105.0217443	101.6037278	98.31547172	95.15136979	92.10608856
160212A00029	2/12/2016	1.8	2/11/2022	2/12/2016	102.54026	102.0694789	101.6030225	101.1408267	100.6828332	100.2289849	99.77922558	99.33350009	98.89175426
160212A00043	2/12/2016	1.8	2/14/2022	2/12/2016	102.59207	102.1123074	101.6370256	101.1661658	100.6996664	100.2374669	99.77950801	99.3257315	98.87608017
160212A00044	2/12/2016	1.93	2/13/2023	2/12/2016	108.31412	106.7459986	105.208739	103.7015105	102.2235075	100.7739525	99.35209496	97.95721041	96.58859899
160216A00002	2/16/2016	1.88	2/16/2022	2/16/2016	102.66139	102.1755675	101.6943402	101.2176431	100.7454124	100.2775855	99.8141009	99.35489828	98.89991842
160216A00028	2/16/2016	1.69	2/16/2022	2/16/2016	102.61076	102.1246071	101.6430551	101.1660428	100.6935062	100.2253825	99.76160974	99.30212755	98.84687645
160119A00030	1/19/2016	3.44	1/18/2033	1/19/2016	173.95331	157.1036156	142.0819321	128.6785452	116.7088566	106.0102618	96.43942798	87.86992125	80.19013557
160120A00010	1/20/2016	1.99	10/20/2021	1/20/2016	100.79259	100.6524052	100.5126193	100.373235	100.2342506	100.0956643	99.95747452	99.81967941	99.68227728
160129A00066	1/29/2016	3.04	1/29/2031	1/29/2016	159.75561	146.4716329	134.4163543	123.4691531	113.5218437	104.4773354	96.24844268	88.75682945	81.93206931
160129A00067	1/29/2016	2.53	1/29/2026	1/29/2016	127.3762	122.0358748	116.9510829	112.1082613	107.4946387	103.0981841	98.90755979	94.91207827	91.1016611
160129A00068	1/29/2016	1.97	1/30/2023	1/29/2016	108.34683	106.8209008	105.3242419	103.8560799	102.4156699	101.0022925	99.61525263	98.2538786	96.91752106
160211A00033	2/11/2016	1.67	2/11/2022	2/11/2016	102.48043	102.0098181	101.543525	101.0814914	100.6236591	100.1699709	99.72037055	99.27480303	98.83321416
160104A00014	1/4/2016	2.49	1/4/2023	1/4/2016	108.46714	107.0207603	105.6008022	104.206602	102.837518	101.4929289	100.1722335	98.8748498	97.60021407
160113A00030	1/13/2016	2.52	1/13/2025	1/13/2016	121.22155	117.2859777	113.4998337	109.8566544	106.3502908	102.9748916	99.72488693	96.59497358	93.58010054
160119A00019	1/19/2016	2.95	1/19/2027	1/19/2016	134.33084	127.6086119	121.2669769	115.2823973	109.632912	104.2980201	99.25857738	94.49669891	89.99567062
160119A00027	1/19/2016	3.25	1/18/2030	1/19/2016	153.82559	142.3789891	131.8850509	122.2591717	113.4246813	105.3120585	97.85823043	91.00594479	84.70320545
160119A00028	1/19/2016	3.34	1/21/2031	1/19/2016	160.82627	147.623641	135.6334996	124.737482	114.8293622	105.813754	97.60495494	90.12591804	83.30733739
160119A00029	1/19/2016	3.39	1/20/2032	1/19/2016	167.38002	152.3863682	138.8957299	126.748423	115.8025243	105.931816	97.0239749	88.97897827	81.70770014
151223A00070	12/23/2015	2.57	12/26/2023	12/23/2015	115.03212	112.422605	109.8858369	107.4193564	105.0208036	102.6879133	100.4185104	98.21050532	96.06189069
151223A00072	12/23/2015	2.81	12/23/2025	12/23/2015	128.12052	122.8883874	117.9011517	113.146046	108.6110342	104.2847694	100.1565502	96.21628055	92.45443215
151223A00077	12/23/2015	3.57	12/24/2035	12/23/2015	196.85128	173.6605523	153.5387747	136.0583019	120.8533431	107.610725	96.06207634	85.97720788	77.15849912
151229A00079	12/29/2015	3	12/30/2025	12/29/2015	128.37419	123.1353717	118.1419224	113.3810739	108.8407905	104.5097209	100.3771555	96.43298685	92.66767283
151229A00080	12/29/2015	3.49	12/30/2030	12/29/2015	162.08622	148.9089451	136.9329851	126.0418338	116.1308603	107.106045	98.88285416	91.3852389	84.54474413
151229A00081	12/29/2015	3.76	12/31/2035	12/29/2015	196.6164	173.6496337	153.7110042	136.3795495	121.2950753	108.1490998	96.67718678	86.6524491	77.88003861
151109A00020	11/9/2015	2.79	11/9/2023	11/9/2015	114.39059	111.9420042	109.5588879	107.2389889	104.9801533	102.7803196	100.6375143	98.5498469	96.51550578
151116A00025	11/16/2015	3.04	11/14/2025	11/16/2015	127.78944	122.7180511	117.8787128	113.2594594	108.8490148	104.63675	100.6126419	96.76723457	93.09160364
151211A00004	12/11/2015	2.48	12/15/2023	12/11/2015	114.62984	112.0588215	109.5589442	107.127761	104.7629259	102.4621915	100.2234036	98.04449683	95.92348987
151211A00055	12/11/2015	2.62	12/11/2024	12/11/2015	121.04472	117.2184618	113.5343927	109.9863758	106.5685791	103.2754588	100.1017437	97.0424191	94.09271294

	Parallel-Shift Sensitivity Analysis												
8/31/2021					Price								
REFERENCE	SETTLEMENT	Rate	MATURITY	First/Next	-400	-300	-200	-100	Base	100	200	300	400
151223A00065	12/23/2015	2.15	12/23/2021	12/23/2015	101.89905	101.5746109	101.2522403	100.9319232	100.6136398	100.2973708	99.98309698	99.67079949	99.36045965
151223A00066	12/23/2015	2.34	12/23/2022	12/23/2015	108.28627	106.8590925	105.4605951	104.0899316	102.7462927	101.4289004	100.1370071	98.86989358	97.62686807
150902A00002	9/2/2015	2.25	9/2/2021	9/2/2015	100.03315	100.0275791	100.0220149	100.0164556	100.010901	100.0053512	99.99980622	99.99426601	99.98873058
150923A00041	9/23/2015	2.23	9/23/2022	9/23/2015	106.67134	105.4989637	104.3522655	103.2304087	102.1325926	101.0580509	100.0060493	98.97588421	97.96688119
150930A00011	9/30/2015	2.06	9/30/2021	9/30/2015	100.48177	100.3980418	100.314454	100.2310032	100.1476893	100.0645119	99.98147059	99.89856519	99.81579533
151002A00041	10/2/2015	1.76	10/4/2021	10/2/2015	100.52655	100.4314769	100.3365857	100.2418807	100.1473613	100.0530269	99.95887692	99.86491084	99.7711281
151002A00075	10/2/2015	2.04	10/3/2022	10/2/2015	106.63189	105.4280476	104.2512616	103.1006309	101.9752915	100.8744167	99.79721572	98.74293144	97.71083873
151106A00011	11/6/2015	3.1	1/15/2026	11/6/2015	129.06325	123.7562316	118.6998987	113.8810961	109.2874294	104.9072149	100.7294345	96.7436951	92.94018925
150817A00097	8/17/2015	3.1	8/17/2026	8/17/2015	132.69556	126.5564874	120.7412708	115.2310992	110.0083514	105.0565158	100.3601142	95.90463249	91.67645505
150817A00099	8/17/2015	3.19	8/17/2027	8/17/2015	139.13361	131.5177647	124.3728997	117.6673623	111.371788	105.4589237	99.9034654	94.68190924	89.77241428
150824A00072	8/24/2015	2.14	8/24/2022	8/24/2015	106.05399	104.9797792	103.9272544	102.8957635	101.8846808	100.893405	99.92135844	98.96798579	98.03275277
150824A00097	8/24/2015	2.67	8/25/2025	8/24/2015	125.50021	120.7307901	116.1707066	111.8096339	107.6378169	103.6460324	99.82555688	96.16813681	92.66596045
150825A00007	8/25/2015	2.46	8/25/2022	8/25/2015	106.26789	105.1912957	104.1364558	103.1027171	102.0894509	101.0960537	100.1219452	99.16656775	98.22938477
150826A00038	8/26/2015	2.94	8/26/2026	8/26/2015	132.9288	126.721449	120.8439692	115.2770623	110.0026617	105.003847	100.2647643	95.77055399	91.50728279
150720A00011	7/20/2015	2.69	7/20/2023	7/20/2015	112.53045	110.4415539	108.4022234	106.4109736	104.4663782	102.5670627	100.7117024	98.89901998	97.12778371
150720A00012	7/20/2015	2.99	7/21/2025	7/20/2015	126.28265	121.6148487	117.1469876	112.8694495	108.7731266	104.8493953	101.0900877	97.4874652	94.03419338
150721A00027	7/21/2015	3.74	7/22/2030	7/21/2015	161.89922	149.3650782	137.9241145	127.4745921	117.9247511	109.1917848	101.200924	93.88461887	87.18180811
150727A00013	7/27/2015	3.04	7/28/2025	7/27/2015	125.93765	121.2720996	116.8069301	112.5324761	108.4395861	104.5195965	100.7643027	97.1659324	93.71712064
150803A00053	8/3/2015	2.49	8/3/2022	8/3/2015	105.91457	104.9084499	103.9213894	102.9528541	102.0023262	101.069307	100.153316	99.25389049	98.37058399
150814A00004	8/14/2015	2.32	8/15/2022	8/14/2015	106.07661	105.0304533	104.0048777	102.9992805	102.013082	101.0457247	100.0966723	99.16540878	98.25143722
150601A00916	6/1/2015	7.27	4/5/2030	6/1/2015	193.77469	180.2509994	167.8388837	156.4393137	145.9626409	136.3276611	127.4607748	119.2952354	111.7704758
150601A00930	6/1/2015	7.1	8/30/2030	6/1/2015	196.4134	182.1214559	169.0525475	157.0934845	146.1421889	136.1065447	126.9033749	118.4575286	110.7010657
150610A00017	6/10/2015	2.9	6/15/2023	6/10/2015	112.00919	110.0381554	108.1120082	106.2293795	104.3889527	102.589463	100.8296946	99.10847868	97.42469055
150623A00025	6/23/2015	2.65	6/30/2022	6/23/2015	105.44312	104.544592	103.6613336	102.7929614	101.9391017	101.0993931	100.2734862	99.46104283	98.66173604
150630A00008	6/30/2015	2.41	6/30/2022	6/30/2015	105.3371	104.437671	103.55355	102.6843528	101.8297043	100.9892416	100.1626139	99.34948193	98.5495173
150715A00009	7/15/2015	2.67	7/15/2022	7/15/2015	105.73627	104.7899442	103.8605322	102.9475843	102.0506655	101.1693561	100.303251	99.45195897	98.6151021
150601A00696	6/1/2015	2.83	3/13/2025	6/1/2015	122.63083	118.4829585	114.4992463	110.6722706	106.9949909	103.4607244	100.0631256	96.79616696	93.65412114
150601A00731	6/1/2015	2.4	4/29/2022	6/1/2015	104.12836	103.4239892	102.7291238	102.0435682	101.3671363	100.6996471	100.0409243	99.39079597	98.74909498
150601A00733	6/1/2015	2.72	5/1/2025	6/1/2015	123.63587	119.2909595	115.1236323	111.1255815	107.2889404	103.6062585	100.0704761	96.67490144	93.41318897
150601A00734	6/1/2015	2.92	5/1/2025	6/1/2015	123.78974	119.4585921	115.304024	111.3177909	107.4920866	103.8195168	100.2930745	96.90611712	93.65234481
150601A00737	6/1/2015	2.68	12/31/2024	6/1/2015	121.44767	117.5506804	113.8001339	110.1897602	106.7135916	103.3659463	100.1414128	97.03483603	94.04130344
150601A00768	6/1/2015	2.34	5/13/2022	6/1/2015	104.32939	103.5819403	102.8451805	102.1188861	101.402835	100.6968115	100.0006058	99.31401409	98.63683802
150601A00531	6/1/2015	3.28	7/24/2024	6/1/2015	120.12955	116.7848662	113.5518159	110.4260577	107.4034447	104.4800141	101.6519774	98.91571268	96.26775537

	Parallel-Shift Sensitivity Analysis												
8/31/2021					Price								
REFERENCE	SETTLEMENT	Rate	MATURITY	First/Next	-400	-300	-200	-100	Base	100	200	300	400
150601A00616	6/1/2015	2.72	9/30/2022	6/1/2015	107.15918	105.9639107	104.7952344	103.6522702	102.5341766	101.4401489	100.3694163	99.32124095	98.29491572
150601A00644	6/1/2015	2.64	6/30/2022	6/1/2015	105.40359	104.5052496	103.6221755	102.7539855	101.9003058	101.0607752	100.2350441	99.42277462	98.62363971
150601A00648	6/1/2015	2.71	12/30/2022	6/1/2015	108.64036	107.2056975	105.7973926	104.4147702	103.0571797	101.7239924	100.4146	99.12841424	97.86486567
150601A00665	6/1/2015	3.82	1/14/2033	6/1/2015	178.24696	161.1626129	145.9228422	132.3166732	120.1583449	109.2841781	99.54984707	90.82800116	83.00618854
150601A00667	6/1/2015	3.88	1/16/2036	6/1/2015	198.00221	174.8630367	154.7800647	137.3275106	122.1412016	108.9093693	97.3648621	87.27854818	78.45372306
150601A00405	6/1/2015	4.63	1/17/2034	6/1/2015	196.38129	176.5971549	159.0896134	143.5804842	129.8270887	117.6175473	106.7667226	97.11271532	88.51383456
150601A00512	6/1/2015	3.79	7/16/2029	6/1/2015	155.1448	144.3535726	134.4090194	125.239924	116.7814182	108.974383	101.7649122	95.10382773	88.94624281
150601A00514	6/1/2015	3.07	11/15/2024	6/1/2015	122.01433	118.2567348	114.6361708	111.1467732	107.7829668	104.5394535	101.4111956	98.39340144	95.48151138
150601A00515	6/1/2015	2.95	1/16/2024	6/1/2015	116.24038	113.5502379	110.9365838	108.3968122	105.9284178	103.5289957	101.1962362	98.92792081	96.72191792
150601A00522	6/1/2015	4.52	7/25/2030	6/1/2015	169.28755	156.4020633	144.6334768	133.8781565	124.0426142	115.0424687	106.8015151	99.25089339	92.32834547
150601A00530	6/1/2015	3.08	7/24/2024	6/1/2015	120.00311	116.6491484	113.4073866	110.2734549	107.2431768	104.3125616	101.4777951	98.7352304	96.08138
150512A00029	5/12/2015	3.03	5/12/2025	5/12/2015	124.58039	120.1979136	115.9952258	111.9638738	108.0958561	104.3835969	100.8199204	97.39802717	94.1114716
150519A00012	5/19/2015	2.44	5/19/2022	5/19/2015	104.53007	103.7636377	103.0084297	102.2641999	101.5307098	100.8077281	100.09503	99.39239697	98.69961684
150519A00013	5/19/2015	2.98	5/19/2025	5/19/2015	124.49806	120.0942418	115.8719307	111.8225446	107.9379689	104.2105234	100.6329356	97.19831631	93.90013687
150601A00182	6/1/2015	3.85	7/18/2022	6/1/2015	106.81508	105.8540847	104.9104025	103.9835679	103.073132	102.1786618	101.2997395	100.4359617	99.58693899
150601A00222	6/1/2015	2.2	9/27/2022	6/1/2015	106.53301	105.3509942	104.1951076	103.0644868	101.9583105	100.8757929	99.81618113	98.77875436	97.76282151
150601A00404	6/1/2015	4.29	1/17/2029	6/1/2015	156.00885	145.8828141	136.5041951	127.8135662	119.7565228	112.2832371	105.3480502	98.9091043	92.92800722
150319A00012	3/19/2015	3.13	3/19/2029	3/19/2015	147.81157	137.762695	128.4784132	119.8963228	111.9594348	104.6156731	97.81742656	91.52114422	85.68696953
150401A00008	4/1/2015	2.62	4/1/2025	4/1/2015	122.28509	118.0825446	114.0483134	110.1746969	106.4543918	102.8804709	99.4463616	96.14582535	92.9729385
150407A00009	4/7/2015	2.03	4/7/2022	4/7/2015	103.60406	102.9666663	102.337103	101.715225	101.1008919	100.4939672	99.89431717	99.3018116	98.71632326
150407A00010	4/7/2015	2.21	4/10/2023	4/7/2015	109.89662	108.1405438	106.4217092	104.7390017	103.0913526	101.4777352	99.89716314	98.34868775	96.83139675
150422A00017	4/22/2015	2.16	4/22/2022	4/22/2015	103.87054	103.1881261	102.5146601	101.8499679	101.1938789	100.5462268	99.90684948	99.27558913	98.65229181
150422A00019	4/22/2015	2.62	4/22/2025	4/22/2015	122.62267	118.343763	114.2385242	110.2988919	106.5172279	102.8862942	99.39922953	96.04952706	92.83101371
150130A00050	1/30/2015	1.87	1/31/2022	1/30/2015	102.43807	101.9992947	101.5642664	101.1329359	100.7052562	100.2811813	99.86066582	99.44366512	99.03013536
150203A00005	2/3/2015	2.11	2/3/2022	2/3/2015	102.55075	102.103379	101.6598988	101.2202621	100.7844191	100.3523208	99.92391935	99.49916732	99.07801829
150206A00017	2/6/2015	2.05	2/7/2022	2/6/2015	102.63177	102.1719575	101.7162661	101.2646376	100.8170179	100.3733537	99.93359262	99.4976833	99.0655752
150220A00020	2/20/2015	2.42	2/18/2022	2/20/2015	102.95243	102.4599144	101.9721108	101.4889508	101.0103681	100.536298	100.0666767	99.6014417	99.14053175
150220A00021	2/20/2015	2.72	2/20/2024	2/20/2015	115.97281	113.1801614	110.4699276	107.8391836	105.2851299	102.8050832	100.3964716	98.05682841	95.78378782
150317A00012	3/17/2015	2.46	3/18/2024	3/17/2015	116.13711	113.2477781	110.4459624	107.7284695	105.0922423	102.5343555	100.052009	97.64252172	95.30332535
141017A00020	10/17/2014	2.28	10/18/2021	10/17/2014	100.81345	100.6787188	100.5443598	100.4103752	100.2767635	100.143523	100.0106523	99.87814955	99.74601338
141208A00008	12/8/2014	3.02	12/16/2024	12/8/2014	121.9889	118.1442041	114.4423236	110.8771233	107.4427692	104.133713	100.944676	97.87063426	94.90680452
150105A00026	1/5/2015	2.54	1/5/2024	1/5/2015	115.12448	112.4829046	109.9156347	107.4201613	104.9940784	102.6350749	100.3409304	98.10951061	95.93876406
150116A00040	1/16/2015	2.07	1/18/2022	1/16/2015	102.27029	101.8701668	101.4731765	101.079286	100.6884592	100.3006601	99.91585375	99.53400536	99.15508087

	Parallel-Shift Sensitivity Analysis												
8/31/2021					Price								
REFERENCE	SETTLEMENT	Rate	MATURITY	First/Next	-400	-300	-200	-100	Base	100	200	300	400
150121A00004	1/21/2015	1.97	1/24/2022	1/21/2015	102.366	101.947772	101.5329612	101.1215276	100.7134301	100.3086282	99.9070819	99.50875208	99.11360011
150123A00010	1/23/2015	2.02	1/31/2022	1/23/2015	102.50244	102.0635018	101.6283087	101.1968145	100.7689722	100.3447356	99.92405945	99.50689906	99.0932106
140827A00038	8/27/2014	3.07	8/30/2024	8/27/2014	120.27173	116.8055776	113.4589687	110.227092	107.1053617	104.0894029	101.175041	98.35829072	95.63534668
140908A00064	9/8/2014	2.57	11/30/2021	9/8/2014	101.59547	101.3379518	101.081735	100.8268073	100.5731588	100.32078	100.0696616	99.81979408	99.57116822
140908A00065	9/8/2014	2.63	2/28/2022	9/8/2014	103.2336	102.7109021	102.1934857	101.6812669	101.1741679	100.6721122	100.175025	99.68283298	99.19546412
140929A00098	9/29/2014	2.62	9/29/2021	9/29/2014	100.51097	100.4299945	100.3491543	100.2684446	100.1878649	100.107415	100.0270945	99.94690328	99.86684094
141015A00020	10/15/2014	2.13	10/15/2021	10/15/2014	100.74369	100.6174709	100.4915864	100.3660334	100.2408105	100.1159164	99.99134966	99.86710907	99.74319325
141015A00025	10/15/2014	2.48	10/17/2022	10/15/2014	107.23622	105.9862817	104.7654007	103.5725741	102.4068432	101.2672923	100.1530465	99.06326985	97.99716252
140521A00019	5/21/2014	3.43	5/22/2028	5/21/2014	146.70173	137.7643531	129.4408423	121.6855544	114.4564921	107.7149887	101.4254256	95.5549755	90.07336895
140626A00036	6/26/2014	3.55	6/26/2029	6/26/2014	154.80724	144.033899	134.1035299	124.9454532	116.4952708	108.6942754	101.4889205	94.83034204	88.67392686
140710A00027	7/10/2014	2.8	7/17/2023	7/10/2014	112.69403	110.61268	108.5805103	106.5960545	104.657903	102.7646972	100.9151272	99.10793007	97.34188766
140815A00029	8/15/2014	2.56	10/15/2021	8/15/2014	100.78601	100.6598624	100.5340479	100.4085632	100.2834072	100.1585785	100.0340758	99.9098978	99.78604314
140815A00032	8/15/2014	3.59	10/15/2029	8/15/2014	155.43249	144.2797184	134.027481	124.5978726	115.9201309	107.9299456	100.5688375	93.78360084	87.52580196
140820A00026	8/20/2014	2.94	8/19/2024	8/20/2014	120.16258	116.7219442	113.3990983	110.1893387	107.0881804	104.0913435	101.1947417	98.39447303	95.68681013
130926A00008	9/26/2013	2.91	9/30/2021	9/26/2013	100.56066	100.4767891	100.3930586	100.3094663	100.2260118	100.1426949	100.0595152	99.97647232	99.89356601
130926A00009	9/26/2013	4	10/2/2028	9/26/2013	153.60527	143.9150275	134.9184086	126.5617869	118.7959665	111.5757908	104.8597893	98.60985876	92.79097218
131106A00003	11/6/2013	3.57	11/15/2023	11/6/2013	116.31575	113.8254704	111.402075	109.0432451	106.7467666	104.5105216	102.3324832	100.2107103	98.14334363
131113A00036	11/13/2013	3.14	11/15/2021	11/13/2013	101.4526	101.2379677	101.0242574	100.8114615	100.5995742	100.3885895	100.1785016	99.9693049	99.76099353
131217A00024	12/17/2013	4.34	1/2/2029	12/17/2013	156.64952	146.556205	137.2034715	128.5327621	120.4904423	113.0273646	106.098472	99.6624379	93.68133942
140313A00030	3/13/2014	3.27	3/15/2024	3/13/2014	118.27937	115.3703893	112.5491198	109.8123692	107.1570844	104.5803436	102.0793496	99.65142349	97.29399883
130517A00013	5/17/2013	2.07	5/17/2022	5/17/2013	104.30135	103.5408782	102.7914789	102.0529082	101.3249325	100.6073248	99.8998647	99.2023378	98.51453583
130531A00021	5/31/2013	3.22	5/30/2028	5/31/2013	145.23309	136.317735	128.0175124	120.2865138	113.0825095	106.3666308	100.103084	94.25889039	88.80364978
130606A00013	6/6/2013	2.94	6/15/2023	6/6/2013	112.08429	110.1125249	108.1856657	106.3023385	104.4612265	102.6610645	100.9006363	99.17877264	97.49434862
130821A00018	8/21/2013	3.37	8/30/2022	8/21/2013	107.42774	106.3270216	105.2488466	104.1925256	103.1573991	102.1428337	101.1482211	100.1729769	99.21653915
130904A00036	9/4/2013	3.57	9/15/2023	9/4/2013	115.44392	113.1471934	110.9087412	108.7266887	106.5992326	104.524641	102.5012505	100.5274622	98.60173929
130904A00039	9/4/2013	4.19	9/15/2028	9/4/2013	154.79431	145.1261976	136.1452324	127.7986218	120.0379087	112.8185897	106.0997727	99.84386563	94.01629337
130212A00016	2/12/2013	2.13	2/15/2022	2/12/2013	102.76336	102.280185	101.80155	101.3273937	100.8576532	100.3922671	99.9311748	99.47431712	99.02163578
130314A00027	3/14/2013	2.38	3/15/2023	3/14/2013	109.73768	108.0606734	106.4182199	104.8093259	103.2330392	101.6884434	100.1746561	98.6908272	97.23613762
130405A00007	4/5/2013	2.91	4/17/2028	4/5/2013	142.20438	133.5525423	125.490052	117.9735488	110.9630889	104.4218586	98.3159127	92.61393613	87.28702661
130424A00004	4/24/2013	2.46	4/24/2025	4/24/2013	122.64555	118.3430118	114.2157325	110.2555464	106.4547205	102.8059286	99.30222719	95.93703255	92.70410001
130508A00013	5/8/2013	2.23	5/15/2023	5/8/2013	110.51749	108.6495637	106.8229775	105.0364255	103.2886582	101.578479	99.90474076	98.26634358	96.66223213
130513A00007	5/13/2013	2.54	5/15/2023	5/13/2013	110.82106	108.9547733	107.1297038	105.344555	103.5980834	101.8890973	100.2164549	98.5790606	96.97586362
121116A00022	11/16/2012	2.78	11/16/2029	11/16/2012	150.11304	138.9849678	128.7726107	119.3955353	110.7807832	102.8621421	95.57948813	88.87819497	82.70860408

	Parallel-Shift Sensitivity Analysis												
8/31/2021					Price								
REFERENCE	SETTLEMENT	Rate	MATURITY	First/Next	-400	-300	-200	-100	Base	100	200	300	400
121121A00003	11/21/2012	2.3	11/30/2022	11/21/2012	107.79057	106.3957383	105.0368533	103.7125369	102.4214835	101.1624523	99.93426369	98.73579526	97.56597846
130107A00002	1/7/2013	3.22	1/18/2028	1/7/2013	141.74429	133.4917982	125.7803397	118.571565	111.8300322	105.5229735	99.62008045	94.09330751	88.9166923
130117A00010	1/17/2013	1.98	1/31/2022	1/17/2013	102.48528	102.0463799	101.6112308	101.1797802	100.7519813	100.3277878	99.90715448	99.49003668	99.07639053
130117A00011	1/17/2013	2.18	1/30/2023	1/17/2013	108.65728	107.1289307	105.6298924	104.1593935	102.716688	101.3010552	99.91179899	98.54824663	97.20974768
130211A00017	2/11/2013	3.27	2/15/2028	2/11/2013	142.55559	134.1711439	126.3424739	119.0297316	112.1961294	105.8076878	99.83300738	94.24306008	89.0109985
120726A00001	7/26/2012	2.36	8/1/2022	7/26/2012	105.75545	104.756396	103.7761542	102.8141988	101.8700217	100.9431339	100.0330639	99.13935715	98.26157559
120824A00023	8/24/2012	2.4	8/30/2022	8/24/2012	106.29515	105.2027677	104.132764	103.084456	102.0571892	101.0503351	100.06329	99.09547388	98.14632907
120907A00023	9/7/2012	2.05	9/15/2022	9/7/2012	106.33682	105.1917207	104.0711879	102.9744395	101.9007244	100.8493225	99.81954387	98.81072655	97.8222354
120907A00024	9/7/2012	2.31	9/16/2024	9/7/2012	118.59855	115.0918171	111.7080099	108.4420991	105.2892952	102.2450332	99.30496102	96.46492763	93.72097276
121116A00006	11/16/2012	2.64	11/13/2025	11/16/2012	125.93869	120.9113876	116.1144747	111.5360628	107.1649515	102.9905833	99.00300226	95.19281599	91.55116004
121116A00021	11/16/2012	2.35	11/17/2025	11/16/2012	125.39982	120.3494924	115.5318747	110.9348993	106.5472009	102.3580697	98.35740949	94.53569821	90.88395164
120330A00009	3/30/2012	2.98	3/30/2022	3/30/2012	103.97245	103.3585341	102.7518511	102.152276	101.5596845	100.9739553	100.3949697	99.82261187	99.25676851
120411A00013	4/11/2012	3.59	4/15/2027	4/11/2012	139.67556	132.4874016	125.7204718	119.3477403	113.3440571	107.6860131	102.3518096	97.3211395	92.57507619
120503A00014	5/3/2012	2.4	5/16/2022	5/3/2012	104.52464	103.7662899	103.0189297	102.282323	101.5562388	100.8404524	100.1347457	99.4389068	98.75272944
120515A00020	5/15/2012	2.28	5/16/2022	5/15/2012	104.43731	103.6793153	102.9323084	102.1960515	101.4703135	100.7548698	100.0495025	99.3539995	98.66815479
120709A00015	7/9/2012	2.5	7/15/2022	7/9/2012	105.58337	104.6378041	103.7091393	102.7969294	101.9007394	101.02015	100.1547561	99.30416673	98.46800416
120709A00016	7/9/2012	3.2	7/15/2027	7/9/2012	138.68381	131.1996613	124.1718249	117.5700729	111.3663288	105.5345052	100.0503538	94.8913263	90.03644733
120119A00010	1/18/2012	2.43	1/31/2022	1/18/2012	102.67839	102.2390012	101.8033579	101.3714162	100.9431292	100.5184507	100.0973354	99.67973851	99.26561623
120126A00006	1/26/2012	2.93	1/31/2022	1/26/2012	102.85303	102.4136676	101.9780442	101.5461152	101.117834	100.6931545	100.2720316	99.85442082	99.44027842
120127A00019	1/27/2012	3.87	1/30/2032	1/27/2012	173.38723	158.0309572	144.2092593	131.759203	120.5359866	110.4108383	101.2691667	93.00893213	85.53921261
120130A00009	1/30/2012	2.79	1/31/2022	1/30/2012	102.79297	102.353755	101.9182851	101.4865088	101.0583792	100.6338504	100.2128773	99.79541537	99.38142093
120306A00004	3/6/2012	2.95	3/15/2023	3/6/2012	110.42883	108.7498285	107.1053444	105.4943897	103.9160148	102.3693056	100.8533817	99.36739501	97.91052822
120315A00021	3/15/2012	3.12	3/15/2022	3/15/2012	103.76942	103.2006574	102.6381322	102.0817447	101.5313946	100.9869838	100.4484165	99.9155987	99.38843851
111006A00022	10/6/2011	3.08	10/15/2021	10/6/2011	100.85128	100.7250599	100.5991722	100.4736148	100.3483861	100.2234848	100.0989098	99.97465951	99.85073281
111031A00013	10/31/2011	2.82	11/1/2021	10/31/2011	101.14477	100.9701806	100.7961916	100.6228016	100.4500072	100.2778056	100.1061937	99.93516844	99.76472685
111201A00005	12/1/2011	3.16	12/15/2021	12/1/2011	102.03641	101.7350178	101.4354176	101.1375934	100.8415292	100.5472095	100.2546188	99.96374166	99.67456313
120112A00013	1/12/2012	2.76	1/16/2024	1/12/2012	115.863	113.1776357	110.5686528	108.0334488	105.5695215	103.1744691	100.8459849	98.58185315	96.37994507
120112A00014	1/12/2012	3.43	1/15/2032	1/12/2012	170.16227	154.9153589	141.1971801	128.8452636	117.7152237	107.678658	98.62130403	90.44141658	83.0483382
120113A00013	1/13/2012	3.87	1/15/2032	1/13/2012	173.27977	157.9822855	144.2083446	131.7967331	120.6041191	110.5029837	101.3798029	93.13344543	85.67376241
100923A00051	9/23/2010	3.4	9/30/2021	9/23/2010	100.59378	100.5099608	100.4262798	100.342736	100.2593292	100.1760591	100.0929252	100.0099274	99.92706529
100930A00008	9/30/2010	3.82	9/30/2025	9/30/2010	130.4966	125.5186317	120.761962	116.2154976	111.8687665	107.7118791	103.7354924	99.93077615	96.2893822
110103A00009	1/3/2011	3.99	1/3/2022	1/3/2011	102.72861	102.3706353	102.015159	101.662153	101.3115916	100.9634495	100.6177016	100.2743233	99.9332903
110302A00007	3/2/2011	4.86	3/16/2026	3/2/2011	138.92125	133.1663056	127.6901034	122.4775622	117.5145005	112.7875787	108.284244	103.9926799	99.90175851

	Parallel-Shift Sensitivity Analysis												
8/31/2021					Price								
REFERENCE	SETTLEMENT	Rate	MATURITY	First/Next	-400	-300	-200	-100	Base	100	200	300	400
110505A00022	5/5/2011	4.59	5/15/2026	5/5/2011	138.81674	132.8534224	127.1880015	121.8038442	116.6853467	111.817864	107.1876448	102.7817718	98.58810542
110824A00004	8/24/2011	3.11	8/30/2023	8/24/2011	114.14675	111.9143357	109.7377748	107.6153036	105.5452258	103.5259111	101.5557916	99.63335932	97.75716296
081205A00033	12/5/2008	4.77	12/7/2023	12/5/2008	119.6273	117.0277135	114.4991585	112.0391701	109.6453865	107.3155474	105.0474892	102.8391395	100.6885128
081209A00008	12/9/2008	4.87	12/15/2023	12/9/2008	120.05246	117.4228505	114.865478	112.3778642	109.9576365	107.6025213	105.3103391	103.0789998	100.9064984
081211A00029	12/11/2008	4.57	12/15/2023	12/11/2008	119.32521	116.7044787	114.155787	111.6766658	109.2647481	106.917766	104.6335452	102.4100009	100.2451329
081219A00069	12/19/2008	4.26	12/22/2023	12/19/2008	118.72291	116.087901	113.5257273	111.0339202	108.6101103	106.252025	103.9574827	101.7243895	99.55073411
091210A00005	12/10/2009	5.08	12/16/2024	12/10/2009	129.29091	125.3197757	121.4949863	117.8102763	114.2596892	110.8375598	107.5384973	104.3573707	101.2892945
100824A00009	8/24/2010	3.91	9/2/2025	8/24/2010	130.33964	125.4613417	120.7965622	116.3347663	112.0660008	107.9808563	104.070434	100.3263154	96.74053325
060308A00014	3/8/2006	5.44	3/16/2026	3/8/2006	141.80668	135.9834012	130.4413105	125.1652213	120.1408489	115.3547557	110.7942963	106.447566	102.3033534
060908A00017	9/8/2006	5.27	9/15/2021	9/8/2006	100.37887	100.3369063	100.294993	100.2531315	100.2113215	100.1695631	100.1278562	100.0862006	100.0445962
061220A00034	12/20/2006	5.07	12/30/2021	12/20/2006	103.00622	102.6592899	102.3146919	101.9724066	101.6324105	101.2946809	100.9591952	100.6259311	100.2948666
061221A00005	12/21/2006	5.28	12/30/2021	12/21/2006	103.04568	102.6990276	102.3547016	102.0126819	101.6729453	101.3354691	101.0002309	100.6672084	100.3363798
071231A00068	12/31/2007	4.93	12/30/2022	12/31/2007	111.96455	110.5022781	109.0669059	107.6577419	106.2741195	104.9153946	103.5809444	102.2701663	100.9824777
080910A00065	9/10/2008	5.03	9/15/2023	9/10/2008	118.25353	115.9324312	113.6699632	111.4642425	109.3134595	107.2158763	105.1698234	103.1736959	101.225951
090429A00044	4/29/2009	4.1	4/29/2024	4/29/2014	100.64794	100.5641159	100.4804326	100.3968861	100.3134761	100.2302023	100.1470644	100.0579751	99.46374454
100707A00014	7/7/2010	3.19	7/7/2025	7/7/2015	100.58407	100.500177	100.416427	100.3328152	100.2493413	100.166005	100.0743108	99.26307678	97.58538505
111215A00019	12/15/2011	2.53	12/15/2026	12/15/2021	102.1156	101.7753388	101.437369	101.1016654	100.7681269	100.3848945	99.24707746	97.08378355	94.68663028
130416A00025	4/16/2013	2.27	4/18/2028	4/16/2018	100.50716	100.4233311	100.3396452	100.2560973	100.1726873	99.94624455	97.9699421	95.10843242	92.18830933
140508A00011	5/8/2014	2.32	5/8/2024	5/8/2019	100.51134	100.4275076	100.3438181	100.2602668	100.1768533	100.0935772	99.73570924	98.59378109	97.28018087
140723A00038	7/23/2014	2.3	7/23/2024	7/23/2019	100.50966	100.425837	100.3421489	100.258599	100.1751869	100.0919122	99.68285132	98.45338157	97.06413765
210225A00010	2/25/2021	2.02	2/25/2041	2/25/2026	122.94539	117.7905388	112.3230168	105.9239589	98.64203701	91.09890222	83.84086239	77.17943026	71.20059212
210405A00013	4/5/2021	1.82	4/7/2036	4/5/2026	121.02451	116.1816905	111.2330671	105.8047512	99.90504071	93.87138899	88.01426754	82.53052037	77.48910093
201118A00018	11/18/2020	1.85	11/18/2036	11/18/2027	128.8623	121.3873717	113.6310556	105.1904853	96.35790835	87.70766046	79.62692572	72.31747939	65.81880043
201202A00016	12/2/2020	1.32	12/3/2035	12/2/2025	117.68072	113.1836914	108.4004629	102.940774	97.00459028	91.05426661	85.38370876	80.12831464	75.31293746
201202A00017	12/2/2020	1.32	12/3/2035	12/2/2025	117.68072	113.1836913	108.4004629	102.9407738	97.00458992	91.05426608	85.38370809	80.12831385	75.31293657
201229A00003	12/29/2020	1.28	12/30/2030	12/30/2025	118.26855	113.6018767	108.7251326	103.2607864	97.33784935	91.35256577	85.58421842	80.18060098	75.18339051
201230A00018	12/30/2020	1.52	12/28/2035	12/28/2027	127.99579	120.4106256	112.5503237	104.0835206	95.33326646	86.84113525	78.94185425	71.79703674	65.42823855
210108A00007	1/8/2021	1.65	1/8/2036	1/8/2026	121.79387	116.7071495	111.1402681	104.4589108	96.85297586	89.0366754	81.55001876	74.68492776	68.51996155
201022A00008	10/22/2020	1.02	10/22/2035	10/22/2025	116.56934	112.2225776	107.5230817	102.071084	96.13506784	90.21683892	84.60339985	79.41307562	74.6597025
201029A00008	10/29/2020	0.92	10/29/2030	10/29/2025	114.17485	110.3816572	106.5383219	102.4676998	98.25954198	94.10351052	90.11231013	86.33609052	82.78264324
201030A00025	10/30/2020	2.02	10/28/2050	10/30/2025	122.39721	117.4608132	111.7158071	104.0039	94.59833629	84.89375652	75.88445114	67.9821963	61.20738277
201116A00019	11/16/2020	1.32	11/15/2030	11/16/2025	118.43764	113.7794035	108.9366528	103.534001	97.67763198	91.74488417	86.01294253	80.63416217	75.65380459
201118A00015	11/18/2020	1.66	11/18/2036	11/18/2027	128.67554	121.156818	113.329684	104.802291	95.8927904	87.19016271	79.08006804	71.75690066	65.25341929

	Parallel-Shift Sensitivity Analysis												
8/31/2021					Price								
REFERENCE	SETTLEMENT	Rate	MATURITY	First/Next	-400	-300	-200	-100	Base	100	200	300	400
201118A00017	11/18/2020	1.66	11/18/2036	11/18/2027	128.67554	121.156818	113.329684	104.802291	95.8927904	87.19016271	79.08006804	71.75690066	65.25341929
200423A00010	4/23/2020	1.59	4/23/2030	4/23/2025	118.3089	114.2427279	110.1212827	105.449196	100.0016892	94.0906101	88.14081906	82.45757351	77.16201804
200430A00021	4/30/2020	1.2	4/30/2030	4/30/2025	114.2046	110.720398	107.2360544	103.5482929	99.657007	95.72659617	91.89449456	88.23963204	84.78505209
200505A00010	5/5/2020	0.89	5/6/2030	5/5/2025	113.72624	110.2262633	106.6958007	102.9251046	98.95208209	94.96713343	91.10529732	87.43373123	83.96852817
200512A00023	5/12/2020	1.78	5/11/2035	5/12/2025	121.47442	117.1477945	112.2578993	106.2237735	99.36315444	92.31983006	85.527956	79.23126303	73.50813041
200609A00003	6/9/2020	1.66	6/8/2035	6/9/2025	119.07246	114.7822411	110.1113442	104.2633187	97.22221972	89.72938527	82.42912916	75.6812248	69.59200655
200612A00001	6/12/2020	0.75	6/12/2030	6/12/2025	113.28353	109.7757327	106.2076823	102.3667341	98.3320872	94.31112726	90.43222223	86.75361654	83.28558891
200316A00030	3/16/2020	1.35	3/15/2030	3/16/2025	114.5505	111.2408389	107.9648506	104.513176	100.8003937	96.95378971	93.13563298	89.46260594	85.98057749
200316A00032	3/16/2020	1.35	3/15/2030	3/16/2025	114.5505	111.2408397	107.964851	104.5131758	100.8003924	96.95378712	93.13562905	89.46260073	85.98057111
200318A00015	3/18/2020	1.69	3/18/2030	3/18/2023	108.02202	106.4689971	104.9464594	103.3543427	101.1618509	98.01744068	94.34268692	90.64839979	87.12250857
200326A00035	3/26/2020	1.68	3/26/2030	3/26/2025	115.10047	111.7898823	108.5334347	105.1413238	101.4988495	97.69519545	93.88854214	90.20794734	86.71129505
200423A00008	4/23/2020	1.59	4/23/2030	4/23/2025	118.30891	114.2427396	110.1212908	105.4492	100.0016883	94.09060373	88.14080722	82.45755646	77.16199618
200423A00009	4/23/2020	1.59	4/23/2030	4/23/2025	118.30891	114.2427396	110.1212908	105.4492	100.0016883	94.09060374	88.14080722	82.45755646	77.16199618
200108A00040	1/8/2020	2.52	1/8/2030	1/8/2025	119.39572	115.7214695	112.1362798	108.4016151	104.1686462	99.33977117	94.1271801	88.88523408	83.86750359
200110A00012	1/10/2020	2.57	1/10/2035	1/10/2025	118.86592	115.3275113	111.8570162	108.1708187	103.8811415	98.93596326	93.63320883	88.36832659	83.38952584
200115A00023	1/15/2020	2.16	1/15/2030	1/15/2025	116.03155	112.8378576	109.7306431	106.5788004	103.2160807	99.62356075	95.91976442	92.26425499	88.75984663
200115A00025	1/15/2020	2.1	1/15/2025	1/15/2023	107.79237	106.3621941	104.9588942	103.578758	102.1500443	100.4160454	98.20254032	95.72997327	93.25346054
200306A00021	3/6/2020	1.16	3/6/2030	3/6/2025	113.43205	110.1484732	106.8518442	103.308918	99.50764036	95.63275638	91.84073344	88.21996925	84.79585886
200309A00013	3/9/2020	1.1	3/8/2030	3/9/2025	113.24028	109.9589265	106.6542231	103.0919248	99.2733908	95.39297749	91.60492603	87.99178435	84.57615557
191028A00015	10/28/2019	2.49	10/27/2034	10/28/2024	117.92936	114.6412776	111.4259941	108.0337667	104.0440913	99.32433501	94.1471074	88.93945269	83.9888828
191031A00036	10/31/2019	2.9	10/31/2039	10/31/2024	120.23092	116.6604664	113.1074652	109.2027609	104.3273597	98.3607625	91.78630708	85.26120546	79.1865742
191031A00037	10/31/2019	2.59	10/30/2034	10/31/2024	118.50328	115.0592214	111.6861485	108.1192851	103.967574	99.15014811	93.94797743	88.75725181	83.83530938
191220A00029	12/20/2019	2.57	12/19/2031	12/20/2024	117.77402	114.4708814	111.2606818	107.9947869	104.4181546	100.4220494	96.13622103	91.82063728	87.6687358
200102A00020	1/2/2020	2.78	1/3/2040	1/2/2025	120.89342	117.169631	113.4991387	109.4693636	104.4608927	98.36789749	91.6794183	85.05435288	78.89579692
200108A00009	1/8/2020	2.4	1/8/2035	1/8/2025	118.94853	115.3629039	111.8498392	108.1033969	103.6702651	98.48974509	92.93560093	87.4678707	82.33947166
190807A00044	8/7/2019	2.27	8/7/2034	8/7/2024	116.82699	113.6433132	110.5118349	107.12993	103.0604634	98.25919029	93.07138039	87.92567948	83.0665343
190827A00044	8/27/2019	1.9	8/27/2029	8/27/2024	114.43776	111.5489676	108.7341128	105.862951	102.7468262	99.35569007	95.82080738	92.31734419	88.95259575
190930A00079	9/30/2019	2.04	10/1/2029	9/30/2024	115.15631	112.184588	109.2949121	106.370675	103.2319313	99.82916943	96.2698347	92.72907675	89.32130243
190930A00083	9/30/2019	2.04	10/1/2029	9/30/2024	115.15631	112.184588	109.2949121	106.3706749	103.2319309	99.82916861	96.26983344	92.72907508	89.3213004
191007A00012	10/7/2019	2	10/5/2029	10/7/2024	114.61622	111.6568543	108.7700384	105.8130185	102.6009057	99.12354861	95.52354741	91.9719262	88.56800645
191007A00013	10/7/2019	2	10/5/2029	10/7/2024	114.61622	111.6568503	108.7700356	105.8130174	102.6009072	99.12355364	95.52355628	91.97193884	88.56802258
190409A00016	4/9/2019	2.91	4/9/2029	4/9/2024	116.57018	113.78901	111.0897917	108.4169375	105.546722	102.1634	98.15968994	93.79765794	89.4317695
190409A00017	4/9/2019	3.01	4/9/2029	4/9/2024	117.36892	114.4906235	111.697868	108.9314695	105.9422623	102.3569103	98.02643475	93.2411514	88.42113717

	Parallel-Shift Sensitivity Analysis												
8/31/2021					Price								
REFERENCE	SETTLEMENT	Rate	MATURITY	First/Next	-400	-300	-200	-100	Base	100	200	300	400
190430A00020	4/30/2019	3.41	4/28/2034	4/28/2026	135.5288	129.6111848	123.7178932	117.4979591	110.748337	103.50755	95.99689034	88.57276915	81.55469787
190520A00018	5/20/2019	3.7	5/20/2044	5/20/2024	119.77447	116.7025796	113.7190032	110.6637296	106.8381681	101.3408981	94.23822639	86.60913725	79.38493865
190530A00044	5/30/2019	2.85	5/30/2034	5/30/2024	116.85951	113.9925397	111.2056891	108.3780599	105.1331944	101.1096403	96.36074549	91.32944679	86.42597606
190807A00041	8/7/2019	2.27	8/7/2034	7/7/2024	116.06468	113.0512646	110.0887044	106.8814719	102.9543111	98.22891571	93.06615014	87.92517225	83.06650529
181212A00026	12/12/2018	3.22	12/12/2028	12/12/2023	114.81858	112.47732	110.2008138	107.980055	105.7559359	103.3678238	100.6375915	97.58010011	94.40469179
190111A00040	1/11/2019	3.74	1/11/2034	1/11/2024	117.87227	115.1996235	112.6023066	110.0539963	107.3417494	103.8715686	99.09932398	93.29850117	87.26845994
190116A00015	1/16/2019	3.61	1/17/2034	1/16/2024	116.519	113.9864976	111.5247692	109.1079551	106.5630528	103.4809563	99.52312995	94.88141412	90.06825795
190204A00054	2/4/2019	3.98	2/6/2034	2/2/2024	118.78049	116.0140184	113.3280169	110.6884311	107.856199	104.2308379	99.27564656	93.22992181	86.86988596
190222A00023	2/22/2019	3.66	2/22/2034	2/22/2026	134.91713	129.3820465	123.9947161	118.4135071	112.2357875	105.355581	97.99939974	90.59544958	83.52648567
190301A00015	3/1/2019	3.86	3/1/2034	3/2/2026	132.54623	127.1430164	121.9621454	116.8205526	111.3671861	105.3064197	98.62476666	91.6501971	84.81953455
180302A00003	3/2/2018	3.89	3/2/2033	3/2/2023	112.22617	110.5181717	108.8457939	107.2060464	105.5295847	103.3351208	99.63943745	94.27540923	88.23048657
180315A00030	3/15/2018	3.76	3/15/2033	3/17/2025	126.14017	121.991938	117.9980116	114.0662087	109.8901509	105.032843	99.28725352	92.94607858	86.55407313
180504A00024	5/4/2018	3.62	5/4/2028	5/4/2023	113.22499	111.2822715	109.3831381	107.5251568	105.6735748	103.5782628	100.6267061	96.52721178	91.82916917
180627A00005	6/27/2018	3.63	6/30/2033	6/30/2023	113.69811	111.6926671	109.7347765	107.8186363	105.8668919	103.5316111	100.2707703	96.04852438	91.43742656
180703A00033	7/3/2018	3.4	7/3/2028	7/3/2023	112.17533	110.3059109	108.4802005	106.6953717	104.9211593	103.0123909	100.7147602	97.95813092	94.97972761
180712A00016	7/12/2018	3.66	7/12/2033	7/12/2028	142.02448	134.3110319	127.0635091	120.1499351	113.4276566	106.8231138	100.3483066	94.09591694	88.18117565
171004A00022	10/4/2017	2.74	10/4/2027	10/4/2022	107.61978	106.3745239	105.1587649	103.970356	102.7499118	101.0904714	98.37618321	94.81997455	91.07310336
171005A00047	10/5/2017	3.29	10/5/2032	10/5/2022	108.39965	107.1283506	105.8873184	104.6737167	103.3901533	101.3348432	97.47037737	92.23825268	86.764927
171016A00037	10/16/2017	3.39	10/18/2032	10/16/2022	108.58829	107.3054193	106.053169	104.8285523	103.5249994	101.3629176	97.17671615	91.44737847	85.4357117
180105A00005	1/5/2018	3.07	1/5/2028	1/5/2023	109.04525	107.6505883	106.282516	104.9400503	103.6072505	102.147718	100.2267563	97.71181457	94.92131634
180105A00006	1/5/2018	3.07	1/5/2028	1/5/2023	109.04525	107.6505867	106.2825147	104.9400492	103.6072498	102.1477179	100.2267577	97.71181835	94.92132301
180130A00087	1/30/2018	2.92	1/31/2028	1/30/2023	108.84054	107.4480268	106.0820591	104.7414293	103.4023388	101.8953208	99.87122832	97.28262793	94.47387343
170515A00052	5/15/2017	3.78	5/15/2042	5/15/2024	121.76172	118.5899081	115.4920959	112.2909624	108.5182201	103.5563364	97.25687735	90.25680026	83.37415562
170519A00006	5/19/2017	3	5/19/2032	5/19/2022	105.11434	104.329199	103.5559614	102.7943143	102.0232669	100.8122805	98.02477129	93.93534654	89.61943004
170705A00037	7/5/2017	2.85	7/6/2032	7/6/2027	129.60323	123.8293492	118.3414493	113.0487861	107.8745646	102.8038212	97.87168871	93.14207808	88.66921908
170721A00021	7/21/2017	2.95	7/21/2032	7/21/2022	106.75887	105.6981951	104.6590288	103.6400361	102.5775443	100.913611	97.7663317	93.55539891	89.18716888
170802A00074	8/2/2017	2.92	8/2/2027	8/2/2022	106.70602	105.6238115	104.5636234	103.5245705	102.4770376	101.0693151	98.53212719	94.9865774	91.21108777
170809A00042	8/9/2017	2.35	8/9/2027	8/9/2022	105.9291	104.9122331	103.9157062	102.938527	101.944494	100.643981	98.59802009	96.0187042	93.35336874
161006A00023	10/6/2016	2.49	10/6/2031	10/6/2021	101.58727	101.3313698	101.0767552	100.8234203	100.5653821	99.60360447	96.3425022	92.20050469	88.08979781
161012A00009	10/12/2016	2.56	10/14/2031	10/12/2021	101.605	101.349055	101.0944038	100.8410326	100.5866303	99.746624	96.62964969	92.51123744	88.39416874
161012A00020	10/11/2016	2.96	10/14/2031	10/11/2023	114.54984	112.1869403	109.8827039	107.5412846	104.6642454	100.5350544	95.07990149	89.00817038	83.01398044
161118A00013	11/18/2016	2.96	11/18/2026	11/18/2021	101.71457	101.4571688	101.2010644	100.9462499	100.6927155	100.4027498	99.0112489	95.67432258	91.75737552
170113A00025	1/13/2017	3.59	1/13/2032	1/13/2022	103.13361	102.6989053	102.2678826	101.8404999	101.416699	100.9760295	99.86667331	96.75666291	92.65766806

	Parallel-Shift Sensitivity Analysis												
8/31/2021					Price								
REFERENCE	SETTLEMENT	Rate	MATURITY	First/Next	-400	-300	-200	-100	Base	100	200	300	400
170411A00031	4/11/2017	3.39	4/12/2032	4/11/2022	105.29774	104.5130794	103.7402873	102.9790873	102.2224453	101.2409536	98.98157545	95.18315386	90.92770041
141119A00005	11/19/2014	2.53	11/19/2024	11/19/2019	100.5167	100.4329925	100.3494183	100.2659807	100.1826795	100.0995143	99.69858927	98.37232928	96.84419785
150108A00029	1/8/2015	3.16	1/9/2035	1/10/2022	103.03095	102.5802559	102.1334092	101.6903654	101.2486776	100.3983912	96.93400375	91.69995684	86.40624391
150202A00006	2/2/2015	1.92	2/3/2025	2/3/2020	100.4779	100.3940963	100.3104347	100.2269112	100.1435254	100.0218414	98.99287132	97.39263191	95.74487631
150223A00011	2/23/2015	3.54	2/22/2030	2/23/2022	103.58183	103.0694604	102.5622092	102.0600023	101.562711	101.0451132	99.95613157	97.29394904	93.82225618
150417A00033	4/17/2015	1.78	4/18/2022	4/17/2020	100.46619	100.3824024	100.2987505	100.2152367	100.1318607	100.048622	99.73340768	99.17323304	98.60430123
151223A00007	12/23/2015	3.76	12/23/2030	12/23/2022	110.1872	108.7620276	107.3630166	105.9876327	104.564454	102.6039137	99.15271568	94.12506126	88.50057785
110701A00011	7/1/2011	3.87	7/1/2026	7/1/2011	119.54332	116.4860773	113.5456865	110.7166681	107.9938367	105.3722874	102.8473786	100.4147158	98.07013703
110719A00017	7/19/2011	3.68	7/20/2026	7/19/2011	118.99576	115.9512328	113.0231548	110.206054	107.4947592	104.8843793	102.3702856	99.94809656	97.61366219
110909A00006	9/9/2011	2.26	9/9/2026	9/9/2011	115.34264	112.2938933	109.3650064	106.5502177	103.8440826	101.2414573	98.73747985	96.32755306	94.00732799
111115A00005	11/15/2011	2.26	11/15/2021	11/15/2011	100.92689	100.7703242	100.6143016	100.4588211	100.3038796	100.1494743	99.99560193	99.84225973	99.68944472
111220A00025	12/20/2011	2.17	12/20/2021	12/20/2011	101.20358	100.9964625	100.7903364	100.5851973	100.3810375	100.1778494	99.97562544	99.77435805	99.57403985
120330A00013	3/30/2012	2.98	4/2/2024	3/30/2012	115.61166	112.9811051	110.428646	107.9514348	105.5467479	103.2119803	100.9446391	98.74233811	96.60279251
210714A00018	7/14/2021	0.75	7/12/2024	7/14/2021	111.53387	108.558718	105.6809107	102.8967175	100.2025725	97.59506569	95.07093578	92.62706247	90.2604597
210809A00015	8/9/2021	1.06	8/7/2026	8/9/2021	119.68651	114.3936617	109.3747455	104.6140432	100.0968243	95.80927644	91.73844397	87.87216978	84.19904213
210809A00013	8/9/2021	1.05	8/7/2026	8/9/2021	119.13623	113.9939516	109.1154704	104.4857209	100.0905794	95.91680043	91.9519574	88.18438761	84.60314133
210809A00016	8/9/2021	0.66	8/9/2024	8/9/2021	109.93119	107.3293525	104.8106004	102.371735	100.0097052	97.72159592	95.50462101	93.3561169	91.27353635
210809A00014	8/9/2021	1.06	8/7/2026	8/9/2021	119.68651	114.3936617	109.3747455	104.6140432	100.0968243	95.80927644	91.73844397	87.87216978	84.19904213
210809A00012	8/9/2021	1.06	8/7/2026	8/9/2021	119.68651	114.3936617	109.3747455	104.6140432	100.0968243	95.80927644	91.73844397	87.87216978	84.19904213
210714A00012	7/14/2021	1.12	7/14/2026	7/14/2021	119.78496	114.5539733	109.5903777	104.8790274	100.4057101	96.15708806	92.12064014	88.28460733	84.63794263
210714A00013	7/14/2021	1.12	7/14/2026	7/14/2021	119.78496	114.5539733	109.5903777	104.8790274	100.4057101	96.15708806	92.12064014	88.28460733	84.63794263
210714A00014	7/14/2021	1.12	7/14/2026	7/14/2021	119.78496	114.5539733	109.5903777	104.8790274	100.4057101	96.15708806	92.12064014	88.28460733	84.63794263
210714A00015	7/14/2021	1.11	7/14/2026	7/14/2021	119.23536	114.1520883	109.3264045	104.7437822	100.3905885	96.25402782	92.32208532	88.58347575	85.02759518
210714A00016	7/14/2021	0.75	7/12/2024	7/14/2021	111.53387	108.558718	105.6809107	102.8967175	100.2025725	97.59506569	95.07093578	92.62706247	90.2604597
210714A00017	7/14/2021	0.73	7/12/2024	7/14/2021	110.6354	107.8925951	105.2374957	102.6667708	100.1772374	97.76585136	95.42970047	93.16599823	90.97207751
210611A00010	6/11/2021	1.02	6/11/2026	6/11/2021	119.04603	113.9291178	109.0698822	104.453846	100.0674262	95.89787694	91.93323276	88.16225599	84.57438843
210611A00011	6/11/2021	1.02	6/11/2026	6/11/2021	119.04603	113.9291178	109.0698822	104.453846	100.0674262	95.89787694	91.93323276	88.16225599	84.57438843
210611A00012	6/11/2021	1.02	6/11/2026	6/11/2021	119.04603	113.9291178	109.0698822	104.453846	100.0674262	95.89787694	91.93323276	88.16225599	84.57438843
210714A00009	7/14/2021	0.75	7/12/2024	7/14/2021	111.70168	108.6805719	105.7587217	102.9323153	100.197711	97.55142631	94.9901308	92.51063804	90.10989877
210714A00010	7/14/2021	0.75	7/12/2024	7/14/2021	111.70168	108.6805719	105.7587217	102.9323153	100.197711	97.55142631	94.9901308	92.51063804	90.10989877
210714A00011	7/14/2021	0.75	7/12/2024	7/14/2021	111.70167	108.6805708	105.758721	102.9323151	100.1977112	97.55142689	94.99013174	92.51063932	90.10990038
210512A00009	5/12/2021	0.66	5/10/2024	5/12/2021	110.85241	108.0213794	105.279105	102.6221947	100.0474121	97.55166896	95.13201708	92.78564055	90.50984883
210512A00011	5/12/2021	1.16	5/12/2026	5/12/2021	119.42162	114.374069	109.5770035	105.0165001	100.6794907	96.55370738	92.62762857	88.89042879	85.33193237

	Parallel-Shift Sensitivity Analysis												
8/31/2021					Price								
REFERENCE	SETTLEMENT	Rate	MATURITY	First/Next	-400	-300	-200	-100	Base	100	200	300	400
210512A00012	5/12/2021	1.16	5/12/2026	5/12/2021	119.42162	114.374069	109.5770035	105.0165001	100.6794907	96.55370738	92.62762857	88.89042879	85.33193237
210611A00007	6/11/2021	0.61	6/11/2024	6/11/2021	111.00305	108.0818049	105.2544024	102.517223	99.86681129	97.29986889	94.81324653	92.40393594	90.06906238
210611A00008	6/11/2021	0.61	6/11/2024	6/11/2021	111.10528	108.1552861	105.3003024	102.5366592	99.86085397	97.26954381	94.75953686	92.32778424	89.97137258
210611A00009	6/11/2021	0.61	6/11/2024	6/11/2021	111.00305	108.0818049	105.2544024	102.517223	99.86681129	97.29986889	94.81324653	92.40393594	90.06906238
210412A00008	4/12/2021	0.66	4/12/2024	4/12/2021	110.5896	107.8409904	105.1765906	102.5932639	100.0880165	97.65798697	95.30043945	93.01275715	90.79243622
210412A00009	4/12/2021	0.37	4/12/2022	4/12/2021	102.54236	101.902751	101.2711454	100.6473954	100.031355	99.42288146	98.8218357	98.22808199	97.64148792
210420A00035	4/20/2021	1.92	4/20/2034	4/20/2021	137.86692	127.4019749	117.968221	109.4510767	101.7497035	94.77525776	88.44937789	82.70287183	77.47457727
210423A00001	4/23/2021	1.72	4/23/2036	4/23/2021	136.93255	126.5944831	117.297384	108.9219391	101.3636983	94.53110162	88.34378444	82.73111725	77.63094624
210423A00003	4/23/2021	1.31	4/23/2031	4/23/2021	122.95482	116.8009955	111.072244	105.7344326	100.7564582	96.10995882	91.76905236	87.71010161	83.91150321
210512A00008	5/12/2021	0.66	5/10/2024	5/12/2021	110.85241	108.0213794	105.279105	102.6221947	100.0474121	97.55166896	95.13201708	92.78564055	90.50984883
210319A00008	3/19/2021	0.63	3/19/2024	3/19/2021	110.28494	107.6078427	105.0112258	102.4921619	100.0478498	97.67560862	95.3728722	93.13718294	90.96618658
210319A00009	3/19/2021	1.1	3/19/2026	3/19/2021	118.69218	113.815114	109.1738037	104.7554994	100.5482103	96.54065783	92.72222903	89.08293362	85.61336393
210319A00012	3/19/2021	0.83	12/19/2024	3/19/2021	113.43952	109.9471804	106.5837644	103.3437564	100.2219141	97.21324977	94.31301686	91.51669628	88.81998422
210331A00007	3/31/2021	1.25	3/31/2031	3/31/2021	121.54913	115.5384528	109.9387694	104.7173771	99.84445656	95.29279371	91.03753329	87.05595735	83.32728598
210408A00007	4/8/2021	1.05	4/8/2031	4/8/2021	121.41594	115.3393231	109.6824028	104.4114801	99.49585016	94.90751353	90.62091845	86.61272895	82.86161663
210412A00007	4/12/2021	0.66	4/12/2024	4/12/2021	110.5896	107.8409904	105.1765906	102.5932639	100.0880165	97.65798697	95.30043945	93.01275715	90.79243622
210107A00009	1/7/2021	0.54	1/5/2024	1/7/2021	109.3543	106.9006995	104.5156328	102.1967958	99.94197692	97.74905139	95.61597764	93.54079332	91.52161183
210107A00010	1/7/2021	0.54	1/5/2024	1/7/2021	109.3543	106.9006995	104.5156328	102.1967958	99.94197692	97.74905139	95.61597764	93.54079332	91.52161183
210212A00004	2/12/2021	1.1	2/12/2036	2/12/2021	130.65812	120.9026104	112.1193011	104.1978618	97.04157137	90.56553255	84.69513155	79.36470896	74.51641174
210212A00006	2/12/2021	0.77	2/12/2026	2/12/2021	117.09748	112.2972781	107.726156	103.3719219	99.22310151	95.26888888	91.49910387	87.9041526	84.47499057
210212A00007	2/12/2021	0.76	2/12/2026	2/12/2021	116.78739	112.0700934	107.5767755	103.2955489	99.21522217	95.32525481	91.61571588	88.07724546	84.70101873
210217A00005	2/17/2021	0.83	2/14/2031	2/17/2021	119.83241	113.9368999	108.4423043	103.3168946	98.53172445	94.06036368	89.87866143	85.96453296	82.29776804
201203A00007	12/3/2020	0.58	12/1/2023	12/3/2020	109.12145	106.7660313	104.4747153	102.245247	100.075475	97.96334277	95.90688365	93.90421568	91.9535373
201207A00009	12/7/2020	1.01	12/7/2027	12/7/2020	123.39164	116.5482586	110.1415841	104.1411825	98.51891385	93.24874173	88.30656489	83.67006254	79.31855324
201207A00021	12/7/2020	1.85	12/7/2050	12/7/2020	168.40499	143.5528721	123.3717576	106.8869342	93.34029581	82.14002733	72.82238356	65.02257236	58.4525099
201221A00022	12/21/2020	0.51	12/19/2025	12/21/2020	115.50522	111.0704447	106.8387339	102.799601	98.94316343	95.2601023	91.74162717	88.37944291	85.16571891
201228A00013	12/28/2020	0.84	12/30/2030	12/28/2020	118.69931	112.9817961	107.6460179	102.6622759	98.00342837	93.64465616	89.56324711	85.73840207	82.15105996
210107A00008	1/7/2021	0.54	1/5/2024	1/7/2021	109.3543	106.9006995	104.5156328	102.1967958	99.94197692	97.74905139	95.61597764	93.54079332	91.52161183
200814A00003	8/14/2020	0.96	8/14/2035	8/14/2020	128.51447	119.2438927	110.868252	103.2890129	96.41944705	90.18312732	84.51262218	79.34836489	74.63767244
200818A00012	8/18/2020	0.97	8/18/2027	8/18/2020	122.34556	115.8533841	109.7583344	104.0338662	98.65534908	93.59991829	88.84633887	84.37488127	80.16720704
200910A00006	9/10/2020	0.96	9/10/2027	9/10/2020	122.44642	115.8860977	109.7308262	103.9532744	98.52810283	93.43180629	88.64257116	84.14014506	79.90571704
201029A00004	10/29/2020	1.49	10/29/2038	10/29/2020	154.0762	135.328906	119.3105184	105.5937953	93.82149825	83.69451727	74.96207007	67.41360411	60.87209713
201103A00005	11/3/2020	0.89	11/4/2030	11/3/2020	118.83576	113.1629831	107.865846	102.915342	98.28495201	93.9504099	89.8894945	86.08184274	82.50878088

	Parallel-Shift Sensitivity Analysis												
8/31/2021					Price								
REFERENCE	SETTLEMENT	Rate	MATURITY	First/Next	-400	-300	-200	-100	Base	100	200	300	400
201110A00003	11/10/2020	1.12	11/10/2027	11/10/2020	123.92133	117.1294888	110.7664914	104.8027309	99.21081239	93.96537275	89.0429185	84.42167769	80.08146428
200623A00028	6/23/2020	1.23	6/23/2038	6/23/2020	135.95729	124.2653893	113.9016242	104.69524	96.49922421	89.18681094	82.64852211	76.78966209	71.52819342
200709A00018	7/9/2020	0.59	7/7/2023	7/9/2020	107.70484	105.763514	103.8672902	102.0148459	100.204908	98.43624858	96.70768321	95.01806897	93.36630283
200709A00019	7/9/2020	0.77	7/9/2025	7/9/2020	115.21701	111.0787746	107.1150508	103.31755	99.67841731	96.1902104	92.84587557	89.63872551	86.56241831
200716A00004	7/16/2020	0.97	7/16/2027	7/16/2020	122.11345	115.7213888	109.7149154	104.0686252	98.75891341	93.76384261	89.06301684	84.6374656	80.46953719
200724A00011	7/24/2020	1.41	7/26/2038	7/24/2020	152.20364	133.8876784	118.2082739	104.7574397	93.19323948	83.22872144	74.62275884	67.17246232	60.70688678
200806A00004	8/6/2020	0.3	3/6/2024	8/6/2020	105.51429	104.0707845	102.6612755	101.2846739	99.93993059	98.62603912	97.34203333	96.08698552	94.8600045
200605A00018	6/5/2020	0.91	6/5/2025	6/5/2020	115.46074	111.4121787	107.5310741	103.8094864	100.2399013	96.81520753	93.52867215	90.37391786	87.3449017
200608A00001	6/8/2020	1.34	6/7/2030	6/8/2020	129.71044	120.9944261	112.9892717	105.6315128	98.86373704	92.63397463	86.89515263	81.60460641	76.72364255
200610A00006	6/10/2020	1.11	6/10/2027	6/10/2020	122.71112	116.3932124	110.4508562	104.8595467	99.59651782	94.64060543	89.97212571	85.57276345	81.42546934
200612A00004	6/12/2020	1.42	6/12/2040	6/12/2020	141.21295	127.1747897	114.9400931	104.2480296	94.8783832	86.64488165	79.38966676	72.97870545	67.29797605
200616A00005	6/16/2020	0.74	6/17/2030	6/16/2020	118.17839	112.7679542	107.7022612	102.9556335	98.50451927	94.32730173	90.40412597	86.71674293	83.248368
200618A00004	6/18/2020	0.7	6/18/2030	6/18/2020	117.96754	112.5666699	107.509935	102.771706	98.32847201	94.15865378	90.24243102	86.56158648	83.09936481
200512A00018	5/12/2020	0.85	5/12/2025	5/12/2020	114.48956	110.6667587	106.9981368	103.4765061	100.0950616	96.84735889	93.72729178	90.7290726	87.84721313
200512A00020	5/12/2020	0.86	5/12/2025	5/12/2020	115.04207	111.0713858	107.2626096	103.6081535	100.1008327	96.73384413	93.50074347	90.39542347	87.41209413
200512A00021	5/12/2020	0.86	5/12/2025	5/12/2020	115.04207	111.0713858	107.2626096	103.6081535	100.1008327	96.73384413	93.50074347	90.39542347	87.41209413
200514A00008	5/14/2020	1.23	5/14/2030	5/14/2020	128.62811	120.0329869	112.1347511	104.8715341	98.18733667	92.03144119	86.35788403	81.12498374	76.29491834
200520A00009	5/20/2020	1.63	5/20/2038	5/20/2020	154.76391	136.606115	121.0179857	107.6073465	96.04477223	86.05317769	77.39918903	69.88598259	63.34733437
200522A00009	5/22/2020	0.96	5/22/2030	5/22/2020	118.66245	113.1856086	108.0611749	103.2626087	98.76559119	94.54782647	90.58885821	86.86990423	83.37370711
200512A00001	5/12/2020	1.17	5/12/2027	5/12/2020	122.85154	116.6077848	110.7308362	105.1969876	99.98420303	95.07198623	90.44126431	86.07428073	81.95449696
200512A00010	5/12/2020	1.48	5/10/2030	5/12/2020	133.58964	123.9029469	115.0298156	106.8965703	99.43661841	92.58972992	86.3013958	80.52225511	75.20758217
200512A00011	5/12/2020	1.48	5/10/2030	5/12/2020	133.58964	123.9029469	115.0298156	106.8965703	99.43661841	92.58972992	86.3013958	80.52225511	75.20758217
200512A00013	5/12/2020	1.17	5/12/2027	5/12/2020	122.85154	116.6077848	110.7308362	105.1969876	99.98420303	95.07198623	90.44126431	86.07428073	81.95449696
200512A00014	5/12/2020	1.17	5/12/2027	5/12/2020	122.85154	116.6077848	110.7308362	105.1969876	99.98420303	95.07198623	90.44126431	86.07428073	81.95449696
200512A00017	5/12/2020	0.85	5/12/2025	5/12/2020	114.48956	110.6667587	106.9981368	103.4765061	100.0950616	96.84735889	93.72729178	90.7290726	87.84721313
200424A00022	4/24/2020	1.39	4/24/2030	4/24/2020	129.80882	121.1938968	113.2732932	105.9857186	99.27566638	93.09283525	87.3916123	82.13061033	77.27225319
200428A00009	4/28/2020	1.08	4/29/2030	4/28/2020	118.82447	113.5049345	108.5178285	103.8388286	99.44559334	95.31758611	91.43591677	87.78319782	84.34341417
200429A00030	4/29/2020	1.41	4/29/2030	4/29/2020	131.72833	122.5014401	114.0369514	106.2665505	99.12843223	92.56664901	86.53052456	80.97412937	75.85581118
200430A00027	4/30/2020	1.31	4/30/2035	4/30/2020	129.58693	120.5009709	112.2705714	104.8036903	98.01907334	91.84490873	86.21765511	81.08102324	76.38509003
200501A00002	5/1/2020	1.3	5/1/2035	5/1/2020	129.64929	120.5053376	112.2270433	104.7208071	97.90405224	91.70384375	86.05568661	80.90248171	76.19361819
200501A00009	5/4/2020	0.67	5/1/2025	5/4/2020	108.18756	106.0662576	104.0101368	102.0166445	100.0833502	98.20793635	96.38819277	94.62201044	92.90737623
200406A00037	4/6/2020	0.9	4/6/2023	4/6/2020	107.23718	105.5591786	103.9164606	102.3079854	100.7327489	99.18978595	97.67816865	96.19700456	94.7454349
200413A00009	4/13/2020	0.77	4/13/2027	4/13/2020	112.60194	109.2788913	106.0993981	103.0559578	100.141516	97.3494377	94.67347966	92.10776424	89.64675558

	Parallel-Shift Sensitivity Analysis												
8/31/2021					Price								
REFERENCE	SETTLEMENT	Rate	MATURITY	First/Next	-400	-300	-200	-100	Base	100	200	300	400
200413A00013	4/13/2020	1.19	4/12/2030	4/13/2020	119.39361	114.0493165	109.0389327	104.3380332	99.92418219	95.77675604	91.87678388	88.20680349	84.75073057
200414A00009	4/14/2020	0.82	4/14/2025	4/14/2020	108.33298	106.2540668	104.2379681	102.2822629	100.3846392	98.54289149	96.75491497	95.01870022	93.33232813
200414A00024	4/14/2020	1.37	4/14/2027	4/14/2020	123.82288	117.6183328	111.7738173	106.2663517	101.0745492	96.17849848	91.55965311	87.20073065	83.08561953
200421A00026	4/21/2020	1.34	4/19/2030	4/21/2020	129.36651	120.7874059	112.8989973	105.64039	98.95642447	92.79710709	87.11709838	81.87525412	77.03421427
200406A00029	4/6/2020	1.61	4/5/2030	4/6/2020	134.49486	124.8491248	116.0053766	107.891707	100.4430448	93.60047375	87.31061961	81.52510021	76.20003344
200406A00030	4/6/2020	1.61	4/5/2030	4/6/2020	134.49486	124.8491248	116.0053766	107.891707	100.4430448	93.60047375	87.31061961	81.52510021	76.20003344
200406A00032	4/6/2020	1.09	4/4/2025	4/6/2020	115.55711	111.6793728	107.9559632	104.3798342	100.9443023	97.64302827	94.46999744	91.41950067	88.48611706
200406A00033	4/6/2020	1.09	4/4/2025	4/6/2020	115.5571	111.6793634	107.9559571	104.3798314	100.9443025	97.64303138	94.47000326	91.41950904	88.48612784
200406A00035	4/6/2020	1.05	4/4/2025	4/6/2020	114.34524	110.7583152	107.3109454	103.9968244	100.8099745	97.74472387	94.7956891	91.95775839	89.22607622
200406A00036	4/6/2020	1.09	4/4/2025	4/6/2020	115.5571	111.6793634	107.9559571	104.3798314	100.9443025	97.64303138	94.47000326	91.41950904	88.48612784
200327A00094	3/27/2020	1.6	3/27/2030	3/27/2020	131.34005	122.7027295	114.755863	107.4389767	100.6972608	94.48100543	88.74509804	83.44857347	78.55421024
200330A00047	3/30/2020	1.5	3/30/2035	3/30/2020	131.09101	121.955026	113.674545	106.1580081	99.32454171	93.10262281	87.42892458	82.24731193	77.50796705
200330A00058	3/30/2020	1.49	3/29/2030	3/30/2020	130.44431	121.8548546	113.9526194	106.6773721	99.97452451	93.79457085	88.09258672	82.8277805	77.96309078
200330A00079	3/30/2020	1.51	3/30/2035	3/30/2020	131.17867	122.0365753	113.7505482	106.2289768	99.39093315	93.16484656	87.48734777	82.3022641	77.5597444
200406A00014	4/6/2020	1.33	4/6/2035	4/6/2020	131.20059	121.9590122	113.590205	106.0000559	99.10550579	92.83316746	87.11812272	81.90287774	77.13645434
200406A00027	4/6/2020	1.31	4/5/2030	4/6/2020	130.38391	121.7365369	113.784466	106.4664917	99.72716813	93.51623293	87.78809419	82.50137121	77.61848259
200317A00043	3/17/2020	1.29	3/15/2030	3/17/2020	120.58092	115.215699	110.1836746	105.4606152	101.0242503	96.85409875	92.93131216	89.23853296	85.75976604
200318A00012	3/18/2020	1.68	3/18/2033	3/18/2020	134.46958	125.0188295	116.4351047	108.6285602	101.5194184	95.03677041	89.11752916	83.70551217	78.75063743
200319A00035	3/19/2020	1.72	3/18/2033	3/19/2020	134.82943	125.3529584	116.7458287	108.9179642	101.7893758	95.28896658	89.35348178	83.92658949	78.95807432
200323A00090	3/23/2020	1.55	3/23/2027	3/23/2020	115.32746	111.7612748	108.3548705	105.0996424	101.9875175	99.0109145	96.16271015	93.43620874	90.82511341
200326A00032	3/26/2020	1.49	3/26/2030	3/26/2020	120.78402	115.4285982	110.4049583	105.6890178	101.2586436	97.09347709	93.17477955	89.48529169	86.00910636
200327A00084	3/27/2020	1.1	3/27/2025	3/27/2020	114.99121	111.2766874	107.7077244	104.2777425	100.9805003	97.81007524	94.76084512	91.82747084	89.00488042
200309A00082	3/9/2020	1.18	3/8/2030	3/9/2020	130.36975	121.043553	112.488693	104.6364246	97.42450128	90.79652607	84.7013725	79.09266584	73.92831776
200309A00083	3/9/2020	0.82	3/9/2023	3/9/2020	106.78288	105.1872428	103.6241756	102.0927547	100.5920926	99.12133469	97.6796574	96.26626708	94.88039853
200309A00084	3/9/2020	1.06	3/9/2027	3/9/2020	121.69575	115.6746186	109.9982206	104.6448594	99.59432021	94.82776131	90.32761335	86.0774868	82.06208651
200311A00015	3/11/2020	1.26	3/11/2027	3/11/2020	122.88357	116.810257	111.0846965	105.6849886	100.5907342	95.78292045	91.24381931	86.95689386	82.90671205
200311A00026	3/11/2020	1.34	3/11/2030	3/11/2020	130.76229	121.7126364	113.4014565	105.7634076	98.73929624	92.27546669	86.32325455	80.83849667	75.7810918
200317A00009	3/17/2020	1.61	3/16/2035	3/17/2020	132.05534	122.8527358	114.5117974	106.9403233	100.0568628	93.7893818	88.07409986	82.85447912	78.08034373
200306A00048	3/6/2020	1.04	3/6/2035	3/6/2020	128.50444	119.5064186	111.3534973	103.9550241	97.23094062	91.11046412	85.53093998	80.43684366	75.77891221
200306A00050	3/6/2020	0.87	3/6/2030	3/6/2020	118.4126	113.1438056	108.2021983	103.5639872	99.20730557	95.11204319	91.25969278	87.63321078	84.21689127
200306A00057	3/6/2020	0.92	3/8/2027	3/6/2020	120.65062	114.9659734	109.6011094	104.5360722	99.75226614	95.23235271	90.96015842	86.92059026	83.09955773
200306A00058	3/6/2020	1.06	3/6/2030	3/6/2020	118.5664	113.3096364	108.3784835	103.7493134	99.40040956	95.31179627	91.46508661	87.84334489	84.4309618
200309A00034	3/9/2020	0.96	3/9/2035	3/9/2020	127.8116	118.8618164	110.7526282	103.3938593	96.70587672	90.61827441	85.06873117	80.0020182	75.36913505

	Parallel-Shift Sensitivity Analysis												
8/31/2021					Price								
REFERENCE	SETTLEMENT	Rate	MATURITY	First/Next	-400	-300	-200	-100	Base	100	200	300	400
200309A00081	3/9/2020	1.18	3/8/2030	3/9/2020	130.36977	121.0435656	112.4886985	104.6364239	97.4244952	90.79651526	84.7013576	79.0926474	73.92829628
200206A00038	2/6/2020	1.78	2/6/2023	2/6/2020	107.84447	106.3299976	104.8448926	103.3883673	101.9596644	100.5580528	99.18282662	97.83330391	96.50882583
200212A00013	2/12/2020	1.98	2/12/2027	2/12/2020	126.84156	120.6952608	114.8956266	109.4211376	104.2517214	99.3686503	94.75444476	90.39278338	86.26842041
200220A00026	2/20/2020	2.22	2/21/2040	2/20/2020	150.65203	136.0464176	123.2885879	112.1150372	102.3027515	93.66263435	86.03405149	79.28029264	73.2847906
200221A00012	2/21/2020	2.14	2/21/2040	2/21/2020	149.57284	135.0746991	122.4107603	111.3194599	101.5794208	93.00293468	85.43054664	78.72655022	72.77523429
200227A00046	2/27/2020	1.52	3/1/2027	2/27/2020	114.1508	110.8885629	107.7634689	104.7685179	101.8971227	99.1430794	96.50054244	93.96400131	91.52825903
200303A00028	3/3/2020	1.54	3/4/2030	3/3/2020	130.7077	122.1519585	114.2765724	107.0222795	100.3353317	94.16695425	88.47285849	83.21280537	78.35021351
200206A00027	2/6/2020	2.15	2/6/2030	2/6/2020	138.87864	129.1422801	120.2001696	111.9823512	104.4254096	97.47182362	91.06938852	85.17069873	79.73268272
200206A00031	2/6/2020	2.15	2/6/2030	2/6/2020	138.87864	129.1422801	120.2001696	111.9823512	104.4254096	97.47182362	91.06938852	85.17069873	79.73268272
200206A00032	2/6/2020	2.15	2/6/2030	2/6/2020	138.87865	129.1422878	120.200174	111.9823529	104.4254089	97.47182085	91.06938397	85.17069265	79.73267533
200206A00033	2/6/2020	2.15	2/6/2030	2/6/2020	138.87864	129.1422801	120.2001696	111.9823512	104.4254096	97.47182362	91.06938852	85.17069873	79.73268272
200206A00034	2/6/2020	1.84	2/6/2025	2/6/2020	117.69159	113.9260863	110.3045404	106.8206464	103.4684102	100.2421324	97.13639223	94.1460322	91.26614388
200206A00035	2/6/2020	1.78	2/6/2023	2/6/2020	107.84447	106.3299976	104.8448926	103.3883673	101.9596644	100.5580528	99.18282662	97.83330391	96.50882583
200110A00043	1/10/2020	2.32	1/10/2030	1/10/2020	140.13837	130.4082812	121.4649706	113.2397367	105.6702401	98.69988636	92.27726853	86.35566608	80.89259474
200110A00053	1/10/2020	1.99	1/10/2025	1/10/2020	117.88692	114.1957684	110.6428367	107.2221949	103.9282016	100.755487	97.69893779	94.75368392	91.91508535
200115A00013	1/15/2020	2.18	1/15/2030	1/15/2020	131.91866	124.2492032	117.1503636	110.5746866	104.4789817	98.82391078	93.57362272	88.69542397	84.15948257
200116A00012	1/16/2020	2.16	1/19/2027	1/16/2020	127.61647	121.5136781	115.7508986	110.3072742	105.1633397	100.3009181	95.70302859	91.353802	87.2384024
200130A00046	1/30/2020	1.81	1/29/2027	1/30/2020	114.86574	111.6322989	108.5330291	105.5611604	102.7103182	99.97449523	97.34802747	94.82557236	92.40208828
200206A00008	2/6/2020	1.64	2/6/2025	2/6/2020	116.9355	113.2956964	109.7939634	106.4242644	103.1808658	100.0583158	97.05142897	94.15527181	91.3651488
200103A00002	1/3/2020	2.07	1/3/2030	1/3/2020	135.90345	127.1649207	119.1093432	111.6782372	104.8184724	98.48175156	92.62414539	87.20567457	82.18993396
200109A00006	1/9/2020	1.95	1/9/2030	1/9/2020	123.61187	118.218279	113.1538009	108.3948852	103.9198632	99.70878061	95.7432498	92.00631578	88.48233437
200109A00008	1/9/2020	1.95	1/9/2030	1/9/2020	123.61185	118.218269	113.1537945	108.3948821	103.919863	99.708783	95.74325452	92.00632259	88.48234304
200110A00037	1/10/2020	2.32	1/10/2030	1/10/2020	140.13837	130.4082812	121.4649706	113.2397367	105.6702401	98.69988636	92.27726853	86.35566608	80.89259474
200110A00038	1/10/2020	2.32	1/10/2030	1/10/2020	140.13837	130.4082812	121.4649706	113.2397367	105.6702401	98.69988636	92.27726853	86.35566608	80.89259474
200110A00039	1/10/2020	2.32	1/10/2030	1/10/2020	140.13837	130.4082812	121.4649706	113.2397367	105.6702401	98.69988636	92.27726853	86.35566608	80.89259474
191203A00010	12/3/2019	2.21	12/3/2029	12/3/2019	138.75141	129.2049875	120.4231407	112.3396087	104.8942451	98.03242052	91.70448771	85.86530045	80.47378195
191203A00011	12/3/2019	2.21	12/3/2029	12/3/2019	138.75141	129.2049875	120.4231407	112.3396087	104.8942451	98.03242052	91.70448771	85.86530045	80.47378195
191203A00013	12/3/2019	1.93	12/3/2024	12/3/2019	117.19439	113.6262466	110.1886928	106.8761043	103.6831418	100.6047323	97.63605359	94.77252019	92.00976971
191206A00005	12/6/2019	2.18	12/7/2026	12/6/2019	127.24863	121.2812664	115.6404007	110.3062368	105.2602951	100.4853158	95.965171	91.68478385	87.63005389
191209A00005	12/9/2019	2.22	12/10/2029	12/9/2019	135.54812	126.9262898	118.9723217	111.6294243	104.8459768	98.57503246	92.77386972	87.40358847	82.42874732
191224A00002	12/24/2019	2.17	12/24/2029	12/24/2019	123.69457	118.3685102	113.363819	108.6577389	104.2293066	100.059202	96.12960791	92.42408269	88.92744399
191112A00022	11/12/2019	2.36	11/13/2029	11/12/2019	139.86887	130.3186342	121.5283238	113.4324708	105.9716177	99.09172986	92.74367283	86.88274166	81.46823848
191112A00023	11/12/2019	2.36	11/13/2029	11/12/2019	139.86887	130.3186381	121.5283261	113.4324719	105.9716176	99.09172878	92.74367092	86.88273904	81.46823527

	Parallel-Shift Sensitivity Analysis												
8/31/2021					Price								
REFERENCE	SETTLEMENT	Rate	MATURITY	First/Next	-400	-300	-200	-100	Base	100	200	300	400
191112A00024	11/12/2019	2.09	11/12/2024	11/12/2019	117.46433	113.9512299	110.5647678	107.2995668	104.1505139	101.1127482	98.18164608	95.35280821	92.62204665
191113A00013	11/13/2019	2.17	11/13/2026	11/13/2019	126.90947	121.0246221	115.4583831	110.1916039	105.2064021	100.4860672	96.01497692	91.77851968	87.76302345
191122A00003	11/22/2019	2.32	11/22/2039	11/22/2019	162.81686	144.4340331	128.6657027	115.1026154	103.4034254	93.28293725	84.50245619	76.86185591	70.193049
191203A00009	12/3/2019	2.21	12/3/2029	12/3/2019	138.75141	129.2049875	120.4231407	112.3396087	104.8942451	98.03242052	91.70448771	85.86530045	80.47378195
191011A00027	10/11/2019	1.84	10/11/2029	10/11/2019	122.42572	117.2407446	112.3638015	107.7733894	103.4496828	99.3743898	95.53062213	91.90277771	88.47643358
191015A00025	10/15/2019	2.01	10/15/2029	10/15/2019	122.46539	117.2966391	112.4342004	107.8567384	103.5445774	99.47956052	95.64492128	92.02516763	88.60597597
191031A00025	10/31/2019	1.91	10/31/2024	10/31/2019	109.2238	107.4055825	105.6366369	103.9152123	102.239635	100.6083043	99.01968774	97.47231841	95.96479117
191101A00004	11/1/2019	1.91	11/1/2029	11/1/2019	134.0359	125.5544965	117.7251655	110.4928719	103.8075631	97.62368617	91.89975883	86.59798283	81.68389654
191101A00005	11/1/2019	1.83	11/2/2026	11/1/2019	125.79561	119.9623651	114.4442572	109.2224047	104.279166	99.59805214	95.1636438	90.96151613	86.97816865
191105A00012	11/5/2019	2.07	11/3/2034	11/5/2019	136.7902	127.4457851	118.9593207	111.2407307	104.2102533	97.79718115	91.93876324	86.57924661	81.66904038
191004A00023	10/4/2019	2.02	10/4/2029	10/4/2019	136.4579	127.209061	118.6890773	110.8358137	103.5927741	96.90855852	90.73637719	85.03361351	79.76143048
191004A00025	10/4/2019	1.74	10/4/2024	10/4/2019	115.79802	112.4330632	109.1862249	106.0526344	103.0276565	100.1068759	97.28608558	94.56127533	91.92862124
191004A00026	10/4/2019	1.74	10/4/2024	10/4/2019	115.79802	112.4330632	109.1862249	106.0526344	103.0276565	100.1068759	97.28608558	94.56127533	91.92862124
191008A00007	10/8/2019	1.67	10/9/2029	10/8/2019	121.58081	116.4315542	111.588206	107.0294121	102.7354845	98.68825777	94.87096038	91.26809814	87.86534777
191008A00014	10/8/2019	1.85	10/8/2026	10/8/2019	124.73315	119.0295761	113.6301965	108.5170209	103.6732271	99.08307564	94.73183427	90.60570766	86.69177264
191009A00009	10/9/2019	1.8	10/9/2026	10/9/2019	114.1999	111.1324908	108.1873336	105.3584773	102.6403054	100.0275149	97.51509658	95.09831683	92.77270049
190926A00002	9/30/2019	2.01	9/29/2034	9/30/2019	135.8477	126.6817443	118.3478728	110.7596503	103.8404433	97.52223031	91.74456658	86.45368094	81.60168596
190930A00026	9/30/2019	1.95	9/30/2024	9/30/2019	115.9367	112.6769165	109.5301843	106.491881	103.5576017	100.7231496	97.98452444	95.33791191	92.7796739
190930A00028	9/30/2019	1.95	9/30/2024	9/30/2019	115.93669	112.6769088	109.5301786	106.4918772	103.5575998	100.7231495	97.98452603	95.33791513	92.77967869
191004A00017	10/4/2019	2.02	10/4/2029	10/4/2019	136.45793	127.2090797	118.6890883	110.8358179	103.5927724	96.90855161	90.73636577	85.03359817	79.76141177
191004A00019	10/4/2019	2.02	10/4/2029	10/4/2019	136.45791	127.2090721	118.689084	110.8358165	103.5927735	96.90855483	90.73637082	85.03360479	79.7614197
191004A00022	10/4/2019	2.02	10/4/2029	10/4/2019	136.45792	127.2090764	118.6890864	110.8358173	103.5927729	96.90855299	90.73636794	85.03360102	79.76141518
190905A00024	9/5/2019	2.08	9/5/2029	9/5/2019	136.68494	127.5054442	119.0432089	111.2375916	104.0334073	97.38040749	91.23281355	85.54889677	80.29059956
190905A00025	9/5/2019	2.08	9/5/2029	9/5/2019	136.68494	127.5054442	119.0432089	111.2375916	104.0334073	97.38040747	91.23281353	85.54889675	80.29059953
190910A00044	9/10/2019	2.02	9/10/2026	9/10/2019	125.34131	119.6964063	114.3486908	109.2808177	104.4765468	99.92066872	95.59893437	91.49798864	87.60530969
190911A00016	9/11/2019	1.9	9/11/2029	9/11/2019	122.51487	117.3785423	112.5445904	107.9920875	103.7017227	99.65566664	95.83744784	92.23183936	88.82475616
190913A00018	9/13/2019	2.11	9/11/2026	9/13/2019	114.90048	111.8632426	108.9454283	106.1412884	103.4453981	100.8526323	98.35814671	95.95736101	93.64594213
190925A00009	9/25/2019	2	9/25/2026	9/25/2019	124.09694	118.7283264	113.6392448	108.8134215	104.2356231	99.89158452	95.76794232	91.85217243	88.13253274
190829A00032	8/29/2019	1.69	8/28/2026	8/29/2019	113.92322	110.951248	108.0948392	105.3484833	102.7069772	100.1654032	97.71911129	95.36370236	93.09501331
190829A00039	8/29/2019	1.85	8/29/2034	8/29/2019	134.27047	125.2674636	117.0770389	109.615248	102.8076134	96.58798364	90.89753777	85.68391542	80.90045625
190905A00018	9/5/2019	1.85	9/5/2029	9/5/2019	133.05541	124.7669718	117.1059142	110.0201121	103.4620773	97.38852362	91.75997263	86.54039796	81.69690519
190905A00019	9/5/2019	2.08	9/5/2029	9/5/2019	136.68494	127.5054442	119.0432089	111.2375916	104.0334073	97.38040747	91.23281353	85.54889675	80.29059953
190905A00021	9/5/2019	2.08	9/5/2029	9/5/2019	136.68494	127.5054442	119.0432089	111.2375916	104.0334073	97.38040749	91.23281355	85.54889677	80.29059956

	Parallel-Shift Sensitivity Analysis												
8/31/2021					Price								
REFERENCE	SETTLEMENT	Rate	MATURITY	First/Next	-400	-300	-200	-100	Base	100	200	300	400
190905A00023	9/5/2019	2.08	9/5/2029	9/5/2019	136.68494	127.5054442	119.0432089	111.2375916	104.0334073	97.38040749	91.23281355	85.54889677	80.29059956
190813A00051	8/13/2019	2.19	8/13/2029	8/13/2019	137.39241	128.2401771	119.797725	112.0054818	104.8091992	98.15944614	92.01115651	86.32322227	81.05812607
190813A00052	8/13/2019	2.24	8/13/2029	8/13/2019	137.82282	128.6471414	120.1828931	112.3703751	105.1552195	98.48788569	92.32320734	86.61998471	81.34061636
190813A00057	8/13/2019	1.9	8/13/2024	8/13/2019	115.64761	112.434938	109.3307343	106.3307183	103.4308002	100.6270753	97.91581414	95.29345374	92.75658907
190813A00064	8/13/2019	1.9	8/13/2024	8/13/2019	115.64761	112.434938	109.3307343	106.3307183	103.4308002	100.6270753	97.91581414	95.29345374	92.75658907
190813A00067	8/13/2019	1.9	8/13/2024	8/13/2019	115.64761	112.434938	109.3307343	106.3307183	103.4308002	100.6270753	97.91581414	95.29345374	92.75658907
190826A00032	8/26/2019	1.72	8/24/2029	8/26/2019	121.43142	116.3918182	111.6462305	107.1744779	102.9579263	98.97936082	95.22286751	91.67372574	88.31831042
190708A00030	7/8/2019	2.57	7/2/2029	7/8/2019	140.19628	131.0111297	122.52797	114.6887087	107.4403699	100.7346169	94.52732279	88.77818391	83.45036931
190708A00032	7/8/2019	2.58	7/2/2029	7/8/2019	140.28176	131.0920596	122.6046641	114.7614575	107.5094414	100.8002583	94.58976272	88.83763349	83.50702383
190712A00016	7/12/2019	2.39	7/12/2029	7/12/2019	123.67645	118.6148519	113.8450376	109.3471957	105.1030211	101.0955886	97.30923856	93.72947389	90.34286542
190718A00012	7/18/2019	2.55	7/18/2029	7/18/2019	136.77314	128.4438967	120.7331421	113.5904142	106.9696628	100.8288405	95.12953317	89.83662708	84.91800811
190731A00013	7/31/2019	2.23	7/22/2022	7/31/2019	103.03513	102.5054282	101.9826128	101.4665391	100.9570622	100.4540417	99.95734146	99.46682926	98.98237682
190802A00011	8/2/2019	2.01	8/2/2029	8/2/2019	122.84014	117.7432114	112.9435515	108.4207596	104.1560034	100.1318836	96.33231529	92.74241912	89.3484226
190702A00068	7/2/2019	2.69	7/1/2039	7/2/2019	175.83193	154.5153134	136.3451692	120.8190374	107.518649	96.09530422	86.25786806	77.76290084	70.40653356
190702A00071	7/2/2019	2.69	7/1/2039	7/2/2019	175.83176	154.5152032	136.3451021	120.8190056	107.5186462	96.09532517	86.25790841	77.762957	70.40660253
190708A00025	7/8/2019	2.21	7/1/2024	7/8/2019	116.02422	112.9265047	109.9294954	107.0293629	104.2224482	101.5052509	98.87442151	96.32675406	93.85917908
190708A00026	7/8/2019	2.21	7/1/2024	7/8/2019	116.02422	112.9265047	109.9294954	107.0293629	104.2224482	101.5052509	98.87442151	96.32675406	93.85917908
190708A00028	7/8/2019	2.57	7/2/2029	7/8/2019	140.19624	131.0111035	122.5279513	114.6886969	107.4403645	100.7346172	94.52732847	88.77819446	83.45038433
190708A00029	7/8/2019	2.57	7/2/2029	7/8/2019	140.19628	131.0111297	122.52797	114.6887087	107.4403699	100.7346169	94.52732279	88.77818391	83.45036931
190605A00023	6/5/2019	2.64	6/5/2029	6/5/2019	140.4689	131.3483296	122.9192307	115.1246946	107.9128141	101.2362188	95.05165394	89.31960102	84.00393528
190605A00024	6/5/2019	2.64	6/5/2029	6/5/2019	140.46888	131.3483142	122.9192203	115.1246886	107.9128121	101.2362204	95.05165866	89.31960858	84.00394536
190605A00025	6/5/2019	2.64	6/5/2029	6/5/2019	140.46888	131.3483142	122.9192203	115.1246886	107.9128121	101.2362204	95.05165866	89.31960858	84.00394536
190605A00027	6/5/2019	2.64	6/5/2029	6/5/2019	140.46888	131.3483142	122.9192203	115.1246886	107.9128121	101.2362204	95.05165866	89.31960858	84.00394536
190619A00010	6/19/2019	2.04	6/17/2022	6/19/2019	102.7321	102.2501885	101.7739664	101.3033176	100.8381335	100.3783089	99.92374104	99.47433013	99.02997899
190620A00033	6/20/2019	2.1	6/20/2029	6/20/2019	122.83982	117.8472718	113.1405936	108.7004981	104.5091531	100.5500632	96.80796021	93.26870299	89.91918641
190506A00025	5/6/2019	3.03	5/4/2029	5/6/2019	143.37285	134.1932459	125.70175	117.8422992	110.5637156	103.8192519	97.56618402	91.76544395	86.38128714
190506A00026	5/6/2019	3.03	5/4/2029	5/6/2019	143.37285	134.1932459	125.70175	117.8422992	110.5637156	103.8192519	97.56618402	91.76544395	86.38128714
190510A00049	5/10/2019	2.58	5/8/2026	5/10/2019	115.02874	112.2324379	109.5386142	106.9426254	104.4400759	102.0268009	99.69885233	97.45248647	95.28415154
190515A00035	5/15/2019	2.82	2/15/2029	5/15/2019	140.66312	131.8458354	123.6745814	116.0979493	109.0688965	102.5443551	96.48487583	90.85430611	85.61949765
190529A00061	5/29/2019	2.46	5/29/2026	5/29/2019	114.95143	112.1080893	109.3704699	106.733725	104.1932644	101.7447416	99.3840394	97.10725559	94.91069057
190605A00007	6/5/2019	2.47	6/5/2026	6/5/2019	126.51337	121.109046	115.9758516	111.0985627	106.4629041	102.0554823	97.86372534	93.87582744	90.08069738
190403A00014	4/3/2019	3.05	4/3/2029	4/3/2019	141.7342	132.9935472	124.8943982	117.385325	110.4193124	103.9533581	97.94810942	92.36753386	87.17862158
190403A00015	4/3/2019	3.05	4/3/2029	4/3/2019	141.73421	132.9935549	124.8944033	117.385328	110.4193134	103.9533575	97.94810732	92.36753048	87.17861709

	Parallel-Shift Sensitivity Analysis												
8/31/2021					Price								
REFERENCE	SETTLEMENT	Rate	MATURITY	First/Next	-400	-300	-200	-100	Base	100	200	300	400
190404A00015	4/4/2019	2.88	4/3/2026	4/4/2019	127.76637	122.5050088	117.4992729	112.7352493	108.1998612	103.8808143	99.76654537	95.8461743	92.10946003
190411A00022	4/11/2019	2.68	4/11/2022	4/11/2019	103.26612	102.7386635	102.2172243	101.7016978	101.1919796	100.6879679	100.1895631	99.69666821	99.2091883
190501A00015	5/1/2019	2.78	5/1/2029	5/1/2019	125.06954	120.0580818	115.3300935	110.8666588	106.6502785	102.6647518	98.89507012	95.32732151	91.94860254
190502A00016	5/2/2019	2.87	5/1/2026	5/2/2019	128.07303	122.7192364	117.6291841	112.7883104	108.1829418	103.8002358	99.62812602	95.65527002	91.87100171
190327A00035	3/27/2019	2.68	3/27/2034	3/27/2019	140.19149	131.0899557	122.7859197	115.1992713	108.258697	101.9006465	96.06842773	90.71141337	85.78434465
190329A00067	3/29/2019	2.61	3/29/2024	3/29/2019	114.92543	112.2658669	109.6855218	107.1815064	104.7510599	102.391541	100.1004222	97.8752838	95.71380826
190401A00017	4/1/2019	2.55	4/1/2022	4/1/2019	103.71029	103.0982796	102.49352	101.8958852	101.3052498	100.721491	100.1444892	99.57412739	99.01029127
190402A00005	4/2/2019	2.77	4/2/2032	4/2/2019	141.65561	132.3565821	123.851523	116.063647	108.924222	102.3716686	96.35076697	90.81195728	85.71072037
190403A00010	4/3/2019	3.08	4/3/2029	4/3/2019	143.37983	134.2925818	125.8799361	118.0874646	110.8654281	104.168351	97.95463367	92.18620172	86.82818921
190403A00013	4/3/2019	3.05	4/3/2029	4/3/2019	141.73419	132.9935385	124.8943918	117.3853207	110.41931	103.9533575	97.94811041	92.36753633	87.17862541
190313A00044	3/13/2019	2.7	6/13/2022	3/13/2019	105.1134	104.2781005	103.4561536	102.6472403	101.8510514	101.0672877	100.2956591	99.53588464	98.78769193
190315A00017	3/15/2019	2.88	3/15/2034	3/15/2019	141.88926	132.6782221	124.2742045	116.5961513	109.5719034	103.1371562	97.23454385	91.81283665	86.82623683
190315A00019	3/15/2019	2.88	3/15/2034	3/15/2019	141.8892	132.6781709	124.2741673	116.5961268	109.5718905	103.1371539	97.23455112	91.81285269	86.82626084
190315A00023	3/15/2019	2.88	3/15/2034	3/15/2019	141.8892	132.6781771	124.2741723	116.5961306	109.5718931	103.1371554	97.23455155	91.81285206	86.82625918
190315A00029	3/15/2019	2.88	3/15/2034	3/15/2019	141.88922	132.6781935	124.2741842	116.5961385	109.5718973	103.1371561	97.23454911	91.81284672	86.8262512
190322A00008	3/22/2019	2.64	3/20/2026	3/22/2019	114.95884	112.2134948	109.5672607	107.0157057	104.5546315	102.1800578	99.88820884	97.67550209	95.53853654
190227A00033	2/27/2019	2.65	2/27/2026	2/27/2019	115.11975	112.4124255	109.8016067	107.2830267	104.8526381	102.5066015	100.2412739	98.05319658	95.93908483
190305A00015	3/5/2019	3.32	3/5/2029	3/5/2019	143.53948	134.7873365	126.6714353	119.1412209	112.1504425	105.656762	99.62140281	94.00883136	88.78646929
190305A00017	3/5/2019	3.12	3/5/2026	3/5/2019	127.16667	122.2332649	117.532514	113.0520301	108.7801607	104.7059363	100.8190262	97.10969813	93.56877982
190308A00016	3/8/2019	3.18	3/8/2034	3/8/2019	164.12571	149.24391	135.9929705	124.1783662	113.6300996	104.1994699	95.75628356	88.18644445	81.38987
190308A00026	3/8/2019	3.18	3/8/2034	3/8/2019	164.12571	149.24391	135.9929705	124.1783662	113.6300996	104.1994699	95.75628356	88.18644445	81.38987
190313A00039	3/13/2019	2.7	6/13/2022	3/13/2019	105.1134	104.2781005	103.4561536	102.6472403	101.8510514	101.0672877	100.2956591	99.53588464	98.78769193
190205A00020	2/5/2019	3.32	2/5/2029	2/5/2019	143.14378	134.4970481	126.4728307	119.0221504	112.1001581	105.6657604	99.6812862	94.11218413	88.92674811
190205A00021	2/5/2019	3.32	2/5/2029	2/5/2019	143.14378	134.4970481	126.4728307	119.0221504	112.1001581	105.6657604	99.6812862	94.11218413	88.92674811
190205A00022	2/5/2019	3.32	2/5/2029	2/5/2019	143.14378	134.4970481	126.4728307	119.0221504	112.1001581	105.6657604	99.6812862	94.11218413	88.92674811
190205A00023	2/5/2019	3.32	2/5/2029	2/5/2019	143.14378	134.4970481	126.4728307	119.0221504	112.1001581	105.6657604	99.6812862	94.11218413	88.92674811
190205A00025	2/5/2019	2.88	2/7/2022	2/5/2019	102.94544	102.4879269	102.0344951	101.5850883	101.1396531	100.6981369	100.2604879	99.8266555	99.39658973
190207A00003	2/7/2019	2.68	2/7/2024	2/7/2019	114.75443	112.2257072	109.7691292	107.3821928	105.0624963	102.8077367	100.6157044	98.48427941	96.41142651
190118A00006	1/18/2019	3.14	1/18/2034	1/18/2019	143.54529	134.3487853	125.9483401	118.2649068	111.2280226	104.7748115	98.84910909	93.40069457	88.38461511
190129A00073	1/29/2019	3.11	1/29/2029	1/29/2019	125.57237	120.7535123	116.1969632	111.8858246	107.8044235	103.9382124	100.2736804	96.79827243	93.50031461
190131A00013	1/31/2019	3.48	1/31/2034	1/31/2019	169.05195	153.2203187	139.1466806	126.6203725	115.4572994	105.4964412	96.59683748	88.63498078	81.50256119
190131A00023	1/31/2019	3.02	1/30/2034	1/31/2019	142.53286	133.4005936	125.058891	117.4292447	110.4416715	104.0337247	98.14962407	92.73949286	87.75868691
190205A00017	2/5/2019	3.36	2/5/2029	2/5/2019	143.46223	134.7995634	126.7604519	119.2958467	112.3608269	105.9142334	99.91833458	94.33852326	89.14304208

	Parallel-Shift Sensitivity Analysis												
8/31/2021					Price								
REFERENCE	SETTLEMENT	Rate	MATURITY	First/Next	-400	-300	-200	-100	Base	100	200	300	400
190205A00019	2/5/2019	2.94	2/5/2024	2/5/2019	115.67185	113.0319314	110.467862	107.9770131	105.5568602	103.2049814	100.9190533	98.69684574	96.53621793
190103A00020	1/3/2019	3.12	1/5/2026	1/3/2019	127.58147	122.5927726	117.8348767	113.2958352	108.9643788	104.8298776	100.8823014	97.11218293	93.51058328
190104A00006	1/4/2019	2.83	1/5/2026	1/4/2019	114.92232	112.276982	109.7242325	107.2600371	104.8805723	102.5822084	100.3614982	98.21516718	96.14010267
190104A00034	1/4/2019	3.18	1/4/2029	1/4/2019	135.41215	128.3723469	121.8021956	115.6665265	109.9330285	104.571999	99.5561189	94.86024756	90.46123728
190104A00035	1/4/2019	3.1	1/5/2026	1/4/2019	126.99836	122.1082068	117.4430777	112.991353	108.7420742	104.6849035	100.8100857	97.10841189	93.57118654
190104A00038	1/4/2019	3.25	1/4/2029	1/4/2019	142.16641	133.6595024	125.758783	118.4170662	111.5910948	105.2411957	99.33096466	93.82698036	88.69854519
190111A00038	1/11/2019	2.63	1/11/2022	1/11/2019	102.35626	101.9825359	101.6115764	101.2433517	100.8778313	100.5149853	100.1547843	99.797199	99.44220093
181129A00005	11/29/2018	3.21	11/29/2023	11/29/2018	115.20401	112.7644155	110.3908143	108.0808902	105.8324317	103.643325	101.5115487	99.43516839	97.41233261
181214A00030	12/14/2018	3.47	12/14/2033	12/14/2018	170.69878	154.8038393	140.662533	128.0661053	116.8319688	106.8002803	97.83098448	89.80125682	82.6032898
181218A00040	12/18/2018	3.23	6/18/2030	12/18/2018	130.85022	124.8835691	119.2960505	114.0594941	109.1480544	104.5380045	100.2075474	96.13664499	92.3068639
181218A00086	12/18/2018	3.06	10/18/2023	12/18/2018	113.60189	111.3890796	109.2332027	107.1323695	105.0847649	103.0886492	101.1423539	99.24427874	97.39288782
181218A00089	12/18/2018	3.05	6/19/2023	12/18/2018	111.64661	109.7776895	107.951018	106.1653222	104.419381	102.7120196	101.042108	99.40855834	97.81032352
181226A00030	12/26/2018	2.91	12/26/2028	12/26/2018	125.13768	120.3732443	115.8662027	111.6000929	107.5596336	103.7306345	100.09991	96.6552017	93.38510635
181105A00015	11/5/2018	3.57	11/5/2025	11/5/2018	128.67182	123.8325918	119.2100982	114.7933189	110.5718592	106.5359145	102.6762325	98.98407858	95.4512036
181115A00044	11/15/2018	3.26	11/15/2023	11/15/2018	114.91127	112.5330671	110.2183116	107.9648081	105.7704545	103.6332399	101.5512403	99.52261363	97.54559543
181116A00006	11/16/2018	3.18	11/17/2025	11/16/2018	115.24892	112.6935721	110.2249733	107.8394426	105.5334805	103.303762	101.147126	99.06056661	97.04122381
181119A00008	11/19/2018	3.23	11/17/2023	11/19/2018	114.43674	112.134126	109.8924614	107.7096442	105.5836679	103.5126124	101.4946403	99.52799169	97.61098066
181128A00004	11/28/2018	3.08	11/28/2023	11/28/2018	115.23314	112.7903465	110.4136881	108.100845	105.8495996	103.6578323	101.5235158	99.44471065	97.41956036
181128A00011	11/28/2018	3.27	11/28/2023	11/28/2018	115.32776	112.8891028	110.5163452	108.2071745	105.959385	103.7708681	101.6396073	99.563673	97.54121785
180924A00033	9/24/2018	3.08	9/22/2023	9/24/2018	113.5238	111.3780749	109.2863489	107.2468788	105.2579884	103.3180687	101.4255746	99.57902163	97.77698348
180925A00013	9/25/2018	3.41	9/25/2028	9/25/2018	125.79422	121.1813929	116.8097191	112.6642276	108.7309957	104.9970675	101.4503796	98.0796933	94.87453295
180925A00116	9/25/2018	3.28	9/25/2028	9/25/2018	125.94465	121.3113591	116.9208698	112.758081	108.8089465	105.0603973	101.5002666	98.11722128	94.90069904
181003A00019	10/3/2018	3.44	10/3/2025	10/3/2018	127.53711	122.8274996	118.3251905	114.0198297	109.9016468	105.9614142	102.1904132	98.58040317	95.12359231
181003A00032	10/3/2018	3.23	10/3/2025	10/3/2018	115.07637	112.5749444	110.1570503	107.8191912	105.5580438	103.3704484	101.2533991	99.20403518	97.21963353
181010A00025	10/10/2018	3.48	10/10/2030	10/10/2018	134.42454	128.0437219	122.0830341	116.5102171	111.2957557	106.4126294	101.8360836	97.54342347	93.51382723
180906A00032	9/6/2018	3.24	9/5/2025	9/6/2018	126.19809	121.6095978	117.2201889	113.0200745	109.0000057	105.1512382	101.4655016	97.93497157	94.55224257
180907A00013	9/7/2018	3.27	9/8/2025	9/7/2018	125.93396	121.4145859	117.0905932	112.9523866	108.9908974	105.1975519	101.5642415	98.08329474	94.74745114
180913A00012	9/13/2018	3.31	9/13/2033	9/13/2018	143.7984	134.8300193	126.6190295	119.0919569	112.1831318	105.8338007	99.99134531	94.60859454	89.64321866
180913A00033	9/13/2018	3.31	9/13/2033	9/13/2018	143.7984	134.8300226	126.6190318	119.0919582	112.1831322	105.8338005	99.99134461	94.60859341	89.64321718
180913A00062	9/13/2018	3.05	9/13/2023	9/13/2018	113.33946	111.1745968	109.064002	107.0059376	104.9987359	103.0407947	101.1305749	99.26659658	97.44743713
180914A00049	9/14/2018	3.37	9/14/2033	9/14/2018	144.29358	135.2943607	127.0551378	119.5021839	112.5696035	106.1984407	100.3358962	94.93463645	89.95218622
180717A00026	7/17/2018	3.24	7/16/2025	7/17/2018	124.27119	120.0620834	116.0274831	112.1591451	108.44926	104.8904283	101.4756366	98.19823512	95.05191739
180718A00008	7/18/2018	3.37	7/18/2028	7/18/2018	142.82524	134.3716017	126.4950628	119.1527162	112.3050688	105.9157561	99.95127829	94.38076061	89.17573467

	Parallel-Shift Sensitivity Analysis												
8/31/2021					Price								
REFERENCE	SETTLEMENT	Rate	MATURITY	First/Next	-400	-300	-200	-100	Base	100	200	300	400
180809A00032	8/9/2018	3.08	8/9/2023	8/9/2018	112.972	110.8847832	108.847994	106.860086	104.9195739	103.0250279	101.1750713	99.36837835	97.60367167
180809A00034	8/9/2018	3.08	8/9/2023	8/9/2018	112.972	110.8847832	108.847994	106.860086	104.9195739	103.0250279	101.1750713	99.36837835	97.60367167
180813A00045	8/13/2018	2.89	8/13/2025	8/13/2018	114.05846	111.670133	109.3591838	107.1224543	104.9569389	102.8597765	100.8282426	98.85974196	96.95180111
180905A00017	9/5/2018	3.43	9/6/2033	9/5/2018	168.48187	153.239193	139.644696	127.5059145	116.654067	106.9410144	98.23662439	90.42648533	83.4099213
180628A00078	6/28/2018	2.73	6/28/2023	6/28/2018	106.48724	105.4341763	104.4017077	103.3892264	102.396151	101.4219231	100.466006	99.52788375	98.60706016
180702A00022	7/2/2018	2.84	6/30/2023	7/2/2018	111.67711	109.7803833	107.9269527	106.1155581	104.344986	102.6140658	100.9216687	99.26670513	97.64812346
180712A00044	7/12/2018	3.44	7/12/2033	7/12/2018	142.87837	134.126603	126.102577	118.7367016	111.9666747	105.736668	99.99660489	94.70152442	89.811019
180713A00031	7/13/2018	3.06	7/14/2025	7/13/2018	113.82384	111.4944886	109.2392065	107.0550191	104.9390916	102.8887234	100.9013418	98.97449393	97.10584113
180716A00062	7/16/2018	2.91	7/16/2025	7/16/2018	113.82313	111.4882144	109.2277015	107.0385953	104.9180427	102.8633263	100.871857	98.94116745	97.06890473
180717A00021	7/17/2018	3.34	7/17/2028	7/17/2018	138.43938	130.9662918	123.9870036	117.4654546	111.3684203	105.6652779	100.3277885	95.32989956	90.64756392
180420A00011	4/20/2018	2.74	4/20/2023	4/20/2018	105.92632	104.9691238	104.0299561	103.108298	102.2036469	101.3155203	100.4434542	99.58700278	98.74573686
180517A00018	5/17/2018	3.46	5/17/2033	5/17/2018	143.80713	135.0824111	127.0760947	119.7201322	112.9535424	106.7216231	100.975257	95.67029912	90.76703513
180517A00024	5/17/2018	3.46	5/17/2033	5/17/2018	143.80712	135.0824051	127.0760905	119.7201297	112.9535412	106.7216231	100.975258	95.67030089	90.76703757
180605A00031	6/5/2018	3.37	6/5/2030	6/5/2018	131.63484	125.6330808	120.0126256	114.7451486	109.8046599	105.1672999	100.8111493	96.71605749	92.86348722
180615A00021	6/15/2018	3.02	6/15/2023	6/15/2018	111.4904	109.639537	107.8303621	106.0616057	104.3320478	102.6405166	100.9858855	99.36707148	97.78303262
180628A00068	6/28/2018	3.12	6/28/2028	6/28/2018	134.0103	127.4429658	121.2889783	115.519058	110.1061821	105.0253988	100.253657	95.76965048	91.5536764
180309A00011	3/9/2018	3.19	3/10/2025	3/9/2018	123.0959	119.1160838	115.2913468	111.6147365	108.0796564	104.6798428	101.4093465	98.26251433	95.2339734
180322A00040	3/22/2018	3.16	3/21/2031	3/22/2018	139.55418	131.5185118	124.1017704	117.2495967	110.9128383	105.0470166	99.6118513	94.57083544	89.89085681
180322A00044	3/22/2018	3.18	3/22/2033	3/22/2018	140.99991	132.5647122	124.8151995	117.6872091	111.1231629	105.0713431	99.48525243	94.32304688	89.54703486
180402A00013	4/2/2018	2.99	4/3/2028	4/2/2018	132.39179	126.0736968	120.1427866	114.5722857	109.3374456	104.4153762	99.78489463	95.42638853	91.32168998
180403A00014	4/3/2018	3.11	4/3/2025	4/3/2018	123.176	119.1247333	115.2335866	111.4952736	107.9028854	104.4498679	101.1300018	97.93738291	94.8664042
180410A00002	4/10/2018	3.14	4/11/2033	4/10/2018	140.97277	132.4796108	124.6812969	117.5124102	110.9142891	104.8342774	99.22506378	94.04409868	89.25307884
180206A00045	2/6/2018	2.71	2/6/2023	2/6/2018	109.07582	107.5732471	106.0997587	104.6545761	103.2369479	101.8461488	100.4814788	99.14226143	97.82784345
180206A00046	2/6/2018	2.72	2/6/2023	2/6/2018	109.17858	107.6611729	106.173165	104.7137653	103.2822151	101.8777821	100.4997589	99.14746261	97.82023317
180206A00048	2/6/2018	2.72	2/6/2023	2/6/2018	109.17858	107.6611737	106.1731657	104.7137658	103.2822155	101.8777823	100.499759	99.14746248	97.82023287
180215A00034	2/15/2018	2.9	2/15/2023	2/15/2018	109.61253	108.0626383	106.543286	105.0536448	103.5929132	102.1603177	100.755112	99.37657571	98.02401333
180220A00107	2/20/2018	3.13	2/20/2025	2/20/2018	121.67191	117.9255049	114.3216007	110.8539285	107.5165336	104.3037566	101.210217	98.23079783	95.36063113
180305A00030	3/5/2018	3.12	3/5/2025	3/5/2018	122.74993	118.7932132	114.9902527	111.3341759	107.8184614	104.4369157	101.1836549	98.05308738	95.03989723
180104A00023	1/4/2018	2.91	1/4/2028	1/4/2018	130.86196	124.6803832	118.8693509	113.4039287	108.2610077	103.4191627	98.85851968	94.56063555	90.50838707
180104A00024	1/4/2018	2.98	1/4/2028	1/4/2018	135.5447	128.3761224	121.6591065	115.362399	109.4570767	103.9163617	98.71545157	93.83136364	89.24279223
180104A00041	1/4/2018	3.08	1/4/2033	1/4/2018	161.26026	147.141967	134.4830145	123.1206313	112.9111786	103.7278027	95.45838585	88.00375777	81.27613269
180125A00027	1/25/2018	2.69	1/24/2025	1/25/2018	112.34382	110.164965	108.0520388	106.0025069	104.0139543	102.0840759	100.210671	98.39163752	96.62496701
180126A00011	1/26/2018	2.72	1/26/2028	1/26/2018	121.43109	117.3794557	113.5226137	109.8493626	106.3492275	103.0124123	99.82975051	96.79266101	93.89310618

	Parallel-Shift Sensitivity Analysis												
8/31/2021					Price								
REFERENCE	SETTLEMENT	Rate	MATURITY	First/Next	-400	-300	-200	-100	Base	100	200	300	400
180202A00027	2/2/2018	3.02	2/3/2025	2/2/2018	121.87671	118.0356899	114.3405624	110.7849619	107.3628396	104.0684433	100.8963008	97.84120466	94.89819816
171207A00022	12/7/2017	2.45	12/7/2022	12/7/2017	107.89604	106.5221467	105.1810304	103.8715167	102.5924852	101.3428686	100.121649	98.92785568	97.7605619
171207A00024	12/7/2017	2.93	12/7/2027	12/7/2017	135.95189	128.6437393	121.7964301	115.3780576	109.3591062	103.7122578	98.41221617	93.43554597	88.7605254
171207A00025	12/7/2017	2.91	12/7/2027	12/7/2017	134.76555	127.7030007	121.0813441	114.8702224	109.0415451	103.5693061	98.42941652	93.59955322	89.05901908
171207A00026	12/7/2017	2.93	12/7/2027	12/7/2017	135.95189	128.6437393	121.7964301	115.3780576	109.3591062	103.7122578	98.41221617	93.43554597	88.7605254
171219A00009	12/19/2017	2.3	12/19/2024	12/19/2017	110.68572	108.7458419	106.8606116	105.0280255	103.2461726	101.5132269	99.82744261	98.1871502	96.5907523
171219A00067	12/19/2017	2.72	12/20/2027	12/19/2017	133.01939	126.2962101	119.9877825	114.0657226	108.5037542	103.2775397	98.36452668	93.74380711	89.3959885
170921A00055	9/21/2017	2.82	9/21/2027	9/21/2017	133.2561	126.4719521	120.099515	114.1112159	108.4814825	103.1865876	98.20450643	93.51478511	89.0984202
170921A00057	9/21/2017	2.79	9/21/2027	9/21/2017	131.44592	125.0413565	119.0184933	113.3520237	108.0184643	102.9960159	98.26443232	93.8049022	89.59993881
171013A00024	10/13/2017	2.47	10/15/2024	10/13/2017	117.60118	114.2983762	111.1108137	108.0337325	105.0626026	102.1931107	99.42114792	96.74279898	94.15433144
171109A00016	11/9/2017	2.94	11/9/2032	11/9/2017	158.59269	144.8813183	132.5730799	121.512945	111.5639683	102.6050784	94.52915226	87.24133258	80.65755687
171204A00009	12/4/2017	2.23	12/4/2024	12/4/2017	110.30804	108.4208144	106.5858137	104.801148	103.0650137	101.3756868	99.7315184	98.13093083	96.57241411
171204A00024	12/4/2017	2.71	12/4/2024	12/4/2017	119.83167	116.2145927	112.7295764	109.3709461	106.1333117	103.0115513	100.000796	97.09641489	94.29400209
170802A00013	8/2/2017	2.5	8/2/2024	8/2/2017	117.29711	114.0933106	110.9964206	108.0022602	105.1068409	102.3063523	99.5971533	96.97576349	94.43885502
170804A00005	8/4/2017	1.94	8/5/2024	8/4/2017	109.05476	107.3307871	105.65174	104.0160723	102.4223018	100.8690089	99.3548337	97.87847277	96.43867645
170829A00066	8/29/2017	2.11	8/29/2024	8/29/2017	116.92566	113.6443758	110.4754199	107.4142843	104.4566715	101.5984818	98.83580287	96.16489978	93.58220609
170901A00030	9/1/2017	1.82	9/1/2022	9/1/2017	105.6367	104.5811437	103.5470761	102.5338435	101.5408173	100.5673938	99.61299351	98.67705948	97.75905638
170921A00052	9/21/2017	2.21	9/21/2022	9/21/2017	106.30831	105.1761452	104.0683974	102.9842771	101.9230311	100.8839379	99.8663062	98.86947324	97.89280332
170921A00053	9/21/2017	2.22	9/21/2022	9/21/2017	106.36599	105.2251594	104.1089997	103.0167102	101.947529	100.9007263	99.87560261	98.87148766	97.88773843
170619A00101	6/16/2017	2.74	6/16/2027	6/16/2017	130.1012	123.995695	118.2406019	112.8134976	107.6935249	102.8612739	98.29867382	93.98889275	89.91624613
170707A00007	7/7/2017	2.65	7/8/2024	7/7/2017	117.38534	114.2515748	111.2201171	108.2870611	105.4486695	102.7013684	100.0417388	97.46650903	94.97254779
170710A00079	7/10/2017	2.76	7/12/2032	7/10/2017	135.66521	128.0103592	120.9452932	114.4175382	108.3797584	102.789211	97.60726706	92.79898447	88.33272861
170711A00010	7/11/2017	2.38	7/12/2027	7/11/2017	118.65626	115.0027572	111.5129865	108.1781095	104.9898294	101.940357	99.02237619	96.22901218	93.55380153
170713A00021	7/13/2017	3.25	7/13/2037	7/13/2017	179.10334	159.4637408	142.4498495	127.6811793	114.8352252	103.6382838	93.85777435	85.29580937	77.78380297
170727A00003	7/27/2017	1.97	7/29/2024	7/27/2017	108.87596	107.1990398	105.5650392	103.9724962	102.4200105	100.9062409	99.42990209	97.98976192	96.58463866
170615A00006	6/15/2017	2.15	6/17/2024	6/15/2017	108.44752	106.8725386	105.336224	103.8372936	102.3745177	100.9467178	99.55276362	98.19157128	96.86210054
170619A00089	6/16/2017	2.79	6/16/2027	6/16/2017	131.92315	125.4606479	119.3755694	113.6435288	108.241855	103.1494603	98.34672059	93.81536601	89.53838001
170619A00092	6/16/2017	2.79	6/16/2027	6/16/2017	131.92315	125.4606479	119.3755694	113.6435288	108.241855	103.1494603	98.34672059	93.81536601	89.53838001
170619A00095	6/16/2017	2.79	6/16/2027	6/16/2017	131.92315	125.4606479	119.3755694	113.6435288	108.241855	103.1494603	98.34672059	93.81536601	89.53838001
170619A00096	6/16/2017	2.79	6/16/2027	6/16/2017	131.92315	125.4606479	119.3755694	113.6435288	108.241855	103.1494603	98.34672059	93.81536601	89.53838001
170619A00097	6/16/2017	2.74	6/16/2027	6/16/2017	130.1012	123.995695	118.2406019	112.8134976	107.6935249	102.8612739	98.29867382	93.98889275	89.91624613
170518A00027	5/18/2017	2.11	5/18/2022	5/18/2017	104.21782	103.4650349	102.7231856	101.9920338	101.2713486	100.5609059	99.86048777	99.16988256	98.48888452
170524A00027	5/24/2017	2.32	5/24/2027	5/24/2017	117.96314	114.4313658	111.0541047	107.8231854	104.7309325	101.7701321	98.93400025	96.21615488	93.61058887

	Parallel-Shift Sensitivity Analysis												
8/31/2021					Price								
REFERENCE	SETTLEMENT	Rate	MATURITY	First/Next	-400	-300	-200	-100	Base	100	200	300	400
170524A00037	5/24/2017	2.46	5/24/2024	5/24/2017	115.61294	112.7376046	109.952397	107.253846	104.6386431	102.1036333	99.64580602	97.26228753	94.95033343
170526A00017	5/26/2017	2.16	5/28/2024	5/26/2017	108.22018	106.6944018	105.2053178	103.7517325	102.3324963	100.946507	99.59270704	98.27008152	96.97765592
170602A00019	6/2/2017	2.42	6/3/2024	6/2/2017	116.18345	113.1743464	110.2611783	107.4402195	104.7079196	102.0608932	99.49591051	97.00988916	94.59988584
170602A00030	6/2/2017	1.88	6/2/2022	6/2/2017	104.3423	103.5479325	102.765749	101.9954732	101.236834	100.4895683	99.75342124	99.02814523	98.31350014
170406A00036	4/6/2017	3.07	4/6/2032	4/6/2017	135.9557	128.4867261	121.5798325	115.1860974	109.2612854	103.7653667	98.66208583	93.91857779	89.50502583
170406A00037	4/6/2017	3.07	4/6/2032	4/6/2017	135.95569	128.4867202	121.5798286	115.1860951	109.2612846	103.7653672	98.6620874	93.91858027	89.50502906
170407A00001	4/6/2017	2.97	4/6/2027	4/6/2017	130.61738	124.6702467	119.0549094	113.7506642	108.7382254	103.9996165	99.51807313	95.27795509	91.26466416
170504A00012	5/4/2017	2.28	5/4/2026	5/4/2017	114.88988	112.0419548	109.3000702	106.659353	104.1151952	101.663234	99.29933628	97.01958555	94.82026853
170504A00049	5/4/2017	2.63	5/6/2024	5/4/2017	116.37535	113.4420329	110.6001313	107.8461645	105.1768153	102.5889178	100.0794487	97.64551949	95.28436999
170511A00011	5/11/2017	2.41	5/11/2027	5/11/2017	118.26676	114.7266341	111.3413313	108.102673	105.0029712	102.0349996	99.19196277	96.46746749	93.85549591
170406A00026	4/6/2017	2.61	4/8/2024	4/6/2017	115.70115	112.8937794	110.1716436	107.5315901	104.9706071	102.4858153	100.0744611	97.73390973	95.46163969
170406A00027	4/6/2017	2.61	4/8/2024	4/6/2017	115.70115	112.8937794	110.1716436	107.5315901	104.9706071	102.4858153	100.0744611	97.73390973	95.4616397
170406A00029	4/6/2017	3.01	4/6/2027	4/6/2017	132.37101	126.0864811	120.1585362	114.5647238	109.2841328	104.2972799	99.58600379	95.13336837	90.92357311
170406A00032	4/6/2017	3.01	4/6/2027	4/6/2017	132.37101	126.0864811	120.1585362	114.5647238	109.2841328	104.2972799	99.58600379	95.13336837	90.92357311
170406A00033	4/6/2017	3.01	4/6/2027	4/6/2017	132.37101	126.0864767	120.1585331	114.5647218	109.2841319	104.2972799	99.58600461	95.13336993	90.92357534
170406A00034	4/6/2017	3.01	4/6/2027	4/6/2017	132.37101	126.0864767	120.1585331	114.5647218	109.2841319	104.2972799	99.58600461	95.13336993	90.92357534
170317A00041	3/17/2017	2.73	3/18/2024	3/17/2017	115.70888	112.9599092	110.2930423	107.7052987	105.19383	102.7559102	100.3889294	98.09038794	95.85789106
170317A00044	3/17/2017	3.11	3/17/2027	3/17/2017	131.15069	125.2359722	119.6485017	114.3680319	109.3756839	104.6538491	100.1860967	95.95708811	91.95249866
170322A00033	3/22/2017	3.61	3/24/2042	3/22/2017	178.63996	159.4613611	142.9216276	128.6130553	116.1956407	105.3852366	95.94386703	87.67179391	80.40100809
170330A00060	3/30/2017	2.06	3/30/2022	3/30/2017	103.44093	102.8363397	102.2388549	101.6483497	101.0647018	100.4877923	99.91750457	99.35372503	98.79634249
170406A00023	4/6/2017	2.24	4/6/2022	4/6/2017	103.61556	102.9882162	102.3684992	101.7562709	101.1513958	100.5537419	99.96317999	99.37958425	98.80283162
170406A00024	4/6/2017	2.61	4/8/2024	4/6/2017	115.70115	112.8937794	110.1716436	107.5315901	104.9706071	102.4858153	100.0744611	97.73390973	95.4616397
170309A00014	3/9/2017	2.58	3/9/2027	3/9/2017	118.33037	114.8899085	111.5961787	108.4416024	105.4190466	102.5217977	99.74353472	97.07830276	94.5204898
170309A00016	3/9/2017	2.39	3/8/2024	3/9/2017	108.50987	107.0253735	105.5758426	104.1601572	102.7772379	101.4260496	100.1055982	98.81492951	97.55312686
170309A00042	3/9/2017	2.18	3/11/2024	3/9/2017	108.20813	106.7274364	105.2816297	103.8695899	102.4902399	101.1425464	99.82551772	98.53820144	97.27968277
170313A00045	3/13/2017	3.22	3/15/2032	3/13/2017	136.726	129.2724371	122.37588	115.9881639	110.0657113	104.5690621	99.46245387	94.71344822	90.29259706
170317A00039	3/17/2017	2.73	3/18/2024	3/17/2017	115.70888	112.9599092	110.2930423	107.7052987	105.19383	102.7559102	100.3889294	98.09038794	95.85789106
170317A00040	3/17/2017	2.74	3/18/2024	3/17/2017	115.92416	113.1403086	110.4398571	107.8197748	105.2771647	102.8092544	100.4133894	98.08702757	95.82773363
170221A00033	2/21/2017	2.31	2/18/2022	2/21/2017	102.87783	102.3892164	101.9052645	101.4259061	100.9510758	100.4807095	100.0147444	99.55311872	99.09577189
170224A00008	2/24/2017	2.18	2/24/2022	2/24/2017	102.9146	102.408598	101.9075804	101.4114782	100.9202193	100.4337328	99.95194952	99.4748013	99.00222142
170224A00009	2/24/2017	2.39	2/24/2023	2/24/2017	108.96399	107.395762	105.8589595	104.3527109	102.8761782	101.4285532	100.0090569	98.61693745	97.25146968
170301A00031	3/1/2017	2.11	3/1/2024	3/1/2017	107.86827	106.4360097	105.0368547	103.6697502	102.3336858	101.0276916	99.75083674	98.50222704	97.28100334
170303A00004	3/3/2017	2.8	3/4/2024	3/3/2017	115.86891	113.1251613	110.4627405	107.8787346	105.3703525	102.9349211	100.5698794	98.27277312	96.0412494

	Parallel-Shift Sensitivity Analysis												
8/31/2021					Price								
REFERENCE	SETTLEMENT	Rate	MATURITY	First/Next	-400	-300	-200	-100	Base	100	200	300	400
170307A00013	3/7/2017	2.33	3/7/2024	3/7/2017	108.21012	106.732792	105.2902003	103.8812271	102.5048025	101.1599	99.84553399	98.56075824	97.30466352
170124A00017	1/24/2017	2.82	1/23/2032	1/24/2017	134.5095	127.263119	120.5519849	114.330327	108.5566902	103.1934951	98.20664671	93.5651861	89.24097841
170126A00003	1/26/2017	2.86	1/26/2027	1/26/2017	130.04269	124.2859593	118.8414232	113.6901614	108.8145071	104.197957	99.82508747	95.681479	91.75364503
170126A00004	1/26/2017	2.13	1/26/2022	1/26/2017	102.44309	102.0226457	101.6056702	101.1921199	100.7819528	100.3751273	99.97160264	99.57133862	99.17429575
170201A00016	2/1/2017	2.49	2/1/2024	2/1/2017	114.93413	112.2974662	109.7365144	107.2486566	104.8313775	102.4822644	100.1990018	97.9793676	95.82122797
170207A00055	2/7/2017	2.36	2/8/2027	2/7/2017	117.3573	113.9953678	110.7749928	107.6889425	104.7304095	101.8929831	99.17062304	96.55763591	94.04865251
170221A00028	2/21/2017	2.31	2/18/2022	2/21/2017	102.87783	102.3892164	101.9052645	101.4259061	100.9510758	100.4807095	100.0147444	99.55311872	99.09577189
161229A00019	12/29/2016	2.46	12/29/2026	12/29/2016	117.17989	113.9223592	110.7985367	107.801739	104.9256689	102.1643894	99.51230042	96.96411714	94.5148502
170105A00010	1/5/2017	2.61	1/5/2027	1/5/2017	117.39239	114.0894627	110.9234839	107.8875567	104.9751799	102.1802261	99.49691799	96.9198058	94.44374634
170105A00012	1/5/2017	2.68	1/5/2024	1/5/2017	114.61695	112.0693262	109.5926898	107.1846553	104.8429335	102.5653252	100.3497174	98.19407887	96.09645694
170106A00030	1/6/2017	2.39	1/6/2027	1/6/2017	117.20463	113.8974921	110.7277984	107.6886045	104.773373	101.975943	99.29050665	96.71158571	94.23401105
170112A00015	1/12/2017	2.32	1/12/2027	1/12/2017	116.98301	113.6817574	110.5177289	107.483989	104.5740093	101.7816377	99.10107461	96.52684982	94.0538017
170120A00028	1/20/2017	2.34	1/20/2022	1/20/2017	102.3902	101.9874113	101.5878119	101.1913642	100.7980309	100.4077754	100.0205613	99.63635318	99.2551159
161202A00001	12/2/2016	2.65	12/1/2023	12/2/2016	114.00174	111.5620155	109.1885417	106.878991	104.6311422	102.442872	100.3121498	98.23703218	96.21565902
161207A00014	12/7/2016	2.75	12/8/2031	12/7/2016	133.77305	126.6237835	119.9987255	113.8533607	108.1473405	102.8440637	97.9103018	93.31586272	89.03329106
161214A00034	12/14/2016	2.65	12/14/2026	12/14/2016	117.26722	114.0173341	110.9004877	107.9100513	105.0397732	102.2837582	99.63644505	97.09258496	94.64722192
161222A00013	12/22/2016	2.93	12/22/2026	12/22/2016	129.99737	124.3309307	118.9671748	113.8879968	109.0764774	104.5168003	100.1941737	96.09475827	92.20560097
161227A00073	12/27/2016	2.83	12/28/2026	12/27/2016	126.65745	121.6035861	116.8097846	112.2608227	107.9424563	103.8413558	99.94504169	96.24182587	92.72075702
161229A00018	12/29/2016	2.46	12/29/2026	12/29/2016	117.1799	113.9223655	110.7985415	107.8017423	104.9256708	102.16439	99.51229977	96.96411533	94.51484729
161014A00019	10/14/2016	2.39	10/15/2031	10/14/2016	129.9007	123.0933103	116.7766171	110.9096042	105.4550373	100.37909	95.65100635	91.24280011	87.12898463
161014A00026	10/14/2016	2.16	10/14/2031	10/14/2016	129.40799	122.6013839	116.2866612	110.4226184	104.9718585	99.90041397	95.17740671	90.77474468	86.66684989
161014A00029	10/14/2016	2.51	10/15/2031	10/14/2016	131.68087	124.7551165	118.3298446	112.3631306	106.8169243	101.6566647	96.85093411	92.37114989	88.19128711
161102A00014	11/2/2016	1.99	11/2/2023	11/2/2016	112.03511	109.7105417	107.4473362	105.2434069	103.096756	101.0054708	98.96771897	96.98174438	95.04586343
161116A00006	11/16/2016	2.39	11/16/2026	11/16/2016	116.2133	113.0419681	109.998769	107.0773842	104.2718583	101.5765725	98.98622284	96.49580029	94.10057248
161128A00006	11/28/2016	1.93	11/29/2021	11/28/2016	101.42977	101.1769824	100.9254541	100.6751786	100.4261464	100.1783484	99.93177547	99.68641848	99.44226848
160923A00009	9/23/2016	2.24	9/23/2031	9/23/2016	128.71726	122.0259419	115.8134478	110.0400205	104.6695515	99.66921533	95.00914747	90.66215552	86.60346048
160930A00025	9/30/2016	1.66	9/30/2027	9/30/2016	116.55705	112.8670127	109.3464332	105.985958	102.7768203	99.7108006	96.7801888	93.97774891	91.29668675
161004A00070	10/4/2016	1.92	10/4/2023	10/4/2016	111.47856	109.2432192	107.0652934	104.9428974	102.8742209	100.8575275	98.89115103	96.97349163	95.10301299
161005A00016	10/5/2016	2.32	10/6/2031	10/5/2016	129.44832	122.6648582	116.3703333	110.5238819	105.0884064	100.0302038	95.31863015	90.92580079	86.82632131
161005A00031	10/5/2016	1.43	10/5/2021	10/5/2016	100.47339	100.3825789	100.2919325	100.2014543	100.1111439	100.0210008	99.9310245	99.84121455	99.75157049
161012A00011	10/12/2016	1.53	10/12/2023	10/12/2016	106.36105	105.0852026	103.8380356	102.6186202	101.4260714	100.2595414	99.11821741	98.00132016	96.90810183
160908A00032	9/8/2016	2.17	9/8/2026	9/8/2016	124.04642	118.8741071	113.966129	109.3073022	104.8834042	100.6811057	96.68791006	92.89209639	89.28266703
160908A00033	9/8/2016	2.17	9/8/2026	9/8/2016	124.04642	118.8741071	113.966129	109.3073022	104.8834042	100.6811057	96.68791006	92.89209639	89.28266703

	Parallel-Shift Sensitivity Analysis												
8/31/2021					Price								
REFERENCE	SETTLEMENT	Rate	MATURITY	First/Next	-400	-300	-200	-100	Base	100	200	300	400
160908A00034	9/8/2016	2.17	9/8/2026	9/8/2016	124.04642	118.8741071	113.966129	109.3073022	104.8834042	100.6811057	96.68791006	92.89209639	89.28266703
160908A00035	9/8/2016	2.3	9/8/2031	9/8/2016	129.09767	122.3872002	116.1568563	110.3667842	104.9807822	99.9659395	95.29231352	90.93264016	86.86207467
160908A00036	9/8/2016	2.3	9/8/2031	9/8/2016	129.09769	122.3872133	116.1568652	110.3667894	104.9807839	99.96593804	95.29230921	90.93263326	86.86206542
160908A00037	9/8/2016	1.4	9/8/2023	9/8/2016	106.74095	105.358041	104.0058257	102.6833603	101.3897409	100.1240989	98.88559963	97.67344026	96.48684865
160908A00025	9/8/2016	2.21	9/8/2026	9/8/2016	125.38005	119.9331191	114.7690296	109.8713954	105.2248727	100.8150875	96.62856789	92.6526832	88.87558647
160908A00026	9/8/2016	2.21	9/8/2026	9/8/2016	125.38005	119.9331191	114.7690296	109.8713954	105.2248727	100.8150875	96.62856789	92.6526832	88.87558647
160908A00027	9/8/2016	2.21	9/8/2026	9/8/2016	125.38006	119.9331242	114.7690332	109.8713974	105.2248734	100.8150869	96.62856616	92.65268041	88.87558272
160908A00028	9/8/2016	2.21	9/8/2026	9/8/2016	125.38006	119.9331242	114.7690332	109.8713974	105.2248734	100.8150869	96.62856616	92.65268041	88.87558272
160908A00030	9/8/2016	2.21	9/8/2026	9/8/2016	125.38005	119.9331191	114.7690296	109.8713954	105.2248727	100.8150875	96.62856789	92.6526832	88.87558647
160908A00031	9/8/2016	2.21	9/8/2026	9/8/2016	125.38005	119.9331191	114.7690296	109.8713954	105.2248727	100.8150875	96.62856789	92.6526832	88.87558647
160908A00016	9/8/2016	1.87	9/8/2023	9/8/2016	110.89796	108.7650264	106.6854884	104.6576467	102.6798681	100.7505831	98.86828366	97.03151936	95.23889537
160908A00017	9/8/2016	1.87	9/8/2023	9/8/2016	110.89796	108.7650264	106.6854884	104.6576467	102.6798681	100.7505831	98.86828366	97.03151936	95.23889537
160908A00019	9/8/2016	1.87	9/8/2023	9/8/2016	110.89796	108.7650264	106.6854884	104.6576467	102.6798681	100.7505831	98.86828366	97.03151936	95.23889537
160908A00022	9/8/2016	2.21	9/8/2026	9/8/2016	125.38006	119.9331242	114.7690332	109.8713974	105.2248734	100.8150869	96.62856616	92.65268041	88.87558272
160908A00023	9/8/2016	2.21	9/8/2026	9/8/2016	125.38005	119.9331191	114.7690296	109.8713954	105.2248727	100.8150875	96.62856789	92.6526832	88.87558647
160908A00024	9/8/2016	2.21	9/8/2026	9/8/2016	125.38005	119.9331191	114.7690296	109.8713954	105.2248727	100.8150875	96.62856789	92.6526832	88.87558647
160810A00035	8/10/2016	2.1	8/10/2026	8/10/2016	123.39895	118.3215763	113.5001751	108.9202527	104.5682154	100.431311	96.4975718	92.75576257	89.19533144
160812A00006	8/12/2016	2.16	8/12/2026	8/12/2016	124.50758	119.3705695	114.4932324	109.8608193	105.4595048	101.2763214	97.29910214	93.51642672	89.91757141
160824A00019	8/24/2016	1.98	8/25/2031	8/24/2016	127.8252	121.210235	115.0663057	109.3544898	104.0394208	99.08893354	94.47375085	90.16720324	86.14497749
160906A00027	9/6/2016	2.03	9/8/2031	9/6/2016	128.35411	121.6576908	115.4416046	109.6658978	104.2942817	99.29377346	94.63437053	90.28875962	86.23205588
160907A00041	9/7/2016	1.83	9/7/2023	9/7/2016	110.90778	108.7574136	106.6609502	104.6166737	102.6229363	100.6781545	98.78080648	96.92942865	95.12261333
160907A00049	9/7/2016	1.41	9/9/2024	9/7/2016	108.37906	106.6190341	104.9058161	103.2377689	101.6133253	100.0309852	98.48931204	96.9869297	95.52251946
160802A00026	8/2/2016	1.84	8/2/2023	8/2/2016	110.42685	108.3848379	106.3918133	104.4462934	102.5468479	100.6920997	98.88072189	97.11143632	95.38301092
160810A00025	8/10/2016	2.17	8/10/2026	8/10/2016	124.843	119.4933233	114.4176094	109.6002111	105.0264634	100.6826133	96.55575897	92.63379183	88.90534398
160810A00027	8/10/2016	2.13	8/10/2026	8/10/2016	123.54547	118.4630365	113.6368094	109.0522842	104.6958553	100.554759	96.61701718	92.87138455	89.30729987
160810A00028	8/10/2016	2.19	8/10/2026	8/10/2016	125.60446	120.0960293	114.8721123	109.9163876	105.21356	100.7492887	96.51012211	92.48343857	88.65739047
160810A00029	8/10/2016	2.17	8/10/2026	8/10/2016	124.843	119.4933233	114.4176094	109.6002111	105.0264634	100.6826133	96.55575897	92.63379183	88.90534398
160810A00030	8/10/2016	2.24	8/11/2031	8/10/2016	128.49724	121.8722964	115.7178416	109.9950965	104.6688094	99.7069122	95.08021005	90.76210267	86.7283349
160705A00008	7/5/2016	1.7	7/6/2026	7/5/2016	120.27933	115.7298082	111.3984265	107.2732652	103.3431287	99.59749386	96.02646573	92.62073685	89.37154909
160705A00010	7/5/2016	1.68	7/5/2023	7/5/2016	109.72629	107.7724476	105.86379	103.9990001	102.1768056	100.3959795	98.65533801	96.95373891	95.29007963
160711A00004	7/11/2016	1.51	7/13/2026	7/11/2016	113.195	110.2913853	107.499039	104.8127281	102.2275032	99.7386835	97.3418399	95.03277993	92.80753334
160713A00015	7/13/2016	1.57	7/13/2026	7/13/2016	113.36475	110.456792	107.660273	104.9699476	102.380859	99.88831944	97.48789317	95.17538148	92.94680823
160719A00026	7/19/2016	1.87	7/20/2026	7/19/2016	113.79473	110.882796	108.0822456	105.3878483	102.7946573	100.2979938	97.89343021	95.57677516	93.34405897

	Parallel-Shift Sensitivity Analysis												
8/31/2021					Price								
REFERENCE	SETTLEMENT	Rate	MATURITY	First/Next	-400	-300	-200	-100	Base	100	200	300	400
160801A00002	8/1/2016	1.58	8/3/2026	8/1/2016	113.60039	110.6382858	107.7912638	105.0538451	102.4208536	99.88739641	97.44884675	95.10082733	92.83919523
160608A00029	6/8/2016	2.36	6/8/2026	6/8/2016	125.12001	119.9298658	114.9975505	110.3086668	105.849712	101.6080134	97.57167153	93.72950895	90.07102144
160608A00030	6/8/2016	2.36	6/8/2026	6/8/2016	125.12001	119.9298658	114.9975505	110.3086668	105.849712	101.6080134	97.57167153	93.72950895	90.07102144
160608A00033	6/8/2016	2.44	6/9/2031	6/8/2016	129.23156	122.6802968	116.5872355	110.9151367	105.6301108	100.7012888	96.10053075	91.80216486	87.78275287
160608A00034	6/8/2016	2.44	6/9/2031	6/8/2016	129.23153	122.6802746	116.5872197	110.9151268	105.6301064	100.7012893	96.10053582	91.80217411	87.78276595
160616A00029	6/16/2016	1.58	6/16/2026	6/16/2016	113.18403	110.3289656	107.5817936	104.9374925	102.3913158	99.93877208	97.57560956	95.29780142	93.10153241
160629A00066	6/29/2016	2.61	6/30/2036	6/29/2016	164.75451	147.5909739	132.602372	119.4900543	107.9985233	97.90894893	89.0336923	81.21167507	74.30446014
160608A00022	6/8/2016	1.91	6/8/2023	6/8/2016	109.69024	107.8285806	106.0088852	104.2298443	102.4902004	100.7887478	99.12432961	97.49583535	95.90219854
160608A00023	6/8/2016	2.36	6/8/2026	6/8/2016	125.12002	119.9298754	114.9975574	110.3086712	105.849714	101.6080132	97.57166935	93.72950489	90.07101564
160608A00024	6/8/2016	2.36	6/8/2026	6/8/2016	125.12001	119.9298658	114.9975505	110.3086668	105.849712	101.6080134	97.57167153	93.72950895	90.07102144
160608A00025	6/8/2016	2.36	6/8/2026	6/8/2016	125.12001	119.9298658	114.9975505	110.3086668	105.849712	101.6080134	97.57167153	93.72950895	90.07102144
160608A00027	6/8/2016	2.36	6/8/2026	6/8/2016	125.12001	119.9298658	114.9975505	110.3086668	105.849712	101.6080134	97.57167153	93.72950895	90.07102144
160608A00028	6/8/2016	2.36	6/8/2026	6/8/2016	125.12001	119.9298658	114.9975505	110.3086668	105.849712	101.6080134	97.57167153	93.72950895	90.07102144
160603A00014	6/3/2016	1.74	6/3/2026	6/3/2016	113.62619	110.7608133	108.0036727	105.3497341	102.7942369	100.3326762	97.9607877	95.67453262	93.47008447
160603A00029	6/3/2016	2.18	6/3/2031	6/3/2016	128.6371	122.0908409	116.0036342	110.3380961	105.0602045	100.1389757	95.54617095	91.25603361	87.24505233
160606A00018	6/6/2016	1.74	6/5/2026	6/6/2016	113.62666	110.7611478	108.0038856	105.3498363	102.7942386	100.332587	97.96061648	95.67428778	93.46977382
160608A00019	6/8/2016	2.36	6/8/2026	6/8/2016	125.12001	119.9298658	114.9975505	110.3086668	105.849712	101.6080134	97.57167153	93.72950895	90.07102144
160608A00020	6/8/2016	2.36	6/8/2026	6/8/2016	125.12001	119.9298658	114.9975505	110.3086668	105.849712	101.6080134	97.57167153	93.72950895	90.07102144
160608A00021	6/8/2016	1.91	6/8/2023	6/8/2016	109.69024	107.8285806	106.0088852	104.2298443	102.4902004	100.7887478	99.12432961	97.49583535	95.90219854
160504A00022	5/4/2016	2	5/4/2023	5/4/2016	109.44507	107.6682172	105.9299544	104.2290825	102.564457	100.9349805	99.3396	97.77730488	96.24712467
160511A00015	5/11/2016	2.42	5/11/2026	5/11/2016	125.02192	119.9118803	115.0522942	110.4293305	106.0300082	101.8421375	97.85426663	94.05563255	90.43611517
160511A00016	5/11/2016	2.48	5/12/2031	5/11/2016	129.31557	122.8131577	116.7621592	111.1261442	105.8719355	100.9692938	96.39063565	92.11078129	88.10672741
160523A00086	5/23/2016	2.2	5/26/2026	5/23/2016	123.82513	118.9096047	114.2336194	109.7839316	105.5481119	101.5144926	97.67211576	94.01068576	90.52052465
160524A00028	5/24/2016	2.06	5/24/2023	5/24/2016	109.82694	107.9901596	106.1942458	104.4378939	102.7198581	101.0389455	99.39401328	97.78396605	96.20775338
160524A00101	5/24/2016	2.98	5/23/2031	5/24/2016	150.61602	139.1714214	128.7626128	119.2879371	110.6563274	102.7861423	95.60413936	89.04456582	83.04835203
160413A00021	4/13/2016	2.48	4/13/2026	4/13/2016	124.96398	119.9324612	115.1441437	110.5857882	106.2449579	102.1099616	98.16980517	94.41414534	90.83324745
160413A00033	4/13/2016	2.32	4/13/2026	4/13/2016	121.03203	116.7394931	112.6440808	108.735366	105.0035356	101.4393545	98.03412831	94.77966786	91.66825693
160414A00042	4/13/2016	2.48	4/13/2026	4/13/2016	124.96398	119.9324612	115.1441437	110.5857882	106.2449579	102.1099616	98.16980517	94.41414534	90.83324745
160421A00016	4/21/2016	2.26	4/21/2026	4/21/2016	123.71393	118.889159	114.2955626	109.9205828	105.7524198	101.7799832	97.9928441	94.38119215	90.93579475
160427A00004	4/27/2016	2.09	4/27/2026	4/27/2016	113.70639	110.9423158	108.2795251	105.7134339	103.2396985	100.8542026	98.55304474	96.33252475	94.18913245
160428A00028	4/28/2016	2	4/28/2026	4/28/2016	113.89382	111.1177407	108.4436113	105.8668072	103.382947	100.9878798	98.67767143	96.44859134	94.29710091
160404A00019	4/4/2016	2.48	4/4/2031	4/4/2016	129.08098	122.6454035	116.6531373	111.0686721	105.8596413	100.9965247	96.45237678	92.20258418	88.22464648
160412A00029	4/12/2016	2.48	4/14/2031	4/12/2016	129.08231	122.646287	116.6536505	111.0688769	105.8595909	100.9962644	96.45194553	92.20201515	88.22396797

	Parallel-Shift Sensitivity Analysis												
8/31/2021					Price								
REFERENCE	SETTLEMENT	Rate	MATURITY	First/Next	-400	-300	-200	-100	Base	100	200	300	400
160413A00014	4/13/2016	2.55	4/14/2031	4/13/2016	129.51009	123.0528168	117.0403885	111.4371676	106.2106723	101.3312772	96.77194168	92.50796551	88.5167693
160413A00016	4/13/2016	2.55	4/14/2031	4/13/2016	129.51009	123.052817	117.0403886	111.4371677	106.2106723	101.3312772	96.7719416	92.5079654	88.51676916
160413A00018	4/13/2016	1.78	4/13/2026	4/13/2016	113.29842	110.5377523	107.8784177	105.3158208	102.8456095	100.4636607	98.16606612	95.94911987	93.80930641
160413A00020	4/13/2016	2.48	4/13/2026	4/13/2016	124.96398	119.9324612	115.1441437	110.5857882	106.2449579	102.1099616	98.16980517	94.41414534	90.83324745
160301A00012	3/1/2016	2.02	3/1/2023	3/1/2016	108.52421	106.9370569	105.3820034	103.8581499	102.3646333	100.9006213	99.465312	98.05793191	96.67773489
160303A00035	3/3/2016	2.14	3/3/2026	3/3/2016	113.62813	110.9081909	108.2872797	105.7609629	103.3250334	100.975502	98.70858385	96.52068716	94.4084018
160307A00024	3/7/2016	2.17	3/6/2026	3/7/2016	113.71077	110.995991	108.3791757	105.8559455	103.4221529	101.0738658	98.807354	96.61907801	94.5056776
160328A00038	3/28/2016	2.54	3/30/2026	3/28/2016	124.0379	119.2742649	114.7358908	110.4107045	106.2873496	102.3551417	98.60402537	95.0245329	91.60774663
160329A00017	3/29/2016	2.48	3/30/2026	3/29/2016	123.76449	119.0095911	114.4795764	110.162388	106.0466877	102.1218086	98.37771141	94.80494396	91.39460309
160401A00005	4/1/2016	2.02	4/3/2023	4/1/2016	109.01291	107.3293717	105.6810695	104.0669648	102.4860599	100.9373958	99.4200501	97.9331355	96.47579799
160210A00049	2/10/2016	1.78	2/10/2026	2/10/2016	112.85455	110.2015287	107.6430078	105.174814	102.7929878	100.4937726	98.27360395	96.12909739	94.0570386
160210A00051	2/10/2016	2.28	2/10/2031	2/10/2016	128.3357	122.0236326	116.1407288	110.6530314	105.5295584	100.7420204	96.26456749	92.0735608	88.14736768
160210A00054	2/10/2016	1.78	2/10/2026	2/10/2016	112.85456	110.2015355	107.6430126	105.1748171	102.792989	100.4937723	98.27360206	96.12909404	94.05703387
160211A00038	2/11/2016	1.83	2/11/2026	2/11/2016	112.60097	109.9603069	107.4135183	104.9564664	102.5852249	100.2960685	98.08546154	95.9500471	93.88663639
160212A00006	2/12/2016	1.57	2/13/2023	2/12/2016	104.27111	103.4188256	102.582052	101.7603428	100.9532711	100.1604271	99.38141635	98.61585993	97.86339304
160212A00047	2/12/2016	1.94	2/12/2026	2/12/2016	112.88461	110.2372489	107.6840107	105.2207399	102.8434997	100.5485551	98.33236133	96.19155255	94.12293169
160119A00072	1/19/2016	2.77	1/21/2031	1/19/2016	131.24057	124.5585963	118.3438465	112.5583802	107.1676591	102.1402149	97.44735497	93.06289795	88.96293604
160126A00004	1/26/2016	2.52	1/26/2026	1/26/2016	125.57582	120.6064677	115.8700238	111.354265	107.0476745	102.9393983	99.01920334	95.27743906	91.70500085
160201A00016	2/1/2016	2.1	2/2/2026	2/1/2016	113.2673	110.612176	108.0513906	105.5807862	103.1964194	100.8945489	98.67162366	96.52427178	94.44929034
160203A00017	2/3/2016	2.07	2/3/2023	2/3/2016	108.19677	106.6934589	105.2191092	103.7729558	102.3542557	100.9622916	99.59637062	98.25582329	96.9400027
160209A00006	2/9/2016	1.91	2/9/2026	2/9/2016	112.80645	110.1611266	107.6098418	105.1484441	102.7730008	100.4797809	98.26524317	96.12602541	94.05893375
160209A00008	2/9/2016	2.45	2/10/2031	2/9/2016	128.36942	122.0795811	116.2162599	110.7457893	105.6374419	100.863155	96.39728048	92.2163597	88.29892064
151223A00078	12/23/2015	2.28	12/23/2025	12/23/2015	113.65654	111.0813066	108.5950727	106.1940037	103.8744574	101.6329752	99.46627144	97.37122357	95.34486282
151228A00013	12/28/2015	2.27	12/29/2025	12/28/2015	113.63336	111.0582514	108.5721574	106.1712423	103.851863	101.6105599	99.44404644	97.34919925	95.32304865
151229A00026	12/29/2015	2.28	12/29/2025	12/29/2015	113.65833	111.0826572	108.5960179	106.1945762	103.8746881	101.6328933	99.46590458	97.37059778	95.3440026
160104A00020	1/4/2016	2.47	1/4/2023	1/4/2016	108.28008	106.8612861	105.4683986	104.1007637	102.75775	101.4387467	100.1431625	98.8704252	97.61998088
160106A00042	1/6/2016	2.43	1/6/2026	1/6/2016	113.90224	111.2802323	108.749997	106.30754	103.9490707	101.6709913	99.46988466	97.34250452	95.28576553
160115A00011	1/15/2016	2.18	1/15/2026	1/15/2016	113.24295	110.635918	108.120155	105.6916881	103.3467464	101.0817506	98.89330149	96.77816969	94.73328605
151204A00011	12/4/2015	2.28	12/4/2025	12/4/2015	113.65088	111.0770331	108.5920803	106.19219	103.8737253	101.6332328	99.46743193	97.37320509	95.3475882
151209A00024	12/9/2015	2.22	12/9/2025	12/9/2015	113.50272	110.931884	108.4498533	106.0528006	103.7370923	101.4992781	99.33608052	97.24438467	95.22122916
151210A00011	12/10/2015	2.16	12/12/2022	12/10/2015	104.3662	103.5973575	102.8427023	102.1017984	101.3742321	100.6596074	99.95754448	99.26767918	98.58966208
151215A00039	12/15/2015	2.46	12/15/2025	12/15/2015	113.73138	111.1612058	108.6796593	106.282923	103.9673769	101.7295837	99.56627735	97.47435381	95.45086156
151216A00006	12/16/2015	2.3	12/16/2021	12/16/2015	101.79015	101.487759	101.1871798	100.8883959	100.5913911	100.2961495	100.0026553	99.71089287	99.42084689

	Parallel-Shift Sensitivity Analysis												
8/31/2021					Price								
REFERENCE	SETTLEMENT	Rate	MATURITY	First/Next	-400	-300	-200	-100	Base	100	200	300	400
151223A00036	12/23/2015	2.64	12/23/2025	12/23/2015	117.1246	113.9019976	110.806866	107.8331539	104.9751392	102.2274077	99.58483394	97.04256483	94.59600288
151118A00025	11/18/2015	2.4	11/18/2022	11/18/2015	107.44547	106.1372218	104.8613949	103.6167917	102.4022697	101.2167417	100.0591724	98.9285756	97.82401093
151118A00037	11/18/2015	2.75	11/18/2025	11/18/2015	121.24513	117.2688105	113.46215	109.8167094	106.3245285	102.9780943	99.77031227	96.69448022	93.74426395
151120A00019	11/20/2015	2.72	11/20/2030	11/20/2015	130.21496	123.9772438	118.1536465	112.7121223	107.6233718	102.8605906	98.39923836	94.21683136	90.29275541
151124A00007	11/24/2015	1.98	11/23/2022	11/24/2015	103.90576	103.1845459	102.4761518	101.7802018	101.0963316	100.424192	99.76344817	99.11377837	98.47487381
151125A00037	11/25/2015	2.41	11/25/2025	11/25/2015	113.36248	110.8482343	108.4193815	106.0722893	103.8035119	101.609775	99.48796622	97.43512562	95.44843732
151201A00004	12/1/2015	2.44	12/1/2022	12/1/2015	107.84111	106.4694874	105.1326445	103.8292636	102.5580948	101.3179499	100.1076984	98.92626447	97.77262333
151013A00033	10/13/2015	2.23	10/14/2025	10/13/2015	112.6814	110.231087	107.8626403	105.5726298	103.357797	101.2150432	99.14142112	97.13412589	95.19048741
151029A00008	10/29/2015	2.28	10/29/2025	10/29/2015	112.80513	110.351112	107.9791308	105.685751	103.4677045	101.3218837	99.24533313	97.23524011	95.28892733
151030A00004	10/30/2015	2.48	10/30/2025	10/30/2015	120.56386	116.6421257	112.8863441	109.2883377	105.840385	102.5351931	99.36587164	96.32590754	93.40914183
151030A00026	10/30/2015	3.29	10/30/2030	10/30/2015	148.26694	138.0955098	128.7783	120.2366329	112.3995726	105.2031183	98.58948741	92.50647652	86.90689172
151102A00024	11/2/2015	2.37	11/2/2022	11/2/2015	107.26366	105.9842652	104.7355912	103.5165429	102.3260726	101.1631818	100.0269178	98.9163715	97.83067483
151113A00035	11/13/2015	1.8	11/14/2022	11/13/2015	103.85751	103.1375094	102.4302658	101.7354053	101.0525672	100.3814059	99.72158953	99.0727994	98.43472947
150929A00076	9/29/2015	2.28	9/29/2025	9/29/2015	112.56388	110.1630188	107.8411444	105.5949871	103.421441	101.3175512	99.28050572	97.3076268	95.39636409
150929A00083	9/29/2015	2.09	9/29/2025	9/29/2015	112.46721	110.0627239	107.7374987	105.4882498	103.311855	101.2053438	99.16588975	97.19080171	95.27751678
150929A00087	9/29/2015	2.09	9/29/2025	9/29/2015	112.46721	110.0627239	107.7374987	105.4882498	103.311855	101.2053438	99.16588975	97.19080171	95.27751678
151001A00023	10/1/2015	2.02	10/1/2025	10/1/2015	112.53124	110.0792293	107.7092633	105.4178986	103.2018658	101.058056	98.98351254	96.97542172	95.03110521
151005A00084	10/5/2015	2.25	10/5/2022	10/5/2015	106.65117	105.4623101	104.3001158	103.1636995	102.0522086	100.9648277	99.90077652	98.85930843	97.83970821
151006A00050	10/6/2015	2.21	10/6/2022	10/6/2015	103.78232	103.1128955	102.4544596	101.8067106	101.1693606	100.5421324	99.92475928	99.31698431	98.71855995
150824A00033	8/24/2015	2.22	8/25/2025	8/24/2015	112.18342	109.8388442	107.5701296	105.3741802	103.2480524	101.1889442	99.19418732	97.26123959	95.38767829
150824A00050	8/24/2015	2.03	8/25/2025	8/24/2015	112.08858	109.7404822	107.4685079	105.2695471	103.1406405	101.0789716	99.08185818	97.14674555	95.27119905
150825A00008	8/25/2015	2.82	8/25/2025	8/25/2015	122.52372	118.3606692	114.3732104	110.5528658	106.8916147	103.381868	100.0164424	96.78853655	93.69170835
150828A00018	8/28/2015	1.7	8/29/2022	8/28/2015	102.83393	102.3020161	101.7770892	101.2589984	100.7475949	100.2427346	99.74427782	99.25208891	98.76603639
150911A00007	9/10/2015	2.51	9/9/2022	9/10/2015	106.49231	105.3834899	104.297911	103.234844	102.1935922	101.1734875	100.1738887	99.19418044	98.23377169
150925A00034	9/25/2015	2.36	9/25/2025	9/25/2015	112.74952	110.3449948	108.0195623	105.7699498	103.5930479	101.4858986	99.44568619	97.46973001	95.55547662
150803A00041	8/3/2015	3.01	8/2/2030	8/3/2015	130.14751	124.1028592	118.4486953	113.1555547	108.1964445	103.5466152	99.18335917	95.08582687	91.23486189
150803A00042	8/3/2015	3.01	8/2/2030	8/3/2015	130.14753	124.1028795	118.4487099	113.1555641	108.1964491	103.5466156	99.18335571	95.08581992	91.2348518
150804A00022	8/4/2015	2.37	8/4/2022	8/4/2015	105.74029	104.7452241	103.7689837	102.8110374	101.8708733	100.9479988	100.0419389	99.15223639	98.27845015
150805A00015	8/5/2015	2.29	8/5/2022	8/5/2015	105.79083	104.790997	103.8101635	102.847789	101.9033548	100.9763617	100.0663287	99.17279235	98.29530618
150812A00052	8/14/2015	2.13	8/14/2025	8/14/2015	112.31359	109.961589	107.6857913	105.4830904	103.3505255	101.2852789	99.28466705	97.34613371	95.46724279
150814A00029	8/14/2015	2.39	8/14/2025	8/14/2015	112.56821	110.2164138	107.9406672	105.7378714	103.6050777	101.5394787	99.53840083	97.59929704	95.7197397
150803A00033	8/3/2015	3.41	8/2/2030	8/3/2015	148.35065	138.39579	129.2585267	120.8652259	113.1493345	106.0506601	99.51472879	93.49221103	87.93840837
150803A00036	8/3/2015	3.41	8/2/2030	8/3/2015	148.35065	138.39579	129.2585267	120.8652259	113.1493345	106.0506601	99.51472879	93.49221103	87.93840838

	Parallel-Shift Sensitivity Analysis												
8/31/2021					Price								
REFERENCE	SETTLEMENT	Rate	MATURITY	First/Next	-400	-300	-200	-100	Base	100	200	300	400
150803A00037	8/3/2015	3.41	8/2/2030	8/3/2015	148.35061	138.3957642	129.2585087	120.8652147	113.1493293	106.0506601	99.51473334	93.4922195	87.93842024
150803A00038	8/3/2015	3.41	8/2/2030	8/3/2015	148.35065	138.39579	129.2585267	120.8652259	113.1493345	106.0506601	99.51472879	93.49221103	87.93840838
150803A00039	8/3/2015	3.01	8/2/2030	8/3/2015	130.14752	124.1028721	118.4487047	113.155561	108.1964479	103.546616	99.18335755	95.08582304	91.23485603
150803A00040	8/3/2015	3.01	8/2/2030	8/3/2015	130.14757	124.1029045	118.4487286	113.1555771	108.1964568	103.5466184	99.18335392	95.08581392	91.2348419
150701A00056	7/1/2015	2.34	7/1/2025	7/1/2015	112.53647	110.2289488	107.9949065	105.8313838	103.7355656	101.7047705	99.73644385	97.82815063	95.97756892
150714A00003	7/14/2015	3.76	7/12/2030	7/14/2015	135.20783	128.9499745	123.094486	117.6111553	112.4722885	107.6524838	103.1284248	98.87869512	94.88360921
150722A00033	7/22/2015	2.47	7/22/2025	7/22/2015	112.50173	110.1987419	107.9690198	105.8096165	103.7177264	101.6906774	99.72592351	97.82103771	95.97370582
150722A00035	7/22/2015	2.92	7/22/2025	7/22/2015	122.47219	118.3973415	114.4907508	110.7444713	107.1509741	103.7031263	100.3941678	97.21768963	94.16761422
150729A00028	7/29/2015	2.25	7/29/2025	7/29/2015	112.34435	110.0387029	107.806575	105.6450051	103.5511715	101.5223869	99.55609129	97.64984476	95.80132092
150729A00041	7/29/2015	2.44	7/29/2025	7/29/2015	112.43696	110.1347776	107.9058634	105.7472674	103.6561828	101.6299364	99.66598107	97.76188906	95.91534538
150615A00024	6/15/2015	2.26	6/16/2025	6/15/2015	112.11323	109.8611536	107.6796543	105.5659248	103.5172906	101.5312037	99.60523545	97.73707028	95.92449938
150617A00017	6/17/2015	2.27	6/17/2025	6/17/2015	112.13546	109.8828619	107.7008608	105.5866482	103.5375489	101.551014	99.62461427	97.75603342	95.94306199
150617A00018	6/17/2015	2.45	6/17/2025	6/17/2015	112.20424	109.955455	107.7770133	105.6661173	103.6201062	101.6364451	99.71271735	97.84661869	96.03595084
150617A00030	6/17/2015	2.91	6/16/2025	6/17/2015	121.95306	117.9842199	114.1758956	110.5205961	107.0112254	103.6410606	100.4037297	97.29319084	94.30371346
150617A00036	6/17/2015	2.44	6/15/2022	6/17/2015	104.89727	104.0655071	103.2470917	102.4416998	101.6490209	100.8687546	100.1006095	99.34430352	98.5995633
150624A00077	6/24/2015	2.54	6/24/2022	6/24/2015	105.12343	104.264328	103.419427	102.5883803	101.7708476	100.9665	100.175019	99.39609654	98.62943409
150420A00012	4/20/2015	2.07	4/20/2022	4/20/2015	103.74338	103.0736351	102.4125658	101.760008	101.1157976	100.479775	99.85178437	99.23167394	98.61929575
150427A00014	4/27/2015	2.98	4/27/2035	4/27/2015	144.70766	134.5652937	125.3777717	117.0423776	109.4684404	102.5758244	96.29362217	90.55901809	85.31630005
150529A00055	5/29/2015	1.78	5/31/2022	5/29/2015	102.34396	101.9052672	101.4713056	101.0419935	100.6172479	100.1969876	99.78113346	99.36960856	98.96233764
150603A00012	6/3/2015	2.77	6/3/2030	6/3/2015	129.19939	123.2869227	117.7510629	112.5637694	107.6993197	103.1341042	98.8464373	94.81638698	91.02562028
150603A00032	6/3/2015	2.21	6/3/2025	6/3/2015	111.99942	109.7506013	107.5722163	105.4614644	103.4156768	101.4323109	99.50894335	97.64326381	95.83306845
150604A00039	6/4/2015	2.82	6/4/2030	6/4/2015	129.4789	123.5536283	118.0057873	112.8072694	107.9322961	103.3572063	99.06026731	95.02150353	91.22254213
150227A00011	2/27/2015	2.33	2/27/2025	2/27/2015	117.38062	114.0819456	110.9051371	107.8448883	104.8961603	102.0541638	99.31434498	96.67237248	94.12412505
150311A00003	3/11/2015	2.72	3/31/2025	3/11/2015	120.21586	116.4915536	112.911291	109.4685945	106.1573199	102.971636	99.90600699	96.95517513	94.11414528
150318A00003	3/18/2015	2.04	3/18/2022	3/18/2015	101.89559	101.5623761	101.2324809	100.905853	100.5824392	100.2621872	99.94504607	99.63096585	99.31989774
150320A00019	3/20/2015	2.25	3/20/2025	3/20/2015	117.36241	114.0161025	110.7949328	107.6933861	104.7062255	101.8284771	99.05541526	96.38254833	93.8056057
150410A00021	4/10/2015	2.27	4/10/2025	4/10/2015	111.32319	109.1874338	107.1161931	105.1069816	103.1574254	101.2652599	99.4283239	97.64455412	95.91197988
150414A00037	4/14/2015	2.34	4/14/2025	4/14/2015	111.47034	109.3314552	107.2571922	105.2450616	103.292685	101.3977934	99.55822154	97.77190219	96.03686103
150203A00012	2/3/2015	1.61	2/3/2022	2/3/2015	101.52425	101.2333286	100.9444117	100.6574735	100.3724919	100.089445	99.80831131	99.52906975	99.25169949
150203A00027	2/3/2015	2.26	2/4/2030	2/3/2015	125.45019	119.923208	114.7364201	109.8652923	105.2872596	100.9815554	96.92905591	93.11213845	89.51455281
150213A00014	2/13/2015	2.41	2/13/2025	2/13/2015	111.40959	109.3622756	107.3747632	105.4448075	103.5702638	101.749084	99.97931188	98.25907762	96.58659383
150219A00016	2/19/2015	2.68	2/19/2025	2/19/2015	119.76817	116.100999	112.5723668	109.1761997	105.9067262	102.7584602	99.72618538	96.80494034	93.99000447
150223A00017	2/23/2015	1.77	2/23/2022	2/23/2015	102.784	102.2703629	101.7617949	101.2582198	100.7595644	100.2657568	99.77672674	99.29240508	98.81272411

	Parallel-Shift Sensitivity Analysis												
8/31/2021					Price								
REFERENCE	SETTLEMENT	Rate	MATURITY	First/Next	-400	-300	-200	-100	Base	100	200	300	400
150224A00010	2/24/2015	2.34	2/24/2025	2/24/2015	112.26245	109.9478674	107.7058584	105.5335431	103.4281795	101.3871531	99.40797082	97.48825402	95.62573265
141015A00029	10/15/2014	2.32	10/15/2024	10/15/2014	115.84351	112.8828055	110.0221866	107.2575778	104.5851016	102.0010648	99.50194783	97.08439565	94.74520849
141017A00022	10/17/2014	2.78	10/17/2024	10/17/2014	118.19015	114.9411711	111.8048478	108.7765384	105.8518244	103.0264982	100.2965521	97.65816663	95.10770089
141107A00027	11/7/2014	1.98	11/8/2021	11/7/2014	100.84456	100.6947656	100.5454568	100.3966354	100.2482989	100.1004446	99.95307027	99.80617329	99.65975126
141203A00039	12/3/2014	3.6	12/4/2034	12/3/2014	149.4637	139.1928353	129.8721231	121.4010688	113.6907693	106.662483	100.2463893	94.38050756	89.00975444
150114A00029	1/14/2015	1.99	1/14/2022	1/14/2015	101.40431	101.1544853	100.9061325	100.6592328	100.4137723	100.1697372	99.92711394	99.68588911	99.44604951
150115A00031	1/15/2015	1.42	1/18/2022	1/15/2015	101.29827	101.04613	100.7955004	100.5463619	100.2986999	100.0525	99.807748	99.56442981	99.32253162
140821A00040	8/21/2014	3.41	8/21/2031	8/21/2014	157.03018	145.0605531	134.1889536	124.3058798	115.3134178	107.1239492	99.65901379	92.84830399	86.62877364
140908A00080	9/8/2014	2.51	3/8/2024	9/8/2014	113.35385	111.0047227	108.7226157	106.5051524	104.3500614	102.2551672	100.2183859	98.23771973	96.31125385
140917A00030	9/17/2014	3.23	9/17/2029	9/17/2014	142.76152	134.1887313	126.2548252	118.9071349	112.0976649	105.7826483	99.92215089	94.47971415	89.4220333
140924A00057	9/24/2014	3.25	9/25/2028	9/24/2014	142.10536	133.8547924	126.1749259	119.0224996	112.3577791	106.1442482	100.348331	94.93913918	89.88824311
140925A00039	9/25/2014	2.02	9/27/2021	9/25/2014	100.43055	100.3552193	100.2800023	100.2049025	100.1299196	100.0550533	99.98030337	99.90566953	99.83115153
141015A00027	10/15/2014	2.01	10/15/2021	10/15/2014	100.72714	100.601209	100.4756122	100.3503456	100.2254079	100.1007977	99.97651378	99.85255472	99.72891923
140618A00019	6/18/2014	3.08	6/18/2024	6/18/2014	110.16416	108.5187963	106.9146045	105.3502021	103.8242639	102.3355204	100.8827546	99.46479947	98.08053546
140703A00026	7/3/2014	3.11	7/3/2024	7/3/2014	117.67089	114.7065185	111.836942	109.0585782	106.3680012	103.761934	101.2372403	98.7909185	96.42009454
140717A00027	7/17/2014	3.14	7/17/2026	7/17/2014	127.43954	122.4212799	117.6498084	113.1114121	108.7932182	104.6831376	100.769813	97.04257019	93.49137389
140730A00035	7/30/2014	2.67	1/30/2023	7/30/2014	105.03653	104.2178767	103.413996	102.6244653	101.848875	101.0868313	100.3379563	99.6018866	98.87827268
140730A00037	7/30/2014	2.83	1/30/2024	7/30/2014	108.59183	107.1962533	105.8322471	104.4988171	103.1950117	101.9199171	100.672656	99.45238547	98.25829554
140821A00030	8/21/2014	2.27	8/21/2024	8/21/2014	109.6178	107.8834851	106.1944291	104.5490671	102.9459038	101.3835071	99.86050539	98.37558401	96.92748264
130614A00018	6/14/2013	2.83	6/14/2023	6/14/2013	106.42764	105.3791137	104.3510292	103.3427783	102.3537825	101.383486	100.4313549	99.49687617	98.5795564
131018A00006	10/18/2013	3.28	10/20/2025	10/18/2013	125.11082	120.8256024	116.7250313	112.799943	109.0416831	105.4420792	101.9934105	98.68838025	95.52008955
140219A00005	2/19/2014	3.13	2/20/2029	2/19/2014	126.69864	121.7666501	117.1064105	112.700226	108.5316913	104.5855916	100.8478071	97.30522715	93.94567086
140313A00028	3/13/2014	2.86	3/13/2024	3/13/2014	114.62098	112.1747505	109.7991401	107.4916305	105.2498101	103.0713699	100.9540982	98.89587627	96.89467305
140318A00003	3/17/2014	3.08	3/18/2024	3/17/2014	117.13462	114.3390663	111.627219	108.9960334	106.4425995	103.9641327	101.557967	99.22154951	96.95243469
140428A00015	4/28/2014	2.35	4/29/2024	4/28/2014	108.72326	107.1873745	105.6884946	104.22541	102.7969598	101.4020306	100.0395544	98.70850633	97.40790246
120820A00009	8/20/2012	2.4	8/22/2022	8/20/2012	105.93124	104.9040004	103.897077	102.9098677	101.9417942	100.9923003	100.0608514	99.14693323	98.25005109
120820A00011	8/20/2012	2.4	8/22/2022	8/20/2012	105.93124	104.9040001	103.8970767	102.9098676	101.9417941	100.9923002	100.0608514	99.14693328	98.25005119
121016A00013	10/16/2012	1.64	10/14/2022	10/16/2012	103.42265	102.7537051	102.0957875	101.4485994	100.8118498	100.1852587	99.56855681	98.96148467	98.36379248
121114A00020	11/14/2012	1.74	11/14/2022	11/14/2012	106.64945	105.3722502	104.1263458	102.9105919	101.7238961	100.565218	99.43356663	98.32799748	97.24760968
130206A00009	2/6/2013	2.83	2/7/2028	2/6/2013	129.91711	123.8539455	118.1544757	112.7940915	107.7499974	103.0010722	98.52773635	94.31183098	90.33650659
130422A00020	4/22/2013	1.98	4/22/2025	4/22/2013	110.72487	108.5996167	106.538604	104.5393533	102.5994991	100.7167847	98.88905682	97.11425948	95.39042933
120517A00021	5/17/2012	1.85	5/17/2024	5/17/2012	108.20637	106.6329884	105.0982621	103.6009071	102.1396937	100.7134435	99.32102641	97.96135859	96.63339993
120806A00014	8/6/2012	1.77	8/8/2022	8/6/2012	103.02072	102.4486696	101.8846465	101.3284672	100.7799505	100.2389214	99.70521011	99.17865259	98.65908974

	Parallel-Shift Sensitivity Analysis												
8/31/2021					Price								
REFERENCE	SETTLEMENT	Rate	MATURITY	First/Next	-400	-300	-200	-100	Base	100	200	300	400
120806A00015	8/6/2012	2.38	8/6/2027	8/6/2012	118.32548	114.6426955	111.1265553	107.7679814	104.5584621	101.4900102	98.55512747	95.74677083	93.05832195
120807A00025	8/7/2012	1.82	8/8/2022	8/7/2012	103.04855	102.4763421	101.9121682	101.3558402	100.807177	100.2660032	99.73214923	99.20545091	98.68574912
120807A00026	8/7/2012	2.42	8/9/2027	8/7/2012	118.46815	114.7807878	111.2602904	107.8975648	104.6840874	101.6118601	98.67337413	95.86157682	93.16984078
120808A00006	8/8/2012	2.06	8/9/2027	8/8/2012	117.76196	114.0855406	110.5758729	107.2238547	104.0209507	100.9591534	98.03094581	95.2292689	92.54748994
011115A00014	11/15/2001	5.19	11/16/2021	11/15/2001	101.93284	101.7144095	101.4969305	101.2803956	101.0647987	100.8501336	100.6363942	100.4235745	100.2116684
020918A00047	9/18/2002	4.72	9/19/2022	9/18/2002	105.01441	104.3846851	103.7677121	103.1630867	102.5704176	101.9893304	101.4194659	100.8604799	100.3120423
030605A00010	6/5/2003	3.97	6/5/2023	6/5/2003	110.37999	108.9444757	107.538868	106.1622673	104.8138112	103.4926721	102.1980548	100.9291954	99.68535963
050812A00050	8/12/2005	4.97	8/12/2025	8/12/2005	121.89568	118.936462	116.0801846	113.3224516	110.659085	108.0861134	105.5997608	103.1964351	100.8727185
050823A00085	8/23/2005	4.78	8/25/2025	8/23/2005	131.01705	126.6218646	122.410481	118.3740625	114.504248	110.7931254	107.2332052	103.8173949	100.538976
050823A00088	8/23/2005	4.78	8/25/2025	8/23/2005	131.01712	126.6219223	122.4105286	118.3741006	114.5042771	110.7931462	107.233218	103.8174002	100.5389743
970806A00017	8/1/1997	7.02	7/23/2026	8/1/1997	127.50405	124.3962482	121.4047444	118.524142	115.7493389	113.075507	110.4980756	108.0127158	105.6153258
970806A00018	8/1/1997	6.7	10/23/2026	8/1/1997	128.01155	124.7316334	121.5797465	118.5497252	115.6357535	112.8323379	110.1342872	107.5366937	105.0349156
970806A00059	8/1/1997	8.25	9/22/2025	8/1/1997	146.42513	141.4193492	136.6272889	132.0384718	127.6430027	123.4315278	119.3952024	115.5256594	111.814981
200402A00050	4/6/2020	0.73	4/5/2024	4/6/2020	106.07507	104.5863792	103.1333852	101.7149211	100.3298726	98.97717049	97.65578926	96.36474431	95.10309018
200428A00018	4/28/2020	1.33	4/27/2035	4/28/2020	128.98199	120.1714436	112.1800673	104.9204097	98.31521909	92.29617259	86.80277245	81.78138632	77.184412
200521A00005	5/21/2020	0.75	5/21/2030	5/21/2020	117.91247	112.6175155	107.6555672	103.0020863	98.63454344	94.53224311	90.67616148	87.04879922	83.63404841
210409A00010	4/9/2021	1.05	4/9/2031	4/9/2021	121.09472	115.1252947	109.5652331	104.3818089	99.54519255	95.02817496	90.80591858	86.85573317	83.15687443
210514A00007	5/14/2021	0.95	5/15/2028	5/14/2021	115.19838	111.1963392	107.394472	103.7808289	100.3442649	97.07438212	93.96147489	90.9964787	88.17092334
210514A00010	5/14/2021	1.34	5/14/2031	5/14/2021	122.85492	116.7723975	111.1094023	105.8321862	100.9100117	96.31485794	92.02116112	88.00558069	84.24678966
200317A00024	3/17/2020	1.09	3/17/2025	3/17/2020	108.64878	106.6221911	104.6556391	102.7468397	100.8936159	99.09388977	97.34567691	95.64708185	93.99629317
200326A00037	3/26/2020	1.78	3/26/2035	3/26/2020	132.37637	123.4592876	115.3634324	108.0018101	101.2975021	95.18242064	89.59622341	84.48536964	79.8022975
200327A00004	3/27/2020	0.63	3/28/2022	3/27/2020	101.47102	101.1257444	100.7833775	100.4438831	100.1072212	99.77335245	99.44223826	99.11384084	98.78812312
200330A00010	3/30/2020	0.61	3/30/2022	3/30/2020	101.46776	101.12164	100.7784558	100.4381628	100.1007204	99.76608874	99.4342289	99.10510262	98.77867242
200331A00056	3/31/2020	0.96	3/29/2030	3/31/2020	118.64603	113.4313645	108.5387357	103.9448004	99.62809968	95.56889524	91.74901872	88.15173577	84.7616226
200401A00011	4/1/2020	0.68	4/3/2023	4/1/2020	103.8845	102.9514442	102.0358813	101.1373087	100.2552412	99.38921283	98.53877541	97.703498	96.88296594
200225A00049	2/25/2020	1.79	2/24/2040	2/25/2020	143.90998	130.869548	119.4142548	109.3250255	100.4155727	92.52719551	85.52444451	79.29150117	73.72914826
200310A00067	3/10/2020	0.94	3/10/2025	3/10/2020	108.3557	106.3334161	104.3710357	102.4662843	100.6169901	98.82108018	97.07657489	95.38158319	93.73429793
200311A00027	3/11/2020	1.52	3/9/2035	3/11/2020	130.33039	121.5107591	113.505206	106.2273745	99.60092308	93.55828272	88.0395778	82.99168804	78.36743101
200311A00028	3/11/2020	1.04	3/12/2024	3/11/2020	106.31199	104.8681794	103.4584017	102.0815759	100.7366672	99.42268121	98.13866253	96.88369246	95.65688756
200316A00008	3/16/2020	1.31	3/15/2030	3/16/2020	119.52081	114.309934	109.4193284	104.8258593	100.5082585	96.44695722	92.62393855	89.02260288	85.62764651
200317A00022	3/17/2020	0.97	3/17/2022	3/17/2020	101.5689	101.2279787	100.8898679	100.5545311	100.2219309	99.89203024	99.56479292	99.24018341	98.91816681
191216A00013	12/16/2019	1.95	12/16/2024	12/16/2019	109.64878	107.7503747	105.9051319	104.1111171	102.3664779	100.6694436	99.01832136	97.41149187	95.84740568
191231A00021	12/31/2019	1.9	2/28/2023	12/31/2019	104.07015	103.3063571	102.5562012	101.8192799	101.0952118	100.3836309	99.68418582	98.996539	98.320366

	Parallel-Shift Sensitivity Analysis												
8/31/2021					Price								
REFERENCE	SETTLEMENT	Rate	MATURITY	First/Next	-400	-300	-200	-100	Base	100	200	300	400
191231A00027	12/31/2019	1.9	4/28/2023	12/31/2019	104.07019	103.3063873	102.5562196	101.8192866	101.095207	100.3836148	99.68415853	98.99650065	98.32031673
200130A00027	1/31/2020	1.79	1/31/2025	1/31/2020	109.58141	107.6357486	105.7456421	103.9090383	102.1239762	100.388582	98.70106483	97.05971235	95.46288652
200203A00046	2/3/2020	1.98	2/3/2040	2/3/2020	146.02055	132.8441101	121.2658099	111.0650936	102.0543808	94.07383908	86.98702797	80.67725902	75.04455036
200210A00007	2/10/2020	1.78	2/10/2025	2/10/2023	115.27597	112.1046834	109.0487439	106.1032035	103.2633582	100.5247337	97.88307246	95.33432193	92.87462336
190628A00007	6/28/2019	2.28	6/28/2034	6/28/2019	135.89124	127.2503942	119.3653083	112.1596958	105.5657124	99.52295595	93.97759084	88.8815816	84.192021
190823A00009	8/23/2019	1.8	8/23/2029	8/23/2019	121.34523	116.4151279	111.7698256	107.3898864	103.2573615	99.35566355	95.66945333	92.18453722	88.88777343
191114A00012	11/14/2019	1.89	11/15/2021	11/14/2019	100.86906	100.7126119	100.5567078	100.4013453	100.2465213	100.0922329	99.93847703	99.78525081	99.63255128
191114A00013	11/14/2019	1.9	11/14/2022	11/14/2019	103.82624	103.1100956	102.4066035	101.715387	101.0360895	100.3683691	99.71189751	99.06635964	98.43145266
191114A00014	11/14/2019	1.9	11/14/2023	11/14/2019	106.61754	105.3501924	104.11019	102.8966929	101.7088952	100.546023	99.40733309	98.29211128	97.19967097
191115A00029	11/15/2019	2.07	11/15/2029	11/15/2019	122.38425	117.2955153	112.507543	107.9993591	103.7516228	99.74649077	95.96749041	92.3994046	89.02816713
190102A00015	1/2/2019	2.97	1/3/2034	1/2/2019	139.80851	131.2834399	123.4785544	116.3234093	109.7551281	103.7175338	98.16038148	93.03868487	88.31212348
190102A00020	1/2/2019	2.97	1/3/2034	1/2/2019	139.80825	131.2832475	123.4784263	116.323336	109.7551015	103.7175468	98.16042808	93.03875977	88.31222217
190102A00022	1/2/2019	2.97	1/3/2034	1/2/2019	139.80804	131.2830972	123.4783267	116.3232794	109.7550813	103.7175574	98.16046444	93.03881776	88.3122982
190102A00024	1/2/2019	2.97	1/3/2034	1/2/2019	139.80815	131.2831799	123.4783826	116.3233123	109.7550945	103.7175538	98.16044654	93.03878767	88.31225776
190327A00030	3/27/2019	2.9	3/27/2036	3/27/2019	143.89544	133.7277016	124.5474748	116.2443296	108.7213319	101.8932848	95.68520932	90.03103246	84.87245279
190520A00020	5/20/2019	2.39	5/20/2026	5/20/2019	114.92832	112.1265699	109.4284415	106.8291908	104.3243297	101.9096082	99.58100001	97.33468911	95.16705734
180725A00034	7/25/2018	2.79	7/25/2022	7/25/2018	103.37571	102.8447159	102.320647	101.8033506	101.2926805	100.7884953	100.2906574	99.79903383	99.31349514
180725A00035	7/25/2018	2.85	7/25/2023	7/25/2018	106.83496	105.7429985	104.6727446	103.6235602	102.5948317	101.5859693	100.5964063	99.62559744	98.67301819
180928A00077	9/28/2018	2.85	9/28/2021	9/28/2018	100.51859	100.4403259	100.3621851	100.284169	100.2062772	100.1285094	100.0508655	99.97334495	99.89594763
181029A00097	10/29/2018	3.53	10/27/2028	10/29/2018	139.086	131.6501368	124.7137882	118.2395643	112.1931044	106.5428175	101.2596424	96.31683127	91.68975178
181211A00042	12/11/2018	3.7	12/11/2028	12/11/2023	140.85371	133.149001	125.9702024	119.2773631	113.0338127	107.205875	101.7626067	96.6755601	91.91856765
181220A00006	12/20/2018	2.93	12/20/2022	12/20/2018	104.82149	104.0544439	103.3013105	102.5616761	101.8351424	101.1213277	100.4198657	99.73040485	99.05260769
170705A00029	7/5/2017	1.98	7/5/2022	7/5/2017	102.87296	102.350256	101.8342346	101.3247544	100.8216781	100.3248721	99.83420692	99.34955685	98.8707997
170929A00046	9/29/2017	2.49	9/30/2027	9/29/2017	118.51992	114.8621735	111.3703328	108.0353098	104.848587	101.8021759	98.88857953	96.10075949	93.43210432
171206A00020	12/6/2017	2.62	12/6/2027	12/6/2017	119.65515	115.8215352	112.1676794	108.6834356	105.3593097	102.1864133	99.15642073	96.26152945	93.49442361
180126A00018	1/26/2018	2.34	1/26/2023	1/26/2018	104.74698	103.9353866	103.1383991	102.3555974	101.5865771	100.8309498	100.0883423	99.3583957	98.64076519
180529A00057	5/29/2018	3.09	5/30/2028	5/29/2018	127.85387	122.6268768	117.6971793	113.04505	108.6522201	104.501761	100.5779764	96.86630467	93.35322894
180716A00046	7/16/2018	2.9	7/16/2025	7/16/2018	113.28809	111.0490616	108.8797779	106.7774743	104.7395167	102.7633951	100.8467168	98.98720011	97.18266823
170130A00043	1/30/2017	2.64	1/29/2027	1/30/2017	118.15307	114.698868	111.3906978	108.2210835	105.1829899	102.2697908	99.47524199	96.79345695	94.21888405
170130A00046	1/30/2017	2.52	1/30/2026	1/30/2017	114.90189	112.1070068	109.4124721	106.8138453	104.3069169	101.8876921	99.55237804	97.29737293	95.11925467
170313A00041	3/13/2017	3.21	3/15/2032	3/13/2017	134.8029	127.787134	121.2839827	115.2497222	109.6447574	104.4331987	99.58248733	95.06306056	90.84805339
170315A00005	3/15/2017	2.1	3/15/2022	3/15/2017	101.94257	101.6015439	101.2633189	100.9278562	100.5951184	100.2650691	99.93767226	99.61289275	99.290696
170612A00024	6/12/2017	1.72	6/13/2022	6/12/2017	102.56997	102.0910199	101.6176881	101.1498653	100.687445	100.2303236	99.77840039	99.33157715	98.88975842

	Parallel-Shift Sensitivity Analysis												
8/31/2021					Price								
REFERENCE	SETTLEMENT	Rate	MATURITY	First/Next	-400	-300	-200	-100	Base	100	200	300	400
170616A00003	6/16/2017	1.91	6/17/2024	6/16/2017	108.46349	106.8534826	105.2837231	103.7528575	102.2595898	100.8026784	99.38093306	97.99321269	96.63842264
160928A00042	9/28/2016	3.05	9/29/2036	9/28/2021	146.70563	135.8405879	126.0906348	117.3243486	109.4272048	102.2992625	95.85318246	90.01252805	84.7103087
160928A00044	9/28/2016	2.89	9/29/2036	9/28/2023	145.27753	134.4960503	124.822623	116.1265411	108.2939122	101.2253562	94.83403204	89.04394644	83.78850386
160930A00032	9/30/2016	2.15	9/30/2031	9/30/2016	127.23505	120.8230687	114.8631496	109.3180981	104.154108	99.34042817	94.84906372	90.65450852	86.73350532
160930A00033	9/30/2016	1.8	9/30/2026	9/30/2016	113.79538	110.8274013	107.9754996	105.2341019	102.5979487	100.0620709	97.6217713	95.27260825	93.01037954
170130A00036	1/30/2017	3.11	1/31/2033	1/30/2017	137.69116	129.7517899	122.442551	115.7053654	109.4880465	103.7436605	98.42995721	93.50886677	88.94605341
170130A00039	1/30/2017	2.74	1/31/2028	1/30/2017	121.37057	117.23111	113.2929181	109.5442923	105.9742989	102.5727184	99.32999345	96.23718202	93.28591345
150601A01051	6/1/2015	4.91	2/7/2025	6/1/2015	128.04598	124.1865368	120.4720892	116.896325	113.4532472	110.1371531	106.9426181	103.8644807	100.8978279
160928A00029	9/28/2016	2.52	9/29/2036	9/28/2016	141.97506	131.3868073	121.8903459	113.3566113	105.6731731	98.74194789	92.47724669	86.80410148	81.65683017
160928A00030	9/28/2016	2.52	9/29/2036	9/28/2016	141.97506	131.3868073	121.8903459	113.3566113	105.6731731	98.74194789	92.47724669	86.80410148	81.65683017
160928A00032	9/28/2016	2.52	9/29/2036	9/28/2016	141.97506	131.3868073	121.8903459	113.3566113	105.6731731	98.74194789	92.47724669	86.80410148	81.65683017
160928A00033	9/28/2016	2.46	9/29/2036	9/28/2016	141.43952	130.8826057	121.4148415	112.9074335	105.2481884	98.33923303	92.09506528	86.44088338	81.31115335
160928A00041	9/28/2016	3.26	9/29/2036	9/30/2019	148.58001	137.6052934	127.7549002	118.8964709	110.9146513	103.7087646	97.19081739	91.2837914	85.92017756
150601A01015	6/1/2015	5.61	10/28/2025	6/1/2015	135.51951	130.8071573	126.2997355	121.9869983	117.8592765	113.9074429	110.1228781	106.4974391	103.0234298
150601A01016	6/1/2015	5.73	10/28/2025	6/1/2015	136.00083	131.2783838	126.7612052	122.4390295	118.3021743	114.3414998	110.5483748	106.9146452	103.4326038
150601A01040	6/1/2015	5.4	10/2/2026	6/1/2015	141.58967	135.7153883	130.1429554	124.854886	119.8348105	115.0673991	110.5382897	106.234021	102.141971
150601A01041	6/1/2015	5.99	10/2/2036	6/1/2015	184.0848	169.8076019	157.0062589	145.5073511	135.1595801	125.8307666	117.405279	109.7818253	102.8715561
150601A01047	6/1/2015	5.35	12/30/2024	6/1/2015	128.68597	124.9334161	121.3176822	117.8329879	114.4738279	111.2349596	108.1113888	105.0983563	102.1913258
150601A01048	6/1/2015	5.27	1/3/2025	6/1/2015	128.50792	124.7467087	121.1230381	117.6310844	114.2653024	111.0204113	107.8913809	104.8734181	101.9619547
150601A00997	6/1/2015	5.46	9/30/2022	6/1/2015	110.02656	108.847016	107.6933844	106.564813	105.4604866	104.3796252	103.321482	102.2853417	101.2705186
150601A01005	6/1/2015	5.82	3/10/2025	6/1/2015	131.27272	127.3259753	123.5295109	119.87666	116.3610949	112.9768057	109.7180825	106.5794983	103.5558937
150601A01008	6/1/2015	5.08	4/15/2025	6/1/2015	116.10073	113.9934005	111.9486027	109.9639471	108.0371578	106.1660629	104.3485888	102.582755	100.8666696
150601A01011	6/1/2015	5.05	9/8/2025	6/1/2015	117.76366	115.3986706	113.1096751	110.8935788	108.7474396	106.6684567	104.6539629	102.701417	100.8083973
150601A01012	6/1/2015	5.43	9/15/2023	6/1/2015	118.33039	116.1110807	113.947337	111.8373742	109.7794802	107.7720111	105.8133872	103.9020907	102.0366623
150601A01013	6/1/2015	5.21	9/29/2023	6/1/2015	118.20829	115.9494453	113.747879	111.6017228	109.5091845	107.4685445	105.4781519	103.5364216	101.6418309
150601A00971	6/1/2015	6.42	6/20/2033	6/1/2015	168.18677	157.7916685	148.2628219	139.5174835	131.4815587	124.0886316	117.2791122	110.9994833	105.2016357
150601A00976	6/1/2015	6.8	9/22/2033	6/1/2015	172.05463	161.4691271	151.772054	142.8775932	134.709015	127.1976438	120.2819507	113.9067547	108.0225188
150601A00978	6/1/2015	6.32	11/24/2033	6/1/2015	161.93418	152.6277334	144.0807767	136.2209181	128.9833887	122.3101747	116.149258	110.4539476	105.18229
150601A00988	6/1/2015	4.57	3/22/2024	6/1/2015	110.76701	109.3296271	107.9257448	106.5542893	105.2142324	103.9045872	102.6244064	101.3727802	100.1488346
150601A00993	6/1/2015	5.37	6/9/2034	6/1/2015	164.99005	154.0349848	144.0582934	134.9600608	126.6515079	119.053666	112.0962169	105.7164785	99.85851568
150601A00994	6/1/2015	5.86	6/24/2022	6/1/2015	107.86889	106.9966245	106.138757	105.2949312	104.4648022	103.6480367	102.8443122	102.0533162	101.2747464
150601A00952	6/1/2015	6.34	2/13/2032	6/1/2015	160.8325	151.9545203	143.7414597	136.1359527	129.0860781	122.5447993	116.46947	110.8213922	105.5654217
150601A00953	6/1/2015	6.6	6/10/2032	6/1/2015	165.00675	155.6128452	146.9426089	138.9319261	131.5229217	124.6633043	118.3057864	112.4075691	106.9298829

	Parallel-Shift Sensitivity Analysis												
8/31/2021					Price								
REFERENCE	SETTLEMENT	Rate	MATURITY	First/Next	-400	-300	-200	-100	Base	100	200	300	400
150601A00955	6/1/2015	5.84	7/15/2032	6/1/2015	152.22951	144.3486331	137.0500312	130.2832759	124.0027819	118.1673021	112.7394812	107.6854574	102.974509
150601A00960	6/1/2015	6.49	12/16/2032	6/1/2015	158.32744	149.8935669	142.1012669	134.8933497	128.218269	122.0295231	116.2851222	110.9471142	105.9811643
150601A00964	6/1/2015	5.25	1/6/2033	6/1/2015	150.69611	142.5237378	134.980245	128.0090763	121.5593032	115.5850177	110.0447981	104.9012351	100.120511
150601A00966	6/1/2015	4.84	2/3/2023	6/1/2015	106.35629	105.5683003	104.7945022	104.0344897	103.2878705	102.5542677	101.8333194	101.1246775	100.4280072
150601A00935	6/1/2015	6.46	11/21/2030	6/1/2015	153.12285	145.7520323	138.8710463	132.4420441	126.4304181	120.8044987	115.5352848	110.5961994	105.9628698
150601A00939	6/1/2015	5.79	1/17/2031	6/1/2015	149.25323	142.0011336	135.2368819	128.922307	123.0225439	117.5057249	112.3427003	107.5067872	102.9735428
150601A00943	6/1/2015	6.44	5/9/2031	6/1/2015	156.48359	148.5004579	141.0750576	134.1622787	127.7210359	121.7138835	116.1066675	110.868212	105.9700384
150601A00946	6/1/2015	6.28	8/22/2031	6/1/2015	157.1425	148.8934892	141.235144	134.118601	127.4994494	121.3372957	115.5953718	110.2401834	105.2411946
150601A00948	6/1/2015	6.04	10/22/2031	6/1/2015	148.86288	141.6847652	135.0040829	128.7802757	122.9764605	117.5590706	112.4975322	107.7639743	103.3329693
150601A00950	6/1/2015	6.76	12/18/2031	6/1/2015	161.52747	152.9070501	144.9174631	137.5053101	130.6221714	124.2241087	118.2712175	112.7272272	107.5591437
150601A00918	6/1/2015	5.62	4/28/2025	6/1/2015	118.1006	115.8839587	113.73378	111.6475114	109.6227227	107.6570952	105.7484156	103.89457	102.0935394
150601A00919	6/1/2015	7.41	6/7/2030	6/1/2015	156.32843	149.1504063	142.4296401	136.1321611	130.2267997	124.6849387	119.4802854	114.5886669	109.9878438
150601A00927	6/1/2015	6.08	8/7/2030	6/1/2015	144.3032	138.1040359	132.2908653	126.8352438	121.7110729	116.894387	112.3631636	108.0971512	104.0777138
150601A00928	6/1/2015	5.94	8/21/2030	6/1/2015	143.7916	137.5819452	131.7606009	126.2988416	121.17032	116.3508496	111.8182114	107.5519797	103.5333636
150601A00929	6/1/2015	5.91	8/30/2030	6/1/2015	148.8057	141.7543449	135.164437	129.0008463	123.2314095	117.8266559	112.7595627	108.0053345	103.5412037
150601A00931	6/1/2015	7.13	9/20/2030	6/1/2015	156.27841	148.8989322	142.0015888	135.5497055	129.5097034	123.8508135	118.5448214	113.5658369	108.8900866
150601A00897	6/1/2015	6.15	5/28/2029	6/1/2015	142.41618	136.6715466	131.2528023	126.1381976	121.3076113	116.7424133	112.4253436	108.3404019	104.4727472
150601A00899	6/1/2015	7.07	6/14/2029	6/1/2015	142.14005	136.8385149	131.8283997	127.0905642	122.607285	118.3621413	114.339909	110.5264655	106.9087012
150601A00900	6/1/2015	6.06	6/28/2024	6/1/2015	114.52588	112.8722045	111.2594753	109.6863244	108.1514427	106.6535761	105.1915223	103.764128	102.3702869
150601A00905	6/1/2015	6.14	10/29/2029	6/1/2015	144.82277	138.6595325	132.8628535	127.4071853	122.2689697	117.4264654	112.8595952	108.5498068	104.4799464
150601A00906	6/1/2015	6.2	11/1/2029	6/1/2015	145.57454	139.3239913	133.4482193	127.9209061	122.7177965	117.8165191	113.1964272	108.8384532	104.7249772
150601A00912	6/1/2015	5.96	11/30/2029	6/1/2015	144.41829	138.1966433	132.3487764	126.8484059	121.6713078	116.7951422	112.199293	107.8647231	103.7738425
150601A00872	6/1/2015	7.42	7/31/2028	6/1/2015	143.16569	138.0374513	133.1716027	128.5522013	124.1643982	119.9943551	116.0291675	112.2567959	108.6660018
150601A00875	6/1/2015	7.14	9/29/2028	6/1/2015	143.33175	138.0367624	133.0193353	128.262249	123.7494847	119.4661338	115.3983132	111.5330875	107.8583982
150601A00883	6/1/2015	6.21	11/30/2028	6/1/2015	139.76284	134.4986661	129.5157467	124.7963164	120.3238692	116.083062	112.0596252	108.2402801	104.6126627
150601A00888	6/1/2015	5.92	3/1/2029	6/1/2015	140.1387	134.6286168	129.4244899	124.5062927	119.8554703	115.4548182	111.2883755	107.3413254	103.5999059
150601A00889	6/1/2015	6.55	3/2/2029	6/1/2015	144.17115	138.4063206	132.9640686	127.823182	122.9640104	118.3683385	114.0192715	109.9011303	105.9993554
150601A00893	6/1/2015	6.49	4/6/2029	6/1/2015	143.94071	138.1681283	132.7205236	127.5763796	122.7157764	118.1202588	113.7727188	109.6572874	105.7592364
150601A00848	6/1/2015	6.36	2/18/2022	6/1/2015	102.44742	102.1978554	101.9500264	101.7039118	101.4594916	101.2167466	100.9756576	100.7362058	100.4983728
150601A00851	6/1/2015	7.12	4/30/2027	6/1/2015	134.2994	130.3133905	126.5007322	122.8523266	119.3596181	116.0145617	112.809589	109.7375767	106.791817
150601A00864	6/1/2015	7.37	3/31/2028	6/1/2015	141.45024	136.5524202	131.8974691	127.4710542	123.2597986	119.2512117	115.4336239	111.7961268	108.3285189
150601A00865	6/1/2015	6	4/3/2028	6/1/2015	132.67282	128.3986602	124.3298274	120.4544276	116.7613513	113.2402159	109.8813129	106.6755588	103.6144514
150601A00868	6/1/2015	7.08	6/5/2028	6/1/2015	141.40421	136.3695863	131.5904818	127.0515001	122.7382914	118.6374748	114.7365657	111.0239098	107.4886221

	Parallel-Shift Sensitivity Analysis												
8/31/2021					Price								
REFERENCE	SETTLEMENT	Rate	MATURITY	First/Next	-400	-300	-200	-100	Base	100	200	300	400
150601A00871	6/1/2015	6.74	7/31/2028	6/1/2015	140.77604	135.6623133	130.8119128	126.2087823	121.8379658	117.6855272	113.738474	109.9846863	106.4128528
150601A00732	6/1/2015	1.91	4/29/2022	6/1/2015	101.94972	101.5924129	101.238594	100.8882075	100.541198	100.1975113	99.8570945	99.51989575	99.18586449
150601A00736	6/1/2015	2.87	5/1/2030	6/1/2015	126.8652	121.4116645	116.2938548	111.4874122	106.969955	102.7209001	98.72130502	94.95372577	91.40208703
150601A00739	6/1/2015	2.35	5/6/2025	6/1/2015	111.08662	109.0116524	106.9993536	105.0473006	103.1531837	101.3147997	99.53004648	97.79691713	96.11349526
150601A00772	6/1/2015	1.84	5/13/2022	6/1/2015	102.00254	101.6306743	101.2625784	100.8981898	100.5374463	100.1802871	99.82665287	99.47648579	99.12972922
150601A00832	6/1/2015	7.17	8/28/2025	6/1/2015	122.07985	119.6711969	117.3391279	115.080552	112.8925249	110.7722431	108.717036	106.7243587	104.7917849
150601A00847	6/1/2015	6.59	1/31/2022	6/1/2015	104.26753	103.8395591	103.415195	102.994392	102.577105	102.1632901	101.7529037	101.3459033	100.9422468
150601A00558	6/1/2015	2.51	8/30/2024	6/1/2015	109.3781	107.7063071	106.0779878	104.4916463	102.9458484	101.4392205	99.97044669	98.53826573	97.1414685
150601A00624	6/1/2015	2.48	12/8/2021	6/1/2015	101.7218	101.4419412	101.1636389	100.8868769	100.6116424	100.3379228	100.0657053	99.79497769	99.52572756
150601A00660	6/1/2015	2.26	1/5/2022	6/1/2015	102.13593	101.7751924	101.4170124	101.0613641	100.7082208	100.3575559	100.0093433	99.66355731	99.32017259
150601A00678	6/1/2015	2.12	1/30/2025	6/1/2015	109.95085	108.0332185	106.1705023	104.360666	102.6017672	100.89195	99.2294408	97.61254378	96.03963689
150601A00690	6/1/2015	2.34	2/28/2025	6/1/2015	110.50186	108.5464887	106.6477672	104.8035814	103.0119092	101.2708192	99.57846638	97.93308701	96.33299475
150601A00714	6/1/2015	1.67	4/1/2022	6/1/2015	101.64898	101.3344877	101.0227246	100.7136546	100.4072388	100.1034394	99.8022192	99.50354178	99.20737143
150601A00496	6/1/2015	2.27	6/27/2024	6/1/2015	108.70786	107.1395173	105.6103408	104.1190129	102.6642743	101.2449183	99.85978815	98.50777467	97.18781371
150601A00509	6/1/2015	2.52	7/8/2024	6/1/2015	108.9392	107.3562142	105.8129446	104.3080539	102.8402626	101.4083446	100.0111247	98.6474757	97.31631618
150601A00527	6/1/2015	2.5	7/26/2024	6/1/2015	109.07093	107.4566876	105.8834632	104.3498667	102.8545659	101.3962845	99.97379931	98.58593737	97.23157365
150601A00543	6/1/2015	2.23	8/8/2024	6/1/2015	108.98254	107.3481422	105.7556669	104.2036841	102.690823	101.2157708	99.77726941	98.37411288	97.00514468
150601A00555	6/1/2015	2.13	9/2/2021	6/1/2015	100.02156	100.0178406	100.0141286	100.0104197	100.006714	100.0030115	99.9993121	99.99561585	99.99192272
150601A00557	6/1/2015	2.03	9/2/2021	6/1/2015	100.01689	100.0139294	100.0109701	100.0080132	100.0050587	100.0021068	99.99915734	99.99621036	99.99326584
150601A00426	6/1/2015	3.37	2/21/2029	6/1/2015	125.48152	120.8329604	116.4352202	112.2721873	108.3289174	104.5915393	101.0471698	97.68383643	94.49040688
150601A00448	6/1/2015	2.61	4/26/2024	6/1/2015	108.47593	107.0051837	105.5696534	104.1681887	102.7996893	101.4630998	100.1574078	98.88164144	97.6348676
150601A00459	6/1/2015	2.42	5/16/2024	6/1/2015	108.35873	106.8622916	105.4021206	103.9770214	102.5858509	101.2275131	99.9009569	98.60517362	97.33919505
150601A00473	6/1/2015	2.22	5/31/2024	6/1/2015	108.42948	106.9026543	105.4133362	103.9602773	102.5422826	101.1582072	99.80695317	98.48746777	97.19874071
150601A00475	6/1/2015	3.04	6/1/2029	6/1/2015	124.95785	120.1483298	115.6070139	111.3161482	107.2593003	103.421251	99.7878954	96.34615407	93.08389068
150601A00477	6/1/2015	3.21	6/1/2029	6/1/2015	130.38233	124.6833667	119.3204309	114.2705246	109.5124017	105.026421	100.7944135	96.79956224	93.02629266
150601A00390	6/1/2015	2.39	5/20/2022	6/1/2015	103.15562	102.6259096	102.1028139	101.5861966	101.0759254	100.5718715	100.0739097	99.5819186	99.09577976
150601A00395	6/1/2015	2.86	1/3/2024	6/1/2015	107.78579	106.4973882	105.2374577	104.0051132	102.7995062	101.6198225	100.4652799	99.33512667	98.22864046
150601A00396	6/1/2015	3.61	1/3/2029	6/1/2015	126.0031	121.4283081	117.0961699	112.9913378	109.0995593	105.407591	101.9031196	98.57469069	95.41164207
150601A00410	6/1/2015	2.68	1/24/2024	6/1/2015	107.74559	106.426775	105.137513	103.8768833	102.6439996	101.4380108	100.2580994	99.10348009	97.97339803
150601A00411	6/1/2015	3.38	1/24/2029	6/1/2015	125.26543	120.6740622	116.3280845	112.2118751	108.310931	104.6117823	101.1019109	97.76967649	94.60424919
150601A00425	6/1/2015	2.64	2/21/2024	6/1/2015	107.95036	106.5850487	105.250976	103.9471518	102.6726285	101.4264969	100.2078835	99.01594928	97.84988809
150601A00033	6/1/2015	5.96	12/24/2025	6/1/2015	138.98298	133.9313731	129.1069273	124.4980317	120.0937402	115.8837255	111.8582404	108.0080821	104.3245585
150601A00035	6/1/2015	5.73	4/1/2038	6/1/2015	177.81824	164.2095175	152.0520757	141.1671352	131.3999978	122.6165853	114.7005031	107.5505446	101.0785664

	Parallel-Shift Sensitivity Analysis												
8/31/2021					Price								
REFERENCE	SETTLEMENT	Rate	MATURITY	First/Next	-400	-300	-200	-100	Base	100	200	300	400
150601A00038	6/1/2015	5.77	6/2/2023	6/1/2015	116.6273	114.7080808	112.831825	110.9971661	109.2027919	107.447446	105.7299247	104.0490743	102.4037886
150601A00165	6/1/2015	2.66	6/4/2032	6/1/2015	132.54903	125.4926698	118.9633514	112.9152444	107.3069221	102.1009041	97.26325014	92.76319897	88.57284599
150601A00261	6/1/2015	3.19	2/11/2033	6/1/2015	154.65124	142.5397792	131.6132676	121.7438321	112.8183214	104.7365223	97.40960254	90.75874956	84.7139789
150601A00270	6/1/2015	3.12	3/21/2031	6/1/2015	151.29679	140.180498	130.0477873	120.8039464	112.363952	104.6514296	97.59772655	91.14109056	85.22593865
150601A00018	6/1/2015	4.91	9/5/2025	6/1/2015	132.324	127.7487484	123.368813	119.1746591	115.1572776	111.3081491	107.6192144	104.0828474	100.6918286
150601A00019	6/1/2015	5.64	10/3/2022	6/1/2015	110.38169	109.1812762	108.0075009	106.8594801	105.7363683	104.6373567	103.5616715	102.5085715	101.4773468
150601A00022	6/1/2015	5.43	10/26/2037	6/1/2015	173.03347	160.054748	148.4318713	138.0012349	128.6208223	120.167168	112.5327675	105.623869	99.35858657
150601A00023	6/1/2015	5.46	10/30/2037	6/1/2015	184.91605	169.4346499	155.6647913	143.3923716	132.4322621	122.6241535	113.829023	105.9261301	98.81045714
150601A00024	6/1/2015	5.58	11/8/2022	6/1/2015	111.25009	109.9317699	108.6453809	107.3897633	106.1638162	104.9664904	103.796786	102.6537494	101.5364703
150601A00030	6/1/2015	5.28	11/26/2027	6/1/2015	148.96845	141.5991888	134.6786554	128.1763799	122.0641494	116.3158276	110.9071896	105.8157706	101.0207276
140911A00033	9/11/2014	3.02	9/13/2027	9/11/2014	124.3857	119.7186212	115.3012453	111.1180794	107.1546993	103.3976695	99.83446868	96.45342219	93.24363919
141124A00024	11/24/2014	2.27	11/30/2021	11/24/2014	101.56139	101.2987789	101.0374919	100.7775236	100.5188642	100.2615037	100.0054325	99.75064094	99.4971195
141126A00006	11/26/2014	2.41	11/30/2021	11/26/2014	101.57396	101.3112849	101.0499366	100.7899043	100.5311782	100.2737485	100.0176056	99.76273982	99.50914177
150601A00001	6/1/2015	5.43	6/15/2037	6/1/2015	182.42907	167.5009521	154.1884626	142.2935663	131.6445101	122.092123	113.5066619	105.7751203	98.79892821
150601A00005	6/1/2015	4.84	6/9/2025	6/1/2015	130.2871	126.0176176	121.921198	117.9897222	114.2155074	110.5912783	107.1101431	103.7655706	100.5513687
150601A00011	6/1/2015	5.17	8/3/2022	6/1/2015	108.35289	107.3515298	106.3689793	105.4047128	104.458221	103.5290136	102.6166182	101.7205794	100.8404582
130624A00019	6/24/2013	3.4	6/26/2023	6/24/2013	112.68325	110.7277182	108.8166664	106.9487963	105.1228552	103.3376356	101.5919732	99.88474515	98.21486815
130913A00018	9/13/2013	3.72	9/13/2028	9/13/2013	126.12385	121.5600375	117.2435345	113.1584587	109.2900756	105.6247069	102.1496472	98.85308835	95.72404938
130925A00035	9/25/2013	1.53	6/25/2025	9/25/2013	112.38991	109.7326997	107.1651434	104.6835201	102.2842922	99.96409191	97.71971245	95.54809885	93.44634002
140311A00039	3/11/2014	3.06	3/11/2024	3/11/2014	114.9027	112.4166667	110.0018131	107.6556114	105.3756425	103.15959	101.0052345	98.91044907	96.87319486
140314A00026	3/14/2014	2.99	3/14/2024	3/14/2019	116.10382	113.4336196	110.8417645	108.3254343	105.8819326	103.5086781	101.203199	98.96312744	96.78619439
140414A00009	4/14/2014	2.32	4/30/2024	4/14/2014	110.42786	108.5519684	106.7247297	104.9444435	103.209487	101.518308	99.8694212	98.26140503	96.69289786
121214A00014	12/14/2012	2.16	12/14/2027	12/14/2017	119.21607	115.2176477	111.4169147	107.8021898	104.3625723	101.0878833	97.96861347	94.99587403	92.16135235
121217A00009	12/17/2012	2.02	12/17/2027	12/17/2012	118.82463	114.7979616	110.9706663	107.3309467	103.867797	100.570941	97.43077835	94.43833616	91.58522332
121220A00023	12/20/2012	1.82	12/20/2022	12/20/2012	106.78579	105.5078811	104.2558663	103.0289525	101.8263812	100.6474253	99.49138676	98.35759575	97.2454088
130206A00004	2/6/2013	2.14	2/7/2028	2/6/2013	120.18727	115.9689543	111.959125	108.1454938	104.516588	101.0616941	97.77080193	94.63455416	91.64419901
130207A00012	2/7/2013	2.9	2/7/2033	2/7/2013	136.79484	128.7164335	121.2949685	114.4684797	108.1814288	102.3839878	97.03140737	92.08346065	87.50395061
130624A00017	6/24/2013	3.4	6/26/2023	6/24/2013	112.68325	110.7277182	108.8166664	106.9487963	105.1228552	103.3376356	101.5919732	99.88474515	98.21486815
120827A00052	8/27/2012	2.01	8/27/2027	8/27/2012	119.73498	115.5589389	111.5834229	107.7969677	104.1888518	100.7490426	97.46814792	94.3373706	91.34846677
120907A00005	9/7/2012	1.76	9/7/2022	9/7/2012	103.10759	102.5084918	101.9211505	101.3452017	100.7802958	100.226097	99.6822835	99.14854601	98.62458764
120907A00026	9/7/2012	1.71	9/7/2022	9/7/2012	105.07308	104.1036775	103.1544071	102.2246375	101.3137661	100.4212154	99.54643089	98.68888041	97.84805287
120907A00032	9/7/2012	1.86	9/9/2024	9/7/2012	112.42026	109.9320721	107.5252666	105.1966303	102.9430958	100.7617363	98.64975905	96.60449736	94.62340466
121120A00010	11/20/2012	1.93	11/22/2027	11/20/2012	118.08064	114.1580794	110.4299109	106.8845907	103.5113584	100.3001743	97.24166551	94.32707713	91.54822647

	Parallel-Shift Sensitivity Analysis												
8/31/2021					Price								
REFERENCE	SETTLEMENT	Rate	MATURITY	First/Next	-400	-300	-200	-100	Base	100	200	300	400
121120A00011	11/20/2012	2.22	11/22/2027	11/20/2012	125.87403	120.2523221	114.95984	109.9747036	105.2766303	100.8468114	96.66779488	92.72337969	88.99851781
120410A00005	4/10/2012	2.35	4/12/2027	4/10/2012	119.19775	115.3930335	111.7604958	108.2906889	104.9747595	101.8044061	98.77184037	95.8697517	93.09127466
120614A00013	6/14/2012	1.89	6/14/2022	6/14/2012	104.66233	103.8060121	102.9635538	102.1346225	101.3188946	100.516057	99.72580591	98.9478475	98.18189676
120614A00015	6/14/2012	1.89	6/14/2022	6/14/2012	104.66233	103.8060121	102.9635538	102.1346225	101.3188946	100.516057	99.72580591	98.9478475	98.18189677
120621A00009	6/21/2012	3.18	6/21/2032	6/21/2012	146.95308	136.7375764	127.4417145	118.9726823	111.2477462	104.1930939	97.74281593	91.83800972	86.42598943
120716A00025	7/16/2012	1.83	7/18/2022	7/17/2017	105.02877	104.0766936	103.1418169	102.2236773	101.3218283	100.4358391	99.56529421	98.70979223	97.86894578
120827A00048	8/27/2012	2.01	8/27/2027	8/27/2012	119.73497	115.558935	111.5834204	107.7969665	104.1888516	100.7490434	97.46814966	94.33737315	91.34847003
111128A00006	11/28/2011	3.03	11/28/2031	11/28/2011	133.9003	126.9653195	120.5409011	114.5832482	109.052718	103.9133984	99.13272789	94.68115764	90.5318492
120119A00015	1/19/2012	2.27	1/19/2024	1/19/2012	111.7689	109.6294512	107.5471689	105.520145	103.5465515	101.624633	99.75270283	97.92914008	96.15238673
120210A00004	2/10/2012	1.98	2/10/2022	2/10/2012	102.67537	102.1998312	101.7286388	101.2617355	100.7990626	100.340563	99.88618014	99.43585882	98.98954465
120210A00005	2/10/2012	1.64	2/10/2022	2/10/2012	102.51542	102.0414823	101.5718823	101.1065567	100.6454475	100.1884973	99.73564996	99.28685044	98.84204454
120217A00007	2/17/2012	2.25	2/20/2024	2/17/2012	112.24202	109.9976239	107.8153414	105.6930227	103.628611	101.6201346	99.66570203	97.76349882	95.91178352
120315A00002	3/14/2012	2.56	3/15/2027	3/14/2022	119.43585	115.7176749	112.1656173	108.7706819	105.524431	102.4189446	99.44678556	96.60096635	93.87491912
070518A00023	5/18/2007	5.46	5/18/2027	5/18/2007	129.93921	125.8577442	121.9610685	118.2389845	114.681945	111.2810035	108.0277718	104.9143807	101.9334442
080220A00035	2/20/2008	4.65	2/22/2022	2/20/2008	104.15931	103.6510522	103.1477595	102.6493634	102.1557928	101.6669776	101.1828493	100.7033406	100.2283854
080423A00066	4/23/2008	4.41	4/24/2023	4/23/2008	109.77057	108.495931	107.2458606	106.0196629	104.8166645	103.6362181	102.4777009	101.3405137	100.2240793
110414A00007	4/14/2011	3.95	1/21/2025	4/14/2011	116.36804	113.902233	111.5125043	109.1958728	106.9494998	104.7706777	102.6568235	100.6054718	98.61426858
110824A00006	8/24/2011	2.69	8/24/2026	8/24/2011	119.49277	115.8986941	112.4541319	109.1515911	105.9840133	102.9447427	100.0274999	97.2263583	94.53572217
111007A00007	10/7/2011	3.92	10/7/2031	10/7/2011	154.50358	143.6352806	133.7350511	124.7075808	116.4675918	108.9387275	102.0525673	95.74775537	89.96922946
061013A00024	10/13/2006	5.53	10/15/2021	10/13/2006	101.1588	101.03224	100.9060083	100.7801075	100.6545363	100.5292933	100.4043773	100.2797868	100.1555207
081219A00006	12/19/2008	3.88	12/22/2023	12/19/2008	118.17421	115.5381825	112.975206	110.4828002	108.0585841	105.7002735	103.4056764	101.1726889	98.99929051
110927A00009	9/27/2011	3.07	9/27/2021	9/27/2011	100.50956	100.4341531	100.3588683	100.2837007	100.2086501	100.1337163	100.0588989	99.98419765	99.9096124
111024A00013	10/24/2011	3.24	10/25/2021	10/24/2011	101.06389	100.909312	100.755217	100.6016001	100.4484593	100.2957924	100.143597	99.99187105	99.84061238
111213A00004	12/13/2011	2.96	12/13/2021	12/13/2011	101.93943	101.6439688	101.3502345	101.0582087	100.7678765	100.479223	100.1922338	99.90689421	99.62319009
120419A00009	4/19/2012	2.76	4/19/2022	4/19/2012	104.21058	103.5358943	102.8699364	102.2125405	101.5635421	100.9227809	100.2901007	99.66534917	99.04837774
191002A00046	2/14/2020	1.75	2/14/2023	2/14/2020	108.0731	106.5033399	104.9645457	103.4558782	101.9765272	100.5257115	99.1026766	97.70669451	96.33706192
200131A00029	1/31/2020	1.78	10/31/2024	1/31/2020	116.96961	113.3591751	109.8793635	106.5246476	103.2897715	100.169736	97.15978456	94.25538922	91.45223816
200131A00031	1/31/2020	1.74	1/31/2024	1/31/2020	113.11057	110.4217609	107.8107265	105.2747737	102.8113177	100.4178785	98.09207614	95.83162579	93.6343335
190917A00033	1/10/2020	2.03	1/10/2023	1/10/2020	107.93205	106.4716547	105.0382394	103.6311206	102.2496361	100.893145	99.56102742	98.25268328	96.96753182
191002A00038	1/13/2020	1.76	1/13/2023	1/13/2020	107.59392	106.1272021	104.6877327	103.2748175	101.8877842	100.5259825	99.18878328	97.87557785	96.58577771
191002A00042	1/13/2020	1.76	1/13/2023	1/13/2020	107.59392	106.1272021	104.6877327	103.2748175	101.8877842	100.5259825	99.18878328	97.87557785	96.58577771
191002A00043	2/3/2020	1.75	2/3/2023	2/3/2020	107.89656	106.3643973	104.8618106	103.3880138	101.94225	100.523788	99.13192174	97.76596879	96.42526961
191002A00044	2/3/2020	1.75	2/3/2023	2/3/2020	107.89656	106.3643973	104.8618106	103.3880138	101.94225	100.523788	99.13192174	97.76596879	96.42526961

	Parallel-Shift Sensitivity Analysis												
8/31/2021					Price								
REFERENCE	SETTLEMENT	Rate	MATURITY	First/Next	-400	-300	-200	-100	Base	100	200	300	400
191002A00045	2/14/2020	1.75	2/14/2023	2/14/2020	108.0731	106.5033399	104.9645457	103.4558782	101.9765272	100.5257115	99.1026766	97.70669451	96.33706192
190904A00036	9/4/2019	1.74	6/8/2022	9/4/2019	104.31949	103.4933467	102.6802428	101.879872	101.0919367	100.316149	99.55222948	98.79990734	98.05891999
190904A00037	9/4/2019	1.73	6/15/2022	9/4/2019	104.42944	103.5813396	102.7469712	101.9260015	101.1181096	100.3229849	99.54032638	98.76984258	98.01125099
190904A00040	9/4/2019	1.73	6/22/2022	9/4/2019	104.53905	103.6690831	102.8135452	101.9720769	101.1443335	100.3299812	99.52869714	98.74016857	97.9640928
190904A00043	9/4/2019	1.72	12/15/2022	9/4/2019	107.17143	105.7643509	104.3882792	103.0421929	101.7251145	100.4361091	99.17428227	97.93877772	96.7287754
190904A00044	9/4/2019	1.72	12/30/2022	9/4/2019	107.31946	105.8945387	104.4957965	103.1225672	101.7742054	100.450087	99.14960831	97.87218523	96.61725262
190917A00030	1/10/2020	2.03	1/10/2023	1/10/2020	107.93205	106.4716547	105.0382394	103.6311206	102.2496361	100.893145	99.56102742	98.25268328	96.96753182
190829A00075	8/29/2019	1.8	6/15/2023	8/29/2019	109.94406	107.9929929	106.086428	104.2230064	102.4014226	100.6204221	98.87879929	97.1753948	95.50909339
190829A00076	8/29/2019	1.81	6/30/2023	8/29/2019	110.18945	108.1903775	106.2374452	104.3293187	102.464708	100.6423682	98.86109796	97.11973745	95.41716685
190829A00078	8/29/2019	1.8	12/15/2023	8/29/2019	112.6103	110.0715129	107.6029738	105.2022669	102.8670787	100.5951922	98.3844823	96.23291125	94.13852426
190829A00080	8/29/2019	1.8	12/29/2023	8/29/2019	112.80501	110.221734	107.7106405	105.2693016	102.8953889	100.586666	98.34098395	96.15627742	94.0305609
190830A00020	8/31/2020	1.67	8/31/2023	8/31/2020	110.81035	108.6167936	106.4782414	104.3929599	102.3592783	100.3755906	98.44035222	96.55207734	94.70933623
190904A00034	9/4/2019	1.74	6/1/2022	9/4/2019	104.21812	103.4136359	102.6215206	101.8414883	101.0732643	100.3165824	99.57118415	98.8368187	98.11324271
190829A00013	8/29/2019	1.78	8/29/2024	8/29/2019	116.11503	112.7177526	109.4380878	106.2713008	103.2128744	100.2584993	97.4040632	94.64564064	91.97948326
190829A00016	8/29/2019	1.82	8/29/2022	8/29/2019	105.68067	104.594858	103.5312475	102.489166	101.4679653	100.467023	99.48574117	98.5235453	97.57988296
190829A00017	8/29/2019	1.8	8/29/2023	8/29/2019	111.05477	108.8646832	106.7293611	104.6470807	102.6161828	100.6350725	98.70221561	96.8161362	94.97541388
190829A00028	8/29/2019	1.78	8/29/2024	8/29/2019	116.11503	112.7177526	109.4380878	106.2713008	103.2128744	100.2584993	97.4040632	94.64564064	91.97948326
190829A00072	8/29/2019	1.81	12/15/2022	8/29/2019	107.29226	105.8843083	104.5073854	103.1604629	101.8425629	100.55275	99.29012947	98.05384462	96.84307499
190829A00073	8/29/2019	1.81	3/15/2023	8/29/2019	108.59804	106.9344239	105.3050385	103.7089079	102.1450903	100.6126789	99.11080075	97.6386146	96.19530979
190722A00056	12/19/2019	2.02	12/20/2021	12/19/2019	101.77931	101.4640619	101.1507734	100.8394276	100.5300066	100.2224923	99.91686721	99.61311383	99.31121494
190726A00014	7/26/2019	2.23	7/24/2024	7/26/2019	117.02107	113.723857	110.5370736	107.4564162	104.4777768	101.5972303	98.81102422	96.11557106	93.50743945
190805A00031	8/5/2020	1.77	8/4/2023	8/5/2020	110.6265	108.5170473	106.4586421	104.4497267	102.4888054	100.574438	98.70523733	96.87986692	95.09703869
190815A00040	8/15/2019	1.86	8/15/2023	8/15/2019	110.97243	108.8258845	106.7320388	104.689265	102.6959955	100.7507222	98.85199327	96.9984108	95.18862852
190815A00041	8/15/2019	1.86	8/15/2024	8/15/2019	116.17829	112.8243697	109.5851189	106.4559807	103.4326043	100.5108366	97.68671159	94.9564412	92.31640585
190826A00046	8/26/2019	1.77	8/26/2024	8/26/2019	116.04232	112.6556839	109.3859974	106.2285596	103.1788904	100.2327153	97.3859548	94.63471399	91.97527334
190621A00035	6/21/2019	2.19	12/15/2023	6/21/2019	113.55572	111.0053962	108.525572	106.1138249	103.7678336	101.4853741	99.26431427	97.1026098	94.99829948
190621A00037	6/21/2019	2.21	5/15/2024	6/21/2019	115.91347	112.8538548	109.8913305	107.0221577	104.242767	101.5497536	98.93986834	96.41000895	93.95721247
190621A00039	6/21/2019	2.21	6/17/2024	6/21/2019	116.40672	113.2360505	110.1684779	107.2000263	104.3269035	101.5454879	98.85231902	96.24408941	93.71763691
190722A00047	11/22/2019	2.03	11/22/2021	11/22/2019	101.32946	101.0951316	100.8618921	100.6297362	100.3986564	100.1686452	99.93969524	99.71179909	99.48494949
190722A00051	11/22/2019	2.03	11/22/2021	11/22/2019	101.32946	101.0951316	100.8618921	100.6297362	100.3986564	100.1686452	99.93969524	99.71179909	99.48494949
190722A00054	12/19/2019	2.02	12/20/2021	12/19/2019	101.77931	101.4640619	101.1507734	100.8394276	100.5300066	100.2224923	99.91686721	99.61311383	99.31121494
190530A00048	5/30/2019	2.41	5/31/2022	5/30/2019	104.71857	103.9149861	103.1237	102.3444276	101.5768973	100.8208452	100.0760156	99.34216	98.61903752
190530A00049	5/30/2019	2.44	5/30/2023	5/30/2019	110.8744	108.9631	107.094799	105.2681106	103.4817109	101.734333	100.024764	98.35184155	96.71445168

	Parallel-Shift Sensitivity Analysis												
8/31/2021					Price								
REFERENCE	SETTLEMENT	Rate	MATURITY	First/Next	-400	-300	-200	-100	Base	100	200	300	400
190604A00019	6/4/2019	2.27	6/4/2024	6/4/2019	116.38746	113.2584516	110.2303069	107.2990974	104.4610752	101.7126662	99.05046106	96.47120598	93.97179413
190607A00040	6/7/2019	2.12	6/7/2022	6/7/2019	104.61249	103.7879913	102.9764545	102.177575	101.3910583	100.6166189	99.85398038	99.10287436	98.36304071
190607A00041	6/7/2019	2.12	6/7/2022	6/7/2019	104.61249	103.7879913	102.9764545	102.177575	101.3910583	100.6166189	99.85398038	99.10287436	98.36304071
190621A00034	6/21/2019	2.17	6/15/2023	6/21/2019	110.6387	108.6809112	106.7677595	104.8978774	103.0699554	101.2827359	99.53500954	97.82561392	96.15343061
190426A00023	4/26/2019	2.91	6/24/2026	4/26/2019	130.84972	124.9422757	119.3384085	114.0209185	108.9736705	104.1815222	99.6302576	95.30652565	91.19778313
190501A00014	5/1/2019	2.62	5/1/2024	5/1/2019	116.87138	113.8418014	110.9071146	108.0637146	105.3081591	102.6371618	100.0475843	97.53642769	95.10082564
190515A00030	5/15/2019	2.49	5/15/2024	5/15/2019	116.72113	113.6499499	110.6761428	107.795959	105.00582	102.3023128	99.6821798	97.14231111	94.67973618
190515A00032	5/15/2019	2.49	5/15/2024	5/15/2019	116.72113	113.6499499	110.6761428	107.795959	105.00582	102.3023128	99.6821798	97.14231111	94.67973618
190520A00048	5/20/2019	2.53	5/20/2024	5/20/2019	116.91544	113.8258441	110.8346093	107.9379229	105.1321548	102.413843	99.77968468	97.22652713	94.75135987
190523A00035	5/23/2019	2.34	11/23/2021	5/23/2019	101.41831	101.1809948	100.9447946	100.7097035	100.4757136	100.2428173	100.0110068	99.78027464	99.5506132
190325A00022	3/25/2019	2.55	11/25/2022	3/25/2019	108.02468	106.6443374	105.2991642	103.9878276	102.7090629	101.461668	100.2444991	99.05646746	97.89653616
190327A00027	3/27/2019	2.66	1/15/2025	3/27/2019	121.19322	117.2660416	113.4878651	109.8522522	106.3530741	102.9844986	99.74097413	96.61721432	93.60818435
190328A00077	3/28/2019	2.46	9/28/2021	3/28/2019	100.48085	100.4026856	100.3246486	100.2467352	100.1689453	100.0912785	100.0137346	99.93631322	99.85901417
190329A00012	3/29/2019	2.61	3/29/2024	3/29/2019	116.303	113.386623	110.5591378	107.817271	105.1578943	102.5780154	100.0747714	97.64542204	95.28734383
190405A00040	4/3/2020	3.12	4/5/2030	4/3/2020	153.82928	142.0798032	131.331833	121.4943339	112.4850094	104.2294171	96.6601806	89.71628452	83.3424434
190422A00030	4/22/2019	2.93	12/22/2025	4/22/2019	127.91236	122.7104174	117.7513022	113.022378	108.5117334	104.208138	100.1009993	96.18032338	92.43667735
190311A00072	3/25/2019	2.79	9/25/2023	3/25/2019	113.61181	111.3103815	109.0678732	106.8823657	104.7520171	102.6750596	100.6497955	98.6745947	96.74789044
190311A00073	3/14/2019	2.81	3/14/2024	3/14/2019	116.60132	113.7270643	110.9393722	108.2351038	105.6112521	103.0649391	100.5934088	98.19402165	95.86424857
190311A00076	3/14/2019	2.88	9/16/2024	3/14/2019	119.95258	116.4362236	113.0426699	109.7669099	106.604171	103.5499041	100.5997716	97.74963589	94.99554887
190315A00039	3/15/2019	2.64	9/15/2021	3/15/2019	100.26502	100.2231866	100.1814079	100.1396804	100.0980039	100.0563785	100.0148039	99.97328013	99.93180705
190318A00016	3/19/2019	2.7	3/18/2022	3/19/2019	103.59292	103.0158187	102.4451478	101.8808005	101.3226718	100.7706593	100.2246627	99.68458388	99.15032682
190318A00017	3/19/2019	2.7	3/18/2022	3/19/2019	103.59292	103.0158187	102.4451478	101.8808005	101.3226718	100.7706593	100.2246627	99.68458388	99.15032682
190122A00018	1/22/2019	2.98	12/1/2022	1/22/2019	108.68736	107.2851391	105.9186547	104.5865473	103.2875295	102.0203775	100.7839273	99.57707105	98.39875354
190123A00059	1/23/2019	2.95	1/24/2022	1/23/2019	102.72911	102.3104227	101.8951535	101.4832577	101.0746944	100.6694231	100.2674041	99.86859835	99.47296738
190206A00009	2/12/2019	2.84	2/11/2022	2/12/2019	103.01886	102.5467653	102.0790024	101.6155089	101.1562263	100.7010974	100.2500659	99.80307654	99.36007511
190206A00010	2/12/2019	2.84	2/11/2022	2/12/2019	103.01886	102.5467653	102.0790024	101.6155089	101.1562263	100.7010974	100.2500659	99.80307654	99.36007511
190221A00012	2/21/2019	2.83	8/23/2022	2/21/2019	106.60655	105.5343428	104.4836677	103.4538836	102.4443715	101.4545371	100.4838089	99.53163739	98.59749399
190311A00068	3/25/2019	2.76	9/26/2022	3/25/2019	107.17106	105.9883663	104.8317224	103.7002723	102.5931995	101.5097224	100.4490925	99.41059276	98.3935358
181031A00070	3/1/2019	3.77	3/1/2029	3/1/2019	152.98051	142.7967047	133.3792067	124.6659978	116.6003949	109.1305658	102.2090902	95.79256215	89.84123127
181203A00039	12/3/2018	3.27	12/1/2023	12/3/2018	115.91728	113.3808565	110.9137004	108.5133698	106.1775365	103.9039749	101.6905567	99.53524531	97.43609147
181206A00018	12/6/2018	3.13	12/6/2023	12/6/2018	115.67329	113.1245563	110.645685	108.2342391	105.8878882	103.6044028	101.3816492	99.2175842	97.11025026
181220A00041	12/20/2018	3.36	12/18/2026	12/20/2018	136.24176	129.5776647	123.2846097	117.3399162	111.7224164	106.4123411	101.3912201	96.64178922	92.1479057
181227A00001	12/27/2018	2.92	12/27/2021	12/27/2018	102.19001	101.8537991	101.519802	101.1879951	100.8583571	100.5308668	100.2055031	99.88224543	99.56107343

	Parallel-Shift Sensitivity Analysis												
8/31/2021					Price								
REFERENCE	SETTLEMENT	Rate	MATURITY	First/Next	-400	-300	-200	-100	Base	100	200	300	400
190122A00017	1/22/2019	2.94	5/2/2022	1/22/2019	104.5743	103.8591718	103.1538065	102.4580064	101.7715779	101.0943328	100.4260876	99.76666379	99.11588763
180919A00013	9/19/2018	3.14	9/19/2022	9/19/2018	107.45431	106.2920857	105.1549901	104.0422105	102.9529726	101.8865346	100.8421857	99.81924433	98.81705672
180925A00033	9/25/2018	3.26	9/25/2023	9/25/2018	114.63693	112.3241389	110.0705075	107.8741051	105.733083	103.6456669	101.610153	99.624905	97.68835046
181001A00031	10/1/2018	3.23	9/29/2023	10/1/2018	114.64757	112.3221595	110.0564507	107.8484861	105.6963917	103.5983694	101.5526928	99.55770433	97.61181152
181003A00023	10/3/2018	3.17	4/4/2022	10/3/2018	104.1832	103.5535907	102.9315871	102.3170492	101.7098431	101.1098382	100.5169068	99.93092442	99.35176934
181016A00019	10/18/2018	3.32	10/16/2023	10/18/2018	115.16478	112.7815732	110.4605325	108.1995834	105.996736	103.8500831	101.7577958	99.71811952	97.72937069
181029A00051	2/5/2019	3.69	2/5/2029	2/5/2019	151.84547	141.8048675	132.5136807	123.9117776	115.9441541	108.5604712	101.7146369	95.36442733	89.4711439
180727A00017	7/27/2018	3.16	7/27/2023	7/27/2018	113.29222	111.179735	109.1177075	107.1046207	105.1390122	103.2194733	101.3446463	99.51322267	97.72394089
180821A00029	8/21/2018	3.01	8/21/2023	8/21/2018	113.44978	111.2587033	109.1217301	107.0371767	105.0034218	103.018906	101.0821288	99.19164578	97.34606653
180910A00037	9/10/2018	3.03	9/9/2022	9/10/2018	107.13979	106.0110634	104.906092	103.8241346	102.7644774	101.7264358	100.709353	99.71259857	98.73556715
180910A00039	9/10/2018	3.03	9/9/2022	9/10/2018	107.13979	106.0110634	104.906092	103.8241346	102.7644774	101.7264358	100.709353	99.71259857	98.73556715
180911A00007	9/11/2018	3.12	9/8/2023	9/11/2018	114.01398	111.7610943	109.5649658	107.4237807	105.3357999	103.2993525	101.3128321	99.37469464	97.48345462
180912A00017	9/12/2018	3.13	9/12/2023	9/12/2018	114.11011	111.8437021	109.6346018	107.4809668	105.3810328	103.333105	101.3355548	99.38681693	97.48538594
180618A00036	6/18/2018	3.89	6/18/2048	6/18/2018	279.15162	225.5223366	183.7474745	151.0685582	125.3884786	105.1094286	89.01127336	76.160104	65.83936296
180621A00031	6/21/2018	3.07	6/21/2023	6/21/2018	112.4414	110.4477385	108.4996897	106.595886	104.7350156	102.9158158	101.137071	99.39761072	97.69630719
180621A00068	6/21/2018	3.32	6/23/2025	6/21/2018	126.49826	121.9383644	117.5698131	113.38354	109.370957	105.5239285	101.8347446	98.29609616	94.90105225
180625A00012	6/25/2018	3.07	6/23/2023	6/25/2018	112.47909	110.478913	108.5245699	106.6146963	104.7479823	102.9231664	101.1390336	99.3944132	97.68817678
180709A00081	7/9/2018	3.05	7/7/2023	7/9/2018	112.70197	110.6566841	108.6589771	106.707455	104.8007745	102.9376404	101.1168028	99.33705613	97.59723644
180726A00046	7/26/2018	3.2	12/26/2023	7/26/2018	116.20346	113.5872263	111.0436887	108.5703996	106.165006	103.825249	101.5489593	99.33405297	97.17852744
180518A00071	5/25/2018	3.56	5/18/2026	5/25/2018	133.55091	127.7064038	122.1560103	116.8832276	111.8725833	107.1095591	102.5805261	98.2726846	94.17400887
180529A00072	5/29/2018	3	5/30/2023	5/29/2018	111.89918	109.9782058	108.1004122	106.2644114	104.4688743	102.7125291	100.9941578	99.31259365	97.6667181
180612A00031	6/12/2018	3.04	6/13/2022	6/12/2018	105.44754	104.6010914	103.7682268	102.9486196	102.1419547	101.3479271	100.5662413	99.79661091	99.03875829
180613A00046	6/13/2018	3	1/13/2022	6/13/2018	102.53991	102.1536581	101.7703289	101.3898852	101.0122943	100.6375242	100.2655431	99.89632001	99.52982412
180613A00047	6/13/2018	3.17	1/12/2024	6/13/2018	116.43656	113.7645411	111.1680019	108.6443819	106.1912245	103.8061704	101.4869535	99.23139622	97.03740581
180615A00039	6/15/2018	3.49	6/15/2028	6/15/2018	146.17204	137.2186008	128.883747	121.1213143	113.888822	107.1471615	100.860311	94.99507633	89.52085488
180403A00024	4/3/2018	2.96	4/3/2023	4/3/2018	110.79303	109.0546361	107.3527114	105.6861784	104.0540043	102.4551959	100.8887983	99.35389281	97.84959522
180404A00018	4/4/2018	2.89	4/4/2022	4/4/2018	104.01304	103.3840269	102.7626092	102.1486523	101.5420222	100.9425884	100.3502233	99.7648025	99.18620427
180515A00022	5/15/2018	3.19	5/15/2023	5/15/2018	111.98183	110.1048121	108.2692181	106.4737428	104.7171368	102.9982031	101.3157945	99.66881035	98.05619499
180518A00042	5/25/2018	3.42	5/19/2025	5/25/2018	126.26856	121.8302739	117.5745471	113.4927577	109.5767519	105.8188121	102.2116302	98.74828326	95.42221001
180518A00046	5/25/2018	3.62	5/18/2027	5/25/2018	140.4343	133.105375	126.2117971	119.7252372	113.6193661	107.8697051	102.4534848	97.3495164	92.53807269
180518A00048	5/25/2018	3.65	5/18/2028	5/25/2018	146.91311	138.0370522	129.7676518	122.0599928	114.872727	108.1677721	101.9100368	96.06716887	90.60932755
180131A00022	1/31/2018	2.96	1/30/2025	1/31/2018	122.53936	118.5393374	114.6926014	110.99245	107.4325137	104.0067348	100.7093503	97.53487604	94.47809157
180201A00022	2/1/2018	2.99	2/3/2025	2/1/2018	122.72172	118.7043121	114.8413298	111.1260062	107.5519039	104.1129018	100.8031777	97.6171923	94.54967322

	Parallel-Shift Sensitivity Analysis												
8/31/2021					Price								
REFERENCE	SETTLEMENT	Rate	MATURITY	First/Next	-400	-300	-200	-100	Base	100	200	300	400
180312A00014	3/12/2018	3	3/13/2023	3/12/2018	110.47238	108.7988945	107.1597424	105.5539419	103.9805516	102.4386649	100.9274089	99.44594223	97.99345411
180316A00031	3/16/2018	2.96	12/16/2022	3/16/2018	108.86398	107.4433834	106.0537001	104.6939221	103.363087	102.0602744	100.7846028	99.53522837	98.31134209
180328A00015	3/28/2018	2.93	3/28/2023	3/28/2018	110.633	108.9140106	107.2308414	105.5824457	103.9678183	102.3859925	100.8360381	99.3170597	97.82819537
180328A00042	3/28/2018	2.95	3/28/2023	3/28/2018	110.66588	108.9466121	107.263166	105.6144986	103.9996044	102.4175165	100.8673047	99.34807345	97.85896068
171219A00032	12/19/2017	2.42	12/20/2021	12/19/2017	101.90356	101.588062	101.2745257	100.9629333	100.6532668	100.3455082	100.0396399	99.73564448	99.43350464
171222A00037	12/22/2017	2.71	12/29/2023	12/22/2017	115.04935	112.4382558	109.8999578	107.4320103	105.0320665	102.6978724	100.4272623	98.21815439	96.06854772
171228A00023	12/28/2017	2.69	3/29/2024	12/28/2017	116.52232	113.6029516	110.7725408	108.0278167	105.3656487	102.7830425	100.2771332	97.84517864	95.48455343
171228A00024	12/28/2017	2.71	6/28/2024	12/28/2017	118.08201	114.8513244	111.7262613	108.7027892	105.7770569	102.9453811	100.2042381	97.55025576	94.98020633
180104A00016	1/4/2018	2.56	1/4/2023	1/4/2018	108.5652	107.1180883	105.6974137	104.3025097	102.9327341	101.5874654	100.2661021	98.96806174	97.69278037
180123A00067	1/23/2018	2.67	1/23/2023	1/23/2018	109.05337	107.5461	106.067331	104.6163213	103.1923549	101.7947399	100.4228074	99.07591081	97.7534245
170918A00051	12/18/2017	2.24	12/19/2022	12/18/2017	107.92946	106.5121954	105.1247562	103.7662072	102.4356557	101.1322462	99.85515816	98.60360444	97.37682956
171016A00016	10/16/2017	2.23	10/17/2022	10/16/2017	106.9435	105.6954109	104.4763507	103.2853159	102.1213483	100.9835332	99.87099639	98.78290248	97.71845244
171110A00007	11/10/2017	2.38	11/10/2022	11/10/2017	107.54207	106.2133146	104.9172879	103.6527886	102.4186766	101.2138665	100.0373239	98.88806258	97.76514183
171110A00008	11/10/2017	2.65	11/12/2024	11/10/2017	120.12678	116.4241509	112.8562323	109.4172723	106.1018082	102.9046474	99.82085159	96.84572264	93.97478885
171110A00019	5/4/2018	2.46	5/4/2023	5/4/2018	110.49313	108.6627243	106.8721945	105.120309	103.4058835	101.7277821	100.0849152	98.47623702	96.9007433
171219A00031	12/19/2017	2.42	12/20/2021	12/19/2017	101.90356	101.588062	101.2745257	100.9629333	100.6532668	100.3455082	100.0396399	99.73564448	99.43350464
170703A00022	7/3/2017	2.86	7/3/2026	7/3/2017	130.73006	124.7945414	119.1654143	113.8252866	108.7578379	103.9477507	99.38064412	95.043012	90.92216515
170703A00024	7/3/2017	2.95	7/6/2027	7/3/2017	136.9141	129.5157434	122.5675461	116.0397744	109.9048049	104.1369653	98.71238634	93.60886718	88.8057504
170726A00025	7/26/2017	2.14	7/26/2022	7/26/2017	105.44541	104.4665306	103.5057652	102.5626139	101.636596	100.7272477	99.83412209	98.95678801	98.09482946
170814A00034	8/14/2017	2.1	8/15/2022	8/14/2017	105.74416	104.7015029	103.67934	102.6770732	101.6941257	100.7299429	99.78399104	98.8557567	97.94474545
170822A00023	8/23/2017	3.95	8/23/2028	8/23/2017	150.95723	141.5758633	132.856203	124.7478444	117.2044806	110.1835491	103.64591	97.55555441	91.87933824
170908A00021	9/8/2017	1.96	9/8/2022	9/8/2017	105.98838	104.8694322	103.7740134	102.7013876	101.6508489	100.6217207	99.61335345	98.62512385	97.65643327
170518A00008	5/18/2018	3.06	5/18/2028	5/18/2018	142.45293	133.7321381	125.6102586	118.0428318	110.9889396	104.4109013	98.27400022	92.54623454	87.19809066
170519A00019	5/19/2017	2	11/19/2021	5/19/2017	101.27452	101.0488049	100.8241016	100.6004079	100.377717	100.1560221	99.93531654	99.71559361	99.49684673
170609A00052	6/11/2018	2.9	6/9/2027	6/11/2018	136.18538	128.9051067	122.0633378	115.6312639	109.5821262	103.8910573	98.53493775	93.49226296	88.74302193
170614A00019	6/14/2017	2.48	6/13/2025	6/14/2017	122.87093	118.4166172	114.1489799	110.0591341	106.1386766	102.3796521	98.77452595	95.31615985	91.99778805
170622A00045	6/22/2017	2.76	6/22/2027	6/22/2017	135.47464	128.169485	121.3069524	114.8578909	108.7952219	103.0937772	97.73015469	92.6825855	87.93081175
170628A00044	10/9/2018	2.12	10/8/2021	10/9/2018	100.61688	100.5105798	100.4045116	100.298679	100.193081	100.0877169	99.98258588	99.87768714	99.77301988
170327A00079	3/27/2019	3.19	3/29/2027	3/27/2019	136.90262	129.8563432	123.221174	116.9708836	111.0810564	105.528955	100.293396	95.35463527	90.69426293
170327A00080	3/27/2019	3.43	3/27/2029	3/27/2019	150.51855	140.3343743	130.9248302	122.2266435	114.1820334	106.738207	99.84690455	93.46398736	87.54906575
170404A00002	4/4/2017	2.42	4/4/2023	4/4/2017	109.91268	108.1788593	106.481471	104.8194407	103.1917346	101.5973589	100.0353582	98.50481299	97.00483878
170404A00003	4/4/2017	2.74	4/4/2025	4/4/2017	122.7993	118.5770714	114.5241851	110.6328729	106.8957748	103.3059107	99.85665832	96.54173301	93.35516793
170405A00031	4/5/2017	2.22	4/4/2022	4/5/2017	103.60589	102.9782848	102.3582694	101.7457026	101.1404508	100.5423836	99.95137362	99.36729646	98.79003071

	Parallel-Shift Sensitivity Analysis												
8/31/2021					Price								
REFERENCE	SETTLEMENT	Rate	MATURITY	First/Next	-400	-300	-200	-100	Base	100	200	300	400
170412A00019	4/12/2017	2.56	4/12/2024	4/12/2017	116.39258	113.4304412	110.5596523	107.776802	105.0786332	102.462033	99.92402565	97.46176473	95.07252705
161123A00035	11/23/2016	2.16	11/23/2021	11/23/2016	101.37606	101.1388101	100.9026784	100.6676556	100.4337338	100.2009053	99.96916238	99.73849751	99.50890315
161123A00037	11/23/2016	2.16	11/23/2021	11/23/2016	101.37606	101.1388101	100.9026784	100.6676556	100.4337338	100.2009053	99.96916238	99.73849751	99.50890315
161125A00002	11/25/2016	2.62	11/27/2023	11/25/2016	114.30181	111.7972926	109.3610197	106.9905887	104.6837077	102.4381862	100.2519294	98.1229328	96.04927766
161221A00053	12/23/2016	3.05	12/23/2021	12/23/2016	102.15654	101.8319107	101.5093464	101.1888318	100.8703475	100.5538741	100.2393926	99.92688428	99.61633045
170327A00077	3/27/2019	2.74	3/27/2024	3/27/2019	116.62649	113.7118534	110.8858857	108.1453302	105.4870721	102.9081316	100.4056579	97.97692159	95.61930955
170327A00078	3/27/2019	3.04	3/27/2026	3/27/2019	130.04897	124.467301	119.160137	114.112467	109.3101874	104.7400391	100.3895521	96.24699436	92.30132372
160819A00015	10/12/2016	2.3	10/13/2026	10/12/2016	129.12235	122.8801926	116.9779149	111.3951828	106.1129874	101.1135541	96.38025558	91.8975307	87.65081079
160830A00068	11/30/2016	1.95	11/30/2023	11/30/2016	112.75868	110.2631938	107.8360132	105.4747309	103.1770435	100.9407499	98.76374544	96.64401696	94.57963756
161017A00007	10/17/2016	1.99	10/18/2023	10/17/2016	112.20993	109.8542943	107.5603945	105.3261651	103.1496232	101.0288686	98.96207935	96.94750811	94.98347816
161017A00015	10/17/2016	1.68	10/18/2021	10/17/2016	100.71931	100.5848256	100.450715	100.3169766	100.1836089	100.0506102	99.91797913	99.78571403	99.65381338
161115A00021	11/15/2016	2.02	11/15/2021	11/15/2016	101.21481	101.0005461	100.7871982	100.5747635	100.3632361	100.1526101	99.94287984	99.73403942	99.52608317
161118A00026	12/20/2016	3.03	12/21/2026	12/20/2016	134.35364	127.7313319	121.4789654	115.5739031	109.995009	104.7225436	99.73806385	95.02433172	90.5652288
160711A00020	8/24/2017	1.59	8/24/2022	8/24/2017	105.36739	104.2988969	103.2519685	102.2259549	101.2202342	100.2342093	99.26730611	98.31897268	97.38867818
160711A00022	1/10/2018	1.91	1/10/2025	1/10/2018	118.39638	114.5348368	110.8197096	107.2446878	103.8037629	100.4912161	97.30160275	94.22973755	91.27068109
160712A00019	7/12/2017	2.32	7/12/2027	7/12/2017	132.88602	125.5891116	118.7394222	112.3072617	106.2650591	100.5871986	95.24987099	90.2309381	85.50980714
160714A00018	9/6/2016	2.28	9/4/2026	9/6/2016	128.4654	122.3740334	116.6086054	111.1499577	105.9801582	101.0824169	96.44100664	92.04119043	87.86915391
160714A00024	9/20/2016	2.5	9/20/2028	9/20/2016	139.91341	130.8297826	122.401007	114.5763963	107.3094445	100.5574579	94.2812239	88.44470993	83.01478986
160729A00017	7/31/2017	2.47	7/31/2029	7/31/2017	143.98632	133.5946571	124.0320466	115.2279818	107.1182905	99.64453882	92.75349067	86.39662156	80.52967962
160225A00024	2/25/2016	2.22	2/26/2024	2/25/2016	114.7549	111.9582322	109.2447674	106.6115285	104.0556686	101.5744605	99.16529072	96.82565373	94.55314701
160303A00020	3/3/2016	2.97	3/3/2031	3/3/2016	159.54725	146.1318001	133.9698701	122.937181	112.9223903	103.825687	95.55754296	88.03760551	81.1937138
160307A00029	3/7/2016	3.21	3/7/2031	3/7/2016	160.16442	146.8073511	134.6940187	123.7013781	113.7191782	104.6485671	96.40085932	88.8964427	82.06380699
160520A00017	9/20/2017	2.34	9/20/2024	9/20/2017	118.25196	114.7499771	111.3708786	108.1096284	104.9614329	101.9217238	98.98614584	96.15054569	93.41096093
160520A00018	9/20/2017	2.34	9/20/2024	9/20/2017	118.25196	114.7499771	111.3708786	108.1096284	104.9614329	101.9217238	98.98614584	96.15054569	93.41096093
160524A00015	11/25/2016	2.71	11/25/2026	11/25/2016	132.09015	125.6191754	119.5066335	113.7306612	108.2708578	103.1081759	98.22482358	93.60417401	89.2306823
160211A00089	2/16/2016	3.91	2/16/2024	2/16/2016	119.01426	116.1952432	113.4587826	110.8019662	108.2220053	105.7162266	103.282067	100.9170678	98.61887027
160212A00037	2/12/2016	3.03	2/12/2031	2/12/2016	157.80731	144.6610671	132.7336432	121.9050927	112.0678693	103.1254834	94.99131329	87.58755047	80.84426176
160222A00005	2/22/2016	2.79	2/22/2028	2/22/2016	139.17981	130.8817309	123.1374404	115.9070353	109.1536891	102.843399	96.94475475	91.42872877	86.2684835
160222A00018	2/22/2016	2.59	2/23/2026	2/22/2016	127.30398	121.8958063	116.7500429	111.8525604	107.190065	102.7500451	98.52072128	94.49099963	90.65042798
160222A00019	2/22/2016	3.09	2/21/2031	2/22/2016	158.61576	145.3915042	133.3956932	122.5071591	112.6172879	103.6286594	95.4538407	88.01431571	81.23953418
160223A00012	2/23/2016	1.89	2/23/2023	2/23/2016	108.63263	107.0253602	105.4503948	103.9068418	102.3938403	100.9105606	99.45620251	98.02999399	96.63119008
160210A00041	2/10/2016	1.97	2/10/2023	2/10/2016	108.32485	106.7665249	105.238692	103.7405321	102.2712537	100.8300931	99.41631269	98.02920035	96.66806807
160210A00042	2/10/2016	2.57	2/10/2026	2/10/2016	126.99167	121.6392549	116.5444304	111.6934432	107.0733465	102.6719489	98.47776599	94.47997584	90.66837718

	Parallel-Shift Sensitivity Analysis												
8/31/2021					Price								
REFERENCE	SETTLEMENT	Rate	MATURITY	First/Next	-400	-300	-200	-100	Base	100	200	300	400
160210A00053	2/10/2016	1.99	2/10/2023	2/10/2016	108.35503	106.7964667	105.2683982	103.770007	102.3005014	100.8591175	99.44511775	98.05778981	96.6964456
160211A00034	2/11/2016	1.82	2/10/2023	2/11/2016	108.09849	106.5419615	105.0158952	103.5194703	102.0518961	100.6124098	99.20027468	97.81477937	96.45523665
160211A00036	2/11/2016	2.41	2/11/2026	2/11/2016	126.22899	120.8905526	115.809436	110.9718812	106.3649419	101.9764274	97.79485498	93.80940483	90.00987825
160211A00086	2/16/2016	2.8	2/16/2022	2/16/2016	103.0978	102.6107509	102.128301	101.6503897	101.1769531	100.7079285	100.2432543	99.78287004	99.32671649
151211A00041	12/11/2017	2.71	3/13/2023	12/11/2017	110.00836	108.3387592	106.7034214	105.1013659	103.5316532	101.9933787	100.4856712	99.00769117	97.55862949
151214A00051	12/14/2015	2.92	12/15/2025	12/14/2015	127.75132	122.5761139	117.6417216	112.935603	108.4459463	104.1616183	100.0721213	96.16755272	92.43856825
160209A00019	2/9/2016	2.52	2/9/2026	2/9/2016	126.73203	121.3893683	116.3037315	111.4614076	106.8494846	102.4558029	98.26890782	94.2780051	90.47291911
160209A00049	2/9/2016	1.92	2/9/2023	2/9/2016	108.23288	106.6785813	105.1546354	103.6602301	102.1945792	100.7569235	99.34653048	97.96269225	96.60472507
160210A00021	2/10/2016	1.97	2/10/2023	2/10/2016	108.32485	106.7665249	105.238692	103.7405321	102.2712537	100.8300931	99.41631269	98.02920035	96.66806807
160210A00036	2/10/2016	1.77	2/10/2023	2/10/2016	108.23177	106.6707316	105.1402953	103.6396353	102.1679561	100.7244898	99.30849544	97.91925725	96.55608397
150909A00003	9/9/2015	3.11	9/9/2025	9/9/2015	126.97589	122.1443079	117.5258386	113.1099112	108.8865352	104.8462689	100.980186	97.27984439	93.73725747
151002A00038	10/2/2015	2.81	10/2/2025	10/2/2015	126.0393	121.1498678	116.479143	112.0161254	107.7504287	103.6722459	99.77231382	96.04187907	92.47266733
151008A00025	10/8/2015	2.91	10/8/2025	10/8/2015	126.58258	121.6616961	116.9615452	112.470981	108.17949	104.0771472	100.15458	96.40293347	92.81383931
151027A00021	10/27/2015	2.02	10/27/2021	10/27/2015	100.90861	100.748599	100.5891006	100.4301113	100.2716287	100.1136505	99.95617416	99.79919739	99.64271781
151211A00037	12/11/2017	2.69	1/11/2023	12/11/2017	108.88591	107.4153647	105.9720306	104.5552191	103.1642602	101.7985063	100.4573305	99.14012655	97.84630731
151211A00040	12/11/2017	2.7	2/13/2023	12/11/2017	109.48289	107.9054294	106.3590002	104.8427667	103.3559185	101.8976736	100.4672772	99.06400063	97.68714003
150601A00682	6/1/2015	2.3	2/9/2022	6/1/2015	102.72191	102.2564958	101.795299	101.3382608	100.885325	100.4364364	99.99154103	99.55058563	99.11351796
150601A00775	6/1/2015	2.28	11/12/2021	6/1/2015	101.21123	101.0055093	100.8006357	100.5966045	100.3934105	100.1910485	99.98951329	99.78879985	99.58890308
150601A00998	6/1/2015	5.37	10/25/2034	6/1/2015	213.48788	191.2960613	171.7704783	154.5699602	139.3989649	126.0012495	114.1544451	103.6654069	94.36622392
150731A00016	7/31/2015	3.04	7/31/2025	7/31/2015	125.98862	121.3120353	116.8367016	112.5528843	108.4513757	104.5234596	100.760883	97.15582844	93.7008889
150731A00020	7/31/2015	2.47	7/29/2022	7/31/2015	105.80619	104.8161859	103.8446523	102.8910787	101.9549707	101.0358518	100.1332628	99.24676093	98.375919
150812A00040	8/12/2015	2.94	8/12/2025	8/12/2015	125.76331	121.0511855	116.5435402	112.2304005	108.1023369	104.1504276	100.3662289	96.74174685	93.26941063
150211A00005	2/11/2015	2.35	2/15/2022	2/11/2015	102.8671	102.3836309	101.9047068	101.4302632	100.9602375	100.4945681	100.0331944	99.57605718	99.12309819
150601A00356	6/1/2015	3.66	9/22/2023	6/1/2015	115.33955	113.0283887	110.776136	108.5808848	106.4408006	104.3541224	102.319159	100.3342857	98.39794113
150601A00406	6/1/2015	3.71	1/17/2024	6/1/2015	117.76089	115.056433	112.4286872	109.8750343	107.3929655	104.9800721	102.634041	100.35265	98.13376395
150601A00625	6/1/2015	3.96	12/9/2044	6/1/2015	253.84489	210.0784562	174.9567462	146.6834953	123.8473374	105.3373819	90.27767909	77.97627175	67.88552637
150601A00656	6/1/2015	2.59	12/17/2021	6/1/2015	101.89225	101.5853872	101.280388	100.9772307	100.6758985	100.3763749	100.0786436	99.78268849	99.48849354
150601A00677	6/1/2015	2.39	1/30/2025	6/1/2015	120.88752	116.902521	113.0708629	109.3858276	105.8410251	102.4303793	99.14811045	95.9887191	92.94697092
140314A00003	3/14/2014	3.32	3/14/2024	3/14/2014	117.97632	115.0835605	112.2778001	109.5558805	106.9147816	104.3516125	101.8636052	99.44810842	97.10258186
140923A00069	9/23/2014	2.63	9/23/2021	9/23/2014	100.40582	100.3416313	100.2775397	100.2135409	100.1496346	100.0858206	100.0220987	99.95846872	99.8949305
140923A00070	9/23/2014	2.88	9/23/2022	9/23/2014	107.24713	106.0734749	104.9254675	103.8022729	102.7030929	101.6271631	100.5737513	99.54215578	98.53170379
140930A00104	9/30/2016	3.23	9/30/2021	9/30/2016	100.57957	100.4957622	100.4120929	100.328561	100.245166	100.1619076	100.0787855	99.99579937	99.91294895
141117A00011	11/17/2014	3.81	11/17/2034	11/17/2014	190.53855	169.7962537	151.6028685	135.6274079	121.5836487	109.2238596	98.33343823	88.72632045	80.24104655

	Parallel-Shift Sensitivity Analysis												
8/31/2021					Price								
REFERENCE	SETTLEMENT	Rate	MATURITY	First/Next	-400	-300	-200	-100	Base	100	200	300	400
141215A00062	12/15/2014	2.65	12/16/2024	12/15/2014	121.23311	117.3876411	113.6854618	110.1204004	106.6865898	103.3784511	100.1906771	97.11821735	94.15626391
120531A00008	5/31/2012	2.27	5/31/2022	5/31/2012	104.61072	103.8076034	103.0167746	102.2379547	101.470872	100.7152628	99.97087142	99.23744956	98.51475628
120614A00005	6/14/2012	2.22	6/15/2022	6/14/2012	104.91364	104.0621714	103.2244901	102.4002677	101.5891815	100.7909192	100.0051783	99.2316656	98.47009721
130211A00016	2/11/2013	2.27	2/15/2023	2/11/2013	108.88157	107.3020334	105.7537062	104.2357405	102.747318	101.2876497	99.85597388	98.45155537	97.07368413
130211A00026	2/11/2013	2.27	2/15/2023	2/11/2013	108.88157	107.3020334	105.7537062	104.2357405	102.747318	101.2876497	99.85597388	98.45155537	97.07368413
130211A00035	2/11/2013	2.27	2/15/2023	2/11/2013	108.88157	107.3020334	105.7537062	104.2357405	102.747318	101.2876497	99.85597388	98.45155537	97.07368413
130501A00021	5/1/2013	2.27	5/1/2023	5/1/2013	110.11125	108.2932477	106.5147194	104.7744426	103.0712503	101.4040228	99.77168604	98.17320875	96.60760042
081028A00036	10/30/2008	4.22	10/30/2023		117.48527	115.0324395	112.6443216	110.318706	108.0534993	105.8467098	103.6964005	101.6007174	99.55788711
180404A00037	4/6/2018	2.51	4/6/2028	4/6/2022	139.0505	130.5632794	122.7221751	115.6479361	109.5664851	104.7432696	101.4530072	99.76253537	99.00496169
180406A00015	4/10/2018	2.61	4/10/2028	4/10/2023	139.8545	131.3227574	123.4328698	116.2920423	110.1125264	105.1455388	101.5696041	99.19862236	97.47896631
180925A00059	9/25/2018	3.01	9/25/2028	9/25/2023	145.51249	136.1563512	127.5217583	119.6811872	112.8080289	107.1272278	102.8206107	99.77348378	97.51202083
181031A00046	11/2/2018	3.05	10/29/2021		101.11016	100.9442723	100.7789272	100.6141238	100.4498596	100.2861321	100.1229386	99.96027653	99.79814333
181203A00046	12/4/2018	2.8	12/4/2023	9/3/2021	114.84844	112.3157416	109.8524227	107.4562491	105.1311665	102.9245812	101.0385457	100.0159794	99.96568034
181210A00035	12/12/2018	2.65	1/16/2024	10/15/2021	115.19807	112.5291787	109.9360964	107.4168181	104.9810801	102.7020557	100.8329199	99.93644256	99.779038
190104A00032	1/4/2019	2.33	1/4/2024	9/7/2021	114.20521	111.5861171	109.0405346	106.567287	104.1867519	102.0147613	100.3965368	99.89453642	99.80560441
190426A00017	4/26/2019	2.31	4/26/2022	10/26/2021	104.03806	103.3430298	102.6572647	101.9805784	101.3127912	100.655175	100.0789118	99.84427568	99.69050349
190426A00018	4/26/2019	2.14	4/26/2024	10/26/2021	115.43283	112.4393956	109.5396128	106.7366336	104.0850194	101.7718819	100.2210897	99.81233112	99.65783506
190426A00024	4/26/2019	2.24	4/26/2022	10/26/2021	103.99113	103.2962825	102.6106936	101.9341818	101.2665685	100.6096882	100.0504194	99.83343085	99.67967191
190509A00033	5/9/2019	2.41	5/9/2022	11/9/2021	104.33263	103.5972628	102.8722455	102.1573593	101.4523934	100.7583889	100.1329494	99.81601492	99.6224639
190509A00063	5/9/2019	2.11	5/9/2024	11/9/2021	115.538	112.5023955	109.5628487	106.7235227	104.045072	101.7259368	100.1998078	99.7489828	99.55495905
190510A00019	5/10/2019	2.39	5/10/2022	11/10/2021	104.33595	103.5975491	102.8695795	102.1518242	101.4440696	100.7474885	100.1232912	99.81005188	99.61406196
190513A00033	5/13/2019	2.35	5/15/2023	5/13/2022	110.48176	108.6186046	106.7966108	105.0145158	103.2749004	101.6230297	100.2537428	99.3349933	98.63387564
190513A00065	5/13/2019	2.01	5/13/2022	11/15/2021	104.19073	103.4428311	102.7056457	101.9789468	101.2625307	100.561522	100.0026572	99.75236126	99.55225839
190516A00018	5/16/2019	2.03	5/16/2024	11/16/2021	115.40851	112.3530157	109.3948747	106.5401171	103.8595023	101.5695994	100.1237351	99.71248049	99.50084785
190516A00028	5/16/2019	2.03	5/16/2024	11/16/2021	115.40851	112.3530157	109.3948747	106.5401171	103.8595023	101.5695994	100.1237351	99.71248049	99.50084785
190522A00029	5/22/2019	2.41	5/22/2024	5/22/2023	116.5983	113.5070237	110.5143623	107.61778	104.8416681	102.3019163	100.1498306	98.34496136	96.70206862
190523A00048	5/23/2019	2.32	5/23/2024	5/23/2023	116.35192	113.261082	110.268953	107.3734373	104.6047547	102.0898752	99.97114162	98.18458633	96.54548568
190523A00050	5/23/2019	2.3	5/23/2023	5/23/2022	110.50387	108.6169695	106.772163	104.9680998	103.2041727	101.5146813	100.1454501	99.2592541	98.54570466
190529A00115	5/29/2019	1.92	5/29/2024	11/29/2021	115.27196	112.1780926	109.1840621	106.2994484	103.6114717	101.3628096	100.029317	99.64797838	99.40192909
190530A00057	5/30/2019	1.71	5/30/2024	11/30/2021	115.11891	112.0140189	109.0097479	106.1180892	103.4372709	101.2275717	99.97876035	99.62556251	99.37673352
190530A00092	5/30/2019	1.69	5/30/2024	11/30/2021	115.06018	111.9561474	108.9527416	106.0626234	103.3869722	101.1905705	99.96622213	99.62047063	99.37171367
190530A00108	5/30/2019	1.88	5/30/2024	11/30/2021	115.16868	112.073214	109.0777857	106.1932401	103.5124866	101.2872432	100.0006671	99.63468046	99.38608918
190603A00067	6/3/2019	1.72	6/3/2024	9/3/2021	114.75388	111.651872	108.6507265	105.76745	103.1219493	101.0083874	100.0009869	99.96478794	99.95671126

	Parallel-Shift Sensitivity Analysis												
8/31/2021					Price								
REFERENCE	SETTLEMENT	Rate	MATURITY	First/Next	-400	-300	-200	-100	Base	100	200	300	400
190605A00032	6/5/2019	1.92	6/3/2022	9/3/2021	104.38966	103.578341	102.7795875	101.9931083	101.2187235	100.4703631	99.99178571	99.96967831	99.96156799
190606A00030	6/6/2019	1.48	6/6/2024	9/7/2021	114.53661	111.4180694	108.4017183	105.5105738	102.8854053	100.84576	99.99042324	99.9611276	99.94462879
190606A00032	6/6/2019	1.75	6/6/2024	9/7/2021	114.88315	111.7697744	108.7577761	105.8632734	103.202039	101.061549	100.0048484	99.95431382	99.93792487
190606A00054	6/6/2019	1.8	6/6/2024	9/7/2021	115.03073	111.915193	108.9009962	106.0023418	103.3270498	101.1505233	100.0188838	99.95514477	99.93875511
190607A00016	6/7/2019	1.75	6/7/2024	9/7/2021	114.89682	111.780081	108.7649033	105.8675107	103.2039736	101.0618042	100.0039376	99.95074078	99.93158224
190607A00022	6/7/2019	1.5	6/7/2024	9/7/2021	114.60917	111.4863853	108.4659439	105.5699436	102.9357159	100.8780527	99.99197783	99.95719405	99.93792565
190607A00025	6/7/2019	1.48	6/7/2024	9/7/2021	114.54995	111.4280378	108.4085019	105.5144645	102.8869607	100.8454363	99.98881096	99.95680623	99.93753817
190610A00069	6/10/2019	2.04	6/10/2022	9/10/2021	104.59047	103.7570215	102.9368244	102.1295584	101.3349824	100.5626245	100.0062597	99.95047929	99.92298373
190613A00024	6/13/2019	2.18	6/13/2024	6/13/2023	116.2572	113.1014612	110.0480899	107.0966294	104.2927014	101.7783542	99.66524116	97.85479281	96.1721064
190702A00051	7/2/2019	1.46	7/2/2024	10/4/2021	114.82229	111.6170272	108.5189802	105.5558945	102.8806386	100.8220234	99.94925494	99.8386739	99.7532666
190703A00023	7/3/2019	1.9	6/30/2022	9/30/2021	104.80092	103.9054231	103.0251598	102.1597462	101.3090369	100.4923835	99.97868749	99.88365517	99.80091361
190712A00044	7/12/2019	1.73	7/12/2022	10/12/2021	104.94691	104.0122609	103.0942014	102.1922889	101.3065708	100.4648902	99.95502253	99.82161136	99.7060373
190712A00047	7/12/2019	1.54	7/12/2024	10/12/2021	115.19804	111.9555527	108.8222461	105.8226464	103.098569	100.961749	99.95738872	99.79952092	99.68397056
190725A00018	7/25/2019	1.78	7/25/2024	10/25/2021	115.64036	112.3611267	109.1930264	106.1561501	103.3763042	101.1429605	99.97762405	99.75923619	99.60836877
190725A00022	7/25/2019	1.7	7/25/2022	10/25/2021	105.12765	104.1519161	103.1942211	102.2540626	101.3315445	100.4589984	99.9358736	99.76959175	99.61847933
190731A00008	7/31/2019	1.53	7/31/2024	11/1/2021	115.41917	112.1132827	108.9207402	105.8684027	103.1045257	100.9450475	99.9276949	99.72695465	99.56496592
190801A00025	8/1/2019	1.68	8/1/2024	11/1/2021	115.42287	112.1249529	108.9399107	105.8939177	103.1336741	100.9739987	99.92609092	99.69346168	99.52380623
190805A00014	8/5/2019	1.49	8/5/2024	8/5/2022	115.35986	112.0390317	108.8328839	105.7723138	103.0162158	100.845429	99.41152202	98.41582364	97.52474994
190807A00035	8/7/2019	1.45	8/7/2024	11/8/2021	114.77992	111.4730343	108.2812404	105.247448	102.567345	100.6087925	99.83729697	99.63635659	99.45591142
190807A00056	8/7/2019	1.49	8/7/2024	11/8/2021	114.90556	111.5967303	108.4027866	105.3634431	102.6656377	100.6679492	99.84950262	99.64365672	99.46320168
190809A00026	8/9/2019	1.52	8/9/2024	11/9/2021	115.02533	111.7083331	108.5065525	105.4576982	102.7427523	100.7134967	99.85301632	99.63224413	99.44094592
190812A00020	8/12/2019	1.47	8/12/2024	11/12/2021	114.9058	111.581217	108.3727771	105.3225659	102.6232162	100.6376251	99.83148947	99.60949955	99.41009576
190812A00026	8/12/2019	1.48	8/12/2024	11/12/2021	114.93737	111.6122897	108.4033066	105.351695	102.6479107	100.6525549	99.83473965	99.61151735	99.4121106
190812A00027	8/12/2019	1.71	8/12/2024	8/12/2022	115.66336	112.3269713	109.1058479	106.0256683	103.2300094	100.9921411	99.49237566	98.463439	97.55490022
190814A00019	8/14/2019	1.46	8/14/2024	11/15/2021	114.8994	111.5686208	108.3545032	105.3002622	102.6012152	100.6227258	99.828158	99.60748985	99.40809164
190820A00068	8/20/2019	1.39	8/20/2024	11/22/2021	114.75225	111.4048841	108.1760299	105.116054	102.4378336	100.5226689	99.79421954	99.56135265	99.34305198
190821A00024	8/21/2019	1.65	8/21/2024	8/22/2022	115.59249	112.2287699	108.9825327	105.8840575	103.0902082	100.880714	99.40909286	98.37865536	97.4548457
190821A00046	8/21/2019	1.44	8/21/2024	11/22/2021	114.92383	111.5706166	108.3358307	105.26553	102.5613574	100.5929521	99.80955711	99.57241224	99.35409646
190823A00023	8/23/2019	1.37	8/23/2024	11/23/2021	114.72557	111.3691825	108.1321726	105.0673622	102.3929665	100.4943824	99.78061165	99.53842913	99.30933277
190828A00011	8/28/2019	1.1	8/28/2024	11/29/2021	114.40957	111.0308411	107.7746165	104.7094856	102.0887825	100.3277737	99.73759658	99.49338088	99.2558853
190828A00021	8/28/2019	1.36	8/28/2024	11/29/2021	114.75509	111.3825047	108.130581	105.0540819	102.3749021	100.4805018	99.771776	99.52217771	99.28499576
190830A00028	8/30/2019	1.39	8/30/2024	11/30/2021	114.87602	111.4952135	108.2353341	105.1486088	102.4504302	100.5211148	99.77347934	99.51111587	99.26313056
190909A00021	9/9/2019	1.2	9/9/2024	9/9/2021	114.87985	111.455391	108.155459	105.0413827	102.348056	100.468887	99.96600929	99.94118484	99.91638588

	Parallel-Shift Sensitivity Analysis												
8/31/2021					Price								
REFERENCE	SETTLEMENT	Rate	MATURITY	First/Next	-400	-300	-200	-100	Base	100	200	300	400
190911A00012	9/11/2019	1.27	9/11/2024	9/13/2021	115.13271	111.6977908	108.3872309	105.2554668	102.5216768	100.5648039	99.96562788	99.93803202	99.91046541
190917A00040	9/17/2019	1.63	9/17/2024	9/17/2021	115.88589	112.4316199	109.1008931	105.9291508	103.0874013	100.9095425	99.97310971	99.90939902	99.86257926
190924A00014	9/24/2019	1.54	9/24/2024	9/24/2021	115.68301	112.2096732	108.86186	105.6830581	102.8649829	100.759546	99.94730269	99.87614791	99.81000133
191008A00020	10/8/2019	1.58	10/8/2024	10/11/2022	115.99548	112.4729956	109.0789671	105.8560351	102.9901611	100.7513652	99.21357846	98.06882891	97.02717117
191008A00028	10/11/2019	1.08	10/8/2024	10/8/2021	114.8376	111.3218061	107.9388379	104.7715936	102.0963579	100.3356873	99.87429357	99.76784784	99.66329772
191011A00020	10/11/2019	1.53	10/11/2024	10/12/2021	115.86671	112.3370043	108.9367271	105.7132576	102.8671622	100.7564267	99.91240534	99.78002905	99.66746824
191017A00012	10/17/2019	1.43	10/17/2022	10/18/2021	106.15519	104.9097413	103.6933342	102.5049747	101.3496249	100.3338255	99.90102446	99.77329281	99.64955286
191029A00020	10/29/2019	1.51	10/31/2022	11/1/2021	106.46569	105.1736624	103.9127805	102.6819379	101.4849138	100.4139283	99.89319302	99.72368972	99.56170498
191121A00031	11/21/2019	1.54	11/21/2024	11/21/2022	116.95923	113.2675019	109.7149689	106.3437411	103.3338709	100.9446245	99.2556829	97.98130961	96.82752446
191209A00045	12/9/2019	1.56	12/9/2024	12/9/2022	117.26833	113.513679	109.9024688	106.478657	103.4238278	100.9902855	99.24869918	97.92034725	96.71664332
191211A00013	12/11/2019	1.57	12/11/2024	12/12/2022	117.32983	113.56784	109.949663	106.5185925	103.4549984	101.011984	99.26384744	97.93328375	96.7292165
200128A00045	1/28/2020	1.45	1/28/2025	10/28/2021	116.95169	113.0585131	109.3229038	105.8223457	102.8101906	100.6641109	99.86698781	99.69577306	99.53678281
200130A00029	1/30/2020	1.3	1/30/2023	11/1/2021	107.35633	105.8381378	104.3490706	102.8887557	101.477608	100.3051641	99.85443491	99.6893988	99.52745289
200131A00023	1/31/2020	1.56	1/31/2025	1/31/2023	117.3942	113.4834664	109.7297121	106.1976634	103.1062563	100.6895258	98.92490631	97.49558911	96.1590493
200207A00008	2/7/2020	1.35	2/7/2025	2/7/2023	117.28271	113.3345181	109.5477453	105.9994269	102.9246685	100.5372417	98.77879578	97.33372847	95.97704226
200221A00040	2/21/2020	1.28	2/21/2025	11/22/2021	116.63374	112.6627077	108.8601515	105.3348943	102.389402	100.4281555	99.76516049	99.53704121	99.31878012
200221A00041	2/21/2020	1.53	2/21/2025	2/21/2023	117.57187	113.583495	109.7590991	106.1718702	103.0506394	100.611392	98.80555078	97.32156796	95.93026782
200221A00045	2/21/2020	1.03	2/21/2025	11/22/2021	116.27081	112.2915688	108.4849557	104.980359	102.109981	100.2922131	99.73931392	99.51547805	99.29689383
200227A00018	2/27/2020	0.99	2/27/2025	2/28/2022	116.19593	112.1968296	108.3735658	104.8646449	102.0137991	100.2035511	99.41592565	98.92105362	98.44324541
200227A00024	2/27/2020	0.85	2/27/2025	11/29/2021	115.66657	111.677493	107.8692673	104.4094726	101.6769205	100.1013145	99.67270843	99.43327438	99.19587463
200227A00025	2/27/2020	1.09	2/27/2025	2/27/2023	116.57404	112.567842	108.7345799	105.1936488	102.2288821	99.98851774	98.29726413	96.83276153	95.42994024
200228A00090	2/28/2020	1	2/28/2025	11/29/2021	115.66765	111.6901116	107.8920969	104.437625	101.7007989	100.1101889	99.67482632	99.43566989	99.19863398
200228A00095	2/28/2020	1.15	2/28/2023	11/29/2021	107.34417	105.7345547	104.1575671	102.6140894	101.1565757	100.0934564	99.71323717	99.47413134	99.23700832
200228A00096	2/28/2020	1.28	2/28/2022	11/29/2021	102.54737	102.0267109	101.5113147	101.0011011	100.4961723	100.0375781	99.75609264	99.51741416	99.28009317
200303A00035	3/3/2020	0.81	3/3/2025	3/3/2023	115.559	111.5591872	107.7441156	104.2917715	101.5158647	99.45120152	97.83480884	96.37957773	94.97161861
200306A00069	3/6/2020	0.58	3/6/2025	3/7/2022	114.71599	110.7232655	106.928935	103.5732478	101.1031127	99.78031146	99.16338369	98.66058931	98.16544306